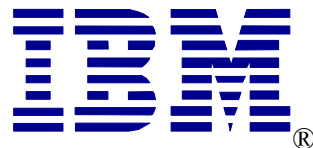


**TPC Benchmark™ C**  
**Full Disclosure Report**  
**for**  
**IBM® @server™ xSeries™ 440**  
**using**  
**Microsoft® SQL Server 2000 Enterprise Edition**  
**and**  
**Microsoft Windows® Server 2003, Datacenter Edition**

**TPC-C Revision 5.1**

**Submitted for Review**  
**March 26, 2003**



## **First Edition - March 2003**

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### ***Notes***

<sup>1</sup> GHz and MHz only measures microprocessor internal clock speed, not application performance. Many factors affect application performance.

<sup>2</sup> When referring to hard disk capacity, GB, or gigabyte, means one thousand million bytes. Total user-accessible capacity may be less.

---

## Abstract

IBM Corporation conducted the TPC Benchmark™ C on the IBM® @server™ xSeries™ 440 configured as a client/server system. This report documents the full disclosure information required by the TPC Benchmark C Standard Specification, Revision 5.1, including the methodology used to achieve the reported results. All testing fully complied with this revision level.

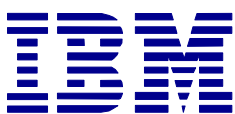
The software used on the xSeries 440 system includes Microsoft® Windows® .Server2003, Datacenter Edition with QFE, and Microsoft SQL Server 2000 Enterprise Edition, SP3 with QFE.

Two standard metrics, transactions per minute-C (tpmC) and price per tpmC (\$/tpmC), are reported as required by the TPC Benchmark C Standard Specification.

The benchmark results are summarized in the following table.

| Hardware                   | Software                                                                                                                                  | Total System Cost | tpmC       | \$/tpmC | Total Solution Availability Date |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------|---------|----------------------------------|
| IBM @server<br>xSeries 440 | Microsoft SQL Server<br>2000 Enterprise Edition<br>SP3 with QFE<br><br>Microsoft Windows<br>Server 2003<br>Datacenter Edition<br>with QFE | \$1,674,017       | 151,744.13 | \$11.03 | Sept. 25, 2003                   |

The results of the benchmark and test methodology used were audited by Bradley J. Askins of InfoSizing, Inc. The auditor's attestation letter is contained in Section 9 of this report.



**IBM® @server™ xSeries™ 440 c/s**  
with  
**Microsoft® SQL Server 2000**

TPC-C Revision 5.1

Report Date: March 26, 2003

Total System Cost

TPC-C Throughput

Price/Performance

Availability Date

**\$1,674,017**

**151,744.13 tpmC**

**\$11.03 / tpmC**

**Sept. 25, 2003**

Database Server

Database Manager

Operating  
System

Other Software

Number  
of Users

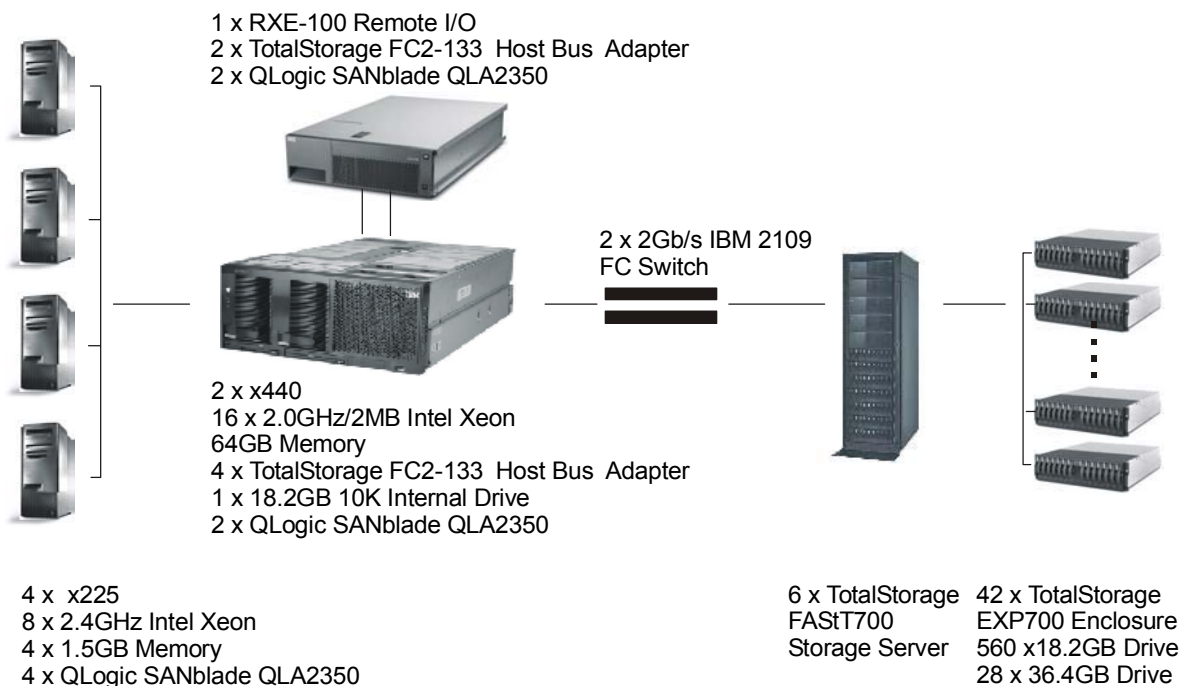
**Processors/Cores/  
Threads  
16/16/32  
Intel Xeon 2.0GHz**

**Microsoft  
SQL Server 2000  
Enterprise Edition  
SP3 w/QFE**

**Microsoft  
Windows®  
Server 2003  
Datacenter  
Edition w/QFE**

**Microsoft Visual C++  
6.0 Win32  
Microsoft COM+**

**124,800**



| System Component         | Qty      | Server:                 | Qty   | Each Client:            |
|--------------------------|----------|-------------------------|-------|-------------------------|
| Processors/Cores/Threads | 16/16/32 | 2.0GHz Xeon Processor   | 2/2/4 | 2.4GHz Xeon DP          |
| Cache                    |          | MP w/2MB L3 Cache       |       | w/512KB L2 Cache        |
| Memory                   | 64       | 1GB ECC SDRAM           | 1     | 1.5GB Memory            |
| Disk Controllers         | 6        | TotalStorage FC2-133    | 1     | Ultra320 SCSI Interface |
| Disk Drives              | 560      | Host Bus Adapter        |       |                         |
|                          | 28       | 18.2GB (15000 rpm)      | 1     | 18.2GB (10000 rpm)      |
|                          | 1        | 36.4GB (15000 rpm)      |       |                         |
|                          |          | 18.2GB (10000 rpm)      |       |                         |
| Total Storage            |          | 10445.81 GB             |       |                         |
| Tape Drive               | 1        | 20/40GB SCSI Tape Drive |       |                         |



| Numerical Quantities Summary                                         |                 |               |                      |
|----------------------------------------------------------------------|-----------------|---------------|----------------------|
| MQTh, Computed Maximum Qualified Throughput: 151,744.13 tpmC         |                 |               |                      |
| Response Times<br>(in seconds)                                       | 90th Percentile | Average       | Maximum              |
| New-Order                                                            | 1.21            | 0.76          | 7.86                 |
| Payment                                                              | 1.16            | 0.72          | 7.27                 |
| Order-Status                                                         | 1.17            | 0.73          | 6.89                 |
| Delivery (Interactive)                                               | 0.74            | 0.40          | 5.52                 |
| Delivery (Deferred)                                                  | 0.19            | 0.14          | 4.44                 |
| Stock-Level                                                          | 1.49            | 0.98          | 7.09                 |
| Menu                                                                 | 0.74            | 0.40          | 5.53                 |
| Response time delay added for emulated components: 0.1 Seconds       |                 |               |                      |
| Transaction Mix (in percent of total transactions)                   |                 |               | Percent              |
| New-Order                                                            |                 |               | 44.96                |
| Payment                                                              |                 |               | 43.02                |
| Order-Status                                                         |                 |               | 4.00                 |
| Delivery                                                             |                 |               | 4.01                 |
| Stock-Level                                                          |                 |               | 4.01                 |
| Keying/Think Times<br>(in seconds)                                   | Minimum         | Average       | Maximum              |
| New-Order                                                            | 18.00 / 0.00    | 18.01 / 12.05 | 18.04 / 120.51       |
| Payment                                                              | 3.00 / 0.00     | 3.01 / 12.05  | 3.04 / 120.51        |
| Order-Status                                                         | 2.00 / 0.00     | 2.01 / 10.04  | 2.03 / 100.51        |
| Delivery                                                             | 2.00 / 0.00     | 2.01 / 5.05   | 2.03 / 50.51         |
| Stock-Level                                                          | 2.00 / 0.00     | 2.01 / 5.05   | 2.04 / 50.51         |
| Test Duration                                                        |                 |               |                      |
| Ramp-up time                                                         |                 |               | 46 minutes 2 seconds |
| Measurement interval                                                 |                 |               | 120 minutes          |
| Number of checkpoints                                                |                 |               | 4                    |
| Checkpoint interval                                                  |                 |               | 30 minutes           |
| Number of transactions (all types) completed in measurement interval |                 |               | 42,128,981           |

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---

## Preface

The TPC Benchmark™ C was developed by the Transaction Processing Performance Council (TPC). The TPC was founded to define transaction processing benchmarks and to disseminate objective, verifiable performance data to the industry. This full disclosure report is based on the TPC Benchmark C Standard Specification Version 5.1.

The TPC describes this benchmark in Clause 0.1 of the specification as follows:

TPC Benchmark C is an On Line Transaction Processing (OLTP) workload. It is a mixture of read-only and update-intensive transactions that simulate the activities found in complex OLTP application environments. It does so by exercising a breadth of system components associated with environments, which are characterized by:

- The simultaneous execution of multiple transaction types that span a breadth of complexity
- On-line and deferred transaction execution modes
- Multiple on-line terminal sessions
- Moderate system and application execution time
- Significant disk input/output
- Transaction integrity (ACID properties)
- Non-uniform distribution of data access through primary and secondary keys
- Databases consisting of many tables with a wide variety of sizes, attributes and relationships
- Contention on data access and update

The performance metric reported by TPC-C is a “business throughput” measuring the number of orders processed per minute. Multiple transactions are used to simulate the business activity of processing an order, and each transaction is subject to a response time constraint. The performance metric for this benchmark is expressed in transactions-per-minute-C (tpmC). To be compliant with the TPC-C standard, all references to tpmC results must include the tpmC rate, the associated price-per-tpmC, and the availability date of the priced configuration.

Despite the fact that this benchmark offers a rich environment that emulates many OLTP applications, this benchmark does not reflect the entire range of OLTP requirements. In addition, the extent to which a customer can achieve the results reported by a vendor is highly dependent on how closely TPC-C approximates the customer application. The relative performance of systems derived from this benchmark does not necessarily hold for other workloads or environments. Extrapolations to any other environment are not recommended.

Benchmark results are highly dependent upon workload, specific application requirements, and systems design and implementation. Relative system performance will vary as a result of these and other factors. Therefore, TPC-C should not be used as a substitute for a specific customer application benchmarking when critical capacity planning and/or product evaluation decisions are contemplated.

---

## General Items

### Benchmark Sponsor

*A statement identifying the benchmark sponsor(s) and other participating companies must be provided.*

This benchmark was sponsored by International Business Machines Corporation.

### Application Code Disclosure and Definition Statements

*The application program (as defined in Clause 2.1.7) must be disclosed. This includes, but is not limited to, the code implementing the five transactions and the terminal input and output functions.*

Appendix A contains all source code implemented in this benchmark.

### Parameter Settings

*Settings must be provided for all customer-tunable parameters and options that have been changed from the defaults found in actual products, including but not limited to:*

- Database tuning options
- Recovery/commit options
- Consistency/locking options
- Operating system and application configuration parameters.
- Compilation and linkage options and run-time optimizations used to create/install applications, OS, and/or databases.

*This requirement can be satisfied by providing a full list of all parameters and options.*

Appendix C contains the tunable parameters for the database, the operating system, and the transaction monitor.

### Configuration Diagrams

*Diagrams of both measured and priced configurations must be provided, accompanied by a description of the differences.*

The configuration diagrams for the tested and priced systems are provided on the following pages.

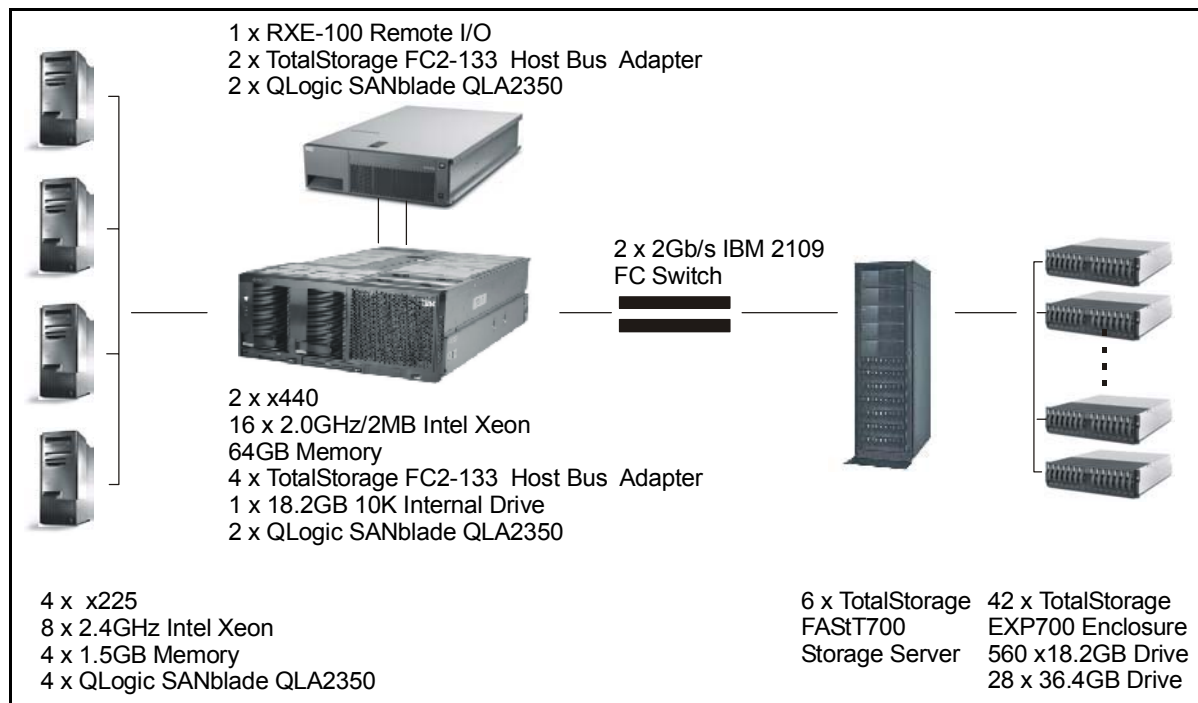
The Remote Terminal Emulator (RTE) used for these TPC Benchmark C tests is the Microsoft BenchCraft RTE. Under Version 5.1, the components of the configuration being emulated by the RTE are the workstations and the Ethernet hubs. Appendix C contains a listing of the RTE scripts and inputs used in the benchmark testing.

The measured configuration used four IBM xSeries 225 systems, each configured with two 2.4GHz Xeon processors, as clients, which executed the terminal I/O and submitted transactions to COM+ servers, which were also running on the clients. These COM+ servers forwarded the transaction requests to the server, and returned the results to the RTE. Microsoft SQL Server 2000 Enterprise Edition was the DBMS executing on the server.

The server's disk subsystem capability was enhanced by using the IBM RXE-100 Expansion Enclosure to increase the number of PCI buses available. The RXE-100 added twelve PCI slots and six PCI buses to the server. The RAID and LAN controllers were optimally distributed between the server and the RXE-100.

| Controller                             | PCI Slot Location       |
|----------------------------------------|-------------------------|
| TotalStorage FC2-133 Host Bus Adapter  | Primary Server Slot 1   |
| TotalStorage FC2-133 Host Bus Adapter  | Primary Server Slot 5   |
| TotalStorage FC2-133 Host Bus Adapter  | Secondary Server Slot 1 |
| TotalStorage FC2-133 Host Bus Adapter  | Secondary Server Slot 3 |
| QLogic SANblade QLA2350 FC -VI Adapter | Primary Server Slot 2   |
| QLogic SANblade QLA2350 FC -VI Adapter | Secondary Server Slot 2 |
| TotalStorage FC2-133 Host Bus Adapter  | RXE-100 Slot 4          |
| TotalStorage FC2-133 Host Bus Adapter  | RXE-100 Slot 10         |
| QLogic SANblade QLA2350 FC -VI Adapter | RXE-100 Slot 6          |
| QLogic SANblade QLA2350 FC -VI Adapter | RXE-100 Slot 12         |

## Measured Configuration



The measured and priced configuration are identical.

---

## Clause 1: Logical Database Design Related Items

### Table Definitions

*Listings must be provided for all table definition statements and all other statements used to set up the database.*  
Appendix B contains the code used to define and load the database tables.

### Physical Organization of the Database

*The physical organization of tables and indexes within the database must be disclosed.*  
Physical space was allocated to Microsoft SQL Server on the server disks as detailed in Figure 4-2.

### Insert and Delete Operations

*It must be ascertained that insert and/or delete operations to any of the tables can occur concurrently with the TPC-C transaction mix. Furthermore, any restriction in the SUT database implementation that precludes inserts beyond the limits defined in Clause 1.4.11 must be disclosed. This includes the maximum number of rows that can be inserted and the maximum key value for these new rows.*

All insert and delete functions were fully operational during the running of the benchmark. The space required for an additional 5 percent of the initial table cardinality was allocated to Microsoft SQL Server 2000 and priced as static space.

### Horizontal or Vertical Partitioning

*While there are few restrictions placed upon horizontal or vertical partitioning of tables and rows in the TPC-C benchmark (see Clause 1.6), any such partitioning must be disclosed.*  
Partitioning was not used in this benchmark.

### Replication

*Replication tables, if used, must be disclosed (see Clause 1.4.6).*  
Replication was not used in this benchmark.

### Table Attributes

*Additional and/or duplicated attributes in any table must be disclosed, along with a statement on the impact on performance (see Clause 1.4.7).*  
No additional attributes were used in this benchmark.

---

## Clause 2: Transaction and Terminal Profiles Related Items

### Random Number Generation

*The method of verification for the random number generation must be disclosed.*

The seeds and offsets for the random number generator were collected and verified to be different for each driver. The auditor selected samples of the generated numbers from the database. The samples were verified to have no discernible patterns.

### Screen Layout

*The actual layouts of the terminal input/out screens must be disclosed.*

All screen layouts followed the TPC Benchmark C Standard Specification.

### Terminal Verification

*The method used to verify that the emulated terminals provide all the features described in Clause 2.2.2.4 must be explained. Although not specifically priced, the type and model of the terminals used must for the demonstration in 8.1.3.3 must be disclosed and commercially available (including supporting software and maintenance).*

The auditor verified terminal features by direct experimentation. The benchmarked configuration uses Microsoft Internet Explorer 6.0 and HTML scripts as the terminal interface.

### Intelligent Terminals

*Any usage of presentation managers or intelligent terminals must be explained.*

The terminals emulated in the priced configuration are IBM PC desktop computer systems. All processing of the input/output screens was handled by the x225 clients. The screen input/output was managed via HTML strings that comply with the HTML Version 2.0 specification. A listing of the code used to implement the intelligent terminals is provided in Appendix A. All data manipulation was handled by the x440 database server.

### Transaction Profiles

*The percentage of home and remote order-lines in the New-Order transactions must be disclosed.*

*The percentage of New-Order transactions that were rolled back as a result of an unused item number must be disclosed.*

*The number of items per orders entered by New-Order transactions must be disclosed. The percentage of home and remote Payment transactions must be disclosed. The percentage of Payment and Order-Status transactions that used non-primary key (C\_LAST) access to the database must be disclosed.*

*The percentage of Delivery transactions that were skipped as a result of an insufficient number of rows in the NEW-ORDER table must be disclosed.*

*The mix (i.e., percentages) of transaction types seen by the SUT must be disclosed.*

**Table 2-1. Transaction Statistics**

| <b>New Order</b>                       | <b>Value (%)</b> |
|----------------------------------------|------------------|
| Home warehouse order lines             | 99.00            |
| Remote warehouse order lines           | 1.00             |
| Rolled back transactions               | 1.00             |
| Average number of items per order      | 10.00            |
| <b>Payment</b>                         |                  |
| Home warehouse payment transactions    | 0.85             |
| Remote warehouse payment transactions  | 0.15             |
| <b>Non-Primary Key Access</b>          |                  |
| Payment transactions using C_LAST      | 60.01            |
| Order-Status transactions using C_LAST | 60.08            |
| <b>Delivery</b>                        |                  |
| Delivery transactions skipped          | 0                |
| <b>Transaction Mix</b>                 |                  |
| New-Order                              | 44.96            |
| Payment                                | 43.02            |
| Delivery                               | 4.01             |
| Stock Level                            | 4.01             |
| Order Status                           | 4.00             |

## Deferred Delivery Mechanism

*The queuing mechanism used to defer execution of the Delivery transaction must be disclosed.*

The deferred delivery operation is queued by making an entry in an array within the application process (tpcc.dll) running on the client. Background threads within the application asynchronously process the queued delivery transactions.

The source code is listed in Appendix A.

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## Clause 3: Transaction and System Properties Related Items

*The results of the ACID test must be disclosed, along with a description of how the ACID requirements were met. This includes disclosing which case was followed for the execution of Isolation Test 7.*

### Atomicity Requirements

*The system under test must guarantee that database transactions are atomic; the system will either perform all individual operations on the data, or will assure that no partially completed operations leave any effects on the data.*

All ACID tests were conducted according to specification.

### Completed Transactions

The following steps were performed to verify the Atomicity of completed transactions.

1. The balance was retrieved from the CUSTOMER table for a random Customer, District and Warehouse, giving BALANCE\_1.
2. The Payment transaction was executed for the Customer, District and Warehouse used in step 1.
3. The balance was retrieved again for the Customer used in step 1 and step 2, giving BALANCE\_2. It was verified that BALANCE\_1 was greater than BALANCE\_2 by AMT.

### Aborted Transactions

The following steps were performed to verify the Atomicity of the aborted Payment transaction:

1. The Payment application code was changed to execute a rollback of the transaction instead of performing the commit.
2. Using the balance, BALANCE\_2, from the CUSTOMER table retrieved for the completed transaction, the Payment transaction was executed for the Customer, District and Warehouse used in step 1 of section 3.1.1. The transaction rolled back due to the change in the application code from step 1.
3. The balance was retrieved again for the Customer used for step 2, giving BALANCE\_3. It was verified that BALANCE\_2 was equal to BALANCE\_3.

### Consistency Requirements

*Consistency is the property of the application that requires any execution of a database transaction to take the database from one consistent state to another, assuming that the database is initially in a consistent state.*

Consistency conditions one through four were tested using a bat file to issue queries to the database. The results of the queries demonstrated that the database was consistent for all four tests.

## Isolation Requirements

*Sufficient conditions must be enabled at either the system or the application level to ensure that the required isolation defined in Clause 3.4.1 is obtained.*

Isolation tests one through seven were run using the bat files to issue queries to the database. Each file included timestamps to demonstrate the concurrency of operations. The results of the queries were captured and placed in files. The auditor reviewed the results and verified that the isolation requirements had been met.

In addition, the phantom tests and the stock-level tests were run and verified.

Case A was followed for Isolation test seven.

## Durability Requirements

*The tested system must guarantee durability: the ability to preserve the effects of committed transactions and ensure database consistency after recovery from any one of the failures listed in Clause 3.5.3.*

- *Permanent irrecoverable failure of any single durable medium containing TPC-C database tables or recovery log data (this test includes failure of all or part of memory)*
- *Instantaneous interruption (system crash/system hang) in processing that requires system reboot to recover*
- *Failure of all or part of memory (loss of contents)*

## Loss of Data Test

The following steps were successfully performed to pass the Durability test of failure of a disk unit with database tables:

1. The contents of the database were backed up to several database dump devices during the initial database load. There were no dump devices on the disk array from which a drive was removed as part of this test.
2. The current count of the total number of orders was determined by the sum of D\_NEXT\_O\_ID for all rows in the district table giving SUM1.
3. A test was started with 12,480 users submitting transactions.
4. A disk containing a portion of each of the tables in the tpcc database was removed causing SQL Server to report errors accessing that device.
5. The run was aborted and SQL Server was restarted. Upon restart, the database tpcc reported numerous errors relating to the failed database device.
6. The transaction log was dumped to disk and the failed disk was replaced with a spare disk and was recovered.
7. The database was recovered and restored from the backup dump devices. Afterwards, the transaction log was applied to the database.
8. Step 2 was repeated to obtain the current count of the total number of orders giving SUM2.
9. It was verified that the sum of D\_NEXT\_O\_ID after the database is recovered is greater than or equal to the sum of D\_NEXT\_O\_ID before the run, plus all new order transactions completed during the run minus any rollback transactions.
10. Consistency Condition 3 was verified.

## Loss of System (Instantaneous Interruption and Loss of Memory)

1. The current count of the total number of orders was determined by the sum of D\_NEXT\_O\_ID for all rows in the district table giving SUM1.
2. A test was started under full load with all users submitting transactions.
3. The test continued and the system continued to run for another 6 minutes after all users were connected to the server.
4. The server under test was powered off, which removed power from the system and the memory.
5. The server was powered on again.

6. SQL Server was started to initiate automatic recovery from its log.
7. Step 1 was repeated to obtain the current count of the total number of orders giving SUM2.
8. It was verified that the sum of D\_NEXT\_O\_ID after the database is recovered is greater than or equal to the sum of D\_NEXT\_O\_ID before the run, plus all new order transactions completed during the run minus any rollback transactions.

### ***Loss of Log***

1. The current count of the total number of orders was determined by the sum of D\_NEXT\_O\_ID for all rows in the district table giving SUM1.
2. This test was executed on a full-scale benchmark run.
3. The test continued with a checkpoint issued and completed.
4. One disk from the log array was removed. Since the disk was RAID-1 mirrored, SQL Server continued to process transactions without interruption.
5. The test continued to run for another 5 minutes.
6. Step 1 was repeated to obtain the current count of the total number of orders giving SUM2.
7. It was verified that the sum of D\_NEXT\_O\_ID after the database is stopped is greater than or equal to the sum of D\_NEXT\_O\_ID before the run, plus all new order transactions completed during the run minus any rollback transactions.

---

## Clause 4: Scaling and Database Population Related Items

### Cardinality of Tables

*The cardinality (e.g., the number of rows) of each table, as it existed at the start of the benchmark run (see Clause 4.2), must be disclosed. If the database was over-scaled and inactive rows of the WAREHOUSE table were deleted (see Clause 4.2.2), the cardinality of the WAREHOUSE table as initially configured and the number of rows deleted must be disclosed.*

The database was built with 12,480 warehouses and the audited run used all 12,480 warehouses.

**Table 4-1. Initial Cardinality of Tables**

| Table Name          | Rows          |
|---------------------|---------------|
| Warehouse           | 12,480        |
| District            | 124,800       |
| Item                | 100,000       |
| New Order           | 112,320,000   |
| History             | 374,400,000   |
| Orders              | 374,400,000   |
| Customer            | 374,400,000   |
| Order Line          | 3,743,996,515 |
| Stock               | 1,248,000,000 |
| Inactive Warehouses | 0             |

### Distribution of Tables and Logs

*The distribution of tables and logs across all media must be explicitly depicted for the tested and priced systems. )*

Figure 4-2 depicts the priced database configuration of the tested system to meet the 8-hour steady state requirement

**Figure 4-2. Data Distribution for the Benchmarked Configuration**

| Disk # | Drives      | Partition                    | Size                                  | Use                                                       |
|--------|-------------|------------------------------|---------------------------------------|-----------------------------------------------------------|
| 0      | 28 - 36.4GB | E:<br>F:                     | 334.97GB<br>137.70GB (NTFS)           | Logfile<br>MDF File                                       |
| 1      | 28 - 18.2GB | C:\mplc1<br>C:\mplm1<br>G:   | 36.13GB<br>20.51GB<br>415.04GB (NTFS) | Customer and Stock<br>Miscellaneous Files<br>Backup files |
| 2      | 28 - 18.2GB | C:\mplc2<br>C:\mplm2<br>H:   | 36.13GB<br>20.51GB<br>415.04GB (NTFS) | Customer and Stock<br>Miscellaneous Files<br>Backup files |
| 3      | 28 - 18.2GB | C:\mplc3<br>C:\mplm3<br>I:   | 36.13GB<br>20.51GB<br>415.04GB (NTFS) | Customer and Stock<br>Miscellaneous Files<br>Backup files |
| 4      | 28 - 18.2GB | C:\mplc4<br>C:\mplm4<br>J:   | 36.13GB<br>20.51GB<br>415.04GB (NTFS) | Customer and Stock<br>Miscellaneous Files<br>Backup files |
| 5      | 28 - 18.2GB | C:\mplc5<br>C:\mplm5<br>K:   | 36.13GB<br>20.51GB<br>415.04GB (NTFS) | Customer and Stock<br>Miscellaneous Files<br>Backup files |
| 6      | 28 - 18.2GB | C:\mplc6<br>C:\mplm6<br>L:   | 36.13GB<br>20.51GB<br>415.04GB (NTFS) | Customer and Stock<br>Miscellaneous Files<br>Backup files |
| 7      | 28 - 18.2GB | C:\mplc7<br>C:\mplm7<br>M:   | 36.13GB<br>20.51GB<br>415.04GB (NTFS) | Customer and Stock<br>Miscellaneous Files<br>Backup files |
| 8      | 28 - 18.2GB | C:\mplc8<br>C:\mplm8<br>N:   | 36.13GB<br>20.51GB<br>415.04GB (NTFS) | Customer and Stock<br>Miscellaneous Files<br>Backup files |
| 9      | 28 - 18.2GB | C:\mplc9<br>C:\mplm9<br>O:   | 36.13GB<br>20.51GB<br>415.04GB (NTFS) | Customer and Stock<br>Miscellaneous Files<br>Backup files |
| 10     | 28 - 18.2GB | C:\mplc10<br>C:\mplm10<br>P: | 36.13GB<br>20.51GB<br>415.04GB (NTFS) | Customer and Stock<br>Miscellaneous Files<br>Backup files |
| 11     | 28 - 18.2GB | C:\mplc11<br>C:\mplm11<br>Q: | 36.13GB<br>20.51GB<br>415.04GB (NTFS) | Customer and Stock<br>Miscellaneous Files<br>Backup files |
| 12     | 28 - 18.2GB | C:\mplc12<br>C:\mplm12<br>R: | 36.13GB<br>20.51GB<br>415.04GB (NTFS) | Customer and Stock<br>Miscellaneous Files<br>Backup files |
| 13     | 28 - 18.2GB | C:\mplc13<br>C:\mplm13<br>S: | 36.13GB<br>20.51GB<br>415.04GB (NTFS) | Customer and Stock<br>Miscellaneous Files<br>Backup files |
| 14     | 28 - 18.2GB | C:\mplc14<br>C:\mplm14<br>T: | 36.13GB<br>20.51GB<br>415.04GB (NTFS) | Customer and Stock<br>Miscellaneous Files<br>Backup files |
| 15     | 28 - 18.2GB | C:\mplc15<br>C:\mplm15<br>U: | 36.13GB<br>20.51GB<br>415.04GB (NTFS) | Customer and Stock<br>Miscellaneous Files<br>Backup files |
| 16     | 28 - 18.2GB | C:\mplc16<br>C:\mplm16<br>V: | 36.13GB<br>20.51GB<br>415.04GB (NTFS) | Customer and Stock<br>Miscellaneous Files<br>Backup files |

|    |             |                                        |                                       |                                                           |
|----|-------------|----------------------------------------|---------------------------------------|-----------------------------------------------------------|
| 17 | 28 - 18.2GB | C:\mp\c17<br>C:\mp\m17<br>C:\mp\disk17 | 36.13GB<br>20.51GB<br>415.04GB (NTFS) | Customer and Stock<br>Miscellaneous Files<br>Backup files |
| 18 | 28 - 18.2GB | C:\mp\c18<br>C:\mp\m18<br>c:\mp\disk18 | 36.13GB<br>20.51GB<br>415.04GB (NTFS) | Customer and Stock<br>Miscellaneous Files<br>Backup files |
| 19 | 28 - 18.2GB | C:\mp\c19<br>C:\mp\m19<br>c:\mp\disk19 | 36.13GB<br>20.51GB<br>415.04GB (NTFS) | Customer and Stock<br>Miscellaneous Files<br>Backup files |
| 20 | 28 - 18.2GB | C:\mp\c20<br>C:\mp\m20<br>C:\mp\disk20 | 36.13GB<br>20.51GB<br>415.04GB (NTFS) | Customer and Stock<br>Miscellaneous Files<br>Backup files |
| 21 | 1 - 18.2GB  | C:                                     | 16.94GB (NTFS)                        | Operating System                                          |

## Database Model Implemented

*A statement must be provided that describes:*

1. The database model implemented by the DBMS used (e.g., relational, network, hierarchical)
2. The database interface (e.g., embedded, call level) and access language (e.g., SQL, DL/I, COBOL, read/write) used to implement the TPC-C transactions. If more than one interface/access language is used to implement TPC-C, each interface/access language must be described and a list of which interface/access language is used with which transaction type must be disclosed.

Microsoft SQL Server 2000 Enterprise Edition is a relational database. The interface used was Microsoft SQL Server stored procedures accessed with Remote Procedure Calls embedded in C code using the Microsoft ODBC interface.

## Partitions/Replications Mapping

*The mapping of database partitions/replications must be explicitly described.*

The database was neither partitioned nor replicated.

## 60-Day Space Requirement

*Details of the 60-day space computations, along with proof that the database is configured to sustain 8 hours of growth for the dynamic tables (Order, Order-Line, and History) must be disclosed (see Clause 4.2.3).*

See Appendix D for details about how the 60-day space requirements were calculated.

---

## Clause 5: Performance Metrics and Response Time Related Items

### Measured tpmC

*Measured tpmC must be reported.*

Measured tpmC: 151,744.13 tpmC

Price per tpmC: \$11.03 per tpmC

### Response Times

*Ninetieth percentile, maximum and average response times must be reported for all transaction types as well as for the Menu response time.*

The TPC-C requirements for the average response time and the 90th percentile were met. Table 5-1 provides the response times for each of the transaction types and the menu for the measured system.

**Table 5-1. Response Times in Seconds**

| Transaction Type    | Average | Maximum | 90 %-tile |
|---------------------|---------|---------|-----------|
| New-Order           | 0.76    | 7.86    | 1.21      |
| Payment             | 0.72    | 7.27    | 1.16      |
| Delivery            | 0.40    | 5.52    | 0.74      |
| Stock Level         | 0.98    | 7.09    | 1.49      |
| Order Status        | 0.73    | 6.89    | 1.17      |
| Delivery (Deferred) | 0.14    | 4.44    | 0.19      |
| Menu                | 0.40    | 5.53    | 0.74      |

### Keying/Think Times

*The minimum, the average, and the maximum keying and think times must be reported for each transaction type. )*

Table 5-2 lists the keying/think times for the measured system.

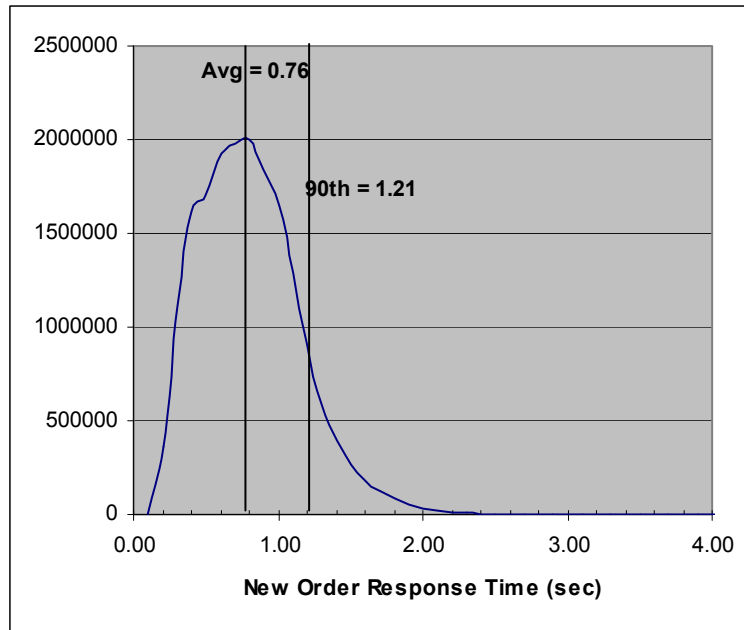
**Table 5-2. Keying/Think Times**

| Transaction Type | Average       | Minimum      | Maximum        |
|------------------|---------------|--------------|----------------|
| New-Order        | 18.01 / 12.05 | 18.00 / 0.00 | 18.04 / 120.51 |
| Payment          | 3.01 / 12.05  | 3.00 / 0.00  | 3.04 / 120.51  |
| Delivery         | 2.01 / 5.05   | 2.00 / 0.00  | 2.03 / 50.51   |
| Stock Level      | 2.01 / 5.05   | 2.00 / 0.00  | 2.04 / 50.51   |
| Order Status     | 2.01 / 10.04  | 2.00 / 0.00  | 2.03 / 100.51  |

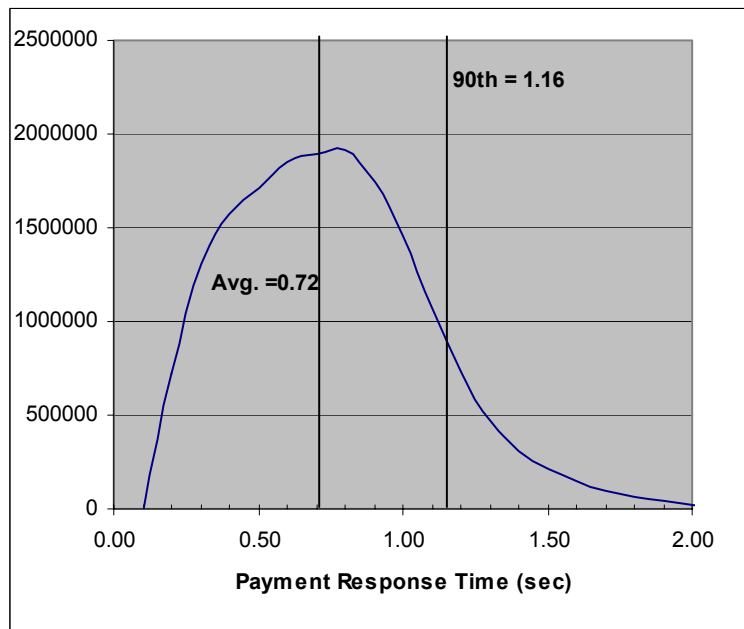
## Response Time Frequency Distribution Curves

*Response time frequency distribution curves (see Clause 5.6.1) must be reported for each transaction type.*

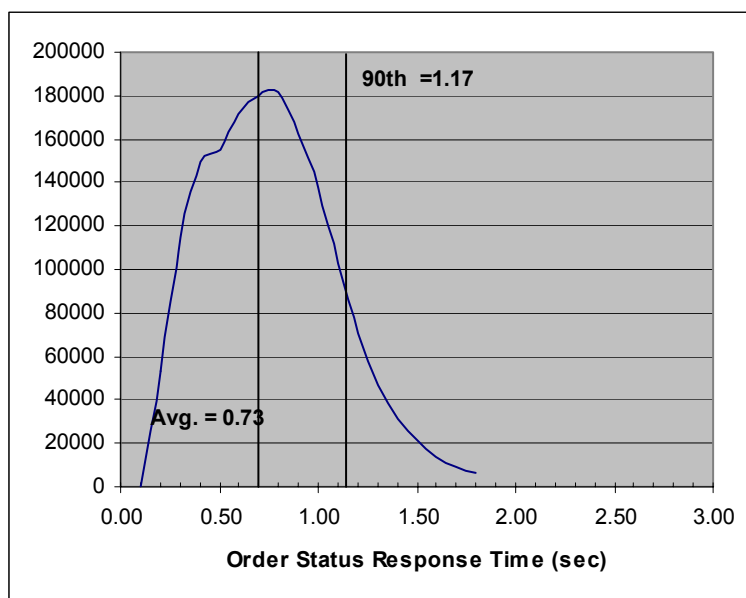
**Figure 5-1. New-Order Transaction - Response Time Frequency Distribution**



**Figure 5-2. Payment Transaction - Response Time Frequency Distribution**



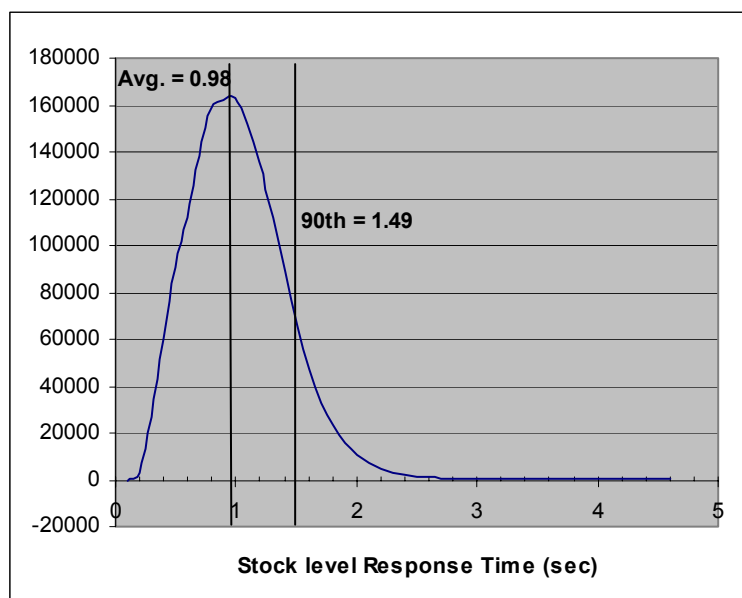
**Figure 5-3. Order-Status Transaction - Response Time Frequency Distribution**



**Figure 5-4. Delivery Transaction - Response Time Frequency Distribution**



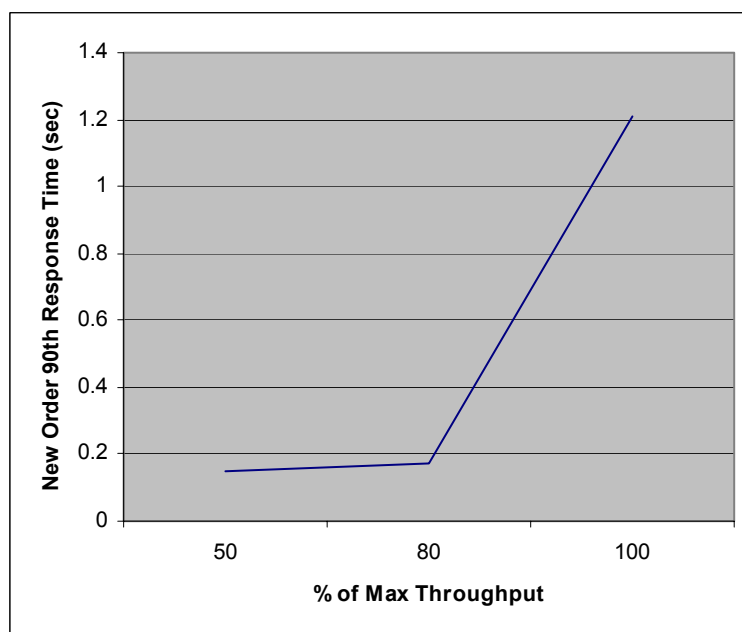
**Figure 5-5. Stock-Level Transaction - Response Time Frequency Distribution**



### Performance Curve for Response Time vs. Throughput

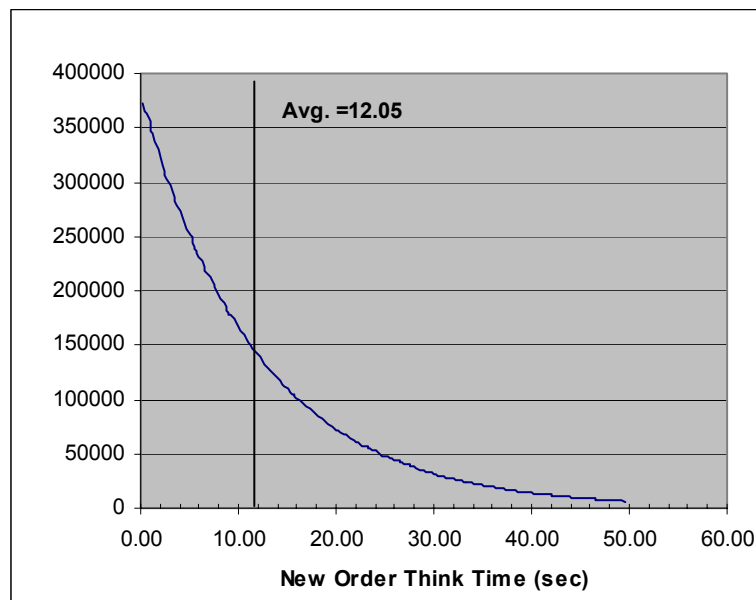
*The performance curve for response time vs. throughput (see Clause 5.6.2) must be reported for the New-Order transaction.*

**Figure 5-6. New-Order Response Time vs. Throughput**



## New Order Think Time Distribution

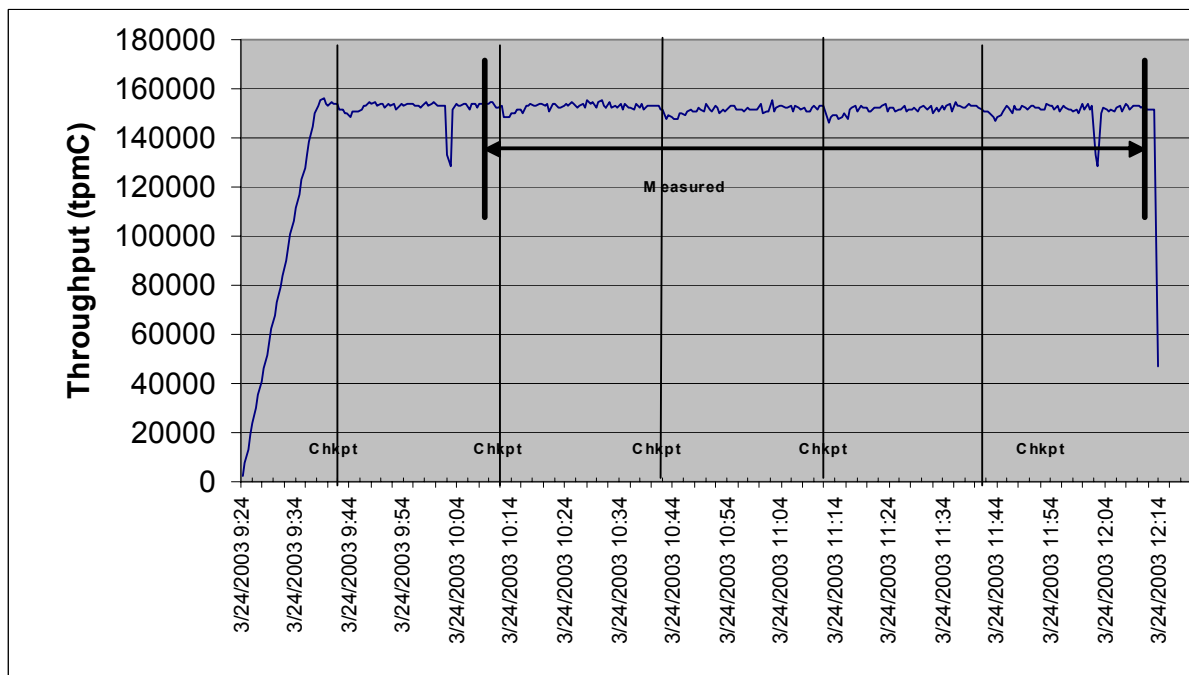
Figure 5-7. New-Order Think Time Distribution



## Throughput vs. Elapsed Time

*A graph of throughput vs. elapsed time (see Clause 5.6.5) must be reported for the New-Order transaction.*

Figure 5-8. New-Order Throughput vs. Elapsed Time



## Steady State Methodology

*The method used to determine that the SUT had reached a steady state prior to commencing the measurement interval (see Clause 5.5) must be described.*

Figure 5-8 shows that the system was in steady state at the beginning of the measurement interval.

## Work Performed during Steady State

*A description of how the work normally performed during a sustained test (e.g., checkpointing, writing redo/undo log records) actually occurred during the measurement interval must be reported.*

### Transaction Flow

The RTE generated the required input data to choose a transaction from the menu. This data was time-stamped. The response for the requested transaction was verified and time-stamped in the RTE log files.

The RTE generated the required input data for the chosen transaction. It waited to complete the minimum required key time before transmitting the input screen. The transmission was time-stamped. The return of the screen with the required response data was time-stamped. The difference between these two time-stamps was the response time for that transaction and was logged in the RTE log. The RTE then waited the required think time interval before repeating the process starting at selecting another transaction from the menu.

The RTE transmissions were sent to application processes running on the client machines through Ethernet LANs. These client application processes handled all screen I/O as well as all requests to the database on the server. The applications communicated with the database server over a 2 Gb/s Fibre Channel network using Microsoft SQL Server ODBC library and RPC calls.

## Checkpoints

Checkpoints were executed on the server during the ramp-up phase and at 30-minute intervals. The measured run contained four checkpoints. SQL Server was started with trace flag 3502, which caused it to log the occurrence of the checkpoint. This information was used to verify that the checkpoints occurred at the appropriate times during the test run.

During a checkpoint, SQL Server flushes all dirty pages from its cache to disk. It places a record in the database transaction log indicating that the checkpoint has completed and that all transactions, which were committed prior to the checkpoint have been written to disk.

## Measurement Interval

*A statement of the duration of the measurement interval for the reported Maximum Qualified Throughput (tpmC) must be included.*

The measurement interval was 120 minutes.

## Transaction Mix

*The method of regulation of the transaction mix (e.g., card decks or weighted random distribution) must be described. If weighted distribution is used and the RTE adjusts the weights associated with each transaction type, the maximum adjustments to the weight from the initial value must be disclosed. (8.1.6.13)*

See Table 5-3.

The RTE was given a weighted random distribution, which was not adjusted during the run.

## Percentage of Total Mix

*The percentage of the total mix for each transaction type must be disclosed.*

See Table 5-3.

**Table 5-3. Transaction Statistics and Transaction Mix**

| New Order                              | Value (%) |
|----------------------------------------|-----------|
| Home warehouse order lines             | 99.00     |
| Remote warehouse order lines           | 1.00      |
| Rolled back transactions               | 1.00      |
| Average number of items per order      | 10.00     |
| Payment                                |           |
| Home warehouse payment transactions    | 0.85      |
| Remote warehouse payment transactions  | 0.15      |
| Non-Primary Key Access                 |           |
| Payment transactions using C_LAST      | 60.01     |
| Order-Status transactions using C_LAST | 60.08     |
| Delivery                               |           |
| Delivery transactions skipped          | 0         |
| Transaction Mix                        |           |
| New-Order                              | 44.96     |
| Payment                                | 43.02     |
| Delivery                               | 4.01      |
| Stock Level                            | 4.01      |
| Order-Status                           | 4.00      |

## Number of Checkpoints

*The number of checkpoints in the Measurement Interval, the time in seconds from the start of the Measurement Interval to the first checkpoint, and the Checkpoint Interval must be disclosed.*

Checkpoints were performed during the ramp-up period and during each measured run interval. The first measurement interval checkpoint started 118 seconds after the start of the measurement interval. The four checkpoints in the measured interval are shown in Table 5-4.

**Table 5-4. Checkpoint Start Time and Duration**

| Checkpoint | Start Time    | Duration   |
|------------|---------------|------------|
| 1          | 10:12:00 a.m. | 28 minutes |
| 2          | 10:41:58 a.m. | 28 minutes |
| 3          | 11:11:57 a.m. | 28 minutes |
| 4          | 11:41:56 a.m. | 28 minutes |

The checkpoint interval was 30 minutes.

---

## Clause 6: SUT, Driver and Communication Definition Related Items

### Description of RTE

*The RTE input parameters, code fragments, functions, etc., used to generate each transaction input field must be disclosed.*

The RTE used was Microsoft BenchCraft RTE. Benchcraft is a proprietary tool provided by Microsoft and is not commercially available. The RTE input is listed in Appendix C.

### Emulated Components

*It must be demonstrated that the functionality and performance of the components being emulated in the Driver System are equivalent to that of the priced system. The results of the test described in Clause 6.6.3.4 must be disclosed.*

No components were emulated.

### Benchmarked and Targeted System Configuration Diagrams

*A complete functional diagram of both the benchmarked configuration and the configuration of the proposed (target) system must be disclosed. A detailed list of all software and hardware functionality being performed on the Driver System, and its interface to the SUT must be disclosed (see Clause 6.6.3.6).*

The driver RTE generated the transaction input data and transmitted it to the client in HTML format. The driver RTE received the output from the System under Test, time-stamped it, and forwarded it to the Master RTE for post-test processing. No other functionality was included on the driver RTE.

Detailed diagrams of the benchmarked and priced configurations are provided in the section called “General Items” at the beginning of this document.

### Network Configuration

*The network configurations of both the tested services and the proposed (target) services which are being represented and a thorough explanation of exactly which parts of the proposed configuration are being replaced with the Driver System must be disclosed (see Clause 6.6.4).*

See the measured and priced configuration diagrams for details about the network configuration.

### Network Bandwidth

*The bandwidth of the network(s) used in the tested/priced configuration must be disclosed.*

The Ethernet used in the LAN connecting the clients and driver RTEs complies with the IEEE.802.3 standard. The Ethernet LAN had a bandwidth of 10Mbps. The LAN that connected the clients to the server was a Fibre Channel network whose bandwidth was 2Gb/s.

### Operator Intervention

*If the configuration requires operator intervention (see Clause 6.6.6), the mechanism and the frequency of this intervention must be disclosed.*

The configuration did not require any operator intervention to sustain the reported throughput.

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## Clause 7: Pricing Related Items

### Hardware and Software Components

*A detailed list of the hardware and software used in the priced system must be reported. Each separately orderable item must have a vendor part number, description and release/revision level, and either general availability status or committed delivery date. If package-pricing is used, vendor part number of the package and a description uniquely identifying each of the components of the package must be disclosed.*

*Pricing source(s) and effective date(s) must also be reported.*

*The total 3-year price of the entire configuration must be reported, including: hardware, software, and maintenance charges. Separate component pricing is recommended. The basis of all discounts used must be disclosed.*

A detailed list of all hardware and software, including the 3-year price, is provided in the Executive Summary at the front of this report. All third-party quotations are included in Appendix E at the end of this document.

### Availability Date

*The committed delivery date for general availability (availability date) of products used in the price calculations must be reported. When the priced system includes products with different availability dates, the reported availability for the priced system must be the date at which all components are committed to be available.*

The total system as priced will be available September 25, 2003.

### Measured tpmC

*A statement of the measured tpmC, as well as the respective calculations for the 3-year pricing, price/performance (price/tpmC) and the availability date must be included.*

- Maximum Qualified Throughput: 151,744.13 tpmC
- Price per tpmC: \$11.03 per tpmC
- Three-year cost of ownership: \$1,674,017

### Country-Specific Pricing

*Additional Clause 7 related items may be included in the Full Disclosure Report for each country-specific priced configuration. Country-specific pricing is subject to Clause 7.1.7.*

The configuration is priced for the United States of America.

### Usage Pricing

*For any usage pricing, the sponsor must disclose:*

- *Usage level at which the component was priced.*
- *A statement of the company policy allowing such pricing.*

The component pricing based on usage is shown below:

- 16 Microsoft Windows 2003 Datacenter Edition (based on per-processor price)
- 16 Microsoft SQL Server 2000 Enterprise Edition (based on per-processor price)
- 4 Microsoft Windows 2000 Server

- 3-year support for hardware components (except for components for which 10 percent spares are provided)

## **System Pricing**

*System pricing should include subtotals for the following components: Server Hardware, Server Software, Client Hardware, Client Software, and Network Components used for terminal connection (see Clause 7.2.2.3).*

*System pricing must include line item indication where non-sponsoring companies' brands are used. System pricing must also include line item indication of third-party pricing.*

A detailed list of all hardware and software, including the 3-year price, is provided in the Executive Summary at the front of this report. All third-party quotations are included in Appendix E at the end of this document.

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## Clause 9: Audit Related Items

### Auditor

*The auditor's name, address, phone number, and a copy of the auditor's attestation letter indicating compliance must be included in the Full Disclosure Report.*

This implementation of the TPC-C benchmark was audited by Bradley J. Askins of InfoSizing, Inc. The auditor's attestation letter is provided in this section.

### Availability of the Full Disclosure Report

*The Full Disclosure Report must be readily available to the public at a reasonable charge, similar to the charges for similar documents by the test sponsor. The report must be made available when results are made public. In order to use the phrase "TPC Benchmark<sup>TM</sup>C," the Full Disclosure Report must have been submitted to the TPC Administrator as well as written permission obtained to distribute same.*

The TPC Benchmark C Full Disclosure Report can be obtained from [www.tpc.org](http://www.tpc.org).

Benchmark Sponsor: Chitra Balachandran  
 Manager, xSeries Performance  
 IBM Systems Group  
 3039 Cornwallis Road  
 Research Triangle Park, NC 27709

March 26, 2003

I verified the TPC Benchmark™ C performance for the following Client/Server configuration:

Platform: **IBM @server xSeries 440 c/s**  
 Operating system: **Microsoft Windows Server 2003 Datacenter Edition w/QFE**  
 Database Manager: **Microsoft SQL Server 2000 Enterprise Edition SP3 w/QFE**  
 Transaction Manager: **Microsoft COM+**

The results were:

| CPU's Speed                                                               | Memory                                         | Disks                             | NewOrder 90% Response Time | tpmC              |
|---------------------------------------------------------------------------|------------------------------------------------|-----------------------------------|----------------------------|-------------------|
| <b>Server: IBM @server xSeries 440</b>                                    |                                                |                                   |                            |                   |
| 16 x Xeon MP<br>(2.0GHz)                                                  | 64 GB Main<br>(2 MB L3 Cache per processor)    | 561 x 18.2 GB<br><br>28 x 36.4 GB | 1.21 Seconds               | <b>151,744.13</b> |
| <b>Clients: Four (4) IBM @server xSeries 225 (Specification for each)</b> |                                                |                                   |                            |                   |
| 2 x Xeon DP<br>(2.4 GHz)                                                  | 1.5 GB Main<br>(512 KB L2 Cache per processor) | 1 x 18.2 GB                       | n/a                        | n/a               |

In my opinion, these performance results were produced in compliance with the TPC's requirements for the benchmark. The following verification items were given special attention:

- The database records were the proper size

- The database was properly scaled and populated
- The required ACID properties were met
- The transactions were correctly implemented
- Input data was generated according to the specified percentages
- The transaction cycle times included the required keying and think times
- The reported response times were correctly measured.
- All 90% response times were under the specified maximums
- At least 90% of all delivery transactions met the 80 Second completion time limit
- The reported measurement interval was 120 minutes (7200 seconds)
- The reported measurement interval was representative of steady state conditions
- Four checkpoints were taken during the reported measurement interval
- The 60 day storage requirement was correctly computed
- The system pricing was verified for major components and maintenance

Additional Audit Notes:

None.

Respectfully Yours,

A handwritten signature in black ink, appearing to read "François Raab", with a long horizontal flourish extending to the right.

François Raab, President

A handwritten signature in black ink, appearing to read "Bradley J. Askins", with a long horizontal flourish extending to the right.

Bradley J. Askins, Auditor

# Appendix A: Source Code

## Web Client Source Code

### db\_odbc\_dll.dsp

```
# Microsoft Developer Studio Project File - Name="db_odbc_dll" - Package
Owner=<4>
# Microsoft Developer Studio Generated Build File, Format Version 6.00
# ** DO NOT EDIT **
```

```
# TARGETTYPE "Win32 (x86) Dynamic-Link Library" 0x0102
```

```
CFG=db_odbc_dll - Win32 IceCAP
!MESSAGE This is not a valid makefile. To build this project using NMAKE,
!MESSAGE use the Export Makefile command and run
!MESSAGE
!MESSAGE NMAKE /f "db_odbc_dll.mak".
!MESSAGE
!MESSAGE You can specify a configuration when running NMAKE
!MESSAGE by defining the macro CFG on the command line. For example:
!MESSAGE
!MESSAGE NMAKE /f "db_odbc_dll.mak" CFG="db_odbc_dll - Win32
IceCAP"
!MESSAGE
!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "db_odbc_dll - Win32 Release" (based on "Win32 (x86)
Dynamic-Link Library")
!MESSAGE "db_odbc_dll - Win32 Debug" (based on "Win32 (x86)
Dynamic-Link Library")
!MESSAGE "db_odbc_dll - Win32 IceCAP" (based on "Win32 (x86)
Dynamic-Link Library")
!MESSAGE
```

```
# Begin Project
# PROP AllowPerConfigDependencies 0
# PROP Scc_ProjName ""
# PROP Scc_LocalPath ""
CPP=cl.exe
MTL=midl.exe
RSC=rc.exe
```

```
!IF "$(CFG)" == "db_odbc_dll - Win32 Release"
```

```
# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "Release"
# PROP BASE Intermediate_Dir "Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MT /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D
"_WINDOWS" /YX /FD /c
# ADD CPP /nologo /MD /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D
"_WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D "NDEBUG" /mktyplib203 /o /win32 "NUL"
# ADD MTL /nologo /D "NDEBUG" /mktyplib203 /o /win32 "NUL"
# ADD BASE RSC /I 0x409 /d "NDEBUG"
# ADD RSC /I 0x409 /d "NDEBUG"
BSC32=bscmake.exe
```

```
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbccp32.lib /nologo /subsystem:windows /dll /machine:I386
# ADD LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib
/nologo /subsystem:windows /dll /machine:I386 /out:".bin\tpcc_odbc.dll"
```

```
!ELSEIF "$(CFG)" == "db_odbc_dll - Win32 Debug"
```

```
# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "Debug"
# PROP BASE Intermediate_Dir "Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MTd /W3 /Gm /GX /Zi /Od /D "WIN32" /D
"_DEBUG" /D "_WINDOWS" /YX /FD /c
# ADD CPP /nologo /MDd /W3 /GX /Zi /Od /D "WIN32" /D "_DEBUG" /D
"_WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D "_DEBUG" /mktyplib203 /o /win32 "NUL"
# ADD MTL /nologo /D "_DEBUG" /mktyplib203 /o /win32 "NUL"
# ADD BASE RSC /I 0x409 /d "_DEBUG"
# ADD RSC /I 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbccp32.lib /nologo /subsystem:windows /dll /debug /machine:I386
/pdbtype:sept
# ADD LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib
/nologo /subsystem:windows /dll /debug /machine:I386
/out:".bin\tpcc_odbc.dll" /pdbtype:sept
```

```
!ELSEIF "$(CFG)" == "db_odbc_dll - Win32 IceCAP"
```

```
# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "db_odbc_"
# PROP BASE Intermediate_Dir "db_odbc_"
# PROP BASE Ignore_Export_Lib 0
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MDd /W3 /Gm /GX /Zi /Od /D "WIN32" /D
"_DEBUG" /D "_WINDOWS" /YX /FD /Gh /c
# ADD CPP /nologo /MD /W3 /Gm /GX /Zi /O2 /D "WIN32" /D "NDEBUG"
/D "_WINDOWS" /D "ICECAP" /YX /FD /Gh /c
# ADD BASE MTL /nologo /D "_DEBUG" /mktyplib203 /o /win32 "NUL"
# ADD MTL /nologo /D "_DEBUG" /mktyplib203 /o /win32 "NUL"
# ADD BASE RSC /I 0x409 /d "_DEBUG"
# ADD RSC /I 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
```

```

# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbccp32.lib
odbc32.lib /nologo /subsystem:windows /dll /debug /machine:I386
/out:".bin\tpcc_odbc.dll" /pdbtype:sept
# ADD LINK32 icap.lib kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbc32.lib /nologo /subsystem:windows /dll /debug /machine:I386
/out:".bin\tpcc_odbc.dll" /pdbtype:sept

!ENDIF

# Begin Target

# Name "db_odbc_dll - Win32 Release"
# Name "db_odbc_dll - Win32 Debug"
# Name "db_odbc_dll - Win32 IceCAP"
# Begin Group "Source"

# PROP Default_Filter "*.cpp"
# Begin Source File

SOURCE=.\src\tpcc_odbc.cpp
# End Source File
# End Group
# Begin Group "Header"

# PROP Default_Filter "*.h"
# Begin Source File

SOURCE=..\common\src\error.h
# End Source File
# Begin Source File

SOURCE=.\src\tpcc_odbc.h
# End Source File
# Begin Source File

SOURCE=..\common\src\trans.h
# End Source File
# Begin Source File

SOURCE=..\common\src\txn_base.h
# End Source File
# End Group
# End Target
# End Project

```

## dlldata.c

```

/*****
DllData file -- generated by MIDL compiler

DO NOT ALTER THIS FILE

This file is regenerated by MIDL on every IDL file compile.

To completely reconstruct this file, delete it and rerun MIDL
on all the IDL files in this DLL, specifying this file for the
/dlldata command line option

*****/

#include <rpcproxy.h>

```

```

#ifdef __cplusplus
extern "C" {
#endif

EXTERN_PROXY_FILE( tpcc_com_ps )

PROXYFILE_LIST_START
/* Start of list */
REFERENCE_PROXY_FILE( tpcc_com_ps ),
/* End of list */
PROXYFILE_LIST_END

DLLDATA_ROUTINES( aProxyFileList, GET_DLL_CLSID )

#ifdef __cplusplus
} /*extern "C" */
#endif

/* end of generated dlldata file */

error.h

/* FILE: ERROR.H
* Microsoft TPC-C Kit Ver.
4.20.000
* Copyright Microsoft, 1999
* All Rights Reserved
*
* Version 4.10.000 audited by
Richard Gimarc, Performance Metrics, 3/17/99
*
* PURPOSE: Header file for error exception classes.
*
* Change history:
* 4.20.000 - updated rev number to match kit
* 4.21.000 - fixed bug: ~CBaseErr needed to be declared
virtual
*/

#pragma once

#ifndef _INC_STRING
#include <string.h>
#endif

const int m_szMsg_size = 512;
const int m_szApp_size = 64;
const int m_szLoc_size = 64;

//error message structure used in ErrorText routines
typedef struct _SERRORMSG
{
    int iError;
    char szMsg[256]; //message to
    sent to browser
} SERRORMSG;

typedef enum _ErrorLevel
{
    ERR_FATAL_LEVEL = 1,
    ERR_WARNING_LEVEL = 2,
    ERR_INFORMATION_LEVEL = 3
} ErrorLevel;

```

```

#define ERR_TYPE_LOGIC
-1 //logic error in program; internal error
#define ERR_SUCCESS
0 //success (a non-error error)
#define ERR_BAD_ITEM_ID
1 //expected abort record in txnRecord
#define ERR_TYPE_DELIVERY_POST
2 //expected delivery post failed
#define ERR_TYPE_WEBDLL
3 //tpcc web generated error
#define ERR_TYPE_SQL
4 //sql server generated error
#define ERR_TYPE_DBLIB
5 //dblib generated error
#define ERR_TYPE_ODBC
6 //odbc generated error
#define ERR_TYPE_SOCKET
7 //error on communication socket client rte
only
#define ERR_TYPE_DEADLOCK
8 //dblib and odbc only deadlock condition
#define ERR_TYPE_COM
9 //error from COM call
#define ERR_TYPE_TUXEDO
10 //tuxedo error
#define ERR_TYPE_OS
11 //operating system error
#define ERR_TYPE_MEMORY
12 //memory allocation error
#define ERR_TYPE_TPCC_ODBC
13 //error from tpcc odbc txn module
#define ERR_TYPE_TPCC_DBLIB
14 //error from tpcc dblib txn module
#define ERR_TYPE_DELISRV
15 //delivery server error
#define ERR_TYPE_TXNLOG
16 //txn log error
#define ERR_TYPE_BCCONN
17 //Benchcraft connection class
#define ERR_TYPE_TPCC_CONN
18 //Benchcraft connection class
#define ERR_TYPE_ENCINA
19 //Encina error
#define ERR_TYPE_COMPONENT
20 //error from COM component
#define ERR_TYPE_RTE
21 //Benchcraft rte
#define ERR_TYPE_AUTOMATION
22 //Benchcraft automation errors
#define ERR_TYPE_DRIVER
23 //Driver engine errors
#define ERR_TYPE_RTE_BASE
24 //Framework errors
#define ERR_BUF_OVERFLOW
25 //Buffer overflow during receive
// TPC-W error types
#define ERR_TYPE_TPCW_CONN
50 //Benchcraft connection class
#define ERR_TYPE_TPCW_HTML
51 //error from TpcwHtml dll
#define ERR_TYPE_TPCW_USER
52 //error from TPC-W user class
#define ERR_TYPE_TPCW_ENG_BASE
53
#define ERR_TYPE_TPCW_ENG_OS
54

```

```

#define ERR_TYPE_HTML_RESP
55
#define ERR_TYPE_TPCW_ODBC
56
#define ERR_TYPE_SCHANNEL
57

#define ERR_INS_MEMORY "Insufficient Memory
to continue."
#define ERR_UNKNOWN "Unknown
error."
#define ERR_MSG_BUF_SIZE 512
#define INV_ERROR_CODE -1
#define ERR_INS_BUF_OVERFLOW "Insufficient Buffer size to recieve
HTML pages."

```

```

class CBaseErr
{
public:

    CBaseErr(LPCTSTR szLoc = NULL)
    {
        m_idMsg = INV_ERROR_CODE;

        if (szLoc)
        {
            m_szLoc = new char[m_szLoc_size];
            strcpy(m_szLoc, szLoc);
        }
        else
            m_szLoc = NULL;

        m_szApp = new char[m_szApp_size];
        GetModuleFileName(GetModuleHandle(NULL),
m_szApp, m_szApp_size);
    }

    CBaseErr(int idMsg, LPCTSTR szLoc = NULL)
    {
        m_idMsg = idMsg;

        if (szLoc)
        {
            m_szLoc = new char[m_szLoc_size];
            strcpy(m_szLoc, szLoc);
        }
        else
            m_szLoc = NULL;

        m_szApp = new char[m_szApp_size];
        GetModuleFileName(GetModuleHandle(NULL),
m_szApp, m_szApp_size);
    }

    virtual ~CBaseErr(void)
    {
        if (m_szApp)
            delete [] m_szApp;
        if (m_szLoc)
            delete [] m_szLoc;
    };
}

```

```

virtual void Draw(HWND hwnd, LPCTSTR szStr = NULL)
{
    int j = 0;
    char szTmp[512];

    if (szStr)
        j = sprintf(szTmp, "%s\n", szStr);
    if (ErrorNum() != INV_ERROR_CODE)
        j += sprintf(szTmp+j, "Error = %d\n",
ErrorNum());
    if (m_szLoc)
        j += sprintf(szTmp+j, "Location = %s\n",
GetLocation());

    j += sprintf(szTmp+j, "%s\n", ErrorText());

    ::MessageBox(hwnd, szTmp, m_szApp, MB_OK);
}

char *GetApp(void) { return m_szApp; }
char *GetLocation(void) { return m_szLoc; }
virtual int ErrorNum() { return m_idMsg; }

virtual int ErrorType() = 0; // a value which distinguishes the
kind of error that occurred
virtual char *ErrorText() = 0; // a string (i.e., human readable)
representation of the error

protected:
    char *m_szApp;
    char *m_szLoc; // code location where the error occurred
    int m_idMsg;

    //short m_errType;
};

class CSocketErr : public CBaseErr
{
public:
    enum Action
    {
        eNone = 0,
        eSend,
        eSocket,
        eBind,
        eConnect,
        eListen,
        eHost,
        eRecv,
        eGetHostByName,
        eWSACreateEvent,
        eWSASend,
        eWSASendImage,
        eWSAGetOverlappedResult,
        eWSARecv,
        eWSARecvImage,
        eWSAWaitForMultipleEvents,
        eWSAStartup,
        eWSAResetEvent,
        eNonRetryable,
    };

    CSocketErr(Action eAction, LPCTSTR szLocation = NULL);
};

```

```

~CSocketErr()
{
    if (m_szErrorText != NULL)
        delete [] m_szErrorText;
};

Action m_eAction;
char *m_szErrorText;

int ErrorType() { return ERR_TYPE_SOCKET; };
char *ErrorText(void);

};

class CSystemErr : public CBaseErr
{
public:
    enum Action
    {
        eNone = 0,
        eTransactNamedPipe,
        eWaitNamedPipe,
        eSetNamedPipeHandleState,
        eCreateFile,
        eCreateProcess,
        eCallNamedPipe,
        eCreateEvent,
        eCreateThread,
        eVirtualAlloc,
        eReadFile = 10,
        eWriteFile,
        eMapViewOfFile,
        eCreateFileMapping,
        eInitializeSecurityDescriptor,
        eSetSecurityDescriptorDacl,
        eCreateNamedPipe,
        eConnectNamedPipe,
        eWaitForSingleObject,
        eRegOpenKeyEx,
        eRegQueryValueEx = 20,
        eBeginThread,
        eRegEnumValue,
        eRegSetValueEx,
        eRegCreateKeyEx,
        eWaitForMultipleObjects,
        eRegisterClassEx,
        eCreateWindow,
        eCreateSemaphore,
        eFSeek,
        eFRead,
        eFWrite,
        eTmpFile,
        eSetFilePointer,
        eNew,
    };

    CSystemErr(Action eAction, LPCTSTR
szLocation);
    CSystemErr(int iError, Action eAction,
LPCTSTR szLocation);
    int ErrorType() { return ERR_TYPE_OS; };
    char *ErrorText(void);
    void Draw(HWND hwnd, LPCTSTR szStr = NULL);

    Action m_eAction;

private:
    char m_szMsg[ERR_MSG_BUF_SIZE];
};

```

```

};

class CMemoryErr : public CBaseErr
{
public:
    CMemoryErr();

    int ErrorType() {return ERR_TYPE_MEMORY;}
    char *ErrorText() {return ERR_INS_MEMORY;}
};

class CBufferOverflowErr : public CBaseErr
{
public:
    CBufferOverflowErr(int,LPTSTR);

    int ErrorType() {return ERR_BUF_OVERFLOW;}

    char *ErrorText() {return ERR_INS_BUF_OVERFLOW;}
};

```

## install.c

```

/*      FILE:          INSTALL.C
 *
 *      Microsoft TPC-C Kit Ver.
4.20.000
 *
 *      Copyright Microsoft, 1999
 *
 *      All Rights Reserved
 *
 *
 *      not audited
 *
 *      PURPOSE:      Automated installation application for TPC-C
Web Kit
 *      Contact:   Charles Levine (clevine@microsoft.com)
 *
 *      Change history:
 *      4.20.000 - added COM installation steps
 */

```

```

#include <windows.h>
#include <direct.h>
#include <io.h>
#include <stdlib.h>
#include <stdio.h>
#include <commctrl.h>
#include "..\..\common\src\ReadRegistry.h"

#include "resource.h"

#define WM_INITTEXT WM_USER+100

HICON hIcon;
HINSTANCE hInst;

DWORD versionExeMS;
DWORD versionExeLS;
DWORD versionExeMM;
DWORD versionDllMS;
DWORD versionDllLS;

// TPC-C registry settings
TPCCREGISTRYDATA Reg;

static int iPoolThreadLimit;
static int iThreadTimeout;
static int iListenBackLog;

```

```

static int iAcceptExOutstanding;

static int iMaxPhysicalMemory;
//max physical memory in MB
static char szLastFileName[64]; // last file we worked
on (for error reporting)

BOOL CALLBACK LicenseDlgProc(HWND hwnd, UINT uMsg,
WPARAM wParam, LPARAM lParam);
BOOL CALLBACK UpdatedDlgProc(HWND hwnd, UINT uMsg,
WPARAM wParam, LPARAM lParam);
BOOL CALLBACK MainDlgProc(HWND hwnd, UINT uMsg,
WPARAM wParam, LPARAM lParam);
BOOL CALLBACK CopyDlgProc(HWND hwnd, UINT uMsg,
WPARAM wParam, LPARAM lParam);
static void ProcessOK(HWND hwnd, char *szDllPath);
static void ReadRegistrySettings(void);
static void WriteRegistrySettings(char *szDllPath);
static BOOL RegisterDLL(char *szFileName);
static int CopyFiles(HWND hDlg, char
*szDllPath);
static BOOL GetInstallPath(char *szDllPath);
static void GetVersionInfo(char *szDLLPath, char
*szExePath);
static BOOL CheckWWWService(void);
static BOOL StartWWWService(void);
static BOOL StopWWWService(void);
static void UpdateDialog(HWND hDlg);

BOOL install_com(char *szDllPath);

#include "..\..\common\src\ReadRegistry.cpp"

int WINAPI WinMain( HINSTANCE hInstance, HINSTANCE hPrevInstance,
LPSTR lpCmdLine, int nCmdShow )
{
    int iRc;

    hInst = hInstance;

    InitCommonControls();

    hIcon = LoadIcon(hInstance,
MAKEINTRESOURCE(IDI_ICON1));

    iRc = DialogBox(hInstance,
MAKEINTRESOURCE(IDD_DIALOG4), GetDesktopWindow(),
LicenseDlgProc);
    if ( iRc )
    {
        iRc = DialogBox(hInstance,
MAKEINTRESOURCE(IDD_DIALOG1), GetDesktopWindow(),
MainDlgProc);
        if ( iRc )
        {
            DialogBoxParam(hInstance,
MAKEINTRESOURCE(IDD_DIALOG2), GetDesktopWindow(),
UpdatedDlgProc, (LPARAM)iRc);
        }
    }

    DestroyIcon(hIcon);
    return 0;
}

BOOL CALLBACK LicenseDlgProc(HWND hwnd, UINT uMsg, WPARAM
wParam, LPARAM lParam)

```

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| <pre> {     HGLOBAL                hRes;     HRSRC                  hResInfo;     BYTE                   *pSrc, *pDst;     DWORD                  dwSize;     static HFONT            hFont;      switch(uMsg)     {         case WM_INITDIALOG:             hFont = CreateFont(-12, 0, 0, 0, 400, 0, 0, 0, 0, 0, 0, 0, "Arial");             SendMessage( GetDlgItem(hwnd, IDR_LICENSE1), WM_SETFONT, (LPARAM)hFont, MAKELPARAM(0, 0) );             PostMessage(hwnd, WM_INITTEXT, (WPARAM)0, (LPARAM)0);             return TRUE;         case WM_INITTEXT:             hResInfo = FindResource(hInst, MAKEINTRESOURCE(IDR_LICENSE1), "LICENSE");             dwSize = SizeofResource(hInst, hResInfo);             hRes = LoadResource(hInst, hResInfo);             pSrc = (BYTE *)LockResource(hRes);             pDst = (unsigned char *)malloc(dwSize+1);             if ( pDst )             {                 memcpy(pDst, pSrc, dwSize);                 pDst[dwSize] = 0;                 SetDlgItemText(hwnd, IDC_LICENSE, (const char *)pDst);             }             else                 SetDlgItemText(hwnd, IDC_LICENSE, (const char *)pSrc);             return TRUE;         case WM_DESTROY:             DeleteObject(hFont);             return TRUE;         case WM_COMMAND:             if ( wParam == IDOK )                 EndDialog(hwnd, TRUE);             if ( wParam == IDCANCEL )                 EndDialog(hwnd, FALSE);         default:             break;     }     return FALSE; }  BOOL CALLBACK UpdatedDlgProc(HWND hwnd, UINT uMsg, WPARAM wParam, LPARAM lParam) {     switch(uMsg)     {         case WM_INITDIALOG:             switch(lParam)             {                 case 1:                 case 2:                     SetDlgItemText(hwnd, IDC_RESULTS, "TPC-C Web Client Installed");                     break;             }             return TRUE;         case WM_COMMAND:             if ( wParam == IDOK ) </pre> | <pre>                 EndDialog(hwnd, TRUE);             break;         default:             break;     }     return FALSE; }  BOOL CALLBACK MainDlgProc(HWND hwnd, UINT uMsg, WPARAM wParam, LPARAM lParam) {     PAINTSTRUCT            ps;     MEMORYSTATUS            memoryStatus;     OSVERSIONINFO           VI;     char                    szTmp[256];     static char              szDllPath[256];     static char              szExePath[256];      switch(uMsg)     {         case WM_INITDIALOG:             GlobalMemoryStatus(&amp;memoryStatus);             iMaxPhysicalMemory = (memoryStatus.dwTotalPhys/ 1048576);              if ( GetInstallPath(szDllPath) )             {                 MessageBox(hwnd, "Error internet service inetsrv is not installed.", NULL, MB_ICONSTOP   MB_OK);                 EndDialog(hwnd, FALSE);                 return TRUE;             }              // set default values             ZeroMemory( &amp;Reg, sizeof(Reg) );             Reg.dwNumberOfDeliveryThreads = 4;             Reg.dwMaxConnections = 100;             Reg.dwMaxPendingDeliveries = 100;             Reg.eDB_Protocol = DBLIB;             Reg.eTxnMon = None;             strcpy(Reg.szDbServer, "" );             strcpy(Reg.szDbName, "tpcc");             strcpy(Reg.szDbUser, "sa");             strcpy(Reg.szDbPassword, "" );              iPoolThreadLimit = iMaxPhysicalMemory * 2;              iThreadTimeout = 86400;             iListenBackLog = 15;             iAcceptExOutstanding = 40;              ReadTPCCRegistrySettings( &amp;Reg );             ReadRegistrySettings();              GetModuleFileName(hInst, szExePath, sizeof(szExePath));              GetVersionInfo(szDllPath, szExePath);              wsprintf(szTmp, "Version %d.%2.2d.%3.3d", versionExeMS, versionExeMM, versionExeLS);             SetDlgItemText(hwnd, IDC_VERSION, szTmp);              SetDlgItemText(hwnd, IDC_PATH, szDllPath); </pre> |
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| <pre> Reg.szDbServer); SetDlgItemText(hwnd, ED_DB_SERVER, Reg.szDbUser); SetDlgItemText(hwnd, ED_DB_USER_ID, SetDlgItemText(hwnd, ED_DB_PASSWORD, Reg.szDbPassword); SetDlgItemText(hwnd, ED_DB_NAME, Reg.szDbName);  SetDlgItemInt(hwnd, ED_THREADS, Reg.dwNumberOfDeliveryThreads, FALSE); SetDlgItemInt(hwnd, ED_MAXCONNECTION, Reg.dwMaxConnections, FALSE); SetDlgItemInt(hwnd, ED_MAXDELIVERIES, Reg.dwMaxPendingDeliveries, FALSE); SetDlgItemInt(hwnd, ED_IIS_MAX_THREAD_POOL_LIMIT, iPoolThreadLimit, FALSE); SetDlgItemInt(hwnd, ED_IIS_THREAD_TIMEOUT, iThreadTimeout, FALSE); SetDlgItemInt(hwnd, ED_IIS_LISTEN_BACKLOG, iListenBackLog, FALSE); SetDlgItemInt(hwnd, ED_WEB_SERVICE_BACKLOG_QUEUE_SIZE, iAcceptExOutstanding, FALSE);  CheckDlgButton(hwnd, IDC_DBLIB, 0); CheckDlgButton(hwnd, IDC_ODBC, 0); if ( Reg.eDB_Protocol == DBLIB )     CheckDlgButton(hwnd, IDC_DBLIB, 1); else     CheckDlgButton(hwnd, IDC_ODBC, 1);  // check OS version level for COM. Must be at least Windows 2000 VI.dwOSVersionInfoSize = sizeof(VI); GetVersionEx( &amp;VI ); if ( VI.dwMajorVersion &lt; 5) {     HWND hDlg = GetDlgItem( hwnd, IDC_TM_MTS );     EnableWindow( hDlg, 0 );    // disable COM option      if (Reg.eTxnMon == COM)         Reg.eTxnMon = None; }  CheckDlgButton(hwnd, IDC_TM_NONE, 0); CheckDlgButton(hwnd, IDC_TM_TUXEDO, 0); CheckDlgButton(hwnd, IDC_TM_MTS, 0); CheckDlgButton(hwnd, IDC_TM_ENCINA, 0);  switch (Reg.eTxnMon) { case None:     CheckDlgButton(hwnd, IDC_TM_NONE, 1); break; case TUXEDO:     CheckDlgButton(hwnd, IDC_TM_TUXEDO, 1); break; case ENCINA:     CheckDlgButton(hwnd, IDC_TM_ENCINA, 1); </pre> | <pre> break; case COM:     CheckDlgButton(hwnd, IDC_TM_MTS, 1); break; }  return TRUE; case WM_PAINT:     if ( IsIconic(hwnd) )     {         BeginPaint(hwnd, &amp;ps);         DrawIcon(ps.hdc, 0, 0, hIcon);         EndPaint(hwnd, &amp;ps);         return TRUE;     }     break; case WM_COMMAND:     if ( HIWORD(wParam) == BN_CLICKED )     {         switch( LOWORD(wParam) )         {             case IDC_DBLIB:                 return TRUE;             case IDC_ODBC:                 return TRUE;             case IDOK:                 ProcessOK(hwnd, szDllPath);                 return TRUE;             case IDCANCEL:                 EndDialog(hwnd, FALSE);                 return TRUE;             default:                 return FALSE;         }     }     break; } return FALSE; }  static void ProcessOK(HWND hwnd, char *szDllPath) {     int d;     HWND hDlg;     int rc;      char szFullName[256];     char szErrTxt[128];      // read settings from dialog     Reg.dwNumberOfDeliveryThreads = GetDlgItemInt(hwnd, ED_THREADS, &amp;d, FALSE);     Reg.dwMaxConnections = GetDlgItemInt(hwnd, ED_MAXCONNECTION, &amp;d, FALSE);     Reg.dwMaxPendingDeliveries = GetDlgItemInt(hwnd, ED_MAXDELIVERIES, &amp;d, FALSE); </pre> |
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```

        GetDlgItemText(hwnd, ED_DB_SERVER, Reg.szDbServer,
sizeof(Reg.szDbServer));
        GetDlgItemText(hwnd, ED_DB_USER_ID, Reg.szDbUser,
sizeof(Reg.szDbUser));
        GetDlgItemText(hwnd, ED_DB_PASSWORD, Reg.szDbPassword,
sizeof(Reg.szDbPassword));
        GetDlgItemText(hwnd, ED_DB_NAME, Reg.szDbName,
sizeof(Reg.szDbName));

        if ( IsDlgButtonChecked(hwnd, IDC_DBLIB) )
        {
                Reg.eDB_Protocol = DBLIB;
                rc = 1;
        }
        else if ( IsDlgButtonChecked(hwnd, IDC_ODBC) )
        {
                Reg.eDB_Protocol = ODBC;
                rc = 2;
        }

        if ( IsDlgButtonChecked(hwnd, IDC_TM_NONE) )
                Reg.eTxnMon = None;
        else if ( IsDlgButtonChecked(hwnd, IDC_TM_TUXEDO) )
                Reg.eTxnMon = TUXEDO;
        else if ( IsDlgButtonChecked(hwnd, IDC_TM_MTS) )
                Reg.eTxnMon = COM;
        else if ( IsDlgButtonChecked(hwnd, IDC_TM_ENCINA) )
                Reg.eTxnMon = ENCINA;

        iPoolThreadLimit = GetDlgItemInt(hwnd,
ED_IIS_MAX_THREAD_POOL_LIMIT, &d, FALSE);
        iThreadTimeout = GetDlgItemInt(hwnd,
ED_IIS_THREAD_TIMEOUT, &d, FALSE);
        iListenBackLog = GetDlgItemInt(hwnd,
ED_IIS_LISTEN_BACKLOG, &d, FALSE);
        iAcceptExOutstanding = GetDlgItemInt(hwnd,
ED_WEB_SERVICE_BACKLOG_QUEUE_SIZE, &d, FALSE);

        ShowWindow(hwnd, SW_HIDE);
        hDlg = CreateDialog(hInst,
MAKEINTRESOURCE(IDD_DIALOG3), hwnd, CopyDlgProc);
        ShowWindow(hDlg, SW_SHOWNA);
        UpdateDialog(hDlg);

        // write binaries to inetpub\wwwroot
        rc = CopyFiles(hDlg, szDllPath);
        if ( !rc )
        {
                ShowWindow(hwnd, SW_SHOWNA);
                DestroyWindow(hDlg);
                strcpy( szErrTxt, "Error(s) ocured when creating " );
                strcat( szErrTxt, szLastFileName );
                MessageBox(hwnd, szErrTxt, NULL, MB_ICONSTOP |
MB_OK);

                EndDialog(hwnd, 0);
                return;
        }

        // update registry
        SetDlgItemText(hDlg, IDC_STATUS, "Updating Registry.");
        SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0,
0);

        UpdateDialog(hDlg);
        WriteRegistrySettings(szDllPath);

        // register com proxy stub

```

```

        strcpy(szFullName, szDllPath);
        strcat(szFullName, "tpcc_com_ps.dll");
        if (!RegisterDLL(szFullName))
        {
                ShowWindow(hwnd, SW_SHOWNA);
                DestroyWindow(hDlg);
                strcpy( szErrTxt, "Error ocured when registering " );
                strcat( szErrTxt, szFullName );
                MessageBox(hwnd, szErrTxt, NULL, MB_ICONSTOP |
MB_OK);

                EndDialog(hwnd, 0);
                return;
        }

        // if using COM
        if (Reg.eTxnMon == COM)
        {
                SetDlgItemText(hDlg, IDC_STATUS, "Configuring
COM.");
                SendDlgItemMessage(hDlg, IDC_PROGRESS1,
PBM_STEPIT, 0, 0);
                UpdateDialog(hDlg);

                if (install_com(szDllPath))
                {
                        ShowWindow(hwnd, SW_SHOWNA);
                        DestroyWindow(hDlg);
                        strcpy( szErrTxt, "Error ocured when
configuring COM settings." );
                        MessageBox(hwnd, szErrTxt, NULL,
MB_ICONSTOP | MB_OK);

                        EndDialog(hwnd, 0);
                        return;
                }

                Sleep(100);

                ShowWindow(hwnd, SW_SHOWNA);
                DestroyWindow(hDlg);

                EndDialog(hwnd, rc);
                return;
        }

        static void ReadRegistrySettings(void)
        {
                HKEY    hKey;
                DWORD    size;
                DWORD    type;

                if ( RegOpenKeyEx(HKEY_LOCAL_MACHINE,
"SYSTEM\\CurrentControlSet\\Services\\Inetinfo\\Parameters", 0,
KEY_READ, &hKey) == ERROR_SUCCESS )
                {
                        size = sizeof(iPoolThreadLimit);
                        if ( RegQueryValueEx(hKey, "PoolThreadLimit", 0,
&type, (char *)&iPoolThreadLimit, &size) == ERROR_SUCCESS )
                                if ( !iPoolThreadLimit )
                                        iPoolThreadLimit =
iMaxPhysicalMemory * 2;

                        size = sizeof(iThreadTimeout);
                        if ( RegQueryValueEx(hKey, "ThreadTimeout", 0,
&type, (char *)&iThreadTimeout, &size) == ERROR_SUCCESS )
                                if ( !iThreadTimeout )
                                        iThreadTimeout = 86400;

```

```

        size = sizeof(iListenBackLog);
        if ( RegQueryValueEx(hKey, "ListenBackLog", 0,
&type, (char *)&iListenBackLog, &size) == ERROR_SUCCESS )
            if ( !iListenBackLog )
                iListenBackLog = 15;

        RegCloseKey(hKey);
    }

    if ( RegOpenKeyEx(HKEY_LOCAL_MACHINE,
"SYSTEM\\CurrentControlSet\\Services\\W3SVC\\Parameters", 0,
KEY_READ, &hKey) == ERROR_SUCCESS )
    {
        size = sizeof(iAcceptExOutstanding);
        if ( RegQueryValueEx(hKey, "AcceptExOutstanding", 0,
&type, (char *)&iAcceptExOutstanding, &size) == ERROR_SUCCESS )
            if ( !iAcceptExOutstanding )
                iAcceptExOutstanding = 40;

        RegCloseKey(hKey);
    }
}

static void WriteRegistrySettings(char *szDllPath)
{
    HKEY    hKey;
    DWORD   dwDisposition;
    char     szTmp[256];
    char     *ptr;
    int      iRc;

    if ( RegCreateKeyEx(HKEY_LOCAL_MACHINE,
"SOFTWARE\\Microsoft\\TPCC", 0, NULL,
REG_OPTION_NON_VOLATILE, KEY_ALL_ACCESS, NULL, &hKey,
&dwDisposition) == ERROR_SUCCESS )
    {
        strcpy(szTmp, szDllPath);
        ptr = strstr(szTmp, "tpcc");
        if ( ptr )
            *ptr = 0;

        RegSetValueEx(hKey, "Path", 0, REG_SZ, szTmp,
strlen(szTmp)+1);

        RegSetValueEx(hKey, "NumberOfDeliveryThreads", 0,
REG_DWORD, (char *)&Reg.dwNumberOfDeliveryThreads,
sizeof(Reg.dwNumberOfDeliveryThreads));
        RegSetValueEx(hKey, "MaxConnections", 0,
REG_DWORD, (char *)&Reg.dwMaxConnections,
sizeof(Reg.dwMaxConnections));
        RegSetValueEx(hKey, "MaxPendingDeliveries", 0,
REG_DWORD, (char *)&Reg.dwMaxPendingDeliveries,
sizeof(Reg.dwMaxPendingDeliveries));

        RegSetValueEx(hKey, "DB_Protocol", 0, REG_SZ,
szDBNames[Reg.eDB_Protocol], strlen(szDBNames[Reg.eDB_Protocol])+1);
        RegSetValueEx(hKey, "TxnMonitor", 0, REG_SZ,
szTxnMonNames[Reg.eTxnMon], strlen(szTxnMonNames[Reg.eTxnMon])+1);

        RegSetValueEx(hKey, "DbServer", 0, REG_SZ,
Reg.szDbServer, strlen(Reg.szDbServer)+1);
        RegSetValueEx(hKey, "DbName", 0, REG_SZ,
Reg.szDbName, strlen(Reg.szDbName)+1);
        RegSetValueEx(hKey, "DbUser", 0, REG_SZ,
Reg.szDbUser, strlen(Reg.szDbUser)+1);
        RegSetValueEx(hKey, "DbPassword", 0, REG_SZ,
Reg.szDbPassword, strlen(Reg.szDbPassword)+1);

```

```

        strcpy(szTmp, "YES");
        RegSetValueEx(hKey, "COM_SinglePool", 0, REG_SZ,
szTmp, strlen(szTmp)+1);

        RegFlushKey(hKey);
        RegCloseKey(hKey);
    }

    if ( (iRc=RegCreateKeyEx(HKEY_LOCAL_MACHINE,
"SYSTEM\\CurrentControlSet\\Services\\Inetinfo\\Parameters", 0, NULL,
REG_OPTION_NON_VOLATILE, KEY_ALL_ACCESS, NULL, &hKey,
&dwDisposition)) == ERROR_SUCCESS )
    {
        RegSetValueEx(hKey, "PoolThreadLimit", 0,
REG_DWORD, (char *)&iPoolThreadLimit, sizeof(iPoolThreadLimit));
        RegSetValueEx(hKey, "ThreadTimeout", 0,
REG_DWORD, (char *)&iThreadTimeout, sizeof(iThreadTimeout));
        RegSetValueEx(hKey, "ListenBackLog", 0,
REG_DWORD, (char *)&iListenBackLog, sizeof(iListenBackLog));

        RegFlushKey(hKey);
        RegCloseKey(hKey);
    }

    if ( (iRc=RegCreateKeyEx(HKEY_LOCAL_MACHINE,
"SYSTEM\\CurrentControlSet\\Services\\W3SVC\\Parameters", 0, NULL,
REG_OPTION_NON_VOLATILE, KEY_ALL_ACCESS, NULL, &hKey,
&dwDisposition)) == ERROR_SUCCESS )
    {
        RegSetValueEx(hKey, "AcceptExOutstanding", 0,
REG_DWORD, (char *)&iAcceptExOutstanding,
sizeof(iAcceptExOutstanding));

        RegFlushKey(hKey);
        RegCloseKey(hKey);
    }

    return;
}

BOOL CALLBACK CopyDlgProc(HWND hwnd, UINT uMsg, WPARAM
wParam, LPARAM lParam)
{
    if ( uMsg == WM_INITDIALOG )
    {
        SendDlgItemMessage(hwnd, IDC_PROGRESS1,
PBM_SETRANGE, 0, MAKELPARAM(0, 16));
        SendDlgItemMessage(hwnd, IDC_PROGRESS1,
PBM_SETSTEP, (WPARAM)1, 0);
        return TRUE;
    }

    return FALSE;
}

BOOL RegisterDLL(char *szFileName)
{
    HINSTANCE    hLib;
    FARPROC      lpDllEntryPoint;

    hLib = LoadLibrary(szFileName);
    if ( hLib == NULL )
        return FALSE;
    // Find the entry point.
    lpDllEntryPoint = GetProcAddress(hLib, "DllRegisterServer");
    if (lpDllEntryPoint != NULL)
    {
        return ((*lpDllEntryPoint)() == S_OK);
    }
}

```

```

        else
            return FALSE;        //unable to locate entry point
    }

```

```

BOOL FileFromResource( char *szResourceName, int iResourceId, char
*szDllPath, char *szFileName )

```

```

{
    HGLOBAL                hDLL;
    HRSRC                  hResInfo;
    HANDLE                  hFile;
    DWORD                  dwSize;
    BYTE                    *pSrc;
    DWORD                  d;
    char                    szFullName[256];

    hResInfo = FindResource(hInst,
MAKEINTRESOURCE(iResourceId), szResourceName);

    strcpy(szFullName, szDllPath);
    strcat(szFullName, szFileName);

    dwSize = SizeofResource(hInst, hResInfo);
    hDLL = LoadResource(hInst, hResInfo );
    pSrc = (BYTE *)LockResource(hDLL);
    remove(szFullName);

    if ( !(hFile = CreateFile(szFullName, GENERIC_WRITE, 0, NULL,
CREATE_ALWAYS, FILE_ATTRIBUTE_NORMAL, NULL)) )
        return FALSE;

    if ( !WriteFile(hFile, pSrc, dwSize, &d, NULL) )
        return FALSE;

    CloseHandle(hFile);

    UnlockResource(hDLL);
    FreeResource(hDLL);
    return TRUE;
}

```

```

static int CopyFiles(HWND hDlg, char *szDllPath)

```

```

{
    BOOL                bSvcRunning;

    bSvcRunning = CheckWWWebService();
    if ( bSvcRunning )
    {
        SetDlgItemText(hDlg, IDC_STATUS, "Stopping Web
Service.");
        SendDlgItemMessage(hDlg, IDC_PROGRESS1,
PBM_STEPIT, 0, 0);
        UpdateDialog(hDlg);

        StopWWWebService();
        SendDlgItemMessage(hDlg, IDC_PROGRESS1,
PBM_STEPIT, 0, 0);
        UpdateDialog(hDlg);
    }

    SetDlgItemText(hDlg, IDC_STATUS, "Copying Files...");
    SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0,
0);
    UpdateDialog(hDlg);

    // install TPCC.DLL
    strcpy( szLastFileName, "tpcc.dll" );
    if (!FileFromResource( "TPCCDLL", IDR_TPCCDLL, szDllPath,
szLastFileName ))

```

```

        return 0;
    SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0,
0);
    UpdateDialog(hDlg);

    // install tpcc_dblib.dll
    strcpy( szLastFileName, "tpcc_dblib.dll" );
    if (!FileFromResource( "DBLIB_DLL", IDR_DBLIB_DLL,
szDllPath, szLastFileName ))
        return 0;
    SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0,
0);
    UpdateDialog(hDlg);

    // install tpcc_odbc.dll
    strcpy( szLastFileName, "tpcc_odbc.dll" );
    if (!FileFromResource( "ODBC_DLL", IDR_ODBC_DLL,
szDllPath, szLastFileName ))
        return 0;
    SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0,
0);
    UpdateDialog(hDlg);

    // install tuxapp.exe
    strcpy( szLastFileName, "tuxapp.exe" );
    if (!FileFromResource( "TUXEDO_APP", IDR_TUXEDO_APP,
szDllPath, szLastFileName ))
        return 0;
    SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0,
0);
    UpdateDialog(hDlg);

    // install tpcc_tuxedo.dll
    strcpy( szLastFileName, "tpcc_tuxedo.dll" );
    if (!FileFromResource( "TUXEDO_DLL", IDR_TUXEDO_DLL,
szDllPath, szLastFileName ))
        return 0;
    SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0,
0);
    UpdateDialog(hDlg);

    // install tpcc_com.dll
    strcpy( szLastFileName, "tpcc_com.dll" );
    if (!FileFromResource( "COM_DLL", IDR_COM_DLL, szDllPath,
szLastFileName ))
        return 0;
    SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0,
0);
    UpdateDialog(hDlg);

    // install tpcc_com_all.tlb
    strcpy( szLastFileName, "tpcc_com_all.tlb" );
    if (!FileFromResource( "COM_TYPLIB",
IDR_COMTYPLIB_DLL, szDllPath, szLastFileName ))
        return 0;
    SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0,
0);
    UpdateDialog(hDlg);

    // install tpcc_com_ps.dll
    strcpy( szLastFileName, "tpcc_com_ps.dll" );
    if (!FileFromResource( "COM_PS_DLL", IDR_COMPS_DLL,
szDllPath, szLastFileName ))
        return 0;
    SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0,
0);
    UpdateDialog(hDlg);

```

```

        // install tpcc_com_all.dll
        strcpy( szLastFileName, "tpcc_com_all.dll" );
        if ( !FileFromResource( "COM_ALL_DLL", IDR_COMALL_DLL,
szDllPath, szLastFileName ) )
            return 0;
        SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0,
0);
        UpdateDialog(hDlg);

        //if we stopped service restart it.
        if ( bSvcRunning )
        {
            SetDlgItemText(hDlg, IDC_STATUS, "Starting Web
Service.");
            SendDlgItemMessage(hDlg, IDC_PROGRESS1,
PBM_STEPIT, 0, 0);
            UpdateDialog(hDlg);
            StartWWWebService();
        }

        SendDlgItemMessage(hDlg, IDC_PROGRESS1, PBM_STEPIT, 0,
0);
        UpdateDialog(hDlg);

        return 1;
    }

static BOOL GetInstallPath(char *szDllPath)
{
    HKEY hKey;
    BYTE szData[256];
    DWORD sv;
    BOOL bRc;
    int len;
    int iRc;

    // Registry key
    HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\InetStp\PathWWWRoot
is used to find the
    // IIS default web site directory and determine that IIS is installed.

    szDllPath[0] = 0;
    bRc = TRUE;
    if ( RegOpenKeyEx(HKEY_LOCAL_MACHINE,
"SOFTWARE\Microsoft\InetStp", 0, KEY_ALL_ACCESS, &hKey) ==
ERROR_SUCCESS )
    {
        sv = sizeof(szData);
        iRc = RegQueryValueEx( hKey, "PathWWWRoot",
NULL, NULL, szData, &sv ); // used by IIS 5.0 & 6.0
        if ( iRc == ERROR_SUCCESS )
        {
            bRc = FALSE;
            strcpy(szDllPath, szData);
            len = strlen(szDllPath);
            if ( szDllPath[len-1] != '\\' )
            {
                szDllPath[len] = '\\';
                szDllPath[len+1] = 0;
            }
        }

        RegCloseKey(hKey);
    }

    return bRc;
}

```

```

static void GetVersionInfo(char *szDLLPath, char *szExePath)
{
    DWORD d;
    DWORD dwSize;
    DWORD dwBytes;
    char *ptr;
    VS_FIXEDFILEINFO *vs;

    versionDllMS = 0;
    versionDllLS = 0;
    if ( _access(szDLLPath, 00) == 0 )
    {
        dwSize = GetFileVersionInfoSize(szDLLPath, &d);
        if ( dwSize )
        {
            ptr = (char *)malloc(dwSize);
            GetFileVersionInfo(szDLLPath, 0, dwSize,
ptr);

            VerQueryValue(ptr, "\\",&vs, &dwBytes);
            versionDllMS = vs->dwProductVersionMS;
            versionDllLS = vs->dwProductVersionLS;
            free(ptr);
        }
    }

    versionExeMS = 0x7FFF;
    versionExeLS = 0x7FFF;
    dwSize = GetFileVersionInfoSize(szExePath, &d);
    if ( dwSize )
    {
        ptr = (char *)malloc(dwSize);
        GetFileVersionInfo(szExePath, 0, dwSize, ptr);
        VerQueryValue(ptr, "\\",&vs, &dwBytes);

        versionExeMS = vs->dwProductVersionMS;
        versionExeLS = LOWORD(vs->dwProductVersionLS);
        versionExeMM = HIWORD(vs->dwProductVersionLS);
        free(ptr);
    }
    return;
}

static BOOL CheckWWWebService(void)
{
    SC_HANDLE schSCManager;
    SC_HANDLE schService;
    SERVICE_STATUS ssStatus;

    schSCManager = OpenSCManager(NULL, NULL,
SC_MANAGER_ALL_ACCESS);
    schService = OpenService(schSCManager, TEXT("W3SVC"),
SERVICE_ALL_ACCESS);
    if (schService == NULL)
        return FALSE;

    if ( ! QueryServiceStatus(schService, &ssStatus) )
        goto ServiceNotRunning;

    if ( !ControlService(schService, SERVICE_CONTROL_STOP,
&ssStatus) )
        goto ServiceNotRunning;
    //start Service pending, Check the status until the service is running.
    if ( ! QueryServiceStatus(schService, &ssStatus) )
        goto ServiceNotRunning;

    CloseServiceHandle(schService);
    return TRUE;
}

```

```

ServiceNotRunning:

    CloseServiceHandle(schService);
    return FALSE;
}

static BOOL StartWWWebService(void)
{
    SC_HANDLE          schSCManager;
    SC_HANDLE          schService;
    SERVICE_STATUS     ssStatus;
    DWORD              dwOldCheckPoint;

    schSCManager = OpenSCManager(NULL, NULL,
    SC_MANAGER_ALL_ACCESS);
    schService = OpenService(schSCManager, TEXT("W3SVC"),
    SERVICE_ALL_ACCESS);
    if (schService == NULL)
        return FALSE;

    if (! StartService(schService, 0, NULL) )
        goto StartWWWebErr;
    //start Service pending, Check the status until the service is running.
    if (! QueryServiceStatus(schService, &ssStatus) )
        goto StartWWWebErr;
    while( ssStatus.dwCurrentState != SERVICE_RUNNING)
    {

        dwOldCheckPoint = ssStatus.dwCheckPoint;
        //Save the current checkpoint.
        Sleep(ssStatus.dwWaitHint);
        //Wait for the specified interval.
        if ( !QueryServiceStatus(schService, &ssStatus) )
            //Check the status again.
            break;
        if (dwOldCheckPoint >= ssStatus.dwCheckPoint)
            //Break if the checkpoint has not been incremented.
            break;
    }

    if (ssStatus.dwCurrentState == SERVICE_RUNNING)
        goto StartWWWebErr;

    CloseServiceHandle(schService);
    return TRUE;

StartWWWebErr:
    CloseServiceHandle(schService);
    return FALSE;
}

static BOOL StopWWWebService(void)
{
    SC_HANDLE          schSCManager;
    SC_HANDLE          schService;
    SERVICE_STATUS     ssStatus;
    DWORD              dwOldCheckPoint;

    schSCManager = OpenSCManager(NULL, NULL,
    SC_MANAGER_ALL_ACCESS);
    schService = OpenService(schSCManager, TEXT("W3SVC"),
    SERVICE_ALL_ACCESS);
    if (schService == NULL)
        return FALSE;

    if (! QueryServiceStatus(schService, &ssStatus) )
        goto StopWWWebErr;

```

```

    if ( !ControlService(schService, SERVICE_CONTROL_STOP,
    &ssStatus) )
        goto StopWWWebErr;
    //start Service pending, Check the status until the service is running.
    if (! QueryServiceStatus(schService, &ssStatus) )
        goto StopWWWebErr;
    while( ssStatus.dwCurrentState == SERVICE_RUNNING)
    {

        dwOldCheckPoint = ssStatus.dwCheckPoint;
        //Save the current checkpoint.
        Sleep(ssStatus.dwWaitHint);
        //Wait for the specified interval.
        if ( !QueryServiceStatus(schService, &ssStatus) )
            //Check the status again.
            break;
        if (dwOldCheckPoint >= ssStatus.dwCheckPoint)
            //Break if the checkpoint has not been incremented.
            break;
    }

    if (ssStatus.dwCurrentState == SERVICE_RUNNING)
        goto StopWWWebErr;

    CloseServiceHandle(schService);
    return TRUE;

StopWWWebErr:
    CloseServiceHandle(schService);
    return FALSE;
}

static void UpdateDialog(HWND hDlg)
{
    MSG msg;

    UpdateWindow(hDlg);
    while( PeekMessage(&msg, hDlg, 0, 0, PM_REMOVE) )
    {
        TranslateMessage(&msg);
        DispatchMessage(&msg);
    }
    Sleep(250);
    return;
}

```

## ***install.dsp***

```

# Microsoft Developer Studio Project File - Name="install" - Package
Owner=<4>
# Microsoft Developer Studio Generated Build File, Format Version 6.00
# ** DO NOT EDIT **

# TARGETTYPE "Win32 (x86) Application" 0x0101

CFG=install - Win32 Release
!MESSAGE This is not a valid makefile. To build this project using NMAKE,
!MESSAGE use the Export Makefile command and run
!MESSAGE
!MESSAGE NMAKE /f "install.mak".
!MESSAGE
!MESSAGE You can specify a configuration when running NMAKE
!MESSAGE by defining the macro CFG on the command line. For example:
!MESSAGE
!MESSAGE NMAKE /f "install.mak" CFG="install - Win32 Release"
!MESSAGE

```

```

!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "install - Win32 Release" (based on "Win32 (x86) Application")
!MESSAGE "install - Win32 Debug" (based on "Win32 (x86) Application")
!MESSAGE

# Begin Project
# PROP AllowPerConfigDependencies 0
# PROP Scc_ProjName ""
# PROP Scc_LocalPath ""
CPP=cl.exe
MTL=midl.exe
RSC=rc.exe

!IF "$(CFG)" == "install - Win32 Release"

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir ".\Release"
# PROP BASE Intermediate_Dir ".\Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D
"_WINDOWS" /YX /c
# ADD CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D
"_WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D "NDEBUG" /win32
# ADD MTL /nologo /D "NDEBUG" /mktyplib203 /win32
# ADD BASE RSC /l 0x409 /d "NDEBUG"
# ADD RSC /l 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib
/nologo /subsystem:windows /machine:I386
# ADD LINK32 version.lib comctl32.lib kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib
uuid.lib odbcc32.lib odbccp32.lib /nologo /subsystem:windows /machine:I386
/out:".bin\install.exe"

!ELSEIF "$(CFG)" == "install - Win32 Debug"

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir ".\Debug"
# PROP BASE Intermediate_Dir ".\Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG"
/D "_WINDOWS" /YX /c
# ADD CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG" /D
"_WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D "_DEBUG" /win32
# ADD MTL /nologo /D "_DEBUG" /mktyplib203 /win32
# ADD BASE RSC /l 0x409 /d "_DEBUG"
# ADD RSC /l 0x409 /d "_DEBUG"

BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib
/nologo /subsystem:windows /machine:I386
# ADD LINK32 version.lib comctl32.lib kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib
uuid.lib odbcc32.lib odbccp32.lib /nologo /subsystem:windows /machine:I386
/out:".bin\install.exe"

!ENDIF

# Begin Target

# Name "install - Win32 Release"
# Name "install - Win32 Debug"
# Begin Group "Source Files"

# PROP Default_Filter "cpp;c;cxx;rc;def;r;odl;hpj;bat;for;f90"
# Begin Source File

SOURCE=.src\install.c
# End Source File
# Begin Source File

SOURCE=.src\install.rc
# ADD BASE RSC /l 0x409 /i "src"
# ADD RSC /l 0x409 /i "src" /i ".\src"
# End Source File
# Begin Source File

SOURCE=.src\install_com.cpp
# End Source File
# End Group
# Begin Group "Header Files"

# PROP Default_Filter "h;hpp;hxx;hm;inl;fi;fd"
# End Group
# Begin Group "Resource Files"

# PROP Default_Filter "ico;cur;bmp;dlg;rc2;rc;bin;cnt;rtf;gif;jpg;jpeg;jpe"
# Begin Source File

SOURCE=.src\ICON1.ICO
# End Source File
# Begin Source File

SOURCE=.src\ICON2.ICO
# End Source File
# End Group
# Begin Source File

SOURCE=.src\LICENSE.TXT
# End Source File
# Begin Source File

SOURCE=.isapi_dll\bin\tpcc.dll
# End Source File
# Begin Source File

SOURCE=.tm_com_dll\bin\tpcc_com.dll
# End Source File
# Begin Source File

SOURCE=.tpcc_com_all\bin\tpcc_com_all.dll
# End Source File

```

```
# Begin Source File

SOURCE=..\tpcc_com_ps\bin\tpcc_com_ps.dll
# End Source File
# Begin Source File

SOURCE=..\db_dblib_dll\bin\tpcc_dblib.dll
# End Source File
# Begin Source File

SOURCE=..\db_odbc_dll\bin\tpcc_odbc.dll
# End Source File
# Begin Source File

SOURCE=..\tm_tuxedo_dll\bin\tpcc_tuxedo.dll
# End Source File
# Begin Source File

SOURCE=..\tuxapp\bin\tuxapp.exe
# End Source File
# End Target
# End Project
```

## install.h

```
//{{NO_DEPENDENCIES}}
// Microsoft Developer Studio generated include file.
// Used by install.rc
//

#define IDD_DIALOG1 101
#define IDI_ICON1 102
#define IDR_TPCCDLL 103
#define IDD_DIALOG2 105
#define IDI_ICON2 106
#define IDR_DELIVERY 107
#define IDD_DIALOG3 108

#define BN_LOG 1001
#define ED_KEEP 1002
#define ED_THREADS 1003
#define ED_THREADS2 1004
#define IDC_PATH 1007
#define IDC_VERSION 1009
#define IDC_RESULTS 1010
#define IDC_PROGRESS1 1011
#define IDC_STATUS 1012
#define IDC_BUTTON1 1013
#define ED_MAXCONNECTION 1014
#define ED_IIS_MAX_THREAD_POOL_LIMIT 1015
#define ED_WEB_SERVICE_BACKLOG_QUEUE_SIZE 1017
#define ED_IIS_THREAD_TIMEOUT 1018
#define ED_IIS_LISTEN_BACKLOG 1019
#define IDC_DBLIB 1021
#define IDC_ODBC 1022
#define IDC_CONNECT_POOL 1023
#define ED_USER_CONNECT_DELAY_TIME 1024

// Next default values for new objects
//
```

## install.rc

```
//Microsoft Developer Studio generated resource script.
//
#include "resource.h"

#define APSTUDIO_READONLY_SYMBOLS
////////////////////////////////////
//
// Generated from the TEXTINCLUDE 2 resource.
//
#include "afxres.h"

////////////////////////////////////
#undef APSTUDIO_READONLY_SYMBOLS

////////////////////////////////////
// English (U.S.) resources

#if !defined(AFX_RESOURCE_DLL) || defined(AFX_TARG_ENU)
#ifndef _WIN32
LANGUAGE LANG_ENGLISH, SUBLANG_ENGLISH_US
#pragma code_page(1252)
#endif // _WIN32

////////////////////////////////////
//
// Dialog
//

IDD_DIALOG1 DIALOGEX 0, 0, 219, 351
STYLE DS_MODALFRAME | DS_CENTER | WS_MINIMIZEBOX |
WS_POPUP | WS_CAPTION |
WS_SYSMENU
CAPTION "TPC-C Web Client Installation Utility"
FONT 8, "MS Sans Serif"
BEGIN
    EDITTEXT    ED_THREADS,164,45,34,12,ES_RIGHT | ES_NUMBER,
                WS_EX_RTLREADING
    EDITTEXT    ED_MAXDELIVERIES,164,59,34,12,ES_RIGHT |
ES_NUMBER,
                WS_EX_RTLREADING
    EDITTEXT    ED_MAXCONNECTION,164,73,34,12,ES_RIGHT |
ES_NUMBER,
                WS_EX_RTLREADING
    CONTROL
    "None",IDC_TM_NONE,"Button",BS_AUTORADIOBUTTON |
                WS_GROUP | WS_TABSTOP,43,100,33,10
    CONTROL
    "COM",IDC_TM_MTS,"Button",BS_AUTORADIOBUTTON |
                WS_TABSTOP,43,113,32,10
    CONTROL
    "TUXEDO",IDC_TM_TUXEDO,"Button",BS_AUTORADIOBUTTON |
                WS_TABSTOP,106,100,46,10
    CONTROL
    "ENCINA",IDC_TM_ENCINA,"Button",BS_AUTORADIOBUTTON |
                WS_DISABLED | WS_TABSTOP,106,113,43,10
    EDITTEXT    ED_DB_SERVER,131,152,67,12,ES_AUTOHSCROLL
    EDITTEXT    ED_DB_USER_ID,131,165,67,12,ES_AUTOHSCROLL
    EDITTEXT    ED_DB_PASSWORD,131,178,67,12,ES_AUTOHSCROLL
    EDITTEXT    ED_DB_NAME,131,191,67,12,ES_AUTOHSCROLL
    CONTROL
    "DBLIB",IDC_DBLIB,"Button",BS_AUTORADIOBUTTON | WS_GROUP |
                WS_TABSTOP,45,219,39,12
    CONTROL
    "ODBC",IDC_ODBC,"Button",BS_AUTORADIOBUTTON | WS_TABSTOP,
                91,219,39,12
    EDITTEXT
    ED_IIS_MAX_THREAD_POOL_LIMIT,164,263,34,12,ES_RIGHT |
                ES_NUMBER,WS_EX_RTLREADING
```

```

EDITTEXT
ED_WEB_SERVICE_BACKLOG_QUEUE_SIZE,164,277,34,12,ES_RIGHT |
    ES_NUMBER,WS_EX_RTREADING
EDITTEXT    ED_IIS_THREAD_TIMEOUT,164,291,34,12,ES_RIGHT |
ES_NUMBER,
    WS_EX_RTREADING
EDITTEXT    ED_IIS_LISTEN_BACKLOG,164,305,34,12,ES_RIGHT |
ES_NUMBER,
    WS_EX_RTREADING
DEFPUSHBUTTON    "OK",IDOK,53,331,50,14
PUSHBUTTON    "Cancel",IDCANCEL,119,331,50,14
EDITTEXT    IDC_PATH,106,26,91,13,ES_AUTOHSCROLL |
ES_READONLY
LTEXT    "Number of Delivery Threads:",IDC_STATIC,35,45,115,12
LTEXT    "Max Number of Connections:",IDC_STATIC,35,73,115,12
RTEXT    "Version 4.11",IDC_VERSION,120,4,89,9
LTEXT    "IIS Max Thread Pool Limit:",IDC_STATIC,36,263,115,12
LTEXT    "Web Service Backlog Queue
Size:",IDC_STATIC,36,277,115,
    12
LTEXT    "IIS Thread Timeout (seconds):",IDC_STATIC,36,291,115,12
LTEXT    "IIS Listen Backlog:",IDC_STATIC,36,307,115,10
GROUPBOX    "Database
Interface",IDC_STATIC,35,208,163,27,WS_GROUP
LTEXT    "Installation directory:",IDC_STATIC,35,29,71,10
GROUPBOX    "Transaction Monitor",IDC_STATIC,33,90,165,37
LTEXT    "Server Name:",IDC_STATIC,35,155,56,8
LTEXT    "User ID:",IDC_STATIC,35,168,60,8
LTEXT    "User Password:",IDC_STATIC,35,181,83,8
LTEXT    "Database Name:",IDC_STATIC,35,194,54,8
GROUPBOX    "SQL Server Connection
Properties",IDC_STATIC,22,139,187,
    102
GROUPBOX    "Web Client Properties",IDC_STATIC,22,15,187,118
GROUPBOX    "IIS Settings",IDC_STATIC,22,247,187,79
LTEXT    "Max Pending Deliveries:",IDC_STATIC,35,59,115,12
END

IDD_DIALOG2 DIALOGEX 0, 0, 117, 62
STYLE DS_SETFOREGROUND | DS_3DLOOK | DS_CENTER |
WS_POPUP | WS_BORDER
EXSTYLE WS_EX_STATICEDGE
FONT 12, "MS Sans Serif", 0, 0, 0x1
BEGIN
    DEFPUSHBUTTON    "OK",IDOK,33,45,50,9
    CTEXT    "HTML TPC-C Installation
Successful",IDC_RESULTS,7,22,
        102,18,0,WS_EX_CLIENTEDGE
    ICON    IDI_ICON2,IDC_STATIC,50,7,18,20,SS_REALSIZEIMAGE,
        WS_EX_TRANSPARENT
END

IDD_DIALOG3 DIALOG DISCARDABLE 0, 0, 91, 40
STYLE DS_SYSMODAL | DS_MODALFRAME | DS_3DLOOK |
DS_CENTER | WS_CAPTION
CAPTION "Installing TPC-C Web Client"
FONT 12, "Arial Black"
BEGIN
    CONTROL
"Progress1",IDC_PROGRESS1,"msctls_progress32",WS_BORDER,
    7,20,77,13
    CTEXT    "Static",IDC_STATUS,7,7,77,12,SS_SUNKEN
END

IDD_DIALOG4 DIALOG DISCARDABLE 0, 0, 291, 202
STYLE DS_MODALFRAME | DS_CENTER | WS_POPUP | WS_CAPTION |
WS_SYSMENU
CAPTION "Client End User License"

FONT 8, "MS Sans Serif"
BEGIN
    EDITTEXT    IDC_LICENSE,7,7,271,167,ES_MULTILINE |
ES_AUTOVSCROLL |
        ES_AUTOHSCROLL | ES_READONLY | WS_VSCROLL |
WS_HSCROLL
    DEFPUSHBUTTON    "I &Agree",IDOK,87,181,50,14
    PUSHBUTTON    "&Cancel",IDCANCEL,153,181,50,14
END

////////////////////////////////////
//
// DESIGNINFO
//

#ifdef APSTUDIO_INVOKED
GUIDELINES DESIGNINFO DISCARDABLE
BEGIN
    IDD_DIALOG1, DIALOG
    BEGIN
        LEFTMARGIN, 22
        RIGHTMARGIN, 209
        VERTGUIDE, 35
        VERTGUIDE, 198
        TOPMARGIN, 4
        BOTTOMMARGIN, 345
    END

    IDD_DIALOG2, DIALOG
    BEGIN
        LEFTMARGIN, 7
        RIGHTMARGIN, 109
        TOPMARGIN, 7
        BOTTOMMARGIN, 54
    END

    IDD_DIALOG3, DIALOG
    BEGIN
        LEFTMARGIN, 7
        RIGHTMARGIN, 84
        TOPMARGIN, 7
        BOTTOMMARGIN, 33
    END

    IDD_DIALOG4, DIALOG
    BEGIN
        LEFTMARGIN, 7
        RIGHTMARGIN, 278
        TOPMARGIN, 7
        BOTTOMMARGIN, 195
    END
END

#ifdef // APSTUDIO_INVOKED

#ifdef APSTUDIO_INVOKED
////////////////////////////////////
//
// TEXTINCLUDE
//

1 TEXTINCLUDE DISCARDABLE
BEGIN
    "resource.h\0"
END

2 TEXTINCLUDE DISCARDABLE

```

```

BEGIN
    "#include ""afxres.h""\r\n"
    "\0"
END

3 TEXTINCLUDE DISCARDABLE
BEGIN
    "\r\n"
    "\0"
END

#endif // APSTUDIO_INVOKED

////////////////////////////////////
//
// Icon
//

// Icon with lowest ID value placed first to ensure application icon
// remains consistent on all systems.
IDI_ICON1      ICON    DISCARDABLE    "icon1.ico"
IDI_ICON2      ICON    DISCARDABLE    "icon2.ico"

////////////////////////////////////
//
// TPCCDLL
//

IDR_TPCCDLL      TPCCDLL DISCARDABLE
"..\\..\\isapi_dll\\bin\\tpcc.dll"

#ifdef _MAC
////////////////////////////////////
//
// Version
//

VS_VERSION_INFO VERSIONINFO
FILEVERSION 0,4,20,0
PRODUCTVERSION 0,4,20,0
FILEFLAGSMASK 0x3fL
#ifdef _DEBUG
FILEFLAGS 0x1L
#else
FILEFLAGS 0x0L
#endif
FILEOS 0x40004L
FILETYPE 0x1L
FILESUBTYPE 0x0L
BEGIN
    BLOCK "StringFileInfo"
    BEGIN
        BLOCK "040904b0"
        BEGIN
            VALUE "Comments", "TPC-C Web Client Installer\0"
            VALUE "CompanyName", "Microsoft\0"
            VALUE "FileDescription", "install\0"
            VALUE "FileVersion", "0, 4, 20, 0\0"
            VALUE "InternalName", "install\0"
            VALUE "LegalCopyright", "Copyright © 1999\0"
            VALUE "OriginalFilename", "install.exe\0"
            VALUE "ProductName", "Microsoft install\0"
            VALUE "ProductVersion", "0, 4, 20, 0\0"
        END
    END
    BLOCK "VarFileInfo"
    BEGIN

```

```

        VALUE "Translation", 0x409, 1200
    END
END

#endif // !_MAC

////////////////////////////////////
//
// LICENSE
//

IDR_LICENSE1      LICENSE DISCARDABLE    "license.txt"

////////////////////////////////////
//
// DBLIB_DLL
//

IDR_DBLIB_DLL      DBLIB_DLL DISCARDABLE
"..\\..\\db_dblib_dll\\bin\\tpcc_dblib.dll"

////////////////////////////////////
//
// ODBC_DLL
//

IDR_ODBC_DLL      ODBC_DLL DISCARDABLE
"..\\..\\db_odbc_dll\\bin\\tpcc_odbc.dll"

////////////////////////////////////
//
// TUXEDO_APP
//

IDR_TUXEDO_APP      TUXEDO_APP DISCARDABLE
"..\\..\\tuxapp\\bin\\tuxapp.exe"

////////////////////////////////////
//
// TUXEDO_DLL
//

IDR_TUXEDO_DLL      TUXEDO_DLL DISCARDABLE
"..\\..\\tm_tuxedo_dll\\bin\\tpcc_tuxedo.dll"

////////////////////////////////////
//
// COM_DLL
//

IDR_COM_DLL      COM_DLL DISCARDABLE
"..\\..\\tm_com_dll\\bin\\tpcc_com.dll"

////////////////////////////////////
//
// COM_PS_DLL
//

IDR_COMPS_DLL      COM_PS_DLL DISCARDABLE
"..\\..\\tpcc_com_ps\\bin\\tpcc_com_ps.dll"

////////////////////////////////////
//
// COM_ALL_DLL
//

```

```
IDR_COMALL_DLL      COM_ALL_DLL DISCARDABLE
"..\\..\\tpcc_com_all\\bin\\tpcc_com_all.dll"
```

```
////////////////////////////////////
//
// COM_TYPLIB
//
```

```
IDR_COMTYPLIB_DLL   COM_TYPLIB DISCARDABLE
"..\\..\\tpcc_com_all\\src\\tpcc_com_all.tlb"
```

```
#endif // English (U.S.) resources
////////////////////////////////////
```

```
#ifndef APSTUDIO_INVOKED
////////////////////////////////////
//
// Generated from the TEXTINCLUDE 3 resource.
//
```

```
////////////////////////////////////
#endif // not APSTUDIO_INVOKED
```

## install\_com.cpp

```
/*      FILE:          INSTALL_COM.CPP
 *                               Microsoft TPC-C Kit Ver.
4.20.000
 *                               Copyright Microsoft, 1999
 *                               Copyright Microsoft, 1999
 *                               All Rights Reserved
 *
 *                               not audited
 *
 *      PURPOSE:        installation code for COM application for
TPC-C Web Kit
 *      Contact:  Charles Levine (clevine@microsoft.com)
 *
 *      Change history:
 *      4.20.000 - first version
 */
```

```
#define _WIN32_WINNT 0x0500
```

```
#include <comdef.h>
#include <comadmin.h>
#include <stdio.h>
#include <tchar.h>
```

```
extern "C"
{
    BOOL install_com(char *szDllPath);
}
```

```
BOOL install_com(char *szDllPath)
{
    ICOMAdminCatalog* pCOMAdminCat = NULL;
    ICatalogCollection* pCatalogCollectionApp = NULL;
    ICatalogCollection* pCatalogCollectionCo = NULL;
    ICatalogCollection* pCatalogCollectionItf = NULL;
    ICatalogCollection* pCatalogCollectionMethod = NULL;

    ICatalogObject*          pCatalogObjectApp = NULL;
```

```
ICatalogObject*          pCatalogObjectCo = NULL;
ICatalogObject*          pCatalogObjectItf = NULL;
ICatalogObject*          pCatalogObjectMethod = NULL;

    _bstr_t                bstrTemp, bstrTemp2,
bstrTemp3, bstrTemp4;
    _bstr_t                bstrDllPath =
szDllPath;
    _variant_t             vTmp, vKey;
    long                   lActProp, lCount,
lCountCo, lCountItf, lCountMethod;
    bool                   bTmp;

    CoInitializeEx(NULL, COINIT_MULTITHREADED);

    HRESULT hr = CoCreateInstance(CLSID_COMAdminCatalog,
    NULL,
    CLSCTX_INPROC_SERVER,
    IID_ICOMAdminCatalog,
    (void**) &pCOMAdminCat);

    if (!SUCCEEDED(hr)) goto Error;

    bstrTemp = "Applications";

    // Attempt to connect to "Applications" in the Catalog
    hr = pCOMAdminCat->GetCollection(bstrTemp,
    (IDispatch**) &pCatalogCollectionApp);
    if (!SUCCEEDED(hr)) goto Error;

    // Attempt to load the "Applications" collection
    hr = pCatalogCollectionApp->Populate();
    if (!SUCCEEDED(hr)) goto Error;

    hr = pCatalogCollectionApp->get_Count(&lCount);
    if (!SUCCEEDED(hr)) goto Error;

    // iterate through applications to delete existing "TPC-C" application
    (if any)
    while (lCount > 0)
    {
        hr = pCatalogCollectionApp->get_Item(lCount - 1,
        (IDispatch**) &pCatalogObjectApp);
        if (!SUCCEEDED(hr)) goto Error;

        hr = pCatalogObjectApp->get_Name(&vTmp);
        if (!SUCCEEDED(hr)) goto Error;

        if (wcsncmp(vTmp.bstrVal, L"TPC-C"))
        {
            lCount--;
            continue;
        }
        else
        {
            hr = pCatalogCollectionApp->Remove(lCount
            - 1);
            if (!SUCCEEDED(hr)) goto Error;
            break;
        }
    }
```

```

        hr = pCatalogCollectionApp->SaveChanges(&lActProp);
        if (!SUCCEEDED(hr)) goto Error;

        // add the new application
        hr = pCatalogCollectionApp->Add((IDispatch**)
&pCatalogObjectApp);
        if (!SUCCEEDED(hr)) goto Error;

        // set properties
        bstrTemp = "Name";
        vTmp = "TPC-C";
        hr = pCatalogObjectApp->put_Value(bstrTemp, vTmp);
        if (!SUCCEEDED(hr)) goto Error;

        // set as a library (in process) application
        bstrTemp = "Activation";
        lActProp = COMAdminActivationInproc;
        vTmp = lActProp;
        hr = pCatalogObjectApp->put_Value(bstrTemp, vTmp);
        if (!SUCCEEDED(hr)) goto Error;

        // set security level to process
        bstrTemp = "AccessChecksLevel";
        lActProp = COMAdminAccessChecksApplicationLevel;
        vTmp = lActProp;
        hr = pCatalogObjectApp->put_Value(bstrTemp, vTmp);
        if (!SUCCEEDED(hr)) goto Error;

        // save key to get the Components collection later
        hr = pCatalogObjectApp->get_Key(&vKey);
        if (!SUCCEEDED(hr)) goto Error;

        // save changes (app creation) so component installation will work
        hr = pCatalogCollectionApp->SaveChanges(&lActProp);
        if (!SUCCEEDED(hr)) goto Error;

        pCatalogObjectApp->Release();
        pCatalogObjectApp = NULL;

        bstrTemp = "TPC-C";
        app name
        bstrTemp2 = bstrDllPath + "tpcc_com_all.dll";
        DLL
        bstrTemp3 = bstrDllPath + "tpcc_com_all.tlb";
        type library (TLB)
        bstrTemp4 = bstrDllPath + "tpcc_com_ps.dll";
        proxy/stub dll

        hr = pCOMAdminCat->InstallComponent(bstrTemp,
                bstrTemp2,
                bstrTemp3,
                bstrTemp4);
        if (!SUCCEEDED(hr)) goto Error;

        bstrTemp = "Components";
        hr = pCatalogCollectionApp->GetCollection(bstrTemp, vKey,
(IDispatch**) &pCatalogCollectionCo);
        if (!SUCCEEDED(hr)) goto Error;

        hr = pCatalogCollectionCo->Populate();
        if (!SUCCEEDED(hr)) goto Error;

        hr = pCatalogCollectionCo->get_Count(&lCountCo);
        if (!SUCCEEDED(hr)) goto Error;

        // iterate through components in application and set the properties
        while (lCountCo > 0)
        {
                hr = pCatalogCollectionCo->get_Item(lCountCo - 1,
(IDispatch**) &pCatalogObjectCo);
                if (!SUCCEEDED(hr)) goto Error;

                // used for debugging (view the name)
                hr = pCatalogObjectCo->get_Name(&vTmp);
                if (!SUCCEEDED(hr)) goto Error;

                bstrTemp = "ConstructionEnabled";
                bTmp = TRUE;
                vTmp = bTmp;
                hr = pCatalogObjectCo->put_Value(bstrTemp, vTmp);
                if (!SUCCEEDED(hr)) goto Error;

                bstrTemp = "ConstructorString";
                bstrTemp2 = "dummy string (do not remove)";
                vTmp = bstrTemp2;
                hr = pCatalogObjectCo->put_Value(bstrTemp, vTmp);
                if (!SUCCEEDED(hr)) goto Error;

                bstrTemp = "JustInTimeActivation";
                bTmp = TRUE;
                vTmp = bTmp;
                hr = pCatalogObjectCo->put_Value(bstrTemp, vTmp);
                if (!SUCCEEDED(hr)) goto Error;

                bstrTemp = "MaxPoolSize";
                vTmp.Clear(); // clear variant so it isn't stored as a
bool (_variant_t feature)
                vTmp = (long)30;
                hr = pCatalogObjectCo->put_Value(bstrTemp, vTmp);
                if (!SUCCEEDED(hr)) goto Error;

                bstrTemp = "ObjectPoolingEnabled";
                bTmp = TRUE;
                vTmp = bTmp;
                hr = pCatalogObjectCo->put_Value(bstrTemp, vTmp);
                if (!SUCCEEDED(hr)) goto Error;

                // save key to get the InterfacesForComponent collection
                hr = pCatalogObjectCo->get_Key(&vKey);
                if (!SUCCEEDED(hr)) goto Error;

                bstrTemp = "InterfacesForComponent";
                hr = pCatalogCollectionCo->GetCollection(bstrTemp,
vKey, (IDispatch**) &pCatalogCollectionItf);
                if (!SUCCEEDED(hr)) goto Error;

                hr = pCatalogCollectionItf->Populate();
                if (!SUCCEEDED(hr)) goto Error;

                hr = pCatalogCollectionItf->get_Count(&lCountItf);
                if (!SUCCEEDED(hr)) goto Error;

                // iterate through interfaces in component
                while (lCountItf > 0)
                {
                        hr =
pCatalogCollectionItf->get_Item(lCountItf - 1, (IDispatch**)
&pCatalogObjectItf);
                        if (!SUCCEEDED(hr)) goto Error;

```

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <pre> collection                                // save key to get the MethodsForInterface  hr = pCatalogObjectItf-&gt;get_Key(&amp;vKey); if (!SUCCEEDED(hr)) goto Error;  bstrTemp = "MethodsForInterface"; hr = pCatalogCollectionItf-&gt;GetCollection(bstrTemp, vKey, (IDispatch**) &amp;pCatalogCollectionMethod); if (!SUCCEEDED(hr)) goto Error;  hr = pCatalogCollectionMethod-&gt;Populate(); if (!SUCCEEDED(hr)) goto Error;  hr = pCatalogCollectionMethod-&gt;get_Count(&amp;lCountMethod); if (!SUCCEEDED(hr)) goto Error;  // iterate through methods of interface while (lCountMethod &gt; 0) {     hr = pCatalogCollectionMethod-&gt;get_Item(lCountMethod - 1, (IDispatch**) &amp;pCatalogObjectMethod);     if (!SUCCEEDED(hr)) goto Error;      bstrTemp = "AutoComplete";     bTmp = TRUE;     vTmp = bTmp;     hr = pCatalogObjectMethod-&gt;put_Value(bstrTemp, vTmp);     if (!SUCCEEDED(hr)) goto Error;  pCatalogObjectMethod-&gt;Release();      pCatalogObjectMethod = NULL;      lCountMethod--; }  // save changes hr = pCatalogCollectionMethod-&gt;SaveChanges(&amp;lActProp); if (!SUCCEEDED(hr)) goto Error;  pCatalogObjectItf-&gt;Release(); pCatalogObjectItf = NULL;  lCountItf--; }  pCatalogObjectCo-&gt;Release(); pCatalogObjectCo = NULL;  lCountCo--; }  // save changes hr = pCatalogCollectionCo-&gt;SaveChanges(&amp;lActProp); if (!SUCCEEDED(hr)) goto Error;  pCatalogCollectionApp-&gt;Release(); pCatalogCollectionApp = NULL;  pCatalogCollectionCo-&gt;Release(); </pre> | <pre> pCatalogCollectionCo = NULL;  pCatalogCollectionItf-&gt;Release(); pCatalogCollectionItf = NULL;  pCatalogCollectionMethod-&gt;Release(); pCatalogCollectionMethod = NULL;  Error:     CoUninitialize();      if (!SUCCEEDED(hr))     {         LPTSTR lpBuf;         DWORD dwRes = FormatMessage(FORMAT_MESSAGE_ALLOCATE_BUFFER   FORMAT_MESSAGE_FROM_SYSTEM,          NULL,          hr,          MAKELANGID(LANG_NEUTRAL, SUBLANG_DEFAULT),          (LPTSTR) &amp;lpBuf,          0,          NULL); // _tprintf(__T("Error adding components. HRESULT: 0x%x\n%s"), hr, lpBuf);         return TRUE;     }     else         return FALSE; }  <b>Install.Resource.h</b>  //{{NO_DEPENDENCIES}} // Microsoft Developer Studio generated include file. // Used by install.rc // #define IDD_DIALOG1                101 #define IDI_ICON1                  102 #define IDR_TPCCDLL                103 #define IDD_DIALOG2                105 #define IDI_ICON2                  106 #define IDR_DELIVERY               107 #define IDD_DIALOG3                108 #define IDR_LICENSE1              112 #define IDD_DIALOG4                113 #define IDR_TPCCOBJ1              117 #define IDR_TPCCSTUB1             118 #define IDR_DBLIB_DLL              122 #define IDR_ODBC_DLL              123 #define IDR_TUXEDO_APP             124 #define IDR_TUXEDO_DLL             125 #define IDR_COM_DLL               126 #define IDR_COMPS_DLL             127 #define IDR_COMALL_DLL            128 #define IDR_COMTYPLIB_DLL         129 #define BN_LOG                     1001 #define ED_KEEP                    1002 #define ED_THREADS                 1003 #define ED_THREADS2                1004 #define IDC_PATH                   1007 </pre> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

```

#define IDC_VERSION            1009
#define IDC_RESULTS            1010
#define IDC_PROGRESS1          1011
#define IDC_STATUS             1012
#define IDC_BUTTON1            1013
#define ED_MAXCONNECTION       1014
#define ED_IIS_MAX_THREAD_POOL_LIMIT 1015
#define ED_MAXDELIVERIES       1016
#define ED_WEB_SERVICE_BACKLOG_QUEUE_SIZE 1017
#define ED_IIS_THREAD_TIMEOUT  1018
#define ED_IIS_LISTEN_BACKLOG  1019
#define IDC_DBLIB              1021
#define IDC_LICENSE            1022
#define IDC_ODBC               1022
#define IDC_CONNECT_POOL       1023
#define ED_DB_SERVER           1023
#define ED_USER_CONNECT_DELAY_TIME 1024
#define ED_DB_USER_ID          1024
#define IDC_MTS                1025
#define IDC_TM_MTS             1025
#define IDC_TM_TUXEDO          1026
#define IDC_TM_NONE            1027
#define ED_DB_PASSWORD         1028
#define ED_DB_NAME             1029
#define IDC_TM_ENCINA          1030

```

// Next default values for new objects

```

//
#ifdef APSTUDIO_INVOKED
#ifdef APSTUDIO_READONLY_SYMBOLS
#define _APS_NEXT_RESOURCE_VALUE 130
#define _APS_NEXT_COMMAND_VALUE 40001
#define _APS_NEXT_CONTROL_VALUE 1031
#define _APS_NEXT_SYMED_VALUE 101
#endif
#endif

```

## isapi\_dll.dsp

```

# Microsoft Developer Studio Project File - Name="isapi_dll" - Package
Owner=<4>
# Microsoft Developer Studio Generated Build File, Format Version 6.00
# ** DO NOT EDIT **

```

# TARGETTYPE "Win32 (x86) Dynamic-Link Library" 0x0102

CFG=isapi\_dll - Win32 IceCAP

```

!MESSAGE This is not a valid makefile. To build this project using NMAKE,
!MESSAGE use the Export Makefile command and run
!MESSAGE
!MESSAGE NMAKE /f "isapi_dll.mak".
!MESSAGE
!MESSAGE You can specify a configuration when running NMAKE
!MESSAGE by defining the macro CFG on the command line. For example:
!MESSAGE
!MESSAGE NMAKE /f "isapi_dll.mak" CFG="isapi_dll - Win32 IceCAP"
!MESSAGE
!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "isapi_dll - Win32 Release" (based on "Win32 (x86)
Dynamic-Link Library")
!MESSAGE "isapi_dll - Win32 Debug" (based on "Win32 (x86) Dynamic-Link
Library")
!MESSAGE "isapi_dll - Win32 IceCAP" (based on "Win32 (x86)
Dynamic-Link Library")
!MESSAGE

```

```

# Begin Project
# PROP AllowPerConfigDependencies 0
# PROP Scc_ProjName ""
# PROP Scc_LocalPath ""
CPP=cl.exe
MTL=midl.exe
RSC=rc.exe

```

!IF "\$(CFG)" == "isapi\_dll - Win32 Release"

```

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "Release"
# PROP BASE Intermediate_Dir "Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MT /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D
"_WINDOWS" /YX /FD /c
# ADD CPP /nologo /MD /W3 /GX /O2 /D "NDEBUG" /D "WIN32" /D
"_WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D "NDEBUG" /mktyplib203 /o "NUL" /win32
# ADD MTL /nologo /D "NDEBUG" /mktyplib203 /o "NUL" /win32
# ADD BASE RSC /I 0x409 /d "NDEBUG"
# ADD RSC /I 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbccp32.lib
/nologo /subsystem:windows /dll /machine:I386
# ADD LINK32 ..\common\txnlbg\lib\release\rttime.lib
..\common\txnlbg\lib\release\spinlock.lib ..\common\txnlbg\lib\release\error.lib
..\common\txnlbg\lib\release\txnlbg.lib wsock32.lib kernel32.lib user32.lib
gdi32.lib winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib
oleaut32.lib uuid.lib odbccp32.lib /nologo /subsystem:windows /dll
/machine:I386 /nodefaultlib:"LIBCMT" /out:".bin\tpcc.dll"
# SUBTRACT LINK32 /nodefaultlib

```

!ELSEIF "\$(CFG)" == "isapi\_dll - Win32 Debug"

```

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "Debug"
# PROP BASE Intermediate_Dir "Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MTd /W3 /Gm /GX /Zi /Od /D "WIN32" /D
"_DEBUG" /D "_WINDOWS" /YX /FD /c
# ADD CPP /nologo /MDd /W3 /GX /Zi /Od /D "_DEBUG" /D "WIN32" /D
"_WINDOWS" /FR /YX /FD /c
# ADD BASE MTL /nologo /D "_DEBUG" /mktyplib203 /o "NUL" /win32
# ADD MTL /nologo /D "_DEBUG" /mktyplib203 /o "NUL" /win32
# ADD BASE RSC /I 0x409 /d "_DEBUG"
# ADD RSC /I 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo

```

```

LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbccp32.lib /nologo /subsystem:windows /dll /debug /machine:I386
/pdbtype:sept
# ADD LINK32 ..\common\txnlog\lib\debug\rttime.lib
..\common\txnlog\lib\debug\spinlock.lib ..\common\txnlog\lib\debug\error.lib
..\common\txnlog\lib\debug\txnlog.lib wsock32.lib kernel32.lib user32.lib
gdi32.lib winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib
oleaut32.lib uuid.lib odbcc32.lib odbccp32.lib /nologo /subsystem:windows /dll
/debug /machine:I386 /nodefaultlib:"LIBCMDT" /out:".bin\tpcc.dll"
/pdbtype:sept
# SUBTRACT LINK32 /profile /pdb:none /nodefaultlib

!ELSEIF "$(CFG)" == "isapi_dll - Win32 IceCAP"

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "isapi_dll"
# PROP BASE Intermediate_Dir "isapi_dll"
# PROP BASE Ignore_Export_Lib 0
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MDd /W3 /GX /Zi /Od /D "_DEBUG" /D
"WIN32" /D "_WINDOWS" /FR /YX /FD /Gh /c
# ADD CPP /nologo /MD /W3 /GX /Zi /O2 /D "NDEBUG" /D "ICECAP" /D
"WIN32" /D "_WINDOWS" /FR /YX /FD /Gh /c
# ADD BASE MTL /nologo /D "_DEBUG" /mktyplib203 /o "NUL" /win32
# ADD MTL /nologo /D "_DEBUG" /mktyplib203 /o "NUL" /win32
# ADD BASE RSC /I 0x409 /d "_DEBUG"
# ADD RSC /I 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbccp32.lib /nologo /subsystem:windows /dll /debug /machine:I386
/out:".bin\tpcc.dll" /pdbtype:sept
# SUBTRACT BASE LINK32 /profile /pdb:none
# ADD LINK32 icap.lib ..\common\txnlog\lib\release\rttime.lib
..\common\txnlog\lib\release\spinlock.lib ..\common\txnlog\lib\release\error.lib
..\common\txnlog\lib\release\txnlog.lib wsock32.lib kernel32.lib user32.lib
gdi32.lib winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib
oleaut32.lib uuid.lib odbcc32.lib odbccp32.lib /nologo /subsystem:windows /dll
/debug /machine:I386 /out:".bin\tpcc.dll" /pdbtype:sept
# SUBTRACT LINK32 /profile /pdb:none /map

!ENDIF

# Begin Target

# Name "isapi_dll - Win32 Release"
# Name "isapi_dll - Win32 Debug"
# Name "isapi_dll - Win32 IceCAP"
# Begin Group "Source"

# PROP Default_Filter "*.cpp, *.def, *.rc"
# Begin Source File

SOURCE=.\src\tpcc.cpp
# End Source File
# Begin Source File

```

```

SOURCE=.\src\tpcc.def
# End Source File
# Begin Source File

SOURCE=.\src\tpcc.rc
# End Source File
# End Group
# Begin Group "Header Files"

# PROP Default_Filter "*.h, *.hpp"
# Begin Source File

SOURCE=.\common\src\error.h
# End Source File
# Begin Source File

SOURCE=.\common\src\ReadRegistry.h
# End Source File
# Begin Source File

SOURCE=.\src\tpcc.h
# End Source File
# Begin Source File

SOURCE=.\db_dblib_dll\src\tpcc_dblib.h
# End Source File
# Begin Source File

SOURCE=.\db_odbc_dll\src\tpcc_odbc.h
# End Source File
# Begin Source File

SOURCE=.\tm_tuxedo_dll\src\tpcc_tux.h
# End Source File
# Begin Source File

SOURCE=.\common\src\trans.h
# End Source File
# Begin Source File

SOURCE=.\common\src\txn_base.h
# End Source File
# End Group
# End Target
# End Project

```

## Isapi\_dll\_Resource.h

```

//{{NO_DEPENDENCIES}}
// Microsoft Developer Studio generated include file.
// Used by tpcc.rc
//
#define IDD_DIALOG1 101

// Next default values for new objects
//
#ifdef APSTUDIO_INVOKED
#ifdef APSTUDIO_READONLY_SYMBOLS
#define _APS_NEXT_RESOURCE_VALUE 102
#define _APS_NEXT_COMMAND_VALUE 40001
#define _APS_NEXT_CONTROL_VALUE 1000
#define _APS_NEXT_SYMED_VALUE 101
#endif
#endif

```

## **license.txt**

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## methods.h

```
/*      FILE:          METHODS.H
*
*      Microsoft TPC-C Kit Ver.
4.20.000
*
*      Copyright Microsoft, 1999
*
*      All Rights Reserved
*
*
*      not yet audited
*
*
*      PURPOSE:        Header file for COM components.
*
*
*      Change history:
*      4.20.000 - first version
*/
```

```
enum COMPONENT_ERROR
{
    ERR_MISSING_REGISTRY_ENTRIES = 1,
    ERR_LOADDLL_FAILED,
    ERR_GETPROCADDR_FAILED,
    ERR_UNKNOWN_DB_PROTOCOL
};

class CCOMPONENT_ERR : public CBaseErr
{
public:
    CCOMPONENT_ERR(COMPONENT_ERROR Err)
    {
        m_Error = Err;
        m_szTextDetail = NULL;
        m_SystemErr = 0;
        m_szErrorText = NULL;
    };

    CCOMPONENT_ERR(COMPONENT_ERROR Err,
char *szTextDetail, DWORD dwSystemErr)
    {
        m_Error = Err;
        m_szTextDetail = new
char[strlen(szTextDetail)+1];

        strcpy( m_szTextDetail, szTextDetail );
        m_SystemErr = dwSystemErr;
        m_szErrorText = NULL;
    };

    ~CCOMPONENT_ERR()
    {
        if (m_szTextDetail != NULL)
            delete [] m_szTextDetail;
        if (m_szErrorText != NULL)
            delete [] m_szErrorText;
    };

    COMPONENT_ERROR      m_Error;
    char                  *m_szTextDetail;
    char                  *m_szErrorText;
    DWORD                 m_SystemErr;

    int ErrorType() {return ERR_TYPE_COMPONENT;};
    int ErrorNum() {return m_Error;};
    char *ErrorText();
};
```

```
static void WriteMessageToEventLog(LPTSTR lpszMsg);
```

```
////////////////////////////////////
// CTPCC_Common
class CTPCC_Common :
public ITPCC,
public IObjectControl,
public IObjectConstruct,
public CComObjectRootEx<CComSingleThreadModel>
{
public:
    BEGIN_COM_MAP(CTPCC_Common)
        COM_INTERFACE_ENTRY(ITPCC)
        COM_INTERFACE_ENTRY(IObjectControl)
        COM_INTERFACE_ENTRY(IObjectConstruct)
    END_COM_MAP()
};
```

```

        CTPCC_Common();
        ~CTPCC_Common();

// ITPCC
public:
    HRESULT __stdcall NewOrder(          VARIANT txn_in,
    VARIANT* txn_out);
    HRESULT __stdcall Payment(          VARIANT txn_in,
    VARIANT* txn_out);
    HRESULT __stdcall Delivery(          VARIANT txn_in,
    VARIANT* txn_out) {return E_NOTIMPL;};
    HRESULT __stdcall StockLevel(VARIANT txn_in, VARIANT*
    txn_out);
    HRESULT __stdcall OrderStatus(          VARIANT txn_in,
    VARIANT* txn_out);

    HRESULT __stdcall CallSetComplete();

// IObjectControl
    STDMETHODIMP_(BOOL) CanBePooled() { return
    m_bCanBePooled; }
    STDMETHODIMP Activate() { return S_OK; } // we don't
    support COM Services transactions (no enlistment)
    STDMETHODIMP_(void) Deactivate() { /* nothing to do */ }

// IObjectConstruct
    STDMETHODIMP Construct(IDispatch * pUnk);

// helper methods
private:
    BOOL          m_bCanBePooled;
    CTPCC_BASE    *m_pTxn;

    struct COM_DATA
    {
        int retval;
        int error;
        union
        {
            NEW_ORDER_DATA
            PAYMENT_DATA      Payment;
            DELIVERY_DATA     Delivery;
            STOCK_LEVEL_DATA  StockLevel;
            ORDER_STATUS_DATA OrderStatus;
        } u;
    };

};

////////////////////////////////////
// CTPCC
class CTPCC :
    public CTPCC_Common,
    public CComCoClass<CTPCC, &CLSID_TPCC>
{
public:
    DECLARE_REGISTRY_RESOURCEID(IDR_TPCC)

    BEGIN_COM_MAP(CTPCC)
        COM_INTERFACE_ENTRY2(IUnknown, CComObjectRootEx)
        COM_INTERFACE_ENTRY_CHAIN(CTPCC_Common)
    END_COM_MAP()

};

////////////////////////////////////

```

```

// CNewOrder
class CNewOrder :
    public CTPCC_Common,
    public CComCoClass<CNewOrder, &CLSID_NewOrder>
{
public:
    DECLARE_REGISTRY_RESOURCEID(IDR_NEWORDER)

    BEGIN_COM_MAP(CNewOrder)
        COM_INTERFACE_ENTRY2(IUnknown, CComObjectRootEx)
        COM_INTERFACE_ENTRY_CHAIN(CTPCC_Common)
    END_COM_MAP()

// ITPCC
public:
    // HRESULT __stdcall NewOrder(          VARIANT txn_in,
    VARIANT* txn_out) {return E_NOTIMPL;};
    HRESULT __stdcall Payment(          VARIANT txn_in,
    VARIANT* txn_out) {return E_NOTIMPL;};
    HRESULT __stdcall StockLevel(VARIANT txn_in, VARIANT*
    txn_out) {return E_NOTIMPL;};
    HRESULT __stdcall OrderStatus(          VARIANT txn_in,
    VARIANT* txn_out) {return E_NOTIMPL;};
};

////////////////////////////////////
// COrderStatus
class COrderStatus :
    public CTPCC_Common,
    public CComCoClass<COrderStatus, &CLSID_OrderStatus>
{
public:
    DECLARE_REGISTRY_RESOURCEID(IDR_ORDERSTATUS)

    BEGIN_COM_MAP(COrderStatus)
        COM_INTERFACE_ENTRY2(IUnknown, CComObjectRootEx)
        COM_INTERFACE_ENTRY_CHAIN(CTPCC_Common)
    END_COM_MAP()

// ITPCC
public:
    HRESULT __stdcall NewOrder(          VARIANT txn_in,
    VARIANT* txn_out) {return E_NOTIMPL;};
    HRESULT __stdcall Payment(          VARIANT txn_in,
    VARIANT* txn_out) {return E_NOTIMPL;};
    HRESULT __stdcall StockLevel(VARIANT txn_in, VARIANT*
    txn_out) {return E_NOTIMPL;};
    // HRESULT __stdcall OrderStatus(          VARIANT txn_in,
    VARIANT* txn_out) {return E_NOTIMPL;};
};

////////////////////////////////////
// CPayment
class CPayment :
    public CTPCC_Common,
    public CComCoClass<CPayment, &CLSID_Payment>
{
public:
    DECLARE_REGISTRY_RESOURCEID(IDR_PAYMENT)

    BEGIN_COM_MAP(CPayment)
        COM_INTERFACE_ENTRY2(IUnknown, CComObjectRootEx)
        COM_INTERFACE_ENTRY_CHAIN(CTPCC_Common)
    END_COM_MAP()

// ITPCC

```

```

public:
    HRESULT __stdcall NewOrder(          VARIANT txn_in,
    VARIANT* txn_out) {return E_NOTIMPL;}
    //      HRESULT __stdcall Payment(          VARIANT txn_in,
    VARIANT* txn_out) {return E_NOTIMPL;}
    HRESULT __stdcall StockLevel(VARIANT txn_in, VARIANT*
    txn_out) {return E_NOTIMPL;}
    HRESULT __stdcall OrderStatus(          VARIANT txn_in,
    VARIANT* txn_out) {return E_NOTIMPL;}
};

////////////////////////////////////
// CStockLevel
class CStockLevel :
    public CTPCC_Common,
    public CComCoClass<CStockLevel, &CLSID_StockLevel>
{
public:
    DECLARE_REGISTRY_RESOURCEID(IDR_STOCKLEVEL)

    BEGIN_COM_MAP(CStockLevel)
        COM_INTERFACE_ENTRY2(IUnknown, CComObjectRootEx)
        COM_INTERFACE_ENTRY_CHAIN(CTPCC_Common)
    END_COM_MAP()

    // ITPCC
public:
    HRESULT __stdcall NewOrder(          VARIANT txn_in,
    VARIANT* txn_out) {return E_NOTIMPL;}
    HRESULT __stdcall Payment(          VARIANT txn_in,
    VARIANT* txn_out) {return E_NOTIMPL;}
    //      HRESULT __stdcall StockLevel(VARIANT txn_in, VARIANT*
    txn_out) {return E_NOTIMPL;}
    HRESULT __stdcall OrderStatus(          VARIANT txn_in,
    VARIANT* txn_out) {return E_NOTIMPL;}
};

```

## Null-txns.sql

```

-- File:  NULL-TXNS.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.41
--      Copyright Microsoft, 2001
--
-- Purpose: This script will create stored procs which accept the same param-
--          eters and
--          return correctly formed results sets to match the standard TPC-C stored
--          procs. Of course, the advantage is that these stored procs place almost
--          no load on SQL Server and do not require a database.
--
--          The purpose of these stored procs is to size and test the web
--          client without
--          the need of a fully scaled database.
--
drop proc tpcc_delivery
drop proc tpcc_neworder
drop proc tpcc_orderstatus
drop proc tpcc_payment
drop proc tpcc_stocklevel
drop proc tpcc_version
drop table order_line_null
go

create proc tpcc_delivery          @w_id      int,
                                  @o_carrier_id smallint

```

```

as

declare @d_id tinyint,
        @o_id int,
        @c_id int,
        @total numeric(12,2),
        @oid1 int,
        @oid2 int,
        @oid3 int,
        @oid4 int,
        @oid5 int,
        @oid6 int,
        @oid7 int,
        @oid8 int,
        @oid9 int,
        @oid10 int

declare @delaytime varchar(30)

-- uniform random delay of 0 - 1 second; avg = 0.50
select @delaytime = '00:00:0' + cast(cast((rand()*1.00) as decimal(4,3)) as
char(5))
waitfor delay @delaytime

select 3001, 3001, 3001, 3001, 3001, 3001, 3001, 3001, 3001, 3001

GO

create proc tpcc_neworder

        @w_id      int,
        @d_id      tinyint,
        @c_id      int,
        @o_ol_cnt  tinyint,
        @o_all_local tinyint,
        @i_id1     int = 0,

        @s_w_id1 int = 0, @ol_qty1 smallint = 0,
        @i_id2     int = 0,

        @s_w_id2 int = 0, @ol_qty2 smallint = 0,
        @i_id3     int = 0,

        @s_w_id3 int = 0, @ol_qty3 smallint = 0,
        @i_id4     int = 0,

        @s_w_id4 int = 0, @ol_qty4 smallint = 0,
        @i_id5     int = 0,

        @s_w_id5 int = 0, @ol_qty5 smallint = 0,
        @i_id6     int = 0,

        @s_w_id6 int = 0, @ol_qty6 smallint = 0,
        @i_id7     int = 0,

        @s_w_id7 int = 0, @ol_qty7 smallint = 0,
        @i_id8     int = 0,

        @s_w_id8 int = 0, @ol_qty8 smallint = 0,
        @i_id9     int = 0,

        @s_w_id9 int = 0, @ol_qty9 smallint = 0,
        @i_id10    int = 0,

        @s_w_id10 int = 0, @ol_qty10 smallint = 0,
        @i_id11    int = 0,

        @s_w_id11 int = 0, @ol_qty11 smallint = 0,
        @i_id12    int = 0,

        @s_w_id12 int = 0, @ol_qty12 smallint = 0,
        @i_id13    int = 0,

        @s_w_id13 int = 0, @ol_qty13 smallint = 0,
        @i_id14    int = 0,

        @s_w_id14 int = 0, @ol_qty14 smallint = 0,
        @i_id15    int = 0,

        @s_w_id15 int = 0, @ol_qty15 smallint = 0

as

```

```

declare @w_tax numeric(4,4),
        @d_tax numeric(4,4),
        @c_last char(16),
        @c_credit char(2),
        @c_discount numeric(4,4),
        @i_price numeric(5,2),
        @i_name char(24),
        @o_entry_d datetime,
        @li_no int,
        @o_id int,
        @commit_flag tinyint,
        @li_id int,
        @li_qty smallint

declare @delaytime varchar(30)

begin
-- uniform random delay of 0 - 0.6 second; avg = 0.3
select @delaytime = '00:00:0' + cast(cast((rand()*0.60) as decimal(4,3)) as
char(5))
waitfor delay @delaytime

-- process orderlines

select @commit_flag = 1, @li_no = 0

while (@li_no < @o_ol_cnt)
begin

select @li_id = case @li_no
when 1 then @i_id1
when 2 then @i_id2
when 3 then @i_id3
when 4 then @i_id4
when 5 then @i_id5
when 6 then @i_id6
when 7 then @i_id7
when 8 then @i_id8
when 9 then @i_id9
when 10 then @i_id10
when 11 then @i_id11
when 12 then @i_id12
when 13 then @i_id13
when 14 then @i_id14
when 15 then @i_id15
end

select @li_no = @li_no + 1
select @i_price = 23.45, @li_qty = @li_no

if (@li_id = 999999)
begin
select ",0",0,0
select @commit_flag = 0
end

else
begin
select 'Item Name blah',17,'G', @i_price, @i_price *
@li_qty

end

end

-- return order data to client

select @w_tax = 0.1234,
        @d_tax = 0.0987,

```

```

        @o_id = 3001,
        @c_last = 'BAROUGHTABLE',
        @c_discount = 0.2198,
        @c_credit = 'GC',
        @o_entry_d = getdate()

select @w_tax,
        @d_tax,
        @o_id,
        @c_last,
        @c_discount,
        @c_credit,
        @o_entry_d,
        @commit_flag

end

GO

create proc tpcc_orderstatus @w_id int,
                             @d_id tinyint,
                             @c_id int,
                             @c_last char(16) = "

as

declare @c_balance numeric(12,2),
        @c_first char(16),
        @c_middle char(2),
        @o_id int,
        @o_entry_d datetime,
        @o_carrier_id smallint,
        @ol_cnt smallint

declare @delaytime varchar(30)

-- uniform random delay of 0 - 0.2 second; avg = 0.1
select @delaytime = '00:00:0' + cast(cast((rand()*0.20) as decimal(4,3)) as
char(5))
waitfor delay @delaytime

select
        @c_id = 113,
        @c_balance = -10.00,
        @c_first = '8YCodgytqCj8',
        @c_middle = 'OE',
        @c_last = 'OUGHTOUGHTABLE',
        @o_id = 3456,
        @o_entry_d = getdate(),
        @o_carrier_id = 1

select @ol_cnt = (rand() * 11) + 5
SET ROWCOUNT @ol_cnt

select
        ol_supply_w_id,
        ol_i_id,
        ol_quantity,
        ol_amount,
        ol_delivery_d
from order_line_null

select @c_id,
        @c_last,
        @c_first,
        @c_middle,

```

```

        @o_entry_d,
        @o_carrier_id,
        @c_balance,
        @o_id

GO

create proc tpcc_payment      @w_id      int,
                             @c_w_id    int,
                             @h_amount  numeric(6,2),
                             @d_id      tinyint,
                             @c_d_id    tinyint,
                             @c_id      int,
                             @c_last    char(16) = "

as
declare @w_street_1 char(20),
        @w_street_2 char(20),
        @w_city     char(20),
        @w_state     char(2),
        @w_zip       char(9),
        @w_name      char(10),
        @d_street_1  char(20),
        @d_street_2  char(20),
        @d_city      char(20),
        @d_state     char(2),
        @d_zip       char(9),
        @d_name      char(10),
        @c_first     char(16),
        @c_middle     char(2),
        @c_street_1  char(20),
        @c_street_2  char(20),
        @c_city      char(20),
        @c_state     char(2),
        @c_zip       char(9),
        @c_phone     char(16),
        @c_since     datetime,
        @c_credit     char(2),
        @c_credit_lim numeric(12,2),
        @c_balance    numeric(12,2),
        @c_discount   numeric(4,4),
        @data         char(500),
        @c_data       char(500),
        @datetime     datetime,
        @w_ytd        numeric(12,2),
        @d_ytd        numeric(12,2),
        @cnt          smallint,
        @val          smallint,
        @screen_data  char(200),
        @d_id_local   tinyint,
        @w_id_local   int,
        @c_id_local   int

declare @delaytime varchar(30)

-- uniform random delay of 0 - 0.3 second; avg = 0.15
select @delaytime = '00:00:0' + cast(cast((rand()*0.30) as decimal(4,3)) as
char(5))
waitfor delay @delaytime

select @screen_data = "

-- get customer info and update balances

select
        @d_street_1 = 'rqSHHakqyV',

```

```

        @d_street_2 = 'zZ98nW3BR2s',
        @d_city     = 'ArNr4GNFV9',
        @d_state     = 'aV',
        @d_zip       = '453511111'

-- get warehouse data and update year-to-date

select
        @w_street_1 = 'rqSHHakqyV',
        @w_street_2 = 'zZ98nW3BR2s',
        @w_city     = 'ArNr4GNFV9',
        @w_state     = 'aV',
        @w_zip       = '453511111'

select
        @c_id        = 123,
        @c_balance    = -10000.00,
        @c_first      = 'KmR03Xureb',
        @c_middle     = 'OE',
        @c_last       = 'BAROUGHTBAR',
        @c_street_1   = 'QpGdOHjv8mR9vNI8V',
        @c_street_2   = 'dzKoCObBqbC3yu',
        @c_city       = 'zAKZXdc037FQxq',
        @c_state      = 'QA',
        @c_zip        = '700311111',
        @c_phone      = '2967264064528555',
        @c_credit     = 'GC',
        @c_credit_lim = 50000.00,
        @c_discount   = 0.3069,
        @c_since      = getdate(),
        @datetime     = getdate()

-- return data to client

select @c_id,
        @c_last,
        @datetime,
        @w_street_1,
        @w_street_2,
        @w_city,
        @w_state,
        @w_zip,
        @d_street_1,
        @d_street_2,
        @d_city,
        @d_state,
        @d_zip,
        @c_first,
        @c_middle,
        @c_street_1,
        @c_street_2,
        @c_city,
        @c_state,
        @c_zip,
        @c_phone,
        @c_since,
        @c_credit,
        @c_credit_lim,
        @c_discount,
        @c_balance,
        @screen_data

GO

create proc tpcc_stocklevel  @w_id      int,

```

```

        @d_id          tinyint,
        @threshhold    smallint

as

declare @delaytime varchar(30)

-- uniform random delay of 0 - 3.6 second; avg = 1.8
select @delaytime = '00:00:0' + cast(cast((rand()*3.60) as decimal(4,3)) as
char(5))
waitfor delay @delaytime

select 49

GO

create proc tpcc_version
as
declare @version      char(8)

begin
    select @version = '4.10.000'
    select @version as 'Version'
end

GO

CREATE TABLE order_line_null (
    [ol_i_id] [int] NOT NULL ,
    [ol_supply_w_id] [int] NOT NULL ,
    [ol_delivery_d] [datetime] NOT NULL ,
    [ol_quantity] [smallint] NOT NULL ,
    [ol_amount] [numeric](6, 2) NOT NULL
) ON [PRIMARY]
GO

insert into order_line_null values ( 101, 1, getdate(), 1, 123.45 )
insert into order_line_null values ( 102, 1, getdate(), 2, 123.45 )
insert into order_line_null values ( 103, 1, getdate(), 3, 123.45 )
insert into order_line_null values ( 104, 1, getdate(), 4, 123.45 )
insert into order_line_null values ( 105, 1, getdate(), 5, 123.45 )
insert into order_line_null values ( 106, 1, getdate(), 1, 123.45 )
insert into order_line_null values ( 107, 1, getdate(), 2, 123.45 )
insert into order_line_null values ( 108, 1, getdate(), 3, 123.45 )
insert into order_line_null values ( 109, 1, getdate(), 4, 123.45 )
insert into order_line_null values ( 110, 1, getdate(), 5, 123.45 )
insert into order_line_null values ( 111, 1, getdate(), 1, 123.45 )
insert into order_line_null values ( 112, 1, getdate(), 2, 123.45 )
insert into order_line_null values ( 113, 1, getdate(), 3, 123.45 )
insert into order_line_null values ( 114, 1, getdate(), 4, 123.45 )
insert into order_line_null values ( 115, 1, getdate(), 5, 123.45 )

GO

```

## ReadRegistry.cpp

```

/*      FILE:          READREGISTRY.CPP
*
*      4.20.000      Microsoft TPC-C Kit Ver.
*
*      Copyright Microsoft, 1999
*
*      All Rights Reserved
*
*
*      not yet audited
*
*      PURPOSE:      Implementation for TPC-C Tuxedo class.
*      Contact:      Charles Levine (clevine@microsoft.com)
*
*      Change history:

```

```

*      4.20.000 - first version
*/

/* FUNCTION: ReadTPCCRegistrySettings
*
* PURPOSE:      This function reads the NT registry for startup
parameters. There parameters are
*
*      under the TPCC key.
*
* RETURNS      FALSE = no errors
*
*      TRUE = error reading registry
*/
BOOL ReadTPCCRegistrySettings( TPCCREGISTRYDATA *pReg )
{
    HKEY    hKey;
    DWORD   size;
    DWORD   type;
    DWORD   dwTmp;
    char     szTmp[256];

    if ( RegOpenKeyEx(HKEY_LOCAL_MACHINE,
"SOFTWARE\\Microsoft\\TPCC", 0, KEY_READ, &hKey) !=
ERROR_SUCCESS )
        return TRUE;

    // determine database protocol to use; may be either ODBC or
DBLIB
    pReg->eDB_Protocol = Unspecified;
    size = sizeof(szTmp);
    if ( RegQueryValueEx(hKey, "DB_Protocol", 0, &type, (BYTE
*)&szTmp, &size) == ERROR_SUCCESS )
    {
        if ( !strcmp(szTmp, szDBNames[ODBC]) )
            pReg->eDB_Protocol = ODBC;
        else if ( !strcmp(szTmp, szDBNames[DBLIB]) )
            pReg->eDB_Protocol = DBLIB;
    }

    pReg->eTxnMon = None;
    // determine txn monitor to use; may be either TUXEDO, or blank
size = sizeof(szTmp);
    if ( RegQueryValueEx(hKey, "TxnMonitor", 0, &type, (BYTE
*)&szTmp, &size) == ERROR_SUCCESS )
    {
        if ( !strcmp(szTmp, szTxnMonNames[TUXEDO]) )
            pReg->eTxnMon = TUXEDO;
        else if ( !strcmp(szTmp, szTxnMonNames[ENCINA]) )
            pReg->eTxnMon = ENCINA;
        else if ( !strcmp(szTmp, szTxnMonNames[COM]) )
            pReg->eTxnMon = COM;
    }

    pReg->bCOM_SinglePool = FALSE;
    size = sizeof(szTmp);
    if ( RegQueryValueEx(hKey, "COM_SinglePool", 0, &type, (BYTE
*)&szTmp, &size) == ERROR_SUCCESS )
    {
        if ( !strcmp(szTmp, "YES") )
            pReg->bCOM_SinglePool = TRUE;
    }

    pReg->dwMaxConnections = 0;
    size = sizeof(dwTmp);
    if ( ( RegQueryValueEx(hKey, "MaxConnections", 0, &type,
(LPBYTE)&dwTmp, &size) == ERROR_SUCCESS )
        && (type == REG_DWORD) )
        pReg->dwMaxConnections = dwTmp;

```

```

    pReg->dwMaxPendingDeliveries = 0;
    size = sizeof(dwTmp);
    if ( ( RegQueryValueEx(hKey, "MaxPendingDeliveries", 0, &type,
(LPBYTE)&dwTmp, &size) == ERROR_SUCCESS )
        && (type == REG_DWORD) )
        pReg->dwMaxPendingDeliveries = dwTmp;

    pReg->dwNumberOfDeliveryThreads = 0;
    size = sizeof(dwTmp);
    if ( ( RegQueryValueEx(hKey, "NumberOfDeliveryThreads", 0,
&type, (LPBYTE)&dwTmp, &size) == ERROR_SUCCESS )
        && (type == REG_DWORD) )
        pReg->dwNumberOfDeliveryThreads = dwTmp;

    size = sizeof( pReg->szPath );
    if ( RegQueryValueEx(hKey, "Path", 0, &type, (BYTE
*)&pReg->szPath, &size) != ERROR_SUCCESS )
        pReg->szPath[0] = 0;

    size = sizeof( pReg->szDbServer );
    if ( RegQueryValueEx(hKey, "DbServer", 0, &type, (BYTE
*)&pReg->szDbServer, &size) != ERROR_SUCCESS )
        pReg->szDbServer[0] = 0;

    size = sizeof( pReg->szDbName );
    if ( RegQueryValueEx(hKey, "DbName", 0, &type, (BYTE
*)&pReg->szDbName, &size) != ERROR_SUCCESS )
        pReg->szDbName[0] = 0;

    size = sizeof( pReg->szDbUser );
    if ( RegQueryValueEx(hKey, "DbUser", 0, &type, (BYTE
*)&pReg->szDbUser, &size) != ERROR_SUCCESS )
        pReg->szDbUser[0] = 0;

    size = sizeof( pReg->szDbPassword );
    if ( RegQueryValueEx(hKey, "DbPassword", 0, &type, (BYTE
*)&pReg->szDbPassword, &size) != ERROR_SUCCESS )
        pReg->szDbPassword[0] = 0;

    RegCloseKey(hKey);

    return FALSE;
}

```

## ReadRegistry.h

```

/*      FILE:      ReadRegistry.h
*
*      Microsoft TPC-C Kit Ver.
4.20.000
*
*      Copyright Microsoft, 1999
*
*      All Rights Reserved
*
*      not audited
*
*      PURPOSE:      Header for registry related code.
*
*      Change history:
*      4.20.000 - first version
*/

enum DBPROTOCOL { Unspecified, ODBC, DBLIB };
const char *szDBNames[] = { "Unspecified", "ODBC", "DBLIB" };

enum TXNMON { None, TUXEDO, ENCINA, COM };
const char *szTxnMonNames[] = { "NONE", "TUXEDO", "ENCINA", "COM"
};

```

//This structure defines the data necessary to keep distinct for each terminal or client connection.

```

typedef struct _TPCCREGISTRYDATA
{
    enum DBPROTOCOL eDB_Protocol;
    enum TXNMON eTxnMon;
    BOOL bCOM_SinglePool;
    DWORD dwMaxConnections;
    DWORD dwMaxPendingDeliveries;
    DWORD dwNumberOfDeliveryThreads;
    char szPath[128];
    char szDbServer[32];
    char szDbName[32];
    char szDbUser[32];
    char szDbPassword[32];
} TPCCREGISTRYDATA, *PTPCCREGISTRYDATA;

```

BOOL ReadTPCCRegistrySettings( TPCCREGISTRYDATA \*pReg );

## restore.vbs

```

'-----
'--- FILE:      RESTORE.VBS
'---      Microsoft TPC-C Kit Ver. 4.41
'---      Copyright Microsoft, 2001
'---      All Rights Reserved
'---
'--- PURPOSE:   This module executes a database restore
'---
'-----
'--- open an windows scripting object
'-----
set WshShell = CreateObject("WScript.Shell")
'-----
'--- display a banner message
'-----
wScript.Echo
"*****"
*****"
wScript.Echo "*"
wScript.Echo "*" Microsoft TPC-C V3 Benchmark Kit Ver. 4.41 - Restore
*"
wScript.Echo "*"
wScript.Echo
"*****"
*****"
'-----
'--- define function to check for any error messages
'-----
Function CheckSQLOutput(SQL_Out)
    ErrorFlag = 0
    Set SQL_fso = CreateObject("Scripting.FileSystemObject")
    Set SQL_Out_File = SQL_fso.OpenTextFile(SQL_Out,1)
    Do While SQL_Out_File.AtEndOfStream <> True
        SQL_Line = SQL_Out_File.ReadLine
        'first check to see if the output contains a message about
the login password
        If InStr(SQL_Line, "Login failed") Then
            'display the messages and get out of here
            ErrorFlag = 1
            wScript.Echo "The login for userid 'sa' failed."
            wScript.Echo "Please restart SETUP with the
correct password."
        Else

```

```

                If InStr(SQL_Line, "Msg") Then
'find out where the "Msg" indicator is in the line
LocMsg = InStr(SQL_Line, "Msg")
'find out where the comma is after the error code
LocComma = InStr(SQL_Line, ",")
'now isolate the error code
ErrorCode = Mid(SQL_Line, (LocMsg + 4), (LocComma -
(LocMsg + 4)))

        Select Case ErrorCode
            Case "15069"
                ErrorFlag = 1
                wScript.Echo "One or more users are using the
database."

                wScript.Echo "The requested operation cannot be
completed."

            Case "3201"
                ErrorFlag = 1
                wScript.Echo "Cannot open backup device."
                wScript.Echo "Device error or device off-line."
                wScript.Echo "SQL Server Error 3201."
                wScript.Echo "See the SQL Server error log for more
details."

        End Select
    End If
End If

    Loop
        SQL_Out_File.Close
        CheckSQLOutput = ErrorFlag
End Function
'-----
'--- end function
'-----
'--- open a file system object
'-----
Set fs = CreateObject("Scripting.FileSystemObject")
'-----
'--- grab the current directory value
'-----
SetupDirectory = WshShell.CurrentDirectory & "\"
'-----
'--- now calculate the other directories
'-----
ScriptDirectory = SetupDirectory & "SCRIPTS\"
LogDirectory = SetupDirectory & "LOGS\"
'-----
'--- check to see if the user passed in the server name and sa password
'-----
Set objArgs = wScript.Arguments
Select Case objArgs.Length
    Case 0
        '-----
        '--- the user did not pass us anything
        '--- grab the Computer Name from Windows
        '-----
        ServerName =
WshShell.ExpandEnvironmentStrings("%COMPUTERNAME%")
        '-----
        '--- prompt the user to confirm the server name
        '-----
        ServerName = InputBox("Enter your server
name",Test_Name,ServerName)
        Do While ServerName = ""
            rc = MsgBox ("You must enter a valid server
name.",21)

            If rc = 2 Then
                wScript.Echo ""

```

```

                wScript.Echo "TPC-C Setup
cancelled by user."

                wScript.Quit

            End If
            ServerName =
WshShell.ExpandEnvironmentStrings("%COMPUTERNAME%")
            ServerName = InputBox("Enter your server
name", "Database Server Name",ServerName)
            Loop
            '-----
            '--- prompt the user for the sa password
            '-----
            saPassword = InputBox("Enter the 'sa'
password",Test_Name)
            Case 1
                '-----
                '--- the user passed 1 argument, so assume it is the server
name
                '-----
                ServerName = objArgs(0)
                '-----
                '--- prompt the user for the sa password
                '-----
                saPassword = InputBox("Enter the 'sa'
password",Test_Name)
            Case 2
                '-----
                '--- the user passed 2 arguments, so try to use them
                '-----
                ServerName = objArgs(0)
                saPassword = objArgs(1)
            End Select
            '-----
            '--- now that we have all the variables filled in, let's get to work
            '-----
            If fs.FileExists(LogDirectory & "restore.log") Then
                fs.DeleteFile LogDirectory & "restore.log"
            End If
            Wscript.Echo "Restoring database from backup..."
            Set oExec = WshShell.Exec("osql -Usa -P" & saPassword & " -S" &
ServerName & " -e -i" & ScriptDirectory & NumberWarehouses &
".war\database\restore.sql -o" & LogDirectory & "restore.log")
            Do While oExec.Status = 0
                wScript.Sleep 100
            Loop
            rc = CheckSQLOutput(LogDirectory & "restore.log")
            If rc <> 0 Then
                wScript.Quit
            End If
            wScript.Echo ""
            wScript.Echo
            "*****"
            "*****"
            wScript.Echo "*"
            wScript.Echo "*" Microsoft TPC-C Benchmark Kit Ver. 4.41
            "*"
            wScript.Echo "*"
            wScript.Echo "*" Database restore complete.
            wScript.Echo "*"
            wScript.Echo
            "*****"
            "*****"

```

**runsqlcfg.vbs**

```

'-----
'--- FILE:    RESTORE.VBS
'---          Microsoft TPC-C Kit Ver. 4.41
'---          Copyright Microsoft, 2001
'---          All Rights Reserved
'---
'--- PURPOSE: This module executes a database restore
'---
'-----
'--- open an windows scripting object
'-----
set WshShell = CreateObject("WScript.Shell")
'-----
'--- display a banner message
'-----
wScript.Echo
"*****"
*****
wScript.Echo "*"
wScript.Echo "* Microsoft TPC-C V3 Benchmark Kit Ver. 4.41 - Configure"
wScript.Echo "      *"
wScript.Echo "*"
wScript.Echo "*"
wScript.Echo "*****"
*****
'-----
'--- define function to check for any error messages
'-----
Function CheckSQLOutput(SQL_Out)
    ErrorFlag = 0
    Set SQL_fso = CreateObject("Scripting.FileSystemObject")
    Set SQL_Out_File = SQL_fso.OpenTextFile(SQL_Out,1)
    Do While SQL_Out_File.AtEndOfStream <> True
        SQL_Line = SQL_Out_File.ReadLine
        'first check to see if the output contains a message about
the login password
        If InStr(SQL_Line, "Login failed") Then
            'display the messages and get out of here
            ErrorFlag = 1
            Wscript.Echo "The login for userid 'sa'
failed."
            Wscript.Echo "Please restart SETUP with the
correct password."
        End If
    Loop
    SQL_Out_File.Close
    CheckSQLOutput = ErrorFlag
End Function
'-----
'--- end function
'-----
'--- open a file system object
'-----
Set fs = CreateObject("Scripting.FileSystemObject")
'-----
'--- grab the current directory value
'-----
SetupDirectory = WshShell.CurrentDirectory & "\"
'-----
'--- now calculate the other directories
'-----
ScriptDirectory = SetupDirectory & "SCRIPTS\"
LogDirectory = SetupDirectory & "LOGS\"
'-----
'--- check to see if the user passed in the server name and sa password
'-----

```

```

Set objArgs = wScript.Arguments
Select Case objArgs.Length
    Case 0
        '-----
        '--- the user did not pass us anything
        '--- grab the Computer Name from Windows
        '-----
        ServerName =
WshShell.ExpandEnvironmentStrings("%COMPUTERNAME%")
        '-----
        '--- prompt the user to confirm the server name
        '-----
        ServerName = InputBox("Enter your server
name",Test_Name,ServerName)
        Do While ServerName = ""
            rc = MsgBox ("You must enter a valid server
name.",21)
            If rc = 2 Then
                wScript.Echo ""
                wScript.Echo "TPC-C Setup
cancelled by user."
                wScript.Quit
            End If
            ServerName =
WshShell.ExpandEnvironmentStrings("%COMPUTERNAME%")
            ServerName = InputBox("Enter your server
name","Database Server Name",ServerName)
        Loop
        '--- prompt the user for the sa password
        '-----
        saPassword = InputBox("Enter the 'sa'
password",Test_Name)
        Case 1
            '-----
            '--- the user passed 1 argument, so assume it is the server
name
            '-----
            ServerName = objArgs(0)
            '-----
            '--- prompt the user for the sa password
            '-----
            saPassword = InputBox("Enter the 'sa'
password",Test_Name)
        Case 2
            '-----
            '--- the user passed 2 arguments, so try to use them
            '-----
            ServerName = objArgs(0)
            saPassword = objArgs(1)
        End Select
'-----
'--- now that we have all the variables filled in, let's get to work
'-----
If fs.FileExists(LogDirectory & "runsqlcfg.log") Then
    fs.DeleteFile LogDirectory & "runsqlcfg.log"
End If
'-----
'--- configure SQL Server
'-----
wScript.Echo " "
wScript.Echo "Configuring Microsoft SQL Server installation..."
Set oExec = WshShell.Exec("osql -Usa -P" & saPassword & " -S" &
ServerName & " -e -i" & ScriptDirectory & "utility/runsqlcfg.sql -o" &
LogDirectory & "runsqlcfg.log")
Do While oExec.Status = 0
    WScript.Sleep 100
Loop

```

```

rc = CheckSQLOutput(LogDirectory & "runsqlcfg.log")
If rc <> 0 Then
    Wscript.Quit
End If
wScript.Echo " "
wScript.Echo "SQL Server Configuration Complete."
'-----
'--- shutdown SQL Server
'-----
wScript.Echo " "
wScript.Echo "Shutting down SQL Server..."
Set oExec = WshShell.Exec("osql -Usa -P" & saPassword & " -S" &
ServerName & " -e -i" & ScriptDirectory & "utility\sqlshutdown.sql")
wScript.Echo " "
wScript.Echo "Waiting for SQL Server to shutdown..."
Set oExec = WshShell.Exec("..\tools\sleep\sleep.exe 20")
Do While oExec.Status = 0
    WScript.Sleep 100
Loop
'-----
'--- Restarting SQL Server
'-----
wScript.Echo " "
wScript.Echo "Restarting SQL Server..."
wScript.Echo " "
CMD_String = "start sqlservr.exe -c -t3502"
oExec = WshShell.Run(CMD_String, 2, false)
wScript.Echo ""
wScript.Echo
"*****"
wScript.Echo ""
wScript.Echo "" Microsoft TPC-C Benchmark Kit Ver. 4.41
""
wScript.Echo ""
wScript.Echo "" SQL Server configuration complete.
wScript.Echo ""
wScript.Echo
"*****"
"*****"

```

## rtetime.h

```

rtetime.h : header file
* Copyright 1997 Microsoft Corp., All rights reserved.
*
* Source code licensed to Tandem Computers for Internal
* use only. Redistribution of source or object files or
* any derivative works is prohibited. By agreement, this
* notice may not be removed.
*
* Authors: Charles Levine, Philip Durr
*
* Microsoft Corp.
*/

//FILE: RTETIME.H

#define MAX_JULIAN_TIME
0xFFFFFFFFFFFFFFFF
#define JULIAN_TIME int64
#define TC_TIME DWORD
extern "C"
{
    BOOL InitJulianTime(LPSYSTEMTIME lpInitTime);
    JULIAN_TIME GetJulianTime(void);
}

```

```

DWORD MyTickCount(void);
void GetJulianAndTC(JULIAN_TIME *pJulian, DWORD
*pTC);
JULIAN_TIME ConvertTo64BitTime(int iYear, int iMonth, int iDay, int
iHour, int iMinute, int iSecond);
JULIAN_TIME Get64BitTime(LPSYSTEMTIME lpInitTime);
int JulianDay( int yr, int mm, int dd );
void JulianToTime(JULIAN_TIME julianTS, int* yr, int*
mm, int* dd, int *hh, int *mi, int *ss );
void JulianToCalendar( int day, int* yr, int* mm, int* dd );
}

```

## setup.vbs

```

'-----
'--- FILE: SETUP.VBS
'--- Microsoft TPC-C Kit Ver. 4.41
'--- Copyright Microsoft, 2001
'--- All Rights Reserved
'---
'--- PURPOSE: This module performs the tasks to create and populate a
TPC-C database
'-----
'-----
'--- open an windows scripting object
'-----
set WshShell = CreateObject("WScript.Shell")
'-----
'--- before we go any further, make sure that
'--- we are running Windows Scripting Host 5.6
'--- or higher
'-----
If WScript.Version < 5.6 Then
    WScript.Echo
    "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!"
    WScript.Echo "!!"
    WScript.Echo "!! You do not have the proper version of the
Windows Scripting Host !!!"
    WScript.Echo "!! installed. Please install the latest Windows
Scripting Host from !!!"
    WScript.Echo "!! ..\tools\wsh\scripten.exe and restart setup.
!!"
    WScript.Echo "!!"
    WScript.Echo
    "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!"
    WScript.Quit
End If
'-----
'--- display banner message
'-----
WScript.Echo
"*****"
"*****"
WScript.Echo ""
WScript.Echo "" Microsoft TPC-C Benchmark Kit Ver. 4.41 - Setup
""
WScript.Echo ""
WScript.Echo
"*****"
"*****"
'-----
'--- define function to check for any error messages
'-----
Function CheckSQLOutput(SQL_Out)
    ErrorFlag = 0
    Set SQL_fso = CreateObject("Scripting.FileSystemObject")

```

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| <pre> If SQL_fso.FileExists(SQL_Out) Then     Set SQL_Out_File = SQL_fso.OpenTextFile(SQL_Out,1)     Do While SQL_Out_File.AtEndOfStream &lt;&gt; True         SQL_Line = SQL_Out_File.ReadLine         'first check to see if the output contains a message about the login password         If InStr(SQL_Line, "Login failed") Then             'display the messages and get out             ErrorFlag = 1             wScript.Echo "The login for userid 'sa' failed."             wScript.Echo "Please restart SETUP with the correct password."         Else             If InStr(SQL_Line, "Msg") Then                 'find out where the                 LocMsg =                 'find out where the                 LocComma =                 'now isolate the error                 ErrorCode =                 Mid(SQL_Line, (LocMsg + 4), (LocComma - (LocMsg + 4)))                 Select Case ErrorCode                     Case " 170"                         ErrorFlag = 1                         wScript.Echo "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!"                         wScript.Echo "Syntax Error."                         wScript.Echo "SQL Server Error 170."                         wScript.Echo "Check CREATEDB.SQL."                         wScript.Echo "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!"                     Case "1801"                         ErrorFlag = 1                         wScript.Echo "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!"                         wScript.Echo "Database 'tpcc' already exists."                         wScript.Echo "SQL Server Error 1801."                         wScript.Echo "Check CREATEDB.SQL."                         wScript.Echo "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!"                     Case "1802"                         ErrorFlag = 1                         wScript.Echo "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!"                         wScript.Echo "CREATE DATABASE failed."                         wScript.Echo "SQL Server Error 1802."                         wScript.Echo "Check CREATEDB.SQL."                 End Select             Else                 'find out where the                 LocMsg =                 'find out where the                 LocComma =                 'now isolate the error                 ErrorCode =                 Mid(SQL_Line, (LocMsg + 4), (LocComma - (LocMsg + 4)))                 Select Case ErrorCode                     Case " 170"                         ErrorFlag = 1                         wScript.Echo "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!"                         wScript.Echo "Device error or device off-line."                         wScript.Echo "SQL Server Error 3201."                         wScript.Echo "See the SQL Server error log for more details."                         wScript.Echo "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!"                     Case "5105"                         ErrorFlag = 1                         wScript.Echo "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!"                         wScript.Echo "Device Activation Error."                         wScript.Echo "SQL Server Error 5105."                         wScript.Echo "Check CREATEDB.SQL."                         wScript.Echo "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!"                     Case "5170"                         ErrorFlag = 1                         wScript.Echo "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!"                         wScript.Echo "Cannot create one or more files because it already exists."                         wScript.Echo "SQL Server Error 5170."                         wScript.Echo "Check CREATEDB.SQL."                         wScript.Echo "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!"                     Case "15010","15012"                         ErrorFlag = 1                         wScript.Echo "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!"                         wScript.Echo "BACKUP DATABASE is terminating abnormally."                         wScript.Echo "SQL Server Error 3013."                         wScript.Echo "Check the SQL Server error log for more details."                         wScript.Echo "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!"                 End Select             End If         End If     Loop End If </pre> | <pre> wScript.Echo "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!" ErrorFlag = 1 wScript.Echo "CREATE INDEX failed." wScript.Echo "SQL Server Error 1921." wScript.Echo "Check " &amp; SQL_Out &amp; "." wScript.Echo "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!" ErrorFlag = 1 wScript.Echo "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!" wScript.Echo "BACKUP DATABASE is terminating abnormally." wScript.Echo "SQL Server Error 3013." wScript.Echo "Check the SQL Server error log for more details." wScript.Echo "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!" ErrorFlag = 1 wScript.Echo "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!" wScript.Echo "Cannot open backup device." wScript.Echo "Device error or device off-line." wScript.Echo "SQL Server Error 3201." wScript.Echo "See the SQL Server error log for more details." wScript.Echo "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!" ErrorFlag = 1 wScript.Echo "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!" wScript.Echo "Device Activation Error." wScript.Echo "SQL Server Error 5105." wScript.Echo "Check CREATEDB.SQL." wScript.Echo "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!" ErrorFlag = 1 wScript.Echo "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!" wScript.Echo "Cannot create one or more files because it already exists." wScript.Echo "SQL Server Error 5170." wScript.Echo "Check CREATEDB.SQL." wScript.Echo "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!" </pre> | <p>Case "1921"</p> <p>Case "3013"</p> <p>Case "3201"</p> <p>Case "5105"</p> <p>Case "5170"</p> <p>Case</p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------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wScript.Quit

End If  
Flag = 0

TempResponse = InputBox("Build Option" & Chr(13) &  
"(full, bulddb, objects, objectsfull, bulkload, bulkloadfull, backup)", "full")

End Select

Loop  
Case "DatabaseType"

TempResponse = InputBox("Database Type"  
& Chr(13) & "(normal or scale\_down)", "TPC-C Setup", "normal")

'--- set flag

Flag = 0

Do While Flag = 0

Select Case TempResponse

Case

"normal", "Normal", "NORMAL"

TempResponse = "0"

Flag = 1

Case

"scale\_down", "Scale\_Down", "Scale\_down", "SCALE\_DOWN"

TempResponse = "1"

Flag = 1

Case Else

rc =

MsgBox ("Invalid Database Type.", 21)

If rc = 2

Then

wScript.Echo ""

wScript.Echo "TPC-C Setup cancelled by user."

wScript.Quit

End If  
Flag = 0

TempResponse = InputBox("Database Type" & Chr(13) & "(normal or  
scale\_down)", "normal")

End Select

Loop

End Select

GetUserInput = TempResponse

End Function

'--- end function

'--- Initialize an array of the TPC-C table names

Dim TableArray(8)

TableArray(0) = "warehouse"

TableArray(1) = "district"

TableArray(2) = "customer"

TableArray(3) = "history"

TableArray(4) = "new\_order"

TableArray(5) = "orders"

TableArray(6) = "order\_line"

TableArray(7) = "item"

TableArray(8) = "stock"

'--- Initialize an array of the TPC-C build log file names

Dim LogFileArray(21)

LogFileArray(0) = "version.log"

LogFileArray(1) = "removedb.log"

LogFileArray(2) = "createdb.log"

LogFileArray(3) = "tables.log"

LogFileArray(4) = "dbopt1.log"

LogFileArray(5) = "idxordcl.log"

LogFileArray(6) = "idxitmcl.log"

LogFileArray(7) = "idxwarcl.log"

LogFileArray(8) = "idxcuscl.log"

LogFileArray(9) = "idxnodcl.log"

LogFileArray(10) = "idxdiscl.log"

LogFileArray(11) = "idxstkcl.log"

LogFileArray(12) = "idxodlcl.log"

LogFileArray(13) = "idxcusnc.log"

LogFileArray(14) = "idxhiscl.log"

LogFileArray(15) = "idxordnc.log"

LogFileArray(16) = "bulkload.log"

LogFileArray(17) = "dbopt2.log"

LogFileArray(18) = "nurand\_load.log"

LogFileArray(19) = "backupdev.log"

LogFileArray(20) = "backupdev.log"

LogFileArray(21) = "verifyload.log"

'--- open a file system object

Set fs = CreateObject("Scripting.FileSystemObject")

'--- grab the current directory value

SetupDirectory = WshShell.CurrentDirectory & "\"

'SetupDirectory = "C:\MSTPCC.441\"

'--- now calculate the other directories

ACIDDirectory = LEFT(SetupDirectory, (LEN(SetupDirectory)-6))

ScriptDirectory = SetupDirectory & "SCRIPTS\"

LogDirectory = SetupDirectory & "LOGS\"

'--- now determine if the user passed us any parameters.

'--- the order should be ServerName, sa Password, Number of Warehouses,

'--- Build Option, and Database Type

Set objArgs = wScript.Arguments

Select Case objArgs.Length

Case 0

'--- get the server name

ServerName = GetUserInput("ServerName")

'--- get the sa password

saPassword = GetUserInput("saPassword")

'--- get the number of warehouses

NumberWarehouses =

GetUserInput("NumberWarehouses")

'--- get the build option

BuildOption = GetUserInput("BuildOption")

'--- get the database type

DatabaseType = GetUserInput("DatabaseType")

Case 1

```

'--- assume that the server name was passed correctly
'-----
'--- store the server name
'-----
ServerName = objArgs(0)
'-----
'--- get the sa password
'-----
saPassword = GetUserInput("saPassword")
'-----
'--- get the number of warehouses
'-----
NumberWarehouses =
GetUserInput("NumberWarehouses")
'-----
'--- get the build option
'-----
BuildOption = GetUserInput("BuildOption")
'-----
'--- get the database type
'-----
DatabaseType = GetUserInput("DatabaseType")
If DatabaseType = "scale_down" or DatabaseType =
"Scale_Down" or DatabaseType = "Scale_down" Then
    DatabaseType = 1
Else
    DatabaseType = 0
End If
Case 2
'-----
'--- assume that the server name and sa password was
passed correctly
'-----
'--- store the server name
'-----
ServerName = objArgs(0)
'-----
'--- store the sa password
'-----
saPassword = objArgs(1)
'-----
'--- get the number of warehouses
'-----
NumberWarehouses =
GetUserInput("NumberWarehouses")
'-----
'--- get the build option
'-----
BuildOption = GetUserInput("BuildOption")
'-----
'--- get the database type
'-----
DatabaseType = GetUserInput("DatabaseType")
If DatabaseType = "scale_down" or DatabaseType =
"Scale_Down" or DatabaseType = "Scale_down" Then
    DatabaseType = 1
Else
    DatabaseType = 0
End If
Case 3
'-----
'--- assume that the server name,sa password, and number
of warehouses was passed correctly
'-----

```

```

'-----
'--- store the server name
'-----
ServerName = objArgs(0)
'-----
'--- store the sa password
'-----
saPassword = objArgs(1)
'-----
'--- store the number of warehouses
'-----
NumberWarehouses = objArgs(2)
'-----
'--- get the build option
'-----
BuildOption = GetUserInput("BuildOption")
'-----
'--- get the database type
'-----
DatabaseType = GetUserInput("DatabaseType")
If DatabaseType = "scale_down" or DatabaseType =
"Scale_Down" or DatabaseType = "Scale_down" Then
    DatabaseType = 1
Else
    DatabaseType = 0
End If
Case 4
'-----
'--- assume that the server name,sa password,number of
warehouses, and build option was passed correctly
'-----
'-----
'--- store the server name
'-----
ServerName = objArgs(0)
'-----
'--- store the sa password
'-----
saPassword = objArgs(1)
'-----
'--- store the number of warehouses
'-----
NumberWarehouses = objArgs(2)
'-----
'--- store the build option
'-----
BuildOption = objArgs(3)
'-----
'--- get the database type
'-----
DatabaseType = GetUserInput("DatabaseType")
If DatabaseType = "scale_down" or DatabaseType =
"Scale_Down" or DatabaseType = "Scale_down" Then
    DatabaseType = 1
Else
    DatabaseType = 0
End If
Case 5
'-----
'--- assume all the parameters were passed in correctly
'-----
'--- store the server name
'-----

```

```

        ServerName = objArgs(0)
        '-----
        '--- store the sa password
        '-----
        saPassword = objArgs(1)
        '-----
        '--- store the number of warehouses
        '-----
        NumberWarehouses = objArgs(2)
        '-----
        '--- store the build option
        '-----
        BuildOption = objArgs(3)
        '-----
        '--- get the database type
        '-----
        DatabaseType = objArgs(4)
        If DatabaseType = "scale_down" or DatabaseType =
"Scale_Down" or DatabaseType = "Scale_down" Then
            DatabaseType = 1
        Else
            DatabaseType = 0
        End If
    End Select
    '-----
    '--- now that we have all the variables filled in, let's get to work
    '--- cleanup any old .err files
    '-----
    For i = 0 to 8
        If fs.FileExists(LogPath & TableArray(i) & ".err") Then
            fs.DeleteFile LogPath & TableArray(i) & ".err"
        End If
    Next
    For i = 0 to 21
        If fs.FileExists(LogPath & LogFileArray(i)) Then
            fs.DeleteFile LogPath & LogFileArray(i)
        End If
    Next
    '-----
    '--- now grab the version of SQL Server you are running this against
    '-----
    Set oExec = WshShell.Exec("isql -Usa -P" & saPassword & " -S" &
    ServerName & " -e -i" & ScriptDirectory & "utility\version.sql -o" &
    LogDirectory & "version.log")
    Do While oExec.Status = 0
        wScript.Sleep 100
    Loop
    rc = CheckSQLOutput(LogDirectory & "version.log")
    If rc <> 0 Then
        wScript.Quit
    End If
    If (BuildOption = "full" OR BuildOption = "bulddb") Then
        wScript.Echo "Removing any existing TPCC database and backup
        devices..."
        Set oExec = WshShell.Exec("isql -Usa -P" & saPassword & " -S" &
        ServerName & " -e -i" & ScriptDirectory & NumberWarehouses &
        ".war\database\removedb.sql -o" & LogDirectory & "removedb.log")
        Do While oExec.Status = 0
            wScript.Sleep 100
        Loop
        rc = CheckSQLOutput(LogDirectory & "removedb.log")
        If rc <> 0 Then
            wScript.Quit
        End If
        wScript.Echo "Building database files and database..."
        Set oExec = WshShell.Exec("isql -Usa -P" & saPassword & " -S" &
        ServerName & " -e -i" & ScriptDirectory & NumberWarehouses &
        ".war\database\createdb.sql -o" & LogDirectory & "createdb.log")

```

```

        Do While oExec.Status = 0
            wScript.Sleep 100
        Loop
        rc = CheckSQLOutput(LogDirectory & "createdb.log")
        If rc <> 0 Then
            wScript.Quit
        End If
    End If
    '-----
    '--- build tables and stored procedures
    '-----
    If (BuildOption = "full" OR BuildOption = "bulddb"
    OR BuildOption = "objects" OR BuildOption = "objectsfull") Then
        wScript.Echo "Creating TPC-C database tables..."
        Set oExec = WshShell.Exec("isql -Usa -P" & saPassword & " -S" &
        ServerName & " -e -i" & ScriptDirectory & NumberWarehouses &
        ".war\ddl\tables.sql -o" & LogDirectory & "tables.log")
        Do While oExec.Status = 0
            wScript.Sleep 100
        Loop
        rc = CheckSQLOutput(LogDirectory & "tables.log")
        If rc <> 0 Then
            wScript.Quit
        End If
        wScript.Echo "Creating database objects..."
        Set oExec = WshShell.Exec("isql -Usa -P" & saPassword & " -S" &
        ServerName & " -e -i" & ScriptDirectory & "dml\neword.sql -o" &
        LogDirectory & "sp_neword.log")
        Do While oExec.Status = 0
            wScript.Sleep 100
        Loop
        rc = CheckSQLOutput(LogDirectory & "sp_neword.log")
        If rc <> 0 Then
            wScript.Quit
        End If
        Set oExec = WshShell.Exec("isql -Usa -P" & saPassword & " -S" &
        ServerName & " -e -i" & ScriptDirectory & "dml\payment.sql -o" &
        LogDirectory & "sp_payment.log")
        Do While oExec.Status = 0
            wScript.Sleep 100
        Loop
        rc = CheckSQLOutput(LogDirectory & "sp_payment.log")
        If rc <> 0 Then
            wScript.Quit
        End If
        Set oExec = WshShell.Exec("isql -Usa -P" & saPassword & " -S" &
        ServerName & " -e -i" & ScriptDirectory & "dml\ordstat.sql -o" &
        LogDirectory & "sp_ordstat.log")
        Do While oExec.Status = 0
            wScript.Sleep 100
        Loop
        rc = CheckSQLOutput(LogDirectory & "sp_ordstat.log")
        If rc <> 0 Then
            wScript.Quit
        End If
        Set oExec = WshShell.Exec("isql -Usa -P" & saPassword & " -S" &
        ServerName & " -e -i" & ScriptDirectory & "dml\delivery.sql -o" &
        LogDirectory & "sp_delivery.log")
        Do While oExec.Status = 0
            wScript.Sleep 100
        Loop
        rc = CheckSQLOutput(LogDirectory & "sp_delivery.log")
        If rc <> 0 Then
            wScript.Quit
        End If
        Set oExec = WshShell.Exec("isql -Usa -P" & saPassword & " -S" &
        ServerName & " -e -i" & ScriptDirectory & "dml\stocklev.sql -o" &
        LogDirectory & "sp_stocklev.log")

```

```

Do While oExec.Status = 0
    wScript.Sleep 100
Loop
rc = CheckSQLOutput(LogDirectory & "sp_stocklev.log")
If rc <> 0 Then
    wScript.Quit
End If
Set oExec = WshShell.Exec("isql -Usa -P" & saPassword & " -S" &
ServerName & " -e -i" & ScriptDirectory & "dml\version.sql -o" &
LogDirectory & "sp_version.log")
Do While oExec.Status = 0
    wScript.Sleep 100
Loop
rc = CheckSQLOutput(LogDirectory & "sp_version.log")
If rc <> 0 Then
    wScript.Quit
End If
wScript.Echo "Database object creation complete..."
End If
If (BuildOption = "full" OR BuildOption = "bulddb" _
OR BuildOption = "objects" OR BuildOption = "objectsfull" _
OR BuildOption = "bulkload" OR BuildOption = "bulkloadfull") Then
    wScript.Echo "Setting database options before load..."
    Set oExec = WshShell.Exec("isql -Usa -P" & saPassword & " -S" &
ServerName & " -e -i" & ScriptDirectory & "utility\dbopt1.sql -o" &
LogDirectory & "dbopt1.log")
    Do While oExec.Status = 0
        wScript.Sleep 100
    Loop
    rc = CheckSQLOutput(LogDirectory & "dbopt1.log")
    If rc <> 0 Then
        wScript.Quit
    End If
    '-----
    '--- before we start tpccldr.exe, check the registry
    '--- to ensure that the Shared Memory Protocol is off.
    '--- if it is on, store the setting so we can return
    '--- the system to the pre-tpccldr state.
    '-----
    SharedMemoryRegKey =
WshShell.RegRead("HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MS
SQLServer\Client\SharedMemoryOn")
    If SharedMemoryRegKey = 1 Then
        WshShell.RegWrite
"HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MSSQLServer\Client\S
haredMemoryOn", 0, "REG_DWORD"
    End If
    wScript.Echo "Beginning data load and index creation..."
    CMD_String = SetupDirectory & "\loader\bin\tpccldr.exe"
    CMD_String = CMD_String & " -S" & ServerName
    CMD_String = CMD_String & " -Usa"
    CMD_String = CMD_String & " -P" & saPassword
    CMD_String = CMD_String & " -W" & NumberWarehouses
    CMD_String = CMD_String & " -f" & LogDirectory &
"bulkload.log"
    CMD_String = CMD_String & " -L" & LogDirectory
    CMD_String = CMD_String & " -d" & ScriptDirectory &
NumberWarehouses & ".war\ddl"
    CMD_String = CMD_String & " -c" & DatabaseType
    oExec = WshShell.Run(CMD_String, 2, true)
    '-----
    '--- now that the loader is finished, put the
    '--- SharedMemoryOn registry key back to its original
    '--- value.
    '-----
    If SharedMemoryRegKey = 1 Then

```

```

        WshShell.RegWrite
"HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MSSQLServer\Client\S
haredMemoryOn", 1, "REG_DWORD"
    End If
    wScript.Echo "Setting database options after load..."
    Set oExec = WshShell.Exec("isql -Usa -P" & saPassword & " -S" &
ServerName & " -e -i" & ScriptDirectory & "utility\dbopt2.sql -o" &
LogDirectory & "dbopt2.log")
    Do While oExec.Status = 0
        wScript.Sleep 100
    Loop
    rc = CheckSQLOutput(LogDirectory & "dbopt2.log")
    If rc <> 0 Then
        wScript.Quit
    End If
    wScript.Echo "Data load and index creation complete."
    '-----
    '--- now parse the index creation logs
    '--- to see if there were any errors
    '--- there.
    '-----
    For i = 5 to 15
        rc = CheckSQLOutput(LogDirectory & LogFileArray(i))
        If rc <> 0 Then
            wScript.Quit
        End If
    Next
    wScript.Echo "Calculating initial database space usage...."
    Set oExec = WshShell.Exec("isql -Usa -P" & saPassword & " -S" &
ServerName & " -e -i" & ACIDDirectory & "space\scripts\spused.sql -o" &
ACIDDirectory & "space\spused.ver")
    Do While oExec.Status = 0
        wScript.Sleep 100
    Loop
    Set oExec = WshShell.Exec("isql -Usa -P" & saPassword & " -S" &
ServerName & " -e -i" & ACIDDirectory & "space\scripts\splog.sql -o" &
ACIDDirectory & "space\splog.ver")
    Do While oExec.Status = 0
        wScript.Sleep 100
    Loop
    Set oExec = WshShell.Exec("isql -Usa -P" & saPassword & " -S" &
ServerName & " -e -i" & ACIDDirectory & "space\scripts\spfiles.sql -o" &
ACIDDirectory & "space\spfiles.ver")
    Do While oExec.Status = 0
        wScript.Sleep 100
    Loop
    '-----
    '--- now that the loader is finished
    '--- check the .err files and if they
    '--- are of zero length, delete them.
    '-----
    Set fsErr = CreateObject("Scripting.FileSystemObject")
    Set fErr = fsErr.GetFolder(LogDirectory)
    Set fcErr = fErr.Files
    For Each fl In fcErr
        If fl.Type = "ERR File" Then
            If fl.Size = 0 Then
                fl.Delete
            End If
        End If
    Next
    Set fcErr = Nothing
    Set fErr = Nothing
    Set fsErr = Nothing
End If
If (BuildOption = "full" _
OR BuildOption = "objectsfull" _
OR BuildOption = "bulkloadfull" _

```

```

OR BuildOption = "backup") Then
    wScript.Echo "Creating Backup Device(s)..."
    Set oExec = WshShell.Exec("isql -Usa -P" & saPassword & " -S" &
ServerName & " -e -i" & ScriptDirectory & NumberWarehouses &
".war\database\backupdev.sql -o" & LogDirectory & "backupdev.log")
    Do While oExec.Status = 0
        wScript.Sleep 100
    Loop
    rc = CheckSQLOutput(LogDirectory & "backupdev.log")
    If rc <> 0 Then
        wScript.Quit
    End If
    wScript.Echo "Backing up database..."
    Set oExec = WshShell.Exec("isql -Usa -P" & saPassword & " -S" &
ServerName & " -e -i" & ScriptDirectory & NumberWarehouses &
".war\database\backup.sql -o" & LogDirectory & "backup.log")
    Do While oExec.Status = 0
        wScript.Sleep 100
    Loop
    rc = CheckSQLOutput(LogDirectory & "backup.log")
    If rc <> 0 Then
        wScript.Quit
    End If
    wScript.Echo "Database backup complete."
End If
If (BuildOption = "full"
OR BuildOption = "objectsfull"
OR BuildOption = "bulkloadfull") Then
    wScript.Echo "Verifying TPC-C database load..."
    Set oExec = WshShell.Exec("isql -Usa -P" & saPassword & " -S" &
ServerName & " -e -i" & ScriptDirectory & "utility\verifytpccload.sql -o" &
LogDirectory & "verifyload.log")
    Do While oExec.Status = 0
        wScript.Sleep 100
    Loop
    rc = CheckSQLOutput(LogDirectory & "verifyload.log")
    If rc <> 0 Then
        wScript.Quit
    End If
    wScript.Echo "Check logs\verifyload.log to verify database load."
End If
'-----
'--- display banner message
'-----
wScript.Echo
"*****"
wScript.Echo "*"
wScript.Echo "*" Microsoft TPC-C Benchmark Kit Ver. 4.41 - Setup Complete
"
wScript.Echo "*"
wScript.Echo
"*****"

```

## spinlock.h

```

/*      FILE: SPINLOCK.H
*
* Copyright 1997 Microsoft Corp., All rights reserved.
*
* Source code licensed to Tandem Computers for Internal
* use only. Redistribution of source or object files or
* any derivative works is prohibited. By agreement, this
* notice may not be removed.
*
* Authors: Mike Parkes, Charles Levine, Philip Durr
*          Microsoft Corp.

```

```

*/
#ifndef _INC_Spinlock

const LONG LockClosed      = 1;
const LONG LockOpen        = 0;

/*****
*
* Spinlock and Semaphore locking.
*
* This class provides a very conservative locking scheme.
* The assumption behind the code is that locks will be
* held for a very short time. When a lock is taken a memory
* location is exchanged. All other threads that want this
* lock wait by spinning and sometimes sleeping on a semaphore
* until it becomes free again. The only other choice is not
* to wait at all and move on to do something else. This
* module should normally be used in conjunction with cache
* aligned memory in minimize cache line misses.
*
*****/

class Spinlock
{
    // Private data.
    HANDLE          Semaphore;
    volatile LONG    m_Spinlock;
    volatile LONG    Waiting;

#ifdef _DEBUG
    // Counters for debugging builds.
    volatile LONG    TotalLocks;
    volatile LONG    TotalSleeps;
    volatile LONG    TotalSpins;
    volatile LONG    TotalWaits;
#endif

public:
    // Public functions.

    Spinlock( void );

    inline BOOL ClaimLock( BOOL Wait =
TRUE );

    inline void ReleaseLock( void );
    ~Spinlock( void );
    // Disabled operations.
    Spinlock( const Spinlock & Copy );
    void operator=( const Spinlock & Copy );

private:
    // Private functions.
    inline BOOL ClaimSpinlock( volatile LONG
*sl );

    void WaitForLock( void );
    void WakeAllSleepers( void );

};

/*****
*
* A guaranteed atomic exchange.
*
* An attempt is made to claim the Spinlock. This action is
* guaranteed to be atomic.
*****/

```

```

*
*****/

inline BOOL Spinlock::ClaimSpinlock( volatile LONG *Spinlock )
{
    #ifdef _DEBUG
        InterlockedIncrement( (LPLONG) &
TotalLocks );
    #endif
    return ( (*Spinlock) == LockOpen ) &&
(InterlockedExchange( (LPLONG)Spinlock, LockClosed ) == LockOpen );
}

/*****
*
*   Claim the Spinlock.
*
*   Claim the lock if available else wait or exit.
*
*****/

inline BOOL Spinlock::ClaimLock( BOOL Wait )
{
    if ( ! ClaimSpinlock( (volatile LONG*) & m_Spinlock ) )
    {
        if ( Wait )
            WaitForLock();
        return Wait;
    }
    return TRUE;
}

/*****
*
*   Release the Spinlock.
*
*   Release the lock and if needed wakeup any sleepers.
*
*****/

inline void Spinlock::ReleaseLock( void )
{
    m_Spinlock = LockOpen;
    if ( Waiting > 0 )
        WakeAllSleepers();
}

#define _INC_Spinlock

#endif

```

## tm\_com\_dll.dsp

# Microsoft Developer Studio Project File - Name="tm\_com\_dll" - Package Owner=<4>

# Microsoft Developer Studio Generated Build File, Format Version 6.00  
# \*\* DO NOT EDIT \*\*

# TARGETTYPE "Win32 (x86) Dynamic-Link Library" 0x0102

CFG=tm\_com\_dll - Win32 Debug

!MESSAGE This is not a valid makefile. To build this project using NMAKE,  
!MESSAGE use the Export Makefile command and run

```

!MESSAGE
!MESSAGE NMAKE /f "tm_com_dll.mak".
!MESSAGE
!MESSAGE You can specify a configuration when running NMAKE
!MESSAGE by defining the macro CFG on the command line. For example:
!MESSAGE
!MESSAGE NMAKE /f "tm_com_dll.mak" CFG="tm_com_dll - Win32
Debug"
!MESSAGE
!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "tm_com_dll - Win32 Release" (based on "Win32 (x86)
Dynamic-Link Library")
!MESSAGE "tm_com_dll - Win32 Debug" (based on "Win32 (x86)
Dynamic-Link Library")
!MESSAGE

# Begin Project
# PROP AllowPerConfigDependencies 0
# PROP Scc_ProjName ""
# PROP Scc_LocalPath ""
CPP=cl.exe
MTL=midl.exe
RSC=rc.exe

!IF "$(CFG)" == "tm_com_dll - Win32 Release"

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "Release"
# PROP BASE Intermediate_Dir "Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MT /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D
"_WINDOWS" /YX /FD /c
# ADD CPP /nologo /MD /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D
"_WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D "NDEBUG" /mktyplib203 /o "NUL" /win32
# ADD MTL /nologo /D "NDEBUG" /mktyplib203 /o "NUL" /win32
# ADD BASE RSC /I 0x409 /d "NDEBUG"
# ADD RSC /I 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbccp32.lib /nologo /subsystem:windows /dll /machine:I386
# ADD LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib odbccp32.lib
/nologo /subsystem:windows /dll /machine:I386 /out:".bin\tpcc_com.dll"

!ELSEIF "$(CFG)" == "tm_com_dll - Win32 Debug"

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "Debug"
# PROP BASE Intermediate_Dir "Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"

```

```
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MTd /W3 /Gm /GX /ZI /Od /D "WIN32" /D
" _DEBUG" /D " _WINDOWS" /YX /FD /c
# ADD CPP /nologo /MDd /W3 /Gm /GX /ZI /Od /D "WIN32" /D " _DEBUG"
/D " _WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D " _DEBUG" /mktyplib203 /o "NUL" /win32
# ADD MTL /nologo /D " _DEBUG" /mktyplib203 /o "NUL" /win32
# ADD BASE RSC /I 0x409 /d " _DEBUG"
# ADD RSC /I 0x409 /d " _DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbccp32.lib
/ldbcp32.lib /nologo /subsystem:windows /dll /debug /machine:I386
/pdbtype:sept
# ADD LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbccp32.lib
/nologo /subsystem:windows /dll /debug /machine:I386
/out:"\bin\tpcc_com.dll" /pdbtype:sept

!ENDIF

# Begin Target

# Name "tm_com_dll - Win32 Release"
# Name "tm_com_dll - Win32 Debug"
# Begin Source File

SOURCE=\src\tpcc_com.cpp
# End Source File
# Begin Source File

SOURCE=\src\tpcc_com.h
# End Source File
# End Target
# End Project
```

## tpcc.cpp

```
/*      FILE:          TPCC.C
 *
 *      Microsoft TPC-C Kit Ver.
 *
 *      4.20.000
 *
 *      Copyright Microsoft, 1999
 *
 *      All Rights Reserved
 *
 *
 *      Version 4.10.000 audited by
 *      Richard Gimarc, Performance Metrics, 3/17/99
 *
 *      PURPOSE:        Main module for TPCC.DLL which is an
 *      ISAPI service dll.
 *      Contact:   Charles Levine (clevine@microsoft.com)
 *
 *      Change history:
 *      4.20.000 - reworked error handling; added options for
 *      COM and Encina txn monitors
 */

#include <windows.h>
#include <process.h>
#include <tchar.h>
#include <stdio.h>
#include <stdarg.h>
#include <malloc.h>
```

```
#include <stdlib.h>
#include <string.h>
#include <time.h>
#include <sys/timeb.h>
#include <io.h>
#include <assert.h>

#include <sqltypes.h>

#ifdef ICECAP
#include <icapexp.h>
#endif

#include "..\..\common\src\trans.h" //tpckit transaction
header contains definitions of structures specific to TPC-C
#include "..\..\common\src\error.h"
#include "..\..\common\src\txn_base.h"
#include "..\..\common\src\ReadRegistry.h"

#include "..\..\common\txnlog\include\rtetime.h"
#include "..\..\common\txnlog\include\spinlock.h"
#include "..\..\common\txnlog\include\txnlog.h"

// Database layer includes
#include "..\..\db_dblib_dll\src\tpcc_dblib.h" // DBLIB
implementation of TPC-C txns
#include "..\..\db_odbc_dll\src\tpcc_odbc.h" // ODBC
implementation of TPC-C txns

// Txn monitor layer includes
#include "..\..\tm_com_dll\src\tpcc_com.h" // COM
Services implementation on TPC-C txns
#include "..\..\tm_tuxedo_dll\src\tpcc_tux.h" // interface to Tuxedo
libraries
#include "..\..\tm_encina_dll\src\tpcc_enc.h" // interface to Encina
libraries

#include "httpext.h" //ISAPI DLL
information header
#include "tpcc.h" //this dlls
specific structure, value e.t. header.

#define LEN_ERR_STRING 256

// defines for Make<Txn>Form calls to distinguish input and output flavors
#define OUTPUT_FORM 0
#define INPUT_FORM 1

char
szMyComputerName[MAX_COMPUTERNAME_LENGTH+1];

//Terminal client id structure
TERM Term = { 0, 0, 0, NULL };

// The WEBCLIENT_VERSION string specifies the version level of this web
client interface.
// The RTE must be synchronized with the interface level on login, otherwise
the login
// will fail. This is a sanity check to catch problems resulting from mismatched
versions
// of the RTE and web client.
#define WEBCLIENT_VERSION "410"

static CRITICAL_SECTION TermCriticalSection;

static HINSTANCE hLibInstanceTm = NULL;
static HINSTANCE hLibInstanceDb = NULL;
```

```

TYPE_CTPCC_DBLIB      *pCTPCC_DBLIB_new;
TYPE_CTPCC_ODBC       *pCTPCC_ODBC_new;
TYPE_CTPCC_TUXEDO     *pCTPCC_TUXEDO_new;
TYPE_CTPCC_ENCINA     *pCTPCC_ENCINA_new;
TYPE_CTPCC_ENCINA     *pCTPCC_ENCINA_post_init;
TYPE_CTPCC_COM        *pCTPCC_COM_new;

// For deferred Delivery txns:

CTxnLog                *txnDelilog = NULL;
//used to log delivery transaction information

HANDLE                 hWorkerSemaphore =
INVALID_HANDLE_VALUE;
HANDLE                 hDoneEvent
= INVALID_HANDLE_VALUE;
HANDLE                 *pDeliHandles
= NULL;

// configuration settings from registry
TPCCREGISTRYDATA      Reg;

DWORD
dwNumDeliveryThreads = 4;
CRITICAL_SECTION      DelBuffCriticalSection;
//critical section for delivery transactions cache
DELIVERY_TRANSACTION *pDelBuff = NULL;
DWORD                 dwDelBuffSize
= 100;                // size of circular buffer for delivery txns
DWORD                 dwDelBuffFreeCount;
// number of buffers free
DWORD                 dwDelBuffBusyIndex =
0;                    // index position of entry waiting to be delivered
DWORD                 dwDelBuffFreeIndex =
0;                    // index position of unused entry

#include "..\..\common\src\ReadRegistry.cpp"

/* FUNCTION: DIIMain
*
* PURPOSE:      This function is the entry point for the DLL. This
implementation is based on the
*              fact that DLL_PROCESS_ATTACH is only
called from the inet service once.
*
* ARGUMENTS:   HANDLE hModule
module handle
*              DWORD ul_reason_for_call
reason for call
*              LPVOID lpReserved
reserved for future use
*
* RETURNS:     BOOL FALSE
errors occurred in initialization
*              TRUE
DLL successfully initialized
*/

BOOL APIENTRY DIIMain(HANDLE hModule, DWORD ul_reason_for_call,
LPVOID lpReserved)
{
    DWORD i;
    char szEvent[LEN_ERR_STRING] = "0";
    char szLogFile[128];
    char szDllName[128];

```

```

// debugging....
// DebugBreak();

    try
    {
        switch( ul_reason_for_call )
        {
            case DLL_PROCESS_ATTACH:
                {
                    DWORD dwSize =
MAX_COMPUTERNAME_LENGTH+1;
GetComputerName(szMyComputerName, &dwSize);
szMyComputerName[dwSize] = 0;
                }

DisableThreadLibraryCalls((HMODULE)hModule);

InitializeCriticalSection(&TermCriticalSection);

if ( ReadTPCCRegistrySettings(
&Reg ) )
    throw new
CWEBCLNT_ERR( ERR_MISSING_REGISTRY_ENTRIES );

    Reg.dwMaxPendingDeliveries, 10000 ); // min with 10000 as a sanity
constraint
    dwNumDeliveryThreads = min(
Reg.dwNumberOfDeliveryThreads, 100 ); // min with 100 as a sanity constraint

    TermInit();

    // load DLL for txn monitor
    if (Reg.eTxnMon == TUXEDO)
    {
        strcpy( szDllName,
Reg.szPath );
        strcat( szDllName,
"tpcc_tuxedo.dll");
        hLibInstanceTm =
LoadLibrary( szDllName );
        if (hLibInstanceTm ==
NULL)
            throw new
CWEBCLNT_ERR( ERR_LOADDLL_FAILED, szDllName, GetLastError() );

        // get function pointer
to wrapper for class constructor

pCTPCC_TUXEDO_new = (TYPE_CTPCC_TUXEDO*)
GetProcAddress(hLibInstanceTm,"CTPCC_TUXEDO_new");
        if
(pCTPCC_TUXEDO_new == NULL)
            throw new
CWEBCLNT_ERR( ERR_GETPROCADDR_FAILED, szDllName,
GetLastError() );
    }
    else if (Reg.eTxnMon ==
ENCINA)
    {
        strcpy( szDllName,
Reg.szPath );
        strcat( szDllName,
"tpcc_encina.dll");
    }
}

```

|                                                                |                              |                                                                              |
|----------------------------------------------------------------|------------------------------|------------------------------------------------------------------------------|
| LoadLibrary( szDllName );                                      | hLibInstanceTm =             | pCTPCC_DBLIB_new = (TYPE_CTPCC_DBLIB*)                                       |
| NULL)                                                          | if (hLibInstanceTm ==        | GetProcAddress(hLibInstanceDb,"CTPCC_DBLIB_new");                            |
|                                                                | throw new                    | if                                                                           |
| CWEBCLNT_ERR( ERR_LOADDLL_FAILED, szDllName, GetLastError() ); | // get function pointer      | (pCTPCC_DBLIB_new == NULL)                                                   |
| to wrapper for class constructor                               |                              | throw new CWEBCLNT_ERR( ERR_GETPROCADDR_FAILED, szDllName,                   |
|                                                                |                              | GetLastError() );                                                            |
| pCTPCC_ENCINA_new = (TYPE_CTPCC_ENCINA*)                       |                              | }                                                                            |
| GetProcAddress(hLibInstanceTm,"CTPCC_ENCINA_new");             |                              | else if                                                                      |
|                                                                |                              | {                                                                            |
| pCTPCC_ENCINA_post_init = (TYPE_CTPCC_ENCINA*)                 |                              | strcpy(                                                                      |
| GetProcAddress(hLibInstanceTm,"CTPCC_ENCINA_post_init");       | if                           | strcat(                                                                      |
|                                                                |                              | szDllName, "tpcc_odbc.dll");                                                 |
| (pCTPCC_ENCINA_new == NULL)                                    | throw new                    | hLibInstanceDb = LoadLibrary( szDllName );                                   |
| CWEBCLNT_ERR( ERR_GETPROCADDR_FAILED, szDllName,               |                              | if                                                                           |
| GetLastError() );                                              |                              | (hLibInstanceDb == NULL)                                                     |
|                                                                | else if (Reg.eTxnMon == COM) | throw new CWEBCLNT_ERR( ERR_LOADDLL_FAILED, szDllName,                       |
|                                                                | {                            | GetLastError() );                                                            |
|                                                                | strcpy( szDllName,           |                                                                              |
| Reg.szPath );                                                  | strcat( szDllName,           | // get                                                                       |
| "tpcc_com.dll");                                               | hLibInstanceTm =             | function pointer to wrapper for class constructor                            |
| LoadLibrary( szDllName );                                      | if (hLibInstanceTm ==        | pCTPCC_ODBC_new = (TYPE_CTPCC_ODBC*)                                         |
| NULL)                                                          |                              | GetProcAddress(hLibInstanceDb,"CTPCC_ODBC_new");                             |
|                                                                | throw new                    | if                                                                           |
| CWEBCLNT_ERR( ERR_LOADDLL_FAILED, szDllName, GetLastError() ); | // get function pointer      | (pCTPCC_ODBC_new == NULL)                                                    |
| to wrapper for class constructor                               |                              | throw new CWEBCLNT_ERR( ERR_GETPROCADDR_FAILED, szDllName,                   |
|                                                                | pCTPCC_COM_new =             | GetLastError() );                                                            |
| (TYPE_CTPCC_COM*)                                              |                              | }                                                                            |
| GetProcAddress(hLibInstanceTm,"CTPCC_COM_new");                | if                           | if (dwNumDeliveryThreads)                                                    |
|                                                                |                              | {                                                                            |
| (pCTPCC_COM_new == NULL)                                       | throw new                    | // for deferred delivery                                                     |
| CWEBCLNT_ERR( ERR_GETPROCADDR_FAILED, szDllName,               |                              | txns:                                                                        |
| GetLastError() );                                              |                              | hDoneEvent =                                                                 |
|                                                                |                              | CreateEvent( NULL, TRUE /* manual reset */, FALSE /* initially not signalled |
|                                                                |                              | */, NULL );                                                                  |
|                                                                | // load DLL for database     | InitializeCriticalSection(&DelBuffCriticalSection);                          |
| connection                                                     | if ((Reg.eTxnMon == None)    | hWorkerSemaphore =                                                           |
| (dwNumDeliveryThreads > 0))                                    | {                            | CreateSemaphore( NULL, 0, dwDelBuffSize, NULL );                             |
|                                                                | if (Reg.eDB_Protocol         | dwDelBuffFreeCount =                                                         |
| == DBLIB)                                                      | {                            | dwDelBuffSize;                                                               |
|                                                                | strcpy(                      | InitJulianTime(NULL);                                                        |
| szDllName, Reg.szPath );                                       | strcat(                      | // create unique log file                                                    |
| szDllName, "tpcc_dblib.dll");                                  |                              | name based on delilog-yymmdd-hhmm.log                                        |
| hLibInstanceDb = LoadLibrary( szDllName );                     | if                           | SYSTEMTIME Time;                                                             |
| (hLibInstanceDb == NULL)                                       |                              | GetLocalTime( &Time                                                          |
| throw new CWEBCLNT_ERR( ERR_LOADDLL_FAILED, szDllName,         |                              | );                                                                           |
| GetLastError() );                                              |                              | wsprintf( szLogFile,                                                         |
|                                                                | // get                       | "%sdelivery-%2.2d%2.2d%2.2d-%2.2d%2.2d.log",                                 |
| function pointer to wrapper for class constructor              |                              | Reg.szPath, Time.wYear % 100, Time.wMonth, Time.wDay, Time.wHour,            |
|                                                                |                              | Time.wMinute );                                                              |
|                                                                |                              | txnDelilog = new                                                             |
|                                                                |                              | CTxnLog(szLogFile, TXN_LOG_WRITE);                                           |
|                                                                |                              | log for START                                                                |
|                                                                |                              | //write event into txn                                                       |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <pre> txnDelilog-&gt;WriteCtrlRecToLog(TXN_EVENT_START, szMyComputerName, sizeof(szMyComputerName));  // allocate structures for delivery buffers and thread mgmt HANDLE[dwNumDeliveryThreads]; pDeliHandles = new DELIVERY_TRANSACTION[dwDelBuffSize]; pDelBuff = new // launch DeliveryWorkerThread to perform actual delivery txns for(i=0; i&lt;dwNumDeliveryThreads; i++) { pDeliHandles[i] = (HANDLE) _beginthread( DeliveryWorkerThread, 0, NULL ); if (pDeliHandles[i] == INVALID_HANDLE_VALUE) throw new CWEBCLNT_ERR( ERR_DELIVERY_THREAD_FAILED ); } break; case DLL_PROCESS_DETACH: if (dwNumDeliveryThreads) { if (txnDelilog != NULL) { //write event into txn log for STOP txnDelilog-&gt;WriteCtrlRecToLog(TXN_EVENT_STOP, szMyComputerName, sizeof(szMyComputerName));  // This will CTxnLog *txnDelilogLocal = txnDelilog; txnDelilog= NULL; delete txnDelilogLocal; } delete [] pDeliHandles; delete [] pDelBuff; CloseHandle( hWorkerSemaphore ); CloseHandle( hDoneEvent ); DeleteCriticalSection(&amp;DelBuffCriticalSection); DeleteCriticalSection(&amp;TermCriticalSection); if (hLibInstanceTm != NULL) FreeLibrary( hLibInstanceTm ); hLibInstanceTm = NULL; </pre> | <pre> if (hLibInstanceDb != NULL) FreeLibrary( hLibInstanceDb ); hLibInstanceDb = NULL; Sleep(500); break; default: /* nothing */; } } catch (CBaseErr *e) { WriteMessageToEventLog( e-&gt;ErrorText() ); delete e; TerminateExtension(0); return FALSE; } catch (...) { WriteMessageToEventLog(TEXT("Unhandled exception. DLL could not load.")); TerminateExtension(0); return FALSE; } return TRUE; }  /* FUNCTION: GetExtensionVersion * * PURPOSE: This function is called by the inet service when the DLL is first loaded. * * ARGUMENTS: HSE_VERSION_INFO *pVer passed in structure in which to place expected version number. * * RETURNS: TRUE inet service expected return value. */ BOOL WINAPI GetExtensionVersion(HSE_VERSION_INFO *pVer) { pVer-&gt;dwExtensionVersion = MAKELONG(HSE_VERSION_MINOR, HSE_VERSION_MAJOR); lstrcpy(pVer-&gt;lpszExtensionDesc, "TPC-C Server.", HSE_MAX_EXT_DLL_NAME_LEN);  // TODO: why do we need this here instead of in the DLL attach? if (Reg.eTxnMon == ENCINA) pCTPCC_ENCINA_post_init();  return TRUE; }  /* FUNCTION: TerminateExtension * * PURPOSE: This function is called by the inet service when the DLL is about to be unloaded. * * Release all resources in anticipation of being unloaded. * * RETURNS: TRUE inet service expected return value. */ BOOL WINAPI TerminateExtension( DWORD dwFlags ) { </pre> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

```

        if (pDeliHandles)
        {
            SetEvent( hDoneEvent );
            for(DWORD i=0; i<dwNumDeliveryThreads; i++)
                WaitForSingleObject( pDeliHandles[i],
INFINITE );
        }

        TermDeleteAll();
        return TRUE;
    }

/* FUNCTION: HttpExtensionProc
 *
 * PURPOSE:      This function is the main entry point for the TPCC DLL.
The internet service
 *              calls this function passing in the http string.
 *
 * ARGUMENTS:    EXTENSION_CONTROL_BLOCK      *pECB
structure pointer to passed in internet
 *
 *              service information.
 *
 * RETURNS:      DWORD  HSE_STATUS_SUCCESS
connection can be dropped if error
 *
HSE_STATUS_SUCCESS_AND_KEEP_CONN      keep connect valid
comment sent
 *
 * COMMENTS:     None
 *
 */

DWORD WINAPI HttpExtensionProc(EXTENSION_CONTROL_BLOCK
*pECB)
{
    int          iCmd, FormId, TermId, iSyncId;
    char          szBuffer[4096];

    int          lpbSize;
    static char  szHeader[] = "200 Ok";
    DWORD        dwSize = 6;          // initial
value is strlen(szHeader)
    char          szHeader1[4096];

#ifdef ICECAP
    StartCAP();
#endif

    try
    {
        //process http query
        ProcessQueryString(pECB, &iCmd, &FormId, &TermId,
&iSyncId);

        if (TermId != 0)
        {
            if ( TermId < 0 || TermId >=
Term.iNumEntries || Term.pClientData[TermId].iNextFree != -1 )
            {
                // debugging...
                char szTmp[128];
                wsprintf( szTmp, "Invalid term ID;
TermId = %d", TermId );
                WriteMessageToEventLog( szTmp
);
            }
        }
    }
}

```

```

        throw new CWEBCLNT_ERR(
ERR_INVALID_TERMID );
    }

    //must have a valid syncid here since termid is
valid
    if (iSyncId !=
Term.pClientData[TermId].iSyncId)
        throw new CWEBCLNT_ERR(
ERR_INVALID_SYNC_CONNECTION );

    //set use time
    Term.pClientData[TermId].iTickCount =
GetTickCount();
}

switch(iCmd)
{
case 0:
    WelcomeForm(pECB, szBuffer);
    break;

case 1:
    switch( FormId )
    {
        case WELCOME_FORM:
        case MAIN_MENU_FORM:
            break;
        case NEW_ORDER_FORM:
            ProcessNewOrderForm(pECB, TermId, szBuffer);
            break;
        case PAYMENT_FORM:
            ProcessPaymentForm(pECB, TermId, szBuffer);
            break;
        case DELIVERY_FORM:
            ProcessDeliveryForm(pECB, TermId, szBuffer);
            break;
        case ORDER_STATUS_FORM:
            ProcessOrderStatusForm(pECB, TermId, szBuffer);
            break;
        case STOCK_LEVEL_FORM:
            ProcessStockLevelForm(pECB, TermId, szBuffer);
            break;
    }
    break;

case 2:
    // new-order selected from menu; display
new-order input form
    MakeNewOrderForm(TermId, NULL,
INPUT_FORM, szBuffer);
    break;

case 3:
    // payment selected from menu; display
payment input form
    MakePaymentForm(TermId, NULL,
INPUT_FORM, szBuffer);
    break;

case 4:
    // delivery selected from menu; display
delivery input form
    MakeDeliveryForm(TermId, NULL,
INPUT_FORM, szBuffer);
}
}

```

```

        break;
    case 5:
        // order-status selected from menu; display
        order-status input form
        MakeOrderStatusForm(TermId, NULL,
        INPUT_FORM, szBuffer);
        break;
    case 6:
        // stock-level selected from menu; display
        stock-level input form
        MakeStockLevelForm(TermId, NULL,
        INPUT_FORM, szBuffer);
        break;
    case 7:
        // ExitCmd
        TermDelete(TermId);
        WelcomeForm(pECB, szBuffer);
        break;
    case 8:
        SubmitCmd(pECB, szBuffer);
        break;
    case 9:
        // menu
        MakeMainMenuForm(TermId,
        Term.pClientData[TermId].iSyncId, szBuffer);
        break;
    case 10:
        // CMD=Clear
        // resets all connections; should only be used
        when no other connections are active
        TermDeleteAll();
        TermInit();
        WelcomeForm(pECB, szBuffer);
        break;
    case 11:
        // CMD=Stats
        StatsCmd(pECB, szBuffer);
        break;
    }
}
catch (CBaseErr *e)
{
    ErrorForm( pECB, e->ErrorType(), e->ErrorNum(),
    TermId, iSyncId, e->ErrorText(), szBuffer );
    delete e;
}
catch (...)
{
    ErrorForm( pECB, ERR_TYPE_WEBDLL, 0, TermId,
    iSyncId, "Error: Unhandled exception in Web Client.", szBuffer );
}

#ifdef ICECAP
    StopCAP();
#endif

    lpbSize = strlen(szBuffer);
    wsprintf(szHeader1,
        "Content-Type: text/html\r\n"
        "Content-Length: %d\r\n"
        "Connection: Keep-Alive\r\n\r\n", lpbSize);
    strcat( szHeader1, szBuffer );

    (*pECB->ServerSupportFunction)(pECB->ConnID,
    HSE_REQ_SEND_RESPONSE_HEADER, szHeader, (LPDWORD) &dwSize,
    (LPDWORD)szHeader1);

    //finish up and keep connection

    pECB->dwHttpStatusCode = 200;
    return HSE_STATUS_SUCCESS_AND_KEEP_CONN;
}

void WriteMessageToEventLog(LPTSTR lpszMsg)
{
    TCHAR szMsg[256];
    HANDLE hEventSource;
    LPTSTR lpszStrings[2];

    // Use event logging to log the error.
    //
    hEventSource = RegisterEventSource(NULL, TEXT("TPCC.DLL"));

    _stprintf(szMsg, TEXT("Error in TPCC.DLL: "));
    lpszStrings[0] = szMsg;
    lpszStrings[1] = lpszMsg;

    if (hEventSource != NULL)
    {
        ReportEvent(hEventSource, // handle of event source
        EVENTLOG_ERROR_TYPE, // event type
        0, // event category
        0, // event ID
        NULL, // current user's SID
        2, // strings in lpszStrings
        0, // no bytes of raw data
        (LPCTSTR *)lpszStrings, // array of error strings
        NULL); // no raw data

        (VOID) DeregisterEventSource(hEventSource);
    }
}

/* FUNCTION: DeliveryWorkerThread
*
* PURPOSE: This function processes deferred delivery txns. There are
typically several
* threads running this routine. The number of
threads is determined by an entry
* read from the registry. The thread waits for
work by waiting on semaphore.
* When a delivery txn is posted, the semaphore
is released. After processing
* the delivery txn, information is logged to
record the txn status and execution
* time.
*/

/*static*/ void DeliveryWorkerThread(void *ptr)
{
    CTPCC_BASE *pTxn = NULL;

    DELIVERY_TRANSACTION delivery;
    PDELIVERY_DATA
pDeliveryData;
    TXN_RECORD_TPCC_DELIV_DEF txnDeliRec;

    DWORD index;
    HANDLE handles[2];

    SYSTEMTIME trans_end; //delivery
transaction finished time
    SYSTEMTIME trans_start; //delivery transaction
start time

```

```

assert(txnDelilog != NULL);

try
{
    if (Reg.eDB_Protocol == ODBC)
        pTxn = pCTPCC_ODBC_new(
            Reg.szDbServer, Reg.szDbUser, Reg.szDbPassword, szMyComputerName,
            Reg.szDbName );
    else if (Reg.eDB_Protocol == DBLIB)
        pTxn = pCTPCC_DBLIB_new(
            Reg.szDbServer, Reg.szDbUser, Reg.szDbPassword, szMyComputerName,
            Reg.szDbName );
    pDeliveryData = pTxn->BuffAddr_Delivery();
}
catch (CBaseErr *e)
{
    char szTmp[1024];
    wsprintf( szTmp, "Error in Delivery Txn thread. Could
not connect to database. "
                "%s. Server=%s, User=%s,
                Password=%s, Database=%s",
                e->ErrorText(), Reg.szDbServer,
                Reg.szDbUser, Reg.szDbPassword, Reg.szDbName );
    WriteMessageToEventLog( szTmp );
    delete e;
    goto ErrorExit;
}
catch (...)
{
    WriteMessageToEventLog(TEXT("Unhandled exception
caught in DeliveryWorkerThread.));
    goto ErrorExit;
}

while (TRUE)
{
    try
    {
        //while delivery thread running, i.e. user has
        not requested termination

        while (TRUE)
        {
            // need to wait for multiple objects:
            handles[0] = hDoneEvent;
            handles[1] = hWorkerSemaphore;
            index = WaitForMultipleObjects(
                2, &handles[0], FALSE, INFINITE );
            if (index == WAIT_OBJECT_0)
                goto ErrorExit;

            ZeroMemory(&txnDeliRec,
                sizeof(txnDeliRec));
            txnDeliRec.TxnType =
                TXN_REC_TYPE_TPCC_DELIV_DEF;

            // make a local copy of current
            entry from delivery buffer and increment buffer index

            EnterCriticalSection(&DelBuffCriticalSection);
            delivery =
                *(pDelBuff+dwDelBuffBusyIndex);
            dwDelBuffFreeCount++;
            dwDelBuffBusyIndex++;
            if (dwDelBuffBusyIndex ==
                dwDelBuffSize) // wrap-around if at end of buffer
                dwDelBuffBusyIndex =
                0;
        }
    }
    catch (CBaseErr *e)
    {
        char szTmp[1024];
        wsprintf( szTmp, "Error in Delivery Txn
thread. %s", e->ErrorText() );
        WriteMessageToEventLog( szTmp );

        // log the error txn
        txnDeliRec.TxnStatus = e->ErrorType();
        if (txnDelilog != NULL)
            txnDelilog->WriteToLog(&txnDeliRec);

        delete e;
    }
    catch (...)
    {
        // unhandled exception; shouldn't happen; not
        much we can do...

        WriteMessageToEventLog(TEXT("Unhandled exception caught in
DeliveryWorkerThread.));
    }
}

ErrorExit:
    delete pTxn;
    _endthread();
}

/* FUNCTION: PostDeliveryInfo
*

```

```

LeaveCriticalSection(&DelBuffCriticalSection);

pDeliveryData->w_id =
delivery.w_id;
pDeliveryData->o_carrier_id =
delivery.o_carrier_id;

txnDeliRec.w_id =
pDeliveryData->w_id;
txnDeliRec.o_carrier_id =
pDeliveryData->o_carrier_id;
txnDeliRec.TxnStartT0 =
Get64BitTime(&delivery.queue);

GetLocalTime( &trans_start );
pTxn->Delivery();
GetLocalTime( &trans_end );

//log txn
txnDeliRec.TxnStatus =
ERR_SUCCESS;

for (int i=0; i<10; i++)
    txnDeliRec.o_id[i] =
pDeliveryData->o_id[i];

txnDeliRec.DeltaT4 =
(int)(Get64BitTime(&trans_end) - txnDeliRec.TxnStartT0);
txnDeliRec.DeltaTxnExec =
(int)(Get64BitTime(&trans_end) - Get64BitTime(&trans_start));

if (txnDelilog != NULL)
    txnDelilog->WriteToLog(&txnDeliRec);
}
catch (CBaseErr *e)
{
    char szTmp[1024];
    wsprintf( szTmp, "Error in Delivery Txn
thread. %s", e->ErrorText() );
    WriteMessageToEventLog( szTmp );

    // log the error txn
    txnDeliRec.TxnStatus = e->ErrorType();
    if (txnDelilog != NULL)
        txnDelilog->WriteToLog(&txnDeliRec);

    delete e;
}
catch (...)
{
    // unhandled exception; shouldn't happen; not
    much we can do...

    WriteMessageToEventLog(TEXT("Unhandled exception caught in
DeliveryWorkerThread.));
}

ErrorExit:
    delete pTxn;
    _endthread();
}

/* FUNCTION: PostDeliveryInfo
*

```

```

* PURPOSE:      This function enters the delivery txn into the deferred
delivery buffer.
*
* RETURNS:      BOOL    FALSE    delivery information
posted successfully
*
*                                     TRUE
error cannot post delivery info
*/

BOOL PostDeliveryInfo(short w_id, short o_carrier_id)
{
    BOOL bError;

    EnterCriticalSection(&DelBuffCriticalSection);
    if (dwDelBuffFreeCount > 0)
    {
        bError = FALSE;
        (pDelBuff+dwDelBuffFreeIndex)->w_id
= w_id;
        (pDelBuff+dwDelBuffFreeIndex)->o_carrier_id
= o_carrier_id;

        GetLocalTime(&(pDelBuff+dwDelBuffFreeIndex)->queue);

        dwDelBuffFreeCount--;
        dwDelBuffFreeIndex++;
        if (dwDelBuffFreeIndex == dwDelBuffSize)
            dwDelBuffFreeIndex = 0;
//
wrap-around if at end of buffer
    }
    else
        // No free buffers. Return an error, which indicates that
the delivery buffer is full.
        // Most likely, the number of delivery worker threads
needs to be increased to keep up
        // with the txn rate.
        bError = TRUE;
        LeaveCriticalSection(&DelBuffCriticalSection);

        if (!bError)
            // increment worker semaphore to wake up a worker
thread
            ReleaseSemaphore( hWorkerSemaphore, 1, NULL );

        return bError;
    }
}

/* FUNCTION: ProcessQueryString
*
* PURPOSE:      This function extracts the relevent information out of the
http command passed in from
*
*                                     the browser.
*
* COMMENTS:     If this is the initial connection i.e. client is at welcome
screen then
*
*                                     there will not be a terminal id or
current form id. If this is the case
*
*                                     then the pTermid and pFormid
return values are undefined.
*/

void ProcessQueryString(EXTENSION_CONTROL_BLOCK *pECB, int
*pCmd, int *pFormId, int *pTermId, int *pSyncId)
{
    char *ptr = pECB->lpszQueryString;
    char szBuffer[25];
    int i;

    //allowable client command strings i.e. CMD=command
    static char *szCmds[] =
    {
        "Process", "..NewOrder..", "..Payment..", "..Delivery..",
"..Order-Status..", "..Stock-Level..",
        "..Exit..", "Submit", "Menu", "Clear", "Stats", ""
    };

    *pCmd = 0; // default is the login screen
    *pTermId = 0;

    // if no params (i.e., empty query string), then return login screen
    if (strlen(pECB->lpszQueryString) == 0)
        return;

    // parse FORMID, TERMID, and SYNCID
    *pFormId = GetIntKeyValue(&ptr, "FORMID", NO_ERR,
NO_ERR);
    *pTermId = GetIntKeyValue(&ptr, "TERMID", NO_ERR,
NO_ERR);
    *pSyncId = GetIntKeyValue(&ptr, "SYNCID", NO_ERR,
NO_ERR);

    // parse CMD
    GetKeyValue(&ptr, "CMD", szBuffer, sizeof(szBuffer),
ERR_COMMAND_UNDEFINED);

    // see which command it matches
    for(i=0; i++)
    {
        if (szCmds[i][0] == 0)
            // no more; no match; return error
            throw new CWEBCLNT_ERR(
ERR_COMMAND_UNDEFINED);
        if ( !strcmp(szCmds[i], szBuffer) )
        {
            *pCmd = i+1;
            break;
        }
    }
}

/* FUNCTION: void WelcomeForm
*
*/

void WelcomeForm(EXTENSION_CONTROL_BLOCK *pECB, char
*szBuffer)
{
    char szTmp[1024];

    //welcome to tpc-c html form buffer, this is first form client sees.
    strcpy( szBuffer, "<HTML><HEAD><TITLE>TPC-C Web
Client</TITLE></HEAD><BODY>"

"<B><BIG>Microsoft TPC-C Web Client (ver 4.20)</BIG></B> <BR> <BR>"
"font"
face="Courier New"><PRE>"
"Compiled:"
" _DATE_ ", " _TIME_ " <BR>"
"Source:"
" _FILE_ " (" _TIMESTAMP_ ") <BR>"
"</PRE></font>"
"FORM"
ACTION="tpcc.dll" METHOD="GET">"
"INPUT"
TYPE="hidden" NAME="STATUSID" VALUE="0">"

```

```

TYPE="hidden\" NAME="ERROR\" VALUE="0">"
    "<INPUT
TYPE="hidden\" NAME="FORMID\" VALUE="1\">"
    "<INPUT
TYPE="hidden\" NAME="TERMINAL\" VALUE="0\">"
    "<INPUT
TYPE="hidden\" NAME="SYNCD\" VALUE="0\">"
    "<INPUT
TYPE="hidden\" NAME="VERSION\" VALUE=""
WEBCIENT_VERSION "\">>"
);

printf( szTmp, "Configuration Settings: <BR><font
face=\"Courier New\\\" color=\"blue\\\"><PRE>"
Txn Monitor =
<B>%s</B><BR>"
Database protocol
= <B>%s</B><BR>"
Max Connections
= <B>%d</B><BR>"
# of Delivery Threads
= <B>%d</B><BR>"
Max Pending
Deliveries = <B>%d</B><BR>"
, szTxnMonNames[Reg.eTxnMon],
szDBNames[Reg.eDB_Protocol],
Reg.dwMaxConnections,
dwNumDeliveryThreads, dwDelBuffSize );
strcat( szBuffer, szTmp);

if (Reg.eTxnMon == COM)
{
printf( szTmp, "COM Single Pool =
<B>%s</B><BR>",
Reg.bCOM_SinglePool ? "YES" : "NO" );
strcat( szBuffer, szTmp);
}
strcat( szBuffer, "</PRE></font>");

if (Reg.eTxnMon == None)
// connection options may be specified when not using a
txn monitor
printf( szTmp, "Please enter your database options
for this connection:<BR>"
"<font
face=\"Courier New\\\" color=\"blue\\\"><PRE>"
DB Server
= <INPUT NAME="db_server\" SIZE=20 VALUE="%s\"><BR>"
DB User
ID = <INPUT NAME="db_user\" SIZE=20 VALUE="%s\"><BR>"
DB
Password = <INPUT NAME="db_passwd\" SIZE=20
VALUE="%s\"><BR>"
DB Name
= <INPUT NAME="db_name\" SIZE=20 VALUE="%s\"><BR>"

"</PRE></font>"
, Reg.szDbServer, Reg.szDbUser,
Reg.szDbPassword, Reg.szDbName );
else
// if using a txn monitor, connection options are
determined from registry; can't
// set per user. show options fyi
printf( szTmp, "Database options which will be
used by the transaction monitor:<BR>"
"<font
face=\"Courier New\\\" color=\"blue\\\"><PRE>"
= <B>%s</B><BR><BR>"
ID = <B>%s</B><BR><BR>"
Password = <B>%s</B><BR><BR>"
= <B>%s</B><BR><BR>"
"</PRE></font>"
, Reg.szDbPassword, Reg.szDbName );
strcat( szBuffer, szTmp);

printf( szTmp, "Please enter your Warehouse and District for
this session:<BR>"
"<font face=\"Courier
New\\\" color=\"blue\\\"><PRE>" );
strcat( szBuffer, szTmp);
strcat( szBuffer, "Warehouse ID = <INPUT NAME="w_id\"
SIZE=4><BR>"
District ID
= <INPUT NAME="d_id\" SIZE=2><BR>"

"</PRE></font><HR>"
"<INPUT
TYPE="submit\" NAME="CMD\" VALUE="Submit\">"

"</FORM></BODY></HTML>");
}

/* FUNCTION: SubmitCmd
*
* PURPOSE: This function allocated a new terminal id in the Term
structure array.
*
*/

void SubmitCmd(EXTENSION_CONTROL_BLOCK *pECB, char *szBuffer)
{
int iNewTerm;
char *ptr = pECB->lpszQueryString;

char szVersion[32] = { 0 };
char szServer[32] = { 0 };
char szUser[32] = "sa";
char szPassword[32] = { 0 };
char szDatabase[32] = "tpcc";

// validate version field; the version field ensures that the RTE is
synchronized with the web client
GetKeyValue(&ptr, "VERSION", szVersion, sizeof(szVersion),
ERR_VERSION_MISMATCH);
if ( strcmp( szVersion, WEBCIENT_VERSION ) )
throw new CWEBCLNT_ERR(
ERR_VERSION_MISMATCH );

if (Reg.eTxnMon == None)
{
// parse Server name
GetKeyValue(&ptr, "db_server", szServer,
sizeof(szServer), ERR_NO_SERVER_SPECIFIED);
// parse User name
GetKeyValue(&ptr, "db_user", szUser, sizeof(szUser),
NO_ERR);
// parse Password
GetKeyValue(&ptr, "db_passwd", szPassword,
sizeof(szPassword), NO_ERR);

```

```

        // parse Database name
        GetKeyValue(&ptr, "db_name", szDatabase,
sizeof(szDatabase), NO_ERR);
    }

    // parse warehouse ID
    int w_id = GetIntKeyValue(&ptr, "w_id",
ERR_HTML_ILL_FORMED, ERR_W_ID_INVALID);
    if ( w_id < 1 )
        throw new CWEBCLNT_ERR( ERR_W_ID_INVALID
);

    // parse district ID
    int d_id = GetIntKeyValue(&ptr, "d_id",
ERR_HTML_ILL_FORMED, ERR_D_ID_INVALID);
    if ( d_id < 1 || d_id > 10 )
        throw new CWEBCLNT_ERR( ERR_D_ID_INVALID
);

    iNewTerm = TermAdd();

    Term.pClientData[iNewTerm].w_id = w_id;
    Term.pClientData[iNewTerm].d_id = d_id;

    try
    {
        if (Reg.eTxnMon == TUXEDO)
            Term.pClientData[iNewTerm].pTxn =
pCTPCC_TUXEDO_new();
        else if (Reg.eTxnMon == ENCINA)
            Term.pClientData[iNewTerm].pTxn =
pCTPCC_ENCINA_new();
        else if (Reg.eTxnMon == COM)
            Term.pClientData[iNewTerm].pTxn =
pCTPCC_COM_new( Reg.bCOM_SinglePool );
        else if (Reg.eDB_Protocol == ODBC)
            Term.pClientData[iNewTerm].pTxn =
pCTPCC_ODBC_new( szServer, szUser, szPassword, szMyComputerName,
szDatabase );
        else if (Reg.eDB_Protocol == DBLIB)
            Term.pClientData[iNewTerm].pTxn =
pCTPCC_DBLIB_new( szServer, szUser, szPassword, szMyComputerName,
szDatabase );
    }
    catch (...)
    {
        TermDelete(iNewTerm);
        throw; // pass exception upward
    }

    MakeMainMenuForm(iNewTerm,
Term.pClientData[iNewTerm].iSyncId, szBuffer);
}

/* FUNCTION: StatsCmd
*
* PURPOSE:      This function returns to the browser the total number of
active terminal ids.
*
*              This routine is for development/debugging
purposes.
*
*/

void StatsCmd(EXTENSION_CONTROL_BLOCK *pECB, char *szBuffer)
{
    int i;
    int    iTotals;

```

```

EnterCriticalSection(&TermCriticalSection);

iTotal = 0;
for(i=0; i<Term.iNumEntries; i++)
{
    if (Term.pClientData[i].iNextFree == -1)
        iTotals++;
}

LeaveCriticalSection(&TermCriticalSection);

wsprintf( szBuffer,
    "<HTML><HEAD><TITLE>TPC-C Web
Client Stats</TITLE></HEAD>"
    "<BODY><B><BIG> Total Active
Connections: %d </BIG></B><BR></BODY></HTML>"
    , iTotals );
}

char *CWEBCLNT_ERR::ErrorText()
{
    static SERRORMSG errorMsgs[] =
    {
        {
            ERR_COMMAND_UNDEFINED,
            "Command undefined."
        },
        {
            ERR_D_ID_INVALID,
            "Invalid District ID Must be 1 to 10."
        },
        {
            ERR_DELIVERY_CARRIER_ID_RANGE,
            "Delivery Carrier ID out of range must be 1 - 10."
        },
        {
            ERR_DELIVERY_CARRIER_INVALID,
            "Delivery Carrier ID invalid must be numeric 1 - 10."
        },
        {
            ERR_DELIVERY_MISSING_OCD_KEY,
            "Delivery missing Carrier ID key \"OCD*\"."
        },
        {
            ERR_DELIVERY_THREAD_FAILED,
            "Could not start delivery worker thread."
        },
        {
            ERR_GETPROCADDR_FAILED,
            "Could not map proc in DLL. GetProcAddr
error. DLL="
        },
        {
            ERR_HTML_ILL_FORMED,
            "Required key field is missing from HTML string."
        },
        {
            ERR_INVALID_SYNC_CONNECTION,
            "Invalid Terminal Sync ID."
        },
        {
            ERR_INVALID_TERMID,
            "Invalid Terminal ID."
        },
        {
            ERR_LOADDLL_FAILED,
            "Load of DLL failed. DLL="
        },
        {
            ERR_MAX_CONNECTIONS_EXCEEDED,
            "No connections available. Max Connections is probably
too low."
        },
        {
            ERR_MISSING_REGISTRY_ENTRIES,
            "Required registry entries are missing. Rerun INSTALL to correct."
        },
        {
            ERR_NEWORDER_CUSTOMER_INVALID,

```

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>"New Order customer id invalid data type, range = 1 to 3000."</p> <pre> },     {         ERR_NEWORDER_CUSTOMER_KEY,         "New Order missing Customer key \"CID*\"."     },     {         ERR_NEWORDER_DISTRICT_INVALID,         "New Order District ID Invalid range 1 - 10."     },     {         ERR_NEWORDER_FORM_MISSING_DID,         "New Order missing District key \"DID*\"."     },     {         ERR_NEWORDER_ITEMID_INVALID,         "New Order Item Id is wrong data type, must be numeric."     },     {         ERR_NEWORDER_ITEMID_RANGE,         "New Order Item Id is out of range. Range = 1 to 999999."     },     {         ERR_NEWORDER_ITEMID_WITHOUT_SUPPW,         "New Order Item_Id field entered without a corresponding Supp_W."     },     {         ERR_NEWORDER_MISSING_IID_KEY,         "New Order missing Item Id key \"IID*\"."     },     {         ERR_NEWORDER_MISSING_QTY_KEY,         "New Order Missing Qty key \"Qty##*\"."     },     {         ERR_NEWORDER_MISSING_SUPPW_KEY,         "New Order missing Supp_W key \"SP##*\"."     },     {         ERR_NEWORDER_NOITEMS_ENTERED,         "New Order No order lines entered."     },     {         ERR_NEWORDER_QTY_INVALID,         "New Order Qty invalid must be numeric range 1 - 99."     },     {         ERR_NEWORDER_QTY_RANGE,         "New Order Qty is out of range. Range = 1 to 99."     },     {         ERR_NEWORDER_QTY_WITHOUT_SUPPW,         "New Order Qty field entered without a corresponding Supp_W."     },     {         ERR_NEWORDER_SUPPW_INVALID,         "New Order Supp_W invalid data type must be numeric."     },     {         ERR_NO_SERVER_SPECIFIED,         "No Server name specified."     },     {         ERR_ORDERSTATUS_CID_AND_CLT,         "Order Status Only Customer ID or Last Name may be entered, not both."     },     {         ERR_ORDERSTATUS_CID_INVALID,         "Order Status Customer ID invalid, range must be numeric 1 - 3000."     },     {         ERR_ORDERSTATUS_CLT_RANGE,         "Order Status Customer last name longer than 16 characters."     },     {         ERR_ORDERSTATUS_DID_INVALID,         "Order Status District invalid, value must be numeric 1 - 10."     },     {         ERR_ORDERSTATUS_MISSING_CID_CLT,         "Order Status Either Customer ID or Last Name must be entered."     },     {         ERR_ORDERSTATUS_MISSING_CID_KEY,         "Order </pre> | <pre> Status missing Customer key \"CID*\"."     },     {         ERR_ORDERSTATUS_MISSING_CLT_KEY,         "Order Status missing Customer Last Name key \"CLT*\"."     },     {         ERR_ORDERSTATUS_MISSING_DID_KEY,         "Order Status missing District key \"DID*\"."     },     {         ERR_PAYMENT_CDI_INVALID,         "Payment Customer district invalid must be numeric."     },     {         ERR_PAYMENT_CID_AND_CLT,         "Payment Only Customer ID or Last Name may be entered, not both."     },     {         ERR_PAYMENT_CUSTOMER_INVALID,         "Payment Customer data type invalid, must be numeric."     },     {         ERR_PAYMENT_CWI_INVALID,         "Payment Customer Warehouse invalid, must be numeric."     },     {         ERR_PAYMENT_DISTRICT_INVALID,         "Payment District ID is invalid, must be 1 - 10."     },     {         ERR_PAYMENT_HAM_INVALID,         "Payment Amount invalid data type must be numeric."     },     {         ERR_PAYMENT_HAM_RANGE,         "Payment Amount out of range, 0 - 9999.99."     },     {         ERR_PAYMENT_LAST_NAME_TO_LONG,         "Payment Customer last name longer than 16 characters."     },     {         ERR_PAYMENT_MISSING_CDI_KEY,         "Payment missing Customer district key \"CDI*\"."     },     {         ERR_PAYMENT_MISSING_CID_CLT,         "Payment Either Customer ID or Last Name must be entered."     },     {         ERR_PAYMENT_MISSING_CID_KEY,         "Payment missing Customer Key \"CID*\"."     },     {         ERR_PAYMENT_MISSING_CLT_KEY,         "Payment missing Customer Last Name key \"CLT*\"."     },     {         ERR_PAYMENT_MISSING_CWI_KEY,         "Payment missing Customer Warehouse key \"CWI*\"."     },     {         ERR_PAYMENT_MISSING_DID_KEY,         "Payment missing District Key \"DID*\"."     },     {         ERR_PAYMENT_MISSING_HAM_KEY,         "Payment missing Amount key \"HAM*\"."     },     {         ERR_STOCKLEVEL_MISSING_THRESHOLD_KEY,         "Stock Level; missing Threshold key \"TT*\"."     },     {         ERR_STOCKLEVEL_THRESHOLD_INVALID,         "Stock Level; Threshold value must be in the range = 1 - 99."     },     {         ERR_STOCKLEVEL_THRESHOLD_RANGE,         "Stock Level Threshold out of range, range must be 1 - 99."     }, </pre> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

```

        {
            ERR_VERSION_MISMATCH,
            "Invalid version field. RTE and Web Client are probably
out of sync." },
        {
            ERR_W_ID_INVALID,
            "Invalid Warehouse ID."
        },
        {
            0,
            ""
        }
    };

    char szTmp[256];
    int i = 0;
    while (TRUE)
    {
        if (errorMsgs[i].szMsg[0] == 0)
        {
            strcpy( szTmp, "Unknown error number." );
            break;
        }
        if (m_Error == errorMsgs[i].iError)
        {
            strcpy( szTmp, errorMsgs[i].szMsg );
            break;
        }
        i++;
    }

    if (m_szTextDetail)
        strcat( szTmp, m_szTextDetail );
    if (m_SystemErr)
        sprintf( szTmp+strlen(szTmp), " Error=%d",
m_SystemErr );

    m_szErrorText = new char[strlen(szTmp)+1];
    strcpy( m_szErrorText, szTmp );
    return m_szErrorText;
}

/* FUNCTION: GetKeyValue
*
* PURPOSE:      This function parses a http formatted string for specific
key values.
*
* ARGUMENTS:   char                *pQueryString
http string from client browser
*
*              char
*pKey          key value to look for
*              char
*pValue        character array into which to place key's value
*              int
iMax           maximum length of key value array.
*              WEBERROR
err            error value to throw
*
* RETURNS:     nothing.
*
* ERROR:       if (the pKey value is not found) then
*              if (err == 0)
return
(empty string)
*              else
*              throw
CWEBCLNT_ERR(err)
*

```

```

* COMMENTS:    http keys are formatted either KEY=value& or
KEY=value\0. This DLL formats
*              TPC-C input fields in such a
manner that the keys can be extracted in the
*              above manner.
*/

void GetKeyValue(char **pQueryString, char *pKey, char *pValue, int iMax,
WEBERROR err)
{
    char *ptr;

    if ( !(ptr=strstr(*pQueryString, pKey)) )
        goto ErrorExit;
    ptr += strlen(pKey);
    if ( *ptr != '=' )
        goto ErrorExit;
    ptr++;

    iMax--; // one position is for terminating null
    while( *ptr && *ptr != '&' && iMax )
    {
        *pValue++ = *ptr++;
        iMax--;
    }
    *pValue = 0; // terminating null

    *pQueryString = ptr;
    return;

ErrorExit:
    if (err != NO_ERR)
        throw new CWEBCLNT_ERR( err );
    *pValue = 0; // return empty result string
}

/* FUNCTION: GetIntKeyValue
*
* PURPOSE:      This function parses a http formatted string for a specific
key value.
*
* ARGUMENTS:   char                *pQueryString
http string from client browser
*
*              char
*pKey          key value to look for
*              WEBERROR
NoKeyErr       error value to throw if key not found
*              WEBERROR
NotIntErr      error value to throw if value not numeric
*
* RETURNS:     integer
*
* ERROR:       if (the pKey value is not found) then
*              if (NoKeyErr !=
NO_ERR)
*              throw
CWEBCLNT_ERR(err)
*              else
*              return 0
*              else if (non-numeric char found)
then
*              if (NotIntErr !=
NO_ERR) then
*              throw
CWEBCLNT_ERR(err)
*              else
*              return 0
*

```

```

* COMMENTS:      http keys are formatted either KEY=value& or
KEY=value\0. This DLL formats
*
TPC-C input fields in such a
manner that the keys can be extracted in the
*
above manner.
*/

int GetIntKeyValue(char **pQueryString, char *pKey, WEBERROR
NoKeyErr, WEBERROR NotIntErr)
{
    char *ptr0;
    char *ptr;

    if ( !(ptr=strstr(*pQueryString, pKey)) )
        goto ErrorNoKey;
    ptr += strlen(pKey);
    if ( *ptr != '=' )
        goto ErrorNoKey;
    ptr++;

    ptr0 = ptr;          // remember starting point
    // scan string until a terminator (null or &) or a non-digit
    while( *ptr && *ptr != '&' && isdigit(*ptr) )
        ptr++;

    // make sure we stopped scanning for the right reason
    if ((ptr0 == ptr) || (*ptr && *ptr != '&'))
    {
        if (NotIntErr != NO_ERR)
            throw new CWEBCLNT_ERR( NoKeyErr );
        return 0;
    }

    *pQueryString = ptr;
    return atoi(ptr0);

ErrorNoKey:
    if (NoKeyErr != NO_ERR)
        throw new CWEBCLNT_ERR( NoKeyErr );
    return 0;
}

/* FUNCTION: TermInit
*
* PURPOSE:      This function initializes the client terminal structure; it is
called when the TPCC.DLL
*
is first loaded by the inet service.
*
*/

void TermInit(void)
{
    EnterCriticalSection(&TermCriticalSection);

    Term.iMasterSyncId = 1;
    Term.iNumEntries = Reg.dwMaxConnections+1;

    Term.pClientData = NULL;
    Term.pClientData =
(PCLIENTDATA)malloc(Term.iNumEntries * sizeof(CLIENTDATA));
    if (Term.pClientData == NULL)
    {
        LeaveCriticalSection(&TermCriticalSection);
        throw new CWEBCLNT_ERR(
ERR_MEM_ALLOC_FAILED );
    }
}

```

```

ZeroMemory( Term.pClientData, Term.iNumEntries *
sizeof(CLIENTDATA) );

    Term.iFreeList = Term.iNumEntries-1;
    // build free list
    // note: Term.pClientData[0].iNextFree gets set to -1, which marks it
as "in use".
    // This is intentional, as the zero entry is used as an anchor and
never
    // allocated as an actual terminal.
    for(int i=0; i<Term.iNumEntries; i++)
        Term.pClientData[i].iNextFree = i-1;

    LeaveCriticalSection(&TermCriticalSection);
}

/* FUNCTION: TermDeleteAll
*
* PURPOSE:      This function frees allocated resources associated with
the terminal structure.
*
* ARGUMENTS:    none
*
* RETURNS:      None
*
* COMMENTS:     This function is called only when the inet service unloads
the TPCC.DLL
*
*/

void TermDeleteAll(void)
{
    EnterCriticalSection(&TermCriticalSection);

    for(int i=1; i<Term.iNumEntries; i++)
    {
        if (Term.pClientData[i].iNextFree == -1)
            delete Term.pClientData[i].pTxn;
    }

    Term.iFreeList = 0;
    Term.iNumEntries = 0;
    if ( Term.pClientData )
        free(Term.pClientData);
    Term.pClientData = NULL;

    LeaveCriticalSection(&TermCriticalSection);
}

/* FUNCTION: TermAdd
*
* PURPOSE:      This function assigns a terminal id which is used to
identify a client browser.
*
* RETURNS:      int assigned terminal id
*
*/

int TermAdd(void)
{
    DWORD i;
    int iNewTerm, iTickCount;

    if (Term.iNumEntries == 0)
        return -1;

    EnterCriticalSection(&TermCriticalSection);
    if (Term.iFreeList != 0)

```

```

        {
            // position is available
            iNewTerm = Term.iFreeList;
            Term.iFreeList =
Term.pClientData[iNewTerm].iNextFree;
            Term.pClientData[iNewTerm].iNextFree = -1; //
indicates this position is in use
        }
        else
        {
            // no open slots, so find the slot that hasn't been used in
the longest time and reuse it
            for(iNewTerm=1, i=1, iTickCount=0x7FFFFFFF;
i<Reg.dwMaxConnections; i++)
            {
                if (iTickCount >
Term.pClientData[i].iTickCount)
                {
                    iTickCount =
Term.pClientData[i].iTickCount;
                    iNewTerm = i;
                }
            }
            // if oldest term is less than one minute old, it probably
means that more connections
            // are being attempted than were specified as "Max
Connections" at install. In this case,
            // do not bump existing connection; instead, return error
to requestor.
            if ((GetTickCount() - iTickCount) < 60000)
            {
                LeaveCriticalSection(&TermCriticalSection);
                throw new CWEBCLNT_ERR(
ERR_MAX_CONNECTIONS_EXCEEDED );
            }
        }

        Term.pClientData[iNewTerm].iTickCount = GetTickCount();
        Term.pClientData[iNewTerm].iSyncId = Term.iMasterSyncId++;
        Term.pClientData[iNewTerm].pTxn = NULL;

        LeaveCriticalSection(&TermCriticalSection);
        return iNewTerm;
    }

/* FUNCTION: TermDelete
*
* PURPOSE:      This function makes a terminal entry in the Term array
available for reuse.
*
* ARGUMENTS:   int
id              Terminal id of client exiting
*
*/

void TermDelete(int id)
{
    if ( id > 0 && id < Term.iNumEntries )
    {
        delete Term.pClientData[id].pTxn;

        // put onto free list
        EnterCriticalSection(&TermCriticalSection);

        Term.pClientData[id].iNextFree = Term.iFreeList;
        Term.iFreeList = id;

        LeaveCriticalSection(&TermCriticalSection);
    }
}

```

```

/* FUNCTION: MakeErrorForm
*/

void ErrorForm(EXTENSION_CONTROL_BLOCK *pECB, int iType, int
iErrorNum, int iTermId, int iSyncId, char *szErrorText, char *szBuffer )
{
    wsprintf(szBuffer,
        "<HTML><HEAD><TITLE>TPC-C
Error</TITLE></HEAD><BODY>"
        "<FORM ACTION=\"tpcc.dll\" METHOD=\"GET\">"
        "<INPUT TYPE=\"hidden\" NAME=\"STATUSID\"
VALUE=\"%d\">"
        "<INPUT TYPE=\"hidden\" NAME=\"ERROR\"
VALUE=\"%d\">"
        "<INPUT TYPE=\"hidden\" NAME=\"FORMID\"
VALUE=\"%d\">"
        "<INPUT TYPE=\"hidden\" NAME=\"TERMIN\"
VALUE=\"%d\">"
        "<INPUT TYPE=\"hidden\" NAME=\"SYNID\"
VALUE=\"%d\">"
        "<BOLD>An Error Occurred</BOLD><BR><BR>"
        "%s"
        "<BR><BR><HR>"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..NewOrder..\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Order-Status..\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Stock-Level..\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Exit..\">"
        "</FORM></BODY></HTML>"
        , iType, iErrorNum, MAIN_MENU_FORM, iTermId,
iSyncId, szErrorText );
}

/* FUNCTION: MakeMainMenuForm
*/

void MakeMainMenuForm(int iTermId, int iSyncId, char *szForm)
{
    wsprintf(szForm,
        "<HTML><HEAD><TITLE>TPC-C Main
Menu</TITLE></HEAD><BODY>"
        "Select Desired Transaction.<BR><HR>"
        "<FORM ACTION=\"tpcc.dll\" METHOD=\"GET\">"
        "<INPUT TYPE=\"hidden\" NAME=\"STATUSID\"
VALUE=\"0\">"
        "<INPUT TYPE=\"hidden\" NAME=\"ERROR\"
VALUE=\"0\">"
        "<INPUT TYPE=\"hidden\" NAME=\"FORMID\"
VALUE=\"%d\">"
        "<INPUT TYPE=\"hidden\" NAME=\"TERMIN\"
VALUE=\"%d\">"
        "<INPUT TYPE=\"hidden\" NAME=\"SYNID\"
VALUE=\"%d\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..NewOrder..\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"

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        " <INPUT TYPE=\\"submit\\" NAME=\\"CMD\\"
VALUE=\\"..Order-Status..\\>"
        " <INPUT TYPE=\\"submit\\" NAME=\\"CMD\\"
VALUE=\\"..Stock-Level..\\>"
        " <INPUT TYPE=\\"submit\\" NAME=\\"CMD\\"
VALUE=\\"..Exit..\\>"
        "</FORM></BODY></HTML>"
        , MAIN_MENU_FORM, iTermId, iSyncId);
}

/* FUNCTION: MakeStockLevelForm
*
* PURPOSE:      This function constructs the Stock Level HTML page.
*
* COMMENTS:    The internal client buffer is created when the terminal id
is assigned and should not
*
*              be freed except when the client
terminal id is no longer needed.
*/

void MakeStockLevelForm(int iTermId, STOCK_LEVEL_DATA
*pStockLevelData, BOOL bInput, char *szForm)
{
    int        c;

    c = sprintf(szForm,
        "<HTML><HEAD><TITLE>TPC-C Stock
Level</TITLE></HEAD><FORM ACTION=\\"tpcc.dll\\"
METHOD=\\"GET\\">"
        " <INPUT TYPE=\\"hidden\\" NAME=\\"STATUSID\\"
VALUE=\\"0\\">"
        " <INPUT TYPE=\\"hidden\\" NAME=\\"ERROR\\"
VALUE=\\"0\\">"
        " <INPUT TYPE=\\"hidden\\" NAME=\\"FORMID\\"
VALUE=\\"%d\\">"
        " <INPUT TYPE=\\"hidden\\" NAME=\\"TERMINID\\"
VALUE=\\"%d\\">"
        " <INPUT TYPE=\\"hidden\\" NAME=\\"SYNCID\\"
VALUE=\\"%d\\">"
        "<PRE><font face=\\"Courier\\">"
        "Warehouse: %4.4d District: %2.2d<BR> <BR>",
        STOCK_LEVEL_FORM, iTermId,
        Term.pClientData[iTermId].iSyncId,
        Term.pClientData[iTermId].w_id,
        Term.pClientData[iTermId].d_id);

    if ( bInput )
    {
        strcpy(szForm+c,
            "Stock Level Threshold: <INPUT
NAME=\\"TT*\\" SIZE=2><BR> <BR>"
            "low stock:  </font><BR> <BR> <BR>
<BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR>
<BR></PRE><HR>"
            " <INPUT TYPE=\\"submit\\" NAME=\\"CMD\\"
VALUE=\\"Process\\">"
            " <INPUT TYPE=\\"submit\\" NAME=\\"CMD\\"
VALUE=\\"Menu\\">"
            "</FORM></HTML>" );
    }
    else
    {
        sprintf(szForm+c,
            "Stock Level Threshold: %2.2d<BR> <BR>"
            "low stock: %3.3d</font> <BR> <BR> <BR>
<BR> <BR> <BR> <BR> <BR> <BR> <BR>"

```

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        " <BR> <BR> <BR> <BR> <BR> <BR>
<BR> <BR></PRE><HR>"
        " <INPUT TYPE=\\"submit\\" NAME=\\"CMD\\"
VALUE=\\"..NewOrder..\\>"
        " <INPUT TYPE=\\"submit\\" NAME=\\"CMD\\"
VALUE=\\"..Payment..\\>"
        " <INPUT TYPE=\\"submit\\" NAME=\\"CMD\\"
VALUE=\\"..Delivery..\\>"
        " <INPUT TYPE=\\"submit\\" NAME=\\"CMD\\"
VALUE=\\"..Order-Status..\\>"
        " <INPUT TYPE=\\"submit\\" NAME=\\"CMD\\"
VALUE=\\"..Stock-Level..\\>"
        " <INPUT TYPE=\\"submit\\" NAME=\\"CMD\\"
VALUE=\\"..Exit..\\>"
        "</FORM></HTML>"
        , pStockLevelData->threshold,
        pStockLevelData->low_stock);
    }
}

/* FUNCTION: MakeNewOrderForm
*
* COMMENTS:    The internal client buffer is created when the terminal id
is assigned and should not
*
*              be freed except when the client
terminal id is no longer needed.
*/

void MakeNewOrderForm(int iTermId, NEW_ORDER_DATA
*pNewOrderData, BOOL bInput, char *szForm)
{
    int        i, c;
    BOOL        bValid;
    static      char szBR[] = " <BR> <BR> <BR> <BR> <BR> <BR>
<BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR>";

    if (!bInput)
        assert( pNewOrderData->exec_status_code == eOK ||
pNewOrderData->exec_status_code == eInvalidItem );

    bValid = (bInput || (pNewOrderData->exec_status_code == eOK));

    c = sprintf(szForm,
        "<HTML><HEAD><TITLE>TPC-C New
Order</TITLE></HEAD><BODY>"
        "<FORM ACTION=\\"tpcc.dll\\" METHOD=\\"GET\\">"
        " <INPUT TYPE=\\"hidden\\" NAME=\\"STATUSID\\"
VALUE=\\"%d\\">"
        " <INPUT TYPE=\\"hidden\\" NAME=\\"ERROR\\"
VALUE=\\"0\\">"
        " <INPUT TYPE=\\"hidden\\" NAME=\\"FORMID\\"
VALUE=\\"%d\\">"
        " <INPUT TYPE=\\"hidden\\" NAME=\\"TERMINID\\"
VALUE=\\"%d\\">"
        " <INPUT TYPE=\\"hidden\\" NAME=\\"SYNCID\\"
VALUE=\\"%d\\">"
        "<PRE><font face=\\"Courier\\">"
        "New Order<BR>"
        , bValid ? 0 : ERR_BAD_ITEM_ID,
        NEW_ORDER_FORM, iTermId, Term.pClientData[iTermId].iSyncId);

    if ( bInput )
    {
        c += sprintf(szForm+c, "Warehouse: %4.4d  ",
            Term.pClientData[iTermId].w_id );

        strcpy( szForm+c,

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        "District: <INPUT NAME=\"DID*\"
SIZE=1>      Date:<BR>"
        "Customer: <INPUT NAME=\"CID*\"
SIZE=4>  Name:      Credit:  %Disc:<BR>"
        "Order Number:      Number of Lines:
W_tax:      D_tax:<BR><BR>"
        " Supp_W Item_Id Item Name      Qty
Stock B/G Price  Amount<BR>"
        " <INPUT NAME=\"SP00*\" SIZE=4>
<INPUT NAME=\"IID00*\" SIZE=6>      <INPUT
NAME=\"Qty00*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP01*\" SIZE=4>
<INPUT NAME=\"IID01*\" SIZE=6>      <INPUT
NAME=\"Qty01*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP02*\" SIZE=4>
<INPUT NAME=\"IID02*\" SIZE=6>      <INPUT
NAME=\"Qty02*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP03*\" SIZE=4>
<INPUT NAME=\"IID03*\" SIZE=6>      <INPUT
NAME=\"Qty03*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP04*\" SIZE=4>
<INPUT NAME=\"IID04*\" SIZE=6>      <INPUT
NAME=\"Qty04*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP05*\" SIZE=4>
<INPUT NAME=\"IID05*\" SIZE=6>      <INPUT
NAME=\"Qty05*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP06*\" SIZE=4>
<INPUT NAME=\"IID06*\" SIZE=6>      <INPUT
NAME=\"Qty06*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP07*\" SIZE=4>
<INPUT NAME=\"IID07*\" SIZE=6>      <INPUT
NAME=\"Qty07*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP08*\" SIZE=4>
<INPUT NAME=\"IID08*\" SIZE=6>      <INPUT
NAME=\"Qty08*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP09*\" SIZE=4>
<INPUT NAME=\"IID09*\" SIZE=6>      <INPUT
NAME=\"Qty09*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP10*\" SIZE=4>
<INPUT NAME=\"IID10*\" SIZE=6>      <INPUT
NAME=\"Qty10*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP11*\" SIZE=4>
<INPUT NAME=\"IID11*\" SIZE=6>      <INPUT
NAME=\"Qty11*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP12*\" SIZE=4>
<INPUT NAME=\"IID12*\" SIZE=6>      <INPUT
NAME=\"Qty12*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP13*\" SIZE=4>
<INPUT NAME=\"IID13*\" SIZE=6>      <INPUT
NAME=\"Qty13*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP14*\" SIZE=4>
<INPUT NAME=\"IID14*\" SIZE=6>      <INPUT
NAME=\"Qty14*\" SIZE=1><BR>"
        "Execution Status:
Total:<BR>"
        "</font></PRE><HR>"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Process\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Menu\">"
        "</FORM></HTML>"
    );
    }
    else
    {
        c += sprintf(szForm+c, "Warehouse: %4.4d District:
%2.2d      Date: ",
        pNewOrderData->w_id,

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        pNewOrderData->d_id);
        if ( bValid )
        {
            c += sprintf(szForm+c,
"%2.2d-%2.2d-%4.4d %2.2d:%2.2d:%2.2d",
        pNewOrderData->o_entry_d.day,
        pNewOrderData->o_entry_d.month,
        pNewOrderData->o_entry_d.year,
        pNewOrderData->o_entry_d.hour,
        pNewOrderData->o_entry_d.minute,
        pNewOrderData->o_entry_d.second);
        }
        c += sprintf(szForm+c, "<BR>Customer: %4.4d
Name: %-16s Credit: %-2s ",
        pNewOrderData->c_id,
        pNewOrderData->c_last, pNewOrderData->c_credit);
        if ( bValid )
        {
            c += sprintf(szForm+c,
            "%5.2f      <BR>"
            "Order
Number: %8.8d Number of Lines: %2.2d      W_tax: %5.2f D_tax: %5.2f
<BR><BR>"
            " Supp_W
Item_Id Item Name      Qty Stock B/G Price  Amount<BR>",
            100.0*pNewOrderData->c_discount,
            pNewOrderData->o_id,
            pNewOrderData->o_ol_cnt,
            100.0 * pNewOrderData->w_tax,
            100.0 * pNewOrderData->d_tax);
            for(i=0; i<pNewOrderData->o_ol_cnt; i++)
            {
                c += sprintf(szForm+c, " %4.4d
%6.6d %6.24s %2.2d %3.3d %1.1s $%6.2f $%7.2f <BR>",
                pNewOrderData->OL[i].ol_supply_w_id,
                pNewOrderData->OL[i].ol_i_id,
                pNewOrderData->OL[i].ol_i_name,
                pNewOrderData->OL[i].ol_quantity,
                pNewOrderData->OL[i].ol_stock,
                pNewOrderData->OL[i].ol_brand_generic,
                pNewOrderData->OL[i].ol_brand_generic,
                pNewOrderData->OL[i].ol_i_price,
                pNewOrderData->OL[i].ol_amount );
            }
        }
        else
        {
            c += sprintf(szForm+c,
            "%5.2f      <BR>"
            "Order Number: %8.8d Number
of Lines:      W_tax:      D_tax:<BR><BR>"

```

```

        Qty Stock B/G Price Amount<BR>"
        , pNewOrderData->o_id);

        i = 0;
    }

    strncpy( szForm+c, szBR, (15-i)*5 );
    c += (15-i)*5;

    if ( bValid )
        c += sprintf(szForm+c, "Execution Status:
Transaction committed.      Total: $%8.2f ",
        pNewOrderData->total_amount);
    else
        c += sprintf(szForm+c, "Execution Status:
Item number is not valid.    Total:");

    strcpy(szForm+c,
        "<BR></font></PRE><HR>"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" "
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" "
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" "
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" "
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" "
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" "
        "</FORM></HTML>"
    );
}

/* FUNCTION: MakePaymentForm
*
* COMMENTS:    The internal client buffer is created when the terminal id
is assigned and should not
*              be freed except when the client
terminal id is no longer needed.
*/

void MakePaymentForm(int iTermId, PAYMENT_DATA *pPaymentData,
BOOL blnput, char *szForm)
{
    int c;

    c = sprintf(szForm,
        "<HTML><HEAD><TITLE>TPC-C
Payment</TITLE></HEAD><BODY>"
        "<FORM ACTION=\"tpcc.dll\" METHOD=\"GET\">"
        "<INPUT TYPE=\"hidden\" NAME=\"STATUSID\" "
        "<INPUT TYPE=\"hidden\" NAME=\"ERROR\" "
        "<INPUT TYPE=\"hidden\" NAME=\"FORMID\" "
        "<INPUT TYPE=\"hidden\" NAME=\"TERMINID\" "
        "<INPUT TYPE=\"hidden\" NAME=\"SYNCID\" "
        "<PRE><font face=\"Courier\">
Payment<BR>"
        "Date: "

```

```

        , PAYMENT_FORM, iTermId,
Term.pClientData[iTermId].iSyncId);

    if ( !blnput )
    {
        c += sprintf(szForm+c, "%2.2d-%2.2d-%4.4d
%2.2d:%2.2d:%2.2d",
        pPaymentData->h_date.day,
        pPaymentData->h_date.month,
        pPaymentData->h_date.year,
        pPaymentData->h_date.hour,
        pPaymentData->h_date.minute,
        pPaymentData->h_date.second);
    }

    if ( blnput )
    {
        c += sprintf(szForm+c,
            "<BR> <BR>Warehouse: %4.4d"
            "      District: <INPUT
NAME=\"DID*\" SIZE=1><BR> <BR> <BR> <BR>"
            "Customer: <INPUT NAME=\"CID*\"
SIZE=4>"
            "Cust-Warehouse: <INPUT NAME=\"CWI*\"
SIZE=4> "
            "Cust-District: <INPUT NAME=\"CDI*\"
SIZE=1><BR>"
            "Name:      <INPUT
NAME=\"CLT*\" SIZE=16>      Since:<BR>"
            "      Credit:<BR>"
            "      Disc:<BR>"
            "      Phone:<BR>
<BR>"
            "Amount Paid:    $<INPUT
NAME=\"HAM*\" SIZE=7> New Cust-Balance:<BR>"
            "Credit Limit:<BR> <BR>Cust-Data: <BR>
<BR> <BR> <BR> <BR></font></PRE><HR>"
            "<INPUT TYPE=\"submit\" NAME=\"CMD\" "
            "VALUE=\"Process\"><INPUT TYPE=\"submit\" NAME=\"CMD\" "
            "VALUE=\"Menu\">"
            "</BODY></FORM></HTML>"
        , Term.pClientData[iTermId].w_id);
    }
    else
    {
        c += sprintf(szForm+c,
            "<BR> <BR>Warehouse: %4.4d
District: %2.2d<BR>"
            "%-20s      %-20s<BR>"
            "%-20s      %-20s<BR>"
            "%-20s %-2s %5.5s-%4.4s      %-20s %-2s
%5.5s-%4.4s<BR> <BR>"
            "Customer: %4.4d Cust-Warehouse: %4.4d
Cust-District: %2.2d<BR>"
            "Name:  %-16s %-2s %-16s      Since:
%2.2d-%2.2d-%4.4d<BR>"
            "      %-20s      Credit: %-2s<BR>"
            , Term.pClientData[iTermId].w_id,
            pPaymentData->d_id,
            pPaymentData->w_street_1,
            pPaymentData->d_street_1,
            pPaymentData->w_street_2,
            pPaymentData->d_street_2,
            pPaymentData->w_city,
            pPaymentData->w_state, pPaymentData->w_zip, pPaymentData->w_zip+5,
            pPaymentData->d_city,
            pPaymentData->d_state, pPaymentData->d_zip, pPaymentData->d_zip+5

```

```

        , pPaymentData->c_id,
pPaymentData->c_w_id,    pPaymentData->c_d_id
        , pPaymentData->c_first,
pPaymentData->c_middle, pPaymentData->c_last
        , pPaymentData->c_since.day,
pPaymentData->c_since.month, pPaymentData->c_since.year
        , pPaymentData->c_street_1,
pPaymentData->c_credit
    );

    c += sprintf(szForm+c,
        "        %-20s        %%Disc:
%5.2f<BR>",
        pPaymentData->c_street_2,
100.0*pPaymentData->c_discount);

    c += sprintf(szForm+c,
        "        %-20s %-2s %5.5s-%4.4s    Phone:
%6.6s-%3.3s-%3.3s-%4.4s<BR> <BR>",
        pPaymentData->c_city,
pPaymentData->c_state, pPaymentData->c_zip, pPaymentData->c_zip+5,
        pPaymentData->c_phone,
pPaymentData->c_phone+6, pPaymentData->c_phone+9,
pPaymentData->c_phone+12 );

    c += sprintf(szForm+c,
        "Amount Paid:        $%7.2f    New
Cust-Balance: $%14.2f<BR>"
        , pPaymentData->h_amount,
pPaymentData->c_balance
        , pPaymentData->c_credit_lim
    );

    if ( pPaymentData->c_credit[0] == 'B' &&
pPaymentData->c_credit[1] == 'C' )
        c += sprintf(szForm+c,
            "Cust-Data:
%-50.50s<BR>        %-50.50s<BR>        %-50.50s<BR>
%-50.50s<BR>",
            pPaymentData->c_data,
pPaymentData->c_data+50, pPaymentData->c_data+100,
pPaymentData->c_data+150 );
        else
            strcpy(szForm+c, "Cust-Data: <BR> <BR>
<BR> <BR>");

        strcat(szForm,
            " <BR></font></PRE><HR>"
            " <INPUT
TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..NewOrder..\">"
            " <INPUT
TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Payment..\">"
            " <INPUT
TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Delivery..\">"
            " <INPUT
TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Order-Status..\">"
            " <INPUT
TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Stock-Level..\">"
            " <INPUT
TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Exit..\">"
            "</BODY></FORM></HTML>");
    }
}

/* FUNCTION: MakeOrderStatusForm
*

```

```

* COMMENTS:    The internal client buffer is created when the terminal id
is assigned and should not
*
                be freed except when the client
terminal id is no longer needed.
*/

void MakeOrderStatusForm(int iTermId, ORDER_STATUS_DATA
*pOrderStatusData, BOOL bInput, char *szForm)
{
    int                i, c;
    static char szBR[] = " <BR> <BR> <BR> <BR> <BR> <BR>
<BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR>";

    c = sprintf(szForm,
        "<HTML><HEAD><TITLE>TPC-C
Order-Status</TITLE></HEAD><BODY>"
        "<FORM ACTION=\"tpcc.dll\" METHOD=\"GET\">"
        "<INPUT TYPE=\"hidden\" NAME=\"STATUSID\"
VALUE=\"0\">"
        "<INPUT TYPE=\"hidden\" NAME=\"ERROR\"
VALUE=\"0\">"
        "<INPUT TYPE=\"hidden\" NAME=\"FORMID\"
VALUE=\"%d\">"
        "<INPUT TYPE=\"hidden\" NAME=\"TERMID\"
VALUE=\"%d\">"
        "<INPUT TYPE=\"hidden\" NAME=\"SYNCID\"
VALUE=\"%d\">"
        "<PRE><font face=\"Courier\">
Order-Status<BR>"
        "Warehouse: %4.4d    ",
        ORDER_STATUS_FORM, iTermId,
Term.pClientData[iTermId].iSyncId, Term.pClientData[iTermId].w_id);

    if ( bInput )
    {
        strcpy(szForm+c,
            "District: <INPUT NAME=\"DID*\"
SIZE=1><BR>"
            "Customer: <INPUT NAME=\"CID*\"
SIZE=4> Name: <INPUT NAME=\"CLT*\" SIZE=23><BR>"
            "Cust-Balance:<BR> <BR>"
            "Order-Number:    Entry-Date:
Carrier-Number:<BR>"
            "Supply-W Item-Id Qty Amount
Delivery-Date<BR> <BR> <BR> <BR> <BR>
" <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR>
" <HR><INPUT TYPE=\"submit\"
NAME=\"CMD\" VALUE=\"Process\"><INPUT TYPE=\"submit\"
NAME=\"CMD\" VALUE=\"Menu\">"
            "</BODY></FORM></HTML> ");
    }
    else
    {
        c += sprintf(szForm+c,
            "District: %2.2d<BR>"
            "Customer: %4.4d Name: %-16s %-2s
%-16s<BR>",
            pOrderStatusData->d_id,
            pOrderStatusData->c_first,
pOrderStatusData->c_middle, pOrderStatusData->c_last);

        c += sprintf(szForm+c, "Cust-Balance: $%9.2f<BR>
<BR>",
            pOrderStatusData->c_balance);

        c += sprintf(szForm+c,

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                "Order-Number: %8.8d  Entry-Date:
%2.2d-%2.2d-%4.4d %2.2d:%2.2d:%2.2d  Carrier-Number: %2.2d<BR>"
                "Supply-W  Item-Id  Qty  Amount
Delivery-Date<BR>",
                pOrderStatusData->o_id,
                pOrderStatusData->o_entry_d.day,
                pOrderStatusData->o_entry_d.month,
                pOrderStatusData->o_entry_d.year,
                pOrderStatusData->o_entry_d.hour,
                pOrderStatusData->o_entry_d.minute,
                pOrderStatusData->o_entry_d.second,
                pOrderStatusData->o_carrier_id);

        for(i=0; i< pOrderStatusData->o_ol_cnt; i++)
        {
                c += sprintf(szForm+c, " %4.4d  %6.6d
%2.2d  %8.2f  %2.2d-%2.2d-%4.4d<BR>",
                pOrderStatusData->OL[i].ol_supply_w_id,
                pOrderStatusData->OL[i].ol_i_id,

                pOrderStatusData->OL[i].ol_quantity,
                pOrderStatusData->OL[i].ol_amount,

                pOrderStatusData->OL[i].ol_delivery_d.day,
                pOrderStatusData->OL[i].ol_delivery_d.month,

                pOrderStatusData->OL[i].ol_delivery_d.year);
        }

        strncpy( szForm+c, szBR, (15-i)*5 );
        c += (15-i)*5;

        strcpy(szForm+c,
                "</font></PRE><HR><INPUT
TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..NewOrder..\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Order-Status..\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Stock-Level..\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Exit..\">"
                "</BODY></FORM></HTML>" );
        }

/* FUNCTION: MakeDeliveryForm
*
* COMMENTS:      The internal client buffer is created when the terminal id
is assigned and should not
*
*                  be freed except when the client
terminal id is no longer needed.
*/

void MakeDeliveryForm(int iTermId, DELIVERY_DATA *pDeliveryData,
BOOL bInput, char *szForm)
{
        int                c;

        c = sprintf(szForm,
                "<HTML><HEAD><TITLE>TPC-C
Delivery</TITLE></HEAD><BODY>"

```

```

                "<FORM ACTION=\"tpcc.dll\" METHOD=\"GET\">"
                "<INPUT TYPE=\"hidden\" NAME=\"STATUSID\"
VALUE=\"%d\">"
                "<INPUT TYPE=\"hidden\" NAME=\"ERROR\"
VALUE=\"0\">"
                "<INPUT TYPE=\"hidden\" NAME=\"FORMID\"
VALUE=\"%d\">"
                "<INPUT TYPE=\"hidden\" NAME=\"TERMINID\"
VALUE=\"%d\">"
                "<INPUT TYPE=\"hidden\" NAME=\"SYNCID\"
VALUE=\"%d\">"
                "<PRE><font face=\"Courier\">
Delivery<BR>"
                "Warehouse: %4.4d<BR> <BR>",
                (!bInput && (pDeliveryData->exec_status_code !=
eOK)) ? ERR_TYPE_DELIVERY_POST : 0,
                DELIVERY_FORM, iTermId,
                Term.pClientData[iTermId].iSyncId, Term.pClientData[iTermId].w_id);

        if ( bInput )
        {
                strcpy( szForm+c,
                        "Carrier Number: <INPUT NAME=\"OCD*\"
SIZE=1><BR> <BR>"
                        "Execution Status: <BR> <BR> <BR> <BR>
<BR> <BR> <BR> <BR>"
                        " <BR> <BR> <BR> <BR> <BR> <BR>
<BR> <BR> </font></PRE><HR>"
                        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Process\">"
                        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Menu\">"
                        "</BODY></FORM></HTML>" );
        }
        else
        {
                sprintf( szForm+c,
                        "Carrier Number: %2.2d<BR> <BR>"
                        "Execution Status: %s <BR> <BR> <BR>
<BR> <BR> <BR> <BR> <BR> <BR>
<BR> <BR> </font></PRE>"
                        "<HR><INPUT TYPE=\"submit\"
NAME=\"CMD\" VALUE=\"..NewOrder..\">"
                        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"
                        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"
                        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Order-Status..\">"
                        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Stock-Level..\">"
                        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Exit..\">"
                        "</BODY></FORM></HTML>"
                        , pDeliveryData->o_carrier_id,
                        (pDeliveryData->exec_status_code == eOK) ?
"Delivery has been queued." : "Delivery Post Failed "
                );
        }
}

/* FUNCTION: ProcessNewOrderForm
*
* PURPOSE:        This function gets and validates the input data from the
new order form

```

```

*           filling in the required input variables. It then
calls the SQLNewOrder
*           transaction, constructs the output form and
writes it back to client
*           browser.
*/

void ProcessNewOrderForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, char *szBuffer)
{
    PNEW_ORDER_DATA          pNewOrder;

    pNewOrder =
Term.pClientData[iTermId].pTxn->BuffAddr_NewOrder();

    ZeroMemory(pNewOrder, sizeof(NEW_ORDER_DATA));
    pNewOrder->w_id = Term.pClientData[iTermId].w_id;
    GetNewOrderData(pECB->lpszQueryString, pNewOrder);

    Term.pClientData[iTermId].pTxn->NewOrder();

    pNewOrder =
Term.pClientData[iTermId].pTxn->BuffAddr_NewOrder();
    MakeNewOrderForm(iTermId, pNewOrder, OUTPUT_FORM,
szBuffer );
}

/* FUNCTION: void ProcessPaymentForm
*
* PURPOSE:      This function gets and validates the input data from the
payment form
*           filling in the required input variables. It then
calls the SQLPayment
*           transaction, constructs the output form and
writes it back to client
*           browser.
*
* ARGUMENTS:    EXTENSION_CONTROL_BLOCK      *pECB
passed in structure pointer from inetsrv.
*           int
*           iTermId   client browser terminal id
*/

void ProcessPaymentForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, char *szBuffer)
{
    PPAYMENT_DATA pPayment;

    pPayment =
Term.pClientData[iTermId].pTxn->BuffAddr_Payment();
    ZeroMemory(pPayment, sizeof(PAYMENT_DATA));
    pPayment->w_id = Term.pClientData[iTermId].w_id;
    GetPaymentData(pECB->lpszQueryString, pPayment);

    Term.pClientData[iTermId].pTxn->Payment();

    pPayment =
Term.pClientData[iTermId].pTxn->BuffAddr_Payment();
    MakePaymentForm(iTermId, pPayment, OUTPUT_FORM,
szBuffer);
}

/* FUNCTION: ProcessOrderStatusForm
*
* PURPOSE:      This function gets and validates the input data from the
Order Status

```

```

*           form filling in the required input variables. It
then calls the
*           SQLOrderStatus transaction, constructs the
output form and writes it
*           back to client browser.
*
* ARGUMENTS:    EXTENSION_CONTROL_BLOCK      *pECB
passed in structure pointer from inetsrv.
*           int
*           iTermId   client browser terminal id
*/

void ProcessOrderStatusForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, char *szBuffer)
{
    PORDER_STATUS_DATA      pOrderStatus;

    pOrderStatus =
Term.pClientData[iTermId].pTxn->BuffAddr_OrderStatus();
    ZeroMemory(pOrderStatus, sizeof(ORDER_STATUS_DATA));
    pOrderStatus->w_id = Term.pClientData[iTermId].w_id;
    GetOrderStatusData(pECB->lpszQueryString, pOrderStatus);

    Term.pClientData[iTermId].pTxn->OrderStatus();

    pOrderStatus =
Term.pClientData[iTermId].pTxn->BuffAddr_OrderStatus();
    MakeOrderStatusForm(iTermId, pOrderStatus, OUTPUT_FORM,
szBuffer);
}

/* FUNCTION: ProcessDeliveryForm
*
* PURPOSE:      This function gets and validates the input data from the
delivery form
*           filling in the required input variables. It then
calls the PostDeliveryInfo
*           Api, The client is then informed that the
transaction has been posted.
*
* ARGUMENTS:    EXTENSION_CONTROL_BLOCK      *pECB
passed in structure pointer from inetsrv.
*           int
*           iTermId   client browser terminal id
*/

void ProcessDeliveryForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, char *szBuffer)
{
    char      *ptr = pECB->lpszQueryString;

    PDELIVERY_DATA pDelivery;

    pDelivery =
Term.pClientData[iTermId].pTxn->BuffAddr_Delivery();
    ZeroMemory(pDelivery, sizeof(DELIVERY_DATA));
    pDelivery->w_id = Term.pClientData[iTermId].w_id;

    pDelivery->o_carrier_id = GetIntKeyValue(&ptr, "OCD*",
ERR_DELIVERY_MISSING_OCD_KEY,
ERR_DELIVERY_CARRIER_INVALID);
    if ( pDelivery->o_carrier_id > 10 || pDelivery->o_carrier_id < 1 )
        throw new CWEBCLNT_ERR(
ERR_DELIVERY_CARRIER_ID_RANGE );

    if (dwNumDeliveryThreads)

```

```

    {
        //post delivery info
        if ( PostDeliveryInfo(pDelivery->w_id,
pDelivery->o_carrier_id) )
            pDelivery->exec_status_code =
eDeliveryFailed;
        else
            pDelivery->exec_status_code = eOK;
    }
    else // delivery is done synchronously if no delivery threads
configured
        Term.pClientData[iTermId].pTxn->Delivery();

    pDelivery =
Term.pClientData[iTermId].pTxn->BuffAddr_Delivery();
    MakeDeliveryForm(iTermId, pDelivery, OUTPUT_FORM,
szBuffer);
}

```

/\* FUNCTION: ProcessStockLevelForm

\* PURPOSE: This function gets and validates the input data from the  
Stock Level  
\* form filling in the required input variables. It  
then calls the  
\* SQLStockLevel transaction, constructs the  
output form and writes it  
\* back to client browser.  
\*  
\* ARGUMENTS: EXTENSION\_CONTROL\_BLOCK \*pECB  
passed in structure pointer from inetsrv.  
\* int  
iTermId client browser terminal id  
\*  
\*/

```

void ProcessStockLevelForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, char *szBuffer)
{

```

```

    char *ptr = pECB->lpszQueryString;

    PSTOCK_LEVEL_DATA pStockLevel;

    pStockLevel =
Term.pClientData[iTermId].pTxn->BuffAddr_StockLevel();
    ZeroMemory( pStockLevel, sizeof(STOCK_LEVEL_DATA) );

    pStockLevel->w_id = Term.pClientData[iTermId].w_id;
    pStockLevel->d_id = Term.pClientData[iTermId].d_id;

    pStockLevel->threshold = GetIntKeyValue(&ptr, "TT*",
ERR_STOCKLEVEL_MISSING_THRESHOLD_KEY,
ERR_STOCKLEVEL_THRESHOLD_INVALID);
    if ( pStockLevel->threshold >= 100 || pStockLevel->threshold < 0 )
throw new CWEBCLNT_ERR(
ERR_STOCKLEVEL_THRESHOLD_RANGE );

    Term.pClientData[iTermId].pTxn->StockLevel();

    pStockLevel =
Term.pClientData[iTermId].pTxn->BuffAddr_StockLevel();
    MakeStockLevelForm(iTermId, pStockLevel, OUTPUT_FORM,
szBuffer);
}

```

/\* FUNCTION: GetNewOrderData  
\*

\* PURPOSE: This function extracts and validates the new order form  
data from an http command string.

\* ARGUMENTS: LPSTR lpszQueryString  
client browser http command string  
\* NEW\_ORDER\_DATA  
\*pNewOrderData pointer to new order data structure  
\*  
\*/

```

void GetNewOrderData(LPSTR lpszQueryString, NEW_ORDER_DATA
*pNewOrderData)
{

```

```

    char szTmp[26];
    int i;
    short items;
    int ol_i_id, ol_quantity;
    char *ptr = lpszQueryString;

    static char szSP[MAX_OL_NEW_ORDER_ITEMS][6] =
    { "SP00*", "SP01*", "SP02*", "SP03*", "SP04*",
      "SP05*", "SP06*", "SP07*", "SP08*", "SP09*",
      "SP10*", "SP11*", "SP12*", "SP13*", "SP14*" };
    static char szIID[MAX_OL_NEW_ORDER_ITEMS][7] =
    { "IID00*", "IID01*", "IID02*", "IID03*", "IID04*",
      "IID05*", "IID06*", "IID07*", "IID08*", "IID09*",
      "IID10*", "IID11*", "IID12*", "IID13*", "IID14*" };
    static char szQty[MAX_OL_NEW_ORDER_ITEMS][7] =
    { "Qty00*", "Qty01*", "Qty02*", "Qty03*", "Qty04*",
      "Qty05*", "Qty06*", "Qty07*", "Qty08*", "Qty09*",
      "Qty10*", "Qty11*", "Qty12*", "Qty13*", "Qty14*" };

    pNewOrderData->d_id = GetIntKeyValue(&ptr, "DID*",
ERR_NEWORDER_FORM_MISSING_DID,
ERR_NEWORDER_DISTRICT_INVALID);
    pNewOrderData->c_id = GetIntKeyValue(&ptr, "CID*",
ERR_NEWORDER_CUSTOMER_KEY,
ERR_NEWORDER_CUSTOMER_INVALID);

    for(i=0, items=0; i<MAX_OL_NEW_ORDER_ITEMS; i++)
    {
        GetKeyValue(&ptr, szSP[i], szTmp, sizeof(szTmp),
ERR_NEWORDER_MISSING_SUPPW_KEY);
        if ( szTmp[0] )
        {
            if ( !IsNumeric(szTmp) )
throw new CWEBCLNT_ERR(
ERR_NEWORDER_SUPPW_INVALID );
            pNewOrderData->OL[items].ol_supply_w_id
= (short)atoi(szTmp);

            ol_i_id = pNewOrderData->OL[items].ol_i_id
=
            GetIntKeyValue(&ptr, szIID[i],
ERR_NEWORDER_MISSING_IID_KEY,
ERR_NEWORDER_ITEMID_INVALID);
            if ( ol_i_id > 999999 || ol_i_id < 1 )
throw new CWEBCLNT_ERR(
ERR_NEWORDER_ITEMID_RANGE );

            ol_quantity =
pNewOrderData->OL[items].ol_quantity =
            GetIntKeyValue(&ptr, szQty[i],
ERR_NEWORDER_MISSING_QTY_KEY,
ERR_NEWORDER_QTY_INVALID);
            if ( ol_quantity > 99 || ol_quantity < 1 )
throw new CWEBCLNT_ERR(
ERR_NEWORDER_QTY_RANGE );

```

```

        items++;
    }
    else
    {
        // nothing entered for supply warehouse, so
        item id and qty must also be blank
        GetKeyValue(&ptr, szIID[i], szTmp,
        sizeof(szTmp), ERR_NEWORDER_MISSING_IID_KEY);
        if ( szTmp[0] )
            throw new CWEBCLNT_ERR(
            ERR_NEWORDER_ITEMID_WITHOUT_SUPPW );

        GetKeyValue(&ptr, szQty[i], szTmp,
        sizeof(szTmp), ERR_NEWORDER_MISSING_QTY_KEY);
        if ( szTmp[0] )
            throw new CWEBCLNT_ERR(
            ERR_NEWORDER_QTY_WITHOUT_SUPPW );
    }
    if ( items == 0 )
        throw new CWEBCLNT_ERR(
        ERR_NEWORDER_NOITEMS_ENTERED );

    pNewOrderData->o_ol_cnt = items;
}

/* FUNCTION: GetPaymentData
*
* PURPOSE:      This function extracts and validates the payment form
data from an http command string.
*
* ARGUMENTS:   LPSTR          lpszQueryString
client browser http command string
*
*               PAYMENT_DATA
* pPaymentData  pointer to payment data structure
*/

void GetPaymentData(LPSTR lpszQueryString, PAYMENT_DATA
*pPaymentData)
{
    char    szTmp[26];
    char    *ptr = lpszQueryString;
    BOOL    bCustIdBlank;

    pPaymentData->d_id = GetIntKeyValue(&ptr, "DID*",
    ERR_PAYMENT_MISSING_DID_KEY,
    ERR_PAYMENT_DISTRICT_INVALID);

    GetKeyValue(&ptr, "CID*", szTmp, sizeof(szTmp),
    ERR_PAYMENT_MISSING_CID_KEY);
    if ( szTmp[0] == 0 )
    {
        bCustIdBlank = TRUE;
        pPaymentData->c_id = 0;
    }
    else
    {
        // parse customer id and verify that last name was NOT
        entered

        bCustIdBlank = FALSE;
        if ( !IsNumeric(szTmp) )
            throw new CWEBCLNT_ERR(
            ERR_PAYMENT_CUSTOMER_INVALID );
        pPaymentData->c_id = atoi(szTmp);
    }

    pPaymentData->c_w_id = GetIntKeyValue(&ptr, "CWI*",
    ERR_PAYMENT_MISSING_CWI_KEY,
    ERR_PAYMENT_CWI_INVALID);

```

```

    pPaymentData->c_d_id = GetIntKeyValue(&ptr, "CDI*",
    ERR_PAYMENT_MISSING_CDI_KEY, ERR_PAYMENT_CDI_INVALID);

    if ( bCustIdBlank )
    {
        // customer id is blank, so last name must be entered
        GetKeyValue(&ptr, "CLT*", szTmp, sizeof(szTmp),
        ERR_PAYMENT_MISSING_CLT_KEY);
        if ( szTmp[0] == 0 )
            throw new CWEBCLNT_ERR(
            ERR_PAYMENT_MISSING_CID_CLT );

        _strupr( szTmp );
        if ( strlen(pPaymentData->c_last) > LAST_NAME_LEN
        )
            throw new CWEBCLNT_ERR(
            ERR_PAYMENT_LAST_NAME_TO_LONG );
        strcpy(pPaymentData->c_last, szTmp);
    }
    else
    {
        // parse customer id and verify that last name was NOT
        entered

        GetKeyValue(&ptr, "CLT*", szTmp, sizeof(szTmp),
        ERR_PAYMENT_MISSING_CLT_KEY);
        if ( szTmp[0] != 0 )
            throw new CWEBCLNT_ERR(
            ERR_PAYMENT_CID_AND_CLT );
    }

    GetKeyValue(&ptr, "HAM*", szTmp, sizeof(szTmp),
    ERR_PAYMENT_MISSING_HAM_KEY);
    if (!IsDecimal(szTmp))
        throw new CWEBCLNT_ERR(
        ERR_PAYMENT_HAM_INVALID );
    pPaymentData->h_amount = atof(szTmp);
    if ( pPaymentData->h_amount >= 10000.00 ||
    pPaymentData->h_amount < 0 )
        throw new CWEBCLNT_ERR(
        ERR_PAYMENT_HAM_RANGE );
}

/* FUNCTION: GetOrderStatusData
*
* PURPOSE:      This function extracts and validates the payment form
data from an http command string.
*
*/
void GetOrderStatusData(LPSTR lpszQueryString, ORDER_STATUS_DATA
*pOrderStatusData)
{
    char    szTmp[26];
    char    *ptr = lpszQueryString;

    pOrderStatusData->d_id = GetIntKeyValue(&ptr, "DID*",
    ERR_ORDERSTATUS_MISSING_DID_KEY,
    ERR_ORDERSTATUS_DID_INVALID);

    GetKeyValue(&ptr, "CID*", szTmp, sizeof(szTmp),
    ERR_ORDERSTATUS_MISSING_CID_KEY);
    if ( szTmp[0] == 0 )
    {
        // customer id is blank, so last name must be entered
        pOrderStatusData->c_id = 0;
        GetKeyValue(&ptr, "CLT*", szTmp, sizeof(szTmp),
        ERR_ORDERSTATUS_MISSING_CLT_KEY);
        if ( szTmp[0] == 0 )
            throw new CWEBCLNT_ERR(
            ERR_ORDERSTATUS_MISSING_CID_CLT );

        _strupr( szTmp );
    }

```

```

        if ( strlen(pOrderStatusData->c_last) >
LAST_NAME_LEN )
            throw new CWEBCLNT_ERR(
ERR_ORDERSTATUS_CLT_RANGE );
        strcpy(pOrderStatusData->c_last, szTmp);
    }
    else
    {
        // parse customer id and verify that last name was NOT
entered
        if ( !IsNumeric(szTmp) )
            throw new CWEBCLNT_ERR(
ERR_ORDERSTATUS_CID_INVALID );
        pOrderStatusData->c_id = atoi(szTmp);
        GetKeyValue(&ptr, "CLT*", szTmp, sizeof(szTmp),
ERR_ORDERSTATUS_MISSING_CLT_KEY);
        if ( szTmp[0] != 0 )
            throw new CWEBCLNT_ERR(
ERR_ORDERSTATUS_CID_AND_CLT );
    }
}

/* FUNCTION: BOOL IsNumeric(char *ptr)
*
* PURPOSE:      This function determines if a string is numeric. It fails if
any characters other
*               than numeric and null terminator are present.
*
* ARGUMENTS:   char          *ptr      pointer to
string to check.
*
* RETURNS:     BOOL    FALSE  if string is not all
numeric
*               TRUE   if
string contains only numeric characters i.e. '0' - '9'
*/

BOOL IsNumeric(char *ptr)
{
    if ( *ptr == 0 )
        return FALSE;

    while( *ptr && isdigit(*ptr) )
        ptr++;
    return ( !*ptr );
}

/* FUNCTION: BOOL IsDecimal(char *ptr)
*
* PURPOSE:      This function determines if a string is a non-negative
decimal value.
*               It fails if any characters other than a series of numbers followed by
*               a decimal point, another series of numbers,
and a null terminator are present.
*
* ARGUMENTS:   char          *ptr      pointer to
string to check.
*
* RETURNS:     BOOL    FALSE  if string is not a valid
non-negative decimal value
*               TRUE   if
string is OK
*/

BOOL IsDecimal(char *ptr)
{
    char *dotptr;
    BOOL bValid;

```

```

    if ( *ptr == 0 )
        return FALSE;

    // find decimal point
    dotptr = strchr( ptr, '.' );
    if (dotptr == NULL)
        // no decimal point, so just check for numeric
        return IsNumeric(ptr);
    *dotptr = 0; // temporarily replace decimal with a terminator

    if ( *ptr != 0 )
        bValid = IsNumeric(ptr);
    // string starts with decimal point
    else if (*(dotptr+1) == 0)
        return FALSE; // nothing but a decimal point is bad
    else
        bValid = TRUE;

    if (*(dotptr+1) != 0)
        // check text after decimal point
        bValid &= IsNumeric(dotptr+1);

    *dotptr = '.'; // replace decimal point
    return bValid;
}

tpcc.cpp

/*      FILE:          TPCC.C
*
*      Microsoft TPC-C Kit Ver.
4.20.000
*      Copyright Microsoft, 1999
*
*      All Rights Reserved
*
*      Version 4.10.000 audited by
Richard Gimarc, Performance Metrics, 3/17/99
*
*      PURPOSE:        Main module for TPCC.DLL which is an
ISAPI service dll.
*      Contact:   Charles Levine (clevine@microsoft.com)
*
*      Change history:
*      4.20.000 - reworked error handling; added options for
COM and Encina txn monitors
*/

#include <windows.h>
#include <process.h>
#include <tchar.h>
#include <stdio.h>
#include <stdarg.h>
#include <malloc.h>
#include <stdlib.h>
#include <string.h>
#include <time.h>
#include <sys\timeb.h>
#include <io.h>
#include <assert.h>

#include <sqltypes.h>

#ifdef ICECAP
#include <icapexp.h>
#endif

#include "..\..\common\src\trans.h" //tpckit transaction
header contains definitions of structures specific to TPC-C
#include "..\..\common\src\error.h"

```

```

#include "..\..\common\src\txn_base.h"
#include "..\..\common\src\ReadRegistry.h"

#include "..\..\common\txnlog\include\rtetime.h"
#include "..\..\common\txnlog\include\spinlock.h"
#include "..\..\common\txnlog\include\txnlog.h"

// Database layer includes
#include "..\..\db_dblib_dll\src\tpcc_dblib.h"           // DBLIB
implementation of TPC-C txns
#include "..\..\db_odbc_dll\src\tpcc_odbc.h"           // ODBC
implementation of TPC-C txns

// Txn monitor layer includes
#include "..\..\tm_com_dll\src\tpcc_com.h"             // COM
Services implementation on TPC-C txns
#include "..\..\tm_tuxedo_dll\src\tpcc_tux.h"          // interface to Tuxedo
libraries
#include "..\..\tm_encina_dll\src\tpcc_enc.h"          // interface to Encina
libraries

#include "httpext.h"                                  //ISAPI DLL
information header
#include "tpcc.h"                                     //this dlls
specific structure, value e.t. header.

#define LEN_ERR_STRING 256

// defines for Make<Txn>Form calls to distinguish input and output flavors
#define OUTPUT_FORM 0
#define INPUT_FORM 1

char
szMyComputerName[MAX_COMPUTERNAME_LENGTH+1];

//Terminal client id structure
TERM Term = { 0, 0, 0, NULL };

// The WEBCLIENT_VERSION string specifies the version level of this web
client interface.
// The RTE must be synchronized with the interface level on login, otherwise
the login
// will fail. This is a sanity check to catch problems resulting from mismatched
versions
// of the RTE and web client.
#define WEBCLIENT_VERSION "410"

static CRITICAL_SECTION TermCriticalSection;

static HINSTANCE hLibInstanceTm = NULL;
static HINSTANCE hLibInstanceDb = NULL;

TYPE_CTPCC_DBLIB *pCTPCC_DBLIB_new;
TYPE_CTPCC_ODBC *pCTPCC_ODBC_new;
TYPE_CTPCC_TUXEDO *pCTPCC_TUXEDO_new;
TYPE_CTPCC_ENCINA *pCTPCC_ENCINA_new;
TYPE_CTPCC_ENCINA *pCTPCC_ENCINA_post_init;
TYPE_CTPCC_COM *pCTPCC_COM_new;

// For deferred Delivery txns:

CTxnLog *txnDelilog = NULL;
//used to log delivery transaction information

HANDLE hWorkerSemaphore =
INVALID_HANDLE_VALUE;

HANDLE = INVALID_HANDLE_VALUE;
HANDLE = NULL;

// configuration settings from registry
TPCCREGISTRYDATA Reg;

DWORD dwNumDeliveryThreads = 4;
CRITICAL_SECTION DelBuffCriticalSection;
//critical section for delivery transactions cache
DELIVERY_TRANSACTION *pDelBuff = NULL;
DWORD dwDelBuffSize = 100; // size of circular buffer for delivery txns
DWORD dwDelBuffFreeCount; // number of buffers free
DWORD dwDelBuffBusyIndex = 0; // index position of entry waiting to be delivered
DWORD dwDelBuffFreeIndex = 0; // index position of unused entry

#include "..\..\common\src\ReadRegistry.cpp"

/* FUNCTION: DllMain
*
* PURPOSE: This function is the entry point for the DLL. This
implementation is based on the
* fact that DLL_PROCESS_ATTACH is only
called from the inet service once.
*
* ARGUMENTS: HANDLE hModule
module handle
* DWORD ul_reason_for_call
reason for call
* LPVOID lpReserved
reserved for future use
*
* RETURNS: BOOL FALSE
errors occurred in initialization
* TRUE
DLL successfully initialized
*/

BOOL WINAPI DllMain(HANDLE hModule, DWORD ul_reason_for_call,
LPVOID lpReserved)
{
    DWORD i;
    char szEvent[LEN_ERR_STRING] = "\0";
    char szLogFile[128];
    char szDllName[128];

    // debugging....
    // DebugBreak();

    try
    {
        switch( ul_reason_for_call )
        {
            case DLL_PROCESS_ATTACH:
                DWORD dwSize =
MAX_COMPUTERNAME_LENGTH+1;
                GetComputerName(szMyComputerName, &dwSize);
                szMyComputerName[dwSize] = 0;

```

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| <pre>         }  DisableThreadLibraryCalls((HMODULE)hModule);  InitializeCriticalSection(&amp;TermCriticalSection);          if ( ReadTPCCRegistrySettings( &amp;Reg ) )                  throw new CWEBCLNT_ERR( ERR_MISSING_REGISTRY_ENTRIES );          dwDelBuffSize = min( Reg.dwMaxPendingDeliveries, 10000 ); // min with 10000 as a sanity constraint          dwNumDeliveryThreads = min( Reg.dwNumberOfDeliveryThreads, 100 ); // min with 100 as a sanity constraint          TermInit();          // load DLL for txn monitor         if (Reg.eTxnMon == TUXEDO)         {                 strcpy( szDllName, Reg.szPath );                 strcat( szDllName, "tpcc_tuxedo.dll");                 hLibInstanceTm = LoadLibrary( szDllName );                 if (hLibInstanceTm == NULL)                         throw new CWEBCLNT_ERR( ERR_LOADDLL_FAILED, szDllName, GetLastError() );                  // get function pointer                 to wrapper for class constructor                  pCTPCC_TUXEDO_new = (TYPE_CTPCC_TUXEDO*)                 GetProcAddress(hLibInstanceTm,"CTPCC_TUXEDO_new");                 if                 (pCTPCC_TUXEDO_new == NULL)                         throw new CWEBCLNT_ERR( ERR_GETPROCADDR_FAILED, szDllName, GetLastError() );         }         else if (Reg.eTxnMon == ENCINA)         {                 strcpy( szDllName, Reg.szPath );                 strcat( szDllName, "tpcc_encina.dll");                 hLibInstanceTm = LoadLibrary( szDllName );                 if (hLibInstanceTm == NULL)                         throw new CWEBCLNT_ERR( ERR_LOADDLL_FAILED, szDllName, GetLastError() );                  // get function pointer                 to wrapper for class constructor                  pCTPCC_ENCINA_new = (TYPE_CTPCC_ENCINA*)                 GetProcAddress(hLibInstanceTm,"CTPCC_ENCINA_new");                  pCTPCC_ENCINA_post_init = (TYPE_CTPCC_ENCINA*)                 GetProcAddress(hLibInstanceTm,"CTPCC_ENCINA_post_init");                 if                 (pCTPCC_ENCINA_new == NULL) </pre> | <pre>                 throw new CWEBCLNT_ERR( ERR_GETPROCADDR_FAILED, szDllName, GetLastError() );         }         else if (Reg.eTxnMon == COM)         {                 strcpy( szDllName, Reg.szPath );                 strcat( szDllName, "tpcc_com.dll");                 hLibInstanceTm = LoadLibrary( szDllName );                 if (hLibInstanceTm == NULL)                         throw new CWEBCLNT_ERR( ERR_LOADDLL_FAILED, szDllName, GetLastError() );                  // get function pointer                 to wrapper for class constructor                  pCTPCC_COM_new =                 (TYPE_CTPCC_COM*)                 GetProcAddress(hLibInstanceTm,"CTPCC_COM_new");                 if                 (pCTPCC_COM_new == NULL)                         throw new CWEBCLNT_ERR( ERR_GETPROCADDR_FAILED, szDllName, GetLastError() );         }          // load DLL for database         connection         if ((Reg.eTxnMon == None)    (dwNumDeliveryThreads &gt; 0))         {                 if (Reg.eDB_Protocol == DBLIB)                 {                         strcpy( szDllName, Reg.szPath );                         strcat( szDllName, "tpcc_dblib.dll");                         hLibInstanceDb = LoadLibrary( szDllName );                         if                         (hLibInstanceDb == NULL)                                 throw new CWEBCLNT_ERR( ERR_LOADDLL_FAILED, szDllName,                                 GetLastError() );                          // get                         function pointer to wrapper for class constructor                          pCTPCC_DBLIB_new = (TYPE_CTPCC_DBLIB*)                         GetProcAddress(hLibInstanceDb,"CTPCC_DBLIB_new");                         if                         (pCTPCC_DBLIB_new == NULL)                                 throw new CWEBCLNT_ERR( ERR_GETPROCADDR_FAILED, szDllName,                                 GetLastError() );                 }                 else if                 (Reg.eDB_Protocol == ODBC)                 {                         strcpy( szDllName, Reg.szPath );                         strcat( szDllName, "tpcc_odbc.dll"); </pre> |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <pre> hLibInstanceDb = LoadLibrary( szDllName ); if (hLibInstanceDb == NULL) throw new CWEBCLNT_ERR( ERR_LOADDLL_FAILED, szDllName, GetLastError() );  // get function pointer to wrapper for class constructor pCTPCC_ODBC_new = (TYPE_CTPCC_ODBC*) GetProcAddress(hLibInstanceDb,"CTPCC_ODBC_new"); if (pCTPCC_ODBC_new == NULL)  throw new CWEBCLNT_ERR( ERR_GETPROCADDR_FAILED, szDllName, GetLastError() ); } }  if (dwNumDeliveryThreads) { // for deferred delivery txns: hDoneEvent = CreateEvent( NULL, TRUE /* manual reset */, FALSE /* initially not signalled */, NULL );  InitializeCriticalSection(&amp;DelBuffCriticalSection); hWorkerSemaphore = CreateSemaphore( NULL, 0, dwDelBuffSize, NULL ); dwDelBuffFreeCount = dwDelBuffSize;  InitJulianTime(NULL);  // create unique log file name based on delilog-yymmdd-hhmm.log SYSTEMTIME Time; GetLocalTime( &amp;Time ); wsprintf( szLogFile, "%sdelivery-%2.2d%2.2d%2.2d-%2.2d%2.2d.log", Reg.szPath, Time.wYear % 100, Time.wMonth, Time.wDay, Time.wHour, Time.wMinute ); txnDelilog = new CTxnLog(szLogFile, TXN_LOG_WRITE);  //write event into txn log for START  txnDelilog-&gt;WriteCtrlRecToLog(TXN_EVENT_START, szMyComputerName, sizeof(szMyComputerName));  // allocate structures for delivery buffers and thread mgmt pDeliHandles = new HANDLE[dwNumDeliveryThreads]; pDelBuff = new DELIVERY_TRANSACTION[dwDelBuffSize]; // launch DeliveryWorkerThread to perform actual delivery txns for(i=0; i&lt;dwNumDeliveryThreads; i++) { </pre> | <pre> pDeliHandles[i] = (HANDLE) _beginthread( DeliveryWorkerThread, 0, NULL ); if (pDeliHandles[i] == INVALID_HANDLE_VALUE) throw new CWEBCLNT_ERR( ERR_DELIVERY_THREAD_FAILED ); } } break; case DLL_PROCESS_DETACH: if (dwNumDeliveryThreads) { if (txnDelilog != NULL) { //write event into txn log for STOP txnDelilog-&gt;WriteCtrlRecToLog(TXN_EVENT_STOP, szMyComputerName, sizeof(szMyComputerName));  // This will do a clean shutdown of the delivery log file CTxnLog *txnDelilogLocal = txnDelilog; txnDelilog= NULL; delete txnDelilogLocal; } delete [] pDeliHandles; delete [] pDelBuff; CloseHandle( hWorkerSemaphore ); CloseHandle( hDoneEvent ); DeleteCriticalSection(&amp;DelBuffCriticalSection); } DeleteCriticalSection(&amp;TermCriticalSection);  if (hLibInstanceTm != NULL) FreeLibrary( hLibInstanceTm ); hLibInstanceTm = NULL;  if (hLibInstanceDb != NULL) FreeLibrary( hLibInstanceDb ); hLibInstanceDb = NULL;  Sleep(500); break; default: /* nothing */; } } catch (CBaseErr *e) { WriteMessageToEventLog( e-&gt;ErrorText() ); </pre> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

```

        delete e;
        TerminateExtension(0);
        return FALSE;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("Unhandled
exception. DLL could not load."));
        TerminateExtension(0);
        return FALSE;
    }

    return TRUE;
}

/* FUNCTION: GetExtensionVersion
*
* PURPOSE:      This function is called by the inet service when the DLL
is first loaded.
*
* ARGUMENTS:    HSE_VERSION_INFO      *pVer      passed in
structure in which to place expected version number.
*
* RETURNS:      TRUE      inet service expected return value.
*/

BOOL WINAPI GetExtensionVersion(HSE_VERSION_INFO *pVer)
{
    pVer->dwExtensionVersion =
    MAKELONG(HSE_VERSION_MINOR, HSE_VERSION_MAJOR);
    lstrcpy(pVer->lpszExtensionDesc, "TPC-C Server.",
HSE_MAX_EXT_DLL_NAME_LEN);

    // TODO: why do we need this here instead of in the DLL attach?
    if (Reg.eTxnMon == ENCINA)
        pCTPCC_ENCINA_post_init();

    return TRUE;
}

/* FUNCTION: TerminateExtension
*
* PURPOSE:      This function is called by the inet service when the DLL
is about to be unloaded.
*
* ARGUMENTS:    Release all resources in anticipation of being
unloaded.
*
* RETURNS:      TRUE      inet service expected return value.
*/

BOOL WINAPI TerminateExtension( DWORD dwFlags )
{
    if (pDeliHandles)
    {
        SetEvent( hDoneEvent );
        for(DWORD i=0; i<dwNumDeliveryThreads; i++)
            WaitForSingleObject( pDeliHandles[i],
INFINITE );
    }

    TermDeleteAll();
    return TRUE;
}

/* FUNCTION: HttpExtensionProc
*

```

```

* PURPOSE:      This function is the main entry point for the TPCC DLL.
The internet service
*
*               calls this function passing in the http string.
*
* ARGUMENTS:    EXTENSION_CONTROL_BLOCK      *pECB
structure pointer to passed in internet
*
*               service information.
*
* RETURNS:      DWORD  HSE_STATUS_SUCCESS
connection can be dropped if error
*
HSE_STATUS_SUCCESS_AND_KEEP_CONN      keep connect valid
comment sent
*
* COMMENTS:      None
*
*/

DWORD WINAPI HttpExtensionProc(EXTENSION_CONTROL_BLOCK
*pECB)
{
    int          iCmd, FormId, TermId, iSyncId;
    char          szBuffer[4096];

    int          lpbSize;
    static char  szHeader[] = "200 Ok";
    DWORD        dwSize = 6;          // initial
value is strlen(szHeader)
    char          szHeader1[4096];

#ifdef ICECAP
    StartCAP();
#endif

    try
    {
        //process http query
        ProcessQueryString(pECB, &iCmd, &FormId, &TermId,
&iSyncId);

        if (TermId != 0)
        {
            if ( TermId < 0 || TermId >=
Term.iNumEntries || Term.pClientData[TermId].iNextFree != -1 )
            {
                // debugging...
                char szTmp[128];
                wsprintf( szTmp, "Invalid term ID;
TermId = %d", TermId );
                WriteMessageToEventLog( szTmp
);
                throw new CWEBCLNT_ERR(
ERR_INVALID_TERMID );
            }

            //must have a valid syncid here since termid is
valid
            if (iSyncId !=
Term.pClientData[TermId].iSyncId)
                throw new CWEBCLNT_ERR(
ERR_INVALID_SYNC_CONNECTION );

            //set use time
            Term.pClientData[TermId].iTickCount =
GetTickCount();

```

```

    }

    switch(iCmd)
    {
    case 0:
        WelcomeForm(pECB, szBuffer);
        break;
    case 1:
        switch( FormId )
        {
            case WELCOME_FORM:
            case MAIN_MENU_FORM:
                break;
            case NEW_ORDER_FORM:
                ProcessNewOrderForm(pECB, TermId, szBuffer);
                break;
            case PAYMENT_FORM:
                ProcessPaymentForm(pECB, TermId, szBuffer);
                break;
            case DELIVERY_FORM:
                ProcessDeliveryForm(pECB, TermId, szBuffer);
                break;
            case ORDER_STATUS_FORM:
                ProcessOrderStatusForm(pECB, TermId, szBuffer);
                break;
            case STOCK_LEVEL_FORM:
                ProcessStockLevelForm(pECB, TermId, szBuffer);
                break;
        }
        break;
    case 2:
        // new-order selected from menu; display
        new-order input form
        INPUT_FORM, szBuffer);
        MakeNewOrderForm(TermId, NULL,
        break;
    case 3:
        // payment selected from menu; display
        payment input form
        INPUT_FORM, szBuffer);
        MakePaymentForm(TermId, NULL,
        break;
    case 4:
        // delivery selected from menu; display
        delivery input form
        INPUT_FORM, szBuffer);
        MakeDeliveryForm(TermId, NULL,
        break;
    case 5:
        // order-status selected from menu; display
        order-status input form
        INPUT_FORM, szBuffer);
        MakeOrderStatusForm(TermId, NULL,
        break;
    case 6:
        // stock-level selected from menu; display
        stock-level input form
        INPUT_FORM, szBuffer);
        MakeStockLevelForm(TermId, NULL,
        break;
    case 7:
        // ExitCmd
        TermDelete(TermId);
        WelcomeForm(pECB, szBuffer);
        break;
    case 8:
        SubmitCmd(pECB, szBuffer);
        break;
    case 9:
        // menu
        MakeMainMenuForm(TermId,
        Term.pClientData[TermId].iSyncId, szBuffer);
        break;
    case 10:
        // CMD=Clear
        // resets all connections; should only be used
        when no other connections are active
        TermDeleteAll();
        TermInit();
        WelcomeForm(pECB, szBuffer);
        break;
    case 11:
        // CMD=Stats
        StatsCmd(pECB, szBuffer);
        break;
    }
    catch (CBaseErr *e)
    {
        ErrorForm( pECB, e->ErrorType(), e->ErrorNum(),
        TermId, iSyncId, e->ErrorText(), szBuffer );
        delete e;
    }
    catch (...)
    {
        ErrorForm( pECB, ERR_TYPE_WEBDLL, 0, TermId,
        iSyncId, "Error: Unhandled exception in Web Client.", szBuffer );
    }
}

#ifdef ICECAP
    StopCAP();
#endif

lpbSize = strlen(szBuffer);
wsprintf(szHeader1,
        "Content-Type: text/html\r\n"
        "Content-Length: %d\r\n"
        "Connection: Keep-Alive\r\n\r\n", lpbSize);
streat( szHeader1, szBuffer );

(*pECB->ServerSupportFunction)(pECB->ConnID,
HSE_REQ_SEND_RESPONSE_HEADER, szHeader, (LPDWORD) &dwSize,
(LPDWORD)szHeader1);

//finish up and keep connection
pECB->dwHttpStatusCode = 200;
return HSE_STATUS_SUCCESS_AND_KEEP_CONN;
}

void WriteMessageToEventLog(LPTSTR lpszMsg)
{
    TCHAR szMsg[256];
    HANDLE hEventSource;
    LPTSTR lpszStrings[2];

    // Use event logging to log the error.
    //
    hEventSource = RegisterEventSource(NULL, TEXT("TPCC.DLL"));

```

```

    _sprintf(szMsg, TEXT("Error in TPCC.DLL: "));
    lpszStrings[0] = szMsg;
    lpszStrings[1] = lpszMsg;

    if (hEventSource != NULL)
    {
        ReportEvent(hEventSource, // handle of event source
            EVENTLOG_ERROR_TYPE, // event type
            0, // event category
            0, // event ID
            NULL, // current user's SID
            2, // strings in lpszStrings
            0, // no bytes of raw data
            (LPCTSTR *)lpszStrings, // array of error strings
            NULL); // no raw data

        (VOID) DeregisterEventSource(hEventSource);
    }
}

/* FUNCTION: DeliveryWorkerThread
 *
 * PURPOSE: This function processes deferred delivery txns. There are
 typically several threads running this routine. The number of
 threads is determined by an entry read from the registry. The thread waits for
 work by waiting on semaphore. When a delivery txn is posted, the semaphore
 is released. After processing the delivery txn, information is logged to
 record the txn status and execution time.
 */

/*static*/ void DeliveryWorkerThread(void *ptr)
{
    CTPCC_BASE *pTxn = NULL;

    DELIVERY_TRANSACTION delivery;
    PDELIVERY_DATA pDeliveryData;
    TXN_RECORD_TPCC_DELIV_DEF txnDeliRec;

    DWORD index;
    HANDLE handles[2];

    SYSTEMTIME trans_end; //delivery
    transaction finished time
    SYSTEMTIME trans_start; //delivery transaction
    start time

    assert(txnDeliLog != NULL);

    try
    {
        if (Reg.eDB_Protocol == ODBC)
            pTxn = pCTPCC_ODBC_new(
                Reg.szDbServer, Reg.szDbUser, Reg.szDbPassword, szMyComputerName,
                Reg.szDbName );
        else if (Reg.eDB_Protocol == DBLIB)
            pTxn = pCTPCC_DBLIB_new(
                Reg.szDbServer, Reg.szDbUser, Reg.szDbPassword, szMyComputerName,
                Reg.szDbName );
        pDeliveryData = pTxn->BuffAddr_Delivery();
    }
    catch (CBaseErr *e)
    {
        char szTmp[1024];
        sprintf( szTmp, "Error in Delivery Txn thread. Could
not connect to database. "
"%s. Server=%s, User=%s,
Password=%s, Database=%s",
e->ErrorText(), Reg.szDbServer,
Reg.szDbUser, Reg.szDbPassword, Reg.szDbName );
        WriteMessageToEventLog( szTmp );
        delete e;
        goto ErrorExit;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("Unhandled exception
caught in DeliveryWorkerThread."));
        goto ErrorExit;
    }

    while (TRUE)
    {
        try
        {
            //while delivery thread running, i.e. user has
            not requested termination

            while (TRUE)
            {
                // need to wait for multiple objects:
                program exit or worker semaphore;

                handles[0] = hDoneEvent;
                handles[1] = hWorkerSemaphore;
                index = WaitForMultipleObjects(
                    2, &handles[0], FALSE, INFINITE );

                if (index == WAIT_OBJECT_0)
                    goto ErrorExit;

                ZeroMemory(&txnDeliRec,
                    sizeof(txnDeliRec));
                txnDeliRec.TxnType =
                    TXN_REC_TYPE_TPCC_DELIV_DEF;

                // make a local copy of current
                entry from delivery buffer and increment buffer index

                EnterCriticalSection(&DelBuffCriticalSection);
                delivery =
                    *(pDelBuff+dwDelBuffBusyIndex);
                dwDelBuffFreeCount++;
                dwDelBuffBusyIndex++;
                if (dwDelBuffBusyIndex ==
                    dwDelBuffSize) // wrap-around if at end of buffer
                    dwDelBuffBusyIndex =
                        0;

                LeaveCriticalSection(&DelBuffCriticalSection);

                pDeliveryData->w_id =
                    delivery.w_id;
                pDeliveryData->o_carrier_id =
                    delivery.o_carrier_id;

                txnDeliRec.w_id =
                    pDeliveryData->w_id;
                txnDeliRec.o_carrier_id =
                    pDeliveryData->o_carrier_id;
                txnDeliRec.TxnStartT0 =
                    Get64BitTime(&delivery.queue);
            }
        }
        catch (...)
        {
            WriteMessageToEventLog(TEXT("Unhandled exception
caught in DeliveryWorkerThread."));
            goto ErrorExit;
        }
    }
}

```

```

        GetLocalTime( &trans_start );
        pTxn->Delivery();
        GetLocalTime( &trans_end );

        //log txn
        txnDeliRec.TxnStatus =

ERR_SUCCESS;

        for (int i=0; i<10; i++)
            txnDeliRec.o_id[i] =

        txnDeliRec.DeltaT4 =
        (int)(Get64BitTime(&trans_end) - txnDeliRec.TxnStartT0);
        txnDeliRec.DeltaTxnExec =
        (int)(Get64BitTime(&trans_end) - Get64BitTime(&trans_start));

        if (txnDelilog != NULL)

        txnDelilog->WriteToLog(&txnDeliRec);
    }
    catch (CBaseErr *e)
    {
        char szTmp[1024];
        sprintf( szTmp, "Error in Delivery Txn
thread. %s", e->ErrorText() );
        WriteMessageToEventLog( szTmp );

        // log the error txn
        txnDeliRec.TxnStatus = e->ErrorType();
        if (txnDelilog != NULL)

        txnDelilog->WriteToLog(&txnDeliRec);

        delete e;
    }
    catch (...)
    {
        // unhandled exception; shouldn't happen; not
much we can do...

        WriteMessageToEventLog(TEXT("Unhandled exception caught in
DeliveryWorkerThread.));
    }
}

ErrorExit:
    delete pTxn;
    _endthread();
}

/* FUNCTION: PostDeliveryInfo
*
* PURPOSE:      This function enters the delivery txn into the deferred
delivery buffer.
*
* RETURNS:      BOOL    FALSE    delivery information
posted successfully
*
*               TRUE
error cannot post delivery info
*/

BOOL PostDeliveryInfo(short w_id, short o_carrier_id)
{
    BOOL bError;

    EnterCriticalSection(&DelBuffCriticalSection);
    if (dwDelBuffFreeCount > 0)

```

```

    {
        bError = FALSE;
        (pDelBuff+dwDelBuffFreeIndex)->w_id
        = w_id;
        (pDelBuff+dwDelBuffFreeIndex)->o_carrier_id
        =
        GetLocalTime(&(pDelBuff+dwDelBuffFreeIndex)->queue);

        dwDelBuffFreeCount--;
        dwDelBuffFreeIndex++;
        if (dwDelBuffFreeIndex == dwDelBuffSize)
            dwDelBuffFreeIndex = 0;
        //
        wrap-around if at end of buffer
    }
    else
        // No free buffers. Return an error, which indicates that
the delivery buffer is full.
        // Most likely, the number of delivery worker threads
needs to be increased to keep up
        // with the txn rate.
        bError = TRUE;
        LeaveCriticalSection(&DelBuffCriticalSection);

        if (!bError)
            // increment worker semaphore to wake up a worker
thread
            ReleaseSemaphore( hWorkerSemaphore, 1, NULL );

        return bError;
    }

/* FUNCTION: ProcessQueryString
*
* PURPOSE:      This function extracts the relevent information out of the
http command passed in from
*               the browser.
*
* COMMENTS:     If this is the initial connection i.e. client is at welcome
screen then
*               there will not be a terminal id or
current form id. If this is the case
*               then the pTermid and pFormid
return values are undefined.
*/

void ProcessQueryString(EXTENSION_CONTROL_BLOCK *pECB, int
*pCmd, int *pFormId, int *pTermId, int *pSyncId)
{
    char *ptr = pECB->lpszQueryString;
    char szBuffer[25];
    int i;

    //allowable client command strings i.e. CMD=command
    static char *szCmds[] =
    {
        "Process", "..NewOrder..", "..Payment..", "..Delivery..",
"..Order-Status..", "..Stock-Level..",
        "..Exit..", "Submit", "Menu", "Clear", "Stats", ""
    };

    *pCmd = 0;
    *pTermId = 0;
    // default is the login screen

    // if no params (i.e., empty query string), then return login screen
    if (strlen(pECB->lpszQueryString) == 0)
        return;

```

```

        // parse FORMID, TERMID, and SYNCID
        *pFormId = GetIntKeyValue(&ptr, "FORMID", NO_ERR,
NO_ERR);
        *pTermId = GetIntKeyValue(&ptr, "TERMID", NO_ERR,
NO_ERR);
        *pSyncId = GetIntKeyValue(&ptr, "SYNCID", NO_ERR,
NO_ERR);

        // parse CMD
        GetKeyValue(&ptr, "CMD", szBuffer, sizeof(szBuffer),
ERR_COMMAND_UNDEFINED);

        // see which command it matches
        for(i=0; ; i++)
        {
            if (szCmds[i][0] == 0)
                // no more; no match; return error
                throw new CWEBCLNT_ERR(
ERR_COMMAND_UNDEFINED );
            if ( !strcmp(szCmds[i], szBuffer) )
            {
                *pCmd = i+1;
                break;
            }
        }
    }

/* FUNCTION: void WelcomeForm
*
*/

void WelcomeForm(EXTENSION_CONTROL_BLOCK *pECB, char
*szBuffer)
{
    char szTmp[1024];

    //welcome to tpc-c html form buffer, this is first form client sees.
    strcpy( szBuffer, "<HTML><HEAD><TITLE>TPC-C Web
Client</TITLE></HEAD><BODY>"

    "<B><BIG>Microsoft TPC-C Web Client (ver 4.20)</BIG></B> <BR> <BR>"
    "<font
face=\"Courier New\\\" color=\"blue\\\"><PRE>"
    " __DATE__ ", " __TIME__ " <BR>"
    " __FILE__ " (" __TIMESTAMP__ ") <BR>"
    "</PRE></font>"

    ACTION="\\tpcc.dll\\\" METHOD="\\GET\\>"
    "<FORM
    TYPE="\\hidden\\\" NAME="\\STATUSID\\\" VALUE="\\0\\>"
    "<INPUT
    TYPE="\\hidden\\\" NAME="\\ERROR\\\" VALUE="\\0\\>"
    "<INPUT
    TYPE="\\hidden\\\" NAME="\\FORMID\\\" VALUE="\\1\\>"
    "<INPUT
    TYPE="\\hidden\\\" NAME="\\TERMID\\\" VALUE="\\0\\>"
    "<INPUT
    TYPE="\\hidden\\\" NAME="\\SYNCID\\\" VALUE="\\0\\>"
    "<INPUT
    TYPE="\\hidden\\\" NAME="\\VERSION\\\" VALUE="\\\"
    WEBCLIENT_VERSION "\\>"

    );

    sprintf( szTmp, "Configuration Settings: <BR><font
face=\"Courier New\\\" color=\"blue\\\"><PRE>"

```

```

    "<B>%s</B><BR>"
    "<B>%s</B><BR>"
    "<B>%d</B><BR>"
    "<B>%d</B><BR>"
    "Deliveries = <B>%d</B><BR>"
    , szTxnMonNames[Reg.eTxnMon],
    szDBNames[Reg.eDB_Protocol],
    Reg.dwMaxConnections,
    dwNumDeliveryThreads, dwDelBuffSize );
    strcat( szBuffer, szTmp);

    if (Reg.eTxnMon == COM)
    {
        sprintf( szTmp, "COM Single Pool =
<B>%s</B><BR>",
        Reg.bCOM_SinglePool ? "YES" : "NO" );
        strcat( szBuffer, szTmp);
    }
    strcat( szBuffer, "</PRE></font>");

    if (Reg.eTxnMon == None)
        // connection options may be specified when not using a
    txn monitor
        sprintf( szTmp, "Please enter your database options
for this connection:<BR>"
        "<font
face=\"Courier New\\\" color=\"blue\\\"><PRE>"
        "DB Server
= <INPUT NAME="\\db_server\\\" SIZE=20 VALUE="\\%s\\\"><BR>"
        "DB User
ID = <INPUT NAME="\\db_user\\\" SIZE=20 VALUE="\\%s\\\"><BR>"
        "DB
Password = <INPUT NAME="\\db_passwd\\\" SIZE=20
VALUE="\\%s\\\"><BR>"
        "DB Name
= <INPUT NAME="\\db_name\\\" SIZE=20 VALUE="\\%s\\\"><BR>"
        "</PRE></font>"
        , Reg.szDbServer, Reg.szDbUser,
    Reg.szDbPassword, Reg.szDbName );
    else
        // if using a txn monitor, connection options are
    determined from registry; can't
        // set per user. show options fyi
        sprintf( szTmp, "Database options which will be
used by the transaction monitor:<BR>"
        "<font
face=\"Courier New\\\" color=\"blue\\\"><PRE>"
        "DB Server
= <B>%s</B><BR>"
        "DB User
ID = <B>%s</B><BR>"
        "DB
Password = <B>%s</B><BR>"
        "DB Name
= <B>%s</B><BR>"
        "</PRE></font>"
        , Reg.szDbServer, Reg.szDbUser,
    Reg.szDbPassword, Reg.szDbName );
    strcat( szBuffer, szTmp);

```

```

        sprintf( szTmp,          "Please enter your Warehouse and District for
this session:<BR>"

                                "<font face=\"Courier

New\" color=\"blue\"><PRE>" );
        strcat( szBuffer, szTmp);
        strcat( szBuffer,      "Warehouse ID = <INPUT NAME=\"w_id\"
SIZE=4><BR>"

                                "District ID

= <INPUT NAME=\"d_id\" SIZE=2><BR>"

                                "<INPUT

TYPE=\"submit\" NAME=\"CMD\" VALUE=\"Submit\">"

                                "</FORM></BODY></HTML>");
    }

/* FUNCTION: SubmitCmd
*
* PURPOSE:      This function allocated a new terminal id in the Term
structure array.
*
*/

void SubmitCmd(EXTENSION_CONTROL_BLOCK *pECB, char *szBuffer)
{
    int          iNewTerm;
    char         *ptr = pECB->lpszQueryString;

    char         szVersion[32]    = { 0 };
    char         szServer[32]     = { 0 };
    char         szUser[32]       = "sa";
    char         szPassword[32]   = { 0 };
    char         szDatabase[32]   = "tpcc";

    // validate version field; the version field ensures that the RTE is
synchronized with the web client
    GetKeyValue(&ptr, "VERSION", szVersion, sizeof(szVersion),
ERR_VERSION_MISMATCH);
    if ( strcmp( szVersion, WEBCLIENT_VERSION ) )
        throw new CWEBCLNT_ERR(
ERR_VERSION_MISMATCH );

    if (Reg.eTxnMon == None)
    {
        // parse Server name
        GetKeyValue(&ptr, "db_server", szServer,
sizeof(szServer), ERR_NO_SERVER_SPECIFIED);
        // parse User name
        GetKeyValue(&ptr, "db_user", szUser, sizeof(szUser),
NO_ERR);
        // parse Password
        GetKeyValue(&ptr, "db_passwd", szPassword,
sizeof(szPassword), NO_ERR);
        // parse Database name
        GetKeyValue(&ptr, "db_name", szDatabase,
sizeof(szDatabase), NO_ERR);
    }

    // parse warehouse ID
    int w_id = GetIntKeyValue(&ptr, "w_id",
ERR_HTML_ILL_FORMED, ERR_W_ID_INVALID);
    if ( w_id < 1 )
        throw new CWEBCLNT_ERR( ERR_W_ID_INVALID

);

    // parse district ID

```

```

    int d_id = GetIntKeyValue(&ptr, "d_id",
ERR_HTML_ILL_FORMED, ERR_D_ID_INVALID);
    if ( d_id < 1 || d_id > 10 )
        throw new CWEBCLNT_ERR( ERR_D_ID_INVALID

);

    iNewTerm = TermAdd();

    Term.pClientData[iNewTerm].w_id = w_id;
    Term.pClientData[iNewTerm].d_id = d_id;

    try
    {
        if (Reg.eTxnMon == TUXEDO)
            Term.pClientData[iNewTerm].pTxn =
pCTPCC_TUXEDO_new();
        else if (Reg.eTxnMon == ENCINA)
            Term.pClientData[iNewTerm].pTxn =
pCTPCC_ENCINA_new();
        else if (Reg.eTxnMon == COM)
            Term.pClientData[iNewTerm].pTxn =
pCTPCC_COM_new( Reg.bCOM_SinglePool );
        else if (Reg.eDB_Protocol == ODBC)
            Term.pClientData[iNewTerm].pTxn =
pCTPCC_ODBC_new( szServer, szUser, szPassword, szMyComputerName,
szDatabase );
        else if (Reg.eDB_Protocol == DBLIB)
            Term.pClientData[iNewTerm].pTxn =
pCTPCC_DBLIB_new( szServer, szUser, szPassword, szMyComputerName,
szDatabase );
    }
    catch (...)
    {
        TermDelete(iNewTerm);
        throw; // pass exception upward
    }

    MakeMainMenuForm(iNewTerm,
Term.pClientData[iNewTerm].iSyncId, szBuffer);
}

/* FUNCTION: StatsCmd
*
* PURPOSE:      This function returns to the browser the total number of
active terminal ids.
*
*               This routine is for development/debugging
purposes.
*
*/

void StatsCmd(EXTENSION_CONTROL_BLOCK *pECB, char *szBuffer)
{
    int i;
    int iTot;

    EnterCriticalSection(&TermCriticalSection);

    iTot = 0;
    for(i=0; i<Term.iNumEntries; i++)
    {
        if (Term.pClientData[i].iNextFree == -1)
            iTot++;
    }

    LeaveCriticalSection(&TermCriticalSection);

    wsprintf( szBuffer,

```

```

        "<HTML><HEAD><TITLE>TPC-C Web
Client Stats</TITLE></HEAD>"
        "<BODY><B><BIG> Total Active
Connections: %d </BIG></B><BR></BODY></HTML>"
        , iTotal );
}

char *CWEBCLNT_ERR::ErrorText()
{
    static SERRORMSG errorMsgs[] =
    {
        {
            ERR_COMMAND_UNDEFINED,
            "Command undefined."
        },
        {
            ERR_D_ID_INVALID,
            "Invalid District ID Must be 1 to 10."
        },
        {
            ERR_DELIVERY_CARRIER_ID_RANGE,
            "Delivery Carrier ID out of range must be 1 - 10."
        },
        {
            ERR_DELIVERY_CARRIER_INVALID,
            "Delivery Carrier ID invalid must be numeric 1 - 10."
        },
        {
            ERR_DELIVERY_MISSING_OCD_KEY,
            "Delivery missing Carrier ID key \"OCD*\"."
        },
        {
            ERR_DELIVERY_THREAD_FAILED,
            "Could not start delivery worker thread."
        },
        {
            ERR_GETPROCADDR_FAILED,
            "Could not map proc in DLL. GetProcAddr
error. DLL="
        },
        {
            ERR_HTML_IL_ FORMED,
            "Required key field is missing from HTML string."
        },
        {
            ERR_INVALID_SYNC_CONNECTION,
            "Invalid Terminal Sync ID."
        },
        {
            ERR_INVALID_TERMID,
            "Invalid Terminal ID."
        },
        {
            ERR_LOADDLL_FAILED,
            "Load of DLL failed. DLL="
        },
        {
            ERR_MAX_CONNECTIONS_EXCEEDED,
            "No connections available. Max Connections is probably
too low."
        },
        {
            ERR_MISSING_REGISTRY_ENTRIES,
            "Required registry entries are missing. Rerun INSTALL to correct."
        },
        {
            ERR_NEWORDER_CUSTOMER_INVALID,
            "New Order customer id invalid data type, range = 1 to 3000."
        },
        {
            ERR_NEWORDER_CUSTOMER_KEY,
            "New Order missing Customer key \"CID*\"."
        },
        {
            ERR_NEWORDER_DISTRICT_INVALID,
            "New Order District ID Invalid range 1 - 10."
        },
        {
            ERR_NEWORDER_FORM_MISSING_DID,
            "New Order missing District key \"DID*\"."
        },
    }
}

```

```

        {
            ERR_NEWORDER_ITEMID_INVALID,
            "New Order Item Id is wrong data type, must be numeric."
        },
        {
            ERR_NEWORDER_ITEMID_RANGE,
            "New Order Item Id is out of range. Range = 1 to
999999."
        },
        {
            ERR_NEWORDER_ITEMID_WITHOUT_SUPPW,
            "New Order
Item_Id field entered without a corresponding Supp_W."
        },
        {
            ERR_NEWORDER_MISSING_IID_KEY,
            "New Order missing Item Id key \"IID*\"."
        },
        {
            ERR_NEWORDER_MISSING_QTY_KEY,
            "New Order Missing Qty key \"Qty##*\"."
        },
        {
            ERR_NEWORDER_MISSING_SUPPW_KEY,
            "New Order missing Supp_W key \"SP##*\"."
        },
        {
            ERR_NEWORDER_NOITEMS_ENTERED,
            "New Order No order lines entered."
        },
        {
            ERR_NEWORDER_QTY_INVALID,
            "New Order Qty invalid must be numeric range 1 - 99."
        },
        {
            ERR_NEWORDER_QTY_RANGE,
            "New Order Qty is out of range. Range = 1 to
99."
        },
        {
            ERR_NEWORDER_QTY_WITHOUT_SUPPW,
            "New Order Qty field entered without a corresponding Supp_W."
        },
        {
            ERR_NEWORDER_SUPPW_INVALID,
            "New Order Supp_W invalid data type must be numeric."
        },
        {
            ERR_NO_SERVER_SPECIFIED,
            "No Server name specified."
        },
    },
    {
        {
            ERR_ORDERSTATUS_CID_AND_CLT,
            "Order Status Only Customer ID or Last Name may be entered, not
both."
        },
        {
            ERR_ORDERSTATUS_CID_INVALID,
            "Order Status Customer ID invalid, range must be numeric 1 -
3000."
        },
        {
            ERR_ORDERSTATUS_CLT_RANGE,
            "Order Status Customer last name longer than 16
characters."
        },
        {
            ERR_ORDERSTATUS_DID_INVALID,
            "Order Status District invalid, value must be numeric 1 - 10."
        },
        {
            ERR_ORDERSTATUS_MISSING_CID_CLT,
            "Order
Status Either Customer ID or Last Name must be entered."
        },
        {
            ERR_ORDERSTATUS_MISSING_CID_KEY,
            "Order
Status missing Customer key \"CID*\"."
        },
        {
            ERR_ORDERSTATUS_MISSING_CLT_KEY,
            "Order
Status missing Customer Last Name key \"CLT*\"."
        },
        {
            ERR_ORDERSTATUS_MISSING_DID_KEY,
            "Order
Status missing District key \"DID*\"."
        },
    }
}

```

```

        {
            ERR_PAYMENT_CDI_INVALID,
            "Payment Customer district invalid must be numeric."
        },
        {
            ERR_PAYMENT_CID_AND_CLT,
            "Payment Only Customer ID or Last Name may be
entered, not both."
        },
        {
            ERR_PAYMENT_CUSTOMER_INVALID,
            "Payment Customer data type invalid, must be numeric."
        },
        {
            ERR_PAYMENT_CWI_INVALID,
            "Payment Customer Warehouse invalid, must be
numeric."
        },
        {
            ERR_PAYMENT_DISTRICT_INVALID,
            "Payment District ID is invalid, must be 1 - 10."
        },
        {
            ERR_PAYMENT_HAM_INVALID,
            "Payment Amount invalid data type must be numeric."
        },
        {
            ERR_PAYMENT_HAM_RANGE,
            "Payment Amount out of range, 0 - 9999.99."
        },
        {
            ERR_PAYMENT_LAST_NAME_TO_LONG,
            "Payment Customer last name longer than 16 characters."
        },
        {
            ERR_PAYMENT_MISSING_CDI_KEY,
            "Payment missing Customer district key \"CDI*\"."
        },
        {
            ERR_PAYMENT_MISSING_CID_CLT,
            "Payment Either Customer ID or Last Name must be entered."
        },
        {
            ERR_PAYMENT_MISSING_CID_KEY,
            "Payment missing Customer Key \"CID*\"."
        },
        {
            ERR_PAYMENT_MISSING_CLT_KEY,
            "Payment missing Customer Last Name key \"CLT*\"."
        },
        {
            ERR_PAYMENT_MISSING_CWI_KEY,
            "Payment missing Customer Warehouse key \"CWI*\"."
        },
        {
            ERR_PAYMENT_MISSING_DID_KEY,
            "Payment missing District Key \"DID*\"."
        },
        {
            ERR_PAYMENT_MISSING_HAM_KEY,
            "Payment missing Amount key \"HAM*\"."
        },
        {
            ERR_STOCKLEVEL_MISSING_THRESHOLD_KEY,
            "Stock Level; missing Threshold key \"TT*\"."
        },
        {
            ERR_STOCKLEVEL_THRESHOLD_INVALID,
            "Stock Level; Threshold value must be in the range = 1 - 99."
        },
        {
            ERR_STOCKLEVEL_THRESHOLD_RANGE,
            "Stock Level Threshold out of range, range must be 1 - 99."
        },
        {
            ERR_VERSION_MISMATCH,
            "Invalid version field. RTE and Web Client are probably
out of sync."
        },
        {
            ERR_W_ID_INVALID,
            "Invalid Warehouse ID."
        },
        {
            0,
            ""
        }
    }

```

```

    };

    char szTmp[256];
    int i = 0;
    while (TRUE)
    {
        if (errorMsgs[i].szMsg[0] == 0)
        {
            strcpy( szTmp, "Unknown error number." );
            break;
        }
        if (m_Error == errorMsgs[i].iError)
        {
            strcpy( szTmp, errorMsgs[i].szMsg );
            break;
        }
        i++;
    }

    if (m_szTextDetail)
        strcat( szTmp, m_szTextDetail );
    if (m_SystemErr)
        sprintf( szTmp+strlen(szTmp), " Error=%d",
m_SystemErr );

    m_szErrorText = new char[strlen(szTmp)+1];
    strcpy( m_szErrorText, szTmp );
    return m_szErrorText;
}

/* FUNCTION: GetKeyValue
*
* PURPOSE:      This function parses a http formatted string for specific
key values.
*
* ARGUMENTS:   char                *pQueryString
http string from client browser
*
*              char
*pKey          key value to look for
*              char
*pValue        character array into which to place key's value
*              int
iMax           maximum length of key value array.
*              WEBERROR
err            error value to throw
*
* RETURNS:     nothing.
*
* ERROR:       if (the pKey value is not found) then
if (err == 0)
return
(empty string)
else
throw
CWEBCLNT_ERR(err)
*
* COMMENTS:    http keys are formatted either KEY=value& or
KEY=value\0. This DLL formats
TPC-C input fields in such a
manner that the keys can be extracted in the
above manner.
*/

void GetKeyValue(char **pQueryString, char *pKey, char *pValue, int iMax,
WEBERROR err)
{
    char *ptr;

```

```

        if ( !(ptr=strstr(*pQueryString, pKey)) )
            goto ErrorExit;
        ptr += strlen(pKey);
        if ( *ptr != '=' )
            goto ErrorExit;
        ptr++;

        iMax--; // one position is for terminating null
        while( *ptr && *ptr != '&' && iMax )
        {
            *pValue++ = *ptr++;
            iMax--;
        }
        *pValue = 0; // terminating null

        *pQueryString = ptr;
        return;

ErrorExit:
    if (err != NO_ERR)
        throw new CWEBCLNT_ERR( err );
    *pValue = 0; // return empty result string
}

/* FUNCTION: GetIntKeyValue
 *
 * PURPOSE:      This function parses a http formatted string for a specific
 * key value.
 *
 * ARGUMENTS:   char                *pQueryString
 *               http string from client browser
 *
 *               char
 *               key value to look for
 * *pKey         WEBERROR
 *               error value to throw if key not found
 * NoKeyErr      WEBERROR
 *               error value to throw if value not numeric
 * NotIntErr
 *
 * RETURNS:      integer
 *
 * ERROR:        if (the pKey value is not found) then
 *               if (NoKeyErr !=
 * NO_ERR)
 *               throw
 * CWEBCLNT_ERR(err)
 *               else
 *               return 0
 *               else if (non-numeric char found)
 * then
 *               if (NotIntErr !=
 * NO_ERR) then
 *               throw
 * CWEBCLNT_ERR(err)
 *               else
 *               return 0
 *
 * COMMENTS:     http keys are formatted either KEY=value& or
 * KEY=value/0. This DLL formats
 *               TPC-C input fields in such a
 * manner that the keys can be extracted in the
 *               above manner.
 */

int GetIntKeyValue(char **pQueryString, char *pKey, WEBERROR
NoKeyErr, WEBERROR NotIntErr)
{
    char *ptr0;

```

```

    char *ptr;

    if ( !(ptr=strstr(*pQueryString, pKey)) )
        goto ErrorNoKey;
    ptr += strlen(pKey);
    if ( *ptr != '=' )
        goto ErrorNoKey;
    ptr++;

    ptr0 = ptr; // remember starting point
    // scan string until a terminator (null or &) or a non-digit
    while( *ptr && *ptr != '&' && isdigit(*ptr) )
        ptr++;

    // make sure we stopped scanning for the right reason
    if ((ptr0 == ptr) || (*ptr && *ptr != '&'))
    {
        if (NotIntErr != NO_ERR)
            throw new CWEBCLNT_ERR( NoKeyErr );
        return 0;
    }

    *pQueryString = ptr;
    return atoi(ptr0);

ErrorNoKey:
    if (NoKeyErr != NO_ERR)
        throw new CWEBCLNT_ERR( NoKeyErr );
    return 0;
}

/* FUNCTION: TermInit
 *
 * PURPOSE:      This function initializes the client terminal structure; it is
 * called when the TPC.C.DLL
 *               is first loaded by the inet service.
 *
 */

void TermInit(void)
{
    EnterCriticalSection(&TermCriticalSection);

    Term.iMasterSyncId = 1;
    Term.iNumEntries = Reg.dwMaxConnections+1;

    Term.pClientData = NULL;
    Term.pClientData =
(PCLIENTDATA)malloc(Term.iNumEntries * sizeof(CLIENTDATA));
    if (Term.pClientData == NULL)
    {
        LeaveCriticalSection(&TermCriticalSection);
        throw new CWEBCLNT_ERR(
ERR_MEM_ALLOC_FAILED );
    }

    ZeroMemory( Term.pClientData, Term.iNumEntries *
sizeof(CLIENTDATA) );

    Term.iFreeList = Term.iNumEntries-1;
    // build free list
    // note: Term.pClientData[0].iNextFree gets set to -1, which marks it
as "in use".
    // This is intentional, as the zero entry is used as an anchor and
never
    // allocated as an actual terminal.
    for(int i=0; i<Term.iNumEntries; i++)
        Term.pClientData[i].iNextFree = i-1;

```

```

        LeaveCriticalSection(&TermCriticalSection);
    }

/* FUNCTION: TermDeleteAll
 *
 * PURPOSE:      This function frees allocated resources associated with
the terminal structure.
 *
 * ARGUMENTS:    none
 *
 * RETURNS:      None
 *
 * COMMENTS:     This function is called only when the inet service unloads
the TPCC.DLL
 *
 */

void TermDeleteAll(void)
{
    EnterCriticalSection(&TermCriticalSection);

    for(int i=1; i<Term.iNumEntries; i++)
    {
        if (Term.pClientData[i].iNextFree == -1)
            delete Term.pClientData[i].pTxn;
    }

    Term.iFreeList = 0;
    Term.iNumEntries = 0;
    if (Term.pClientData)
        free(Term.pClientData);
    Term.pClientData = NULL;

    LeaveCriticalSection(&TermCriticalSection);
}

/* FUNCTION: TermAdd
 *
 * PURPOSE:      This function assigns a terminal id which is used to
identify a client browser.
 *
 * RETURNS:      int          assigned terminal id
 *
 */

int TermAdd(void)
{
    DWORD i;
    int iNewTerm, iTickCount;

    if (Term.iNumEntries == 0)
        return -1;

    EnterCriticalSection(&TermCriticalSection);
    if (Term.iFreeList != 0)
    {
        // position is available
        iNewTerm = Term.iFreeList;
        Term.iFreeList =
Term.pClientData[iNewTerm].iNextFree;
        Term.pClientData[iNewTerm].iNextFree = -1; //
indicates this position is in use
    }
    else
    {
        // no open slots, so find the slot that hasn't been used in
the longest time and reuse it
        for(iNewTerm=1, i=1, iTickCount=0x7FFFFFFF;
i<Reg.dwMaxConnections; i++)

```

```

        {
            if (iTickCount >
Term.pClientData[i].iTickCount)
            {
                iTickCount =
Term.pClientData[i].iTickCount;
                iNewTerm = i;
            }
            // if oldest term is less than one minute old, it probably
means that more connections
            // are being attempted than were specified as "Max
Connections" at install. In this case,
            // do not bump existing connection; instead, return error
to requestor.
            if ((GetTickCount() - iTickCount) < 60000)
            {
                LeaveCriticalSection(&TermCriticalSection);
                throw new CWEBCLNT_ERR(
ERR_MAX_CONNECTIONS_EXCEEDED );
            }

            Term.pClientData[iNewTerm].iTickCount = GetTickCount();
            Term.pClientData[iNewTerm].iSyncId = Term.iMasterSyncId++;
            Term.pClientData[iNewTerm].pTxn = NULL;

            LeaveCriticalSection(&TermCriticalSection);
            return iNewTerm;
        }
    }

/* FUNCTION: TermDelete
 *
 * PURPOSE:      This function makes a terminal entry in the Term array
available for reuse.
 *
 * ARGUMENTS:    int
id          Terminal id of client exiting
 *
 */

void TermDelete(int id)
{
    if ( id > 0 && id < Term.iNumEntries )
    {
        delete Term.pClientData[id].pTxn;

        // put onto free list
        EnterCriticalSection(&TermCriticalSection);

        Term.pClientData[id].iNextFree = Term.iFreeList;
        Term.iFreeList = id;

        LeaveCriticalSection(&TermCriticalSection);
    }
}

/* FUNCTION: MakeErrorForm
 */

void ErrorForm(EXTENSION_CONTROL_BLOCK *pECB, int iType, int
iErrorNum, int iTermId, int iSyncId, char *szErrorText, char *szBuffer )
{
    wsprintf(szBuffer,
"<HTML><HEAD><TITLE>TPC-C
Error</TITLE></HEAD><BODY>"
"<FORM ACTION=\"tpcc.dll\" METHOD=\"GET\">"

```

```

VALUE=\\%d\\>"
"<INPUT TYPE=\\hidden\\ NAME=\\STATUSID\\
VALUE=\\%d\\>"
"<INPUT TYPE=\\hidden\\ NAME=\\ERROR\\
VALUE=\\%d\\>"
"<INPUT TYPE=\\hidden\\ NAME=\\FORMID\\
VALUE=\\%d\\>"
"<INPUT TYPE=\\hidden\\ NAME=\\TERMINID\\
VALUE=\\%d\\>"
"<INPUT TYPE=\\hidden\\ NAME=\\SYNCID\\
VALUE=\\%d\\>"
"<BOLD>An Error Occurred</BOLD><BR><BR>"
"%s"
"<BR><BR><HR>"
"<INPUT TYPE=\\submit\\ NAME=\\CMD\\
VALUE=\\..NewOrder..\\>"
"<INPUT TYPE=\\submit\\ NAME=\\CMD\\
VALUE=\\..Payment..\\>"
"<INPUT TYPE=\\submit\\ NAME=\\CMD\\
VALUE=\\..Delivery..\\>"
"<INPUT TYPE=\\submit\\ NAME=\\CMD\\
VALUE=\\..Order-Status..\\>"
"<INPUT TYPE=\\submit\\ NAME=\\CMD\\
VALUE=\\..Stock-Level..\\>"
"<INPUT TYPE=\\submit\\ NAME=\\CMD\\
VALUE=\\..Exit..\\>"
"</FORM></BODY></HTML>"
,iType, iErrorNum, MAIN_MENU_FORM, iTermId,
iSyncId, szErrorText );
}

/* FUNCTION: MakeMainMenuForm
*/

void MakeMainMenuForm(int iTermId, int iSyncId, char *szForm)
{
    wsprintf(szForm,
        "<HTML><HEAD><TITLE>TPC-C Main
Menu</TITLE></HEAD><BODY>"
        "Select Desired Transaction.<BR><HR>"
        "<FORM ACTION=\\tpcc.dll\\ METHOD=\\GET\\>"
        "<INPUT TYPE=\\hidden\\ NAME=\\STATUSID\\
VALUE=\\0\\>"
        "<INPUT TYPE=\\hidden\\ NAME=\\ERROR\\
VALUE=\\0\\>"
        "<INPUT TYPE=\\hidden\\ NAME=\\FORMID\\
VALUE=\\%d\\>"
        "<INPUT TYPE=\\hidden\\ NAME=\\TERMINID\\
VALUE=\\%d\\>"
        "<INPUT TYPE=\\hidden\\ NAME=\\SYNCID\\
VALUE=\\%d\\>"
        "<INPUT TYPE=\\submit\\ NAME=\\CMD\\
VALUE=\\..NewOrder..\\>"
        "<INPUT TYPE=\\submit\\ NAME=\\CMD\\
VALUE=\\..Payment..\\>"
        "<INPUT TYPE=\\submit\\ NAME=\\CMD\\
VALUE=\\..Delivery..\\>"
        "<INPUT TYPE=\\submit\\ NAME=\\CMD\\
VALUE=\\..Order-Status..\\>"
        "<INPUT TYPE=\\submit\\ NAME=\\CMD\\
VALUE=\\..Stock-Level..\\>"
        "<INPUT TYPE=\\submit\\ NAME=\\CMD\\
VALUE=\\..Exit..\\>"
        "</FORM></BODY></HTML>"
        , MAIN_MENU_FORM, iTermId, iSyncId);
}

/* FUNCTION: MakeStockLevelForm
*/

```

```

* PURPOSE:      This function constructs the Stock Level HTML page.
*
* COMMENTS:     The internal client buffer is created when the terminal id
is assigned and should not
*                                     be freed except when the client
terminal id is no longer needed.
*/

void MakeStockLevelForm(int iTermId, STOCK_LEVEL_DATA
*pStockLevelData, BOOL bInput, char *szForm)
{
    int      c;

    c = wsprintf(szForm,
        "<HTML><HEAD><TITLE>TPC-C Stock
Level</TITLE></HEAD><FORM ACTION=\\tpcc.dll\\
METHOD=\\GET\\>"
        "<INPUT TYPE=\\hidden\\ NAME=\\STATUSID\\
VALUE=\\0\\>"
        "<INPUT TYPE=\\hidden\\ NAME=\\ERROR\\
VALUE=\\0\\>"
        "<INPUT TYPE=\\hidden\\ NAME=\\FORMID\\
VALUE=\\%d\\>"
        "<INPUT TYPE=\\hidden\\ NAME=\\TERMINID\\
VALUE=\\%d\\>"
        "<INPUT TYPE=\\hidden\\ NAME=\\SYNCID\\
VALUE=\\%d\\>"
        "<PRE><font face=\\Courier\\>
Stock-Level<BR>"
        "Warehouse: %4.4d District: %2.2d<BR> <BR>",
        STOCK_LEVEL_FORM, iTermId,
        Term.pClientData[iTermId].iSyncId,
        Term.pClientData[iTermId].w_id,
        Term.pClientData[iTermId].d_id);

    if ( bInput )
    {
        strcpy(szForm+c,
            "Stock Level Threshold: <INPUT
NAME=\\TT*\\ SIZE=2><BR> <BR>"
            "low stock:  </font><BR> <BR> <BR>
<BR> <BR> <BR> <BR> <BR> <BR> <BR>"
            "<BR> <BR> <BR> <BR> <BR> <BR>
<BR></PRE><HR>"
            "<INPUT TYPE=\\submit\\ NAME=\\CMD\\
VALUE=\\Process\\>"
            "<INPUT TYPE=\\submit\\ NAME=\\CMD\\
VALUE=\\Menu\\>"
            "</FORM></HTML>" );
    }
    else
    {
        wsprintf(szForm+c,
            "Stock Level Threshold: %2.2d<BR> <BR>"
            "low stock: %3.3d</font> <BR> <BR> <BR>
<BR> <BR> <BR> <BR> <BR> <BR> <BR>"
            "<BR> <BR> <BR> <BR> <BR> <BR>
<BR> <BR></PRE><HR>"
            "<INPUT TYPE=\\submit\\ NAME=\\CMD\\
VALUE=\\..NewOrder..\\>"
            "<INPUT TYPE=\\submit\\ NAME=\\CMD\\
VALUE=\\..Payment..\\>"
            "<INPUT TYPE=\\submit\\ NAME=\\CMD\\
VALUE=\\..Delivery..\\>"
            "<INPUT TYPE=\\submit\\ NAME=\\CMD\\
VALUE=\\..Order-Status..\\>"
            "<INPUT TYPE=\\submit\\ NAME=\\CMD\\
VALUE=\\..Stock-Level..\\>"

```

```

        " <INPUT TYPE=\\"submit\\" NAME=\\"CMD\\"
VALUE=\\"..Exit..\\>"
        "</FORM></HTML>"
        , pStockLevelData->threshold,
pStockLevelData->low_stock);
    }
}

/* FUNCTION: MakeNewOrderForm
*
* COMMENTS:    The internal client buffer is created when the terminal id
is assigned and should not
*              be freed except when the client
terminal id is no longer needed.
*/

void MakeNewOrderForm(int iTermId, NEW_ORDER_DATA
*pNewOrderData, BOOL bInput, char *szForm)
{
    int            i, c;
    BOOL           bValid;
    static char szBR[] = " <BR> <BR> <BR> <BR> <BR> <BR>
<BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR>";

    if (!bInput)
        assert( pNewOrderData->exec_status_code == eOK ||
pNewOrderData->exec_status_code == eInvalidItem );

    bValid = (bInput || (pNewOrderData->exec_status_code == eOK));

    c = sprintf(szForm,
        "<HTML><HEAD><TITLE>TPC-C New
Order</TITLE></HEAD><BODY>"
        "<FORM ACTION=\\"tpcc.dll\\" METHOD=\\"GET\\">"
        "<INPUT TYPE=\\"hidden\\" NAME=\\"STATUSID\\"
VALUE=\\"%d\\">"
        "<INPUT TYPE=\\"hidden\\" NAME=\\"ERROR\\"
VALUE=\\"0\\">"
        "<INPUT TYPE=\\"hidden\\" NAME=\\"FORMID\\"
VALUE=\\"%d\\">"
        "<INPUT TYPE=\\"hidden\\" NAME=\\"TERMINID\\"
VALUE=\\"%d\\">"
        "<INPUT TYPE=\\"hidden\\" NAME=\\"SYNCID\\"
VALUE=\\"%d\\">"
        "<PRE><font face=\\"Courier\\">
New Order<BR>"
        , bValid ? 0 : ERR_BAD_ITEM_ID,
NEW_ORDER_FORM, iTermId, Term.pClientData[iTermId].iSyncId);

    if ( bInput )
    {
        c += sprintf(szForm+c, "Warehouse: %4.4d ",
Term.pClientData[iTermId].w_id );

        strcpy( szForm+c,
            "District: <INPUT NAME=\\"DID*\\"
SIZE=1>
            Date:<BR>"
            "Customer: <INPUT NAME=\\"CID*\\"
SIZE=4> Name:
            Credit:  %Disc:<BR>"
            "Order Number:
            Number of Lines:
W_tax:    D_tax:<BR> <BR>"
            " Supp_W Item_Id Item Name
            Qty
Stock B/G Price Amount<BR>"
            " <INPUT NAME=\\"SP00*\\" SIZE=4>
<INPUT NAME=\\"IID00*\\" SIZE=6>
            <INPUT
NAME=\\"Qty00*\\" SIZE=1><BR>"

```

```

        " <INPUT NAME=\\"SP01*\\" SIZE=4>
<INPUT NAME=\\"IID01*\\" SIZE=6>
        <INPUT
NAME=\\"Qty01*\\" SIZE=1><BR>"
        " <INPUT NAME=\\"SP02*\\" SIZE=4>
<INPUT NAME=\\"IID02*\\" SIZE=6>
        <INPUT
NAME=\\"Qty02*\\" SIZE=1><BR>"
        " <INPUT NAME=\\"SP03*\\" SIZE=4>
<INPUT NAME=\\"IID03*\\" SIZE=6>
        <INPUT
NAME=\\"Qty03*\\" SIZE=1><BR>"
        " <INPUT NAME=\\"SP04*\\" SIZE=4>
<INPUT NAME=\\"IID04*\\" SIZE=6>
        <INPUT
NAME=\\"Qty04*\\" SIZE=1><BR>"
        " <INPUT NAME=\\"SP05*\\" SIZE=4>
<INPUT NAME=\\"IID05*\\" SIZE=6>
        <INPUT
NAME=\\"Qty05*\\" SIZE=1><BR>"
        " <INPUT NAME=\\"SP06*\\" SIZE=4>
<INPUT NAME=\\"IID06*\\" SIZE=6>
        <INPUT
NAME=\\"Qty06*\\" SIZE=1><BR>"
        " <INPUT NAME=\\"SP07*\\" SIZE=4>
<INPUT NAME=\\"IID07*\\" SIZE=6>
        <INPUT
NAME=\\"Qty07*\\" SIZE=1><BR>"
        " <INPUT NAME=\\"SP08*\\" SIZE=4>
<INPUT NAME=\\"IID08*\\" SIZE=6>
        <INPUT
NAME=\\"Qty08*\\" SIZE=1><BR>"
        " <INPUT NAME=\\"SP09*\\" SIZE=4>
<INPUT NAME=\\"IID09*\\" SIZE=6>
        <INPUT
NAME=\\"Qty09*\\" SIZE=1><BR>"
        " <INPUT NAME=\\"SP10*\\" SIZE=4>
<INPUT NAME=\\"IID10*\\" SIZE=6>
        <INPUT
NAME=\\"Qty10*\\" SIZE=1><BR>"
        " <INPUT NAME=\\"SP11*\\" SIZE=4>
<INPUT NAME=\\"IID11*\\" SIZE=6>
        <INPUT
NAME=\\"Qty11*\\" SIZE=1><BR>"
        " <INPUT NAME=\\"SP12*\\" SIZE=4>
<INPUT NAME=\\"IID12*\\" SIZE=6>
        <INPUT
NAME=\\"Qty12*\\" SIZE=1><BR>"
        " <INPUT NAME=\\"SP13*\\" SIZE=4>
<INPUT NAME=\\"IID13*\\" SIZE=6>
        <INPUT
NAME=\\"Qty13*\\" SIZE=1><BR>"
        " <INPUT NAME=\\"SP14*\\" SIZE=4>
<INPUT NAME=\\"IID14*\\" SIZE=6>
        <INPUT
NAME=\\"Qty14*\\" SIZE=1><BR>"
        "Execution Status:
Total:<BR>"
        "</font></PRE><HR>"
        "<INPUT TYPE=\\"submit\\" NAME=\\"CMD\\"
VALUE=\\"Process\\>"
        "<INPUT TYPE=\\"submit\\" NAME=\\"CMD\\"
VALUE=\\"Menu\\>"
        "</FORM></HTML>"
    );
    }
    else
    {
        c += sprintf(szForm+c, "Warehouse: %4.4d District:
%2.2d
        Date: ",
        pNewOrderData->w_id,
        pNewOrderData->d_id);

        if ( bValid )
        {
            c += sprintf(szForm+c,
                "%2.2d-%2.2d-%4.4d %2.2d:%2.2d:%2.2d",
                pNewOrderData->o_entry_d.day,
                pNewOrderData->o_entry_d.month,
                pNewOrderData->o_entry_d.year,
                pNewOrderData->o_entry_d.hour,

```

```

pNewOrderData->o_entry_d.minute,
pNewOrderData->o_entry_d.second);
    }

    c += wsprintf(szForm+c, "<BR>Customer: %4.4d
Name: %-16s Credit: %2s ",
pNewOrderData->c_id,
pNewOrderData->c_last, pNewOrderData->c_credit);

    if ( bValid )
    {
        c += sprintf(szForm+c,
"%5.2f <BR>"
"Order
Number: %8.8d Number of Lines: %2.2d W_tax: %5.2f D_tax: %5.2f
<BR> <BR>"
" Supp_W
Item_Id Item Name Qty Stock B/G Price Amount<BR>",
100.0*pNewOrderData->c_discount,
pNewOrderData->o_id,
pNewOrderData->o_ol_cnt,
100.0 * pNewOrderData->w_tax,
100.0 * pNewOrderData->d_tax);

        for(i=0; i<pNewOrderData->o_ol_cnt; i++)
        {
            c += sprintf(szForm+c, " %4.4d
%6.6d %-24s %2.2d %3.3d %1.1s $%6.2f $%7.2f <BR>",
pNewOrderData->OL[i].ol_supply_w_id,
pNewOrderData->OL[i].ol_i_id,
pNewOrderData->OL[i].ol_i_name,
pNewOrderData->OL[i].ol_quantity,
pNewOrderData->OL[i].ol_stock,
pNewOrderData->OL[i].ol_brand_generic,
pNewOrderData->OL[i].ol_i_price,
pNewOrderData->OL[i].ol_amount );
        }
        else
        {
            c += wsprintf(szForm+c,
"%Disc:<BR>"
"Order Number: %8.8d Number
of Lines: W_tax: D_tax:<BR> <BR>"
" Supp_W Item_Id Item Name
Qty Stock B/G Price Amount<BR>"
, pNewOrderData->o_id);

            i = 0;
        }

        strncpy( szForm+c, szBR, (15-i)*5 );
        c += (15-i)*5;

        if ( bValid )

```

```

Transaction committed.
        c += sprintf(szForm+c, "Execution Status:
Total: %8.2f ",
pNewOrderData->total_amount);
    else
        c += wsprintf(szForm+c, "Execution Status:
Total:");

    strcpy(szForm+c,
" <BR></font></PRE><HR>"
"<INPUT TYPE=\\"submit\\" NAME=\\"CMD\\"
VALUE=\\"..NewOrder..\\>"
"<INPUT TYPE=\\"submit\\" NAME=\\"CMD\\"
VALUE=\\"..Payment..\\>"
"<INPUT TYPE=\\"submit\\" NAME=\\"CMD\\"
VALUE=\\"..Delivery..\\>"
"<INPUT TYPE=\\"submit\\" NAME=\\"CMD\\"
VALUE=\\"..Order-Status..\\>"
"<INPUT TYPE=\\"submit\\" NAME=\\"CMD\\"
VALUE=\\"..Stock-Level..\\>"
"<INPUT TYPE=\\"submit\\" NAME=\\"CMD\\"
VALUE=\\"..Exit..\\>"
"</FORM></HTML>"
);
    }
}

/* FUNCTION: MakePaymentForm
*
* COMMENTS: The internal client buffer is created when the terminal id
is assigned and should not
* be freed except when the client
terminal id is no longer needed.
*/

void MakePaymentForm(int iTermId, PAYMENT_DATA *pPaymentData,
BOOL blnput, char *szForm)
{
    int c;

    c = wsprintf(szForm,
"<HTML><HEAD><TITLE>TPC-C
Payment</TITLE></HEAD><BODY>"
"<FORM ACTION=\\"tpcc.dll\\" METHOD=\\"GET\\">"
"<INPUT TYPE=\\"hidden\\" NAME=\\"STATUSID\\"
VALUE=\\"0\\">"
"<INPUT TYPE=\\"hidden\\" NAME=\\"ERROR\\"
VALUE=\\"0\\">"
"<INPUT TYPE=\\"hidden\\" NAME=\\"FORMID\\"
VALUE=\\"%d\\">"
"<INPUT TYPE=\\"hidden\\" NAME=\\"TERMINID\\"
VALUE=\\"%d\\">"
"<INPUT TYPE=\\"hidden\\" NAME=\\"SYNCDID\\"
VALUE=\\"%d\\">"
"<PRE><font face=\\"Courier\\">
Payment<BR>"
"Date: "
, PAYMENT_FORM, iTermId,
Term.pClientData[iTermId].iSyncdid);

    if ( !blnput )
    {
        c += wsprintf(szForm+c, "%2.2d-%2.2d-%4.4d
%2.2d:%2.2d:%2.2d",
pPaymentData->h_date.day,
pPaymentData->h_date.month,
pPaymentData->h_date.year,
pPaymentData->h_date.hour,
pPaymentData->h_date.minute,

```

```

        pPaymentData->h_date.second);
    }

    if ( bInput )
    {
        c += sprintf(szForm+c,
            "<BR> <BR>Warehouse: %4.4d"
            " District: <INPUT
NAME=\"DID*\" SIZE=1><BR> <BR> <BR> <BR> <BR>"
            "Customer: <INPUT NAME=\"CID*\"
SIZE=4>"
            "Cust-Warehouse: <INPUT NAME=\"CWI*\"
SIZE=4> "
            "Cust-District: <INPUT NAME=\"CDI*\"
SIZE=1><BR>"
            "Name: <INPUT
            Since:<BR>"
            " Credit:<BR>"
            " Disc:<BR>"
            " Phone:<BR>"
            "<BR>"
            "Amount Paid: $<INPUT
NAME=\"HAM*\" SIZE=7> New Cust-Balance:<BR>"
            "Credit Limit:<BR> <BR>Cust-Data: <BR>
<BR> <BR> <BR> <BR></font></PRE><HR>"
            "<INPUT TYPE=\"submit\" NAME=\"CMD\""
            VALUE=\"Process\"><INPUT TYPE=\"submit\" NAME=\"CMD\""
            VALUE=\"Menu\">"
            "</BODY></FORM></HTML>"
            , Term.pClientData[iTermId].w_id);
    }
    else
    {
        c += sprintf(szForm+c,
            "<BR> <BR>Warehouse: %4.4d
            District: %2.2d<BR>"
            "%-20s %-20s<BR>"
            "%-20s %-20s<BR>"
            "%-20s %-2s %-5.5s-%4.4s %-20s %-2s
            <BR> <BR>"
            "Customer: %4.4d Cust-Warehouse: %4.4d
            Cust-District: %2.2d<BR>"
            "Name: %-16s %-2s %-16s Since:
            %-20s Credit: %-2s<BR>"
            , Term.pClientData[iTermId].w_id,
            pPaymentData->w_street_1,
            pPaymentData->w_street_2,
            pPaymentData->w_city,
            pPaymentData->w_state, pPaymentData->w_zip, pPaymentData->w_zip+5,
            pPaymentData->d_city,
            pPaymentData->d_state, pPaymentData->d_zip, pPaymentData->d_zip+5,
            pPaymentData->c_id,
            pPaymentData->c_d_id,
            pPaymentData->c_first,
            pPaymentData->c_middle, pPaymentData->c_last,
            pPaymentData->c_since.day,
            pPaymentData->c_since.month, pPaymentData->c_since.year,
            pPaymentData->c_street_1,
            pPaymentData->c_credit
        );

        c += sprintf(szForm+c,

```

```

            " %-20s %%Disc:
            %5.2f<BR>",
            pPaymentData->c_street_2,
            100.0*pPaymentData->c_discount);

        c += sprintf(szForm+c,
            " %-20s %-2s %-5.5s-%4.4s Phone:
            %6.6s-%3.3s-%3.3s-%4.4s<BR> <BR>",
            pPaymentData->c_city,
            pPaymentData->c_state, pPaymentData->c_zip, pPaymentData->c_zip+5,
            pPaymentData->c_phone,
            pPaymentData->c_phone+6, pPaymentData->c_phone+9,
            pPaymentData->c_phone+12 );

        c += sprintf(szForm+c,
            "Amount Paid: $%7.2f New
            Cust-Balance: $%14.2f<BR>"
            "Credit Limit: $%13.2f<BR> <BR>"
            , pPaymentData->h_amount,
            pPaymentData->c_balance,
            pPaymentData->c_credit_lim
        );

        if ( pPaymentData->c_credit[0] == 'B' &&
            pPaymentData->c_credit[1] == 'C' )
            c += sprintf(szForm+c,
                "Cust-Data:
                %-50.50s<BR> %-50.50s<BR> %-50.50s<BR>
                %-50.50s<BR>",
                pPaymentData->c_data,
                pPaymentData->c_data+50, pPaymentData->c_data+100,
                pPaymentData->c_data+150 );
            else
                strcpy(szForm+c, "Cust-Data: <BR> <BR>
                <BR> <BR>");

        strcat(szForm, " <BR></font></PRE><HR>"
            "<INPUT
TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..NewOrder..\">"
            "<INPUT
TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Payment..\">"
            "<INPUT
TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Delivery..\">"
            "<INPUT
TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Order-Status..\">"
            "<INPUT
TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Stock-Level..\">"
            "<INPUT
TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Exit..\">"
            "</BODY></FORM></HTML>");
    }
}

/* FUNCTION: MakeOrderStatusForm
 *
 * COMMENTS: The internal client buffer is created when the terminal id
 * is assigned and should not be freed except when the client
 * terminal id is no longer needed.
 */

void MakeOrderStatusForm(int iTermId, ORDER_STATUS_DATA
 *pOrderStatusData, BOOL bInput, char *szForm)
{
    int i, c;

```

```

    else
    {
        c += sprintf(szForm+c,
            "District: %2.2d<BR>"
            "Customer: %4.4d  Name: %-16s %-2s\n",
            pOrderStatusData->d_id,
            pOrderStatusData->c_first,
            pOrderStatusData->c_middle, pOrderStatusData->c_last);

        c += sprintf(szForm+c, "Cust-Balance: $%9.2f<BR>"
            "<BR>",
            pOrderStatusData->c_balance);

        c += sprintf(szForm+c,
            "Order-Number: %8.8d  Entry-Date:
            %2.2d-%2.2d-%4.4d %2.2d:%2.2d:%2.2d  Carrier-Number: %2.2d<BR>"
            "Supply-W  Item-Id  Qty  Amount\n",
            pOrderStatusData->o_id,
            pOrderStatusData->o_entry_d.day,
            pOrderStatusData->o_entry_d.month,
            pOrderStatusData->o_entry_d.year,
            pOrderStatusData->o_entry_d.hour,
            pOrderStatusData->o_entry_d.minute,
            Delivery-Date<BR>");
    }
}

```

```

                                pOrderStatusData->o_entry_d.second,
                                pOrderStatusData->o_carrier_id);

                                for(i=0; i< pOrderStatusData->o_ol_cnt; i++)
                                {
                                        c += sprintf(szForm+c, " %4.4d %6.6d
%2.2d $%8.2f %2.2d-%2.2d-%4.4d<BR>",
                                pOrderStatusData->OL[i].ol_supply_w_id,
                                        pOrderStatusData->OL[i].ol_i_id,
                                pOrderStatusData->OL[i].ol_quantity,
                                pOrderStatusData->OL[i].ol_amount,
                                pOrderStatusData->OL[i].ol_delivery_d.day,
                                pOrderStatusData->OL[i].ol_delivery_d.month,
                                pOrderStatusData->OL[i].ol_delivery_d.year);
                                }

                                strncpy( szForm+c, szBR, (15-i)*5 );
                                c += (15-i)*5;

                                strcpy(szForm+c,
                                "</font></PRE><HR><INPUT
TYPE=\"submit\" NAME=\"\"CMD\"\" VALUE=\"\"..NewOrder..\">\"
                                \"<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"\"..Payment..\">\"
                                \"<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"\"..Delivery..\">\"
                                \"<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"\"..Order-Status..\">\"
                                \"<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"\"..Stock-Level..\">\"
                                \"<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"\"..Exit..\">\"
                                \"</BODY></FORM></HTML>\" );

                                }
}

```

```

/* FUNCTION: MakeDeliveryForm
*
* COMMENTS:      The internal client buffer is created when the terminal id
is assigned and should not
*
*                  be freed except when the client
terminal id is no longer needed.
*/

```

```
void MakeDeliveryForm(int iTermId, DELIVERY_DATA *pDeliveryData,
    BOOL bInput, char *szForm)
```

```

int      c;

c = sprintf(szForm,
            "<HTML><HEAD><TITLE>TPC-C
Delivery</TITLE></HEAD><BODY>"
            "<FORM ACTION=\"tpcc.dll\" METHOD=\"GET\">"
            "<INPUT TYPE=\"hidden\" NAME=\"STATUSID\"
VALUE=\"%d\">"
            "<INPUT TYPE=\"hidden\" NAME=\"ERROR\"
VALUE=\"%0\">"
            "<INPUT TYPE=\"hidden\" NAME=\"FORMID\"
VALUE=\"%d\">"
            "<INPUT TYPE=\"hidden\" NAME=\"TERMINID\"
VALUE=\"%d\">"

```

```

        VALUE="%"d\">"
        "<PRE><font face='Courier'>"
        Delivery<BR>"
        "Warehouse: %4.4d<BR> <BR>",
        (!bInput && (pDeliveryData->exec_status_code !=
        eOK)) ? ERR_TYPE_DELIVERY_POST : 0,
        DELIVERY_FORM, iTermId,
        Term.pClientData[iTermId].iSyncId, Term.pClientData[iTermId].w_id);

        if ( bInput )
        {
            strcpy( szForm+c,
                "Carrier Number: <INPUT NAME='OCD*"
            SIZE=1><BR> <BR>"
                "Execution Status: <BR> <BR> <BR> <BR>
            <BR> <BR> <BR> <BR>"
                " <BR> <BR> <BR> <BR> <BR> <BR>
            <BR> <BR> </font></PRE><HR>"
                "<INPUT TYPE='submit' NAME='CMD\"
            VALUE='\"Process'>"
                "<INPUT TYPE='submit' NAME='CMD\"
            VALUE='\"Menu'>"
                "</BODY></FORM></HTML>");
        }
        else
        {
            wsprintf( szForm+c,
                "Carrier Number: %2.2d<BR> <BR>"
                "Execution Status: %s <BR> <BR> <BR>
            <BR> <BR> <BR> <BR> <BR> <BR>
            <BR> <BR> </font></PRE>"
                "<HR><INPUT TYPE='submit\"
            NAME='\"CMD\" VALUE='\"..NewOrder..\">"
                "<INPUT TYPE='submit' NAME='\"CMD\"
            VALUE='\"..Payment..\">"
                "<INPUT TYPE='submit' NAME='\"CMD\"
            VALUE='\"..Delivery..\">"
                "<INPUT TYPE='submit' NAME='\"CMD\"
            VALUE='\"..Order-Status..\">"
                "<INPUT TYPE='submit' NAME='\"CMD\"
            VALUE='\"..Stock-Level..\">"
                "<INPUT TYPE='submit' NAME='\"CMD\"
            VALUE='\"..Exit..\">"
                "</BODY></FORM></HTML>"
                , pDeliveryData->o_carrier_id,
                (pDeliveryData->exec_status_code == eOK) ?
            "Delivery has been queued." : "Delivery Post Failed "
            );
        }
    }

/* FUNCTION: ProcessNewOrderForm
*
* PURPOSE:      This function gets and validates the input data from the
new order form
*
*               filling in the required input variables. it then
calls the SQLNewOrder
*               transaction, constructs the output form and
writes it back to client
*               browser.
*/

void ProcessNewOrderForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, char *szBuffer)
{

```

```

        PNEW_ORDER_DATA
        pNewOrder;

        pNewOrder =
        Term.pClientData[iTermId].pTxn->BuffAddr_NewOrder();

        ZeroMemory(pNewOrder, sizeof(NEW_ORDER_DATA));
        pNewOrder->w_id = Term.pClientData[iTermId].w_id;
        GetNewOrderData(pECB->lpszQueryString, pNewOrder);

        Term.pClientData[iTermId].pTxn->NewOrder();

        pNewOrder =
        Term.pClientData[iTermId].pTxn->BuffAddr_NewOrder();
        MakeNewOrderForm(iTermId, pNewOrder, OUTPUT_FORM,
        szBuffer);
    }

/* FUNCTION: void ProcessPaymentForm
*
* PURPOSE:      This function gets and validates the input data from the
payment form
*
*               filling in the required input variables. It then
calls the SQLPayment
*               transaction, constructs the output form and
writes it back to client
*               browser.
*
* ARGUMENTS:   EXTENSION_CONTROL_BLOCK *pECB
passed in structure pointer from inetsrv.
*
*               int
iTermId   client browser terminal id
*/

void ProcessPaymentForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, char *szBuffer)
{
    PPAYMENT_DATA pPayment;

    pPayment =
    Term.pClientData[iTermId].pTxn->BuffAddr_Payment();
    ZeroMemory(pPayment, sizeof(PAYMENT_DATA));
    pPayment->w_id = Term.pClientData[iTermId].w_id;
    GetPaymentData(pECB->lpszQueryString, pPayment);

    Term.pClientData[iTermId].pTxn->Payment();

    pPayment =
    Term.pClientData[iTermId].pTxn->BuffAddr_Payment();
    MakePaymentForm(iTermId, pPayment, OUTPUT_FORM,
    szBuffer);
}

/* FUNCTION: ProcessOrderStatusForm
*
* PURPOSE:      This function gets and validates the input data from the
Order Status
*
*               form filling in the required input variables. It
then calls the
*               SQLOrderStatus transaction, constructs the
output form and writes it
*               back to client browser.
*
* ARGUMENTS:   EXTENSION_CONTROL_BLOCK *pECB
passed in structure pointer from inetsrv.
*
*               int
iTermId   client browser terminal id
*

```

```

*/

void ProcessOrderStatusForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, char *szBuffer)
{
    PORDER_STATUS_DATA    pOrderStatus;

    pOrderStatus =
Term.pClientData[iTermId].pTxn->BuffAddr_OrderStatus();
    ZeroMemory(pOrderStatus, sizeof(ORDER_STATUS_DATA));
    pOrderStatus->w_id = Term.pClientData[iTermId].w_id;
    GetOrderStatusData(pECB->lpszQueryString, pOrderStatus);

    Term.pClientData[iTermId].pTxn->OrderStatus();

    pOrderStatus =
Term.pClientData[iTermId].pTxn->BuffAddr_OrderStatus();
    MakeOrderStatusForm(iTermId, pOrderStatus, OUTPUT_FORM,
szBuffer);
}

/* FUNCTION: ProcessDeliveryForm
*
* PURPOSE:      This function gets and validates the input data from the
delivery form
*
*               filling in the required input variables. It then
calls the PostDeliveryInfo
*
*               Api, The client is then informed that the
transaction has been posted.
*
* ARGUMENTS:    EXTENSION_CONTROL_BLOCK      *pECB
passed in structure pointer from inetsrv.
*
*               int
iTermId    client browser terminal id
*/

void ProcessDeliveryForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, char *szBuffer)
{
    char      *ptr = pECB->lpszQueryString;

    PDELIVERY_DATA pDelivery;

    pDelivery =
Term.pClientData[iTermId].pTxn->BuffAddr_Delivery();
    ZeroMemory(pDelivery, sizeof(DELIVERY_DATA));
    pDelivery->w_id = Term.pClientData[iTermId].w_id;

    pDelivery->o_carrier_id = GetIntKeyValue(&ptr, "OCD*",
ERR_DELIVERY_MISSING_OCD_KEY,
ERR_DELIVERY_CARRIER_INVALID);
    if ( pDelivery->o_carrier_id > 10 || pDelivery->o_carrier_id < 1 )
        throw new CWEBCLNT_ERR(
ERR_DELIVERY_CARRIER_ID_RANGE );

    if (dwNumDeliveryThreads)
    {
        //post delivery info
        if ( PostDeliveryInfo(pDelivery->w_id,
pDelivery->o_carrier_id ) )
            pDelivery->exec_status_code =
eDeliveryFailed;
        else
            pDelivery->exec_status_code = eOK;
    }
    else // delivery is done synchronously if no delivery threads
configured

```

```

Term.pClientData[iTermId].pTxn->Delivery();

    pDelivery =
Term.pClientData[iTermId].pTxn->BuffAddr_Delivery();
    MakeDeliveryForm(iTermId, pDelivery, OUTPUT_FORM,
szBuffer);
}

/* FUNCTION: ProcessStockLevelForm
*
* PURPOSE:      This function gets and validates the input data from the
Stock Level
*
*               form filling in the required input variables. It
then calls the
*
*               SQLStockLevel transaction, constructs the
output form and writes it
*
*               back to client browser.
*
* ARGUMENTS:    EXTENSION_CONTROL_BLOCK      *pECB
passed in structure pointer from inetsrv.
*
*               int
iTermId    client browser terminal id
*/

void ProcessStockLevelForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, char *szBuffer)
{
    char      *ptr = pECB->lpszQueryString;

    PSTOCK_LEVEL_DATA    pStockLevel;

    pStockLevel =
Term.pClientData[iTermId].pTxn->BuffAddr_StockLevel();
    ZeroMemory( pStockLevel, sizeof(STOCK_LEVEL_DATA) );

    pStockLevel->w_id = Term.pClientData[iTermId].w_id;
    pStockLevel->d_id = Term.pClientData[iTermId].d_id;

    pStockLevel->threshold = GetIntKeyValue(&ptr, "TT*",
ERR_STOCKLEVEL_MISSING_THRESHOLD_KEY,
ERR_STOCKLEVEL_THRESHOLD_INVALID);
    if ( pStockLevel->threshold >= 100 || pStockLevel->threshold < 0 )
        throw new CWEBCLNT_ERR(
ERR_STOCKLEVEL_THRESHOLD_RANGE );

    Term.pClientData[iTermId].pTxn->StockLevel();

    pStockLevel =
Term.pClientData[iTermId].pTxn->BuffAddr_StockLevel();
    MakeStockLevelForm(iTermId, pStockLevel, OUTPUT_FORM,
szBuffer);
}

/* FUNCTION: GetNewOrderData
*
* PURPOSE:      This function extracts and validates the new order form
data from an http command string.
*
* ARGUMENTS:    LPSTR                                lpszQueryString
client browser http command string
*
*               NEW_ORDER_DATA
*pNewOrderData    pointer to new order data structure
*
*/

void GetNewOrderData(LPSTR lpszQueryString, NEW_ORDER_DATA
*pNewOrderData)

```

```

{
    char    szTmp[26];
    int     i;
    short   items;
    int     ol_i_id, ol_quantity;
    char    *ptr = lpzQueryString;

    static char szSP[MAX_OL_NEW_ORDER_ITEMS][6] =
    { "SP00*", "SP01*", "SP02*", "SP03*", "SP04*",
      "SP05*", "SP06*", "SP07*", "SP08*", "SP09*",
      "SP10*", "SP11*", "SP12*", "SP13*", "SP14*" };
    static char szIID[MAX_OL_NEW_ORDER_ITEMS][7] =
    { "IID00*", "IID01*", "IID02*", "IID03*", "IID04*",
      "IID05*", "IID06*", "IID07*", "IID08*", "IID09*",
      "IID10*", "IID11*", "IID12*", "IID13*", "IID14*" };
    static char szQty[MAX_OL_NEW_ORDER_ITEMS][7] =
    { "Qty00*", "Qty01*", "Qty02*", "Qty03*", "Qty04*",
      "Qty05*", "Qty06*", "Qty07*", "Qty08*", "Qty09*",
      "Qty10*", "Qty11*", "Qty12*", "Qty13*", "Qty14*" };

    pNewOrderData->d_id = GetIntKeyValue(&ptr, "DID*",
ERR_NEWORDER_FORM_MISSING_DID,
ERR_NEWORDER_DISTRICT_INVALID);
    pNewOrderData->c_id = GetIntKeyValue(&ptr, "CID*",
ERR_NEWORDER_CUSTOMER_KEY,
ERR_NEWORDER_CUSTOMER_INVALID);

    for(i=0, items=0; i<MAX_OL_NEW_ORDER_ITEMS; i++)
    {
        GetKeyValue(&ptr, szSP[i], szTmp, sizeof(szTmp),
ERR_NEWORDER_MISSING_SUPPW_KEY);
        if ( szTmp[0] )
        {
            if ( !IsNumeric(szTmp) )
                throw new CWEBCLNT_ERR(
ERR_NEWORDER_SUPPW_INVALID );
            pNewOrderData->OL[items].ol_supply_w_id
= (short)atoi(szTmp);

            ol_i_id = pNewOrderData->OL[items].ol_i_id
=
                GetIntKeyValue(&ptr, szIID[i],
ERR_NEWORDER_MISSING_IID_KEY,
ERR_NEWORDER_ITEMID_INVALID);
            if ( ol_i_id > 999999 || ol_i_id < 1 )
                throw new CWEBCLNT_ERR(
ERR_NEWORDER_ITEMID_RANGE );

            ol_quantity =
pNewOrderData->OL[items].ol_quantity =
                GetIntKeyValue(&ptr, szQty[i],
ERR_NEWORDER_MISSING_QTY_KEY,
ERR_NEWORDER_QTY_INVALID);
            if ( ol_quantity > 99 || ol_quantity < 1 )
                throw new CWEBCLNT_ERR(
ERR_NEWORDER_QTY_RANGE );

            items++;
        }
        else
        {
            // nothing entered for supply warehouse, so
            item id and qty must also be blank
            GetKeyValue(&ptr, szIID[i], szTmp,
sizeof(szTmp), ERR_NEWORDER_MISSING_IID_KEY);
            if ( szTmp[0] )
                throw new CWEBCLNT_ERR(
ERR_NEWORDER_ITEMID_WITHOUT_SUPPW );
        }
    }

    GetKeyValue(&ptr, szQty[i], szTmp,
sizeof(szTmp), ERR_NEWORDER_MISSING_QTY_KEY);
    if ( szTmp[0] )
        throw new CWEBCLNT_ERR(
ERR_NEWORDER_QTY_WITHOUT_SUPPW );
}

/* FUNCTION: GetPaymentData
 *
 * PURPOSE:      This function extracts and validates the payment form
data from an http command string.
 *
 * ARGUMENTS:    LPSTR                lpzQueryString
client browser http command string
                PAYMENT_DATA
*pPaymentData    pointer to payment data structure
 */

void GetPaymentData(LPSTR lpzQueryString, PAYMENT_DATA
*pPaymentData)
{
    char    szTmp[26];
    char    *ptr = lpzQueryString;
    BOOL    bCustIdBlank;

    pPaymentData->d_id = GetIntKeyValue(&ptr, "DID*",
ERR_PAYMENT_MISSING_DID_KEY,
ERR_PAYMENT_DISTRICT_INVALID);

    GetKeyValue(&ptr, "CID*", szTmp, sizeof(szTmp),
ERR_PAYMENT_MISSING_CID_KEY);
    if ( szTmp[0] == 0 )
    {
        bCustIdBlank = TRUE;
        pPaymentData->c_id = 0;
    }
    else
    {
        // parse customer id and verify that last name was NOT
entered
        bCustIdBlank = FALSE;
        if ( !IsNumeric(szTmp) )
            throw new CWEBCLNT_ERR(
ERR_PAYMENT_CUSTOMER_INVALID );
        pPaymentData->c_id = atoi(szTmp);
    }

    pPaymentData->c_w_id = GetIntKeyValue(&ptr, "CWI*",
ERR_PAYMENT_MISSING_CWI_KEY,
ERR_PAYMENT_CWI_INVALID);
    pPaymentData->c_d_id = GetIntKeyValue(&ptr, "CDI*",
ERR_PAYMENT_MISSING_CDI_KEY, ERR_PAYMENT_CDI_INVALID);

    if ( bCustIdBlank )
    {
        // customer id is blank, so last name must be entered
        GetKeyValue(&ptr, "CLT*", szTmp, sizeof(szTmp),
ERR_PAYMENT_MISSING_CLT_KEY);
        if ( szTmp[0] == 0 )
            throw new CWEBCLNT_ERR(
ERR_PAYMENT_MISSING_CID_CLT );

        _strupr( szTmp );
    }
}

```

```

        if ( strlen(pPaymentData->c_last) > LAST_NAME_LEN
)
        throw new CWEBCLNT_ERR(
ERR_PAYMENT_LAST_NAME_TO_LONG );
        strcpy(pPaymentData->c_last, szTmp);
    }
    else
    {
        // parse customer id and verify that last name was NOT
entered
        GetKeyValue(&ptr, "CLT*", szTmp, sizeof(szTmp),
ERR_PAYMENT_MISSING_CLT_KEY);
        if ( szTmp[0] != 0 )
            throw new CWEBCLNT_ERR(
ERR_PAYMENT_CID_AND_CLT );
    }

    GetKeyValue(&ptr, "HAM*", szTmp, sizeof(szTmp),
ERR_PAYMENT_MISSING_HAM_KEY);
    if (!IsDecimal(szTmp))
        throw new CWEBCLNT_ERR(
ERR_PAYMENT_HAM_INVALID );
    pPaymentData->h_amount = atof(szTmp);
    if ( pPaymentData->h_amount >= 10000.00 ||
pPaymentData->h_amount < 0 )
        throw new CWEBCLNT_ERR(
ERR_PAYMENT_HAM_RANGE );
}

/* FUNCTION: GetOrderStatusData
*
* PURPOSE:      This function extracts and validates the payment form
data from an http command string.
*
*/
void GetOrderStatusData(LPSTR lpszQueryString, ORDER_STATUS_DATA
*pOrderStatusData)
{
    char    szTmp[26];
    char    *ptr = lpszQueryString;

    pOrderStatusData->d_id = GetIntKeyValue(&ptr, "DID*",
ERR_ORDERSTATUS_MISSING_DID_KEY,
ERR_ORDERSTATUS_DID_INVALID);

    GetKeyValue(&ptr, "CID*", szTmp, sizeof(szTmp),
ERR_ORDERSTATUS_MISSING_CID_KEY);
    if ( szTmp[0] == 0 )
    {
        // customer id is blank, so last name must be entered
        pOrderStatusData->c_id = 0;
        GetKeyValue(&ptr, "CLT*", szTmp, sizeof(szTmp),
ERR_ORDERSTATUS_MISSING_CLT_KEY);
        if ( szTmp[0] == 0 )
            throw new CWEBCLNT_ERR(
ERR_ORDERSTATUS_MISSING_CID_CLT );

        _strupr( szTmp );
        if ( strlen(pOrderStatusData->c_last) >
LAST_NAME_LEN )
            throw new CWEBCLNT_ERR(
ERR_ORDERSTATUS_CLT_RANGE );
        strcpy(pOrderStatusData->c_last, szTmp);
    }
    else
    {
        // parse customer id and verify that last name was NOT
entered

        if ( !IsNumeric(szTmp) )
            throw new CWEBCLNT_ERR(
ERR_ORDERSTATUS_CID_INVALID );

```

```

        pOrderStatusData->c_id = atoi(szTmp);
        GetKeyValue(&ptr, "CLT*", szTmp, sizeof(szTmp),
ERR_ORDERSTATUS_MISSING_CLT_KEY);
        if ( szTmp[0] != 0 )
            throw new CWEBCLNT_ERR(
ERR_ORDERSTATUS_CID_AND_CLT );
    }
}

/* FUNCTION: BOOL IsNumeric(char *ptr)
*
* PURPOSE:      This function determines if a string is numeric. It fails if
any characters other
*
*               than numeric and null terminator are present.
*
* ARGUMENTS:   char                *ptr    pointer to
string to check.
*
* RETURNS:     BOOL    FALSE    if string is not all
numeric
*               TRUE    if
string contains only numeric characters i.e. '0' - '9'
*/

BOOL IsNumeric(char *ptr)
{
    if ( *ptr == 0 )
        return FALSE;

    while( *ptr && isdigit(*ptr) )
        ptr++;
    return ( !*ptr );
}

/* FUNCTION: BOOL IsDecimal(char *ptr)
*
* PURPOSE:      This function determines if a string is a non-negative
decimal value.
*
*               It fails if any characters other than a series of numbers followed by
*
*               a decimal point, another series of numbers,
and a null terminator are present.
*
* ARGUMENTS:   char                *ptr    pointer to
string to check.
*
* RETURNS:     BOOL    FALSE    if string is not a valid
non-negative decimal value
*               TRUE    if
string is OK
*/

BOOL IsDecimal(char *ptr)
{
    char *dotptr;
    BOOL bValid;

    if ( *ptr == 0 )
        return FALSE;

    // find decimal point
    dotptr = strchr( ptr, '.' );
    if (dotptr == NULL)
        // no decimal point, so just check for numeric
        return IsNumeric(ptr);
    *dotptr = 0; // temporarily replace decimal with a terminator

    if ( *ptr != 0 )

```

```

        bValid = IsNumeric(ptr);
// string starts with decimal point
else if (*(dotptr+1) == 0)
    return FALSE; // nothing but a decimal point is bad
else
    bValid = TRUE;

if (*(dotptr+1) != 0)
    // check text after decimal point
    bValid &= IsNumeric(dotptr+1);

*dotptr = '.'; // replace decimal point
return bValid;
}

```

## tpcc.def

LIBRARY TPCC.DLL

EXPORTS

```

GetExtensionVersion @1
HttpExtensionProc @2
TerminateExtension @3

```

## tpcc.h

```

//      File:          TPCC.H
//
//      Microsoft TPC-C Kit Ver. 4.41
//      Copyright Microsoft, 1996, 1997,
1998, 1999, 2000, 2001
//      Purpose:   Header file for TPC-C database loader

```

```

// Build number of TPC Benchmark Kit
#define TPCKIT_VER "4.41"

```

```

// General headers
#include <windows.h>
#include <winbase.h>
#include <stdlib.h>
#include <stdio.h>
#include <process.h>
#include <stddef.h>
#include <stdarg.h>
#include <string.h>
#include <time.h>
#include <sys\timeb.h>
#include <sys\types.h>

```

```

// ODBC headers
#include <sql.h>
#include <sqlext.h>
#include <odbc.h>

```

```

// General constants
#define MILLI 1000
#define FALSE 0
#define TRUE 1
#define UNDEF -1
#define MINPRINTASCII 32
#define MAXPRINTASCII 126

```

```

// Default environment constants
#define SERVER ""
#define DATABASE "tpcc"

```

```

#define USER "sa"
#define PASSWORD ""

// Default loader arguments
#define BATCH 10000
#define DEFLDPACKSIZE 32768
#define LOADER_RES_FILE "C:\\MSTPCC.440\\SETUP\\logs\\load.out"
#define LOG_PATH "C:\\MSTPCC.440\\SETUP\\LOGS\\";
#define LOADER_NURAND_C 123
#define DEF_STARTING_WAREHOUSE 1
#define BUILD_INDEX 1
// build both data and indexes
#define INDEX_ORDER 1
// build indexes before load
#define SCALE_DOWN 0
// build a normal scale database
#define INDEX_SCRIPT_PATH "scripts"

typedef struct
{
    char *server;
    char *database;
    char *user;
    char *password;
    BOOL tables_all;
// set if loading all tables
    BOOL table_item;
// set if loading ITEM table specifically
    BOOL table_warehouse; //
set if loading WAREHOUSE, DISTRICT, and STOCK
    BOOL table_customer;
// set if loading CUSTOMER and HISTORY
    BOOL table_orders;
// set if loading NEW-ORDER, ORDERS, ORDER-LINE
    long num_warehouses;
    long batch;
    long verbose;
    long pack_size;
    char *loader_res_file;
    char *log_path;
    char *synch_servername;
    long case_sensitivity;
    long starting_warehouse;
    long build_index;
    long index_order;
    long scale_down;
    char *index_script_path;
} TPCC_LDR_ARGS;

// String length constants
#define SERVER_NAME_LEN 20
#define DATABASE_NAME_LEN 20
#define USER_NAME_LEN 20
#define PASSWORD_LEN 20
#define TABLE_NAME_LEN 20
#define I_DATA_LEN 50
#define I_NAME_LEN 24
#define BRAND_LEN 1
#define LAST_NAME_LEN 16
#define W_NAME_LEN 10
#define ADDRESS_LEN 20
#define STATE_LEN 2
#define ZIP_LEN 9
#define S_DIST_LEN 24
#define S_DATA_LEN 50
#define D_NAME_LEN 10
#define FIRST_NAME_LEN 16

```

```

#define MIDDLE_NAME_LEN      2
#define PHONE_LEN            16
#define CREDIT_LEN           2
#define C_DATA_LEN           500
#define H_DATA_LEN           24
#define DIST_INFO_LEN        24
#define MAX_OL_NEW_ORDER_ITEMS 15
#define MAX_OL_ORDER_STATUS_ITEMS 15
#define STATUS_LEN           25
#define OL_DIST_INFO_LEN      24
#define C_SINCE_LEN

23 #define H_DATE_LEN

23 #define OL_DELIVERY_D_LEN      23
#define O_ENTRY_D_LEN           23

```

// Functions in random.c

```

void    seed();
long    irand();
double  drand();
void    WUCreate();
short   WURand();
long    RandomNumber(long lower, long upper);

```

// Functions in getargs.c;

```

void    GetArgsLoader();
void    GetArgsLoaderUsage();

```

// Functions in time.c

```

long    TimeNow();

```

// Functions in strings.c

```

void    MakeAddress();
void    LastName();
int     MakeAlphaString();
int     MakeOriginalAlphaString();
int     MakeNumberString();
int     MakeZipNumberString();
void    InitString();
void    InitAddress();
void    PaddString();

```

## tpcc.rc

//Microsoft Developer Studio generated resource script.

```

//
#include "resource.h"

```

```

#define APSTUDIO_READONLY_SYMBOLS

```

```

//

```

// Generated from the TEXTINCLUDE 2 resource.

```

//
#include "afxres.h"

```

```

//
#undef APSTUDIO_READONLY_SYMBOLS

```

```

//
// English (U.S.) resources

```

```

#if !defined(AFX_RESOURCE_DLL) || defined(AFX_TARG_ENU)
#ifdef _WIN32
LANGUAGE LANG_ENGLISH, SUBLANG_ENGLISH_US
#pragma code_page(1252)

```

```

#endif // _WIN32

```

```

#ifndef _MAC

```

```

//
// Version
//

```

```

VS_VERSION_INFO VERSIONINFO

```

```

FILEVERSION 0,4,0,0

```

```

PRODUCTVERSION 0,4,0,0

```

```

FILEFLAGSMASK 0x3fL

```

```

#ifdef _DEBUG

```

```

FILEFLAGS 0x1L

```

```

#else

```

```

FILEFLAGS 0x0L

```

```

#endif

```

```

FILEOS 0x40004L

```

```

FILETYPE 0x2L

```

```

FILESUBTYPE 0x0L

```

```

BEGIN

```

```

    BLOCK "StringFileInfo"

```

```

    BEGIN

```

```

        BLOCK "040904b0"

```

```

        BEGIN

```

```

            VALUE "Comments", "TPC-C HTML DLL Server (DBLIB)\0"

```

```

            VALUE "CompanyName", "Microsoft\0"

```

```

            VALUE "FileDescription", "TPC-C HTML DLL Server (DBLIB)\0"

```

```

            VALUE "FileVersion", "0, 4, 0, 0\0"

```

```

            VALUE "InternalName", "tpcc\0"

```

```

            VALUE "LegalCopyright", "Copyright © 1997\0"

```

```

            VALUE "OriginalFilename", "tpcc.dll\0"

```

```

            VALUE "ProductName", "Microsoft tpcc\0"

```

```

            VALUE "ProductVersion", "0, 4, 0, 0\0"

```

```

        END

```

```

    END

```

```

    BLOCK "VarFileInfo"

```

```

    BEGIN

```

```

        VALUE "Translation", 0x409, 1200

```

```

    END

```

```

END

```

```

#endif // !_MAC

```

```

#ifdef APSTUDIO_INVOKED

```

```

//

```

```

// TEXTINCLUDE

```

```

//

```

```

1 TEXTINCLUDE DISCARDABLE

```

```

BEGIN

```

```

    "resource.h\0"

```

```

END

```

```

2 TEXTINCLUDE DISCARDABLE

```

```

BEGIN

```

```

    "#include \"\"afxres.h\"\"r\n"

```

```

    "\0"

```

```

END

```

```

3 TEXTINCLUDE DISCARDABLE

```

```

BEGIN

```

```

    "r\n"

```

```

    "\0"

```

```

END

```

```
#endif // APSTUDIO_INVOKED
```

```
////////////////////////////////////  
//  
// Dialog  
//
```

```
IDD_DIALOG1 DIALOG DISCARDABLE 0, 0, 186, 95  
STYLE DS_MODALFRAME | WS_POPUP | WS_CAPTION |  
WS_SYSMENU  
CAPTION "Dialog"  
FONT 8, "MS Sans Serif"  
BEGIN  
    DEFPUSHBUTTON "OK",IDOK,129,7,50,14  
    PUSHBUTTON "Cancel",IDCANCEL,129,24,50,14  
END
```

```
////////////////////////////////////  
//  
// DESIGNINFO  
//
```

```
#ifndef APSTUDIO_INVOKED  
GUIDELINES DESIGNINFO DISCARDABLE  
BEGIN  
    IDD_DIALOG1, DIALOG  
    BEGIN  
        LEFTMARGIN, 7  
        RIGHTMARGIN, 179  
        TOPMARGIN, 7  
        BOTTOMMARGIN, 88  
    END  
END  
#endif // APSTUDIO_INVOKED
```

```
#endif // English (U.S.) resources
```

```
////////////////////////////////////
```

```
#ifndef APSTUDIO_INVOKED  
////////////////////////////////////  
//  
// Generated from the TEXTINCLUDE 3 resource.  
//
```

```
////////////////////////////////////  
#endif // not APSTUDIO_INVOKED
```

## **tpcc\_com.cpp**

```
/*      FILE:      TPCC_COM.CPP  
*      Microsoft TPC-C Kit Ver.  
4.20.000  
*      Copyright Microsoft, 1999  
*      All Rights Reserved  
*      not yet audited  
*      PURPOSE:    Source file for TPC-C COM+ class  
implementation.  
*      Contact:    Charles Levine (clevine@microsoft.com)  
*      Change history:
```

```
*      4.20.000 - first version  
*/  
  
// needed for CoInitializeEx  
#define _WIN32_WINNT 0x0400  
  
#include <windows.h>  
  
// need to declare functions for export  
#define DllDecl __declspec( dllexport )  
  
#include "..\..\common\src\trans.h" //tpckit transaction  
header contains definitions of structures specific to TPC-C  
#include "..\..\common\src\error.h"  
#include "..\..\common\src\txn_base.h"  
#include "tpcc_com.h"  
  
#include "..\tpcc_com_ps\src\tpcc_com_ps_i.c"  
#include "..\tpcc_com_all\src\tpcc_com_all_i.c"  
  
// wrapper routine for class constructor  
__declspec(dllexport) CTPCC_COM* CTPCC_COM_new(BOOL  
bSinglePool)  
{  
    return new CTPCC_COM(bSinglePool);  
}  
  
CTPCC_COM::CTPCC_COM(BOOL bSinglePool)  
{  
    HRESULT hr = NULL;  
    long lRet = 0;  
    ULONG ulTmpSize = 0;  
  
    m_pTxn = NULL;  
    m_pNewOrder = NULL;  
    m_pPayment = NULL;  
    m_pStockLevel = NULL;  
    m_pOrderStatus = NULL;  
  
    m_bSinglePool = bSinglePool;  
  
    ulTmpSize = (ULONG) sizeof(COM_DATA);  
    VariantInit(&m_vTxn);  
    m_vTxn.vt = VT_SAFEARRAY;  
  
    m_vTxn.parray = SafeArrayCreateVector(VT_UI1, ulTmpSize,  
ulTmpSize);  
    if (!m_vTxn.parray)  
        throw new CCOMERR( E_FAIL );  
  
    memset((void*)m_vTxn.parray->pvData,0,ulTmpSize);  
    m_pTxn = (COM_DATA*)m_vTxn.parray->pvData;  
  
    hr = CoInitializeEx(NULL, COINIT_MULTITHREADED);  
    if (FAILED(hr))  
    {  
        throw new CCOMERR( hr );  
    }  
  
    // create components  
    if (m_bSinglePool)  
    {  
        hr = CoCreateInstance(CLSID_TPCC, NULL,  
CLSCTX_SERVER, IID_ITPCC, (void **)&m_pNewOrder);  
        if (FAILED(hr))  
            throw new CCOMERR(hr);  
  
        // all txns will use same component
```

```

        m_pPayment = m_pNewOrder;
        m_pStockLevel = m_pNewOrder;
        m_pOrderStatus = m_pNewOrder;
    }
    else
    {
        // use different components for each txn

        hr = CoCreateInstance(CLSID_NewOrder, NULL,
CLSCTX_SERVER, IID_ITPCC, (void **)&m_pNewOrder);
        if (FAILED(hr))
            throw new CCOMERR(hr);

        hr = CoCreateInstance(CLSID_Payment, NULL,
CLSCTX_SERVER, IID_ITPCC, (void **)&m_pPayment);
        if (FAILED(hr))
            throw new CCOMERR(hr);

        hr = CoCreateInstance(CLSID_StockLevel, NULL,
CLSCTX_SERVER, IID_ITPCC, (void **)&m_pStockLevel);
        if (FAILED(hr))
            throw new CCOMERR(hr);

        hr = CoCreateInstance(CLSID_OrderStatus, NULL,
CLSCTX_SERVER, IID_ITPCC, (void **)&m_pOrderStatus);
        if (FAILED(hr))
            throw new CCOMERR(hr);
    }

    // call setcomplete to release each component back into pool
    hr = m_pNewOrder->CallSetComplete();
    if (FAILED(hr))
        throw new CCOMERR(hr);

    if (!m_bSinglePool)
    {
        hr = m_pPayment->CallSetComplete();
        if (FAILED(hr))
            throw new CCOMERR(hr);

        hr = m_pStockLevel->CallSetComplete();
        if (FAILED(hr))
            throw new CCOMERR(hr);

        hr = m_pOrderStatus->CallSetComplete();
        if (FAILED(hr))
            throw new CCOMERR(hr);
    }
}

CTPCC_COM::~CTPCC_COM()
{
    if (m_pTxn)
        SafeArrayDestroy(m_vTxn.parray);

    ReleaseInterface(m_pNewOrder);
    if (!m_bSinglePool)
    {
        ReleaseInterface(m_pPayment);
        ReleaseInterface(m_pStockLevel);
        ReleaseInterface(m_pOrderStatus);
    }
    CoUninitialize();
}

void CTPCC_COM::NewOrder()
{
    VARIANT vTxn_out;

```

```

        HRESULT hr = m_pNewOrder->NewOrder(m_vTxn, &vTxn_out);
        if (FAILED(hr))
            throw new CCOMERR( hr );
        memcpy(m_pTxn, (void
*)vTxn_out.parray->pvData, vTxn_out.parray->rgsabound[0].cElements);
        SafeArrayDestroy(vTxn_out.parray);

        if ( m_pTxn->ErrorType != ERR_SUCCESS )
            throw new CCOMERR( m_pTxn->ErrorType,
m_pTxn->error );
    }

void CTPCC_COM::Payment()
{
    VARIANT vTxn_out;

    HRESULT hr = m_pPayment->Payment(m_vTxn, &vTxn_out);
    if (FAILED(hr))
        throw new CCOMERR( hr );
    memcpy(m_pTxn, (void
*)vTxn_out.parray->pvData, vTxn_out.parray->rgsabound[0].cElements);
    SafeArrayDestroy(vTxn_out.parray);

    if ( m_pTxn->ErrorType != ERR_SUCCESS )
        throw new CCOMERR( m_pTxn->ErrorType,
m_pTxn->error );
}

void CTPCC_COM::StockLevel()
{
    VARIANT vTxn_out;

    HRESULT hr = m_pStockLevel->StockLevel(m_vTxn,
&vTxn_out);
    if (FAILED(hr))
        throw new CCOMERR( hr );
    memcpy(m_pTxn, (void
*)vTxn_out.parray->pvData, vTxn_out.parray->rgsabound[0].cElements);
    SafeArrayDestroy(vTxn_out.parray);

    if ( m_pTxn->ErrorType != ERR_SUCCESS )
        throw new CCOMERR( m_pTxn->ErrorType,
m_pTxn->error );
}

void CTPCC_COM::OrderStatus()
{
    VARIANT vTxn_out;

    HRESULT hr = m_pOrderStatus->OrderStatus(m_vTxn,
&vTxn_out);
    if (FAILED(hr))
        throw new CCOMERR( hr );
    memcpy(m_pTxn, (void
*)vTxn_out.parray->pvData, vTxn_out.parray->rgsabound[0].cElements);
    SafeArrayDestroy(vTxn_out.parray);

    if ( m_pTxn->ErrorType != ERR_SUCCESS )
        throw new CCOMERR( m_pTxn->ErrorType,
m_pTxn->error );
}

tpcc_com.h

/* FILE: TPCC_COM.H

```

```

*
4.20.000                                Microsoft TPC-C Kit Ver.
*
*                                     Copyright Microsoft, 1999
*
*      All Rights Reserved
*
*                                     not yet audited
*
*      PURPOSE:      Header file for TPC-C COM+ class
implementation.
*
*      Change history:
*      4.20.000 - first version
*/

#pragma once

#include <stdio.h>
#include "..\..\tpcc_com_ps\src\tpcc_com_ps.h"

// need to declare functions for import, unless define has already been created
// by the DLL's .cpp module for export.
#ifndef DllDecl
#define DllDecl __declspec( dllimport )
#endif

class CCOMERR : public CBaseErr
{
private:
    char m_szErrorText[64];

public:
    // use this interface for genuine COM errors
    CCOMERR( HRESULT hr )
    {
        m_hr = hr;
        m_iErrorType = 0;
        m_iError = 0;
    }

    // use this interface to impersonate a non-COM error type
    CCOMERR( int iErrorType, int iError )
    {
        m_iErrorType = iErrorType;
        m_iError = iError;
        m_hr = S_OK;
    }

    int m_hr;
    int m_iErrorType;
    int m_iError;

    // A CCOMERR class can impersonate another class,
    which happens if the error
    // was not actually a COM Services error, but was simply
    transmitted back via COM.
    int ErrorType()
    {
        if (m_iErrorType == 0)
            return ERR_TYPE_COM;
        else
            return m_iErrorType;
    }

    int ErrorNum() {return m_hr;}

    char *ErrorText()
    {
        if (m_hr == S_OK)

```

```

        sprintf( m_szErrorText, "Error:
Class %d, error # %d", m_iErrorType, m_iError );
        else
            sprintf( m_szErrorText, "Error:
COM HRESULT %x", m_hr );
        return m_szErrorText;
    }
};

class DllDecl CTPCC_COM : public CTPCC_BASE
{
private:
    BOOL m_bSinglePool;

    // COM Interface pointers
    ITPCC* m_pNewOrder;
    ITPCC* m_pPayment;
    ITPCC* m_pStockLevel;
    ITPCC* m_pOrderStatus;

    struct COM_DATA
    {
        int ErrorType;
        int error;
        union
        {
            NEW_ORDER_DATA
            PAYMENT_DATA
            DELIVERY_DATA
            STOCK_LEVEL_DATA
            ORDER_STATUS_DATA

        } u;
    } *m_pTxn;

public:
    CTPCC_COM(BOOL bSinglePool);
    ~CTPCC_COM(void);

    inline PNEW_ORDER_DATA
    BuffAddr_NewOrder() { return &m_pTxn->u.NewOrder;
    };

    inline PPAYMENT_DATA
    BuffAddr_Payment() { return &m_pTxn->u.Payment; };
    inline PDELIVERY_DATA
    BuffAddr_Delivery() { return &m_pTxn->u.Delivery; };
    inline PSTOCK_LEVEL_DATA BuffAddr_StockLevel()
    { return &m_pTxn->u.StockLevel; };
    inline PORDER_STATUS_DATA
    BuffAddr_OrderStatus() { return &m_pTxn->u.OrderStatus; };

    void NewOrder()
    void Payment()
    void StockLevel()
    void OrderStatus()
    void Delivery() { throw new
    CCOMERR(E_NOTIMPL); } // not supported
};

inline void ReleaseInterface(IUnknown *pUnk)
{
    if (pUnk)

```

```

    {
        pUnk->Release();
        pUnk = NULL;
    }
}

// wrapper routine for class constructor
extern "C" __declspec(dllexport) CTPCC_COM* CTPCC_COM_new(BOOL);

typedef CTPCC_COM* (TYPE_CTPCC_COM)(BOOL);

```

## ***Tpcc\_com\_all.cpp***

```

/*      FILE:          TPCC_COM_ALL.CPP
 *
 *      Microsoft TPC-C Kit Ver.
 *
 *      4.20.000
 *
 *      Copyright Microsoft, 1999
 *
 *      All Rights Reserved
 *
 *
 *      Version 4.10.000 audited by
 *      Richard Gimarc, Performance Metrics, 3/17/99
 *
 *      PURPOSE:        Implementation for TPC-C Tuxedo class.
 *      Contact:  Charles Levine (clevine@microsoft.com)
 *
 *      Change history:
 *      4.20.000 - updated rev number to match kit
 */

#define STRICT
#define _WIN32_WINNT 0x0400
#define _ATL_APARTMENT_THREADED

#include <stdio.h>
#include <atlbase.h>
//You may derive a class from CComModule and use it if you want to override
//something, but do not change the name of _Module
extern CComModule _Module;

#include <atlcom.h>
#include <initguid.h>
#include <transact.h>
#include <atlimpl.cpp>
#include <comsvcs.h>

#include <sqltypes.h>
#include <sql.h>
#include <sqlext.h>

#include "tpcc_com_ps.h"
#include "..\..\common\src\trans.h"
//tpckit transaction header contains definitions of structures specific to TPC-C
#include "..\..\common\src\txn_base.h"
#include "..\..\common\src\error.h"
#include "..\..\common\src\ReadRegistry.h"
#include "..\db_dblib_dll\src\tpcc_dblib.h"           // DBLIB
implementation of TPC-C txns
#include "..\db_odbc_dll\src\tpcc_odbc.h"           // ODBC
implementation of TPC-C txns

#include "resource.h"
#include "tpcc_com_all.h"
#include "tpcc_com_all_i.c"
#include "Methods.h"
#include "..\..\tpcc_com_ps\src\tpcc_com_ps_i.c"
#include "..\..\common\src\ReadRegistry.cpp"

```

```

CComModule _Module;

BEGIN_OBJECT_MAP(ObjectMap)
    OBJECT_ENTRY(CLSID_TPCC, CTPCC)
    OBJECT_ENTRY(CLSID_NewOrder, CNewOrder)
    OBJECT_ENTRY(CLSID_OrderStatus, COrderStatus)
    OBJECT_ENTRY(CLSID_Payment, CPayment)
    OBJECT_ENTRY(CLSID_StockLevel, CStockLevel)
END_OBJECT_MAP()

// configuration settings from registry
TPCCREGISTRYDATA      Reg;
char
szMyComputerName[MAX_COMPUTERNAME_LENGTH+1];

static HINSTANCE hLibInstanceDb = NULL;

TYPE_CTPCC_DBLIB      *pCTPCC_DBLIB_new;
TYPE_CTPCC_ODBC        *pCTPCC_ODBC_new;

////////////////////////////////////
// DLL Entry Point

extern "C"
BOOL WINAPI DllMain(HINSTANCE hInstance, DWORD dwReason,
LPVOID /*lpReserved*/)
{
    char szDllName[128];

    try
    {
        if (dwReason == DLL_PROCESS_ATTACH)
        {
            _Module.Init(ObjectMap, hInstance);
            DisableThreadLibraryCalls(hInstance);

            DWORD dwSize =
MAX_COMPUTERNAME_LENGTH+1;
            GetComputerName(szMyComputerName,
&dwSize);

            szMyComputerName[dwSize] = 0;

            if ( ReadTPCCRegistrySettings( &Reg ) )
                throw new CCOMPONENT_ERR(
ERR_MISSING_REGISTRY_ENTRIES );

            if (Reg.eDB_Protocol == DBLIB)
            {
                strcpy( szDllName, Reg.szPath );
                strcat( szDllName,
"tpcc_dblib.dll");

                hLibInstanceDb = LoadLibrary(
szDllName );

                if (hLibInstanceDb == NULL)
                    throw new
CCOMPONENT_ERR( ERR_LOADDLL_FAILED, szDllName,
GetLastError() );

                // get function pointer to wrapper
                for class constructor
                pCTPCC_DBLIB_new =
(TYPE_CTPCC_DBLIB*)
GetProcAddress(hLibInstanceDb,"CTPCC_DBLIB_new");
            }
        }
    }
}

```

```

        if (pCTPCC_DBLIB_new ==
NULL)
        throw new
CCOMPONENT_ERR( ERR_GETPROCADDR_FAILED, szDllName,
GetLastError() );
    }
    else if (Reg.eDB_Protocol == ODBC)
    {
        strcpy( szDllName, Reg.szPath );
        strcat( szDllName,

"tpcc_odbc.dll");

        hLibInstanceDb = LoadLibrary(
szDllName );

        if (hLibInstanceDb == NULL)
            throw new
CCOMPONENT_ERR( ERR_LOADDLL_FAILED, szDllName,
GetLastError() );

        // get function pointer to wrapper
for class constructor
        pCTPCC_ODBC_new =
(TYPE_CTPCC_ODBC*)
GetProcAddress(hLibInstanceDb,"CTPCC_ODBC_new");
        if (pCTPCC_ODBC_new ==
NULL)
            throw new
CCOMPONENT_ERR( ERR_GETPROCADDR_FAILED, szDllName,
GetLastError() );
    }
    else
        throw new CCOMPONENT_ERR(
ERR_UNKNOWN_DB_PROTOCOL );
    }
    else if (dwReason == DLL_PROCESS_DETACH)
        _Module.Term();
}
catch (CBaseErr *e)
{
    WriteMessageToEventLog(e->ErrorText());
    delete e;
    return FALSE;
}
catch (...)
{
    WriteMessageToEventLog(TEXT("Unhandled exception
in object DllMain"));
    return FALSE;
}

return TRUE;    // OK
}

////////////////////////////////////
// Used to determine whether the DLL can be unloaded by OLE

STDAPI DllCanUnloadNow(void)
{
    return (_Module.GetLockCount()==0) ? S_OK : S_FALSE;
}

////////////////////////////////////
// Returns a class factory to create an object of the requested type

STDAPI DllGetClassObject(REFCLSID rclsid, REFIID riid, LPVOID* ppv)
{
    return _Module.GetClassObject(rclsid, riid, ppv);
}

////////////////////////////////////
// DllRegisterServer - Adds entries to the system registry

STDAPI DllRegisterServer(void)
{
    // registers object, typelib and all interfaces in typelib
    return _Module.RegisterServer(TRUE);
}

////////////////////////////////////
// DllUnregisterServer - Removes entries from the system registry

STDAPI DllUnregisterServer(void)
{
    _Module.UnregisterServer();
    return S_OK;
}

static void WriteMessageToEventLog(LPTSTR lpszMsg)
{
    TCHAR szMsg[256];
    HANDLE hEventSource;
    LPTSTR lpszStrings[2];

    // Use event logging to log the error.
    //
    hEventSource = RegisterEventSource(NULL, TEXT("tpcc_com_all.dll"));

    _strprintf(szMsg, TEXT("Error in COM+ TPC-C Component: "));
    lpszStrings[0] = szMsg;
    lpszStrings[1] = lpszMsg;

    if (hEventSource != NULL)
    {
        ReportEvent(hEventSource, // handle of event source
EVENTLOG_ERROR_TYPE, // event type
0, // event category
0, // event ID
NULL, // current user's SID
2, // strings in lpszStrings
0, // no bytes of raw data
(LPCTSTR *)lpszStrings, // array of error strings
NULL); // no raw data

        (VOID) DeregisterEventSource(hEventSource);
    }
}

inline void ReleaseInterface(IUnknown *pUnk)
{
    if (pUnk)
    {
        pUnk->Release();
        pUnk = NULL;
    }
}

/* FUNCTION: CCOMPONENT_ERR::ErrorText
*
*/

char* CCOMPONENT_ERR::ErrorText(void)
{
    static SERRORMSG errorMsgs[] =
    {

```

```

        { ERR_MISSING_REGISTRY_ENTRIES, "Required
entries missing from registry." },
        { ERR_LOADDLL_FAILED,
"Load of DLL failed. DLL="
},
        { ERR_GETPROCADDR_FAILED,
"Could not map proc in DLL. GetProcAddr error. DLL="
},
        { ERR_UNKNOWN_DB_PROTOCOL,
"Unknown database protocol specified in registry."
},
        { 0,
""
}
};

char szTmp[256];
int i = 0;
while (TRUE)
{
    if (errorMsgs[i].szMsg[0] == 0)
    {
        strcpy( szTmp, "Unknown error number." );
        break;
    }
    if (m_Error == errorMsgs[i].iError)
    {
        strcpy( szTmp, errorMsgs[i].szMsg );
        break;
    }
    i++;
}

if (m_szTextDetail)
    strcat( szTmp, m_szTextDetail );
if (m_SystemErr)
    sprintf( szTmp+strlen(szTmp), " Error=%d",
m_SystemErr );

m_szErrorText = new char[strlen(szTmp)+1];
strcpy( m_szErrorText, szTmp );
return m_szErrorText;
}

CTPCC_Common::CTPCC_Common()
{
    m_pTxn = NULL;
    m_bCanBePooled = TRUE;
}

CTPCC_Common::~CTPCC_Common()
{
    if (m_pTxn)
        delete m_pTxn;
}

HRESULT CTPCC_Common::CallSetComplete()
{
    IObjectContext* pObjContext = NULL;

    // get our object context
    HRESULT hr = CoGetObjectContext( IID_IObjectContext, (void
**) &pObjContext );
    pObjContext->SetComplete();
    ReleaseInterface(pObjContext);
    return hr;
}

//
//
// called by the ctor activator
//
//
// STDMETHODCALLTYPE CTPCC_Common::Construct(IDispatch * pUnk)
//
//
// Code to access construction string, if needed later...
//
// if (!pUnk)
//     return E_UNEXPECTED;
//
// IObjectConstructString * pString = NULL;
//
// HRESULT hr =
pUnk->QueryInterface(IID_IObjectConstructString, (void **) &pString);
//
// pString->Release();
//
//
// try
//
//
// if (Reg.eDB_Protocol == ODBC)
//     m_pTxn = pCTPCC_ODBC_new(
Reg.szDbServer, Reg.szDbUser, Reg.szDbPassword, szMyComputerName,
Reg.szDbName );
//
// else if (Reg.eDB_Protocol == DBLIB)
//     m_pTxn = pCTPCC_DBLIB_new(
Reg.szDbServer, Reg.szDbUser, Reg.szDbPassword, szMyComputerName,
Reg.szDbName );
//
// catch (CBaseErr *e)
//
//
// WriteMessageToEventLog(e->ErrorText());
// delete e;
// return E_FAIL;
//
// catch (...)
//
//
// WriteMessageToEventLog(TEXT("Unhandled exception
in object ::Construct"));
// return E_FAIL;
//
//
// return S_OK;
//
//
//
//
//
// STDMETHODCALLTYPE CTPCC_Common::NewOrder(VARIANT txn_in, VARIANT*
txn_out)
//
//
//
// PNEW_ORDER_DATA        pNewOrder;
// COM_DATA                *pData;
//
// try
//
//
//
// pData = (COM_DATA*)txn_in.parray->pvData;
// pNewOrder = m_pTxn->BuffAddr_NewOrder();
//
//
// memcpy(pNewOrder, &pData->u.NewOrder,
sizeof(NEW_ORDER_DATA));
//
//
// m_pTxn->NewOrder();
//
// // do the
//
// actual txn
//
//
// VariantInit(txn_out);
// txn_out->vt = VT_SAFEARRAY;
// txn_out->parray = SafeArrayCreateVector(VT_UI1,
txn_in.parray->rgsabound->cElements,
txn_in.parray->rgsabound->cElements);
//
// pData = (COM_DATA*) txn_out->parray->pvData;
//
//
// memcpy( &pData->u.NewOrder, pNewOrder,
sizeof(NEW_ORDER_DATA));
//
//
// pData->retval = ERR_SUCCESS;

```

```

        pData->error = 0;
        return S_OK;
    }
    catch (CBaseErr *e)
    {
        // check for lost database connection; if yes, component is
toast
        if ( ((e->ErrorType() == ERR_TYPE_DBLIB) &&
(e->ErrorNum() == 10005)) ||
            ((e->ErrorType() == ERR_TYPE_ODBC)
&& (e->ErrorNum() == 10054)) )
            m_bCanBePooled = FALSE;

        pData->retval = e->ErrorType();
        pData->error = e->ErrorNum();
        delete e;
        return E_FAIL;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("Unhandled
exception."));

        pData->retval = ERR_TYPE_LOGIC;
        pData->error = 0;
        m_bCanBePooled = FALSE;
        return E_FAIL;
    }
}

HRESULT CTPCC_Common::Payment(VARIANT txn_in, VARIANT*
txn_out)
{
    PPAYMENT_DATA pPayment;
    COM_DATA          *pData;
    try
    {
        pData = (COM_DATA*)txn_in.parray->pvData;
        pPayment = m_pTxn->BuffAddr_Payment();

        memcpy(pPayment, &pData->u.Payment,
sizeof(PAYMENT_DATA));

        m_pTxn->Payment();          // do the actual txn

        VariantInit(txn_out);
        txn_out->vt = VT_SAFEARRAY;
        txn_out->parray = SafeArrayCreateVector( VT_UI1,
txn_in.parray->rgsabound->cElements,
txn_in.parray->rgsabound->cElements);
        pData = (COM_DATA*) txn_out->parray->pvData;

        memcpy( &pData->u.Payment, pPayment,
sizeof(PAYMENT_DATA));

        pData->retval = ERR_SUCCESS;
        pData->error = 0;
        return S_OK;
    }
    catch (CBaseErr *e)
    {
        // check for lost database connection; if yes, component is
toast
        if ( ((e->ErrorType() == ERR_TYPE_DBLIB) &&
(e->ErrorNum() == 10005)) ||
            ((e->ErrorType() == ERR_TYPE_ODBC)
&& (e->ErrorNum() == 10054)) )
            m_bCanBePooled = FALSE;

        pData->retval = e->ErrorType();
        pData->error = e->ErrorNum();
        delete e;
        return E_FAIL;
    }
    catch (...)
    {

```

```

        m_bCanBePooled = FALSE;

        pData->retval = e->ErrorType();
        pData->error = e->ErrorNum();
        delete e;
        return E_FAIL;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("Unhandled
exception."));

        pData->retval = ERR_TYPE_LOGIC;
        pData->error = 0;
        m_bCanBePooled = FALSE;
        return E_FAIL;
    }
}

HRESULT CTPCC_Common::StockLevel(VARIANT txn_in, VARIANT*
txn_out)
{
    PSTOCK_LEVEL_DATA    pStockLevel;
    COM_DATA              *pData;

    try
    {
        pData = (COM_DATA*)txn_in.parray->pvData;
        pStockLevel = m_pTxn->BuffAddr_StockLevel();

        memcpy(pStockLevel, &pData->u.StockLevel,
sizeof(STOCK_LEVEL_DATA));

        m_pTxn->StockLevel();

        VariantInit(txn_out);
        txn_out->vt = VT_SAFEARRAY;
        txn_out->parray = SafeArrayCreateVector( VT_UI1,
txn_in.parray->rgsabound->cElements,
txn_in.parray->rgsabound->cElements);
        pData = (COM_DATA*)txn_out->parray->pvData;

        memcpy( &pData->u.StockLevel, pStockLevel,
sizeof(STOCK_LEVEL_DATA));

        pData->retval = ERR_SUCCESS;
        pData->error = 0;
        return S_OK;
    }
    catch (CBaseErr *e)
    {
        // check for lost database connection; if yes, component is
toast
        if ( ((e->ErrorType() == ERR_TYPE_DBLIB) &&
(e->ErrorNum() == 10005)) ||
            ((e->ErrorType() == ERR_TYPE_ODBC)
&& (e->ErrorNum() == 10054)) )
            m_bCanBePooled = FALSE;

        pData->retval = e->ErrorType();
        pData->error = e->ErrorNum();
        delete e;
        return E_FAIL;
    }
    catch (...)
    {

```

```

        WriteMessageToEventLog(TEXT("Unhandled
exception."));
        pData->retval = ERR_TYPE_LOGIC;
        pData->error = 0;
        m_bCanBePooled = FALSE;
        return E_FAIL;
    }
}

HRESULT CTPCC_Common::OrderStatus(VARIANT txn_in, VARIANT*
txn_out)
{
    PORDER_STATUS_DATA    pOrderStatus;
    COM_DATA                *pData;
    try
    {
        pData = (COM_DATA*)txn_in.parray->pvData;
        pOrderStatus = m_pTxn->BuffAddr_OrderStatus();

        memcpy(pOrderStatus, &pData->u.OrderStatus,
sizeof(ORDER_STATUS_DATA));

        m_pTxn->OrderStatus();

        VariantInit(txn_out);
        txn_out->vt = VT_SAFEARRAY;
        txn_out->parray = SafeArrayCreateVector( VT_UI1,

txn_in.parray->rgsabound->cElements,

txn_in.parray->rgsabound->cElements);
        pData = (COM_DATA*)txn_out->parray->pvData;

        memcpy( &pData->u.OrderStatus, pOrderStatus,
sizeof(ORDER_STATUS_DATA));

        pData->retval = ERR_SUCCESS;
        pData->error = 0;
        return S_OK;
    }
    catch (CBaseErr *e)
    {
        // check for lost database connection; if yes, component is
toast
        if ( ((e->ErrorType() == ERR_TYPE_DBLIB) &&
(e->ErrorNum() == 10005)) ||
            ((e->ErrorType() == ERR_TYPE_ODBC)
&& (e->ErrorNum() == 10054)) )
            m_bCanBePooled = FALSE;

        pData->retval = e->ErrorType();
        pData->error = e->ErrorNum();
        delete e;
        return E_FAIL;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("Unhandled
exception."));
        pData->retval = ERR_TYPE_LOGIC;
        pData->error = 0;
        m_bCanBePooled = FALSE;
        return E_FAIL;
    }
}

```

## **Tpcc\_com\_all.def**

; tpcc\_com\_all.def : Declares the module parameters.

```

LIBRARY    "tpcc_com_all.dll"

EXPORTS
    DllCanUnloadNow    @1 PRIVATE
    DllGetClassObject  @2 PRIVATE
    DllRegisterServer  @3 PRIVATE
    DllUnregisterServer @4 PRIVATE

```

## **Tpcc\_com\_all.dsp**

```

# Microsoft Developer Studio Project File - Name="tpcc_com_all" - Package
Owner=<4>
# Microsoft Developer Studio Generated Build File, Format Version 6.00
# ** DO NOT EDIT **

# TARGETTYPE "Win32 (x86) Dynamic-Link Library" 0x0102

CFG=tpcc_com_all - Win32 Debug
!MESSAGE This is not a valid makefile. To build this project using NMAKE,
!MESSAGE use the Export Makefile command and run
!MESSAGE
!MESSAGE NMAKE /f "tpcc_com_all.mak".
!MESSAGE
!MESSAGE You can specify a configuration when running NMAKE
!MESSAGE by defining the macro CFG on the command line. For example:
!MESSAGE
!MESSAGE NMAKE /f "tpcc_com_all.mak" CFG="tpcc_com_all - Win32
Debug"
!MESSAGE
!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "tpcc_com_all - Win32 Release" (based on "Win32 (x86)
Dynamic-Link Library")
!MESSAGE "tpcc_com_all - Win32 Debug" (based on "Win32 (x86)
Dynamic-Link Library")
!MESSAGE

# Begin Project
# PROP AllowPerConfigDependencies 0
# PROP Scc_ProjName ""
# PROP Scc_LocalPath ""
CPP=cl.exe
MTL=midl.exe
RSC=rc.exe

!IF "$(CFG)" == "tpcc_com_all - Win32 Release"

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "Release"
# PROP BASE Intermediate_Dir "Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MT /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D
"_WINDOWS" /YX /FD /c
# ADD CPP /nologo /MT /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D
"_WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D "NDEBUG" /mktyplib203 /o "NUL" /win32
# ADD MTL /nologo /D "NDEBUG" /mktyplib203 /o "NUL" /win32
# ADD BASE RSC /l 0x409 /d "NDEBUG"

```

```

# ADD RSC /I 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbccp32.lib /nologo /subsystem:windows /dll /machine:I386
# ADD LINK32 ..\db_dblib_dll\bin\tpcc_dblib.lib
..\db_odbc_dll\bin\tpcc_odbc.lib kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbccp32.lib /nologo /subsystem:windows /dll /machine:I386

!ELSEIF "$(CFG)" == "tpcc_com_all - Win32 Debug"

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "Debug"
# PROP BASE Intermediate_Dir "Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MTd /W3 /Gm /GX /ZI /Od /D "WIN32" /D
_DEBUG" /D "_WINDOWS" /YX /FD /c
# ADD CPP /nologo /MTd /W3 /Gm /GX /ZI /Od /D "WIN32" /D "_DEBUG"
/D "_WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D " _DEBUG" /mktyplib203 /o "NUL" /win32
# ADD MTL /nologo /D " _DEBUG" /mktyplib203 /o "NUL" /win32
# ADD BASE RSC /I 0x409 /d " _DEBUG"
# ADD RSC /I 0x409 /d " _DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbccp32.lib /nologo /subsystem:windows /dll /debug /machine:I386
/pdbtype:sept
# ADD LINK32 ..\db_dblib_dll\bin\tpcc_dblib.lib
..\db_odbc_dll\bin\tpcc_odbc.lib kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbccp32.lib /nologo /subsystem:windows /dll /debug /machine:I386
/pdbtype:sept

!ENDIF

# Begin Target

# Name "tpcc_com_all - Win32 Release"
# Name "tpcc_com_all - Win32 Debug"
# Begin Group "Source"

# PROP Default_Filter "*.cpp, *.c"
# Begin Source File

SOURCE=.\src\tpcc_com_all.cpp
# SUBTRACT CPP /YX
# End Source File
# Begin Source File

SOURCE=.\src\tpcc_com_all.def
# End Source File
# Begin Source File

```

```

SOURCE=.\src\tpcc_com_all.idl

!IF "$(CFG)" == "tpcc_com_all - Win32 Release"

# PROP Ignore_Default_Tool 1
# Begin Custom Build - Performing MIDL step
InputPath=.\src\tpcc_com_all.idl

BuildCmds= \
        midl /Oicf /h "tpcc_com_all.h" /iid "tpcc_com_all_i.c"
"\src\tpcc_com_all.idl" /out ".\src"

"\src\tpcc_com_all.tlb" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)

"\src\tpcc_com_all.h" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)

"\src\tpcc_com_all_i.c" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)
# End Custom Build

!ELSEIF "$(CFG)" == "tpcc_com_all - Win32 Debug"

# PROP Ignore_Default_Tool 1
# Begin Custom Build - Performing MIDL step
InputPath=.\src\tpcc_com_all.idl

BuildCmds= \
        midl /Oicf /h "tpcc_com_all.h" /iid "tpcc_com_all_i.c"
"\src\tpcc_com_all.idl" /out ".\src"

"\src\tpcc_com_all.tlb" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)

"\src\tpcc_com_all.h" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)

"\src\tpcc_com_all_i.c" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)
# End Custom Build

!ENDIF

# End Source File
# End Group
# Begin Group "Header"

# PROP Default_Filter "*.h"
# Begin Source File

SOURCE=.\src\Methods.h
# End Source File
# Begin Source File

SOURCE=.\src\resource.h
# End Source File
# End Group
# Begin Source File

SOURCE=.\src\tpcc_com_all.rc
# End Source File
# End Target
# End Project

```

***Tpcc\_com\_all.h***

```

#pragma warning( disable: 4049 ) /* more than 64k source lines */

/* this ALWAYS GENERATED file contains the definitions for the interfaces */

/* File created by MIDL compiler version 5.03.0280 */
/* at Thu Dec 13 23:13:14 2001 */
/* Compiler settings for \src\tpcc_com_all.idl:
   Oicf (OptLev=i2), W1, Zp8, env=Win32 (32b run), ms_ext, c_ext
   error checks: allocation ref bounds_check enum stub_data
   VC __declspec() decoration level:
       __declspec(uuid()), __declspec(selectany), __declspec(novtable)
   DECLSPEC_UUID(), MIDL_INTERFACE() */
//@@@MIDL_FILE_HEADING( )

/* verify that the <rpcndr.h> version is high enough to compile this file*/
#ifndef __REQUIRED_RPCNDR_H_VERSION__
#define __REQUIRED_RPCNDR_H_VERSION__ 440
#endif

#include "rpc.h"
#include "rpcndr.h"

#ifndef __tpcc_com_all_h__
#define __tpcc_com_all_h__

/* Forward Declarations */

#ifndef __TPCC_FWD_DEFINED__
#define __TPCC_FWD_DEFINED__

#ifdef __cplusplus
typedef class TPCC TPCC;
#else
typedef struct TPCC TPCC;
#endif /* __cplusplus */

#endif /* __TPCC_FWD_DEFINED__ */

#ifndef __NewOrder_FWD_DEFINED__
#define __NewOrder_FWD_DEFINED__

#ifdef __cplusplus
typedef class NewOrder NewOrder;
#else
typedef struct NewOrder NewOrder;
#endif /* __cplusplus */

#endif /* __NewOrder_FWD_DEFINED__ */

#ifndef __OrderStatus_FWD_DEFINED__
#define __OrderStatus_FWD_DEFINED__

#ifdef __cplusplus
typedef class OrderStatus OrderStatus;
#else
typedef struct OrderStatus OrderStatus;
#endif /* __cplusplus */

#endif /* __OrderStatus_FWD_DEFINED__ */

#endif /* __tpcc_com_all_h__ */

#ifdef __cplusplus
typedef class Payment Payment;
#else
typedef struct Payment Payment;
#endif /* __cplusplus */

#endif /* __Payment_FWD_DEFINED__ */

#ifndef __StockLevel_FWD_DEFINED__
#define __StockLevel_FWD_DEFINED__

#ifdef __cplusplus
typedef class StockLevel StockLevel;
#else
typedef struct StockLevel StockLevel;
#endif /* __cplusplus */

#endif /* __StockLevel_FWD_DEFINED__ */

/* header files for imported files */
#include "oaidl.h"
#include "ocidl.h"
#include "tpcc_com_ps.h"

#ifdef __cplusplus
extern "C" {
#endif

void __RPC_FAR * __RPC_USER MIDL_user_allocate(size_t);
void __RPC_USER MIDL_user_free( void __RPC_FAR * );

/* interface __MIDL_itf_tpcc_com_all_0000 */
/* [local] */

extern RPC_IF_HANDLE __MIDL_itf_tpcc_com_all_0000_v0_0_c_ifspec;
extern RPC_IF_HANDLE __MIDL_itf_tpcc_com_all_0000_v0_0_s_ifspec;

#ifndef __TPCCLib_LIBRARY_DEFINED__
#define __TPCCLib_LIBRARY_DEFINED__

/* library TPCCLib */
/* [helpstring][version][uuid] */

EXTERN_C const IID LIBID_TPCCLib;

EXTERN_C const CLSID CLSID_TPCC;

#ifdef __cplusplus
class DECLSPEC_UUID("122A3128-2520-11D3-BA71-00C04FBFE08B")
TPCC;
#endif

EXTERN_C const CLSID CLSID_NewOrder;

#ifdef __cplusplus
class DECLSPEC_UUID("975BAABF-84A7-11D2-BA47-00C04FBFE08B")
NewOrder;
#endif

```

```

EXTERN_C const CLSID CLSID_OrderStatus;

#ifdef __cplusplus

class DECLSPEC_UUID("266836AD-A50D-11D2-BA4E-00C04FBFE08B")
OrderStatus;
#endif

EXTERN_C const CLSID CLSID_Payment;

#ifdef __cplusplus

class DECLSPEC_UUID("CD02F7EF-A4FA-11D2-BA4E-00C04FBFE08B")
Payment;
#endif

EXTERN_C const CLSID CLSID_StockLevel;

#ifdef __cplusplus

class DECLSPEC_UUID("2668369E-A50D-11D2-BA4E-00C04FBFE08B")
StockLevel;
#endif
#endif /* __TPCCLib_LIBRARY_DEFINED */

/* Additional Prototypes for ALL interfaces */

/* end of Additional Prototypes */

#ifdef __cplusplus
}
#endif

#endif

```

## ***Tpcc\_com\_all.idl***

```

/*      FILE:          TPCC.IDL
*
*      Microsoft TPC-C Kit Ver.
4.20.000
*
*      Copyright Microsoft, 1999
*
*      All Rights Reserved
*
*
*      not yet audited
*
*
*      PURPOSE:        IDL source for TPCC.dll. This file is
processed by the MIDL tool to
*
*      produce the type library
(TPCC.tlb) and marshalling code.
*
*      Change history:
*      4.20.000 - first version
*/

interface TPCC;
interface NewOrder;
interface OrderStatus;
interface Payment;
interface StockLevel;

import "oaidl.idl";
import "ocidl.idl";
import "..\tpcc_com_ps\src\tpcc_com_ps.idl";

```

```
[
```

```

    uuid(122A3117-2520-11D3-BA71-00C04FBFE08B),
    version(1.0),
    helpstring("TPC-C 1.0 Type Library")
]
library TPCCLib
{
    importlib("stdole32.tlb");
    importlib("stdole2.tlb");

    [
        uuid(122A3128-2520-11D3-BA71-00C04FBFE08B),
        helpstring("All Txns Class")
    ]
    coclass TPCC
    {
        [default] interface ITPCC;
    };

    [
        uuid(975BAABF-84A7-11D2-BA47-00C04FBFE08B),
        helpstring("NewOrder Class")
    ]
    coclass NewOrder
    {
        [default] interface ITPCC;
    };

    [
        uuid(266836AD-A50D-11D2-BA4E-00C04FBFE08B),
        helpstring("OrderStatus Class")
    ]
    coclass OrderStatus
    {
        [default] interface ITPCC;
    };

    [
        uuid(CD02F7EF-A4FA-11D2-BA4E-00C04FBFE08B),
        helpstring("Payment Class")
    ]
    coclass Payment
    {
        [default] interface ITPCC;
    };

    [
        uuid(2668369E-A50D-11D2-BA4E-00C04FBFE08B),
        helpstring("StockLevel Class")
    ]
    coclass StockLevel
    {
        [default] interface ITPCC;
    };
};

```

## ***Tpcc\_com\_all.rc***

```

//Microsoft Developer Studio generated resource script.
//
#include "resource.h"

#define APSTUDIO_READONLY_SYMBOLS

```

```

////////////////////////////////////
//
// Generated from the TEXTINCLUDE 2 resource.
//
#include "winres.h"

////////////////////////////////////
#undef APSTUDIO_READONLY_SYMBOLS

////////////////////////////////////
// English (U.S.) resources

#if !defined(AFX_RESOURCE_DLL) || defined(AFX_TARG_ENU)
#ifdef _WIN32
LANGUAGE LANG_ENGLISH, SUBLANG_ENGLISH_US
#pragma code_page(1252)
#endif // _WIN32

#ifdef APSTUDIO_INVOKED
////////////////////////////////////
//
// TEXTINCLUDE
//

1 TEXTINCLUDE DISCARDABLE
BEGIN
    "resource.h\0"
END

2 TEXTINCLUDE DISCARDABLE
BEGIN
    "#include \"\"winres.h\"\"\\r\\n"
    "\\0"
END

3 TEXTINCLUDE DISCARDABLE
BEGIN
    "1 TYPELIB \"tpcc_com_all.tlb\"\\r\\n"
    "\\0"
END

#endif // APSTUDIO_INVOKED

#ifdef _MAC
////////////////////////////////////
//
// Version
//

VS_VERSION_INFO VERSIONINFO
FILEVERSION 1,0,0,1
PRODUCTVERSION 1,0,0,1
FILEFLAGSMASK 0x3fL
#ifdef _DEBUG
FILEFLAGS 0x1L
#else
FILEFLAGS 0x0L
#endif
FILEOS 0x4L
FILETYPE 0x2L
FILESUBTYPE 0x0L
BEGIN
    BLOCK "StringFileInfo"
    BEGIN
        BLOCK "040904B0"
        BEGIN
            VALUE "CompanyName", ""0"

```

```

            VALUE "FileDescription", "tpcc_com_all Module\0"
            VALUE "FileVersion", "1, 0, 0, 1\0"
            VALUE "InternalName", "TPCCNEWORDER\0"
            VALUE "LegalCopyright", "Copyright 1997\0"
            VALUE "OriginalFilename", "tpcc_com_all.DLL\0"
            VALUE "ProductName", "tpcc_com_all Module\0"
            VALUE "ProductVersion", "1, 0, 0, 1\0"
            VALUE "OLESelfRegister", ""0"
        END
    END
    BLOCK "VarFileInfo"
    BEGIN
        VALUE "Translation", 0x409, 1200
    END
END

#endif // !_MAC

////////////////////////////////////
//
// REGISTRY
//

IDR_TPCC            REGISTRY DISCARDABLE "tpcc_com_all.rgs"
IDR_NEWORDER        REGISTRY DISCARDABLE "tpcc_com_no.rgs"
IDR_ORDERSTATUS     REGISTRY DISCARDABLE
"tpcc_com_os.rgs"
IDR_PAYMENT          REGISTRY DISCARDABLE "tpcc_com_pay.rgs"
IDR_STOCKLEVEL      REGISTRY DISCARDABLE "tpcc_com_sl.rgs"

////////////////////////////////////
//
// String Table
//

STRINGTABLE DISCARDABLE
BEGIN
    IDS_PROJNAME      "tpcc_com_all"
END

#endif // English (U.S.) resources
////////////////////////////////////

#ifdef APSTUDIO_INVOKED
////////////////////////////////////
//
// Generated from the TEXTINCLUDE 3 resource.
//
1 TYPELIB "tpcc_com_all.tlb"

////////////////////////////////////
#endif // not APSTUDIO_INVOKED

Tpcc_com_all.rgs

HKCR
{
    TPCC.AllTxns.1 = s 'All Txns Class'
    {
        CLSID = s
        '{122A3128-2520-11D3-BA71-00C04FBFE08B}'
    }
    TPCC.AllTxns = s 'TPCC Class'
    {
        CurVer = s 'TPCC.AllTxns.1'
    }
    NoRemove CLSID

```

```

        {
            ForceRemove
            {122A3128-2520-11D3-BA71-00C04FBFE08B} = s 'TPCC Class'
            {
                ProgID = s 'TPCC.AllTxns.1'
                VersionIndependentProgID = s
                'TPCC.AllTxns'
                InprocServer32 = s '%MODULE%'
                {
                    val ThreadingModel = s 'Both'
                }
            }
        }
    }
}

```

## ***Tpcc\_com\_all\_i.c***

```

#pragma warning( disable: 4049 ) /* more than 64k source lines */

/* this ALWAYS GENERATED file contains the IIDs and CLSIDs */

/* link this file in with the server and any clients */

/* File created by MIDL compiler version 5.03.0280 */
/* at Thu Dec 13 23:13:14 2001
*/
/* Compiler settings for \src\tpcc_com_all.idl:
    Oicf (OptLev=i2), W1, Zp8, env=Win32 (32b run), ms_ext, c_ext
    error checks: allocation ref bounds_check enum stub_data
    VC __declspec() decoration level:
        __declspec(uuid()), __declspec(selectany), __declspec(novtable)
    DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@@MIDL_FILE_HEADING( )

#if !defined(_M_IA64) && !defined(_M_AXP64)

#ifdef __cplusplus
extern "C" {
#endif

#include <rpc.h>
#include <rpcndr.h>

#ifdef _MIDL_USE_GUIDDEF_

#ifndef INITGUID
#define INITGUID
#include <guiddef.h>
#undef INITGUID
#else
#include <guiddef.h>
#endif

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
    DEFINE_GUID(name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8)

#else // !_MIDL_USE_GUIDDEF_

#ifndef __IID_DEFINED__
#define __IID_DEFINED__

typedef struct _IID
{
    unsigned long x;
    unsigned short s1;

```

```

    unsigned short s2;
    unsigned char c[8];
} IID;

#endif // __IID_DEFINED__

#ifndef CLSID_DEFINED
#define CLSID_DEFINED
typedef IID CLSID;
#endif // CLSID_DEFINED

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
    const type name = {l,w1,w2,{b1,b2,b3,b4,b5,b6,b7,b8}}

#endif // !_MIDL_USE_GUIDDEF_

MIDL_DEFINE_GUID(IID,
LIBID_TPCCLib,0x122A3117,0x2520,0x11D3,0xBA,0x71,0x00,0xC0,0x4F,0
xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_TPCC,0x122A3128,0x2520,0x11D3,0xBA,0x71,0x00,0xC0,0x4F,0xB
F,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_NewOrder,0x975BAABF,0x84A7,0x11D2,0xBA,0x47,0x00,0xC0,0x4
F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_OrderStatus,0x266836AD,0xA50D,0x11D2,0xBA,0x4E,0x00,0xC0,0x
4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_Payment,0xCD02F7EF,0xA4FA,0x11D2,0xBA,0x4E,0x00,0xC0,0x4F
,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_StockLevel,0x2668369E,0xA50D,0x11D2,0xBA,0x4E,0x00,0xC0,0x4
F,0xBF,0xE0,0x8B);

#undef MIDL_DEFINE_GUID

#ifdef __cplusplus
}
#endif

#endif /* !defined(_M_IA64) && !defined(_M_AXP64) */

#pragma warning( disable: 4049 ) /* more than 64k source lines */

/* this ALWAYS GENERATED file contains the IIDs and CLSIDs */

/* link this file in with the server and any clients */

/* File created by MIDL compiler version 5.03.0280 */
/* at Thu Dec 13 23:13:14 2001
*/
/* Compiler settings for \src\tpcc_com_all.idl:
    Oicf (OptLev=i2), W1, Zp8, env=Win64 (32b run,appending), ms_ext, c_ext,
    robust
    error checks: allocation ref bounds_check enum stub_data
    VC __declspec() decoration level:

```

```

        __declspec(uuid()), __declspec(selectany), __declspec(novtable)
        DECLSPEC_UUID(), MIDL_INTERFACE()
    */
    //@@MIDL_FILE_HEADING( )

    #if defined(_M_IA64) || defined(_M_AXP64)

    #ifdef __cplusplus
    extern "C" {
    #endif

    #include <rpc.h>
    #include <rpcndr.h>

    #ifndef _MIDL_USE_GUIDDEF_

    #ifndef INITGUID
    #define INITGUID
    #include <guiddef.h>
    #undef INITGUID
    #else
    #include <guiddef.h>
    #endif

    #define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
        DEFINE_GUID(name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8)

    #else /* !_MIDL_USE_GUIDDEF_

    #ifndef __IID_DEFINED__
    #define __IID_DEFINED__

    typedef struct _IID
    {
        unsigned long x;
        unsigned short s1;
        unsigned short s2;
        unsigned char c[8];
    } IID;

    #endif /* __IID_DEFINED__

    #ifndef CLSID_DEFINED
    #define CLSID_DEFINED
    typedef IID CLSID;
    #endif /* CLSID_DEFINED

    #define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
        const type name = {l,w1,w2,{b1,b2,b3,b4,b5,b6,b7,b8}}

    #endif /* !_MIDL_USE_GUIDDEF_

    MIDL_DEFINE_GUID(IID,
        LIBID_TPCCLib,0x122A3117,0x2520,0x11D3,0xBA,0x71,0x00,0xC0,0x4F,0
        xBF,0xE0,0x8B);

    MIDL_DEFINE_GUID(CLSID,
        CLSID_TPCC,0x122A3128,0x2520,0x11D3,0xBA,0x71,0x00,0xC0,0x4F,0xB
        F,0xE0,0x8B);

    MIDL_DEFINE_GUID(CLSID,
        CLSID_NewOrder,0x975BAABF,0x84A7,0x11D2,0xBA,0x47,0x00,0xC0,0x4
        F,0xBF,0xE0,0x8B);

```

```

    MIDL_DEFINE_GUID(CLSID,
        CLSID_OrderStatus,0x266836AD,0xA50D,0x11D2,0xBA,0x4E,0x00,0xC0,0x
        4F,0xBF,0xE0,0x8B);

    MIDL_DEFINE_GUID(CLSID,
        CLSID_Payment,0xCD02F7EF,0xA4FA,0x11D2,0xBA,0x4E,0x00,0xC0,0x4F
        ,0xBF,0xE0,0x8B);

    MIDL_DEFINE_GUID(CLSID,
        CLSID_StockLevel,0x2668369E,0xA50D,0x11D2,0xBA,0x4E,0x00,0xC0,0x4
        F,0xBF,0xE0,0x8B);

    #undef MIDL_DEFINE_GUID

    #ifdef __cplusplus
    }
    #endif

    #endif /* defined(_M_IA64) || defined(_M_AXP64) */

```

## ***Tpcc\_com\_all\_resource.h***

```

    /**{NO_DEPENDENCIES}
    // Microsoft Developer Studio generated include file.
    // Used by tpcc_com_all.rc
    //
    #define IDS_PROJNAME                100
    #define IDR_TPCC                    101
    #define IDR_NEWORDER                102
    #define IDR_ORDERSTATUS              103
    #define IDR_PAYMENT                 104
    #define IDR_STOCKLEVEL              105

    // Next default values for new objects
    //
    #ifndef APSTUDIO_INVOKED
    #ifndef APSTUDIO_READONLY_SYMBOLS
    #define _APS_NEXT_RESOURCE_VALUE    202
    #define _APS_NEXT_COMMAND_VALUE    32768
    #define _APS_NEXT_CONTROL_VALUE    201
    #define _APS_NEXT_SYMED_VALUE      106
    #endif
    #endif

```

## ***Tpcc\_com\_no.rgs***

```

HKCR
{
    TPCC.NewOrder.1 = s 'NewOrder Class'
    {
        CLSID = s
        '{975BAABF-84A7-11D2-BA47-00C04FBFE08B}'
    }
    TPCC.NewOrder = s 'NewOrder Class'
    {
        CurVer = s 'TPCC.NewOrder.1'
    }
    NoRemove CLSID
    {
        ForceRemove
        {975BAABF-84A7-11D2-BA47-00C04FBFE08B} = s 'NewOrder Class'
        {
            ProgID = s 'TPCC.NewOrder.1'

```

```

        VersionIndependentProgID = s
    'TPCC.NewOrder'
        InprocServer32 = s '%MODULE%'
        {
            val ThreadingModel = s 'Both'
        }
    }
}

```

## ***Tpcc\_com\_os.rgs***

```

HKCR
{
    TPCC.OrderStatus.1 = s 'OrderStatus Class'
    {
        CLSID = s
        '{266836AD-A50D-11D2-BA4E-00C04FBFE08B}'
    }
    TPCC.OrderStatus = s 'OrderStatus Class'
    {
        CurVer = s 'TPCC.OrderStatus.1'
    }
    NoRemove CLSID
    {
        ForceRemove
        {266836AD-A50D-11D2-BA4E-00C04FBFE08B} = s 'OrderStatus Class'
        {
            ProgID = s 'TPCC.OrderStatus.1'
            VersionIndependentProgID = s
        }
    }
    'TPCC.OrderStatus'
        InprocServer32 = s '%MODULE%'
        {
            val ThreadingModel = s 'Both'
        }
    }
}

```

## ***Tpcc\_com\_pay.rgs***

```

HKCR
{
    TPCC.Payment.1 = s 'Payment Class'
    {
        CLSID = s
        '{CD02F7EF-A4FA-11D2-BA4E-00C04FBFE08B}'
    }
    TPCC.Payment = s 'Payment Class'
    {
        CurVer = s 'TPCC.Payment.1'
    }
    NoRemove CLSID
    {
        ForceRemove
        {CD02F7EF-A4FA-11D2-BA4E-00C04FBFE08B} = s 'Payment Class'
        {
            ProgID = s 'TPCC.Payment.1'
            VersionIndependentProgID = s
        }
    }
    'TPCC.Payment'
        InprocServer32 = s '%MODULE%'
        {
            val ThreadingModel = s 'Both'
        }
    }
}

```

```

}

```

## ***Tpcc\_com\_ps.def***

```

LIBRARY    "tpcc_com_ps"

DESCRIPTION 'Proxy/Stub DLL'

EXPORTS
    DllGetClassObject    @1    PRIVATE
    DllCanUnloadNow      @2    PRIVATE
    GetProxyDllInfo      @3    PRIVATE
    DllRegisterServer     @4    PRIVATE
    DllUnregisterServer   @5    PRIVATE

```

## ***Tpcc\_com\_ps.dsp***

```

# Microsoft Developer Studio Project File - Name="tpcc_com_ps" - Package
Owner=<4>
# Microsoft Developer Studio Generated Build File, Format Version 6.00
# ** DO NOT EDIT **

# TARGETTYPE "Win32 (x86) Application" 0x0101

CFG=tpcc_com_ps - Win32 Debug
!MESSAGE This is not a valid makefile. To build this project using NMAKE,
!MESSAGE use the Export Makefile command and run
!MESSAGE
!MESSAGE NMAKE /f "tpcc_com_ps.mak".
!MESSAGE
!MESSAGE You can specify a configuration when running NMAKE
!MESSAGE by defining the macro CFG on the command line. For example:
!MESSAGE
!MESSAGE NMAKE /f "tpcc_com_ps.mak" CFG="tpcc_com_ps - Win32
Debug"
!MESSAGE
!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "tpcc_com_ps - Win32 Release" (based on "Win32 (x86)
Application")
!MESSAGE "tpcc_com_ps - Win32 Debug" (based on "Win32 (x86)
Application")
!MESSAGE

# Begin Project
# PROP AllowPerConfigDependencies 0
# PROP Scc_ProjName ""
# PROP Scc_LocalPath ""
CPP=cl.exe
MTL=midl.exe
RSC=rc.exe

!IF "$(CFG)" == "tpcc_com_ps - Win32 Release"

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "Release"
# PROP BASE Intermediate_Dir "Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""

```

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <pre># ADD BASE CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D " _WINDOWS" /YX /FD /c # ADD CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D _WIN32_WINNT=0x0400 /D "REGISTER_PROXY_DLL" /FD /c # SUBTRACT CPP /YX # ADD BASE MTL /nologo /D "NDEBUG" /mktyplib203 /o "NUL" /win32 # ADD MTL /nologo /D "NDEBUG" /mktyplib203 /o "NUL" /win32 # ADD BASE RSC /I 0x409 /d "NDEBUG" # ADD RSC /I 0x409 /d "NDEBUG" BSC32=bscmake.exe # ADD BASE BSC32 /nologo # ADD BSC32 /nologo LINK32=link.exe # ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib odbc32.lib /nologo /subsystem:windows /machine:I386 # ADD LINK32 kernel32.lib rpcndr.lib rpcns4.lib rpcrt4.lib oleaut32.lib uuid.lib /nologo /entry:"DllMain" /subsystem:windows /dll /pdb:none /machine:I386 /def:"\src\tpcc_com_ps.def" # Begin Custom Build - Copying tpcc_com_ps.h InputPath=\bin\tpcc_com_ps.dll SOURCE="\$(InputPath)"  "..\tpcc_com_all\src\tpcc_com_ps.h" : \$(SOURCE) "\$(INTDIR)" "\$(OUTDIR)" copy \src\tpcc_com_ps.h ..\tpcc_com_all\src\  # End Custom Build  !ELSEIF "\$(CFG)" == "tpcc_com_ps - Win32 Debug"  # PROP BASE Use_MFC 0 # PROP BASE Use_Debug_Libraries 1 # PROP BASE Output_Dir "Debug" # PROP BASE Intermediate_Dir "Debug" # PROP BASE Target_Dir "" # PROP Use_MFC 0 # PROP Use_Debug_Libraries 1 # PROP Output_Dir ".\bin" # PROP Intermediate_Dir ".\obj" # PROP Ignore_Export_Lib 0 # PROP Target_Dir "" # ADD BASE CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32" /D " _DEBUG" /D " _WINDOWS" /YX /FD /c # ADD CPP /nologo /ZI /Od /D "WIN32" /D " _DEBUG" /D _WIN32_WINNT=0x0400 /D "REGISTER_PROXY_DLL" /FD /c # ADD BASE MTL /nologo /D " _DEBUG" /mktyplib203 /o "NUL" /win32 # ADD MTL /nologo /D " _DEBUG" /mktyplib203 /o "NUL" /win32 # ADD BASE RSC /I 0x409 /d " _DEBUG" # ADD RSC /I 0x409 /d " _DEBUG" BSC32=bscmake.exe # ADD BASE BSC32 /nologo # ADD BSC32 /nologo LINK32=link.exe # ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib odbc32.lib /nologo /subsystem:windows /debug /machine:I386 /pdbtype:sept # ADD LINK32 kernel32.lib rpcndr.lib rpcns4.lib rpcrt4.lib oleaut32.lib uuid.lib /nologo /entry:"DllMain" /dll /debug /machine:IX86 /def:"\src\tpcc_com_ps.def" /pdbtype:sept # SUBTRACT LINK32 /pdb:none # Begin Custom Build - Copying tpcc_com_ps.h InputPath=\bin\tpcc_com_ps.dll SOURCE="\$(InputPath)"  "..\tpcc_com_all\src\tpcc_com_ps.h" : \$(SOURCE) "\$(INTDIR)" "\$(OUTDIR)" copy \src\tpcc_com_ps.h ..\tpcc_com_all\src\  # End Custom Build</pre> | <pre>!ENDIF  # Begin Target  # Name "tpcc_com_ps - Win32 Release" # Name "tpcc_com_ps - Win32 Debug" # Begin Group "Source"  # PROP Default_Filter "" # Begin Source File  SOURCE=\src\dlldata.c # End Source File # Begin Source File  SOURCE=\src\tpcc_com_ps.def # PROP Exclude_From_Build 1 # End Source File # Begin Source File  SOURCE=\src\tpcc_com_ps.idl  !IF "\$(CFG)" == "tpcc_com_ps - Win32 Release"  # PROP Ignore_Default_Tool 1 # Begin Custom Build InputPath=\src\tpcc_com_ps.idl  BuildCmds= \ midl /Oicf /h "tpcc_com_ps.h" /iid "tpcc_com_ps_i.c" "\src\tpcc_com_ps.idl" /out ".\src"  "\src\tpcc_com_ps.h" : \$(SOURCE) "\$(INTDIR)" "\$(OUTDIR)" \$(BuildCmds)  "\src\tpcc_com_ps_i.c" : \$(SOURCE) "\$(INTDIR)" "\$(OUTDIR)" \$(BuildCmds)  "\src\dlldata.c" : \$(SOURCE) "\$(INTDIR)" "\$(OUTDIR)" \$(BuildCmds)  "\src\tpcc_com_ps.p.c" : \$(SOURCE) "\$(INTDIR)" "\$(OUTDIR)" \$(BuildCmds) # End Custom Build  !ELSEIF "\$(CFG)" == "tpcc_com_ps - Win32 Debug"  # PROP Ignore_Default_Tool 1 # Begin Custom Build InputPath=\src\tpcc_com_ps.idl  BuildCmds= \ midl /Oicf /h "tpcc_com_ps.h" /iid "tpcc_com_ps_i.c" "\src\tpcc_com_ps.idl" /out ".\src"  "\src\tpcc_com_ps.h" : \$(SOURCE) "\$(INTDIR)" "\$(OUTDIR)" \$(BuildCmds)  "\src\tpcc_com_ps_i.c" : \$(SOURCE) "\$(INTDIR)" "\$(OUTDIR)" \$(BuildCmds)  "\src\dlldata.c" : \$(SOURCE) "\$(INTDIR)" "\$(OUTDIR)" \$(BuildCmds)  "\src\tpcc_com_ps.p.c" : \$(SOURCE) "\$(INTDIR)" "\$(OUTDIR)" \$(BuildCmds) # End Custom Build</pre> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

```
!ENDIF
```

```
# End Source File
# Begin Source File
```

```
SOURCE=.\src\tpcc_com_ps_i.c
# End Source File
# Begin Source File
```

```
SOURCE=.\src\tpcc_com_ps_p.c
# End Source File
# End Group
# End Target
# End Project
```

## ***Tpcc\_com\_ps.h***

```
#pragma warning( disable: 4049 ) /* more than 64k source lines */
```

```
/* this ALWAYS GENERATED file contains the definitions for the interfaces
*/
```

```
/* File created by MIDL compiler version 5.03.0280 */
/* at Thu Dec 13 23:13:08 2001
*/
/* Compiler settings for .\src\tpcc_com_ps.idl:
Oicf (OptLev=i2), W1, Zp8, env=Win32 (32b run), ms_ext, c_ext
error checks: allocation ref bounds_check enum stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany), __declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
```

```
//@@@MIDL_FILE_HEADING( )
```

```
/* verify that the <rpcndr.h> version is high enough to compile this file*/
#ifndef __REQUIRED_RPCNDR_H_VERSION__
#define __REQUIRED_RPCNDR_H_VERSION__ 440
#endif
```

```
#include "rpc.h"
#include "rpcndr.h"
```

```
#ifndef __RPCNDR_H_VERSION__
#error this stub requires an updated version of <rpcndr.h>
#endif // __RPCNDR_H_VERSION__
```

```
#ifndef COM_NO_WINDOWS_H
#include "windows.h"
#include "ole2.h"
#endif /*COM_NO_WINDOWS_H*/
```

```
#ifndef __tpcc_com_ps_h__
#define __tpcc_com_ps_h__
```

```
/* Forward Declarations */
```

```
#ifndef __ITPCC_FWD_DEFINED__
#define __ITPCC_FWD_DEFINED__
typedef interface ITPCC ITPCC;
#endif /* __ITPCC_FWD_DEFINED__ */
```

```
/* header files for imported files */
#include "oaidl.h"
#include "ocidl.h"
```

```
#ifndef __cplusplus
extern "C"{
#endif
```

```
void __RPC_FAR * __RPC_USER MIDL_user_allocate(size_t);
void __RPC_USER MIDL_user_free( void __RPC_FAR * );
```

```
/* interface __MIDL_itf_tpcc_com_ps_0000 */
/* [local] */
```

```
extern RPC_IF_HANDLE __MIDL_itf_tpcc_com_ps_0000_v0_0_c_ifspec;
extern RPC_IF_HANDLE __MIDL_itf_tpcc_com_ps_0000_v0_0_s_ifspec;
```

```
#ifndef __ITPCC_INTERFACE_DEFINED__
#define __ITPCC_INTERFACE_DEFINED__
```

```
/* interface ITPCC */
/* [unique][helpstring][uuid][oleautomation][object] */
```

```
EXTERN_C const IID IID_ITPCC;
```

```
#if defined(__cplusplus) && !defined(CINTERFACE)
```

```
    MIDL_INTERFACE("FEEE6AA2-84B1-11d2-BA47-00C04FBFE08B")
    ITPCC : public IUnknown
    {
    public:
```

```
        virtual HRESULT __stdcall NewOrder(
            /* [in] */ VARIANT txn_in,
            /* [out] */ VARIANT __RPC_FAR *txn_out) = 0;
```

```
        virtual HRESULT __stdcall Payment(
            /* [in] */ VARIANT txn_in,
            /* [out] */ VARIANT __RPC_FAR *txn_out) = 0;
```

```
        virtual HRESULT __stdcall Delivery(
            /* [in] */ VARIANT txn_in,
            /* [out] */ VARIANT __RPC_FAR *txn_out) = 0;
```

```
        virtual HRESULT __stdcall StockLevel(
            /* [in] */ VARIANT txn_in,
            /* [out] */ VARIANT __RPC_FAR *txn_out) = 0;
```

```
        virtual HRESULT __stdcall OrderStatus(
            /* [in] */ VARIANT txn_in,
            /* [out] */ VARIANT __RPC_FAR *txn_out) = 0;
```

```
        virtual HRESULT __stdcall CallSetComplete( void) = 0;
```

```
    };
```

```
#else /* C style interface */
```

```
    typedef struct ITPCCVtbl
    {
        BEGIN_INTERFACE
```

```
            HRESULT ( STDMETHODCALLTYPE __RPC_FAR *QueryInterface )(
                ITPCC __RPC_FAR * This,
                /* [in] */ REFIID riid,
                /* [iid_is][out] */ void __RPC_FAR * __RPC_FAR *ppvObject);
```

```
            ULONG ( STDMETHODCALLTYPE __RPC_FAR *AddRef )(
                ITPCC __RPC_FAR * This);
```

```

ULONG ( STDMETHODCALLTYPE __RPC_FAR *Release )(
    ITPCC __RPC_FAR * This);

HRESULT ( __stdcall __RPC_FAR *NewOrder )(
    ITPCC __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);

HRESULT ( __stdcall __RPC_FAR *Payment )(
    ITPCC __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);

HRESULT ( __stdcall __RPC_FAR *Delivery )(
    ITPCC __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);

HRESULT ( __stdcall __RPC_FAR *StockLevel )(
    ITPCC __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);

HRESULT ( __stdcall __RPC_FAR *OrderStatus )(
    ITPCC __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);

HRESULT ( __stdcall __RPC_FAR *CallSetComplete )(
    ITPCC __RPC_FAR * This);

END_INTERFACE
} ITPCCVtbl;

interface ITPCC
{
    CONST_VTBL struct ITPCCVtbl __RPC_FAR *lpVtbl;
};

#ifdef COBJMACROS

#define ITPCC_QueryInterface(This,riid,ppvObject) \
    (This)->lpVtbl->QueryInterface(This,riid,ppvObject)

#define ITPCC_AddRef(This) \
    (This)->lpVtbl->AddRef(This)

#define ITPCC_Release(This) \
    (This)->lpVtbl->Release(This)

#define ITPCC_NewOrder(This,txn_in,txn_out) \
    (This)->lpVtbl->NewOrder(This,txn_in,txn_out)

#define ITPCC_Payment(This,txn_in,txn_out) \
    (This)->lpVtbl->Payment(This,txn_in,txn_out)

#define ITPCC_Delivery(This,txn_in,txn_out) \
    (This)->lpVtbl->Delivery(This,txn_in,txn_out)

#define ITPCC_StockLevel(This,txn_in,txn_out) \
    (This)->lpVtbl->StockLevel(This,txn_in,txn_out)

#define ITPCC_OrderStatus(This,txn_in,txn_out) \
    (This)->lpVtbl->OrderStatus(This,txn_in,txn_out)

#define ITPCC_CallSetComplete(This) \

```

```

(This)->lpVtbl->CallSetComplete(This)

#endif /* COBJMACROS */

#endif /* C style interface */

HRESULT __stdcall ITPCC_NewOrder_Proxy(
    ITPCC __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);

void __RPC_STUB ITPCC_NewOrder_Stub(
    IRpcStubBuffer *This,
    IRpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE _pRpcMessage,
    DWORD *_pdwStubPhase);

HRESULT __stdcall ITPCC_Payment_Proxy(
    ITPCC __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);

void __RPC_STUB ITPCC_Payment_Stub(
    IRpcStubBuffer *This,
    IRpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE _pRpcMessage,
    DWORD *_pdwStubPhase);

HRESULT __stdcall ITPCC_Delivery_Proxy(
    ITPCC __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);

void __RPC_STUB ITPCC_Delivery_Stub(
    IRpcStubBuffer *This,
    IRpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE _pRpcMessage,
    DWORD *_pdwStubPhase);

HRESULT __stdcall ITPCC_StockLevel_Proxy(
    ITPCC __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);

void __RPC_STUB ITPCC_StockLevel_Stub(
    IRpcStubBuffer *This,
    IRpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE _pRpcMessage,
    DWORD *_pdwStubPhase);

HRESULT __stdcall ITPCC_OrderStatus_Proxy(
    ITPCC __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);

void __RPC_STUB ITPCC_OrderStatus_Stub(
    IRpcStubBuffer *This,
    IRpcChannelBuffer *_pRpcChannelBuffer,

```

```

PRPC_MESSAGE _pRpcMessage,
DWORD *_pdwStubPhase);

HRESULT __stdcall ITPCC_CallSetComplete_Proxy(
    ITPCC __RPC_FAR * This);

void __RPC_STUB ITPCC_CallSetComplete_Stub(
    IRpcStubBuffer *This,
    IRpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE _pRpcMessage,
    DWORD *_pdwStubPhase);

#endif /* __ITPCC_INTERFACE_DEFINED__ */

/* Additional Prototypes for ALL interfaces */

unsigned long __RPC_USER VARIANT_UserSize( unsigned long
__RPC_FAR *, unsigned long , VARIANT __RPC_FAR * );
unsigned char __RPC_FAR * __RPC_USER VARIANT_UserMarshal(
unsigned long __RPC_FAR *, unsigned char __RPC_FAR *, VARIANT
__RPC_FAR * );
unsigned char __RPC_FAR * __RPC_USER
VARIANT_UserUnmarshal(unsigned long __RPC_FAR *, unsigned char
__RPC_FAR *, VARIANT __RPC_FAR * );
void __RPC_USER VARIANT_UserFree( unsigned long
__RPC_FAR *, VARIANT __RPC_FAR * );

/* end of Additional Prototypes */

#ifdef __cplusplus
}
#endif

#endif

```

## ***Tpcc\_com\_ps.idl***

```

/*      FILE:          ITPCC.IDL
 *
 *      Microsoft TPC-C Kit Ver.
4.20.000
 *
 *      Copyright Microsoft, 1999
 *
 *      All Rights Reserved
 *
 *
 *      not yet audited
 *
 *
 *      PURPOSE:        Defines the interface used by TPCC. This
interface can be implemented by C++ components.
 *
 *      Change history:
 *      4.20.000 - first version
 */

```

```

// Forward declare all types defined
interface ITPCC;
import "oaidl.idl";
import "ocidl.idl";

[
    object,
    oleautomation,
    uuid(FEEE6AA2-84B1-11d2-BA47-00C04FBFE08B),
    helpstring("ITPCC Interface"),
    pointer_default(unique)
]
interface ITPCC : IUnknown

```

```

{

    HRESULT __stdcall NewOrder

    (
        [in]
        VARIANT txn_in,
        [out]
        VARIANT *txn_out
    );

    HRESULT __stdcall Payment

    (
        [in]
        VARIANT txn_in,
        [out]
        VARIANT *txn_out
    );

    HRESULT __stdcall Delivery

    (
        [in]
        VARIANT txn_in,
        [out]
        VARIANT *txn_out
    );

    HRESULT __stdcall StockLevel

    (
        [in]
        VARIANT txn_in,
        [out]
        VARIANT *txn_out
    );

    HRESULT __stdcall OrderStatus

    (
        [in]
        VARIANT txn_in,
        [out]
        VARIANT *txn_out
    );

    HRESULT __stdcall CallSetComplete

    (
        [in]
        VARIANT txn_in,
        [out]
        VARIANT *txn_out
    );

}; // interface ITPCC

```

## ***Tpcc\_com\_ps.i.c***

```

#pragma warning( disable: 4049 ) /* more than 64k source lines */

/* this ALWAYS GENERATED file contains the IIDs and CLSIDs */

/* link this file in with the server and any clients */

/* File created by MIDL compiler version 5.03.0280 */
/* at Thu Dec 13 23:13:08 2001
 */
/* Compiler settings for .\src\tpcc_com_ps.idl:
    Oicf (OptLev=i2), W1, Zp8, env=Win32 (32b run), ms_ext, c_ext
    error checks: allocation ref bounds_check enum stub_data
    VC __declspec() decoration level:
        __declspec(uuid()), __declspec(selectany), __declspec(novtable)
    DECLSPEC_UUID(), MIDL_INTERFACE()
 */

```

```

//@@@MIDL_FILE_HEADING( )

#ifdef _M_IA64 && !defined(_M_AXP64)

#ifdef __cplusplus
extern "C"{
#endif

#include <rpc.h>
#include <rpcndr.h>

#ifdef _MIDL_USE_GUIDDEF_

#ifndef INITGUID
#define INITGUID
#include <guiddef.h>
#undef INITGUID
#else
#include <guiddef.h>
#endif

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
    DEFINE_GUID(name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8)

#else // !_MIDL_USE_GUIDDEF_

#ifndef __IID_DEFINED__
#define __IID_DEFINED__

typedef struct _IID
{
    unsigned long x;
    unsigned short s1;
    unsigned short s2;
    unsigned char c[8];
} IID;

#endif // __IID_DEFINED__

#ifndef CLSID_DEFINED
#define CLSID_DEFINED
typedef IID CLSID;
#endif // CLSID_DEFINED

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
    const type name = {l,w1,w2,{b1,b2,b3,b4,b5,b6,b7,b8}}

#endif !_MIDL_USE_GUIDDEF_

MIDL_DEFINE_GUID(IID,
IID_ITPCC,0xFEEE6AA2,0x84B1,0x11d2,0xBA,0x47,0x00,0xC0,0x4F,0xBF,
0xE0,0x8B);

#undef MIDL_DEFINE_GUID

#ifdef __cplusplus
}
#endif

#endif /* !defined(_M_IA64) && !defined(_M_AXP64) */

#pragma warning( disable: 4049 ) /* more than 64k source lines */

/* this ALWAYS GENERATED file contains the IIDs and CLSIDs */

/* link this file in with the server and any clients */

/* File created by MIDL compiler version 5.03.0280 */
/* at Thu Dec 13 23:13:08 2001
*/
/* Compiler settings for .\src\tpcc_com_ps.idl:
    Oicf (OptLev=i2), W1, Zp8, env=Win64 (32b run,appending), ms_ext, c_ext,
    robust
    error checks: allocation ref bounds_check enum stub_data
    VC __declspec() decoration level:
        __declspec(uuid()), __declspec(selectany), __declspec(novtable)
        DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@@MIDL_FILE_HEADING( )

#ifdef defined(_M_IA64) || defined(_M_AXP64)

#ifdef __cplusplus
extern "C"{
#endif

#include <rpc.h>
#include <rpcndr.h>

#ifdef _MIDL_USE_GUIDDEF_

#ifndef INITGUID
#define INITGUID
#include <guiddef.h>
#undef INITGUID
#else
#include <guiddef.h>
#endif

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
    DEFINE_GUID(name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8)

#else // !_MIDL_USE_GUIDDEF_

#ifndef __IID_DEFINED__
#define __IID_DEFINED__

typedef struct _IID
{
    unsigned long x;
    unsigned short s1;
    unsigned short s2;
    unsigned char c[8];
} IID;

#endif // __IID_DEFINED__

#ifndef CLSID_DEFINED
#define CLSID_DEFINED
typedef IID CLSID;
#endif // CLSID_DEFINED

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
    const type name = {l,w1,w2,{b1,b2,b3,b4,b5,b6,b7,b8}}

#endif !_MIDL_USE_GUIDDEF_

MIDL_DEFINE_GUID(IID,
IID_ITPCC,0xFEEE6AA2,0x84B1,0x11d2,0xBA,0x47,0x00,0xC0,0x4F,0xBF,
0xE0,0x8B);

#undef MIDL_DEFINE_GUID

```

```

#ifdef __cplusplus
}
#endif

#endif /* defined(_M_IA64) || defined(_M_AXP64) */

Tpcc_com_ps_p.c

#pragma warning( disable: 4049 ) /* more than 64k source lines */

/* this ALWAYS GENERATED file contains the proxy stub code */

/* File created by MIDL compiler version 5.03.0280 */
/* at Thu Dec 13 23:13:08 2001
*/
/* Compiler settings for .\src\tpcc_com_ps.idl:
Oicf (OptLev=i2), W1, Zp8, env=Win32 (32b run), ms_ext, c_ext
error checks: allocation ref bounds_check enum stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany), __declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@@MIDL_FILE_HEADING( )

#ifdef !defined(_M_IA64) && !defined(_M_AXP64)
#define USE_STUBLESS_PROXY

/* verify that the <rpcproxy.h> version is high enough to compile this file*/
#ifdef __REDQ_RPCPROXY_H_VERSION__
#define __REQUIRED_RPCPROXY_H_VERSION__ 440
#endif

#include "rpcproxy.h"
#ifdef __RPCPROXY_H_VERSION__
#error this stub requires an updated version of <rpcproxy.h>
#endif // __RPCPROXY_H_VERSION__

#include "tpcc_com_ps.h"

#define TYPE_FORMAT_STRING_SIZE 997
#define PROC_FORMAT_STRING_SIZE 193
#define TRANSMIT_AS_TABLE_SIZE 0
#define WIRE_MARSHAL_TABLE_SIZE 1

typedef struct _MIDL_TYPE_FORMAT_STRING
{
    short Pad;
    unsigned char Format[ TYPE_FORMAT_STRING_SIZE ];
} MIDL_TYPE_FORMAT_STRING;

typedef struct _MIDL_PROC_FORMAT_STRING
{
    short Pad;
    unsigned char Format[ PROC_FORMAT_STRING_SIZE ];
} MIDL_PROC_FORMAT_STRING;

extern const MIDL_TYPE_FORMAT_STRING __MIDL_TypeFormatString;
extern const MIDL_PROC_FORMAT_STRING __MIDL_ProcFormatString;

/* Standard interface: __MIDL_itf_tpcc_com_ps_0000, ver. 0.0,

```

```

GUID={0x00000000,0x0000,0x0000,{0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00}} */

/* Object interface: IUnknown, ver. 0.0,

GUID={0x00000000,0x0000,0x0000,{0xC0,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x46}} */

/* Object interface: ITPCC, ver. 0.0,

GUID={0xFEEE6AA2,0x84B1,0x11d2,{0xBA,0x47,0x00,0xC0,0x4F,0xBF,0xE0,0x8B}} */

extern const MIDL_STUB_DESC Object_StubDesc;

extern const MIDL_SERVER_INFO ITPCC_ServerInfo;

#pragma code_seg(".orpc")
static const unsigned short ITPCC_FormatStringOffsetTable[] =
{
    0,
    34,
    68,
    102,
    136,
    170
};

static const MIDL_SERVER_INFO ITPCC_ServerInfo =
{
    &Object_StubDesc,
    0,
    __MIDL_ProcFormatString.Format,
    &ITPCC_FormatStringOffsetTable[-3],
    0,
    0,
    0,
    0
};

static const MIDL_STUBLESS_PROXY_INFO ITPCC_ProxyInfo =
{
    &Object_StubDesc,
    __MIDL_ProcFormatString.Format,
    &ITPCC_FormatStringOffsetTable[-3],
    0,
    0,
    0
};

CINTERFACE_PROXY_VTABLE(9) _ITPCCProxyVtbl =
{
    &ITPCC_ProxyInfo,
    &IID_ITPCC,
    IUnknown_QueryInterface_Proxy,
    IUnknown_AddRef_Proxy,
    IUnknown_Release_Proxy ,
    (void *)-1 /* ITPCC::NewOrder */ ,
    (void *)-1 /* ITPCC::Payment */ ,
    (void *)-1 /* ITPCC::Delivery */ ,
    (void *)-1 /* ITPCC::StockLevel */ ,
    (void *)-1 /* ITPCC::OrderStatus */ ,
    (void *)-1 /* ITPCC::CallSetComplete */

```

```

};

const CInterfaceStubVtbl _ITPCCStubVtbl =
{
    &IID_ITPCC,
    &ITPCC_ServerInfo,
    9,
    0, /* pure interpreted */
    CStdStubBuffer_METHODS
};

extern const USER_MARSHAL_ROUTINE_QUADRUPLE
UserMarshalRoutines[ WIRE_MARSHAL_TABLE_SIZE ];

static const MIDL_STUB_DESC Object_StubDesc =
{
    0,
    NdrOleAllocate,
    NdrOleFree,
    0,
    0,
    0,
    0,
    0,
    0,
    __MIDL_TypeFormatString.Format,
    1, /* -error bounds_check flag */
    0x20000, /* Ndr library version */
    0,
    0x5030118, /* MIDL Version 5.3.280 */
    0,
    UserMarshalRoutines,
    0, /* notify & notify_flag routine table */
    0x1, /* MIDL flag */
    0, /* Reserved3 */
    0, /* Reserved4 */
    0 /* Reserved5 */
};

#pragma data_seg(".rdata")

static const USER_MARSHAL_ROUTINE_QUADRUPLE
UserMarshalRoutines[ WIRE_MARSHAL_TABLE_SIZE ] =
{
    {
        VARIANT_UserSize
    ,VARIANT_UserMarshal
    ,VARIANT_UserUnmarshal
    ,VARIANT_UserFree
    }
};

#if !defined(__RPC_WIN32__)
#error Invalid build platform for this stub.
#endif

#if !(TARGET_IS_NT40_OR_LATER)
#error You need a Windows NT 4.0 or later to run this stub because it uses
these features:
#error -Oif or -Oicf, [wire_marshal] or [user_marshal] attribute.
#error However, your C/C++ compilation flags indicate you intend to run this
app on earlier systems.
#error This app will die there with the RPC_X_WRONG_STUB_VERSION
error.
#endif

```

```

static const MIDL_PROC_FORMAT_STRING __MIDL_ProcFormatString =
{
    0,
    {
        /* Procedure NewOrder */

        FC_AUTO_HANDLE /*
                                0x33,
                                /*
                                0x6c,
                                /* Old Flags: object,
                                Oi2 */
                                /* 2 */ NdrFcLong( 0x0 ), /* 0 */
                                /* 6 */ NdrFcShort( 0x3 ), /* 3 */
                                #ifndef _ALPHA_
                                #ifndef _PPC_
                                #if !defined(_MIPS_)
                                /* 8 */ NdrFcShort( 0x1c ), /* x86 Stack size/offset = 28 */
                                #else
                                NdrFcShort( 0x20 ), /* MIPS Stack
                                size/offset = 32 */
                                #endif
                                #else
                                NdrFcShort( 0x20 ), /* PPC Stack size/offset
                                = 32 */
                                #endif
                                #else
                                NdrFcShort( 0x28 ), /* Alpha Stack
                                size/offset = 40 */
                                #endif
                                /* 10 */ NdrFcShort( 0x0 ), /* 0 */
                                /* 12 */ NdrFcShort( 0x8 ), /* 8 */
                                /* 14 */ 0x7, /* Oi2 Flags: srv must size, clt must size, has
                                return, */
                                0x3, /* 3 */

                                /* Parameter txn_in */

                                /* 16 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */
                                #ifndef _ALPHA_
                                #ifndef _PPC_
                                #if !defined(_MIPS_)
                                /* 18 */ NdrFcShort( 0x4 ), /* x86 Stack size/offset = 4 */
                                #else
                                NdrFcShort( 0x8 ), /* MIPS Stack
                                size/offset = 8 */
                                #endif
                                #else
                                NdrFcShort( 0x8 ), /* PPC Stack size/offset
                                = 8 */
                                #endif
                                #else
                                NdrFcShort( 0x8 ), /* Alpha Stack
                                size/offset = 8 */
                                #endif
                                /* 20 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */

                                /* Parameter txn_out */

                                /* 22 */ NdrFcShort( 0x4113 ), /* Flags: must size, must free, out,
                                simple ref, srv alloc size=16 */
                                #ifndef _ALPHA_
                                #ifndef _PPC_
                                #if !defined(_MIPS_)
                                /* 24 */ NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */
                                #else
                                NdrFcShort( 0x18 ), /* MIPS Stack
                                size/offset = 24 */

```

```

#endif
#else
    NdrFcShort( 0x18 ), /* PPC Stack size/offset
= 24 */
#endif
#else
    NdrFcShort( 0x18 ), /* Alpha Stack
size/offset = 24 */
#endif
/* 26 */ NdrFcShort( 0x3da ), /* Type Offset=986 */

/* Return value */

/* 28 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifndef _ALPHA_
#ifndef _PPC_
#ifndef _MIPS_
/* 30 */ NdrFcShort( 0x18 ), /* x86 Stack size/offset = 24 */
#else
    NdrFcShort( 0x1c ), /* MIPS Stack
size/offset = 28 */
#endif
#else
    NdrFcShort( 0x1c ), /* PPC Stack size/offset
= 28 */
#endif
#else
    NdrFcShort( 0x20 ), /* Alpha Stack
size/offset = 32 */
#endif
/* 32 */ 0x8, /* FC_LONG */
0x0, /* 0 */

/* Procedure Payment */

/* 34 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /* Old Flags: object,
Oi2 */
/* 36 */ NdrFcLong( 0x0 ), /* 0 */
/* 40 */ NdrFcShort( 0x4 ), /* 4 */
#ifndef _ALPHA_
#ifndef _PPC_
#ifndef _MIPS_
/* 42 */ NdrFcShort( 0x1c ), /* x86 Stack size/offset = 28 */
#else
    NdrFcShort( 0x20 ), /* MIPS Stack
size/offset = 32 */
#endif
#else
    NdrFcShort( 0x20 ), /* PPC Stack size/offset
= 32 */
#endif
#else
    NdrFcShort( 0x28 ), /* Alpha Stack
size/offset = 40 */
#endif
/* 44 */ NdrFcShort( 0x0 ), /* 0 */
/* 46 */ NdrFcShort( 0x8 ), /* 8 */
/* 48 */ 0x7, /* Oi2 Flags: srv must size, clt must size, has
return, */
0x3, /* 3 */

/* Parameter txn_in */

/* 50 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */
#ifndef _ALPHA_
#ifndef _PPC_
#ifndef _MIPS_
/* 52 */ NdrFcShort( 0x4 ), /* x86 Stack size/offset = 4 */
#else
    NdrFcShort( 0x8 ), /* MIPS Stack
size/offset = 8 */
#endif
#else
    NdrFcShort( 0x8 ), /* PPC Stack size/offset
= 8 */
#endif
#else
    NdrFcShort( 0x8 ), /* Alpha Stack
size/offset = 8 */
#endif
/* 54 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */

/* Parameter txn_out */

/* 56 */ NdrFcShort( 0x4113 ), /* Flags: must size, must free, out,
simple ref, srv alloc size=16 */
#ifndef _ALPHA_
#ifndef _PPC_
#ifndef _MIPS_
/* 58 */ NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */
#else
    NdrFcShort( 0x18 ), /* MIPS Stack
size/offset = 24 */
#endif
#else
    NdrFcShort( 0x18 ), /* PPC Stack size/offset
= 24 */
#endif
#else
    NdrFcShort( 0x18 ), /* Alpha Stack
size/offset = 24 */
#endif
/* 60 */ NdrFcShort( 0x3da ), /* Type Offset=986 */

/* Return value */

/* 62 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifndef _ALPHA_
#ifndef _PPC_
#ifndef _MIPS_
/* 64 */ NdrFcShort( 0x18 ), /* x86 Stack size/offset = 24 */
#else
    NdrFcShort( 0x1c ), /* MIPS Stack
size/offset = 28 */
#endif
#else
    NdrFcShort( 0x1c ), /* PPC Stack size/offset
= 28 */
#endif
#else
    NdrFcShort( 0x20 ), /* Alpha Stack
size/offset = 32 */
#endif
/* 66 */ 0x8, /* FC_LONG */
0x0, /* 0 */

/* Procedure Delivery */

/* 68 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /* Old Flags: object,
Oi2 */
/* 70 */ NdrFcLong( 0x0 ), /* 0 */
/* 74 */ NdrFcShort( 0x5 ), /* 5 */
#ifndef _ALPHA_
#ifndef _PPC_

```

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| <pre> #if !defined(_MIPS_) /* 76 */  NdrFcShort( 0x1c ), /* x86 Stack size/offset = 28 */ #else                                 NdrFcShort( 0x20 ), /* MIPS Stack size/offset = 32 */ #endif #else                                 NdrFcShort( 0x20 ), /* PPC Stack size/offset = 32 */ #endif #else                                 NdrFcShort( 0x28 ), /* Alpha Stack size/offset = 40 */ #endif /* 78 */  NdrFcShort( 0x0 ), /* 0 */ /* 80 */  NdrFcShort( 0x8 ), /* 8 */ /* 82 */  0x7, /* Oi2 Flags: srv must size, clt must size, has return, */                                 0x3, /* 3 */  /* Parameter txn_in */  /* 84 */  NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */ #ifndef _ALPHA_ #ifndef _PPC_ #if !defined(_MIPS_) /* 86 */  NdrFcShort( 0x4 ), /* x86 Stack size/offset = 4 */ #else                                 NdrFcShort( 0x8 ), /* MIPS Stack size/offset = 8 */ #endif #else                                 NdrFcShort( 0x8 ), /* PPC Stack size/offset = 8 */ #endif #else                                 NdrFcShort( 0x8 ), /* Alpha Stack size/offset = 8 */ #endif /* 88 */  NdrFcShort( 0x3c8 ), /* Type Offset=968 */  /* Parameter txn_out */  /* 90 */  NdrFcShort( 0x4113 ), /* Flags: must size, must free, out, simple ref, srv alloc size=16 */ #ifndef _ALPHA_ #ifndef _PPC_ #if !defined(_MIPS_) /* 92 */  NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */ #else                                 NdrFcShort( 0x18 ), /* MIPS Stack size/offset = 24 */ #endif #else                                 NdrFcShort( 0x18 ), /* PPC Stack size/offset = 24 */ #endif #else                                 NdrFcShort( 0x18 ), /* Alpha Stack size/offset = 24 */ #endif /* 94 */  NdrFcShort( 0x3da ), /* Type Offset=986 */  /* Return value */  /* 96 */  NdrFcShort( 0x70 ), /* Flags: out, return, base type, */ #ifndef _ALPHA_ #ifndef _PPC_ </pre> | <pre> #if !defined(_MIPS_) /* 98 */  NdrFcShort( 0x18 ), /* x86 Stack size/offset = 24 */ #else                                 NdrFcShort( 0x1c ), /* MIPS Stack size/offset = 28 */ #endif #else                                 NdrFcShort( 0x1c ), /* PPC Stack size/offset = 28 */ #endif #else                                 NdrFcShort( 0x20 ), /* Alpha Stack size/offset = 32 */ #endif /* 100 */  0x8, /* FC_LONG */                                 0x0, /* 0 */  /* Procedure StockLevel */  /* 102 */  0x33, /* FC_AUTO_HANDLE */                                 0x6c, /* Old Flags: object, Oi2 */ /* 104 */  NdrFcLong( 0x0 ), /* 0 */ /* 108 */  NdrFcShort( 0x6 ), /* 6 */ #ifndef _ALPHA_ #ifndef _PPC_ #if !defined(_MIPS_) /* 110 */  NdrFcShort( 0x1c ), /* x86 Stack size/offset = 28 */ #else                                 NdrFcShort( 0x20 ), /* MIPS Stack size/offset = 32 */ #endif #else                                 NdrFcShort( 0x20 ), /* PPC Stack size/offset = 32 */ #endif #else                                 NdrFcShort( 0x28 ), /* Alpha Stack size/offset = 40 */ #endif /* 112 */  NdrFcShort( 0x0 ), /* 0 */ /* 114 */  NdrFcShort( 0x8 ), /* 8 */ /* 116 */  0x7, /* Oi2 Flags: srv must size, clt must size, has return, */                                 0x3, /* 3 */  /* Parameter txn_in */  /* 118 */  NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */ #ifndef _ALPHA_ #ifndef _PPC_ #if !defined(_MIPS_) /* 120 */  NdrFcShort( 0x4 ), /* x86 Stack size/offset = 4 */ #else                                 NdrFcShort( 0x8 ), /* MIPS Stack size/offset = 8 */ #endif #else                                 NdrFcShort( 0x8 ), /* PPC Stack size/offset = 8 */ #endif #else                                 NdrFcShort( 0x8 ), /* Alpha Stack size/offset = 8 */ #endif /* 122 */  NdrFcShort( 0x3c8 ), /* Type Offset=968 */  /* Parameter txn_out */ </pre> |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <pre> /* 124 */ NdrFcShort( 0x4113 ), /* Flags: must size, must free, out, simple ref, srv alloc size=16 */ #ifdef _ALPHA_ #ifdef _PPC_ #if !defined( _MIPS_ ) /* 126 */ NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */ #else NdrFcShort( 0x18 ), /* MIPS Stack size/offset = 24 */ #endif #else NdrFcShort( 0x18 ), /* PPC Stack size/offset = 24 */ #endif #else NdrFcShort( 0x18 ), /* Alpha Stack size/offset = 24 */ #endif /* 128 */ NdrFcShort( 0x3da ), /* Type Offset=986 */  /* Return value */  /* 130 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */ #ifdef _ALPHA_ #ifdef _PPC_ #if !defined( _MIPS_ ) /* 132 */ NdrFcShort( 0x18 ), /* x86 Stack size/offset = 24 */ #else NdrFcShort( 0x1c ), /* MIPS Stack size/offset = 28 */ #endif #else NdrFcShort( 0x1c ), /* PPC Stack size/offset = 28 */ #endif #else NdrFcShort( 0x20 ), /* Alpha Stack size/offset = 32 */ #endif /* 134 */ 0x8, /* FC_LONG */ 0x0, /* 0 */  /* Procedure OrderStatus */  /* 136 */ 0x33, /* FC_AUTO_HANDLE */ 0x6c, /* Old Flags: object, Oi2 */ /* 138 */ NdrFcLong( 0x0 ), /* 0 */ /* 142 */ NdrFcShort( 0x7 ), /* 7 */ #ifdef _ALPHA_ #ifdef _PPC_ #if !defined( _MIPS_ ) /* 144 */ NdrFcShort( 0x1c ), /* x86 Stack size/offset = 28 */ #else NdrFcShort( 0x20 ), /* MIPS Stack size/offset = 32 */ #endif #else NdrFcShort( 0x20 ), /* PPC Stack size/offset = 32 */ #endif #else NdrFcShort( 0x28 ), /* Alpha Stack size/offset = 40 */ #endif /* 146 */ NdrFcShort( 0x0 ), /* 0 */ /* 148 */ NdrFcShort( 0x8 ), /* 8 */ </pre> | <pre> /* 150 */ 0x7, /* Oi2 Flags: srv must size, clt must size, has return, */ 0x3, /* 3 */  /* Parameter txn_in */  /* 152 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */ #ifdef _ALPHA_ #ifdef _PPC_ #if !defined( _MIPS_ ) /* 154 */ NdrFcShort( 0x4 ), /* x86 Stack size/offset = 4 */ #else NdrFcShort( 0x8 ), /* MIPS Stack size/offset = 8 */ #endif #else NdrFcShort( 0x8 ), /* PPC Stack size/offset = 8 */ #endif #else NdrFcShort( 0x8 ), /* Alpha Stack size/offset = 8 */ #endif /* 156 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */  /* Parameter txn_out */  /* 158 */ NdrFcShort( 0x4113 ), /* Flags: must size, must free, out, simple ref, srv alloc size=16 */ #ifdef _ALPHA_ #ifdef _PPC_ #if !defined( _MIPS_ ) /* 160 */ NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */ #else NdrFcShort( 0x18 ), /* MIPS Stack size/offset = 24 */ #endif #else NdrFcShort( 0x18 ), /* PPC Stack size/offset = 24 */ #endif #else NdrFcShort( 0x18 ), /* Alpha Stack size/offset = 24 */ #endif /* 162 */ NdrFcShort( 0x3da ), /* Type Offset=986 */  /* Return value */  /* 164 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */ #ifdef _ALPHA_ #ifdef _PPC_ #if !defined( _MIPS_ ) /* 166 */ NdrFcShort( 0x18 ), /* x86 Stack size/offset = 24 */ #else NdrFcShort( 0x1c ), /* MIPS Stack size/offset = 28 */ #endif #else NdrFcShort( 0x1c ), /* PPC Stack size/offset = 28 */ #endif #else NdrFcShort( 0x20 ), /* Alpha Stack size/offset = 32 */ #endif /* 168 */ 0x8, /* FC_LONG */ 0x0, /* 0 */ </pre> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

```

/* Procedure CallSetComplete */

/* 170 */ 0x33, /* FC_AUTO_HANDLE */
           0x6c, /* Old Flags: object,
Oi2 */
/* 172 */ NdrFcLong( 0x0 ), /* 0 */
/* 176 */ NdrFcShort( 0x8 ), /* 8 */
#ifdef _ALPHA_
/* 178 */ NdrFcShort( 0x8 ), /* x86, MIPS, PPC Stack size/offset = 8 */
#else
           NdrFcShort( 0x10 ), /* Alpha Stack
size/offset = 16 */
#endif
/* 180 */ NdrFcShort( 0x0 ), /* 0 */
/* 182 */ NdrFcShort( 0x8 ), /* 8 */
/* 184 */ 0x4, /* Oi2 Flags: has return, */
           0x1, /* 1 */

/* Return value */

/* 186 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifdef _ALPHA_
/* 188 */ NdrFcShort( 0x4 ), /* x86, MIPS, PPC Stack size/offset = 4 */
#else
           NdrFcShort( 0x8 ), /* Alpha Stack
size/offset = 8 */
#endif
/* 190 */ 0x8, /* FC_LONG */
           0x0, /* 0 */

           0x0

};

static const MIDL_TYPE_FORMAT_STRING __MIDL_TypeFormatString =
{
    0,
    {
        NdrFcShort( 0x0 ), /* 0 */

/* 2 */
        0x12, 0x0, /* FC_UP */
/* 4 */ NdrFcShort( 0x3b0 ), /* Offset= 944 (948) */
/* 6 */
        0x2b, /*
FC_NON_ENCAPSULATED_UNION */
        0x9, /* FC_ULONG */
/* 8 */ 0x7, /* Corr desc: FC_USHORT */
        0x0, /* */
/* 10 */ NdrFcShort( 0xffff ), /* -8 */
/* 12 */ NdrFcShort( 0x2 ), /* Offset= 2 (14) */
/* 14 */ NdrFcShort( 0x10 ), /* 16 */
/* 16 */ NdrFcShort( 0x2b ), /* 43 */
/* 18 */ NdrFcLong( 0x3 ), /* 3 */
/* 22 */ NdrFcShort( 0x8008 ), /* Simple arm type: FC_LONG */
/* 24 */ NdrFcLong( 0x11 ), /* 17 */
/* 28 */ NdrFcShort( 0x8001 ), /* Simple arm type: FC_BYTE */
/* 30 */ NdrFcLong( 0x2 ), /* 2 */
/* 34 */ NdrFcShort( 0x8006 ), /* Simple arm type: FC_SHORT */
/* 36 */ NdrFcLong( 0x4 ), /* 4 */
/* 40 */ NdrFcShort( 0x800a ), /* Simple arm type: FC_FLOAT */
/* 42 */ NdrFcLong( 0x5 ), /* 5 */
/* 46 */ NdrFcShort( 0x800c ), /* Simple arm type: FC_DOUBLE */
/*
/* 48 */ NdrFcLong( 0xb ), /* 11 */
/* 52 */ NdrFcShort( 0x8006 ), /* Simple arm type: FC_SHORT */
/* 54 */ NdrFcLong( 0xa ), /* 10 */
/* 58 */ NdrFcShort( 0x8008 ), /* Simple arm type: FC_LONG */
/* 60 */ NdrFcLong( 0x6 ), /* 6 */
/* 64 */ NdrFcShort( 0xd6 ), /* Offset= 214 (278) */
/* 66 */ NdrFcLong( 0x7 ), /* 7 */
/* 70 */ NdrFcShort( 0x800c ), /* Simple arm type: FC_DOUBLE */
/*
/* 72 */ NdrFcLong( 0x8 ), /* 8 */
/* 76 */ NdrFcShort( 0xd0 ), /* Offset= 208 (284) */
/* 78 */ NdrFcLong( 0xd ), /* 13 */
/* 82 */ NdrFcShort( 0xe2 ), /* Offset= 226 (308) */
/* 84 */ NdrFcLong( 0x9 ), /* 9 */
/* 88 */ NdrFcShort( 0xee ), /* Offset= 238 (326) */
/* 90 */ NdrFcLong( 0x2000 ), /* 8192 */
/* 94 */ NdrFcShort( 0xfa ), /* Offset= 250 (344) */
/* 96 */ NdrFcLong( 0x24 ), /* 36 */
/* 100 */ NdrFcShort( 0x308 ), /* Offset= 776 (876) */
/* 102 */ NdrFcLong( 0x4024 ), /* 16420 */
/* 106 */ NdrFcShort( 0x302 ), /* Offset= 770 (876) */
/* 108 */ NdrFcLong( 0x4011 ), /* 16401 */
/* 112 */ NdrFcShort( 0x300 ), /* Offset= 768 (880) */
/* 114 */ NdrFcLong( 0x4002 ), /* 16386 */
/* 118 */ NdrFcShort( 0x2fe ), /* Offset= 766 (884) */
/* 120 */ NdrFcLong( 0x4003 ), /* 16387 */
/* 124 */ NdrFcShort( 0x2fc ), /* Offset= 764 (888) */
/* 126 */ NdrFcLong( 0x4004 ), /* 16388 */
/* 130 */ NdrFcShort( 0x2fa ), /* Offset= 762 (892) */
/* 132 */ NdrFcLong( 0x4005 ), /* 16389 */
/* 136 */ NdrFcShort( 0x2f8 ), /* Offset= 760 (896) */
/* 138 */ NdrFcLong( 0x400b ), /* 16395 */
/* 142 */ NdrFcShort( 0x2e6 ), /* Offset= 742 (884) */
/* 144 */ NdrFcLong( 0x400a ), /* 16394 */
/* 148 */ NdrFcShort( 0x2e4 ), /* Offset= 740 (888) */
/* 150 */ NdrFcLong( 0x4006 ), /* 16390 */
/* 154 */ NdrFcShort( 0x2ea ), /* Offset= 746 (900) */
/* 156 */ NdrFcLong( 0x4007 ), /* 16391 */
/* 160 */ NdrFcShort( 0x2e0 ), /* Offset= 736 (896) */
/* 162 */ NdrFcLong( 0x4008 ), /* 16392 */
/* 166 */ NdrFcShort( 0x2e2 ), /* Offset= 738 (904) */
/* 168 */ NdrFcLong( 0x400d ), /* 16397 */
/* 172 */ NdrFcShort( 0x2e0 ), /* Offset= 736 (908) */
/* 174 */ NdrFcLong( 0x4009 ), /* 16393 */
/* 178 */ NdrFcShort( 0x2de ), /* Offset= 734 (912) */
/* 180 */ NdrFcLong( 0x6000 ), /* 24576 */
/* 184 */ NdrFcShort( 0x2dc ), /* Offset= 732 (916) */
/* 186 */ NdrFcLong( 0x400c ), /* 16396 */
/* 190 */ NdrFcShort( 0x2da ), /* Offset= 730 (920) */
/* 192 */ NdrFcLong( 0x10 ), /* 16 */
/* 196 */ NdrFcShort( 0x8002 ), /* Simple arm type: FC_CHAR */
/* 198 */ NdrFcLong( 0x12 ), /* 18 */
/* 202 */ NdrFcShort( 0x8006 ), /* Simple arm type: FC_SHORT */
/* 204 */ NdrFcLong( 0x13 ), /* 19 */
/* 208 */ NdrFcShort( 0x8008 ), /* Simple arm type: FC_LONG */
/* 210 */ NdrFcLong( 0x16 ), /* 22 */
/* 214 */ NdrFcShort( 0x8008 ), /* Simple arm type: FC_LONG */
/* 216 */ NdrFcLong( 0x17 ), /* 23 */
/* 220 */ NdrFcShort( 0x8008 ), /* Simple arm type: FC_LONG */
/* 222 */ NdrFcLong( 0xe ), /* 14 */
/* 226 */ NdrFcShort( 0x2be ), /* Offset= 702 (928) */
/* 228 */ NdrFcLong( 0x400e ), /* 16398 */
/* 232 */ NdrFcShort( 0x2c4 ), /* Offset= 708 (940) */
/* 234 */ NdrFcLong( 0x4010 ), /* 16400 */
/* 238 */ NdrFcShort( 0x2c2 ), /* Offset= 706 (944) */
/* 240 */ NdrFcLong( 0x4012 ), /* 16402 */
/* 244 */ NdrFcShort( 0x280 ), /* Offset= 640 (884) */
/* 246 */ NdrFcLong( 0x4013 ), /* 16403 */
/* 250 */ NdrFcShort( 0x27e ), /* Offset= 638 (888) */
/* 252 */ NdrFcLong( 0x4016 ), /* 16406 */
/* 256 */ NdrFcShort( 0x278 ), /* Offset= 632 (888) */
/* 258 */ NdrFcLong( 0x4017 ), /* 16407 */

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/* 262 */ NdrFcShort( 0x272 ), /* Offset= 626 (888) */
/* 264 */ NdrFcLong( 0x0 ), /* 0 */
/* 268 */ NdrFcShort( 0x0 ), /* Offset= 0 (268) */
/* 270 */ NdrFcLong( 0x1 ), /* 1 */
/* 274 */ NdrFcShort( 0x0 ), /* Offset= 0 (274) */
/* 276 */ NdrFcShort( 0xffffffff ), /* Offset= -1 (275) */
/* 278 */
0x15, /* FC_STRUCT */
0x7, /* 7 */
/* 280 */ NdrFcShort( 0x8 ), /* 8 */
/* 282 */ 0xb, /* FC_HYPER */
0x5b, /* FC_END */
/* 284 */
0x12, 0x0, /* FC_UP */
/* 286 */ NdrFcShort( 0xc ), /* Offset= 12 (298) */
/* 288 */
0x1b, /* FC_CARRAY */
0x1, /* 1 */
/* 290 */ NdrFcShort( 0x2 ), /* 2 */
/* 292 */ 0x9, /* Corr desc: FC_ULONG */
0x0, /* */
/* 294 */ NdrFcShort( 0xfffc ), /* -4 */
/* 296 */ 0x6, /* FC_SHORT */
0x5b, /* FC_END */
/* 298 */
0x17, /* FC_CSTRUCT */
0x3, /* 3 */
/* 300 */ NdrFcShort( 0x8 ), /* 8 */
/* 302 */ NdrFcShort( 0xffffffff2 ), /* Offset= -14 (288) */
/* 304 */ 0x8, /* FC_LONG */
0x8, /* FC_LONG */
/* 306 */ 0x5c, /* FC_PAD */
0x5b, /* FC_END */
/* 308 */
0x2f, /* FC_IP */
0x5a, /*
FC_CONSTANT_IID */
/* 310 */ NdrFcLong( 0x0 ), /* 0 */
/* 314 */ NdrFcShort( 0x0 ), /* 0 */
/* 316 */ NdrFcShort( 0x0 ), /* 0 */
/* 318 */ 0xc0, /* 192 */
0x0, /* 0 */
/* 320 */ 0x0, /* 0 */
0x0, /* 0 */
/* 322 */ 0x0, /* 0 */
0x0, /* 0 */
/* 324 */ 0x0, /* 0 */
0x46, /* 70 */
/* 326 */
0x2f, /* FC_IP */
0x5a, /*
FC_CONSTANT_IID */
/* 328 */ NdrFcLong( 0x20400 ), /* 132096 */
/* 332 */ NdrFcShort( 0x0 ), /* 0 */
/* 334 */ NdrFcShort( 0x0 ), /* 0 */
/* 336 */ 0xc0, /* 192 */
0x0, /* 0 */
/* 338 */ 0x0, /* 0 */
0x0, /* 0 */
/* 340 */ 0x0, /* 0 */
0x0, /* 0 */
/* 342 */ 0x0, /* 0 */
0x46, /* 70 */
/* 344 */
0x12, 0x10, /* FC_UP
[pointer_deref] */
/* 346 */ NdrFcShort( 0x2 ), /* Offset= 2 (348) */
/* 348 */

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0x12, 0x0, /* FC_UP */
/* 350 */ NdrFcShort( 0x1fc ), /* Offset= 508 (858) */
/* 352 */
0x2a, /*
FC_ENCAPSULATED_UNION */
0x49, /* 73 */
/* 354 */ NdrFcShort( 0x18 ), /* 24 */
/* 356 */ NdrFcShort( 0xa ), /* 10 */
/* 358 */ NdrFcLong( 0x8 ), /* 8 */
/* 362 */ NdrFcShort( 0x58 ), /* Offset= 88 (450) */
/* 364 */ NdrFcLong( 0xd ), /* 13 */
/* 368 */ NdrFcShort( 0x78 ), /* Offset= 120 (488) */
/* 370 */ NdrFcLong( 0x9 ), /* 9 */
/* 374 */ NdrFcShort( 0x94 ), /* Offset= 148 (522) */
/* 376 */ NdrFcLong( 0xc ), /* 12 */
/* 380 */ NdrFcShort( 0xbc ), /* Offset= 188 (568) */
/* 382 */ NdrFcLong( 0x24 ), /* 36 */
/* 386 */ NdrFcShort( 0x114 ), /* Offset= 276 (662) */
/* 388 */ NdrFcLong( 0x800d ), /* 32781 */
/* 392 */ NdrFcShort( 0x130 ), /* Offset= 304 (696) */
/* 394 */ NdrFcLong( 0x10 ), /* 16 */
/* 398 */ NdrFcShort( 0x148 ), /* Offset= 328 (726) */
/* 400 */ NdrFcLong( 0x2 ), /* 2 */
/* 404 */ NdrFcShort( 0x160 ), /* Offset= 352 (756) */
/* 406 */ NdrFcLong( 0x3 ), /* 3 */
/* 410 */ NdrFcShort( 0x178 ), /* Offset= 376 (786) */
/* 412 */ NdrFcLong( 0x14 ), /* 20 */
/* 416 */ NdrFcShort( 0x190 ), /* Offset= 400 (816) */
/* 418 */ NdrFcShort( 0xffffffff ), /* Offset= -1 (417) */
/* 420 */
0x1b, /* FC_CARRAY */
0x3, /* 3 */
/* 422 */ NdrFcShort( 0x4 ), /* 4 */
/* 424 */ 0x19, /* Corr desc: field pointer, FC_ULONG */
0x0, /* */
/* 426 */ NdrFcShort( 0x0 ), /* 0 */
/* 428 */
0x4b, /* FC_PP */
0x5c, /* FC_PAD */
/* 430 */
0x48, /*
FC_VARIABLE_REPEAT */
0x49, /*
FC_FIXED_OFFSET */
/* 432 */ NdrFcShort( 0x4 ), /* 4 */
/* 434 */ NdrFcShort( 0x0 ), /* 0 */
/* 436 */ NdrFcShort( 0x1 ), /* 1 */
/* 438 */ NdrFcShort( 0x0 ), /* 0 */
/* 440 */ NdrFcShort( 0x0 ), /* 0 */
/* 442 */ 0x12, 0x0, /* FC_UP */
/* 444 */ NdrFcShort( 0xffffffff6e ), /* Offset= -146 (298) */
/* 446 */
0x5b, /* FC_END */
0x8, /* FC_LONG */
/* 448 */ 0x5c, /* FC_PAD */
0x5b, /* FC_END */
/* 450 */
0x16, /* FC_PSTRUCT */
0x3, /* 3 */
/* 452 */ NdrFcShort( 0x8 ), /* 8 */
/* 454 */
0x4b, /* FC_PP */
0x5c, /* FC_PAD */
/* 456 */
0x46, /* FC_NO_REPEAT */
0x5c, /* FC_PAD */
/* 458 */ NdrFcShort( 0x4 ), /* 4 */

```

|                                                                 |                                                               |
|-----------------------------------------------------------------|---------------------------------------------------------------|
| /* 460 */ NdrFcShort( 0x4 ), /* 4 */                            | /* 540 */ NdrFcShort( 0x4 ), /* 4 */                          |
| /* 462 */ 0x11, 0x0, /* FC_RP */                                | /* 542 */ 0x19, /* Corr desc: field pointer, FC_ULONG */      |
| /* 464 */ NdrFcShort( 0xffffffff4 ), /* Offset= -44 (420) */    | 0x0, /* */                                                    |
| /* 466 */                                                       | /* 544 */ NdrFcShort( 0x0 ), /* 0 */                          |
| 0x5b, /* FC_END */                                              | /* 546 */                                                     |
| 0x8, /* FC_LONG */                                              | 0x4b, /* FC_PP */                                             |
| /* 468 */ 0x8, /* FC_LONG */                                    | 0x5c, /* FC_PAD */                                            |
| 0x5b, /* FC_END */                                              | /* 548 */                                                     |
| /* 470 */                                                       | 0x48, /*                                                      |
| 0x21, /*                                                        | FC_VARIABLE_REPEAT */                                         |
| FC_BOGUS_ARRAY */                                               | 0x49, /*                                                      |
| 0x3, /* 3 */                                                    | FC_FIXED_OFFSET */                                            |
| /* 472 */ NdrFcShort( 0x0 ), /* 0 */                            | /* 550 */ NdrFcShort( 0x4 ), /* 4 */                          |
| /* 474 */ 0x19, /* Corr desc: field pointer, FC_ULONG */        | /* 552 */ NdrFcShort( 0x0 ), /* 0 */                          |
| 0x0, /* */                                                      | /* 554 */ NdrFcShort( 0x1 ), /* 1 */                          |
| /* 476 */ NdrFcShort( 0x0 ), /* 0 */                            | /* 556 */ NdrFcShort( 0x0 ), /* 0 */                          |
| /* 478 */ NdrFcLong( 0xffffffff ), /* -1 */                     | /* 558 */ NdrFcShort( 0x0 ), /* 0 */                          |
| /* 482 */ 0x4c, /* FC_EMBEDDED_COMPLEX */                       | /* 560 */ 0x12, 0x0, /* FC_UP */                              |
| 0x0, /* 0 */                                                    | /* 562 */ NdrFcShort( 0x182 ), /* Offset= 386 (948) */        |
| /* 484 */ NdrFcShort( 0xffffffff50 ), /* Offset= -176 (308) */  | /* 564 */                                                     |
| /* 486 */ 0x5c, /* FC_PAD */                                    | 0x5b, /* FC_END */                                            |
| 0x5b, /* FC_END */                                              | 0x8, /* FC_LONG */                                            |
| /* 488 */                                                       | /* 566 */ 0x5c, /* FC_PAD */                                  |
| 0x1a, /*                                                        | 0x5b, /* FC_END */                                            |
| FC_BOGUS_STRUCT */                                              | /* 568 */                                                     |
| 0x3, /* 3 */                                                    | 0x1a, /*                                                      |
| /* 490 */ NdrFcShort( 0x8 ), /* 8 */                            | FC_BOGUS_STRUCT */                                            |
| /* 492 */ NdrFcShort( 0x0 ), /* 0 */                            | 0x3, /* 3 */                                                  |
| /* 494 */ NdrFcShort( 0x6 ), /* Offset= 6 (500) */              | /* 570 */ NdrFcShort( 0x8 ), /* 8 */                          |
| /* 496 */ 0x8, /* FC_LONG */                                    | /* 572 */ NdrFcShort( 0x0 ), /* 0 */                          |
| 0x36, /* FC_POINTER */                                          | /* 574 */ NdrFcShort( 0x6 ), /* Offset= 6 (580) */            |
| /* 498 */ 0x5c, /* FC_PAD */                                    | /* 576 */ 0x8, /* FC_LONG */                                  |
| 0x5b, /* FC_END */                                              | 0x36, /* FC_POINTER */                                        |
| /* 500 */                                                       | /* 578 */ 0x5c, /* FC_PAD */                                  |
| 0x11, 0x0, /* FC_RP */                                          | 0x5b, /* FC_END */                                            |
| /* 502 */ NdrFcShort( 0xffffffffe0 ), /* Offset= -32 (470) */   | 0x11, 0x0, /* FC_RP */                                        |
| /* 504 */                                                       | /* 582 */ NdrFcShort( 0xffffffffd4 ), /* Offset= -44 (538) */ |
| 0x21, /*                                                        | /* 584 */                                                     |
| FC_BOGUS_ARRAY */                                               | 0x2f, /* FC_IP */                                             |
| 0x3, /* 3 */                                                    | 0x5a, /*                                                      |
| /* 506 */ NdrFcShort( 0x0 ), /* 0 */                            | FC_CONSTANT_IID */                                            |
| /* 508 */ 0x19, /* Corr desc: field pointer, FC_ULONG */        | /* 586 */ NdrFcLong( 0x2f ), /* 47 */                         |
| 0x0, /* */                                                      | /* 590 */ NdrFcShort( 0x0 ), /* 0 */                          |
| /* 510 */ NdrFcShort( 0x0 ), /* 0 */                            | /* 592 */ NdrFcShort( 0x0 ), /* 0 */                          |
| /* 512 */ NdrFcLong( 0xffffffff ), /* -1 */                     | /* 594 */ 0xc0, /* 192 */                                     |
| /* 516 */ 0x4c, /* FC_EMBEDDED_COMPLEX */                       | 0x0, /* 0 */                                                  |
| 0x0, /* 0 */                                                    | /* 596 */ 0x0, /* 0 */                                        |
| /* 518 */ NdrFcShort( 0xfffffffff40 ), /* Offset= -192 (326) */ | 0x0, /* 0 */                                                  |
| /* 520 */ 0x5c, /* FC_PAD */                                    | 0x0, /* 0 */                                                  |
| 0x5b, /* FC_END */                                              | /* 600 */ 0x0, /* 0 */                                        |
| /* 522 */                                                       | 0x46, /* 70 */                                                |
| 0x1a, /*                                                        | /* 602 */                                                     |
| FC_BOGUS_STRUCT */                                              | 0x1b, /* FC_CARRAY */                                         |
| 0x3, /* 3 */                                                    | 0x0, /* 0 */                                                  |
| /* 524 */ NdrFcShort( 0x8 ), /* 8 */                            | /* 604 */ NdrFcShort( 0x1 ), /* 1 */                          |
| /* 526 */ NdrFcShort( 0x0 ), /* 0 */                            | /* 606 */ 0x19, /* Corr desc: field pointer, FC_ULONG */      |
| /* 528 */ NdrFcShort( 0x6 ), /* Offset= 6 (534) */              | 0x0, /* */                                                    |
| /* 530 */ 0x8, /* FC_LONG */                                    | /* 608 */ NdrFcShort( 0x4 ), /* 4 */                          |
| 0x36, /* FC_POINTER */                                          | /* 610 */ 0x1, /* FC_BYTE */                                  |
| /* 532 */ 0x5c, /* FC_PAD */                                    | 0x5b, /* FC_END */                                            |
| 0x5b, /* FC_END */                                              | /* 612 */                                                     |
| /* 534 */                                                       | 0x1a, /*                                                      |
| 0x11, 0x0, /* FC_RP */                                          | FC_BOGUS_STRUCT */                                            |
| /* 536 */ NdrFcShort( 0xffffffffe0 ), /* Offset= -32 (504) */   | 0x3, /* 3 */                                                  |
| /* 538 */                                                       | /* 614 */ NdrFcShort( 0x10 ), /* 16 */                        |
| 0x1b, /* FC_CARRAY */                                           |                                                               |
| 0x3, /* 3 */                                                    |                                                               |

|                                                               |                                                                |
|---------------------------------------------------------------|----------------------------------------------------------------|
| /* 616 */ NdrFcShort( 0x0 ), /* 0 */                          | 0x4c, /*                                                       |
| /* 618 */ NdrFcShort( 0xa ), /* Offset= 10 (628) */           | FC_EMBEDDED_COMPLEX */                                         |
| /* 620 */ 0x8, /* FC_LONG */                                  | /* 692 */ 0x0, /* 0 */                                         |
| /* 622 */ 0x4c, /* FC_EMBEDDED_COMPLEX */                     | NdrFcShort( 0xffffffff ), /* Offset=                           |
| 0x0, /* 0 */                                                  | -15 (678) */                                                   |
| /* 624 */ NdrFcShort( 0xffffffff8 ), /* Offset= -40 (584) */  | 0x5b, /* FC_END */                                             |
| /* 626 */ 0x36, /* FC_POINTER */                              | 0x1a, /*                                                       |
| 0x5b, /* FC_END */                                            | FC_BOGUS_STRUCT */                                             |
| /* 628 */                                                     | 0x3, /* 3 */                                                   |
| 0x12, 0x0, /* FC_UP */                                        | /* 698 */ NdrFcShort( 0x18 ), /* 24 */                         |
| /* 630 */ NdrFcShort( 0xffffffffe4 ), /* Offset= -28 (602) */ | /* 700 */ NdrFcShort( 0x0 ), /* 0 */                           |
| /* 632 */                                                     | /* 702 */ NdrFcShort( 0xa ), /* Offset= 10 (712) */            |
| 0x1b, /* FC_CARRY */                                          | /* 704 */ 0x8, /* FC_LONG */                                   |
| 0x3, /* 3 */                                                  | 0x36, /* FC_POINTER */                                         |
| /* 634 */ NdrFcShort( 0x4 ), /* 4 */                          | /* 706 */ 0x4c, /* FC_EMBEDDED_COMPLEX */                      |
| /* 636 */ 0x19, /* Corr desc: field pointer, FC_ULONG */      | 0x0, /* 0 */                                                   |
| 0x0, /* */                                                    | /* 708 */ NdrFcShort( 0xffffffffe8 ), /* Offset= -24 (684) */  |
| /* 638 */ NdrFcShort( 0x0 ), /* 0 */                          | /* 710 */ 0x5c, /* FC_PAD */                                   |
| /* 640 */                                                     | 0x5b, /* FC_END */                                             |
| 0x4b, /* FC_PP */                                             | /* 712 */                                                      |
| 0x5c, /* FC_PAD */                                            | 0x11, 0x0, /* FC_RP */                                         |
| /* 642 */                                                     | /* 714 */ NdrFcShort( 0xffffffff0c ), /* Offset= -244 (470) */ |
| 0x48, /*                                                      | /* 716 */                                                      |
| FC_VARIABLE_REPEAT */                                         | 0x1b, /* FC_CARRY */                                           |
| 0x49, /*                                                      | 0x0, /* 0 */                                                   |
| FC_FIXED_OFFSET */                                            | /* 718 */ NdrFcShort( 0x1 ), /* 1 */                           |
| /* 644 */ NdrFcShort( 0x4 ), /* 4 */                          | /* 720 */ 0x19, /* Corr desc: field pointer, FC_ULONG */       |
| /* 646 */ NdrFcShort( 0x0 ), /* 0 */                          | 0x0, /* */                                                     |
| /* 648 */ NdrFcShort( 0x1 ), /* 1 */                          | /* 722 */ NdrFcShort( 0x0 ), /* 0 */                           |
| /* 650 */ NdrFcShort( 0x0 ), /* 0 */                          | /* 724 */ 0x1, /* FC_BYTE */                                   |
| /* 652 */ NdrFcShort( 0x0 ), /* 0 */                          | 0x5b, /* FC_END */                                             |
| /* 654 */ 0x12, 0x0, /* FC_UP */                              | /* 726 */                                                      |
| /* 656 */ NdrFcShort( 0xffffffffd4 ), /* Offset= -44 (612) */ | 0x16, /* FC_PSTRUCT */                                         |
| /* 658 */                                                     | 0x3, /* 3 */                                                   |
| 0x5b, /* FC_END */                                            | /* 728 */ NdrFcShort( 0x8 ), /* 8 */                           |
| /* 660 */ 0x5c, /* FC_PAD */                                  | /* 730 */                                                      |
| 0x5b, /* FC_END */                                            | 0x4b, /* FC_PP */                                              |
| /* 662 */                                                     | 0x5c, /* FC_PAD */                                             |
| 0x1a, /*                                                      | /* 732 */                                                      |
| FC_BOGUS_STRUCT */                                            | 0x46, /* FC_NO_REPEAT */                                       |
| /* 664 */ NdrFcShort( 0x8 ), /* 8 */                          | 0x5c, /* FC_PAD */                                             |
| /* 666 */ NdrFcShort( 0x0 ), /* 0 */                          | /* 734 */ NdrFcShort( 0x4 ), /* 4 */                           |
| /* 668 */ NdrFcShort( 0x6 ), /* Offset= 6 (674) */            | /* 736 */ NdrFcShort( 0x4 ), /* 4 */                           |
| /* 670 */ 0x8, /* FC_LONG */                                  | /* 738 */ 0x12, 0x0, /* FC_UP */                               |
| 0x36, /* FC_POINTER */                                        | /* 740 */ NdrFcShort( 0xffffffffe8 ), /* Offset= -24 (716) */  |
| /* 672 */ 0x5c, /* FC_PAD */                                  | /* 742 */                                                      |
| 0x5b, /* FC_END */                                            | 0x5b, /* FC_END */                                             |
| /* 674 */                                                     | 0x8, /* FC_LONG */                                             |
| 0x11, 0x0, /* FC_RP */                                        | 0x5b, /* FC_END */                                             |
| /* 676 */ NdrFcShort( 0xffffffffd4 ), /* Offset= -44 (632) */ | /* 746 */                                                      |
| /* 678 */                                                     | 0x1b, /* FC_CARRY */                                           |
| 0x1d, /* FC_SMFARRAY */                                       | 0x1, /* 1 */                                                   |
| 0x0, /* 0 */                                                  | /* 748 */ NdrFcShort( 0x2 ), /* 2 */                           |
| /* 680 */ NdrFcShort( 0x8 ), /* 8 */                          | /* 750 */ 0x19, /* Corr desc: field pointer, FC_ULONG */       |
| /* 682 */ 0x1, /* FC_BYTE */                                  | 0x0, /* */                                                     |
| 0x5b, /* FC_END */                                            | /* 752 */ NdrFcShort( 0x0 ), /* 0 */                           |
| /* 684 */                                                     | /* 754 */ 0x6, /* FC_SHORT */                                  |
| 0x15, /* FC_STRUCT */                                         | 0x5b, /* FC_END */                                             |
| 0x3, /* 3 */                                                  | /* 756 */                                                      |
| /* 686 */ NdrFcShort( 0x10 ), /* 16 */                        | 0x16, /* FC_PSTRUCT */                                         |
| /* 688 */ 0x8, /* FC_LONG */                                  | 0x3, /* 3 */                                                   |
| 0x6, /* FC_SHORT */                                           | /* 758 */ NdrFcShort( 0x8 ), /* 8 */                           |
| /* 690 */ 0x6, /* FC_SHORT */                                 | /* 760 */                                                      |
|                                                               | 0x4b, /* FC_PP */                                              |
|                                                               | 0x5c, /* FC_PAD */                                             |

|           |                            |                                          |       |                    |           |                              |                                         |
|-----------|----------------------------|------------------------------------------|-------|--------------------|-----------|------------------------------|-----------------------------------------|
| /* 762 */ |                            |                                          | 0x46, | /* FC_NO_REPEAT */ | /* 834 */ | 0x8,                         | /* FC_LONG */                           |
|           |                            |                                          | 0x5c, | /* FC_PAD */       |           | 0x5b,                        | /* FC_END */                            |
| /* 764 */ | NdrFcShort( 0x4 ),         | /* 4 */                                  |       |                    | /* 836 */ |                              |                                         |
| /* 766 */ | NdrFcShort( 0x4 ),         | /* 4 */                                  |       |                    |           | 0x15,                        | /* FC_STRUCT */                         |
| /* 768 */ | 0x12, 0x0, /* FC_UP */     |                                          |       |                    |           | 0x3,                         | /* 3 */                                 |
| /* 770 */ | NdrFcShort( 0xffffffff8 ), | /* Offset= -24 (746) */                  |       |                    | /* 838 */ | NdrFcShort( 0x8 ),           | /* 8 */                                 |
| /* 772 */ |                            |                                          | 0x5b, | /* FC_END */       | /* 840 */ | 0x8,                         | /* FC_LONG */                           |
|           |                            |                                          | 0x8,  | /* FC_LONG */      | /* 842 */ | 0x5c,                        | /* FC_PAD */                            |
| /* 774 */ | 0x8,                       | /* FC_LONG */                            | 0x5b, | /* FC_END */       | /* 844 */ |                              | 0x5b,                                   |
| /* 776 */ |                            |                                          |       |                    |           | 0x1b,                        | /* FC_CARRAY */                         |
|           |                            |                                          | 0x1b, | /* FC_CARRAY */    | /* 846 */ | NdrFcShort( 0x8 ),           | /* 8 */                                 |
|           |                            |                                          | 0x3,  | /* 3 */            | /* 848 */ | 0x7,                         | /* Corr desc: FC_USHORT */              |
| /* 778 */ | NdrFcShort( 0x4 ),         | /* 4 */                                  |       |                    |           | 0x0,                         | /* 0 */                                 |
| /* 780 */ | 0x19,                      | /* Corr desc: field pointer, FC_ULONG */ |       |                    | /* 850 */ | NdrFcShort( 0xffd8 ),        | /* -40 */                               |
|           |                            | /* 0 */                                  |       |                    | /* 852 */ | 0x4c,                        | /* FC_EMBEDDED_COMPLEX */               |
| /* 782 */ | NdrFcShort( 0x0 ),         | /* 0 */                                  |       |                    |           | 0x0,                         | /* 0 */                                 |
| /* 784 */ | 0x8,                       | /* FC_LONG */                            |       |                    | /* 854 */ | NdrFcShort( 0xffffffffee ),  | /* Offset= -18 (836) */                 |
|           |                            |                                          | 0x5b, | /* FC_END */       | /* 856 */ | 0x5c,                        | /* FC_PAD */                            |
| /* 786 */ |                            |                                          |       |                    |           | 0x5b,                        | /* FC_END */                            |
|           |                            |                                          | 0x16, | /* FC_PSTRUCT */   | /* 858 */ |                              | 0x1a,                                   |
| /* 788 */ | NdrFcShort( 0x8 ),         | /* 8 */                                  | 0x3,  | /* 3 */            |           | FC_BOGUS_STRUCT */           |                                         |
| /* 790 */ |                            |                                          |       |                    |           | 0x3,                         | /* 3 */                                 |
|           |                            |                                          | 0x4b, | /* FC_PP */        | /* 860 */ | NdrFcShort( 0x28 ),          | /* 40 */                                |
|           |                            |                                          | 0x5c, | /* FC_PAD */       | /* 862 */ | NdrFcShort( 0xffffffffee ),  | /* Offset= -18 (844) */                 |
| /* 792 */ |                            |                                          |       |                    | /* 864 */ | NdrFcShort( 0x0 ),           | /* Offset= 0 (864) */                   |
|           |                            |                                          | 0x46, | /* FC_NO_REPEAT */ | /* 866 */ | 0x6,                         | /* FC_SHORT */                          |
|           |                            |                                          | 0x5c, | /* FC_PAD */       |           | 0x6,                         | /* FC_SHORT */                          |
| /* 794 */ | NdrFcShort( 0x4 ),         | /* 4 */                                  |       |                    | /* 868 */ | 0x38,                        | /* FC_ALIGNM4 */                        |
| /* 796 */ | NdrFcShort( 0x4 ),         | /* 4 */                                  |       |                    |           | 0x8,                         | /* FC_LONG */                           |
| /* 798 */ | 0x12, 0x0, /* FC_UP */     |                                          |       |                    | /* 870 */ | 0x8,                         | /* FC_LONG */                           |
| /* 800 */ | NdrFcShort( 0xffffffff8 ), | /* Offset= -24 (776) */                  |       |                    |           | 0x4c,                        | /* 0 */                                 |
| /* 802 */ |                            |                                          | 0x5b, | /* FC_END */       |           | FC_EMBEDDED_COMPLEX */       |                                         |
|           |                            |                                          | 0x8,  | /* FC_LONG */      | /* 872 */ | 0x0,                         | /* 0 */                                 |
| /* 804 */ | 0x8,                       | /* FC_LONG */                            | 0x5b, | /* FC_END */       |           | NdrFcShort( 0xffffffffd7 ),  | /* Offset=                              |
| /* 806 */ |                            |                                          |       |                    |           | -521 (352) */                |                                         |
|           |                            |                                          | 0x1b, | /* FC_CARRAY */    | /* 876 */ |                              | 0x5b,                                   |
|           |                            |                                          | 0x7,  | /* 7 */            |           | 0x12, 0x0, /* FC_UP */       |                                         |
| /* 808 */ | NdrFcShort( 0x8 ),         | /* 8 */                                  |       |                    | /* 878 */ | NdrFcShort( 0xffffffffef6 ), | /* Offset= -266 (612) */                |
| /* 810 */ | 0x19,                      | /* Corr desc: field pointer, FC_ULONG */ |       |                    | /* 880 */ |                              | 0x12, 0x8, /* FC_UP [simple_pointer] */ |
|           |                            | /* 0 */                                  |       |                    |           | 0x5c,                        | /* FC_BYTE */                           |
| /* 812 */ | NdrFcShort( 0x0 ),         | /* 0 */                                  |       |                    | /* 884 */ |                              | /* FC_PAD */                            |
| /* 814 */ | 0xb,                       | /* FC_HYPER */                           | 0x5b, | /* FC_END */       | /* 886 */ | 0x6,                         | 0x12, 0x8, /* FC_UP [simple_pointer] */ |
| /* 816 */ |                            |                                          |       |                    |           | 0x5c,                        | /* FC_SHORT */                          |
|           |                            |                                          | 0x16, | /* FC_PSTRUCT */   | /* 888 */ |                              | /* FC_PAD */                            |
|           |                            |                                          | 0x3,  | /* 3 */            | /* 890 */ | 0x8,                         | 0x12, 0x8, /* FC_UP [simple_pointer] */ |
| /* 818 */ | NdrFcShort( 0x8 ),         | /* 8 */                                  |       |                    |           | 0x5c,                        | /* FC_LONG */                           |
| /* 820 */ |                            |                                          |       |                    | /* 892 */ |                              | /* FC_PAD */                            |
|           |                            |                                          | 0x4b, | /* FC_PP */        | /* 894 */ | 0xa,                         | 0x12, 0x8, /* FC_UP [simple_pointer] */ |
| /* 822 */ |                            |                                          | 0x5c, | /* FC_PAD */       |           |                              | /* FC_FLOAT */                          |
|           |                            |                                          | 0x46, | /* FC_NO_REPEAT */ | /* 896 */ |                              | 0x5c,                                   |
|           |                            |                                          | 0x5c, | /* FC_PAD */       | /* 898 */ | 0xc,                         | 0x12, 0x8, /* FC_UP [simple_pointer] */ |
| /* 824 */ | NdrFcShort( 0x4 ),         | /* 4 */                                  |       |                    |           | 0x5c,                        | /* FC_DOUBLE */                         |
| /* 826 */ | NdrFcShort( 0x4 ),         | /* 4 */                                  |       |                    | /* 900 */ |                              | /* FC_PAD */                            |
| /* 828 */ | 0x12, 0x0, /* FC_UP */     |                                          |       |                    |           | 0x12, 0x0, /* FC_UP */       |                                         |
| /* 830 */ | NdrFcShort( 0xffffffff8 ), | /* Offset= -24 (806) */                  |       |                    | /* 902 */ | NdrFcShort( 0xffffffff90 ),  | /* Offset= -624 (278) */                |
| /* 832 */ |                            |                                          | 0x5b, | /* FC_END */       | /* 904 */ |                              |                                         |

```

                                0x12, 0x10,          /* FC_UP */
[pointer_deref] */
/* 906 */ NdrFcShort( 0xfffffd92 ),          /* Offset= -622 (284) */
/* 908 */
                                0x12, 0x10,          /* FC_UP */
[pointer_deref] */
/* 910 */ NdrFcShort( 0xfffffda6 ),          /* Offset= -602 (308) */
/* 912 */
                                0x12, 0x10,          /* FC_UP */
[pointer_deref] */
/* 914 */ NdrFcShort( 0xfffffdb4 ),          /* Offset= -588 (326) */
/* 916 */
                                0x12, 0x10,          /* FC_UP */
[pointer_deref] */
/* 918 */ NdrFcShort( 0xfffffdc2 ),          /* Offset= -574 (344) */
/* 920 */
                                0x12, 0x10,          /* FC_UP */
[pointer_deref] */
/* 922 */ NdrFcShort( 0x2 ),          /* Offset= 2 (924) */
/* 924 */
                                0x12, 0x0, /* FC_UP */
/* 926 */ NdrFcShort( 0x16 ), /* Offset= 22 (948) */
/* 928 */
                                0x15,          /* FC_STRUCT */
                                0x7,          /* 7 */
/* 930 */ NdrFcShort( 0x10 ), /* 16 */
/* 932 */ 0x6,          /* FC_SHORT */
                                0x1,          /* FC_BYTE */
/* 934 */ 0x1,          /* FC_BYTE */
                                0x38,          /* FC_ALIGNM4 */
/* 936 */ 0x8,          /* FC_LONG */
                                0x39,          /* FC_ALIGNM8 */
/* 938 */ 0xb,          /* FC_HYPER */
                                0x5b,          /* FC_END */
/* 940 */
                                0x12, 0x0, /* FC_UP */
/* 942 */ NdrFcShort( 0xfffffd2 ),          /* Offset= -14 (928) */
/* 944 */
                                0x12, 0x8, /* FC_UP [simple_pointer] */
/* 946 */ 0x2,          /* FC_CHAR */
                                0x5c,          /* FC_PAD */
/* 948 */
                                0x1a,          /*
FC_BOGUS_STRUCT */
                                0x7,          /* 7 */
/* 950 */ NdrFcShort( 0x20 ), /* 32 */
/* 952 */ NdrFcShort( 0x0 ), /* 0 */
/* 954 */ NdrFcShort( 0x0 ), /* Offset= 0 (954) */
/* 956 */ 0x8,          /* FC_LONG */
                                0x8,          /* FC_LONG */
/* 958 */ 0x6,          /* FC_SHORT */
                                0x6,          /* FC_SHORT */
/* 960 */ 0x6,          /* FC_SHORT */
                                0x6,          /* FC_SHORT */
/* 962 */ 0x4c,          /* FC_EMBEDDED_COMPLEX */
                                0x0,          /* 0 */
/* 964 */ NdrFcShort( 0xfffffc42 ),          /* Offset= -958 (6) */
/* 966 */ 0x5c,          /* FC_PAD */
                                0x5b,          /* FC_END */
/* 968 */ 0xb4,          /* FC_USER_MARSHAL */
                                0x83,          /* 131 */
/* 970 */ NdrFcShort( 0x0 ), /* 0 */
/* 972 */ NdrFcShort( 0x10 ), /* 16 */
/* 974 */ NdrFcShort( 0x0 ), /* 0 */
/* 976 */ NdrFcShort( 0xfffffc32 ),          /* Offset= -974 (2) */
/* 978 */
                                0x11, 0x4, /* FC_RP [allocated_on_stack] */
/* 980 */ NdrFcShort( 0x6 ), /* Offset= 6 (986) */

```

```

/* 982 */
                                0x13, 0x0, /* FC_OP */
/* 984 */ NdrFcShort( 0xfffffddc ),          /* Offset= -36 (948) */
/* 986 */ 0xb4,          /* FC_USER_MARSHAL */
                                0x83,          /* 131 */
/* 988 */ NdrFcShort( 0x0 ), /* 0 */
/* 990 */ NdrFcShort( 0x10 ), /* 16 */
/* 992 */ NdrFcShort( 0x0 ), /* 0 */
/* 994 */ NdrFcShort( 0xfffffff4 ),          /* Offset= -12 (982) */
                                0x0
    }
};

const CInterfaceProxyVtbl * _tpcc_com_ps_ProxyVtblList[] =
{
    ( CInterfaceProxyVtbl *) &_ITPCCProxyVtbl,
    0
};

const CInterfaceStubVtbl * _tpcc_com_ps_StubVtblList[] =
{
    ( CInterfaceStubVtbl *) &_ITPCCStubVtbl,
    0
};

PCInterfaceName const _tpcc_com_ps_InterfaceNamesList[] =
{
    "ITPCC",
    0
};

#define _tpcc_com_ps_CHECK_IID(n)    IID_GENERIC_CHECK_IID(
    _tpcc_com_ps, pIID, n)

int __stdcall _tpcc_com_ps_IID_Lookup( const IID * pIID, int * pIndex )
{
    if(!_tpcc_com_ps_CHECK_IID(0))
    {
        *pIndex = 0;
        return 1;
    }

    return 0;
}

const ExtendedProxyFileInfo tpcc_com_ps_ProxyFileInfo =
{
    (PCInterfaceProxyVtblList *) &_tpcc_com_ps_ProxyVtblList,
    (PCInterfaceStubVtblList *) &_tpcc_com_ps_StubVtblList,
    (const PCInterfaceName *) &_tpcc_com_ps_InterfaceNamesList,
    0, // no delegation
    &_tpcc_com_ps_IID_Lookup,
    1,
    2,
    0, /* table of [async_uuid] interfaces */
    0, /* Filler1 */
    0, /* Filler2 */
    0 /* Filler3 */
};

#endif /* !defined(_M_IA64) && !defined(_M_AXP64) */

#pragma warning( disable: 4049 ) /* more than 64k source lines */

```

```

/* this ALWAYS GENERATED file contains the proxy stub code */

/* File created by MIDL compiler version 5.03.0280 */
/* at Thu Dec 13 23:13:08 2001
*/
/* Compiler settings for \src\tpcc_com_ps.idl:
Oicf (OptLev=i2), W1, Zp8, env=Win64 (32b run,appending), ms_ext, c_ext,
robust
error checks: allocation ref bounds_check enum stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany), __declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@MIDL_FILE_HEADING( )

#ifdef _M_IA64 || defined(_M_AXP64)
#define USE_STUBLESS_PROXY

/* verify that the <rpcproxy.h> version is high enough to compile this file*/
#ifndef __REDQ_RPCPROXY_H_VERSION__
#define __REQUIRED_RPCPROXY_H_VERSION__ 475
#endif

#include "rpcproxy.h"
#ifndef __RPCPROXY_H_VERSION__
#error this stub requires an updated version of <rpcproxy.h>
#endif // __RPCPROXY_H_VERSION__

#include "tpcc_com_ps.h"

#define TYPE_FORMAT_STRING_SIZE 979
#define PROC_FORMAT_STRING_SIZE 253
#define TRANSMIT_AS_TABLE_SIZE 0
#define WIRE_MARSHAL_TABLE_SIZE 1

typedef struct _MIDL_TYPE_FORMAT_STRING
{
    short Pad;
    unsigned char Format[ TYPE_FORMAT_STRING_SIZE ];
} MIDL_TYPE_FORMAT_STRING;

typedef struct _MIDL_PROC_FORMAT_STRING
{
    short Pad;
    unsigned char Format[ PROC_FORMAT_STRING_SIZE ];
} MIDL_PROC_FORMAT_STRING;

extern const MIDL_TYPE_FORMAT_STRING __MIDL_TypeFormatString;
extern const MIDL_PROC_FORMAT_STRING __MIDL_ProcFormatString;

/* Standard interface: __MIDL_itf_tpcc_com_ps_0000, ver. 0.0,

GUID={0x00000000,0x0000,0x0000,{0x00,0x00,0x00,0x00,0x00,0x00,0x00,0
x00}} */

/* Object interface: IUnknown, ver. 0.0,

GUID={0x00000000,0x0000,0x0000,{0xC0,0x00,0x00,0x00,0x00,0x00,0x00,0
x46}} */

```

```

/* Object interface: ITPCC, ver. 0.0,

GUID={0xFEEE6AA2,0x84B1,0x11d2,{0xBA,0x47,0x00,0xC0,0x4F,0xBF,0xE0,0x8B}} */

extern const MIDL_STUB_DESC Object_StubDesc;

extern const MIDL_SERVER_INFO ITPCC_ServerInfo;

#pragma code_seg("orpc")
static const unsigned short ITPCC_FormatStringOffsetTable[] =
{
    0,
    44,
    88,
    132,
    176,
    220
};

static const MIDL_SERVER_INFO ITPCC_ServerInfo =
{
    &Object_StubDesc,
    0,
    __MIDL_ProcFormatString.Format,
    &ITPCC_FormatStringOffsetTable[-3],
    0,
    0,
    0,
    0
};

static const MIDL_STUBLESS_PROXY_INFO ITPCC_ProxyInfo =
{
    &Object_StubDesc,
    __MIDL_ProcFormatString.Format,
    &ITPCC_FormatStringOffsetTable[-3],
    0,
    0,
    0
};

CINTERFACE_PROXY_VTABLE(9) _ITPCCProxyVtbl =
{
    &ITPCC_ProxyInfo,
    &IID_ITPCC,
    IUnknown_QueryInterface_Proxy,
    IUnknown_AddRef_Proxy,
    IUnknown_Release_Proxy ,
    (void *)-1 /* ITPCC::NewOrder */ ,
    (void *)-1 /* ITPCC::Payment */ ,
    (void *)-1 /* ITPCC::Delivery */ ,
    (void *)-1 /* ITPCC::StockLevel */ ,
    (void *)-1 /* ITPCC::OrderStatus */ ,
    (void *)-1 /* ITPCC::CallSetComplete */
};

const CInterfaceStubVtbl _ITPCCStubVtbl =
{
    &IID_ITPCC,
    &ITPCC_ServerInfo,
    9,
    0, /* pure interpreted */
    CStdStubBuffer_METHODS
};

```

```
extern const USER_MARSHAL_ROUTINE_QUADRUPLE
UserMarshalRoutines[ WIRE_MARSHAL_TABLE_SIZE ];
```

```
static const MIDL_STUB_DESC Object_StubDesc =
```

```
{
    0,
    NdrOleAllocate,
    NdrOleFree,
    0,
    0,
    0,
    0,
    0,
    0,
    __MIDL_TypeFormatString.Format,
    1, /* -error bounds_check flag */
    0x50002, /* Ndr library version */
    0,
    0x5030118, /* MIDL Version 5.3.280 */
    0,
    UserMarshalRoutines,
    0, /* notify & notify_flag routine table */
    0x1, /* MIDL flag */
    0, /* Reserved3 */
    0, /* Reserved4 */
    0 /* Reserved5 */
};
```

```
#pragma data_seg("rdata")
```

```
static const USER_MARSHAL_ROUTINE_QUADRUPLE
UserMarshalRoutines[ WIRE_MARSHAL_TABLE_SIZE ] =
```

```
{
    {
        VARIANT_UserSize
    ,VARIANT_UserMarshal
    ,VARIANT_UserUnmarshal
    ,VARIANT_UserFree
    }
};
```

```
#if !defined(__RPC_WIN64__)
#error Invalid build platform for this stub.
#endif
```

```
static const MIDL_PROC_FORMAT_STRING __MIDL_ProcFormatString =
```

```
{
    {
        /* Procedure NewOrder */

```

```
0x33, /*
FC_AUTO_HANDLE */
0x6c, /* Old Flags: object,
```

```
Oi2 */
/* 2 */ NdrFcLong( 0x0 ), /* 0 */
/* 6 */ NdrFcShort( 0x3 ), /* 3 */
#ifdef _ALPHA_
/* 8 */ NdrFcShort( 0x38 ), /* ia64 Stack size/offset = 56 */
#else
```

```
NdrFcShort( 0x30 ), /* axp64 Stack
```

```
size/offset = 48 */
```

```
#endif
```

```
/* 10 */ NdrFcShort( 0x0 ), /* 0 */
```

```
/* 12 */ NdrFcShort( 0x8 ), /* 8 */
/* 14 */ 0x47, /* Oi2 Flags: srv must size, clt must size, has
return, has ext, */
```

```
0x3, /* 3 */
/* 16 */ 0xa, /* 10 */
0x7, /* Ext Flags: new corr
```

```
desc, clt corr check, srv corr check, */
/* 18 */ NdrFcShort( 0x20 ), /* 32 */
/* 20 */ NdrFcShort( 0x20 ), /* 32 */
/* 22 */ NdrFcShort( 0x0 ), /* 0 */
/* 24 */ NdrFcShort( 0x0 ), /* 0 */
```

```
/* Parameter txn_in */
```

```
/* 26 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */
```

```
#ifndef _ALPHA_
/* 28 */ NdrFcShort( 0x10 ), /* ia64 Stack size/offset = 16 */
#else
```

```
NdrFcShort( 0x8 ), /* axp64 Stack
size/offset = 8 */
```

```
#endif
```

```
/* 30 */ NdrFcShort( 0x3b6 ), /* Type Offset=950 */
```

```
/* Parameter txn_out */
```

```
/* 32 */ NdrFcShort( 0x6113 ), /* Flags: must size, must free, out,
simple ref, srv alloc size=24 */
```

```
#ifndef _ALPHA_
/* 34 */ NdrFcShort( 0x28 ), /* ia64 Stack size/offset = 40 */
#else
```

```
NdrFcShort( 0x20 ), /* axp64 Stack
size/offset = 32 */
```

```
#endif
```

```
/* 36 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */
```

```
/* Return value */
```

```
/* 38 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
```

```
#ifndef _ALPHA_
/* 40 */ NdrFcShort( 0x30 ), /* ia64 Stack size/offset = 48 */
#else
```

```
NdrFcShort( 0x28 ), /* axp64 Stack
size/offset = 40 */
```

```
#endif
```

```
/* 42 */ 0x8, /* FC_LONG */
0x0, /* 0 */
```

```
/* Procedure Payment */
```

```
/* 44 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /* Old Flags: object,
```

```
Oi2 */
```

```
/* 46 */ NdrFcLong( 0x0 ), /* 0 */
```

```
/* 50 */ NdrFcShort( 0x4 ), /* 4 */
```

```
#ifndef _ALPHA_
/* 52 */ NdrFcShort( 0x38 ), /* ia64 Stack size/offset = 56 */
#else
```

```
NdrFcShort( 0x30 ), /* axp64 Stack
size/offset = 48 */
```

```
#endif
```

```
/* 54 */ NdrFcShort( 0x0 ), /* 0 */
```

```
/* 56 */ NdrFcShort( 0x8 ), /* 8 */
```

```
/* 58 */ 0x47, /* Oi2 Flags: srv must size, clt must size, has
return, has ext, */
```

```
0x3, /* 3 */
```

```
/* 60 */ 0xa, /* 10 */
```

```
0x7, /* Ext Flags: new corr
desc, clt corr check, srv corr check, */
```

```

/* 62 */ NdrFcShort( 0x20 ), /* 32 */
/* 64 */ NdrFcShort( 0x20 ), /* 32 */
/* 66 */ NdrFcShort( 0x0 ), /* 0 */
/* 68 */ NdrFcShort( 0x0 ), /* 0 */

/* Parameter txn_in */

/* 70 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */
#ifdef _ALPHA_
/* 72 */ NdrFcShort( 0x10 ), /* ia64 Stack size/offset = 16 */
#else
NdrFcShort( 0x8 ), /* axp64 Stack
size/offset = 8 */
#endif
/* 74 */ NdrFcShort( 0x3b6 ), /* Type Offset=950 */

/* Parameter txn_out */

/* 76 */ NdrFcShort( 0x6113 ), /* Flags: must size, must free, out,
simple ref, srv alloc size=24 */
#ifdef _ALPHA_
/* 78 */ NdrFcShort( 0x28 ), /* ia64 Stack size/offset = 40 */
#else
NdrFcShort( 0x20 ), /* axp64 Stack
size/offset = 32 */
#endif
/* 80 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */

/* Return value */

/* 82 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifdef _ALPHA_
/* 84 */ NdrFcShort( 0x30 ), /* ia64 Stack size/offset = 48 */
#else
NdrFcShort( 0x28 ), /* axp64 Stack
size/offset = 40 */
#endif
/* 86 */ 0x8, /* FC_LONG */
0x0, /* 0 */

/* Procedure Delivery */

/* 88 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /* Old Flags: object,
Oi2 */
/* 90 */ NdrFcLong( 0x0 ), /* 0 */
/* 94 */ NdrFcShort( 0x5 ), /* 5 */
#ifdef _ALPHA_
/* 96 */ NdrFcShort( 0x38 ), /* ia64 Stack size/offset = 56 */
#else
NdrFcShort( 0x30 ), /* axp64 Stack
size/offset = 48 */
#endif
/* 98 */ NdrFcShort( 0x0 ), /* 0 */
/* 100 */ NdrFcShort( 0x8 ), /* 8 */
/* 102 */ 0x47, /* Oi2 Flags: srv must size, clt must size, has
return, has ext, */
0x3, /* 3 */
/* 104 */ 0xa, /* 10 */
0x7, /* Ext Flags: new corr
desc, clt corr check, srv corr check, */
/* 106 */ NdrFcShort( 0x20 ), /* 32 */
/* 108 */ NdrFcShort( 0x20 ), /* 32 */
/* 110 */ NdrFcShort( 0x0 ), /* 0 */
/* 112 */ NdrFcShort( 0x0 ), /* 0 */

/* Parameter txn_in */

/* 114 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */
#ifdef _ALPHA_
/* 116 */ NdrFcShort( 0x10 ), /* ia64 Stack size/offset = 16 */
#else
NdrFcShort( 0x8 ), /* axp64 Stack
size/offset = 8 */
#endif
/* 118 */ NdrFcShort( 0x3b6 ), /* Type Offset=950 */

/* Parameter txn_out */

/* 120 */ NdrFcShort( 0x6113 ), /* Flags: must size, must free, out,
simple ref, srv alloc size=24 */
#ifdef _ALPHA_
/* 122 */ NdrFcShort( 0x28 ), /* ia64 Stack size/offset = 40 */
#else
NdrFcShort( 0x20 ), /* axp64 Stack
size/offset = 32 */
#endif
/* 124 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */

/* Return value */

/* 126 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifdef _ALPHA_
/* 128 */ NdrFcShort( 0x30 ), /* ia64 Stack size/offset = 48 */
#else
NdrFcShort( 0x28 ), /* axp64 Stack
size/offset = 40 */
#endif
/* 130 */ 0x8, /* FC_LONG */
0x0, /* 0 */

/* Procedure StockLevel */

/* 132 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /* Old Flags: object,
Oi2 */
/* 134 */ NdrFcLong( 0x0 ), /* 0 */
/* 138 */ NdrFcShort( 0x6 ), /* 6 */
#ifdef _ALPHA_
/* 140 */ NdrFcShort( 0x38 ), /* ia64 Stack size/offset = 56 */
#else
NdrFcShort( 0x30 ), /* axp64 Stack
size/offset = 48 */
#endif
/* 142 */ NdrFcShort( 0x0 ), /* 0 */
/* 144 */ NdrFcShort( 0x8 ), /* 8 */
/* 146 */ 0x47, /* Oi2 Flags: srv must size, clt must size, has
return, has ext, */
0x3, /* 3 */
/* 148 */ 0xa, /* 10 */
0x7, /* Ext Flags: new corr
desc, clt corr check, srv corr check, */
/* 150 */ NdrFcShort( 0x20 ), /* 32 */
/* 152 */ NdrFcShort( 0x20 ), /* 32 */
/* 154 */ NdrFcShort( 0x0 ), /* 0 */
/* 156 */ NdrFcShort( 0x0 ), /* 0 */

/* Parameter txn_in */

/* 158 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */
#ifdef _ALPHA_
/* 160 */ NdrFcShort( 0x10 ), /* ia64 Stack size/offset = 16 */
#else
NdrFcShort( 0x8 ), /* axp64 Stack
size/offset = 8 */
#endif

```

```

/* 162 */ NdrFcShort( 0x3b6 ), /* Type Offset=950 */

/* Parameter txn_out */

/* 164 */ NdrFcShort( 0x6113 ), /* Flags: must size, must free, out,
simple ref, srv alloc size=24 */
#ifdef _ALPHA_
/* 166 */ NdrFcShort( 0x28 ), /* ia64 Stack size/offset = 40 */
#else
NdrFcShort( 0x20 ), /* axp64 Stack
size/offset = 32 */
#endif
/* 168 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */

/* Return value */

/* 170 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifdef _ALPHA_
/* 172 */ NdrFcShort( 0x30 ), /* ia64 Stack size/offset = 48 */
#else
NdrFcShort( 0x28 ), /* axp64 Stack
size/offset = 40 */
#endif
/* 174 */ 0x8, /* FC_LONG */
0x0, /* 0 */

/* Procedure OrderStatus */

/* 176 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /* Old Flags: object,
Oi2 */
/* 178 */ NdrFcLong( 0x0 ), /* 0 */
/* 182 */ NdrFcShort( 0x7 ), /* 7 */
#ifdef _ALPHA_
/* 184 */ NdrFcShort( 0x38 ), /* ia64 Stack size/offset = 56 */
#else
NdrFcShort( 0x30 ), /* axp64 Stack
size/offset = 48 */
#endif
/* 186 */ NdrFcShort( 0x0 ), /* 0 */
/* 188 */ NdrFcShort( 0x8 ), /* 8 */
/* 190 */ 0x47, /* Oi2 Flags: srv must size, clt must size, has
return, has ext, */
0x3, /* 3 */
/* 192 */ 0xa, /* 10 */
0x7, /* Ext Flags: new corr
desc, clt corr check, srv corr check, */
/* 194 */ NdrFcShort( 0x20 ), /* 32 */
/* 196 */ NdrFcShort( 0x20 ), /* 32 */
/* 198 */ NdrFcShort( 0x0 ), /* 0 */
/* 200 */ NdrFcShort( 0x0 ), /* 0 */

/* Parameter txn_in */

/* 202 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */
#ifdef _ALPHA_
/* 204 */ NdrFcShort( 0x10 ), /* ia64 Stack size/offset = 16 */
#else
NdrFcShort( 0x8 ), /* axp64 Stack
size/offset = 8 */
#endif
/* 206 */ NdrFcShort( 0x3b6 ), /* Type Offset=950 */

/* Parameter txn_out */

/* 208 */ NdrFcShort( 0x6113 ), /* Flags: must size, must free, out,
simple ref, srv alloc size=24 */
#ifdef _ALPHA_
/* 210 */ NdrFcShort( 0x28 ), /* ia64 Stack size/offset = 40 */
#else
NdrFcShort( 0x20 ), /* axp64 Stack
size/offset = 32 */
#endif
/* 212 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */

/* Return value */

/* 214 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifdef _ALPHA_
/* 216 */ NdrFcShort( 0x30 ), /* ia64 Stack size/offset = 48 */
#else
NdrFcShort( 0x28 ), /* axp64 Stack
size/offset = 40 */
#endif
/* 218 */ 0x8, /* FC_LONG */
0x0, /* 0 */

/* Procedure CallSetComplete */

/* 220 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /* Old Flags: object,
Oi2 */
/* 222 */ NdrFcLong( 0x0 ), /* 0 */
/* 226 */ NdrFcShort( 0x8 ), /* 8 */
/* 228 */ NdrFcShort( 0x10 ), /* ia64, axp64 Stack size/offset = 16 */
/* 230 */ NdrFcShort( 0x0 ), /* 0 */
/* 232 */ NdrFcShort( 0x8 ), /* 8 */
/* 234 */ 0x44, /* Oi2 Flags: has return, has ext, */
0x1, /* 1 */
/* 236 */ 0xa, /* 10 */
0x1, /* Ext Flags: new corr
desc, */
/* 238 */ NdrFcShort( 0x0 ), /* 0 */
/* 240 */ NdrFcShort( 0x0 ), /* 0 */
/* 242 */ NdrFcShort( 0x0 ), /* 0 */
/* 244 */ NdrFcShort( 0x0 ), /* 0 */

/* Return value */

/* 246 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
/* 248 */ NdrFcShort( 0x8 ), /* ia64, axp64 Stack size/offset = 8 */
/* 250 */ 0x8, /* FC_LONG */
0x0, /* 0 */
0x0

}
};

static const MIDL_TYPE_FORMAT_STRING __MIDL_TypeFormatString =
{
0,
{
NdrFcShort( 0x0 ), /* 0 */
/* 2 */
0x12, 0x0, /* FC_UP */
/* 4 */ NdrFcShort( 0x39e ), /* Offset= 926 (930) */
/* 6 */
0x2b, /*
FC_NON_ENCAPSULATED_UNION */
0x9, /* FC_ULONG */
/* 8 */ 0x7, /* Corr desc: FC_USHORT */
0x0, /* */
/* 10 */ NdrFcShort( 0xffff8 ), /* -8 */
/* 12 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 14 */ NdrFcShort( 0x2 ), /* Offset= 2 (16) */
/* 16 */ NdrFcShort( 0x10 ), /* 16 */

```

```

/* 18 */ NdrFcShort( 0x2b ), /* 43 */
/* 20 */ NdrFcLong( 0x3 ), /* 3 */
/* 24 */ NdrFcShort( 0x8008 ), /* Simple arm type: FC_LONG */
/* 26 */ NdrFcLong( 0x11 ), /* 17 */
/* 30 */ NdrFcShort( 0x8001 ), /* Simple arm type: FC_BYTE */
/* 32 */ NdrFcLong( 0x2 ), /* 2 */
/* 36 */ NdrFcShort( 0x8006 ), /* Simple arm type: FC_SHORT */
/* 38 */ NdrFcLong( 0x4 ), /* 4 */
/* 42 */ NdrFcShort( 0x800a ), /* Simple arm type: FC_FLOAT */
/* 44 */ NdrFcLong( 0x5 ), /* 5 */
/* 48 */ NdrFcShort( 0x800c ), /* Simple arm type: FC_DOUBLE */
/*
/* 50 */ NdrFcLong( 0xb ), /* 11 */
/* 54 */ NdrFcShort( 0x8006 ), /* Simple arm type: FC_SHORT */
/* 56 */ NdrFcLong( 0xa ), /* 10 */
/* 60 */ NdrFcShort( 0x8008 ), /* Simple arm type: FC_LONG */
/* 62 */ NdrFcLong( 0x6 ), /* 6 */
/* 66 */ NdrFcShort( 0xd6 ), /* Offset= 214 (280) */
/* 68 */ NdrFcLong( 0x7 ), /* 7 */
/* 72 */ NdrFcShort( 0x800c ), /* Simple arm type: FC_DOUBLE */
/*
/* 74 */ NdrFcLong( 0x8 ), /* 8 */
/* 78 */ NdrFcShort( 0xd0 ), /* Offset= 208 (286) */
/* 80 */ NdrFcLong( 0xd ), /* 13 */
/* 84 */ NdrFcShort( 0xe4 ), /* Offset= 228 (312) */
/* 86 */ NdrFcLong( 0x9 ), /* 9 */
/* 90 */ NdrFcShort( 0xf0 ), /* Offset= 240 (330) */
/* 92 */ NdrFcLong( 0x2000 ), /* 8192 */
/* 96 */ NdrFcShort( 0xfc ), /* Offset= 252 (348) */
/* 98 */ NdrFcLong( 0x24 ), /* 36 */
/* 102 */ NdrFcShort( 0x2f4 ), /* Offset= 756 (858) */
/* 104 */ NdrFcLong( 0x4024 ), /* 16420 */
/* 108 */ NdrFcShort( 0x2ee ), /* Offset= 750 (858) */
/* 110 */ NdrFcLong( 0x4011 ), /* 16401 */
/* 114 */ NdrFcShort( 0x2ec ), /* Offset= 748 (862) */
/* 116 */ NdrFcLong( 0x4002 ), /* 16386 */
/* 120 */ NdrFcShort( 0x2ea ), /* Offset= 746 (866) */
/* 122 */ NdrFcLong( 0x4003 ), /* 16387 */
/* 126 */ NdrFcShort( 0x2e8 ), /* Offset= 744 (870) */
/* 128 */ NdrFcLong( 0x4004 ), /* 16388 */
/* 132 */ NdrFcShort( 0x2e6 ), /* Offset= 742 (874) */
/* 134 */ NdrFcLong( 0x4005 ), /* 16389 */
/* 138 */ NdrFcShort( 0x2e4 ), /* Offset= 740 (878) */
/* 140 */ NdrFcLong( 0x400b ), /* 16395 */
/* 144 */ NdrFcShort( 0x2d2 ), /* Offset= 722 (866) */
/* 146 */ NdrFcLong( 0x400a ), /* 16394 */
/* 150 */ NdrFcShort( 0x2d0 ), /* Offset= 720 (870) */
/* 152 */ NdrFcLong( 0x4006 ), /* 16390 */
/* 156 */ NdrFcShort( 0x2d6 ), /* Offset= 726 (882) */
/* 158 */ NdrFcLong( 0x4007 ), /* 16391 */
/* 162 */ NdrFcShort( 0x2cc ), /* Offset= 716 (878) */
/* 164 */ NdrFcLong( 0x4008 ), /* 16392 */
/* 168 */ NdrFcShort( 0x2ce ), /* Offset= 718 (886) */
/* 170 */ NdrFcLong( 0x400d ), /* 16397 */
/* 174 */ NdrFcShort( 0x2cc ), /* Offset= 716 (890) */
/* 176 */ NdrFcLong( 0x4009 ), /* 16393 */
/* 180 */ NdrFcShort( 0x2ca ), /* Offset= 714 (894) */
/* 182 */ NdrFcLong( 0x6000 ), /* 24576 */
/* 186 */ NdrFcShort( 0x2c8 ), /* Offset= 712 (898) */
/* 188 */ NdrFcLong( 0x400c ), /* 16396 */
/* 192 */ NdrFcShort( 0x2c6 ), /* Offset= 710 (902) */
/* 194 */ NdrFcLong( 0x10 ), /* 16 */
/* 198 */ NdrFcShort( 0x8002 ), /* Simple arm type: FC_CHAR */
/* 200 */ NdrFcLong( 0x12 ), /* 18 */
/* 204 */ NdrFcShort( 0x8006 ), /* Simple arm type: FC_SHORT */
/* 206 */ NdrFcLong( 0x13 ), /* 19 */
/* 210 */ NdrFcShort( 0x8008 ), /* Simple arm type: FC_LONG */
/* 212 */ NdrFcLong( 0x16 ), /* 22 */

/* 216 */ NdrFcShort( 0x8008 ), /* Simple arm type: FC_LONG */
/* 218 */ NdrFcLong( 0x17 ), /* 23 */
/* 222 */ NdrFcShort( 0x8008 ), /* Simple arm type: FC_LONG */
/* 224 */ NdrFcLong( 0xe ), /* 14 */
/* 228 */ NdrFcShort( 0x2aa ), /* Offset= 682 (910) */
/* 230 */ NdrFcLong( 0x400e ), /* 16398 */
/* 234 */ NdrFcShort( 0x2b0 ), /* Offset= 688 (922) */
/* 236 */ NdrFcLong( 0x4010 ), /* 16400 */
/* 240 */ NdrFcShort( 0x2ae ), /* Offset= 686 (926) */
/* 242 */ NdrFcLong( 0x4012 ), /* 16402 */
/* 246 */ NdrFcShort( 0x26c ), /* Offset= 620 (866) */
/* 248 */ NdrFcLong( 0x4013 ), /* 16403 */
/* 252 */ NdrFcShort( 0x26a ), /* Offset= 618 (870) */
/* 254 */ NdrFcLong( 0x4016 ), /* 16406 */
/* 258 */ NdrFcShort( 0x264 ), /* Offset= 612 (870) */
/* 260 */ NdrFcLong( 0x4017 ), /* 16407 */
/* 264 */ NdrFcShort( 0x25e ), /* Offset= 606 (870) */
/* 266 */ NdrFcLong( 0x0 ), /* 0 */
/* 270 */ NdrFcShort( 0x0 ), /* Offset= 0 (270) */
/* 272 */ NdrFcLong( 0x1 ), /* 1 */
/* 276 */ NdrFcShort( 0x0 ), /* Offset= 0 (276) */
/* 278 */ NdrFcShort( 0xffffffff ), /* Offset= -1 (277) */
/* 280 */

0x15, /* FC_STRUCT */
0x7, /* 7 */
/* 282 */ NdrFcShort( 0x8 ), /* 8 */
/* 284 */ 0xb, /* FC_HYPER */
0x5b, /* FC_END */
/* 286 */

0x12, 0x0, /* FC_UP */
/* 288 */ NdrFcShort( 0xe ), /* Offset= 14 (302) */
/* 290 */

0x1b, /* FC_CARRAY */
0x1, /* 1 */
/* 292 */ NdrFcShort( 0x2 ), /* 2 */
/* 294 */ 0x9, /* Corr desc: FC_ULONG */
0x0, /* */
/* 296 */ NdrFcShort( 0xfffc ), /* -4 */
/* 298 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 300 */ 0x6, /* FC_SHORT */
0x5b, /* FC_END */
/* 302 */

0x17, /* FC_CSTRUCT */
0x3, /* 3 */
/* 304 */ NdrFcShort( 0x8 ), /* 8 */
/* 306 */ NdrFcShort( 0xffffffff ), /* Offset= -16 (290) */
/* 308 */ 0x8, /* FC_LONG */
0x8, /* FC_LONG */
/* 310 */ 0x5c, /* FC_PAD */
0x5b, /* FC_END */
/* 312 */

0x2f, /* FC_IP */
0x5a, /*
FC_CONSTANT_IID */
/* 314 */ NdrFcLong( 0x0 ), /* 0 */
/* 318 */ NdrFcShort( 0x0 ), /* 0 */
/* 320 */ NdrFcShort( 0x0 ), /* 0 */
/* 322 */ 0xc0, /* 192 */
0x0, /* 0 */
/* 324 */ 0x0, /* 0 */
0x0, /* 0 */
/* 326 */ 0x0, /* 0 */
0x0, /* 0 */
/* 328 */ 0x0, /* 0 */
0x46, /* 70 */
/* 330 */

0x2f, /* FC_IP */

```

```

0x5a, /*
FC_CONSTANT_IID */
/* 332 */ NdrFcLong( 0x20400 ), /* 132096 */
/* 336 */ NdrFcShort( 0x0 ), /* 0 */
/* 338 */ NdrFcShort( 0x0 ), /* 0 */
/* 340 */ 0xc0, /* 192 */
/* 342 */ 0x0, /* 0 */
/* 344 */ 0x0, /* 0 */
/* 346 */ 0x0, /* 0 */
/* 348 */ 0x46, /* 70 */
0x12, 0x10, /* FC_UP
[pointer_deref] */
/* 350 */ NdrFcShort( 0x2 ), /* Offset= 2 (352) */
/* 352 */ 0x12, 0x0, /* FC_UP */
/* 354 */ NdrFcShort( 0x1e6 ), /* Offset= 486 (840) */
/* 356 */ 0x2a, /*
FC_ENCAPSULATED_UNION */
/* 358 */ NdrFcShort( 0x20 ), /* 32 */
/* 360 */ NdrFcShort( 0xa ), /* 10 */
/* 362 */ NdrFcLong( 0x8 ), /* 8 */
/* 366 */ NdrFcShort( 0x50 ), /* Offset= 80 (446) */
/* 368 */ NdrFcLong( 0xd ), /* 13 */
/* 372 */ NdrFcShort( 0x70 ), /* Offset= 112 (484) */
/* 374 */ NdrFcLong( 0x9 ), /* 9 */
/* 378 */ NdrFcShort( 0x90 ), /* Offset= 144 (522) */
/* 380 */ NdrFcLong( 0xc ), /* 12 */
/* 384 */ NdrFcShort( 0xb0 ), /* Offset= 176 (560) */
/* 386 */ NdrFcLong( 0x24 ), /* 36 */
/* 390 */ NdrFcShort( 0x104 ), /* Offset= 260 (650) */
/* 392 */ NdrFcLong( 0x800d ), /* 32781 */
/* 396 */ NdrFcShort( 0x120 ), /* Offset= 288 (684) */
/* 398 */ NdrFcLong( 0x10 ), /* 16 */
/* 402 */ NdrFcShort( 0x13a ), /* Offset= 314 (716) */
/* 404 */ NdrFcLong( 0x2 ), /* 2 */
/* 408 */ NdrFcShort( 0x150 ), /* Offset= 336 (744) */
/* 410 */ NdrFcLong( 0x3 ), /* 3 */
/* 414 */ NdrFcShort( 0x166 ), /* Offset= 358 (772) */
/* 416 */ NdrFcLong( 0x14 ), /* 20 */
/* 420 */ NdrFcShort( 0x17c ), /* Offset= 380 (800) */
/* 422 */ NdrFcShort( 0xffffffff ), /* Offset= -1 (421) */
/* 424 */ 0x21, /*
FC_BOGUS_ARRAY */
/* 426 */ NdrFcShort( 0x0 ), /* 0 */
/* 428 */ 0x19, /* Corr desc: field pointer, FC_ULONG */
/* 430 */ NdrFcShort( 0x0 ), /* 0 */
/* 432 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 434 */ NdrFcLong( 0xffffffff ), /* -1 */
/* 438 */ NdrFcShort( 0x0 ), /* Corr flags: */
/* 440 */ 0x12, 0x0, /* FC_UP */
/* 442 */ NdrFcShort( 0xffffffff74 ), /* Offset= -140 (302) */
/* 444 */ 0x5c, /* FC_PAD */
/* 446 */ 0x5b, /* FC_END */
0x1a, /*
FC_BOGUS_STRUCT */
/* 448 */ NdrFcShort( 0x10 ), /* 16 */
/* 450 */ NdrFcShort( 0x0 ), /* 0 */
/* 452 */ NdrFcShort( 0x6 ), /* Offset= 6 (458) */
/* 454 */ 0x8, /* FC_LONG */
/* 456 */ 0x36, /* FC_POINTER */
/* 458 */ 0x5b, /* FC_END */
0x11, 0x0, /* FC_RP */
/* 460 */ NdrFcShort( 0xffffffffdc ), /* Offset= -36 (424) */
/* 462 */ 0x21, /*
FC_BOGUS_ARRAY */
/* 464 */ NdrFcShort( 0x0 ), /* 0 */
/* 466 */ 0x19, /* Corr desc: field pointer, FC_ULONG */
/* 468 */ NdrFcShort( 0x0 ), /* 0 */
/* 470 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 472 */ NdrFcLong( 0xffffffff ), /* -1 */
/* 476 */ NdrFcShort( 0x0 ), /* Corr flags: */
/* 478 */ 0x4c, /* FC_EMBEDDED_COMPLEX */
/* 480 */ NdrFcShort( 0xffffffff58 ), /* Offset= -168 (312) */
/* 482 */ 0x5c, /* FC_PAD */
/* 484 */ 0x5b, /* FC_END */
0x1a, /*
FC_BOGUS_STRUCT */
/* 486 */ NdrFcShort( 0x10 ), /* 16 */
/* 488 */ NdrFcShort( 0x0 ), /* 0 */
/* 490 */ NdrFcShort( 0x6 ), /* Offset= 6 (496) */
/* 492 */ 0x8, /* FC_LONG */
/* 494 */ 0x36, /* FC_POINTER */
/* 496 */ 0x5b, /* FC_END */
0x11, 0x0, /* FC_RP */
/* 498 */ NdrFcShort( 0xffffffffdc ), /* Offset= -36 (462) */
/* 500 */ 0x21, /*
FC_BOGUS_ARRAY */
/* 502 */ NdrFcShort( 0x0 ), /* 0 */
/* 504 */ 0x19, /* Corr desc: field pointer, FC_ULONG */
/* 506 */ NdrFcShort( 0x0 ), /* 0 */
/* 508 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 510 */ NdrFcLong( 0xffffffff ), /* -1 */
/* 514 */ NdrFcShort( 0x0 ), /* Corr flags: */
/* 516 */ 0x4c, /* FC_EMBEDDED_COMPLEX */
/* 518 */ NdrFcShort( 0xffffffff44 ), /* Offset= -188 (330) */
/* 520 */ 0x5c, /* FC_PAD */
/* 522 */ 0x5b, /* FC_END */
0x1a, /*
FC_BOGUS_STRUCT */
/* 524 */ NdrFcShort( 0x10 ), /* 16 */
/* 526 */ NdrFcShort( 0x0 ), /* 0 */
/* 528 */ NdrFcShort( 0x6 ), /* Offset= 6 (534) */
/* 530 */ 0x8, /* FC_LONG */
/* 532 */ 0x36, /* FC_POINTER */
/* 534 */ 0x5b, /* FC_END */
0x11, 0x0, /* FC_RP */

```

```

/* 536 */ NdrFcShort( 0xffffffff ), /* Offset= -36 (500) */
/* 538 */
FC_BOGUS_ARRAY */
0x21, /*
0x3, /* 3 */
/* 540 */ NdrFcShort( 0x0 ), /* 0 */
/* 542 */ 0x19, /* Corr desc: field pointer, FC_ULONG */
0x0, /* */
/* 544 */ NdrFcShort( 0x0 ), /* 0 */
/* 546 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 548 */ NdrFcLong( 0xffffffff ), /* -1 */
/* 552 */ NdrFcShort( 0x0 ), /* Corr flags: */
/* 554 */
0x12, 0x0, /* FC_UP */
/* 556 */ NdrFcShort( 0x176 ), /* Offset= 374 (930) */
/* 558 */ 0x5c, /* FC_PAD */
0x5b, /* FC_END */
/* 560 */
0x1a, /*
FC_BOGUS_STRUCT */
0x3, /* 3 */
/* 562 */ NdrFcShort( 0x10 ), /* 16 */
/* 564 */ NdrFcShort( 0x0 ), /* 0 */
/* 566 */ NdrFcShort( 0x6 ), /* Offset= 6 (572) */
/* 568 */ 0x8, /* FC_LONG */
0x39, /* FC_ALIGNM8 */
/* 570 */ 0x36, /* FC_POINTER */
0x5b, /* FC_END */
/* 572 */
0x11, 0x0, /* FC_RP */
/* 574 */ NdrFcShort( 0xffffffff ), /* Offset= -36 (538) */
/* 576 */
0x2f, /* FC_IP */
0x5a, /*
FC_CONSTANT_IID */
/* 578 */ NdrFcLong( 0x2f ), /* 47 */
/* 582 */ NdrFcShort( 0x0 ), /* 0 */
/* 584 */ NdrFcShort( 0x0 ), /* 0 */
/* 586 */ 0xc0, /* 192 */
0x0, /* 0 */
/* 588 */ 0x0, /* 0 */
0x0, /* 0 */
/* 590 */ 0x0, /* 0 */
0x0, /* 0 */
/* 592 */ 0x0, /* 0 */
0x46, /* 70 */
/* 594 */
0x1b, /* FC_CARRAY */
0x0, /* 0 */
/* 596 */ NdrFcShort( 0x1 ), /* 1 */
/* 598 */ 0x19, /* Corr desc: field pointer, FC_ULONG */
0x0, /* */
/* 600 */ NdrFcShort( 0x4 ), /* 4 */
/* 602 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 604 */ 0x1, /* FC_BYTE */
0x5b, /* FC_END */
/* 606 */
0x1a, /*
FC_BOGUS_STRUCT */
0x3, /* 3 */
/* 608 */ NdrFcShort( 0x18 ), /* 24 */
/* 610 */ NdrFcShort( 0x0 ), /* 0 */
/* 612 */ NdrFcShort( 0xc ), /* Offset= 12 (624) */
/* 614 */ 0x8, /* FC_LONG */
0x8, /* FC_LONG */
/* 616 */ 0x4c, /* FC_EMBEDDED_COMPLEX */
0x0, /* 0 */
/* 618 */ NdrFcShort( 0xffffffff6 ), /* Offset= -42 (576) */

/* 620 */ 0x39, /* FC_ALIGNM8 */
0x36, /* FC_POINTER */
/* 622 */ 0x5c, /* FC_PAD */
0x5b, /* FC_END */
/* 624 */
0x12, 0x0, /* FC_UP */
/* 626 */ NdrFcShort( 0xffffffffe0 ), /* Offset= -32 (594) */
/* 628 */
0x21, /*
FC_BOGUS_ARRAY */
0x3, /* 3 */
/* 630 */ NdrFcShort( 0x0 ), /* 0 */
/* 632 */ 0x19, /* Corr desc: field pointer, FC_ULONG */
0x0, /* */
/* 634 */ NdrFcShort( 0x0 ), /* 0 */
/* 636 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 638 */ NdrFcLong( 0xffffffff ), /* -1 */
/* 642 */ NdrFcShort( 0x0 ), /* Corr flags: */
/* 644 */
0x12, 0x0, /* FC_UP */
/* 646 */ NdrFcShort( 0xffffffffd8 ), /* Offset= -40 (606) */
/* 648 */ 0x5c, /* FC_PAD */
0x5b, /* FC_END */
/* 650 */
0x1a, /*
FC_BOGUS_STRUCT */
0x3, /* 3 */
/* 652 */ NdrFcShort( 0x10 ), /* 16 */
/* 654 */ NdrFcShort( 0x0 ), /* 0 */
/* 656 */ NdrFcShort( 0x6 ), /* Offset= 6 (662) */
/* 658 */ 0x8, /* FC_LONG */
0x39, /* FC_ALIGNM8 */
/* 660 */ 0x36, /* FC_POINTER */
0x5b, /* FC_END */
/* 662 */
0x11, 0x0, /* FC_RP */
/* 664 */ NdrFcShort( 0xffffffffdc ), /* Offset= -36 (628) */
/* 666 */
0x1d, /* FC_SMFARRAY */
0x0, /* 0 */
/* 668 */ NdrFcShort( 0x8 ), /* 8 */
/* 670 */ 0x1, /* FC_BYTE */
0x5b, /* FC_END */
/* 672 */
0x15, /* FC_STRUCT */
0x3, /* 3 */
/* 674 */ NdrFcShort( 0x10 ), /* 16 */
/* 676 */ 0x8, /* FC_LONG */
0x6, /* FC_SHORT */
/* 678 */ 0x6, /* FC_SHORT */
0x4c, /*
FC_EMBEDDED_COMPLEX */
/* 680 */ 0x0, /* 0 */
NdrFcShort( 0xffffffff1 ), /* Offset=
-15 (666) */
0x5b, /* FC_END */
/* 684 */
0x1a, /*
FC_BOGUS_STRUCT */
0x3, /* 3 */
/* 686 */ NdrFcShort( 0x20 ), /* 32 */
/* 688 */ NdrFcShort( 0x0 ), /* 0 */
/* 690 */ NdrFcShort( 0xa ), /* Offset= 10 (700) */
/* 692 */ 0x8, /* FC_LONG */
0x39, /* FC_ALIGNM8 */
/* 694 */ 0x36, /* FC_POINTER */
0x4c, /*
FC_EMBEDDED_COMPLEX */

```

```

/* 696 */ 0x0, /* 0 */
/* 700 */ NdrFcShort( 0xffffffe7 ), /* Offset=
-25 (672) */
/* 702 */ 0x5b, /* FC_END */
/* 704 */ 0x11, 0x0, /* FC_RP */
/* 706 */ NdrFcShort( 0xfffff10 ), /* Offset= -240 (462) */
/* 708 */ 0x0, /* FC_CARRAY */
/* 710 */ 0x0, /* 0 */
/* 712 */ /* Corr desc: field pointer, FC_ULONG */
/* 714 */ 0x0, /* 0 */
/* 716 */ /* Corr flags: early, */
/* 718 */ 0x1, /* FC_BYTE */
/* 720 */ 0x5b, /* FC_END */
/* 722 */ 0x1a, /*
FC_BOGUS_STRUCT */
/* 724 */ 0x3, /* 3 */
/* 726 */ NdrFcShort( 0x10 ), /* 16 */
/* 728 */ NdrFcShort( 0x0 ), /* 0 */
/* 730 */ NdrFcShort( 0x6 ), /* Offset= 6 (728) */
/* 732 */ 0x8, /* FC_LONG */
/* 734 */ 0x39, /* FC_ALIGNM8 */
/* 736 */ 0x36, /* FC_POINTER */
/* 738 */ 0x5b, /* FC_END */
/* 740 */ 0x12, 0x0, /* FC_UP */
/* 742 */ NdrFcShort( 0xfffffe6 ), /* Offset= -26 (704) */
/* 744 */ 0x1b, /* FC_CARRAY */
/* 746 */ 0x1, /* 1 */
/* 748 */ /* Corr desc: field pointer, FC_ULONG */
/* 750 */ 0x0, /* 0 */
/* 752 */ /* Corr flags: early, */
/* 754 */ 0x6, /* FC_SHORT */
/* 756 */ 0x5b, /* FC_END */
/* 758 */ 0x1a, /*
FC_BOGUS_STRUCT */
/* 760 */ 0x3, /* 3 */
/* 762 */ NdrFcShort( 0x10 ), /* 16 */
/* 764 */ NdrFcShort( 0x0 ), /* 0 */
/* 766 */ NdrFcShort( 0x6 ), /* Offset= 6 (756) */
/* 768 */ 0x8, /* FC_LONG */
/* 770 */ 0x39, /* FC_ALIGNM8 */
/* 772 */ 0x36, /* FC_POINTER */
/* 774 */ 0x5b, /* FC_END */
/* 776 */ 0x12, 0x0, /* FC_UP */
/* 778 */ NdrFcShort( 0xfffffe6 ), /* Offset= -26 (732) */
/* 780 */ 0x1b, /* FC_CARRAY */
/* 782 */ 0x3, /* 3 */
/* 784 */ /* Corr desc: field pointer, FC_ULONG */
/* 786 */ 0x0, /* 0 */
/* 788 */ /* Corr flags: early, */
/* 790 */ 0x6, /* FC_SHORT */
/* 792 */ 0x5b, /* FC_END */
/* 794 */ 0x1a, /*
FC_BOGUS_STRUCT */
/* 796 */ 0x3, /* 3 */
/* 798 */ NdrFcShort( 0x10 ), /* 16 */
/* 800 */ NdrFcShort( 0x0 ), /* 0 */
/* 802 */ NdrFcShort( 0x6 ), /* Offset= 6 (812) */
/* 804 */ 0x8, /* FC_LONG */
/* 806 */ 0x39, /* FC_ALIGNM8 */
/* 808 */ 0x36, /* FC_POINTER */
/* 810 */ 0x5b, /* FC_END */
/* 812 */ 0x12, 0x0, /* FC_UP */
/* 814 */ NdrFcShort( 0xfffffe6 ), /* Offset= -26 (788) */
/* 816 */ 0x15, /* FC_STRUCT */
/* 818 */ 0x3, /* 3 */
/* 820 */ NdrFcShort( 0x8 ), /* 8 */
/* 822 */ 0x8, /* FC_LONG */
/* 824 */ 0x5c, /* FC_PAD */
/* 826 */ 0x5b, /* FC_END */
/* 828 */ 0x1b, /* FC_CARRAY */
/* 830 */ 0x3, /* 3 */
/* 832 */ NdrFcShort( 0x8 ), /* 8 */
/* 834 */ 0x7, /* Corr desc: FC_USHORT */
/* 836 */ 0x0, /* 0 */
/* 838 */ NdrFcShort( 0xffc8 ), /* -56 */
/* 840 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 842 */ 0x4c, /* FC_EMBEDDED_COMPLEX */
/* 844 */ 0x0, /* 0 */
/* 846 */ NdrFcShort( 0xfffffec ), /* Offset= -20 (816) */
/* 848 */ 0x5c, /* FC_PAD */
/* 850 */ 0x5b, /* FC_END */
/* 852 */ 0x1a, /*
FC_BOGUS_STRUCT */
/* 854 */ 0x3, /* 3 */
/* 856 */ NdrFcShort( 0x38 ), /* 56 */
/* 858 */ NdrFcShort( 0xfffffec ), /* Offset= -20 (824) */
/* 860 */ NdrFcShort( 0x0 ), /* Offset= 0 (846) */
/* 862 */ 0x6, /* FC_SHORT */
/* 864 */ 0x6, /* FC_SHORT */
/* 866 */ 0x38, /* FC_ALIGNM4 */
/* 868 */ 0x8, /* FC_LONG */
/* 870 */ 0x8, /* FC_LONG */

```

```

                                0x4c, /*
FC_EMBEDDED_COMPLEX */
/* 854 */ 0x4, /* 4 */
                                NdrFcShort( 0xfffffe0d ), /* Offset=
-499 (356) */
                                0x5b, /* FC_END */
/* 858 */
                                0x12, 0x0, /* FC_UP */
/* 860 */ NdrFcShort( 0xfffff02 ), /* Offset= -254 (606) */
/* 862 */
                                0x12, 0x8, /* FC_UP [simple_pointer] */
/* FC_BYTE */
                                0x5c, /* FC_PAD */
/* 866 */
                                0x12, 0x8, /* FC_UP [simple_pointer] */
/* FC_SHORT */
                                0x5c, /* FC_PAD */
/* 870 */
                                0x12, 0x8, /* FC_UP [simple_pointer] */
/* FC_LONG */
                                0x5c, /* FC_PAD */
/* 874 */
                                0x12, 0x8, /* FC_UP [simple_pointer] */
/* FC_FLOAT */
                                0x5c, /* FC_PAD */
/* 878 */
                                0x12, 0x8, /* FC_UP [simple_pointer] */
/* FC_DOUBLE */
                                0x5c, /* FC_PAD */
/* 882 */
                                0x12, 0x0, /* FC_UP */
/* 884 */ NdrFcShort( 0xffffda4 ), /* Offset= -604 (280) */
/* 886 */
                                0x12, 0x10, /* FC_UP
[pointer_deref] */
/* 888 */ NdrFcShort( 0xffffda6 ), /* Offset= -602 (286) */
/* 890 */
                                0x12, 0x10, /* FC_UP
[pointer_deref] */
/* 892 */ NdrFcShort( 0xffffdbc ), /* Offset= -580 (312) */
/* 894 */
                                0x12, 0x10, /* FC_UP
[pointer_deref] */
/* 896 */ NdrFcShort( 0xffffdca ), /* Offset= -566 (330) */
/* 898 */
                                0x12, 0x10, /* FC_UP
[pointer_deref] */
/* 900 */ NdrFcShort( 0xffffdd8 ), /* Offset= -552 (348) */
/* 902 */
                                0x12, 0x10, /* FC_UP
[pointer_deref] */
/* 904 */ NdrFcShort( 0x2 ), /* Offset= 2 (906) */
/* 906 */
                                0x12, 0x0, /* FC_UP */
/* 908 */ NdrFcShort( 0x16 ), /* Offset= 22 (930) */
/* 910 */
                                0x15, /* FC_STRUCT */
                                0x7, /* 7 */
/* 912 */ NdrFcShort( 0x10 ), /* 16 */
/* 914 */ 0x6, /* FC_SHORT */
                                0x1, /* FC_BYTE */
/* 916 */ 0x1, /* FC_BYTE */
                                0x38, /* FC_ALIGNM4 */
/* 918 */ 0x8, /* FC_LONG */
                                0x39, /* FC_ALIGNM8 */
/* 920 */ 0xb, /* FC_HYPER */
                                0x5b, /* FC_END */
/* 922 */

```

```

                                0x12, 0x0, /* FC_UP */
/* 924 */ NdrFcShort( 0xfffff2 ), /* Offset= -14 (910) */
/* 926 */
                                0x12, 0x8, /* FC_UP [simple_pointer] */
/* 928 */ 0x2, /* FC_CHAR */
                                0x5c, /* FC_PAD */
/* 930 */
                                0x1a, /*
FC_BOGUS_STRUCT */
                                0x7, /* 7 */
/* 932 */ NdrFcShort( 0x20 ), /* 32 */
/* 934 */ NdrFcShort( 0x0 ), /* 0 */
/* 936 */ NdrFcShort( 0x0 ), /* Offset= 0 (936) */
/* 938 */ 0x8, /* FC_LONG */
                                0x8, /* FC_LONG */
/* 940 */ 0x6, /* FC_SHORT */
                                0x6, /* FC_SHORT */
/* 942 */ 0x6, /* FC_SHORT */
                                0x6, /* FC_SHORT */
/* 944 */ 0x4c, /* FC_EMBEDDED_COMPLEX */
                                0x0, /* 0 */
/* 946 */ NdrFcShort( 0xfffffc54 ), /* Offset= -940 (6) */
/* 948 */ 0x5c, /* FC_PAD */
                                0x5b, /* FC_END */
/* 950 */ 0xb4, /* FC_USER_MARSHAL */
                                0x83, /* 131 */
/* 952 */ NdrFcShort( 0x0 ), /* 0 */
/* 954 */ NdrFcShort( 0x18 ), /* 24 */
/* 956 */ NdrFcShort( 0x0 ), /* 0 */
/* 958 */ NdrFcShort( 0xfffffc44 ), /* Offset= -956 (2) */
/* 960 */
                                0x11, 0x4, /* FC_RP [allocated_on_stack] */
/* 962 */ NdrFcShort( 0x6 ), /* Offset= 6 (968) */
/* 964 */
                                0x13, 0x0, /* FC_OP */
/* 966 */ NdrFcShort( 0xfffffcdc ), /* Offset= -36 (930) */
/* 968 */ 0xb4, /* FC_USER_MARSHAL */
                                0x83, /* 131 */
/* 970 */ NdrFcShort( 0x0 ), /* 0 */
/* 972 */ NdrFcShort( 0x18 ), /* 24 */
/* 974 */ NdrFcShort( 0x0 ), /* 0 */
/* 976 */ NdrFcShort( 0xfffffff4 ), /* Offset= -12 (964) */
                                0x0
                                }
                                };
const CInterfaceProxyVtbl * _tpcc_com_ps_ProxyVtblList[] =
{
    ( CInterfaceProxyVtbl *) &_ITPCCProxyVtbl,
    0
};
const CInterfaceStubVtbl * _tpcc_com_ps_StubVtblList[] =
{
    ( CInterfaceStubVtbl *) &_ITPCCStubVtbl,
    0
};
PCInterfaceName const _tpcc_com_ps_InterfaceNamesList[] =
{
    "ITPCC",
    0
};
#define _tpcc_com_ps_CHECK_IID(n) IID_GENERIC_CHECK_IID(
_tpcc_com_ps, piID, n)

```

```

int __stdcall _tpcc_com_ps_IID_Lookup( const IID * pIID, int * pIndex )
{
    if(!_tpcc_com_ps_CHECK_IID(0))
    {
        *pIndex = 0;
        return 1;
    }

    return 0;
}

const ExtendedProxyFileInfo tpcc_com_ps_ProxyFileInfo =
{
    (PCInterfaceProxyVtblList *) & _tpcc_com_ps_ProxyVtblList,
    (PCInterfaceStubVtblList *) & _tpcc_com_ps_StubVtblList,
    (const PCInterfaceName *) & _tpcc_com_ps_InterfaceNamesList,
    0, // no delegation
    & _tpcc_com_ps_IID_Lookup,
    1,
    2,
    0, /* table of [async_uuid] interfaces */
    0, /* Filler1 */
    0, /* Filler2 */
    0 /* Filler3 */
};

#endif /* defined(_M_IA64) || defined(_M_AXP64)*/

```

## ***Tpcc\_com\_sl.rgs***

```

HKCR
{
    TPCC.StockLevel.1 = s 'StockLevel Class'
    {
        CLSID = s
        '{2668369E-A50D-11D2-BA4E-00C04FBFE08B}'
    }
    TPCC.StockLevel = s 'StockLevel Class'
    {
        CurVer = s 'TPCC.StockLevel.1'
    }
    NoRemove CLSID
    {
        ForceRemove
        {2668369E-A50D-11D2-BA4E-00C04FBFE08B} = s 'StockLevel Class'
        {
            ProgID = s 'TPCC.StockLevel.1'
            VersionIndependentProgID = s
            'TPCC.StockLevel'

            InprocServer32 = s '%MODULE%'
            {
                val ThreadingModel = s 'Both'
            }
        }
    }
}

```

## ***tpcc\_odbc.cpp***

```

/*      FILE:      TPCC_ODBC.CPP
*
*      Microsoft TPC-C Kit Ver.
4.20.000

```

```

*
*      Copyright Microsoft, 1999
*
*      All Rights Reserved
*
*      Version 4.10.000 audited by
Richard Gimarc, Performance Metrics, 3/17/99
*
*      PURPOSE:      Implements ODBC calls for TPC-C txns.
*      Contact:      Charles Levine (clevine@microsoft.com)
*
*      Change history:
*      4.20.000 - updated rev number to match kit
*      4.10.001 - not deleting error class in catch handler on
deadlock retry;
*
*      not a functional bug, but a
memory leak
*/

#include <windows.h>
#include <stdio.h>
#include <assert.h>

#define DBNTWIN32
#include <sqltypes.h>
#include <sql.h>
#include <sqlext.h>
#include <odbcss.h>

#ifdef ICECAP
#include <icapexp.h>
#endif

// need to declare functions for export
#define DllDecl __declspec( dllexport )

#include "..\..\common\src\error.h"
#include "..\..\common\src\trans.h"
#include "..\..\common\src\txn_base.h"
#include "tpcc_odbc.h"

// version string; must match return value from tpcc_version stored proc
const char sVersion[] = "4.10.000";

const iMaxRetries = 10; // how many retries on deadlock

const int iErrOleDbProvider = 7312;
const char sErrTimeoutExpired[] = "Timeout expired";

static SQLHENV henv = SQL_NULL_HENV;
// ODBC environment handle

BOOL WINAPI DllMain(HMODULE hModule, DWORD
ul_reason_for_call, LPVOID lpReserved)
{
    switch( ul_reason_for_call )
    {
        case DLL_PROCESS_ATTACH:
            DisableThreadLibraryCalls(hModule);
            if (
SQLAllocHandleStd(SQL_HANDLE_ENV, SQL_NULL_HANDLE, &henv)
!= SQL_SUCCESS )
                return FALSE;

                break;

        case DLL_PROCESS_DETACH:
            if (henv != NULL)
                SQLFreeEnv(henv);

                break;
    }
}

```

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <pre>                 default:                     /* nothing */;             }             return TRUE;         }  /* FUNCTION: CTPCC_ODBC_ERR::ErrorText  *  */  char* CTPCC_ODBC_ERR::ErrorText(void) {     int i;      static SERRORMSG errorMsgs[] =     {         { ERR_WRONG_SP_VERSION,           "Wrong version of stored procs on database server" },         { ERR_INVALID_CUST,           "Invalid Customer id,name." },         { ERR_NO_SUCH_ORDER,           "No orders found for customer." },         { ERR_RETRIED_TRANS,           "Retries before transaction succeeded." },         { 0,           "" }     };      static char szNotFound[] = "Unknown error number.";      for(i=0; errorMsgs[i].szMsg[0]; i++)     {         if ( m_errno == errorMsgs[i].iError )             break;     }     if ( !errorMsgs[i].szMsg[0] )         return szNotFound;     else         return errorMsgs[i].szMsg; }  // wrapper routine for class constructor __declspec(dllexport) CTPCC_ODBC* CTPCC_ODBC_new(     LPCSTR szServer,          // name of SQL server     LPCSTR szUser,            // user name for login     LPCSTR szPassword,        // password for login     LPCSTR szHost,            // not used     LPCSTR szDatabase )       // name of database to use {     return new CTPCC_ODBC( szServer, szUser, szPassword, szHost, szDatabase ); }  CTPCC_ODBC::CTPCC_ODBC (     LPCSTR szServer,          // name of SQL server     LPCSTR szUser,            // user name for login     LPCSTR szPassword,        // password for login     LPCSTR szHost,            // not used     LPCSTR szDatabase         // name of database to use </pre> | <pre>         )     {         RETCODE                rc;          // initialization         m_hdbc = SQL_NULL_HDBC;         m_hstmt = SQL_NULL_HSTMT;          m_hstmtNewOrder = SQL_NULL_HSTMT;         m_hstmtPayment = SQL_NULL_HSTMT;         m_hstmtDelivery = SQL_NULL_HSTMT;         m_hstmtOrderStatus = SQL_NULL_HSTMT;         m_hstmtStockLevel = SQL_NULL_HSTMT;          m_descNewOrderCols1 = SQL_NULL_HDESC;         m_descNewOrderCols2 = SQL_NULL_HDESC;         m_descOrderStatusCols1 = SQL_NULL_HDESC;         m_descOrderStatusCols2 = SQL_NULL_HDESC;          if ( SQLAllocHandle(SQL_HANDLE_DBC, henv, &amp;m_hdbc) != SQL_SUCCESS )             ThrowError(CODBCERR::eAllocHandle);          if ( SQLSetConnectOption(m_hdbc, SQL_PACKET_SIZE, 4096) != SQL_SUCCESS )             ThrowError(CODBCERR::eConnOption);          {             char                szConnectStr[256];             char                szOutStr[1024];             SQLSMALLINT         iOutStrLen;              sprintf( szConnectStr, "DRIVER=SQL Server;SERVER=%s;UID=%s;PWD=%s;DATABASE=%s",                     szServer, szUser, szPassword, szDatabase );              rc = SQLDriverConnect(m_hdbc, NULL, (SQLCHAR*)szConnectStr, sizeof(szConnectStr), (SQLCHAR*)szOutStr, sizeof(szOutStr), &amp;iOutStrLen, SQL_DRIVER_NOPROMPT );              if (rc != SQL_SUCCESS &amp;&amp; rc != SQL_SUCCESS_WITH_INFO)                 ThrowError(CODBCERR::eConnect);         }          if (SQLAllocHandle(SQL_HANDLE_STMT, m_hdbc, &amp;m_hstmt) != SQL_SUCCESS)             ThrowError(CODBCERR::eAllocHandle);          {             char                buffer[128];              // set some options affecting connection behavior             strcpy(buffer, "set nocount on set XACT_ABORT ON");             rc = SQLExecDirect(m_hstmt, (unsigned char *)buffer, SQL_NTS);              if (rc != SQL_SUCCESS &amp;&amp; rc != SQL_SUCCESS_WITH_INFO)                 ThrowError(CODBCERR::eExecDirect);              // verify that version of stored procs on server is correct             char db_sp_version[10];             strcpy(buffer, "{call tpcc_version}");             rc = SQLExecDirect(m_hstmt, (unsigned char *)buffer, SQL_NTS); </pre> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

```

        if (rc != SQL_SUCCESS && rc !=
SQL_SUCCESS_WITH_INFO)
            ThrowError(CODBCERR::eExecDirect);
        if ( SQLBindCol(m_hstmt, 1, SQL_C_CHAR,
&db_sp_version, sizeof(db_sp_version), NULL) != SQL_SUCCESS )
            ThrowError(CODBCERR::eBindCol);
        if ( SQLFetch(m_hstmt) == SQL_ERROR )
            ThrowError(CODBCERR::eFetch);
        if (strcmp(db_sp_version,sVersion))
            throw new CTPCC_ODBC_ERR(
CTPCC_ODBC_ERR::ERR_WRONG_SP_VERSION );

        SQLFreeHandle(SQL_HANDLE_STMT, m_hstmt);
    }

    // Bind parameters for each of the transactions
    InitNewOrderParams();
    InitPaymentParams();
    InitOrderStatusParams();
    InitDeliveryParams();
    InitStockLevelParams();
}

CTPCC_ODBC::~CTPCC_ODBC( void )
{
    // note: descriptors are automatically released when the connection is
dropped
    SQLFreeHandle(SQL_HANDLE_STMT, m_hstmtNewOrder);
    SQLFreeHandle(SQL_HANDLE_STMT, m_hstmtPayment);
    SQLFreeHandle(SQL_HANDLE_STMT, m_hstmtDelivery);
    SQLFreeHandle(SQL_HANDLE_STMT, m_hstmtOrderStatus);
    SQLFreeHandle(SQL_HANDLE_STMT, m_hstmtStockLevel);

    SQLDisconnect(m_hdbc);
    SQLFreeHandle(SQL_HANDLE_DBC, m_hdbc);
}

void CTPCC_ODBC::ThrowError( CODBCERR::ACTION eAction )
{
    RETCODE          rc;
    SDWORD           INativeError;
    char             szState[6];
    char             szMsg[SQL_MAX_MESSAGE_LENGTH];
    char
szTmp[6*SQL_MAX_MESSAGE_LENGTH];
    CODBCERR  *pODBCErr;          // not
allocated until needed (maybe never)

    pODBCErr = new CODBCERR();

    pODBCErr->m_NativeError = 0;
    pODBCErr->m_eAction = eAction;
    pODBCErr->m_bDeadLock = FALSE;

    szTmp[0] = 0;
    while (TRUE)
    {
        rc = SQLError(henv, m_hdbc, m_hstmt, (BYTE
*)&szState, &INativeError,
                                (BYTE *)&szMsg,
sizeof(szMsg), NULL);
        if (rc == SQL_NO_DATA)
            break;

        // check for deadlock
        if (INativeError == 1205 || (INativeError ==
iErrOleDbProvider &&
                                strstr(szMsg, sErrTimeoutExpired) != NULL))

pODBCErr->m_bDeadLock = TRUE;

        // capture the (first) database error
        if (pODBCErr->m_NativeError == 0 && !INativeError !=

0)

            pODBCErr->m_NativeError = INativeError;

        // quit if there isn't enough room to concatenate error text
        if ( (strlen(szMsg) + 2) > (sizeof(szTmp) - strlen(szTmp))

)

            break;

        // include line break after first error msg
        if (szTmp[0] != 0)
            strcat( szTmp, "\n");
        strcat( szTmp, szMsg );
    }

    if (pODBCErr->m_odbcerrstr != NULL)
    {
        delete [] pODBCErr->m_odbcerrstr;
        pODBCErr->m_odbcerrstr = NULL;
    }

    if (strlen(szTmp) > 0)
    {
        pODBCErr->m_odbcerrstr = new char[ strlen(szTmp)+1

];

        strcpy( pODBCErr->m_odbcerrstr, szTmp );
    }

    SQLFreeStmt(m_hstmt, SQL_CLOSE);
    throw pODBCErr;
}

void CTPCC_ODBC::InitStockLevelParams()
{
    if ( SQLAllocHandle(SQL_HANDLE_STMT, m_hdbc,
&m_hstmtStockLevel) != SQL_SUCCESS )
        ThrowError(CODBCERR::eAllocHandle);

    m_hstmt = m_hstmtStockLevel;

    int i = 0;
    if ( SQLBindParameter(m_hstmt, ++i, SQL_PARAM_INPUT,
SQL_C_SSHORT, SQL_SMALLINT, 0, 0, &m_txn.StockLevel.w_id, 0,
NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT, SQL_TINYINT, 0, 0,
&m_txn.StockLevel.d_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SSHORT, SQL_SMALLINT, 0, 0,
&m_txn.StockLevel.threshold, 0, NULL) != SQL_SUCCESS
    )
        ThrowError(CODBCERR::eBindParam);

    if ( SQLBindCol(m_hstmt, 1, SQL_C_SLONG,
&m_txn.StockLevel.low_stock, 0, NULL) != SQL_SUCCESS )
        ThrowError(CODBCERR::eBindCol);
}

void CTPCC_ODBC::StockLevel()
{
    RETCODE          rc;
    int              iTryCount = 0;

    m_hstmt = m_hstmtStockLevel;

```

```

while (TRUE)
{
    try
    {
        rc = SQLExecDirectW(m_hstmt,
(SQLWCHAR*)L"call tpcc_stocklevel(?,?,?)", SQL_NTS);
        if (rc != SQL_SUCCESS && rc !=
SQL_SUCCESS_WITH_INFO)
            ThrowError(CODBCERR::eExecDirect);

        if ( SQLFetch(m_hstmt) == SQL_ERROR )
            ThrowError(CODBCERR::eFetch);

        SQLFreeStmt(m_hstmt, SQL_CLOSE);

        m_txn.StockLevel.exec_status_code = eOK;
        break;
    }
    catch (CODBCERR *e)
    {
        if ((!e->m_bDeadLock) || (++iTryCount >
iMaxRetries))
            throw;

        // hit deadlock; backoff for increasingly longer
        period

        delete e;
        Sleep(10 * iTryCount);
    }
}

// if (iTryCount)
// throw new
// CTPCC_ODBC_ERR(CTPCC_ODBC_ERR::ERR_RETRIED_TRANS,
// iTryCount);
// }

void CTPCC_ODBC::InitNewOrderParams()
{
    if ( SQLAllocHandle(SQL_HANDLE_STMT, m_hdbc,
&m_hstmtNewOrder) != SQL_SUCCESS
        || SQLAllocHandle(SQL_HANDLE_DESC, m_hdbc,
&m_descNewOrderCols1) != SQL_SUCCESS
        || SQLAllocHandle(SQL_HANDLE_DESC, m_hdbc,
&m_descNewOrderCols2) != SQL_SUCCESS
    )
        ThrowError(CODBCERR::eAllocHandle);

    m_hstmt = m_hstmtNewOrder;

    if ( SQLSetStmtAttrW( m_hstmt, SQL_ATTR_APP_ROW_DESC,
m_descNewOrderCols1, SQL_IS_POINTER ) != SQL_SUCCESS )
        ThrowError(CODBCERR::eSetStmtAttr);

    int i = 0;
    if ( SQLBindParameter(m_hstmt, ++i, SQL_PARAM_INPUT,
SQL_C_SSHORT, SQL_SMALLINT, 0, 0, &m_txn.NewOrder.w_id, 0,
NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT, SQL_TINYINT, 0, 0,
&m_txn.NewOrder.d_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SLONG, SQL_INTEGER, 0, 0,
&m_txn.NewOrder.c_id, 0, NULL) != SQL_SUCCESS
    )
        ThrowError(CODBCERR::eBindParam);

    for (int j=0; j<MAX_OL_NEW_ORDER_ITEMS; j++)
    {
        if ( SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SLONG, SQL_INTEGER, 0, 0,
&m_txn.NewOrder.OL[j].ol_i_id, 0, NULL) != SQL_SUCCESS
            || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SSHORT, SQL_SMALLINT, 0, 0,
&m_txn.NewOrder.OL[j].ol_supply_w_id, 0, NULL) != SQL_SUCCESS
            || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SSHORT, SQL_SMALLINT, 0, 0,
&m_txn.NewOrder.OL[j].ol_quantity, 0, NULL) != SQL_SUCCESS
        )
            ThrowError(CODBCERR::eBindParam);
    }

    // set the bind offset pointer
    if ( SQLSetStmtAttrW( m_hstmt,
SQL_ATTR_ROW_BIND_OFFSET_PTR, &m_BindOffset,
SQL_IS_POINTER ) != SQL_SUCCESS )
        ThrowError(CODBCERR::eSetStmtAttr);

    i = 0;
    if ( SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.NewOrder.OL[0].ol_i_name,
sizeof(m_txn.NewOrder.OL[0].ol_i_name), NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_SSHORT,
&m_txn.NewOrder.OL[0].ol_stock, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.NewOrder.OL[0].ol_brand_generic,
sizeof(m_txn.NewOrder.OL[0].ol_brand_generic), NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.NewOrder.OL[0].ol_i_price, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.NewOrder.OL[0].ol_amount, 0, NULL) != SQL_SUCCESS
    )
        ThrowError(CODBCERR::eBindCol);

    // associate the column bindings for the second result set
    if ( SQLSetStmtAttrW( m_hstmt, SQL_ATTR_APP_ROW_DESC,
m_descNewOrderCols2, SQL_IS_POINTER ) != SQL_SUCCESS )
        ThrowError(CODBCERR::eSetStmtAttr);

    i = 0;
    if ( SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.NewOrder.w_tax, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.NewOrder.d_tax, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_SLONG,
&m_txn.NewOrder.o_id, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.NewOrder.c_last, sizeof(m_txn.NewOrder.c_last), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.NewOrder.c_discount, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.NewOrder.c_credit, sizeof(m_txn.NewOrder.c_credit), NULL) !=
SQL_SUCCESS
    )
        ThrowError(CODBCERR::eBindCol);
}

```

```

        || SQLBindCol(m_hstmt, ++i,
SQL_C_TYPE_TIMESTAMP, &m_txn.NewOrder.o_entry_d, 0, NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_SLONG,
&m_no_commit_flag, 0, NULL) != SQL_SUCCESS
    )
        ThrowError(CODBCERR::eBindCol);
}

void CTPCC_ODBC::NewOrder()
{
    int
    RETCODE
    int
    i;
    rc;
    iTryCount =
0;

    // 0 1 2
    // 012345678901234567890123456789
    wchar_t szSqlTemplate[] =
L"call tpcc_neworder(?,?,?,?,,"
    L"?,?,?,?,?,?,?,?,?,?,?,?,,"
    L"?,?,?,?,?,?,?,?,?,?,?,?,,"
    L"?,?,?,?,?,?,?,?,?,?,?,?,?)";

    m_hstmt = m_hstmtNewOrder;

    // associate the parameter and column bindings for this transaction
    if ( SQLSetStmtAttrW( m_hstmt, SQL_ATTR_APP_ROW_DESC,
m_descNewOrderCols1, SQL_IS_POINTER ) != SQL_SUCCESS )
        ThrowError(CODBCERR::eSetStmtAttr);

    // clip statement buffer based on number of parameters
    // fixed part is 29 chars and variable part is 6 chars per line item
    i = 29 + m_txn.NewOrder.o_ol_cnt*6;
    wcsncpy( &szSqlTemplate[i], L"");

    // check whether any order lines are for a remote warehouse
    m_txn.NewOrder.o_all_local = 1;
    for (i = 0; i < m_txn.NewOrder.o_ol_cnt; i++)
    {
        if (m_txn.NewOrder.OL[i].ol_supply_w_id !=
m_txn.NewOrder.w_id)
        {
            m_txn.NewOrder.o_all_local = 0; // at least
            one remote warehouse
            break;
        }
    }

    while (TRUE)
    {
        try
        {
            m_BindOffset = 0;
            rc = SQLExecDirectW(m_hstmt,
(SQLWCHAR*)szSqlTemplate, SQL_NTS);
            if (rc != SQL_SUCCESS && rc !=
SQL_SUCCESS_WITH_INFO)
                ThrowError(CODBCERR::eExecDirect);

            // Get order line results
            m_txn.NewOrder.total_amount = 0;
            for (i = 0; i < m_txn.NewOrder.o_ol_cnt; i++)

```

```

        {
            // set the bind offset value...
            m_BindOffset = i *
sizeof(m_txn.NewOrder.OL[0]);

            if ( SQLFetch(m_hstmt) ==
SQL_ERROR)
                ThrowError(CODBCERR::eFetch);

            // move to the next resultset
            if ( SQLMoreResults(m_hstmt) ==
SQL_ERROR )
                ThrowError(CODBCERR::eMoreResults);

            m_txn.NewOrder.total_amount +=
m_txn.NewOrder.OL[i].ol_amount;
        }

        // associate the column bindings for the
second result set
        if ( SQLSetStmtAttrW( m_hstmt,
SQL_ATTR_APP_ROW_DESC, m_descNewOrderCols2, SQL_IS_POINTER
) != SQL_SUCCESS )
            ThrowError(CODBCERR::eSetStmtAttr);

            if ( SQLFetch(m_hstmt) == SQL_ERROR)
                ThrowError(CODBCERR::eFetch);

            SQLFreeStmt(m_hstmt, SQL_CLOSE);

            if (m_no_commit_flag == 1)
            {
                m_txn.NewOrder.total_amount +=
((1 + m_txn.NewOrder.w_tax + m_txn.NewOrder.d_tax) * (1 -
m_txn.NewOrder.c_discount));

                m_txn.NewOrder.exec_status_code = eOK;
            }
            else
                m_txn.NewOrder.exec_status_code = eInvalidItem;

            break;
        }
        catch (CODBCERR *e)
        {
            if ((!e->m_bDeadLock) || (++iTryCount >
iMaxRetries))
                throw;

            // hit deadlock; backoff for increasingly longer
period
            delete e;
            Sleep(10 * iTryCount);
        }
    }

    // if (iTryCount)
    // throw new
CTPCC_ODBC_ERR(CTPCC_ODBC_ERR::ERR_RETRIED_TRANS,
iTryCount);
}

void CTPCC_ODBC::InitPaymentParams()

```

```

{
    if ( SQLAllocHandle(SQL_HANDLE_STMT, m_hdbc,
&m_hstmtPayment) != SQL_SUCCESS )
        ThrowError(CODBCERR::eAllocHandle);

    m_hstmt = m_hstmtPayment;

    int i = 0;
    if ( SQLBindParameter(m_hstmt, ++i, SQL_PARAM_INPUT,
SQL_C_SSHORT, SQL_SMALLINT, 0, 0, &m_txn.Payment.w_id, 0, NULL)
!= SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SSHORT, SQL_SMALLINT, 0, 0,
&m_txn.Payment.c_w_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_DOUBLE, SQL_NUMERIC, 6, 2,
&m_txn.Payment.h_amount, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT, SQL_TINYINT, 0, 0,
&m_txn.Payment.d_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT, SQL_TINYINT, 0, 0,
&m_txn.Payment.c_d_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SLONG, SQL_INTEGER, 0, 0,
&m_txn.Payment.c_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_CHAR, SQL_CHAR,
sizeof(m_txn.Payment.c_last), 0, &m_txn.Payment.c_last,
sizeof(m_txn.Payment.c_last), NULL) != SQL_SUCCESS
    )
        ThrowError(CODBCERR::eBindParam);

    i = 0;
    if ( SQLBindCol(m_hstmt, ++i, SQL_C_SLONG,
&m_txn.Payment.c_id, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_last, sizeof(m_txn.Payment.c_last),
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_TYPE_TIMESTAMP, &m_txn.Payment.h_date,
0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.w_street_1, sizeof(m_txn.Payment.w_street_1), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.w_street_2, sizeof(m_txn.Payment.w_street_2), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.w_city, sizeof(m_txn.Payment.w_city),
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.w_state, sizeof(m_txn.Payment.w_state),
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.w_zip, sizeof(m_txn.Payment.w_zip),
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.d_street_1, sizeof(m_txn.Payment.d_street_1), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.d_street_2, sizeof(m_txn.Payment.d_street_2), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.d_city, sizeof(m_txn.Payment.d_city),
NULL) != SQL_SUCCESS

```

```

        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.d_state, sizeof(m_txn.Payment.d_state),
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.d_zip, sizeof(m_txn.Payment.d_zip),
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_first, sizeof(m_txn.Payment.c_first),
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_middle, sizeof(m_txn.Payment.c_middle), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_street_1, sizeof(m_txn.Payment.c_street_1), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_street_2, sizeof(m_txn.Payment.c_street_2), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_city, sizeof(m_txn.Payment.c_city),
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_state, sizeof(m_txn.Payment.c_state),
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_zip, sizeof(m_txn.Payment.c_zip),
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_phone, sizeof(m_txn.Payment.c_phone),
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_TYPE_TIMESTAMP, &m_txn.Payment.c_since,
0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_credit, sizeof(m_txn.Payment.c_credit), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.Payment.c_credit_lim, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.Payment.c_discount, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.Payment.c_balance, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_data, sizeof(m_txn.Payment.c_data),
NULL) != SQL_SUCCESS
    )
        ThrowError(CODBCERR::eBindCol);
}

```

```

void CTPCC_ODBC::Payment()
{
    RETCODE          rc;
    int               iTryCount = 0;

    m_hstmt = m_hstmtPayment;

    if (m_txn.Payment.c_id != 0)
        m_txn.Payment.c_last[0] = 0;

    while (TRUE)
    {
        try
        {
            rc = SQLExecDirectW(m_hstmt,
(SQLWCHAR*)" {call tpcc_payment(?,?,?,?,?,?)}", SQL_NTS);
            if (rc != SQL_SUCCESS && rc !=
SQL_SUCCESS_WITH_INFO)

```

```

ThrowError(CODBCERR::eExecDirect);

        if ( SQLFetch(m_hstmt) == SQL_ERROR)

ThrowError(CODBCERR::eFetch);

        SQLFreeStmt(m_hstmt, SQL_CLOSE);

        if (m_txn.Payment.c_id == 0)
            throw new CTPCC_ODBC_ERR(
CTPCC_ODBC_ERR::ERR_INVALID_CUST );
        else
            m_txn.Payment.exec_status_code

= eOK;

        break;
    }
    catch (CODBCERR *e)
    {
        if ((!e->m_bDeadLock) || (++iTryCount >
iMaxRetries))
            throw;

        // hit deadlock; backoff for increasingly longer
        period

        delete e;
        Sleep(10 * iTryCount);
    }
}

//      if (iTryCount)
//          throw new
CTPCC_ODBC_ERR(CTPCC_ODBC_ERR::ERR_RETRIED_TRANS,
iTryCount);
}

void CTPCC_ODBC::InitOrderStatusParams()
{
    if ( SQLAllocHandle(SQL_HANDLE_STMT, m_hdbc,
&m_hstmtOrderStatus) != SQL_SUCCESS
        || SQLAllocHandle(SQL_HANDLE_DESC, m_hdbc,
&m_descOrderStatusCols1) != SQL_SUCCESS
        || SQLAllocHandle(SQL_HANDLE_DESC, m_hdbc,
&m_descOrderStatusCols2) != SQL_SUCCESS
    )
        ThrowError(CODBCERR::eAllocHandle);

    m_hstmt = m_hstmtOrderStatus;

    if ( SQLSetStmtAttrW( m_hstmt, SQL_ATTR_APP_ROW_DESC,
m_descOrderStatusCols1, SQL_IS_POINTER ) != SQL_SUCCESS )
        ThrowError(CODBCERR::eSetStmtAttr);

    int i = 0;
    if ( SQLBindParameter(m_hstmt, ++i, SQL_PARAM_INPUT,
SQL_C_SSHORT, SQL_SMALLINT, 0, 0, &m_txn.OrderStatus.w_id, 0,
NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT, SQL_TINYINT, 0, 0,
&m_txn.OrderStatus.d_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SLONG, SQL_INTEGER, 0, 0,
&m_txn.OrderStatus.c_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_CHAR, SQL_CHAR,
sizeof(m_txn.OrderStatus.c_last), 0, &m_txn.OrderStatus.c_last,
sizeof(m_txn.OrderStatus.c_last), NULL) != SQL_SUCCESS

```

```

    )
        ThrowError(CODBCERR::eBindParam);

    // configure block cursor
    if ( SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_ROW_BIND_TYPE,
(SQLPOINTER)sizeof(m_txn.OrderStatus.OL[0]), 0) != SQL_SUCCESS
        || SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_ROWS_FETCHED_PTR, &m_RowsFetched, 0) !=
SQL_SUCCESS
    )
        ThrowError(CODBCERR::eSetStmtAttr);

    i = 0;
    if ( SQLBindCol(m_hstmt, ++i, SQL_C_SSHORT,
&m_txn.OrderStatus.OL[0].ol_supply_w_id, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_SLONG,
&m_txn.OrderStatus.OL[0].ol_i_id, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_SSHORT,
&m_txn.OrderStatus.OL[0].ol_quantity, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.OrderStatus.OL[0].ol_amount, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_TYPE_TIMESTAMP, &m_txn.OrderStatus.OL[0].ol_delivery_d, 0,
NULL) != SQL_SUCCESS
    )
        ThrowError(CODBCERR::eBindCol);

    if ( SQLSetStmtAttrW( m_hstmt, SQL_ATTR_APP_ROW_DESC,
m_descOrderStatusCols2, SQL_IS_POINTER ) != SQL_SUCCESS )
        ThrowError(CODBCERR::eSetStmtAttr);

    i = 0;
    if ( SQLBindCol(m_hstmt, ++i, SQL_C_SLONG,
&m_txn.OrderStatus.c_id, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.OrderStatus.c_last, sizeof(m_txn.OrderStatus.c_last), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.OrderStatus.c_first, sizeof(m_txn.OrderStatus.c_first), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.OrderStatus.c_middle, sizeof(m_txn.OrderStatus.c_middle), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_TYPE_TIMESTAMP, &m_txn.OrderStatus.o_entry_d, 0, NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_SSHORT,
&m_txn.OrderStatus.o_carrier_id, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.OrderStatus.c_balance, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_SLONG,
&m_txn.OrderStatus.o_id, 0, NULL) != SQL_SUCCESS
    )
        ThrowError(CODBCERR::eBindCol);
}

void CTPCC_ODBC::OrderStatus()
{
    int
iTryCount = 0;
    RETCODE

rc;

    m_hstmt = m_hstmtOrderStatus;

```

```

        if ( SQLSetStmtAttrW( m_hstmt, SQL_ATTR_APP_ROW_DESC,
m_descOrderStatusCols1, SQL_IS_POINTER ) != SQL_SUCCESS )
            ThrowError(CODBCERR::eSetStmtAttr);

        if ( m_txn.OrderStatus.c_id != 0 )
            m_txn.OrderStatus.c_last[0] = 0;

        while (TRUE)
        {
            try
            {
                // configure block cursor
                if ( SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_ROW_ARRAY_SIZE, (SQLPOINTER)1, 0) != SQL_SUCCESS )

                ThrowError(CODBCERR::eSetStmtAttr);

                rc = SQLExecDirectW(m_hstmt,
(SQLWCHAR*)L" {call tpcc_orderstatus(?,?,?)}", SQL_NTS);
                if ( ((rc == SQL_SUCCESS_WITH_INFO)
&& (m_RowsFetched != 0)) || (rc == SQL_ERROR) )

                ThrowError(CODBCERR::eExecDirect);

                // configure block cursor
                if ( SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_ROW_ARRAY_SIZE,
(SQLPOINTER)MAX_OL_ORDER_STATUS_ITEMS, 0) != SQL_SUCCESS
                )

                ThrowError(CODBCERR::eSetStmtAttr);

                rc = SQLFetchScroll( m_hstmt,
SQL_FETCH_NEXT, 0 );
                if ( ((rc == SQL_SUCCESS_WITH_INFO)
&& (m_RowsFetched != 0)) || (rc == SQL_ERROR) )

                ThrowError(CODBCERR::eFetchScroll);

                m_txn.OrderStatus.o_ol_cnt =
(short)m_RowsFetched;

                if ( m_txn.OrderStatus.o_ol_cnt != 0 )
                {
                    if ( SQLSetStmtAttrW( m_hstmt,
SQL_ATTR_APP_ROW_DESC, m_descOrderStatusCols2,
SQL_IS_POINTER ) != SQL_SUCCESS )

                    ThrowError(CODBCERR::eSetStmtAttr);

                    if ( SQLMoreResults(m_hstmt) ==
SQL_ERROR )

                    ThrowError(CODBCERR::eMoreResults);

                    if ( ( rc = SQLFetch(m_hstmt)) ==
SQL_ERROR )

                    ThrowError(CODBCERR::eFetch);
                }

                SQLFreeStmt(m_hstmt, SQL_CLOSE);

                if ( m_txn.OrderStatus.o_ol_cnt == 0 )
                    throw new CTPCC_ODBC_ERR(
CTPCC_ODBC_ERR::ERR_NO_SUCH_ORDER );
                else if ( m_txn.OrderStatus.c_id == 0 &&
m_txn.OrderStatus.c_last[0] == 0 )

```

```

                    throw new CTPCC_ODBC_ERR(
CTPCC_ODBC_ERR::ERR_INVALID_CUST );
                else

                m_txn.OrderStatus.exec_status_code = eOK;

                break;
            }
            catch (CODBCERR *e)
            {
                if ((!e->m_bDeadLock) || (++iTryCount >
iMaxRetries))

                throw;

                // hit deadlock; backoff for increasingly longer
                period

                delete e;
                Sleep(10 * iTryCount);
            }
        }

        // if (iTryCount)
        // throw new
        CTPCC_ODBC_ERR(CTPCC_ODBC_ERR::ERR_RETRIED_TRANS,
iTryCount);
    }

    void CTPCC_ODBC::InitDeliveryParams()
    {
        if ( SQLAllocHandle(SQL_HANDLE_STMT, m_hdbc,
&m_hstmtDelivery) != SQL_SUCCESS )
            ThrowError(CODBCERR::eAllocHandle);

        m_hstmt = m_hstmtDelivery;

        int i = 0;
        if ( SQLBindParameter(m_hstmt, ++i, SQL_PARAM_INPUT,
SQL_C_SSHORT, SQL_SMALLINT, 0, 0, &m_txn.Delivery.w_id, 0, NULL)
!= SQL_SUCCESS

        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SSHORT, SQL_SMALLINT, 0, 0,
&m_txn.Delivery.o_carrier_id, 0, NULL) != SQL_SUCCESS
        )

        ThrowError(CODBCERR::eBindParam);

        for (i=0; i<10; i++)
        {
            if ( SQLBindCol(m_hstmt, (UWORD)(i+1),
SQL_C_SLONG, &m_txn.Delivery.o_id[i], 0, NULL) != SQL_SUCCESS )
                ThrowError(CODBCERR::eBindCol);
        }
    }

    void CTPCC_ODBC::Delivery()
    {
        RETCODE rc;
        int iTryCount = 0;

        m_hstmt = m_hstmtDelivery;

        while (TRUE)
        {
            try
            {
                rc = SQLExecDirectW(m_hstmt,
(SQLWCHAR*)L" {call tpcc_delivery(?,?)}", SQL_NTS);
                if (rc != SQL_SUCCESS && rc !=
SQL_SUCCESS_WITH_INFO)

```

```

ThrowError(CODBCERR::eExecDirect);

        if ( SQLFetch(m_hstmt) == SQL_ERROR )

ThrowError(CODBCERR::eFetch);

        SQLFreeStmt(m_hstmt, SQL_CLOSE);
        m_txn.Delivery.exec_status_code = eOK;
        break;
    }
    catch (CODBCERR *e)
    {
        if ((!e->m_bDeadLock) || (++iTryCount >
iMaxRetries))

            throw;

        // hit deadlock; backoff for increasingly longer
        period

        delete e;
        Sleep(10 * iTryCount);
    }
}

//      if (iTryCount)
//          throw new
CTPCC_ODBC_ERR(CTPCC_ODBC_ERR::ERR_RETRIED_TRANS,
iTryCount);
}

```

## tpcc\_odbc.h

```

/*      FILE:          TPCC_ODBC.H
 *
 *      Microsoft TPC-C Kit Ver.
 *      4.20.000
 *
 *      Copyright Microsoft, 1999
 *
 *      All Rights Reserved
 *
 *      Version 4.10.000 audited by
 *      Richard Gimarc, Performance Metrics, 3/17/99
 *
 *      PURPOSE:        Header file for TPC-C txn class
 *      implementation.
 *
 *      Change history:
 *
 *      4.20.000 - updated rev number to match kit
 */
#pragma once

// need to declare functions for import, unless define has already been created
// by the DLL's .cpp module for export.
#ifndef DllDecl
#define DllDecl __declspec( dllimport )
#endif

class CODBCERR : public CBaseErr
{
public:
    enum ACTION
    {
        eNone,
        eUnknown,
        eAllocConn,
        eAllocHandle,
    }

    error from SQLAllocConnect
    SQLAllocHandle
    // error from

```

```

        eConnOption,
        SQLSetConnectOption
        eConnect,
        SQLConnect
        eAllocStmt,
        error from SQLAllocStmt
        eExecDirect,
        SQLExecDirect
        eBindParam,
        error from SQLBindParameter
        eBindCol,
        SQLBindCol
        eFetch,
        SQLFetch
        eFetchScroll,
        SQLFetchScroll
        eMoreResults,
        SQLMoreResults
        ePrepare,
        SQLPrepare
        eExecute,
        SQLExecute
        eSetEnvAttr,
        SQLSetEnvAttr
        eSetStmtAttr,
        SQLSetStmtAttr
    };

    CODBCERR(void)
    {
        m_eAction = eNone;
        m_NativeError = 0;
        m_bDeadLock = FALSE;
        m_odbcerrstr = NULL;
    };

    ~CODBCERR()
    {
        if (m_odbcerrstr != NULL)
            delete [] m_odbcerrstr;
    };

    ACTION m_eAction;
    int m_NativeError;
    BOOL m_bDeadLock;
    char *m_odbcerrstr;

    int ErrorType() {return ERR_TYPE_ODBC;};
    int ErrorNum() {return m_NativeError;};
    char *ErrorText() {return m_odbcerrstr;};
};

class CTPCC_ODBC_ERR : public CBaseErr
{
public:
    enum TPCC_ODBC_ERRS
    {
        ERR_WRONG_SP_VERSION = 1,
        ERR_INVALID_CUST,
        ERR_NO_SUCH_ORDER,
        ERR_RETRIED_TRANS,
    }

    "Wrong version of stored procs on database server"
    // "Invalid Customer id,name."
    // "No orders found for customer."
    // "Retries before transaction succeeded."
};

```

```

        CTPCC_ODBC_ERR( int iErr ) { m_erno = iErr;
m_iTryCount = 0; };

        CTPCC_ODBC_ERR( int iErr, int iTryCount ) {
m_erno = iErr; m_iTryCount = iTryCount; };

        int                m_erno;
        int                m_iTryCount;

        int ErrorType() {return ERR_TYPE_TPCC_ODBC;};
        int ErrorNum() {return m_erno;};

        char *ErrorText();
};

class DllDecl CTPCC_ODBC : public CTPCC_BASE
{
private:
    // declare variables and private functions here...
    BOOL                m_bDeadlock;
transaction was selected as deadlock victim
    int                m_MaxRetries;
// retry count on deadlock

    SQLHENV                m_henv;
    // ODBC environment handle
    SQLHDBC                m_hdbc;
    SQLHSTMT                m_hstmt;
the current hstmt

    SQLHSTMT                m_hstmtNewOrder;
    SQLHSTMT                m_hstmtPayment;
    SQLHSTMT                m_hstmtDelivery;
    SQLHSTMT                m_hstmtOrderStatus;
    SQLHSTMT                m_hstmtStockLevel;

    SQLHDESC                m_descNewOrderCols1;
    SQLHDESC                m_descNewOrderCols2;
    SQLHDESC                m_descOrderStatusCols1;
    SQLHDESC                m_descOrderStatusCols2;

    // new-order specific fields
    SQLINTEGER                m_BindOffset;
    SQLINTEGER                m_RowsFetched;
    int                m_no_commit_flag;

    void ThrowError( CODBCERR::ACTION eAction );

    void InitNewOrderParams();
    void InitPaymentParams();
    void InitDeliveryParams();
    void InitStockLevelParams();
    void InitOrderStatusParams();

    union
    {
        NEW_ORDER_DATA
NewOrder;
        PAYMENT_DATA                Payment;
        DELIVERY_DATA                Delivery;
        STOCK_LEVEL_DATA                StockLevel;
        ORDER_STATUS_DATA                OrderStatus;
    } m_txn;

public:
    CTPCC_ODBC(LPCSTR szServer, LPCSTR szUser,
LPCSTR szPassword, LPCSTR szHost, LPCSTR szDatabase);
    ~CTPCC_ODBC(void);

        inline PNEW_ORDER_DATA
BuffAddr_NewOrder() { return &m_txn.NewOrder; };
        inline PPAYMENT_DATA
BuffAddr_Payment() { return &m_txn.Payment; };
        inline PDELIVERY_DATA
BuffAddr_Delivery() { return &m_txn.Delivery; };
        inline PSTOCK_LEVEL_DATA BuffAddr_StockLevel()
{ return &m_txn.StockLevel; };
        inline PORDER_STATUS_DATA
BuffAddr_OrderStatus() { return &m_txn.OrderStatus; };

        void NewOrder                ();
        void Payment                ();
        void Delivery                ();
        void StockLevel                ();
        void OrderStatus                ();
};

// wrapper routine for class constructor
extern "C" DllDecl CTPCC_ODBC* CTPCC_ODBC_new
( LPCSTR szServer, LPCSTR szUser, LPCSTR szPassword,
LPCSTR szHost, LPCSTR szDatabase );

typedef CTPCC_ODBC* (TYPE_CTPCC_ODBC)(LPCSTR, LPCSTR,
LPCSTR, LPCSTR, LPCSTR);

```

## trans.h

```

/*      FILE:                TRANS.H
*
*      Microsoft TPC-C Kit Ver.
4.20.000
*
*      Copyright Microsoft, 1999
*
*      All Rights Reserved
*
*      Version 4.10.000 audited by
Richard Gimarc, Performance Metrics, 3/17/99
*
*      PURPOSE:                Header file for TPC-C structure templates.
*
*      Change history:
*      4.20.000 - updated rev number to match kit
*/
#pragma once

// String length constants
#define SERVER_NAME_LEN        20
#define DATABASE_NAME_LEN        20
#define USER_NAME_LEN        20
#define PASSWORD_LEN        20
#define TABLE_NAME_LEN        20
#define I_DATA_LEN        50
#define I_NAME_LEN        24
#define BRAND_LEN        1
#define LAST_NAME_LEN        16
#define W_NAME_LEN        10
#define ADDRESS_LEN        20
#define STATE_LEN        2
#define ZIP_LEN        9
#define S_DIST_LEN        24
#define S_DATA_LEN        50
#define D_NAME_LEN        10
#define FIRST_NAME_LEN        16
#define MIDDLE_NAME_LEN        2

```

```

#define PHONE_LEN          16
#define DATETIME_LEN       30
#define CREDIT_LEN         2
#define C_DATA_LEN         250
#define H_DATA_LEN         24
#define DIST_INFO_LEN      24
#define MAX_OL_NEW_ORDER_ITEMS 15
#define MAX_OL_ORDER_STATUS_ITEMS 15
#define STATUS_LEN         25
#define OL_DIST_INFO_LEN   24

// TIMESTAMP_STRUCT is provided by the ODBC header file sqltypes.h, but
// is not available
// when compiling with dlib, so redefined here. Note: we are using the symbol
// "__SQLTYPES"
// (declared in sqltypes.h) as a way to determine if TIMESTAMP_STRUCT has
// been declared.
#ifndef __SQLTYPES
typedef struct
{
    short year; /*
    unsigned short /* SQLUSMALLINT
    /* month;
    unsigned short /* SQLUSMALLINT
    /* day;
    unsigned short /* SQLUSMALLINT
    /* hour;
    unsigned short /* SQLUSMALLINT
    /* minute;
    unsigned short /* SQLUSMALLINT
    /* second;
    unsigned long /* SQLINTEGER */
    fraction;
    } TIMESTAMP_STRUCT;
#endif

// possible values for exec_status_code after transaction completes
enum EXEC_STATUS
{
    eOK, // 0 "Transaction
    committed."
    eInvalidItem, // 1 "Item number is not valid."
    eDeliveryFailed // 2 "Delivery Post Failed."
};

// transaction structures
typedef struct
{
    // input params
    short ol_supply_w_id;
    long ol_i_id;
    short ol_quantity;

    // output params
    char ol_i_name[I_NAME_LEN+1];
    char ol_brand_generic[BRAND_LEN+1];
    double ol_i_price;
    double ol_amount;
    short ol_stock;
} OL_NEW_ORDER_DATA;

typedef struct
{
    // input params
    short w_id;

```

```

    short d_id;
    long c_id;
    short o_ol_cnt;

    // output params
    EXEC_STATUS exec_status_code;
    char c_last[LAST_NAME_LEN+1];
    char c_credit[CREDIT_LEN+1];
    double c_discount;
    double w_tax;
    double d_tax;
    long o_id;
    short o_commit_flag;
    TIMESTAMP_STRUCT o_entry_d;
    short o_all_local;
    double total_amount;
    OL_NEW_ORDER_DATA
    OL[MAX_OL_NEW_ORDER_ITEMS];
} NEW_ORDER_DATA, *PNEW_ORDER_DATA;

typedef struct
{
    // input params
    short w_id;
    short d_id;
    long c_id;
    short c_d_id;
    short c_w_id;
    double h_amount;
    char c_last[LAST_NAME_LEN+1];

    // output params
    EXEC_STATUS exec_status_code;
    TIMESTAMP_STRUCT h_date;
    char w_street_1[ADDRESS_LEN+1];
    char w_street_2[ADDRESS_LEN+1];
    char w_city[ADDRESS_LEN+1];
    char w_state[STATE_LEN+1];
    char w_zip[ZIP_LEN+1];
    char d_street_1[ADDRESS_LEN+1];
    char d_street_2[ADDRESS_LEN+1];
    char d_city[ADDRESS_LEN+1];
    char d_state[STATE_LEN+1];
    char d_zip[ZIP_LEN+1];
    char c_first[FIRST_NAME_LEN+1];
    char c_middle[MIDDLE_NAME_LEN
+ 1];
    char c_street_1[ADDRESS_LEN+1];
    char c_street_2[ADDRESS_LEN+1];
    char c_city[ADDRESS_LEN+1];
    char c_state[STATE_LEN+1];
    char c_zip[ZIP_LEN+1];
    char c_phone[PHONE_LEN+1];
    TIMESTAMP_STRUCT c_since;
    char c_credit[CREDIT_LEN+1];
    double c_credit_lim;
    double c_discount;
    double c_balance;
    char c_data[200+1];
} PAYMENT_DATA, *PPAYMENT_DATA;

typedef struct
{
    long ol_i_id;
    short ol_supply_w_id;
    short ol_quantity;
    double ol_amount;
    TIMESTAMP_STRUCT ol_delivery_d;
} OL_ORDER_STATUS_DATA;

```

```

typedef struct
{
    // input params
    short    w_id;
    short    d_id;
    long     c_id;
    char     c_last[LAST_NAME_LEN+1];

    // output params
    EXEC_STATUS    exec_status_code;
    char           c_first[FIRST_NAME_LEN+1];
    char           c_middle[MIDDLE_NAME_LEN+1];
    double         c_balance;
    long           o_id;
    TIMESTAMP_STRUCT    o_entry_d;
    short          o_carrier_id;
    OL_ORDER_STATUS_DATA
OL[MAX_OL_ORDER_STATUS_ITEMS];
    short          o_ol_cnt;
} ORDER_STATUS_DATA, *PORDER_STATUS_DATA;

```

```

typedef struct
{
    // input params
    short    w_id;
    short    o_carrier_id;

    // output params
    EXEC_STATUS    exec_status_code;
    SYSTEMTIME      queue_time;
    long            o_id[10];
} id's of delivered orders for districts 1 to 10
} DELIVERY_DATA, *PDELIVERY_DATA;

```

//This structure is used for posting delivery transactions and for writing them to the delivery server.

```

typedef struct _DELIVERY_TRANSACTION
{
    SYSTEMTIME      queue;           //time
    delivery transaction queued
    short           w_id;           //delivery
    warehouse
    short           o_carrier_id;    //carrier id
} DELIVERY_TRANSACTION;

```

```

typedef struct
{
    // input params
    short    w_id;
    short    d_id;
    short    threshold;

    // output params
    EXEC_STATUS    exec_status_code;
    long           low_stock;
} STOCK_LEVEL_DATA, *PSTOCK_LEVEL_DATA;

```

## txn\_base.h

```

/*      FILE:      TXN_BASE.H
 *
 *      4.20.000      Microsoft TPC-C Kit Ver.
 *
 *      Copyright Microsoft, 1999
 *
 *      All Rights Reserved
 *
 *      Version 4.10.000 audited by
Richard Gimarc, Performance Metrics, 3/17/99
 */

```

```

*      PURPOSE:      Header file for TPC-C txn class
implementation.
*
*      Change history:
*      4.20.000 - updated rev number to match kit
*/

#pragma once

// need to declare functions for import, unless define has already been created
// by the DLL's .cpp module for export.
#ifdef DllDecl
#define DllDecl __declspec( dllimport )
#endif

class DllDecl CTPCC_BASE
{
public:
    CTPCC_BASE(void) {};
    virtual ~CTPCC_BASE(void) {};

    virtual PNEW_ORDER_DATA
BuffAddr_NewOrder() = 0;
    virtual PPAYMENT_DATA
BuffAddr_Payment() = 0;
    virtual PDELIVERY_DATA
BuffAddr_Delivery() = 0;
    virtual PSTOCK_LEVEL_DATA
BuffAddr_StockLevel() = 0;
    virtual PORDER_STATUS_DATA
BuffAddr_OrderStatus() = 0;

    virtual void NewOrder() = 0;
    virtual void Payment() = 0;
    virtual void Delivery() = 0;
    virtual void StockLevel() = 0;
    virtual void OrderStatus() = 0;
};

```

## txnlog.h

```

/*      FILE:      TXNLOG.H
 *
 *      4.10.000      Microsoft TPC-C Kit Ver.
 *
 *      not yet audited
 *
 *      PURPOSE:      Header file for txn log class
 *      Copyright Microsoft, 1999
 *
 *      All Rights Reserved
 *
 *
 */

#pragma once

typedef struct _TXN_NEWORDER
{
    BYTE    OL_Count;           //range 0 to 31
    BYTE    OL_Remote_Count;    //range 0 to 31
    WORD    c_id;
    int     o_id;
} TXN_NEWORDER;

typedef struct _TXN_PAYMENT
{
    BYTE    CustByName;
    BYTE    IsRemote;
} TXN_PAYMENT;

```

```

typedef struct _TXN_ORDERSTATUS
{
    BYTE    CustByName;
} TXN_ORDERSTATUS;

typedef union _TXN_DETAILS
{
    TXN_NEWORDER    NewOrder;
    TXN_PAYMENT      Payment;
    TXN_ORDERSTATUS OrderStatus;
} TXN_DETAILS;

// Common header for all records in txn log. The TxnType field is
// a switch which identifies the particular variant.
#define TXN_REC_TYPE_CONTROL      1
// replaces TRANSACTION_TYPE_TPCC
#define TXN_REC_TYPE_TPCC        2
#define TXN_REC_TYPE_TPCC_DELIV_DEF 3

typedef struct _TXN_RECORD_HEADER
{
    JULIAN_TIME    TxnStartT0;
    BYTE    TxnType;
    BYTE    TxnSubType;
} TXN_RECORD_HEADER, *PTXN_RECORD_HEADER;

typedef struct _TXN_RECORD_CONTROL
{
    // common header; must exactly match
    TXN_RECORD_HEADER
    JULIAN_TIME    TxnStartT0;
    BYTE    TxnType;
    BYTE    TxnSubType;
} TXN_RECORD_CONTROL, *PTXN_RECORD_CONTROL;

// TPC-C Txn Record Layout:
//
//TxnStartT0' is a Julian timestamp corresponding to the moment the
//txn is sent to the SUT, i.e., beginning of response time. Deltas
//are in milliseconds. Note that if RTDelay > 0, then the txn was
//delayed by this amount. The delay occurs at the beginning of the
//response time. So if RTDelay > 0, then the txn was actually sent
//at TxnStartT0 + RTDelay.
//
//Graphically:
//
// time -->
//
// |--- Menu ---|--- Keying ---|--- Response ---|--- Think ---|
// <- DeltaT1 -> <- DeltaT2 -> <- DeltaT4 -> <- DeltaT3 ->
// ^
// ^ TxnStartT0

```

```

//RTDelay is the amount of response time delay included in DeltaT4.
//RTDelay is recorded per txn because this value can be changed on
//the fly, and so may vary from txn to txn.
//
//TxnStatus is the txn completion code. It is used to indicate errors.
//For example, in the New Order txn, 1% of txns abort. TxnStatus will
//reflect this.

typedef struct _TXN_RECORD_TPCC
{
    // common header; must exactly match
    TXN_RECORD_HEADER
    JULIAN_TIME    TxnStartT0;
    BYTE    TxnType;
    BYTE    TxnSubType;
    int    DeltaT1;
    int    DeltaT2;
    int    DeltaT3;
    int    DeltaT4;
    int    RTDelay;
    int    TxnError;
    int    w_id;
    BYTE    d_id;
    BYTE    d_id_ThisTxn;
    BYTE    TxnStatus;
    BYTE    reserved;
    TXN_DETAILS TxnDetails;
} TXN_RECORD_TPCC, *PTXN_RECORD_TPCC;

// TPC-C Deferred Delivery Txn Record Layout:
//
//Incorporating delivery transaction information into the above
//structure would increase the size of TXN_DETAILS from 8 to 42
bytes.
//Hence, we store delivery transaction details in a separate structure.
//
typedef struct _TXN_RECORD_TPCC_DELIV_DEF
{
    // common header; must exactly match
    TXN_RECORD_HEADER
    JULIAN_TIME    TxnStartT0;
    BYTE    TxnType;
    BYTE    TxnSubType;
    int    DeltaT4;
    int    DeltaTxnExec;
    int    w_id;
    BYTE    TxnStatus;
    BYTE    reserved;
    short o_carrier_id;
}

```

```

long o_id[10]; // returned delivery
transaction ids
} TXN_RECORD_TPCC_DELIV_DEF,
*PTXN_RECORD_TPCC_DELIV_DEF;

#define TXN_LOG_VERSION 2
#define TXN_DATA_START 4096 // offset in
log file where log records start
#define TXN_LOG_EYE_CATCHER "BC" // signature
bytes at the start of log file

////////////////////////////////////
// The transaction log has a header as the first 4K block.
//
typedef struct _TXN_LOG_HEADER
{
    char EyeCatcher[2]; //
signature bytes; should always be "BC"
    int LogVersion;
// set to TXN_LOG_VERSION
    JULIAN_TIME BeginTxnTS;
// timestamp of first (lowest) txn start
    JULIAN_TIME EndTxnTS;
// timestamp of last (highest) txn completion time
    int iRecCount;
// number of records in log file
    BOOL bLogSorted;
    int iFileSize;
// file size in bytes

// the record map provides a fast way to get close to a
particular timestamp in a sorted log file.
//
struct
//
{
    JULIAN_TIME TS;
// timestamp of record
    int
iPos; // byte position in file
//
}
RecMap[RecMapSize];
// #define RecMapSize 200

} TXN_LOG_HEADER, *PTXN_LOG_HEADER;

/* Header of the sorted pointers blocks in Temp file (in merging). */
typedef struct BLOCK_HEADER {
    long BlockPos;
    _int64 CurPos;
    DWORD BytesRead;
    int nRecords;
    BYTE *offset; /* offset of pointers to records in
the log file */
} BLOCK_HEADER, *PBLOCK_HEADER;

#define READ_BUFFER_SIZE 64*1024
#define WRITE_BUFFER_SIZE 8*1024

#define NUM_READ_BUFFERS 1
#define NUM_WRITE_BUFFERS 2
#define MAX_NUM_BUFFERS 2

// flags passed in to the constructor
#define TXN_LOG_WRITE 0x01

#define TXN_LOG_READ 0x02
#define TXN_LOG_SORTED 0x04
#define TXN_LOG_CRASHOPEN 0x08 // if set,
invalid headers will be tolerated; used for recovery

#define TXN_LOG_OS_ERROR 1
#define TXN_LOG_NOT_SORTED 2

#define SKIP_CTRL_RECS 1

class CTxnLog
{
private:
    DWORD iBufferSize;
// buffer allocated size
    DWORD iBytesFreeInBuffer;
// total bytes available for use in buffer
    int iNumBuffers;
// buffers in use
    int iActiveBuffer;
// indicates which buffer is active: 0 or 1
    int iIoBuffer;
// buffer for any pending IO operation
    int iFilePointer;
// position in file.
    LARGE_INTEGER iFilePointer;
// position in file.
    int iNextRec;
// when reading, ordinal value of next record

// A "save point" is remembered each time
GetNextRecord is called with a start time specified.
// The next time it is called, if start time is after the save
point, we start scanning from the
// save point. This is particularly useful in
FindBestInterval, where the log is scanned repeatedly.
    JULIAN_TIME SavePtTime;
//
    int
iSavePtFilePointer;
    LARGE_INTEGER iSavePtFilePointer;
    int
iSavePtNextRec;

    JULIAN_TIME lastTS;
// when writing sorted output, used to verify records are sorted
    BOOL bWrite;
// writing log file
    BOOL bCrashOpen;
// tolerate bad headers and consistency checks

    BOOL bLogSorted;
// is log file sorted? applies to both input and output
    JULIAN_TIME BeginTxnTS;
// timestamp of first (lowest) txn start
    JULIAN_TIME EndTxnTS;
// timestamp of last (highest) txn completion time
    int iRecCount;
// number of records in log file

    BYTE *pCurrent;
// ptr to current buffer
    BYTE
*pBuffer[MAX_NUM_BUFFERS];

    PTXN_RECORD_HEADER *TxnArray;
// transaction record pointer array for sort

    DWORD dwError;

```

```

HANDLE          hTxnFile;
//handle to log file
HANDLE          hMapFile;
//map file used when sorting the log
HANDLE          hIoComplete;
//event to signify that there are no pending IOs
HANDLE          hLogFileIo;
//event to signal the IO thread to write the inactive buffer

Spinlock  Spin;
//spin lock to protect the txn log file buffers

FILE          *tmpFile;
//temp file for merging sorted pieces
PBLOCK_HEADER tmpHeaders;
//sorted pointers block header
BYTE
**recPointers; //record pointer buffers for each sorted block
PTXN_RECORD_HEADER *recBuffers;
//record buffers for each sorted block
int             *PointersRead;
//# of pointers processed in each block
BOOL            *BlockAvailable;
//whether to check a particular block for jmin

int             nBlocks;
int             jmin;
//index (block-wise) of the lowest timestamp record
int             iAvgRecordLen;
//average record length

int             iSortedReturnedCount;
//keeps track of the # of sorted records returned through GetSortedRecord()

int Write(BYTE *ptr, DWORD Size);
static void LogFileIO(CTxnLog *);

void LoadBuffers(int j);
//used in sort/merge to load record buffers

public:
CTxnLog::CTxnLog(LPCTSTR szFileName, DWORD
dwOpts);
~CTxnLog(void);

int WriteToLog(PTXN_RECORD_TPCC pTxnRcd);
int WriteToLog(PTXN_RECORD_TPCC_DELIV_DEF
pTxnRcd);
int WriteToLog(PTXN_RECORD_CONTROL
pCtrlRec);
int WriteToLog(PTXN_RECORD_HEADER pCtrlRec);

int WriteCtrlRecToLog(BYTE SubType, LPTSTR lpStr,
DWORD dwLen);

void CloseTransactionLogFile(void);

PTXN_RECORD_HEADER GetNextRecord(BOOL
bSkipCtrlRecs = FALSE);
PTXN_RECORD_HEADER
GetNextRecord(JULIAN_TIME SeekTimeT0, BOOL bSkipCtrlRecs =
FALSE);

int Sort(void);
PTXN_RECORD_HEADER GetSortedRecord();

```

```

inline BOOL IsSorted(void) { return bLogSorted; };
inline JULIAN_TIME BeginTS(void) { return
BeginTxnTS; };
inline JULIAN_TIME EndTS(void) { return EndTxnTS;
};
inline int RecordCount(void) { return iRecCount; };
};

class CTXNLOG_ERR : public CBaseErr
{
public:
enum CTXNLOG_ERRS
{
ERR_BAD_FILE_FORMAT, //
"File format is invalid."
ERR_UNKNOWN_LOG_VERSION, //
"Log file version is unknown."
ERR_BROKEN_LOG_FILE, //
"Log file is broken."
ERR_LOG_NOT_SORTED,
// "Log file is not sorted"
ERR_INVALID_TIME_SEQ, //
"Internal Error: Record Time Sequence invalid."
};

CTXNLOG_ERR(int iErr) : CBaseErr(iErr) {};

int ErrorType() {return ERR_TYPE_TXNLOG;};

char *ErrorText()
{
static char *szMsgs[] = {
"File format is invalid.",
"Log file version is unknown.",
"Log file is broken.",
"Log file is not sorted",
"Internal Error: Record Time
Sequence invalid.",
""
};

for(int i = 0; szMsgs[i][0]; i++)
{
if ( m_idMsg == i )
break;
}

return(szMsgs[i][0] ? szMsgs[i] :
ERR_UNKNOWN);
};
};

```

## webclnt.dsp

```

# Microsoft Developer Studio Project File - Name="webclnt" - Package
Owner=<4>
# Microsoft Developer Studio Generated Build File, Format Version 5.00
# ** DO NOT EDIT **

# TARGETTYPE "Win32 (x86) Application" 0x0101

CFG=webclnt - Win32 Release
!MESSAGE This is not a valid makefile. To build this project using NMAKE,
!MESSAGE use the Export Makefile command and run
!MESSAGE
!MESSAGE NMAKE /f "Webclnt.mak".
!MESSAGE

```

```

!MESSAGE You can specify a configuration when running NMAKE
!MESSAGE by defining the macro CFG on the command line. For example:
!MESSAGE
!MESSAGE NMAKE /f "WebcInt.mak" CFG="webcInt - Win32 Release"
!MESSAGE
!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "webcInt - Win32 Release" (based on "Win32 (x86) Application")
!MESSAGE "webcInt - Win32 Debug" (based on "Win32 (x86) Application")
!MESSAGE

# Begin Project
# PROP Scc_ProjName ""
# PROP Scc_LocalPath ""
CPP=cl.exe
MTL=midl.exe
RSC=rc.exe

!IF "$(CFG)" == "webcInt - Win32 Release"

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir ".\Release"
# PROP BASE Intermediate_Dir ".\Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir ".\Release"
# PROP Intermediate_Dir ".\Release"
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D
" _WINDOWS" /YX /c
# ADD CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D
" _WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D "NDEBUG" /win32
# ADD MTL /nologo /D "NDEBUG" /mktyplib203 /win32
# ADD BASE RSC /I 0x409 /d "NDEBUG"
# ADD RSC /I 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbccp32.lib /nologo /subsystem:windows /machine:I386
# ADD LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib odbccp32.lib
/nologo /subsystem:windows /machine:I386

!ELSEIF "$(CFG)" == "webcInt - Win32 Debug"

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir ".\Debug"
# PROP BASE Intermediate_Dir ".\Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir ".\Debug"
# PROP Intermediate_Dir ".\Debug"
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32" /D " _DEBUG"
/D " _WINDOWS" /YX /c
# ADD CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32" /D " _DEBUG" /D
" _WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D " _DEBUG" /win32
# ADD MTL /nologo /D " _DEBUG" /mktyplib203 /win32
# ADD BASE RSC /I 0x409 /d " _DEBUG"

```

```

# ADD RSC /I 0x409 /d " _DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbccp32.lib /nologo /subsystem:windows /debug /machine:I386
# ADD LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib odbccp32.lib
/nologo /subsystem:windows /debug /machine:I386

!ENDIF

# Begin Target

# Name "webcInt - Win32 Release"
# Name "webcInt - Win32 Debug"
# End Target
# End Project

```

## Stored Procedures

### *neword.sql*

```

-- File:   NEWORD.SQL
--         Microsoft TPC-C Benchmark Kit Ver. 4.42
--         Copyright Microsoft, 2002
-- Purpose: Creates new order transaction stored procedure
--
--         Interface Level: 4.10.000

```

```

use tpcc
go

```

```

if exists ( select name from sysobjects where name = 'tpcc_neworder' )
    drop procedure tpcc_neworder
go

```

```

create proc tpcc_neworder

```

```

    @w_id      int,
    @d_id      tinyint,
    @c_id      int,
    @o_ol_cnt  tinyint,
    @o_all_local tinyint,
    @i_id1     int = 0,

```

```

    @s_w_id1  int = 0, @ol_qty1  smallint = 0,

```

```

    @i_id2     int = 0,

```

```

    @s_w_id2  int = 0, @ol_qty2  smallint = 0,

```

```

    @i_id3     int = 0,

```

```

    @s_w_id3  int = 0, @ol_qty3  smallint = 0,

```

```

    @i_id4     int = 0,

```

```

    @s_w_id4  int = 0, @ol_qty4  smallint = 0,

```

```

    @i_id5     int = 0,

```

```

    @s_w_id5  int = 0, @ol_qty5  smallint = 0,

```

```

    @i_id6     int = 0,

```

```

    @s_w_id6  int = 0, @ol_qty6  smallint = 0,

```

```

    @i_id7     int = 0,

```

```

    @s_w_id7  int = 0, @ol_qty7  smallint = 0,

```

```

    @i_id8     int = 0,

```

```

    @s_w_id8  int = 0, @ol_qty8  smallint = 0,

```

```

    @i_id9     int = 0,

```

```

    @s_w_id9  int = 0, @ol_qty9  smallint = 0,

```

```

    @i_id10    int = 0,

```

```

    @s_w_id10 int = 0, @ol_qty10 smallint = 0,

```

```

@s_w_id11 int = 0, @ol_qty11 smallint = 0,
@s_w_id12 int = 0, @ol_qty12 smallint = 0,
@s_w_id13 int = 0, @ol_qty13 smallint = 0,
@s_w_id14 int = 0, @ol_qty14 smallint = 0,
@s_w_id15 int = 0, @ol_qty15 smallint = 0

as
declare @w_tax numeric(4,4),
        @d_tax numeric(4,4),
        @c_last char(16),
        @c_credit char(2),
        @c_discount numeric(4,4),
        @i_price numeric(5,2),
        @i_name char(24),
        @i_data char(50),
        @o_entry_d datetime,
        @remote_flag int,
        @s_quantity smallint,
        @s_data char(50),
        @s_dist char(24),
        @li_no int,
        @o_id int,
        @commit_flag tinyint,
        @li_id int,
        @li_s_w_id int,
        @li_qty smallint,
        @ol_number int,
        @c_id_local int

begin
begin transaction n

-- get district tax and next available order id and update
-- plus initialize local variables

        update district
        set      @d_tax      = d_tax,
                 @o_id       = d_next_o_id,
                 d_next_o_id = d_next_o_id + 1,
                 @o_entry_d  = getdate(),
                 @li_no      = 0,
                 @commit_flag = 1
        where    d_w_id       = @w_id and
                 d_id         = @d_id

-- process orderlines

        while (@li_no < @o_ol_cnt)
        begin

                select @li_no = @li_no + 1

-- set i_id, s_w_id, and qty for this lineitem

                select      @li_id = case @li_no
                                when 1 then @i_id1
                                when 2 then @i_id2
                                when 3 then @i_id3
                                when 4 then @i_id4
                                when 5 then @i_id5
                                when 6 then @i_id6
                                when 7 then @i_id7
                                when 8 then @i_id8
                                when 9 then @i_id9
                                when 10 then @i_id10
                                when 11 then @i_id11
                                when 12 then @i_id12
                                when 13 then @i_id13
                                when 14 then @i_id14
                                when 15 then @i_id15
                                end,
                           @li_s_w_id = case @li_no
                                when 1 then @s_w_id1
                                when 2 then @s_w_id2
                                when 3 then @s_w_id3
                                when 4 then @s_w_id4
                                when 5 then @s_w_id5
                                when 6 then @s_w_id6
                                when 7 then @s_w_id7
                                when 8 then @s_w_id8
                                when 9 then @s_w_id9
                                when 10 then @s_w_id10
                                when 11 then @s_w_id11
                                when 12 then @s_w_id12
                                when 13 then @s_w_id13
                                when 14 then @s_w_id14
                                when 15 then @s_w_id15
                                end,
                           @li_qty = case @li_no
                                when 1 then @ol_qty1
                                when 2 then @ol_qty2
                                when 3 then @ol_qty3
                                when 4 then @ol_qty4
                                when 5 then @ol_qty5
                                when 6 then @ol_qty6
                                when 7 then @ol_qty7
                                when 8 then @ol_qty8
                                when 9 then @ol_qty9
                                when 10 then @ol_qty10
                                when 11 then @ol_qty11
                                when 12 then @ol_qty12
                                when 13 then @ol_qty13
                                when 14 then @ol_qty14
                                when 15 then @ol_qty15
                                end

-- get item data (no one updates item)

                select      @i_price = i_price,
                           @i_name  = i_name,
                           @i_data  = i_data
                from          item (tablock repeatableread)
                where         i_id = @li_id

-- update stock values

                update      stock
                set          s_ytd      = s_ytd + @li_qty,
                           @s_quantity = s_quantity - @li_qty +
                                           case
when (s_quantity - @li_qty < 10) then 91 else 0 end,
                           s_order_cnt = s_order_cnt + 1,
                           s_remote_cnt = s_remote_cnt + case
when (@li_s_w_id = @w_id) then 0 else 1 end,
                           @s_data     = s_data,
                           @s_dist     = case @d_id

```

|                                                                       |              |                                                        |                         |
|-----------------------------------------------------------------------|--------------|--------------------------------------------------------|-------------------------|
| s_dist_01                                                             | when 1 then  |                                                        | select ",0","0,0        |
| s_dist_02                                                             | when 2 then  |                                                        | select @commit_flag = 0 |
| s_dist_03                                                             | when 3 then  |                                                        | end                     |
| s_dist_04                                                             | when 4 then  |                                                        | end                     |
| s_dist_05                                                             | when 5 then  | -- get customer last name, discount, and credit rating |                         |
| s_dist_06                                                             | when 6 then  | select @c_last = c_last,                               |                         |
| s_dist_07                                                             | when 7 then  | @c_discount = c_discount,                              |                         |
| s_dist_08                                                             | when 8 then  | @c_credit = c_credit,                                  |                         |
| s_dist_09                                                             | when 9 then  | @c_id_local = c_id                                     |                         |
| s_dist_10                                                             | when 10 then | from customer (repeatableread)                         |                         |
|                                                                       | end          | where c_id = @c_id and                                 |                         |
| where s_i_id = @li_id and                                             |              | c_w_id = @w_id and                                     |                         |
| s_w_id = @li_s_w_id                                                   |              | c_d_id = @d_id                                         |                         |
| -- if there actually is a stock (and item) with these ids, go to work |              | -- insert fresh row into orders table                  |                         |
| if (@@rowcount > 0)                                                   |              | insert into orders values ( @o_id,                     | @d_id,                  |
| begin                                                                 |              |                                                        | @w_id,                  |
|                                                                       |              |                                                        | @c_id_local,            |
|                                                                       |              |                                                        | @o_entry_d,             |
|                                                                       |              |                                                        | 0,                      |
|                                                                       |              |                                                        | @o_ol_cnt,              |
|                                                                       |              |                                                        | @o_all_local)           |
| -- insert order_line data (using data from item and stock)            |              | -- insert corresponding row into new-order table       |                         |
| insert into order_line values(@o_id,                                  | @d_id,       | insert into new_order values ( @o_id,                  | @d_id,                  |
|                                                                       | @w_id,       |                                                        | @w_id)                  |
|                                                                       | @li_no,      | -- select warehouse tax                                |                         |
|                                                                       | @li_id,      | select @w_tax = w_tax                                  |                         |
|                                                                       | @li_s_w_id,  | from warehouse (repeatableread)                        |                         |
|                                                                       |              | where w_id = @w_id                                     |                         |
| 1899',                                                                | 'dec 31,     | if (@commit_flag = 1)                                  |                         |
|                                                                       | @li_qty,     | commit transaction n                                   |                         |
|                                                                       | @i_price     | else                                                   |                         |
| * @li_qty,                                                            | @s_dist)     | -- all that work for nuthn!!!                          |                         |
|                                                                       |              | rollback transaction n                                 |                         |
| -- send line-item data to client                                      |              | -- return order data to client                         |                         |
| select @i_name,                                                       |              | select @w_tax,                                         |                         |
| @s_quantity,                                                          |              | @d_tax,                                                |                         |
| b_g = case when (                                                     |              | @o_id,                                                 |                         |
| (patindex('%ORIGINAL%',@i_data) > 0) and                              |              | @c_last,                                               |                         |
| (patindex('%ORIGINAL%',@s_data) > 0) )                                |              | @c_discount,                                           |                         |
| then 'B' else 'G' end,                                                |              | @c_credit,                                             |                         |
| @i_price,                                                             |              | @o_entry_d,                                            |                         |
| @i_price * @li_qty                                                    |              | @commit_flag                                           |                         |
| end                                                                   |              | end                                                    |                         |
| else                                                                  |              | go                                                     |                         |
| begin                                                                 |              |                                                        |                         |
| -- no item (or stock) found - triggers rollback condition             |              |                                                        |                         |

**payment.sql**

```

-- File: PAYMENT.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.42
-- Copyright Microsoft, 2002
-- Purpose: Creates payment transaction stored procedure
--
-- Interface Level: 4.10.000

use tpcc
go

if exists (select name from sysobjects where name = 'tpcc_payment' )
    drop procedure tpcc_payment
go

create proc tpcc_payment      @w_id      int,
                             @c_w_id    int,
                             @h_amount  numeric(6,2),
                             @d_id      tinyint,
                             @c_d_id    tinyint,
                             @c_id      int,
                             @c_last    char(16) = "

as
declare @w_street_1 char(20),
        @w_street_2 char(20),
        @w_city     char(20),
        @w_state     char(2),
        @w_zip       char(9),
        @w_name      char(10),
        @d_street_1  char(20),
        @d_street_2  char(20),
        @d_city      char(20),
        @d_state     char(2),
        @d_zip       char(9),
        @d_name      char(10),
        @c_first     char(16),
        @c_middle    char(2),
        @c_street_1  char(20),
        @c_street_2  char(20),
        @c_city      char(20),
        @c_state     char(2),
        @c_zip       char(9),
        @c_phone     char(16),
        @c_since     datetime,
        @c_credit     char(2),
        @c_credit_lim numeric(12,2),
        @c_balance    numeric(12,2),
        @c_discount   numeric(4,4),
        @data         char(500),
        @c_data       char(500),
        @datetime     datetime,
        @w_ytd        numeric(12,2),
        @d_ytd        numeric(12,2),
        @cnt          smallint,
        @val          smallint,
        @screen_data  char(200),
        @d_id_local   tinyint,
        @w_id_local   int,
        @c_id_local   int

select @screen_data = "

begin tran p

-- get payment date

        select      @datetime = getdate()

```

```

        if (@c_id = 0)
        begin

-- get customer id and info using last name

                select      @cnt      = count(*)
                from        customer (repeatableread)
                where       c_last    = @c_last and
                           c_w_id    = @c_w_id and
                           c_d_id    = @c_d_id

                select      @val = (@cnt + 1) / 2
                set         rowcount @val

                select      @c_id      = c_id
                from        customer (repeatableread)
                where       c_last    = @c_last and
                           c_w_id    = @c_w_id and
                           c_d_id    = @c_d_id

                order       by c_last, c_first

                set         rowcount 0

        end

-- get customer info and update balances

                update      customer
                set          @c_balance = c_balance = c_balance
- @h_amount,
                c_payment_cnt = c_payment_cnt + 1,
                c_ytd_payment = c_ytd_payment + @h_amount,
                @c_first = c_first,
                @c_middle = c_middle,
                @c_last = c_last,
                @c_street_1 = c_street_1,
                @c_street_2 = c_street_2,
                @c_city = c_city,
                @c_state = c_state,
                @c_zip = c_zip,
                @c_phone = c_phone,
                @c_credit = c_credit,
                @c_credit_lim = c_credit_lim,
                @c_discount = c_discount,
                @c_since = c_since,
                @data = c_data,
                @c_id_local = c_id
                where       c_id      = @c_id and
                           c_w_id    = @c_w_id and
                           c_d_id    = @c_d_id

-- if customer has bad credit get some more info

        if (@c_credit = 'BC')
        begin

-- compute new info

                select @c_data = convert(char(5),@c_id) +
                                convert(char(4),@c_d_id) +
                                convert(char(5),@c_w_id) +
                                convert(char(4),@d_id) +
                                convert(char(5),@w_id) +
                                convert(char(19),@h_amount) +
                                substring(@data, 1, 458)

```

```
-- update customer info

update customer
set c_data = @c_data

where c_id = @c_id and
      c_w_id = @c_w_id and
      c_d_id = @c_d_id

select @screen_data = substring (@c_data,1,200)

end
```

```
-- get district data and update year-to-date
```

```
update district
set d_ytd = d_ytd + @h_amount,
    @d_street_1 = d_street_1,
    @d_street_2 = d_street_2,
    @d_city = d_city,
    @d_state = d_state,
    @d_zip = d_zip,
    @d_name = d_name,
    @d_id_local = d_id

where d_w_id = @w_id and
      d_id = @d_id
```

```
-- get warehouse data and update year-to-date
```

```
update warehouse
set w_ytd = w_ytd + @h_amount,
    @w_street_1 = w_street_1,
    @w_street_2 = w_street_2,
    @w_city = w_city,
    @w_state = w_state,
    @w_zip = w_zip,
    @w_name = w_name,
    @w_id_local = w_id

where w_id = @w_id
```

```
-- create history record
```

```
insert into history values ( @c_id_local,
                            @c_d_id,
                            @c_w_id,

                            @d_id_local,
                            @w_id_local,
                            @datetime,
                            @h_amount,
                            @w_name + ' ' +
```

```
@d_name)
commit tran p
```

```
-- return data to client
```

```
select @c_id,
       @c_last,
       @datetime,
       @w_street_1,
       @w_street_2,
       @w_city,
       @w_state,
       @w_zip,
       @d_street_1,
       @d_street_2,
       @d_city,
       @d_state,
```

```
@d_zip,
@c_first,
@c_middle,
@c_street_1,
@c_street_2,
@c_city,
@c_state,
@c_zip,
@c_phone,
@c_since,
@c_credit,
@c_credit_lim,
@c_discount,
@c_balance,
@screen_data
```

```
go
```

## ordstat.sql

```
-- File: ORDSTAT.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.42
-- Copyright Microsoft, 2002
-- Purpose: Creates order status transaction stored procedure
--
-- Interface Level: 4.10.000
```

```
use tpcc
go
```

```
if exists ( select name from sysobjects where name = 'tpcc_orderstatus' )
drop procedure tpcc_orderstatus
```

```
go
```

```
create proc tpcc_orderstatus @w_id int,
                             @d_id tinyint,

                             @c_id int,
                             @c_last char(16) = "
```

```
as
```

```
declare @c_balance numeric(12,2),
        @c_first char(16),
        @c_middle char(2),
        @o_id int,
        @o_entry_d datetime,
        @o_carrier_id smallint,
        @cnt smallint
```

```
begin tran o
```

```
if (@c_id = 0)
begin
```

```
-- get customer id and info using last name
```

```
select @cnt = (count(*)+1)/2
from customer (repeatableread)
where c_last = @c_last and
      c_w_id = @w_id and
      c_d_id = @d_id
```

```
set rowcount @cnt
```

```
select @c_id = c_id,
       @c_balance = c_balance,
       @c_first = c_first,
```

```

                @c_last = c_last,
                @c_middle = c_middle
from      customer (repeatableread)
where     c_last      = @c_last and
          c_w_id      = @w_id and
          c_d_id      = @d_id
order     by c_w_id, c_d_id, c_last, c_first

        set      rowcount 0

end

else

begin

-- get customer info if by id

        select    @c_balance      = c_balance,
                  @c_first   = c_first,
                  @c_middle   = c_middle,
                  @c_last     = c_last
from      customer (repeatableread)
where     c_id      = @c_id and
          c_d_id     = @d_id and
          c_w_id     = @w_id

        select    @cnt      = @@rowcount

end

-- if no such customer

        if (@cnt = 0)
        begin
                raiserror('Customer not found',18,1)
                goto custnotfound
        end

-- get order info

        select    @o_id      = o_id,
                  @o_entry_d  = o_entry_d,
                  @o_carrier_id = o_carrier_id
from      orders (serializable)
where     o_c_id      = @c_id and
          o_d_id      = @d_id and
          o_w_id      = @w_id
order     by o_id asc

-- select order lines for the current order

        select    ol_supply_w_id,
                  ol_i_id,
                  ol_quantity,
                  ol_amount,
                  ol_delivery_d
from      order_line (repeatableread)
where     ol_o_id = @o_id and
          ol_d_id = @d_id and
          ol_w_id = @w_id

custnotfound:

commit tran o

-- return data to client

select    @c_id,

```

```

        @c_last,
        @c_first,
        @c_middle,
        @o_entry_d,
        @o_carrier_id,
        @c_balance,
        @o_id

```

Go

## delivery.sql

```

-- File:  DELIVERY.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.42
--      Copyright Microsoft, 2002
-- Purpose: Creates delivery transaction stored procedure
--
--      Interface Level: 4.10.000

use tpcc
go

if exists (select name from sysobjects where name = 'tpcc_delivery' )
        drop procedure tpcc_delivery
go

create proc tpcc_delivery      @w_id      int,

                                @o_carrier_id smallint
as

declare @d_id      tinyint,
        @o_id      int,
        @c_id      int,
        @total      numeric(12,2),
        @oid1      int,
        @oid2      int,
        @oid3      int,
        @oid4      int,
        @oid5      int,
        @oid6      int,
        @oid7      int,
        @oid8      int,
        @oid9      int,
        @oid10     int

select @d_id = 0

begin tran d

        while (@d_id < 10)
        begin

                select @d_id = @d_id + 1,
                        @total = 0,
                        @o_id = 0

                select    top 1
                        @o_id      = no_o_id
from      new_order (serializable uplock)
where     no_w_id      = @w_id and
          no_d_id      = @d_id
order     by no_o_id asc

                if (@@rowcount <> 0)
                begin

```

```
-- claim the order for this district
```

```
delete new_order
where no_w_id = @w_id and
      no_d_id = @d_id and
      no_o_id = @o_id
```

```
-- set carrier_id on this order (and get customer id)
```

```
update orders
set o_carrier_id =

@o_carrier_id,

where @c_id = o_c_id
      o_w_id = @w_id
and o_d_id = @d_id
and o_id = @o_id
```

```
-- set date in all lineitems for this order (and sum amounts)
```

```
update order_line
set ol_delivery_d = getdate(),
  @total = @total +

ol_amount
where ol_w_id = @w_id
and ol_d_id = @d_id
and ol_o_id = @o_id
```

```
-- accumulate lineitem amounts for this order into customer
```

```
update customer
set c_balance = c_balance + @total,
  c_delivery_cnt =

c_delivery_cnt + 1
where c_w_id = @w_id
and c_d_id = @d_id
and c_id = @c_id
```

```
end
```

```
select @oid1 = case @d_id when 1 then @o_id else @oid1 end,
       @oid2 = case @d_id when 2 then @o_id else @oid2 end,
       @oid3 = case @d_id when 3 then @o_id else @oid3 end,
       @oid4 = case @d_id when 4 then @o_id else @oid4 end,
       @oid5 = case @d_id when 5 then @o_id else @oid5 end,
       @oid6 = case @d_id when 6 then @o_id else @oid6 end,
       @oid7 = case @d_id when 7 then @o_id else @oid7 end,
       @oid8 = case @d_id when 8 then @o_id else @oid8 end,
       @oid9 = case @d_id when 9 then @o_id else @oid9 end,
       @oid10 = case @d_id when 10 then @o_id else @oid10 end
```

```
end
```

```
commit tran d
```

```
-- return delivery data to client
```

```
select @oid1,
       @oid2,
       @oid3,
       @oid4,
       @oid5,
       @oid6,
```

```
@oid7,
@oid8,
@oid9,
@oid10
```

```
Go
```

## Stocklev.sql

```
-- File: STOCKLEV.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.42
-- Copyright Microsoft, 2002
-- Purpose: Creates stock level transaction stored procedure
--
-- Interface Level: 4.10.000

use tpcc
go

if exists (select name from sysobjects where name = 'tpcc_stocklevel')
drop procedure tpcc_stocklevel
go

create proc tpcc_stocklevel @w_id int,
                           @d_id tinyint,
                           @threshold smallint
as

declare @o_id_low int,
        @o_id_high int

select @o_id_low = (d_next_o_id - 20),
       @o_id_high = (d_next_o_id - 1)
from district
where d_w_id = @w_id and
      d_id = @d_id

select count(distinct(s_i_id))
from stock, order_line
where ol_w_id = @w_id and
      ol_d_id = @d_id and
      ol_o_id between @o_id_low and
                  @o_id_high and
      s_w_id = ol_w_id and
      s_i_id = ol_i_id and
      s_quantity < @threshold
```

```
go
```

## version.sql

```
-- File: VERSION.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.41
-- Copyright Microsoft, 2001
-- Purpose: Returns version level of TPC-C stored procs
-- Note: Always update the return value of this proc for
--       any interface changes or 'must have' bug fixes.
--
-- The value returned by this SP defines the 'interface level',
-- which must match between the stored procs and the client code.
-- The interface level may be down rev from the current kit. This
-- indicates that the interface hasn't changed since that version.
```

```
use tpcc
go
```

```
if exists ( select name from sysobjects where name = 'tpcc_version' )
    drop procedure tpcc_version
go

create proc tpcc_version
as
declare    @version char(8)

begin
    select @version = '4.10.000'
    select @version as 'Version'
end

go
```

# Appendix B: Database Design

## Database Build

### *createdb.sql*

```
-- File:   CREATEDB.SQL
--        Microsoft TPC-C Benchmark Kit Ver. 4.41
--        Copyright Microsoft, 2001
-- Purpose: Creates tpcc database and backup files

use master
go

--        Create temporary table for timing

if exists ( select name from sysobjects where name = 'tpcc_timer' )
    drop table tpcc_timer
go

create table tpcc_timer
(
    start_date          char(30),
    end_date            char(30)
)

insert    into tpcc_timer values (0,0)
go

--        Store starting time

update    tpcc_timer
set       start_date = (select convert(char(30), getdate(),9))
go

-- create main database files

CREATE DATABASE tpcc
ON PRIMARY
(
    NAME          = MSSQL_tpcc_root,
    FILENAME      = 'F:\MSSQL_tpcc_root.mdf',
    SIZE          = 8MB,
    FILEGROWTH    = 0),
FILEGROUP MSSQL_misc_fg
(
    NAME          = MSSQL_misc1,
    FILENAME      = 'C:\mp\m1\',
    SIZE          = 20500MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc2,
    FILENAME      = 'C:\mp\m2\',
    SIZE          = 20500MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc3,
    FILENAME      = 'C:\mp\m3\',
    SIZE          = 20500MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc4,
    FILENAME      = 'C:\mp\m4\',
    SIZE          = 20500MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc5,
    FILENAME      = 'C:\mp\m5\',
    SIZE          = 20500MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc6,
```

```
FILENAME      = 'C:\mp\m6\',
SIZE          = 20500MB,
FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc7,
    FILENAME      = 'C:\mp\m7\',
    SIZE          = 20500MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc8,
    FILENAME      = 'C:\mp\m8\',
    SIZE          = 20500MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc9,
    FILENAME      = 'C:\mp\m9\',
    SIZE          = 20500MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc10,
    FILENAME      = 'C:\mp\m10\',
    SIZE          = 20500MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc11,
    FILENAME      = 'C:\mp\m11\',
    SIZE          = 20500MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc12,
    FILENAME      = 'C:\mp\m12\',
    SIZE          = 20500MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc13,
    FILENAME      = 'C:\mp\m13\',
    SIZE          = 20500MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc14,
    FILENAME      = 'C:\mp\m14\',
    SIZE          = 20500MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc15,
    FILENAME      = 'C:\mp\m15\',
    SIZE          = 20500MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc16,
    FILENAME      = 'C:\mp\m16\',
    SIZE          = 20500MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc17,
    FILENAME      = 'C:\mp\m17\',
    SIZE          = 20500MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc18,
    FILENAME      = 'C:\mp\m18\',
    SIZE          = 20500MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc19,
    FILENAME      = 'C:\mp\m19\',
    SIZE          = 20500MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc20,
    FILENAME      = 'C:\mp\m20\',
    SIZE          = 20500MB,
    FILEGROWTH    = 0),
FILEGROUP MSSQL_cs_fg
(
    NAME          = MSSQL_cs1,
    FILENAME      = 'c:\mp\c1\',
    SIZE          = 36500MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_cs2,
    FILENAME      = 'c:\mp\c2\',
    SIZE          = 36500MB,
    FILEGROWTH    = 0),
```

```

(      NAME          = MSSQL_cs3,
      FILENAME       = 'c:\mp\c3\',
      SIZE           = 36500MB,
      FILEGROWTH     = 0),
(      NAME          = MSSQL_cs4,
      FILENAME       = 'c:\mp\c4\',
      SIZE           = 36500MB,
      FILEGROWTH     = 0),
(      NAME          = MSSQL_cs5,
      FILENAME       = 'c:\mp\c5\',
      SIZE           = 36500MB,
      FILEGROWTH     = 0),
(      NAME          = MSSQL_cs6,
      FILENAME       = 'c:\mp\c6\',
      SIZE           = 36500MB,
      FILEGROWTH     = 0),
(      NAME          = MSSQL_cs7,
      FILENAME       = 'c:\mp\c7\',
      SIZE           = 36500MB,
      FILEGROWTH     = 0),
(      NAME          = MSSQL_cs8,
      FILENAME       = 'c:\mp\c8\',
      SIZE           = 36500MB,
      FILEGROWTH     = 0),
(      NAME          = MSSQL_cs9,
      FILENAME       = 'c:\mp\c9\',
      SIZE           = 36500MB,
      FILEGROWTH     = 0),
(      NAME          = MSSQL_cs10,
      FILENAME       = 'c:\mp\c10\',
      SIZE           = 36500MB,
      FILEGROWTH     = 0),
(      NAME          = MSSQL_cs11,
      FILENAME       = 'c:\mp\c11\',
      SIZE           = 36500MB,
      FILEGROWTH     = 0),
(      NAME          = MSSQL_cs12,
      FILENAME       = 'c:\mp\c12\',
      SIZE           = 36500MB,
      FILEGROWTH     = 0),
(      NAME          = MSSQL_cs13,
      FILENAME       = 'c:\mp\c13\',
      SIZE           = 36500MB,
      FILEGROWTH     = 0),
(      NAME          = MSSQL_cs14,
      FILENAME       = 'c:\mp\c14\',
      SIZE           = 36500MB,
      FILEGROWTH     = 0),
(      NAME          = MSSQL_cs15,
      FILENAME       = 'c:\mp\c15\',
      SIZE           = 36500MB,
      FILEGROWTH     = 0),
(      NAME          = MSSQL_cs16,
      FILENAME       = 'c:\mp\c16\',
      SIZE           = 36500MB,
      FILEGROWTH     = 0),
(      NAME          = MSSQL_cs17,
      FILENAME       = 'c:\mp\c17\',
      SIZE           = 36500MB,
      FILEGROWTH     = 0),
(      NAME          = MSSQL_cs18,
      FILENAME       = 'c:\mp\c18\',
      SIZE           = 36500MB,
      FILEGROWTH     = 0),
(      NAME          = MSSQL_cs19,
      FILENAME       = 'c:\mp\c19\',
      SIZE           = 36500MB,
      FILEGROWTH     = 0),

```

```

(      NAME          = MSSQL_cs20,
      FILENAME       = 'c:\mp\c20\',
      SIZE           = 36500MB,
      FILEGROWTH     = 0)

LOG ON
(      NAME          = MSSQL_tpcc_log,
      FILENAME       = 'E:',
      SIZE           = 342000MB,
      FILEGROWTH     = 0)
COLLATE Latin1_General_BIN
go

-- Store ending time
update   tpcc_timer
set      end_date = (select convert(char(30), getdate(),9))
go

select 'Elapsed time (in seconds): ', datediff(second,(select start_date from
tpcc_timer),(select end_date from tpcc_timer))

--          remove temporary table

if exists ( select name from sysobjects where name = 'tpcc_timer' )
drop table tpcc_timer
go

```

### ***dbop1.sql***

```

-- File:   DBOPT1.SQL
--         Microsoft TPC-C Benchmark Kit Ver. 4.41
--         Copyright Microsoft, 2001
-- Purpose: Sets database options for data load

```

```

use master
go

exec sp_dboption tpcc,'select into/bulkcopy',true
exec sp_dboption tpcc,'trunc. log on chkpt.',true
exec sp_dboption tpcc,'torn page detection',false
go

use tpcc
go

checkpoint
go

```

### ***dbopt2.sql***

```

-- File:   DBOPT2.SQL
--         Microsoft TPC-C Benchmark Kit Ver. 4.41
--         Copyright Microsoft, 2001
-- Purpose: Resets database options after data load

```

```

exec sp_dboption tpcc,'select into/bulkcopy',false
exec sp_dboption tpcc,'trunc. log on chkpt.',false
exec sp_dboption tpcc,'torn page detection',false
GO

USE tpcc
GO

CHECKPOINT
GO

```

```

sp_configure 'allow updates',1
GO

RECONFIGURE WITH OVERRIDE
GO

DECLARE          @msg          varchar(50)

--          --
--  OPTIONS FOR SQL SERVER 2000  --
-- Set option values for user-defined indexes --
--          --

SET      @msg      = ''
PRINT    @msg
SET      @msg      = 'Setting SQL Server indexoptions'
PRINT    @msg
SET      @msg      = ''
PRINT    @msg

EXEC sp_indexoption      'customer', 'DisallowPageLocks', TRUE
EXEC sp_indexoption      'district', 'DisallowPageLocks', TRUE
EXEC sp_indexoption      'warehouse', 'DisallowPageLocks',
TRUE
EXEC sp_indexoption      'stock', 'DisallowPageLocks', TRUE
EXEC sp_indexoption      'order_line', 'DisallowRowLocks',
TRUE
EXEC sp_indexoption      'orders', 'DisallowRowLocks', TRUE
EXEC sp_indexoption      'new_order', 'DisallowRowLocks',
TRUE
EXEC sp_indexoption      'item', 'DisallowRowLocks',
TRUE
EXEC sp_indexoption      'item', 'DisallowPageLocks',
TRUE
GO

Print ''
Print '*****'
Print 'Pre-specified Locking Hierarchy:'
Print '      Lockflag = 0 ==> No pre-specified hierarchy'
Print '      Lockflag = 1 ==> Lock at Page-level then Table-level'
Print '      Lockflag = 2 ==> Lock at Row-level then Table-level'
Print '      Lockflag = 3 ==> Lock at Table-level'
Print ''

SELECT name,lockflags
FROM sysindexes
WHERE object_id('warehouse') = id OR
      object_id('district') = id OR
      object_id('customer') = id OR
      object_id('stock') = id OR
      object_id('orders') = id OR
      object_id('order_line') = id OR
      object_id('history') = id OR
      object_id('new_order') = id OR
      object_id('item') = id

ORDER BY lockflags asc
GO

sp_configure 'allow updates',0
GO

RECONFIGURE WITH OVERRIDE
GO

EXEC sp_dboption tpcc, 'auto update statistics',FALSE
EXEC sp_dboption tpcc, 'auto create statistics', FALSE

```

GO

```

EXEC sp_tableoption 'district', 'pintable',true
EXEC sp_tableoption 'warehouse', 'pintable',true
EXEC sp_tableoption 'new_order', 'pintable',true
EXEC sp_tableoption 'item', 'pintable',true
GO

```

## ***idxcuscl.sql***

```

-- File:  IDXCUSCL.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.41
--      Copyright Microsoft, 2001
-- Purpose:  Creates clustered index on customer table

```

```

use tpcc
go

```

```

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists ( select name from sysindexes where name = 'customer_c1' )
      drop index customer.customer_c1

create unique clustered index customer_c1 on customer(c_w_id, c_d_id, c_id)
      on MSSQL_cs_fg

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate, @enddate)

go

```

## ***idxcusnc.sql***

```

-- File:  IDXCUSNC.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.41
--      Copyright Microsoft, 2001
-- Purpose:  Creates non-clustered index on customer table

```

```

use tpcc
go

```

```

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists ( select name from sysindexes where name = 'customer_nc1' )
      drop index customer.customer_nc1

create unique nonclustered index customer_nc1 on customer(c_w_id, c_d_id,
c_last, c_first, c_id)
      on MSSQL_cs_fg

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate, @enddate)

go

```

### ***idxdiscl.sql***

```
-- File:  IDXDISCL.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.41
--      Copyright Microsoft, 2001
-- Purpose: Creates clustered index on district table

use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists ( select name from sysindexes where name = 'district_c1' )
    drop index district.district_c1

create unique clustered index district_c1 on district(d_w_id, d_id)
    with fillfactor=100 on MSSQL_misc_fg

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate, @enddate)

go
```

### ***idxhiscl.sql***

```
-- File:  IDXHISCL.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.41
--      Copyright Microsoft, 2001
-- Purpose: Creates clustered index on history table
--
-- CAUTION: *****
-- CAUTION: This index is only beneficial for systems
-- CAUTION: with 8 or more processors.
-- CAUTION: It may negatively impact performance on
-- CAUTION: on systems with less than 8 processors.
-- CAUTION: *****

use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists ( select name from sysindexes where name = 'history_c1' )
    drop index history.history_c1

create unique clustered index history_c1 on history(h_c_w_id, h_date,
h_c_d_id, h_c_id, h_amount)
    on MSSQL_misc_fg

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate, @enddate)

go
```

### ***idxitmcl.sql***

```
-- File:  IDXITMCL.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.41
--      Copyright Microsoft, 2001
-- Purpose: Creates clustered index on item table

use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists ( select name from sysindexes where name = 'item_c1' )
    drop index item.item_c1

create unique clustered index item_c1 on item(i_id)
    on MSSQL_misc_fg

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate, @enddate)

go
```

### ***idxnodcl.sql***

```
-- File:  IDXNODCL.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.41
--      Copyright Microsoft, 2001
-- Purpose: Creates clustered index on new_order table

use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists ( select name from sysindexes where name = 'new_order_c1' )
    drop index new_order.new_order_c1

create unique clustered index new_order_c1 on new_order(no_w_id, no_d_id,
no_o_id)
    on MSSQL_misc_fg

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate, @enddate)

go
```

### ***idxodlcl.sql***

```
-- File:  IDXODLCL.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.41
--      Copyright Microsoft, 2001
-- Purpose: Creates clustered index on order_line table
```

```

use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists ( select name from sysindexes where name = 'order_line_c1' )
    drop index order_line.order_line_c1

create unique clustered index order_line_c1 on order_line(ol_w_id, ol_d_id,
ol_o_id, ol_number)
on MSSQL_misc_fg

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate, @enddate)

go

```

### ***idxordcl.sql***

```

-- File:  IDXORDCL.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.41
--      Copyright Microsoft, 2001
-- Purpose: Creates clustered index on orders table

```

```

use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists ( select name from sysindexes where name = 'orders_c1' )
    drop index orders.orders_c1

create unique clustered index orders_c1 on orders(o_w_id, o_d_id, o_id)
on MSSQL_misc_fg

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate, @enddate)

Go

```

### ***idxstkcl.sql***

```

-- File:  IDXSTKCL.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.41
--      Copyright Microsoft, 2001
-- Purpose: Creates clustered index on stock table

```

```

use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

```

```

if exists ( select name from sysindexes where name = 'stock_c1' )
    drop index stock.stock_c1

create unique clustered index stock_c1 on stock(s_i_id, s_w_id)
on MSSQL_cs_fg

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate, @enddate)

go

```

### ***idxwarcl.sql***

```

-- File:  IDXWARCL.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.41
--      Copyright Microsoft, 2001
-- Purpose: Creates clustered index on warehouse table

```

```

use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists ( select name from sysindexes where name = 'warehouse_c1' )
    drop index warehouse.warehouse_c1

create unique clustered index warehouse_c1 on warehouse(w_id)
with fillfactor=100 on MSSQL_misc_fg

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate, @enddate)

go

```

### ***sqlshutdown.sql***

```

-- File:  SQLSHUTDOWN.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.41

--      Copyright Microsoft, 2001
-- Purpose: Checkpoints tpcc database and issues a shutdown
--

```

```

use tpcc
go
checkpoint
go
shutdown
Go

```

### ***Tables.sql***

```

-- File:  TABLES.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.42
--      Copyright Microsoft, 2002
-- Purpose: Creates TPC-C tables

```

```

SET ANSI_NULL_DFLT_OFF ON
go

use tpcc
go

--
-- Remove all existing TPC-C tables
--

if exists ( select name from sysobjects where name = 'warehouse' )
    drop table warehouse
go
if exists ( select name from sysobjects where name = 'district' )
    drop table district
go
if exists ( select name from sysobjects where name = 'customer' )
    drop table customer
go
if exists ( select name from sysobjects where name = 'history' )
    drop table history
go
if exists ( select name from sysobjects where name = 'new_order' )
    drop table new_order
go
if exists ( select name from sysobjects where name = 'orders' )
    drop table orders
go
if exists ( select name from sysobjects where name = 'order_line' )
    drop table order_line
go
if exists ( select name from sysobjects where name = 'item' )
    drop table item
go
if exists ( select name from sysobjects where name = 'stock' )
    drop table stock
go

--
-- Create new tables
--

create table warehouse
(
    w_id                int,
    w_name              char(10),
    w_street_1          char(20),
    w_street_2          char(20),
    w_city              char(20),
    w_state             char(2),
    w_zip              char(9),
    w_tax              numeric(4,4),
    w_ytd              numeric(12,2)
) on MSSQL_misc_fg
go

create table district
(
    d_id                tinyint,
    d_w_id             int,
    d_name              char(10),
    d_street_1          char(20),
    d_street_2          char(20),
    d_city              char(20),
    d_state             char(2),
    d_zip              char(9),
    d_tax              numeric(4,4),
    d_ytd              numeric(12,2),

```

```

    d_next_o_id        int
) on MSSQL_misc_fg
go

create table customer
(
    c_id                int,
    c_d_id             tinyint,
    c_w_id             int,
    c_first             char(16),
    c_middle            char(2),
    c_last             char(16),
    c_street_1          char(20),
    c_street_2          char(20),
    c_city              char(20),
    c_state            char(2),
    c_zip              char(9),
    c_phone            char(16),
    c_since            datetime,
    c_credit            char(2),
    c_credit_lim        numeric(12,2),
    c_discount          numeric(4,4),
    c_balance           numeric(12,2),
    c_ytd_payment       numeric(12,2),
    c_payment_cnt       smallint,
    c_delivery_cnt       smallint,
    c_data             char(500)
) on MSSQL_cs_fg
go

create table history
(
    h_c_id             int,
    h_c_d_id           tinyint,
    h_c_w_id           int,
    h_d_id             tinyint,
    h_w_id             int,
    h_date             datetime,
    h_amount           numeric(6,2),
    h_data             char(24)
) on MSSQL_misc_fg
go

create table new_order
(
    no_o_id            int,
    no_d_id            tinyint,
    no_w_id            int
) on MSSQL_misc_fg
go

create table orders
(
    o_id               int,
    o_d_id             tinyint,
    o_w_id             int,
    o_c_id             int,
    o_entry_d          datetime,
    o_carrier_id       tinyint,
    o_ol_cnt           tinyint,
    o_all_local        tinyint
) on MSSQL_misc_fg
go

create table order_line
(
    ol_o_id            int,
    ol_d_id            tinyint,

```

```

        ol_w_id                int,
        ol_number              tinyint,
        ol_i_id               int,
        ol_supply_w_id        int,
        ol_delivery_d          datetime,
        ol_quantity           smallint,
        ol_amount             numeric(6,2),
        ol_dist_info          char(24)
    ) on MSSQL_misc_fg
go

create table item
(
    i_id                int,
    i_im_id            int,
    i_name              char(24),
    i_price             numeric(5,2),
    i_data              char(50)
) on MSSQL_misc_fg
go

create table stock
(
    s_i_id                int,
    s_w_id              int,
    s_quantity           smallint,
    s_dist_01            char(24),
    s_dist_02            char(24),
    s_dist_03            char(24),
    s_dist_04            char(24),
    s_dist_05            char(24),
    s_dist_06            char(24),
    s_dist_07            char(24),
    s_dist_08            char(24),
    s_dist_09            char(24),
    s_dist_10            char(24),
    s_ytd                int,
    s_order_cnt          smallint,
    s_remote_cnt         smallint,
    s_data               char(50)
) on MSSQL_cs_fg
Go

```

## Load Source Code

### *getargs.c*

```

//      File:                GETARGS.C
//                               Microsoft TPC-C Kit Ver. 4.41
//                               Copyright Microsoft, 1996, 1997,
1998, 1999, 2000, 2001
//      Purpose:   Source file for command line processing

// Includes
#include "tpcc.h"

//=====
//
// Function name: GetArgsLoader
//
//=====

void GetArgsLoader(int argc, char **argv, TPCC_LDR_ARGS *pargs)
{

```

```

    int                i;
    char                *ptr;

#ifdef DEBUG
    printf("[%ld]DBG: Entering GetArgsLoader()\n", (int)
GetCurrentThreadId());
#endif

    /* init args struct with some useful values */
    pargs->server        = SERVER;
    pargs->user           = USER;
    pargs->password       = PASSWORD;
    pargs->database       = DATABASE;
    pargs->batch          = BATCH;
    pargs->num_warehouses = UNDEF;
    pargs->tables_all     = TRUE;
    pargs->table_item     = FALSE;
    pargs->table_warehouse = FALSE;
    pargs->table_customer = FALSE;
    pargs->table_orders   = FALSE;
    pargs->loader_res_file =
    LOADER_RES_FILE;
    pargs->log_path       =
    LOG_PATH;
    pargs->pack_size      = DEFLDPACKSIZE;
    pargs->starting_warehouse =
    DEF_STARTING_WAREHOUSE;
    pargs->build_index    = BUILD_INDEX;
    pargs->index_order    = INDEX_ORDER;
    pargs->index_script_path = INDEX_SCRIPT_PATH;
    pargs->scale_down     = SCALE_DOWN;

    /* check for zero command line args */
    if ( argc == 1 )
        GetArgsLoaderUsage();

    for (i = 1; i < argc; ++i)
    {
        if (argv[i][0] != '-' && argv[i][0] != '/')
        {
            printf("\nUnrecognized command");
            GetArgsLoaderUsage();
            exit(1);
        }

        ptr = argv[i];

        switch (ptr[1])
        {
            case '?': /* Fall throught */
                GetArgsLoaderUsage();
                break;

            case 'D':
                pargs->database = ptr+2;
                break;

            case 'P':
                pargs->password = ptr+2;
                break;

            case 'S':
                pargs->server = ptr+2;
                break;

            case 'U':
                pargs->user = ptr+2;
                break;

```



```

printf(" - the '-t' parameter may be included multiple times to \n");
printf(" specify multiple tables to be loaded \n");
printf(" - 'item' loads ITEM table \n");
printf(" - 'warehouse' loads WAREHOUSE, DISTRICT, and STOCK
tables \n");
printf(" - 'customer' loads CUSTOMER and HISTORY tables \n");
printf(" - 'orders' load NEW-ORDER, ORDERS, ORDER-LINE tables
\n");

printf("\nNote: Command line switches are case sensitive.\n");

exit(0);
}

```

## random.c

```

//      File:          RANDOM.C
//                        Microsoft TPC-C Kit Ver. 4.41
//                        Copyright Microsoft, 1996, 1997,
1998, 1999, 2000, 2001
//      Purpose:   Random number generation routines for database loader

// Includes
#include "tpcc.h"
#include "math.h"

// Defines
#define A      16807
#define M      2147483647
#define Q      127773 /* M div A */
#define R      2836 /* M mod A */
#define Thread __declspec(thread)

// Globals
long      Thread Seed = 0; /* thread local seed */

/*****
*
* random -
* Implements a GOOD pseudo random number generator. This generator
* will/should? run the complete period before repeating.
* Copied from:
* Random Numbers Generators: Good Ones Are Hard to Find.
* Communications of the ACM - October 1988 Volume 31 Number 10
* Machine Dependencies:
* long must be 2 ^ 31 - 1 or greater.
*****/

/*****
* seed - load the Seed value used in irand and drand. Should be used before *
* first call to irand or drand.
*****/

void seed(long val)
{
#ifdef DEBUG
printf("[%ld]DBG: Entering seed()...\n", (int) GetCurrentThreadId());

```

```

printf("Old Seed %ld New Seed %ld\n",Seed, val);
#endif

if ( val < 0 )
    val = abs(val);

Seed = val;
}

/*****
*****
*
* irand - returns a 32 bit integer pseudo random number with a period of *
* 1 to 2 ^ 32 - 1.
*
* parameters:
* none.
*
* returns:
* 32 bit integer - defined as long ( see above ).
*
* side effects:
* seed get recomputed.
*****/

long irand()
{
    register long  s; /* copy of seed */
    register long  test; /* test flag */
    register long  hi; /* tmp value for speed */
    register long  lo; /* tmp value for speed */

#ifdef DEBUG
printf("[%ld]DBG: Entering irand()...\n", (int) GetCurrentThreadId());
#endif

s = Seed;
hi = s / Q;
lo = s % Q;

test = A * lo - R * hi;
if ( test > 0 )
    Seed = test;
else
    Seed = test + M;

return( Seed );
}

/*****
*****
*
* drand - returns a double pseudo random number between 0.0 and 1.0. *
* See irand.
*****/

double drand()
{
#ifdef DEBUG
printf("[%ld]DBG: Entering drand()...\n", (int) GetCurrentThreadId());
#endif

return( (double)irand() / 2147483647.0);

```

```

}

//=====
// Function : RandomNumber
//
// Description:
//=====

long RandomNumber(long lower, long upper)
{
    long rand_num;

#ifdef DEBUG
    printf("[%ld]DBG: Entering RandomNumber()...\n", (int)
    GetCurrentThreadId());
#endif

    if ( upper == lower ) /* pgd 08-13-96 perf enhancement */
        return lower;

    upper++;

    if ( upper <= lower )
        rand_num = upper;
    else
        rand_num = lower + irand() % (upper - lower); /* pgd
08-13-96 perf enhancement */

#ifdef DEBUG
    printf("[%ld]DBG: RandomNumber between %ld & %ld ==> %ld\n",
        (int) GetCurrentThreadId(), lower,
        upper, rand_num);
#endif

    return rand_num;
}

#if 0

//Original code pgd 08/13/96

long RandomNumber(long lower,                long upper)
{
    long rand_num;

#ifdef DEBUG
    printf("[%ld]DBG: Entering RandomNumber()...\n", (int)
    GetCurrentThreadId());
#endif

    upper++;

    if ((upper <= lower))
        rand_num = upper;
    else
        rand_num = lower + irand() % ((upper > lower) ? upper -
lower : upper);

#ifdef DEBUG
    printf("[%ld]DBG: RandomNumber between %ld & %ld ==> %ld\n",

```

```

        (int) GetCurrentThreadId(), lower,
        upper, rand_num);
#endif

    return rand_num;
}
#endif

//=====
// Function : NURand
//
// Description:
//=====

long NURand(int iConst,
            long x,
            long y,
            long C)
{
    long rand_num;

#ifdef DEBUG
    printf("[%ld]DBG: Entering NURand()...\n", (int) GetCurrentThreadId());
#endif

    rand_num = (((RandomNumber(0,iConst) | RandomNumber(x,y)) + C) %
(y-x+1))+x;

#ifdef DEBUG
    printf("[%ld]DBG: NURand: num = %d\n", (int) GetCurrentThreadId(),
rand_num);
#endif

    return rand_num;
}

strings.c

//      File:                STRINGS.C
//                                Microsoft TPC-C Kit Ver. 4.41
//                                Copyright Microsoft, 1996, 1997,
1998, 1999, 2000, 2001
//      Purpose:  Source file for database loader string functions

// Includes
#include "tpcc.h"
#include <string.h>
#include <ctype.h>

//=====
//
// Function name: MakeAddress
//
//=====

void MakeAddress(char *street_1,                char *street_2,
                char *city,
                char *state,
                char *zip)
{
#ifdef DEBUG
    printf("[%ld]DBG: Entering MakeAddress()\n", (int) GetCurrentThreadId());

```

```

#endif

    MakeAlphaString (10, 20, ADDRESS_LEN, street_1);
    MakeAlphaString (10, 20, ADDRESS_LEN, street_2);
    MakeAlphaString (10, 20, ADDRESS_LEN, city);
    MakeAlphaString ( 2, 2, STATE_LEN, state);
    MakeZipNumberString( 9, 9, ZIP_LEN, zip);

#ifdef DEBUG
    printf("[%ld]DBG: MakeAddress: street_1: %s, street_2: %s, city: %s, state:
%s, zip: %s\n",
                                (int) GetCurrentThreadId(), street_1, street_2,
city, state, zip);
#endif

    return;
}

//=====
//
// Function name: LastName
//
//=====

void LastName(int num,
              char *name)
{
    static char *n[] =
    {
        "BAR", "OUGHT", "ABLE", "PRI", "PRES",
        "ESE", "ANTI", "CALLY", "ATION", "EING"
    };

#ifdef DEBUG
    printf("[%ld]DBG: Entering LastName()\n", (int) GetCurrentThreadId());
#endif

    if ((num >= 0) && (num < 1000))
    {
        strcpy(name, n[(num/100)%10]);
        strcat(name, n[(num/10)%10]);
        strcat(name, n[(num/1)%10]);

        if (strlen(name) < LAST_NAME_LEN)
        {
            PaddString(LAST_NAME_LEN, name);
        }
    }
    else
    {
        printf("\nError in LastName()... num <%ld> out of range
(0,999)\n", num);
        exit(-1);
    }

#ifdef DEBUG
    printf("[%ld]DBG: LastName: num = [%d] ==> [%d][%d][%d]\n",
                                (int) GetCurrentThreadId(), num, num/100,
(num/10)%10, num%10);
    printf("[%ld]DBG: LastName: String = %s\n", (int)
GetCurrentThreadId(), name);
#endif

```

```

    return;
}

//=====
//
// Function name: MakeAlphaString
//
//=====

//philipdu 08/13/96 Changed MakeAlphaString to use A-Z, a-z, and 0-9 in
//accordance with spec see below:
//The spec says:
//4.3.2.2 The notation random a-string [x .. y]
//(respectively, n-string [x .. y]) represents a string of random alphanumeric
//(respectively, numeric) characters of a random length of minimum x,
maximum y,
//and mean (y+x)/2. Alphanumerics are A..Z, a..z, and 0..9. The only other
//requirement is that the character set used "must be able to represent a
minimum
//of 128 different characters". We are using 8-bit chars, so this is a non issue.
//It is completely unreasonable to stuff non-printing chars into the text fields.
//--CLevine 08/13/96

int MakeAlphaString( int x, int y, int z, char *str)
{
    int len;
    int i;
    char cc = 'a';
    static char chArray[] =
"0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz";
    static int chArrayMax = 61;

#ifdef DEBUG
    printf("[%ld]DBG: Entering MakeAlphaString()\n", (int)
GetCurrentThreadId());
#endif

    len= RandomNumber(x, y);

    for (i=0; i<len; i++)
    {
        cc = chArray[RandomNumber(0, chArrayMax)];
        str[i] = cc;
    }

    //if ( len < z )
    //    memset(str+len, ' ', z - len);
    str[len] = 0;

    return len;
}

//=====
//
// Function name: MakeOriginalAlphaString
//
//=====

int MakeOriginalAlphaString(int x,
                                int y,

```

```

int z,
char *str,
int percent)
{
    int len;
    int val;
    int start;

#ifdef DEBUG
    printf("[%ld]DBG: Entering MakeOriginalAlphaString()\n", (int)
GetCurrentThreadId());
#endif

    // verify percentage is valid
    if ((percent < 0) || (percent > 100))
    {
        printf("MakeOriginalAlphaString: Invalid percentage:
%d\n", percent);
        exit(-1);
    }

    // verify string is at least 8 chars in length
    if ((x + y) <= 8)
    {
        printf("MakeOriginalAlphaString: string length must be
>= 8\n");
        exit(-1);
    }

    // Make Alpha String
    len = MakeAlphaString(x,y, z, str);

    val = RandomNumber(1,100);
    if (val <= percent)
    {
        start = RandomNumber(0, len - 8);
        strncpy(str + start, "ORIGINAL", 8);
    }

#ifdef DEBUG
    printf("[%ld]DBG: MakeOriginalAlphaString: : %s\n",
(int) GetCurrentThreadId(), str);
#endif

    return strlen(str);
}

//=====
//
// Function name: MakeNumberString
//
//=====
int MakeNumberString(int x, int y, int z, char *str)
{
    char tmp[16];

    //MakeNumberString is always called MakeZipNumberString(16,
16, 16, string)

    memset(str, '0', 16);
    itoa(RandomNumber(0, 99999999), tmp, 10);
    memcpy(str, tmp, strlen(tmp));

```

```

    itoa(RandomNumber(0, 99999999), tmp, 10);
    memcpy(str+8, tmp, strlen(tmp));

    str[16] = 0;

    return 16;
}

//=====
//
// Function name: MakeZipNumberString
//
//=====
int MakeZipNumberString(int x, int y, int z, char *str)
{
    char tmp[16];

    //MakeZipNumberString is always called MakeZipNumberString(9,
9, 9, string)

    strcpy(str, "000011111");

    itoa(RandomNumber(0, 9999), tmp, 10);
    memcpy(str, tmp, strlen(tmp));

    return 9;
}

//=====
//
// Function name: InitString
//
//=====
void InitString(char *str, int len)
{
#ifdef DEBUG
    printf("[%ld]DBG: Entering InitString()\n", (int) GetCurrentThreadId());
#endif

    memset(str, '', len);
    str[len] = 0;
}

//=====
//
// Function name: InitAddress
//
// Description:
//
//=====
void InitAddress(char *street_1, char *street_2, char *city, char *state, char
*zip)
{
    memset(street_1, '', ADDRESS_LEN+1);
    memset(street_2, '', ADDRESS_LEN+1);
    memset(city, '', ADDRESS_LEN+1);

    street_1[ADDRESS_LEN+1] = 0;
    street_2[ADDRESS_LEN+1] = 0;

```

```

city[ADDRESS_LEN+1] = 0;

memset(state, '', STATE_LEN+1);
state[STATE_LEN+1] = 0;

memset(zip, '', ZIP_LEN+1);
zip[ZIP_LEN+1] = 0;
}

```

```

//=====
//
// Function name: PaddString
//
//=====

```

```

void PaddString(int max, char *name)
{
    int len;

    len = strlen(name);
    if ( len < max )
        memset(name+len, '', max - len);
    name[max] = 0;

    return;
}

```

## time.c

```

//      File:          TIME.C
//
//      Microsoft TPC-C Kit Ver. 4.41
//      Copyright Microsoft, 1996, 1997,
//      1998, 1999, 2000, 2001
//      Purpose:   Source file for time functions

```

```

// Includes
#include "tpcc.h"

```

```

// Globals
static long start_sec;

```

```

//=====
//
// Function name: TimeNow
//
//=====

```

```

long TimeNow()
{
    long time_now;
    struct _timeb el_time;

#ifdef DEBUG
    printf("[%ld]DBG: Entering TimeNow()\n", (int) GetCurrentThreadId());
#endif

    _ftime(&el_time);

    time_now = ((el_time.time - start_sec) * 1000) + el_time.millitm;

```

```

return time_now;
}

```

## tpcc.h

```

//      File:          TPCC.H
//
//      Microsoft TPC-C Kit Ver. 4.41
//      Copyright Microsoft, 1996, 1997,
//      1998, 1999, 2000, 2001
//      Purpose:   Header file for TPC-C database loader

```

```

// Build number of TPC Benchmark Kit
#define TPCKIT_VER "4.41"

```

```

// General headers
#include <windows.h>
#include <winbase.h>
#include <stdlib.h>
#include <stdio.h>
#include <process.h>
#include <stddef.h>
#include <stdarg.h>
#include <string.h>
#include <time.h>
#include <sys\timeb.h>
#include <sys\types.h>

```

```

// ODBC headers
#include <sql.h>
#include <sqlext.h>
#include <odbcss.h>

```

```

// General constants
#define MILLI 1000
#define FALSE 0
#define TRUE 1
#define UNDEF -1
#define MINPRINTASCII 32
#define MAXPRINTASCII 126

```

```

// Default environment constants
#define SERVER ""
#define DATABASE "tpcc"
#define USER "sa"
#define PASSWORD ""

```

```

// Default loader arguments
#define BATCH 10000
#define DEFLDPACKSIZE 32768
#define LOADER_RES_FILE "C:\\MSTPCC.440\\SETUP\\logs\\load.out"
#define LOG_PATH "C:\\MSTPCC.440\\SETUP\\LOGS\\";
#define LOADER_NURAND_C 123
#define DEF_STARTING_WAREHOUSE 1
#define BUILD_INDEX 1
// build both data and indexes
#define INDEX_ORDER 1
// build indexes before load
#define SCALE_DOWN 0
// build a normal scale database
#define INDEX_SCRIPT_PATH "scripts"

```

```

typedef struct
{
    char *server;
    char *database;
    char *user;

```

```

char                *password;
        BOOL        tables_all;
// set if loading all tables
        BOOL        table_item;
// set if loading ITEM table specifically
        BOOL        table_warehouse;
set if loading WAREHOUSE, DISTRICT, and STOCK
        BOOL        table_customer;
// set if loading CUSTOMER and HISTORY
        BOOL        table_orders;
// set if loading NEW-ORDER, ORDERS, ORDER-LINE
        long        num_warehouses;
        long        batch;
        long        verbose;

        long        pack_size;
        char        *loader_res_file;
        char        *log_path;
        char        *synch_servername;
        long        case_sensitivity;
        long        starting_warehouse;
        long        build_index;
        long        index_order;
        long        scale_down;
        char        *index_script_path;
} TPCCLDR_ARGS;

// String length constants
#define SERVER_NAME_LEN        20
#define DATABASE_NAME_LEN        20
#define USER_NAME_LEN        20
#define PASSWORD_LEN        20
#define TABLE_NAME_LEN        20
#define I_DATA_LEN        50
#define I_NAME_LEN        24
#define BRAND_LEN        1
#define LAST_NAME_LEN        16
#define W_NAME_LEN        10
#define ADDRESS_LEN        20
#define STATE_LEN        2
#define ZIP_LEN        9
#define S_DIST_LEN        24
#define S_DATA_LEN        50
#define D_NAME_LEN        10
#define FIRST_NAME_LEN        16
#define MIDDLE_NAME_LEN        2
#define PHONE_LEN        16
#define CREDIT_LEN        2
#define C_DATA_LEN        500
#define H_DATA_LEN        24
#define DIST_INFO_LEN        24
#define MAX_OL_NEW_ORDER_ITEMS        15
#define MAX_OL_ORDER_STATUS_ITEMS        15
#define STATUS_LEN        25
#define OL_DIST_INFO_LEN        24
#define C_SINCE_LEN

23
        #define H_DATE_LEN

23
        #define OL_DELIVERY_D_LEN
        #define O_ENTRY_D_LEN        23

// Functions in random.c
void        seed();
long        irand();
double        drand();
void        WUCreate();
short        WURand();

```

```

long        RandomNumber(long lower, long upper);

// Functions in getargs.c;
void        GetArgsLoader();
void        GetArgsLoaderUsage();

// Functions in time.c
long        TimeNow();

// Functions in strings.c
void        MakeAddress();
void        LastName();
int        MakeAlphaString();
int        MakeOriginalAlphaString();
int        MakeNumberString();
int        MakeZipNumberString();
void        InitString();
void        InitAddress();
void        PaddString();

```

## tpccldr.c

```

// File:                TPCCLDR.C
//                                Microsoft TPC-C Kit Ver. 4.41
//                                Copyright Microsoft, 1996, 1997,
1998, 1999, 2000, 2001
// Purpose:    Source file for TPC-C database loader

// Includes
#include "tpcc.h"
#include "search.h"

// Defines
#define MAXITEMS        100000
#define MAXITEMS_SCALE_DOWN        100
#define CUSTOMERS_PER_DISTRICT        3000
#define CUSTOMERS_SCALE_DOWN        30
#define DISTRICT_PER_WAREHOUSE        10
#define ORDERS_PER_DISTRICT        3000
#define ORDERS_SCALE_DOWN        30
#define MAX_CUSTOMER_THREADS        2
#define MAX_ORDER_THREADS        3
#define MAX_MAIN_THREADS        4

// Functions declarations

void HandleErrorDBC (SQLHDBC hdbc1);

void CheckDataBase();

long NURand();
void LoadItem();
void LoadWarehouse();

void Stock();
void District();

void LoadCustomer();
void CustomerBufInit();
void CustomerBufLoad();
void LoadCustomerTable();
void LoadHistoryTable();

void LoadOrders();
void OrdersBufInit();
void OrdersBufLoad();

```

```

void LoadOrdersTable();
void LoadNewOrderTable();
void LoadOrderLineTable();
void GetPermutation();
void CheckForCommit();
void OpenConnections();
void BuildIndex();
void FormatDate ();

// Shared memory structures

typedef struct
{
    long        ol;
    long        ol_i_id;
    short       ol_supply_w_id;
    short       ol_quantity;
    double      ol_amount;
    char        ol_dist_info[DIST_INFO_LEN+1];
    char
ol_delivery_d[OL_DELIVERY_D_LEN+1];
} ORDER_LINE_STRUCT;

typedef struct
{
    long        o_id;
    short       o_d_id;
    short       o_w_id;
    long        o_c_id;
    short       o_carrier_id;
    short       o_ol_cnt;
    short       o_all_local;
    ORDER_LINE_STRUCT  o_ol[15];
} ORDERS_STRUCT;

typedef struct
{
    long        c_id;
    short       c_d_id;
    short       c_w_id;
    char
c_first[FIRST_NAME_LEN+1];
    char
c_middle[MIDDLE_NAME_LEN+1];
    char        c_last[LAST_NAME_LEN+1];
    char        c_street_1[ADDRESS_LEN+1];
    char        c_street_2[ADDRESS_LEN+1];
    char        c_city[ADDRESS_LEN+1];
    char        c_state[STATE_LEN+1];
    char        c_zip[ZIP_LEN+1];
    char        c_phone[PHONE_LEN+1];
    char        c_credit[CREDIT_LEN+1];
    double      c_credit_lim;
    double      c_discount;
// fix to avoid ODBC float to numeric conversion problem.
// double      c_balance;
    char        c_balance[6];
    double      c_ytd_payment;
    short       c_payment_cnt;
    short       c_delivery_cnt;
    char
c_data[C_DATA_LEN+1];
    double      h_amount;
    char        h_data[H_DATA_LEN+1];
} CUSTOMER_STRUCT;

typedef struct
{
    char
c_last[LAST_NAME_LEN+1];
    char
c_first[FIRST_NAME_LEN+1];
    long        c_id;
} CUSTOMER_SORT_STRUCT;

typedef struct
{
    long        time_start;
} LOADER_TIME_STRUCT;

// Global variables

char        szLastError[300];

HENV        henv;

HDBC        v_hdbc;
// for SQL Server version verification
HDBC        i_hdbc1;
// for ITEM
table
HDBC        w_hdbc1;
// for
WAREHOUSE, DISTRICT, STOCK
HDBC        c_hdbc1;
// for
CUSTOMER
HDBC        c_hdbc2;
// for
HISTORY
HDBC        o_hdbc1;
// for
ORDERS
HDBC        o_hdbc2;
// for
NEW-ORDER
HDBC        o_hdbc3;
// for
ORDER-LINE

HSTMT        v_hstmt;
// for SQL
Server version verification
HSTMT        i_hstmt1;
HSTMT        w_hstmt1;
HSTMT        c_hstmt1, c_hstmt2;
HSTMT        o_hstmt1, o_hstmt2, o_hstmt3;

ORDERS_STRUCT  orders_buf[ORDERS_PER_DISTRICT];
CUSTOMER_STRUCT customer_buf[CUSTOMERS_PER_DISTRICT];
long        orders_rows_loaded;
long        new_order_rows_loaded;
long        order_line_rows_loaded;
long        history_rows_loaded;
long        customer_rows_loaded;
long        stock_rows_loaded;
long        district_rows_loaded;
long        item_rows_loaded;
long        warehouse_rows_loaded;
long        main_time_start;
long        main_time_end;
long        max_items;
long        customers_per_district;
long        orders_per_district;
long        first_new_order;
long        last_new_order;

TPCCCLR_ARGS  *aptr, args;

//=====
//=====
//

```

```

// Function name: main
//
=====

int main(int argc, char **argv)
{
    DWORD      dwThreadID[MAX_MAIN_THREADS];
    HANDLE      hThread[MAX_MAIN_THREADS];
    FILE        *fLoader;
    char        buffer[255];
    int         i;

    for (i=0; i<MAX_MAIN_THREADS; i++)
        hThread[i] = NULL;

    printf("\n*****");
    printf("\n*");
    printf("\n* Microsoft SQL Server");
    printf("\n*");
    printf("\n*");
    printf("\n* TPC-C BENCHMARK KIT: Database loader");
    printf("\n*");
    printf("\n* Version %s", TPCKIT_VER);
    printf("\n*");

    printf("\n*****\n\n");

    // process command line arguments

    aptr = &args;
    GetArgsLoader(argc, argv, aptr);

    // verify database and tables exist before attempting to load
    //CheckDataBase();

    printf("Build interface is ODBC.\n");

    if (aptr->build_index == 0)
        printf("Data load only - no index creation.\n");
    else
        printf("Data load and index creation.\n");

    if (aptr->index_order == 0)
        printf("Clustered indexes will be created after bulk
load.\n");
    else
        printf("Clustered indexes will be created before bulk
load.\n");

    // set database scale values
    if (aptr->scale_down == 1)
    {
        printf("*** Scaled Down Database ***\n");
        max_items = MAXITEMS_SCALE_DOWN;
        customers_per_district =
CUSTOMERS_SCALE_DOWN;
        orders_per_district = ORDERS_SCALE_DOWN;
        first_new_order = 0;
        last_new_order = 30;
    }
    else
    {
        max_items = MAXITEMS;
        customers_per_district =
CUSTOMERS_PER_DISTRICT;
        orders_per_district = ORDERS_PER_DISTRICT;
    }
}

```

```

        first_new_order = 2100;
        last_new_order = 3000;
    }

    // open connections to SQL Server

    OpenConnections();

    // open file for loader results
    fLoader = fopen(aptr->loader_res_file, "w");

    if (fLoader == NULL)
    {
        printf("Error, loader result file open failed.");
        exit(-1);
    }

    // start loading data

    sprintf(buffer, "TPC-C load started for %ld
warehouses.\n", aptr->num_warehouses);

    printf("%s", buffer);
    fprintf(fLoader, "%s", buffer);

    main_time_start = (TimeNow() / MILLI);

    // start parallel load threads

    if (aptr->tables_all || aptr->table_item)
    {
        fprintf(fLoader, "\nStarting loader threads for: item\n");

        hThread[0] = CreateThread(NULL,
0,
(LPTHREAD_START_ROUTINE) LoadItem,
NULL,
0,
&dwThreadID[0]);

        if (hThread[0] == NULL)
        {
            printf("Error, failed in creating creating thread
= 0.\n");
            exit(-1);
        }

        if (aptr->tables_all || aptr->table_warehouse)
        {
            fprintf(fLoader, "Starting loader threads for:
warehouse\n");

            hThread[1] = CreateThread(NULL,
0,
(LPTHREAD_START_ROUTINE) LoadWarehouse,

```

```

NULL,
0,
&dwThreadID[1]);

    if (hThread[1] == NULL)
    {
        printf("Error, failed in creating creating thread
= 1.\n");
        exit(-1);
    }

    if (aptr->tables_all || aptr->table_customer)
    {
        fprintf(fLoader, "Starting loader threads for:
customer\n");

        hThread[2] = CreateThread(NULL,

0,
(LPTHREAD_START_ROUTINE) LoadCustomer,
NULL,

0,
&dwThreadID[2]);

        if (hThread[2] == NULL)
        {
            printf("Error, failed in creating creating main
thread = 2.\n");
            exit(-1);
        }

        if (aptr->tables_all || aptr->table_orders)
        {
            fprintf(fLoader, "Starting loader threads for: orders\n");

            hThread[3] = CreateThread(NULL,

0,
(LPTHREAD_START_ROUTINE) LoadOrders,
NULL,

0,
&dwThreadID[3]);

            if (hThread[3] == NULL)
            {
                printf("Error, failed in creating creating main
thread = 3.\n");
                exit(-1);
            }

            // Wait for threads to finish...
            for (i=0; i<MAX_MAIN_THREADS; i++)
            {
                if (hThread[i] != NULL)

```

```

        {
            WaitForSingleObject( hThread[i], INFINITE
);

            CloseHandle(hThread[i]);
            hThread[i] = NULL;
        }
    }

    main_time_end = (TimeNow() / MILLI);

    sprintf(buffer, "\nTPC-C load completed successfully in %ld minutes.\n",
        (main_time_end - main_time_start)/60);

    printf("%s", buffer);
    fprintf(fLoader, "%s", buffer);

    fclose(fLoader);

    SQLFreeEnv(henv);

    exit(0);

    return 0;
}

//=====
//
// Function name: LoadItem
//
//=====

void LoadItem()
{
    long        i_id;
    long        i_im_id;
    char        i_name[I_NAME_LEN+1];
    double      i_price;
    char        i_data[I_DATA_LEN+1];
    char        name[20];
    long        time_start;
    RETCODE     rc;
    DBINT       rcint;
    char        bcphint[128];
    char        err_log_path[256];

    // Seed with unique number
    seed(1);

    printf("Loading item table...\n");

    // if build index before load
    if ((aptr->build_index == 1) && (aptr->index_order == 1))
        BuildIndex("idxitmc1");

    InitString(i_name, I_NAME_LEN+1);
    InitString(i_data, I_DATA_LEN+1);

    sprintf(name, "%s.%s", aptr->database, "item");

    //rc = bcp_init(i_hdbc1, name, NULL, "logs\item.err", DB_IN);
    strcpy(err_log_path, aptr->log_path);
    strcat(err_log_path, "item.err");
    rc = bcp_init(i_hdbc1, name, NULL, err_log_path, DB_IN);
    if (rc != SUCCEED)
        HandleErrorDBC(i_hdbc1);

```

```

        if ((aptr->build_index == 1) && (aptr->index_order == 1))
        {
            sprintf(bcphint, "tablock, order (i_id),
ROWS_PER_BATCH = 100000");
            rc = bcp_control(i_hdbc1, BCPHINTS, (void*) bcphint);
            if (rc != SUCCEED)
                HandleErrorDBC(i_hdbc1);
        }

        rc = bcp_bind(i_hdbc1, (BYTE *) &i_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT4, 1);
        if (rc != SUCCEED)
            HandleErrorDBC(i_hdbc1);

        rc = bcp_bind(i_hdbc1, (BYTE *) &i_im_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 2);
        if (rc != SUCCEED)
            HandleErrorDBC(i_hdbc1);

        rc = bcp_bind(i_hdbc1, (BYTE *) i_name, 0, I_NAME_LEN,
NULL, 0, 0, 3);
        if (rc != SUCCEED)
            HandleErrorDBC(i_hdbc1);

        rc = bcp_bind(i_hdbc1, (BYTE *) &i_price, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 4);
        if (rc != SUCCEED)
            HandleErrorDBC(i_hdbc1);

        rc = bcp_bind(i_hdbc1, (BYTE *) i_data, 0, I_DATA_LEN, NULL,
0, 0, 5);
        if (rc != SUCCEED)
            HandleErrorDBC(i_hdbc1);

        time_start = (TimeNow() / MILLI);

        item_rows_loaded = 0;

        for (i_id = 1; i_id <= max_items; i_id++)
        {
            i_im_id = RandomNumber(1L, 10000L);

            MakeAlphaString(14, 24, I_NAME_LEN, i_name);

            i_price = ((float) RandomNumber(100L, 10000L))/100.0;

            MakeOriginalAlphaString(26, 50, I_DATA_LEN, i_data,
10);

            rc = bcp_sendrow(i_hdbc1);
            if (rc != SUCCEED)
                HandleErrorDBC(i_hdbc1);

            item_rows_loaded++;
            CheckForCommit(i_hdbc1, i_hstmt1, item_rows_loaded,
"item", &time_start);
        }

        rcint = bcp_done(i_hdbc1);
        if (rcint < 0)
            HandleErrorDBC(i_hdbc1);

        printf("Finished loading item table.\n");

        SQLFreeStmt(i_hstmt1, SQL_DROP);
        SQLDisconnect(i_hdbc1);
        SQLFreeConnect(i_hdbc1);

```

```

// if build index after load
if ((aptr->build_index == 1) && (aptr->index_order == 0))
    BuildIndex("idxitmc1");
}

//=====
//
// Function : LoadWarehouse
//
// Loads WAREHOUSE table and loads Stock and District as Warehouses are
// created
//=====

void LoadWarehouse()
{
    short   w_id;
    char    w_name[W_NAME_LEN+1];
    char    w_street_1[ADDRESS_LEN+1];
    char    w_street_2[ADDRESS_LEN+1];
    char    w_city[ADDRESS_LEN+1];
    char    w_state[STATE_LEN+1];
    char    w_zip[ZIP_LEN+1];
    double  w_tax;
    double  w_ytd;
    char     name[20];
    long     time_start;
    RETCODE  rc;
    DBINT    rcint;
    char     bcphint[128];
    char     err_log_path[256];

    // Seed with unique number
    seed(2);

    printf("Loading warehouse table...\n");

    // if build index before load...
    if ((aptr->build_index == 1) && (aptr->index_order == 1))
        BuildIndex("idxwarc1");

    InitString(w_name, W_NAME_LEN+1);
    InitAddress(w_street_1, w_street_2, w_city, w_state, w_zip);

    sprintf(name, "%s..%s", aptr->database, "warehouse");

    //rc = bcp_init(w_hdbc1, name, NULL, "logs\\whouse.err", DB_IN);

    strcpy(err_log_path, aptr->log_path);
    strcat(err_log_path, "whouse.err");
    rc = bcp_init(w_hdbc1, name, NULL, err_log_path, DB_IN);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    if ((aptr->build_index == 1) && (aptr->index_order == 1))
    {
        sprintf(bcphint, "tablock, order (w_id),
ROWS_PER_BATCH = %d", aptr->num_warehouses);
        rc = bcp_control(w_hdbc1, BCPHINTS, (void*)
bcphint);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);
    }
}

```

```

        rc = bcp_bind(w_hdbc1, (BYTE *) &w_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 1);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) w_name, 0, W_NAME_LEN,
NULL, 0, 0, 2);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) w_street_1, 0, ADDRESS_LEN,
NULL, 0, 0, 3);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) w_street_2, 0, ADDRESS_LEN,
NULL, 0, 0, 4);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) w_city, 0, ADDRESS_LEN,
NULL, 0, 0, 5);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) w_state, 0, STATE_LEN,
NULL, 0, 0, 6);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) w_zip, 0, ZIP_LEN, NULL, 0, 0,
7);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) &w_tax, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 8);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) &w_ytd, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 9);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        time_start = (TimeNow() / MILLI);

        warehouse_rows_loaded = 0;

        for (w_id = (short)aptr->starting_warehouse; w_id <=
aptr->num_warehouses; w_id++)
        {
            MakeAlphaString(6,10, W_NAME_LEN, w_name);

            MakeAddress(w_street_1, w_street_2, w_city, w_state,
w_zip);

            w_tax = ((float) RandomNumber(0L,2000L))/10000.00;

            w_ytd = 300000.00;

            rc = bcp_sendrow(w_hdbc1);
            if (rc != SUCCEED)
                HandleErrorDBC(w_hdbc1);

            warehouse_rows_loaded++;

```

```

        CheckForCommit(w_hdbc1, i_hstmt1,
warehouse_rows_loaded, "warehouse", &time_start);
    }

    rcint = bcp_done(w_hdbc1);
    if (rcint < 0)
        HandleErrorDBC(w_hdbc1);

    printf("Finished loading warehouse table.\n");

    // if build index after load...
    if ((aptr->build_index == 1) && (aptr->index_order == 0))
        BuildIndex("idxwarc1");

    stock_rows_loaded = 0;
    district_rows_loaded = 0;

    District();
    Stock();
}

//=====
//
// Function : District
//=====

void District()
{
    short d_id;
    short d_w_id;
    char d_name[D_NAME_LEN+1];
    char d_street_1[ADDRESS_LEN+1];
    char d_street_2[ADDRESS_LEN+1];
    char d_city[ADDRESS_LEN+1];
    char d_state[STATE_LEN+1];
    char d_zip[ZIP_LEN+1];
    double d_tax;
    double d_ytd;
    char name[20];
    long d_next_o_id;
    long time_start;
    int w_id;
    RETCODE rc;
    DBINT rcint;
    char bcphint[128];
    char err_log_path[256];

    // Seed with unique number
    seed(4);

    printf("Loading district table...\n");

    // build index before load
    if ((aptr->build_index == 1) && (aptr->index_order == 1))
        BuildIndex("idxdiscl");

    InitString(d_name, D_NAME_LEN+1);
    InitAddress(d_street_1, d_street_2, d_city, d_state, d_zip);
    sprintf(name, "%s..%s", aptr->database, "district");

    //rc = bcp_init(w_hdbc1, name, NULL, "logs\\district.err", DB_IN);
    strcpy(err_log_path, aptr->log_path);
    strcat(err_log_path, "district.err");

```

```

rc = bcp_init(w_hdbc1, name, NULL, err_log_path, DB_IN);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

if ((aptr->build_index == 1) && (aptr->index_order == 1))
{
    sprintf(bcphint, "tablock, order (d_w_id, d_id),
ROWS_PER_BATCH = %u", (aptr->num_warehouses * 10));
    rc = bcp_control(w_hdbc1, BCPHINTS, (void*)
bcphint);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);
}

rc = bcp_bind(w_hdbc1, (BYTE *) &d_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 1);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) &d_w_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 2);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) d_name, 0, D_NAME_LEN,
NULL, 0, 0, 3);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) d_street_1, 0, ADDRESS_LEN,
NULL, 0, 0, 4);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) d_street_2, 0, ADDRESS_LEN,
NULL, 0, 0, 5);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) d_city, 0, ADDRESS_LEN,
NULL, 0, 0, 6);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) d_state, 0, STATE_LEN, NULL,
0, 0, 7);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) d_zip, 0, ZIP_LEN, NULL, 0, 0,
8);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) &d_tax, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 9);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) &d_ytd, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 10);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) &d_next_o_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 11);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

```

```

d_ytd = 30000.0;

d_next_o_id = orders_per_district+1;

time_start = (TimeNow()) / MILLI);

for (w_id = aptr->starting_warehouse; w_id <=
aptr->num_warehouses; w_id++)
{
    d_w_id = w_id;

    for (d_id = 1; d_id <= DISTRICT_PER_WAREHOUSE;
d_id++)
    {
        MakeAlphaString(6,10,D_NAME_LEN,
d_name);

        MakeAddress(d_street_1, d_street_2, d_city,
d_state, d_zip);

        d_tax = ((float)
RandomNumber(0L,2000L))/10000.00;

        rc = bcp_sendrow(w_hdbc1);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        district_rows_loaded++;
        CheckForCommit(w_hdbc1, w_hstmt1,
district_rows_loaded, "district", &time_start);
    }
}

rcint = bcp_done(w_hdbc1);
if (rcint < 0)
    HandleErrorDBC(w_hdbc1);

printf("Finished loading district table.\n");

// if build index after load...
if ((aptr->build_index == 1) && (aptr->index_order == 0))
    BuildIndex("idxdiscl");

return;
}

```

```

//=====
//
// Function : Stock
//
//=====

```

```

void Stock()
{
    long   s_i_id;
    short  s_w_id;
    short  s_quantity;
    char   s_dist_01[S_DIST_LEN+1];
    char   s_dist_02[S_DIST_LEN+1];
    char   s_dist_03[S_DIST_LEN+1];
    char   s_dist_04[S_DIST_LEN+1];
    char   s_dist_05[S_DIST_LEN+1];
    char   s_dist_06[S_DIST_LEN+1];
    char   s_dist_07[S_DIST_LEN+1];
}

```

```

char    s_dist_08[S_DIST_LEN+1];
char    s_dist_09[S_DIST_LEN+1];
char    s_dist_10[S_DIST_LEN+1];
long    s_ytd;
short   s_order_cnt;
short   s_remote_cnt;
char    s_data[S_DATA_LEN+1];
short   len;
char     name[20];
long     time_start;
RETCODE rc;
DBINT    rcint;
char     bcphint[128];
char     err_log_path[256];

// Seed with unique number
seed(3);

// if build index before load...
if ((aptr->build_index == 1) && (aptr->index_order == 1))
    BuildIndex("idxstkcl");

sprintf(name, "%s..%s", aptr->database, "stock");

//rc = bcp_init(w_hdbc1, name, NULL, "logs\\stock.err", DB_IN);
strcpy(err_log_path, aptr->log_path);
strcat(err_log_path, "stock.err");
rc = bcp_init(w_hdbc1, name, NULL, err_log_path, DB_IN);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

if ((aptr->build_index == 1) && (aptr->index_order == 1))
{
    sprintf(bcphint, "tablock, order (s_i_id, s_w_id),
ROWS_PER_BATCH = %u", (aptr->num_warehouses * 100000));
    rc = bcp_control(w_hdbc1, BCPHINTS, (void*)
bcphint);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);
}

rc = bcp_bind(w_hdbc1, (BYTE *) &s_i_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 1);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

    bcp_bind(w_hdbc1, (BYTE *) &s_w_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 2);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) &s_quantity, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 3);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_01, 0, S_DIST_LEN,
NULL, 0, 0, 4);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_02, 0, S_DIST_LEN,
NULL, 0, 0, 5);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_03, 0, S_DIST_LEN,
NULL, 0, 0, 6);

    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_04, 0, S_DIST_LEN,
NULL, 0, 0, 7);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_05, 0, S_DIST_LEN,
NULL, 0, 0, 8);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_06, 0, S_DIST_LEN,
NULL, 0, 0, 9);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_07, 0, S_DIST_LEN,
NULL, 0, 0, 10);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_08, 0, S_DIST_LEN,
NULL, 0, 0, 11);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_09, 0, S_DIST_LEN,
NULL, 0, 0, 12);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_10, 0, S_DIST_LEN,
NULL, 0, 0, 13);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) &s_ytd, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 14);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) &s_order_cnt, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 15);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) &s_remote_cnt, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 16);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) s_data, 0, S_DATA_LEN,
NULL, 0, 0, 17);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

    s_ytd = s_order_cnt = s_remote_cnt = 0;

    time_start = (TimeNow() / MILLI);

    printf("...Loading stock table\n");

    for (s_i_id=1; s_i_id <= max_items; s_i_id++)
    {

```

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <pre>         for (s_w_id = (short)aptr-&gt;starting_warehouse; s_w_id &lt;= aptr-&gt;num_warehouses; s_w_id++)         {             s_quantity = (short)RandomNumber(10L,100L);             len = MakeAlphaString(24,24,S_DIST_LEN, s_dist_01);             len = MakeAlphaString(24,24,S_DIST_LEN, s_dist_02);             len = MakeAlphaString(24,24,S_DIST_LEN, s_dist_03);             len = MakeAlphaString(24,24,S_DIST_LEN, s_dist_04);             len = MakeAlphaString(24,24,S_DIST_LEN, s_dist_05);             len = MakeAlphaString(24,24,S_DIST_LEN, s_dist_06);             len = MakeAlphaString(24,24,S_DIST_LEN, s_dist_07);             len = MakeAlphaString(24,24,S_DIST_LEN, s_dist_08);             len = MakeAlphaString(24,24,S_DIST_LEN, s_dist_09);             len = MakeAlphaString(24,24,S_DIST_LEN, s_dist_10);              len = MakeOriginalAlphaString(26,50, S_DATA_LEN, s_data,10);              rc = bcp_sendrow(w_hdbc1);             if (rc != SUCCEED)                 HandleErrorDBC(w_hdbc1);              stock_rows_loaded++;             CheckForCommit(w_hdbc1, w_hstmt1, stock_rows_loaded, "stock", &amp;time_start);         }          rcint = bcp_done(w_hdbc1);         if (rcint &lt; 0)             HandleErrorDBC(w_hdbc1);          printf("Finished loading stock table.\n");          SQLFreeStmt(w_hstmt1, SQL_DROP);         SQLDisconnect(w_hdbc1);         SQLFreeConnect(w_hdbc1);          // if build index after load...         if ((aptr-&gt;build_index == 1) &amp;&amp; (aptr-&gt;index_order == 0))             BuildIndex("idxstkl");          return;     }  //===== // // Function : LoadCustomer // //=====  void LoadCustomer() </pre> | <pre> {     LOADER_TIME_STRUCT    customer_time_start;     LOADER_TIME_STRUCT    history_time_start;     short                  w_id;      short                  d_id;     DWORD dwThreadId[MAX_CUSTOMER_THREADS];     HANDLE hThread[MAX_CUSTOMER_THREADS];     char                    name[20];     RETCODE  rc;     DBINT char                    rcint;     bcphint[128];     char                    cmd[256];     int  num_procs;     char err_log_path_cust[256];     char err_log_path_hist[256];     // SQLRETURN     // SQLSMALLINT rc_1;     MsgLen;     // SQLCHAR SqlState[6], Msg[SQL_MAX_MESSAGE_LENGTH];     // SQLINTEGER NativeError;      // Seed with unique number     seed(5);      printf("Loading customer and history tables...\n");      // if build index before load...     if ((aptr-&gt;build_index == 1) &amp;&amp; (aptr-&gt;index_order == 1))     {         BuildIndex("idxcuscl");         // check the number of processors on this system         // if 8 or more processors, then build index on History.         // if less than 8 processors, do not build the index         num_procs = atoi(getenv( "NUMBER_OF_PROCESSORS" ));         if ( num_procs &gt;= 8 )             BuildIndex("idxhiscl");     }      // Initialize bulk copy     sprintf(name, "%s..%s", aptr-&gt;database, "customer");      //rc = bcp_init(c_hdbc1, name, NULL, "logs\\customer.err", DB_IN);     strcpy(err_log_path_cust,aptr-&gt;log_path);     strcat(err_log_path_cust,"customer.err");     rc = bcp_init(c_hdbc1, name, NULL, err_log_path_cust, DB_IN);     if (rc != SUCCEED)         HandleErrorDBC(c_hdbc1);      if ((aptr-&gt;build_index == 1) &amp;&amp; (aptr-&gt;index_order == 1))     {         sprintf(bcphint, "tablock, order (c_w_id, c_d_id, c_id), ROWS_PER_BATCH = %u", (aptr-&gt;num_warehouses * 30000));         rc = bcp_control(c_hdbc1, BCPHINTS, (void*) bcphint);          if (rc != SUCCEED)             HandleErrorDBC(c_hdbc1);     } } </pre> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

```

sprintf(name, "%s..%s", aptr->database, "history");

rc = bcp_init(c_hdbc2, name, NULL, "logs\\history.err", DB_IN);
strcpy(err_log_path_hist, aptr->log_path);
strcat(err_log_path_hist, "history.err");
rc = bcp_init(c_hdbc2, name, NULL, err_log_path_hist, DB_IN);
if (rc != SUCCEED)
    HandleErrorDBC(c_hdbc2);

sprintf(bcphint, "tablock");
rc = bcp_control(c_hdbc2, BCPHINTS, (void*) bcphint);
if (rc != SUCCEED)
    HandleErrorDBC(c_hdbc2);

customer_rows_loaded = 0;
history_rows_loaded = 0;

CustomerBufInit();

customer_time_start.time_start = (TimeNow() / MILLI);
history_time_start.time_start = (TimeNow() / MILLI);

for (w_id = (short)aptr->starting_warehouse; w_id <=
aptr->num_warehouses; w_id++)
{
    for (d_id = 1; d_id <= DISTRICT_PER_WAREHOUSE;
d_id++)
    {
        CustomerBufLoad(d_id, w_id);

        // Start parallel loading threads here...

        // Start customer table thread

        printf("...Loading customer table for: d_id =
%d, w_id = %d\n", d_id, w_id);

        hThread[0] = CreateThread(NULL,

0,

(LPTHREAD_START_ROUTINE) LoadCustomerTable,

&customer_time_start,

0,

&dwThreadID[0]);

        if (hThread[0] == NULL)
        {
            printf("Error, failed in creating
creating thread = 0.\n");
            exit(-1);
        }

        // Start History table thread

        printf("...Loading history table for: d_id = %d,
w_id = %d\n", d_id, w_id);

        hThread[1] = CreateThread(NULL,

0,

(LPTHREAD_START_ROUTINE) LoadHistoryTable,

```

```

&history_time_start,

0,

&dwThreadID[1]);

        if (hThread[1] == NULL)
        {
            printf("Error, failed in creating
creating thread = 1.\n");
            exit(-1);
        }

        WaitForSingleObject( hThread[0], INFINITE

);

        WaitForSingleObject( hThread[1], INFINITE

);

        if (CloseHandle(hThread[0]) == FALSE)
        {
            printf("Error, failed in closing
customer thread handle with errno: %d\n", GetLastError());
        }

        if (CloseHandle(hThread[1]) == FALSE)
        {
            printf("Error, failed in closing
history thread handle with errno: %d\n", GetLastError());
        }

    }

}

// flush the bulk connection
rcint = bcp_done(c_hdbc1);
if (rcint < 0)
    HandleErrorDBC(c_hdbc1);

rcint = bcp_done(c_hdbc2);
if (rcint < 0)
    HandleErrorDBC(c_hdbc2);

printf("Finished loading customer table.\n");

// if build index after load...
if ((aptr->build_index == 1) && (aptr->index_order == 0))
{
    BuildIndex("idxcuscl");
    // check the number of processors on this system
    // if 8 or more processors, then build index on History.
    // if less than 8 processors, do not build the index
    num_procs = atoi(getenv(
"NUMBER_OF_PROCESSORS" ));
    if (num_procs >= 8)
        BuildIndex("idxhisc1");
}

// build non-clustered index
if (aptr->build_index == 1)
    BuildIndex("idxcusnc");

// Output the NURAND used for the loader into C_FIRST for C_ID
= 1,

// C_W_ID = 1, and C_D_ID = 1

```

```

//sprintf(cmd, "osql -S%s -U%s -P%s -d%s -e -Q\"update customer
set c_first = 'C_LOAD = %d' where c_id = 1 and c_w_id = 1 and c_d_id = 1\" >
logs\\nurand_load.log",
    sprintf(cmd, "osql -S%s -U%s -P%s -d%s -e -Q\"update customer set
c_first = 'C_LOAD = %d' where c_id = 1 and c_w_id = 1 and c_d_id = 1\" >
%snurand_load.log",

    aptr->server,
    aptr->user,
    aptr->password,
    aptr->database,
    LOADER_NURAND_C,
    aptr->log_path);

system(cmd);

SQLFreeStmt(c_hstmt1, SQL_DROP);
SQLDisconnect(c_hdbc1);
SQLFreeConnect(c_hdbc1);

SQLFreeStmt(c_hstmt2, SQL_DROP);
SQLDisconnect(c_hdbc2);
SQLFreeConnect(c_hdbc2);

return;
}

//=====
//
// Function : CustomerBufInit
//
//=====

void CustomerBufInit()
{
    int i;

    for (i=0;i<customers_per_district;i++)
    {
        customer_buf[i].c_id = 0;
        customer_buf[i].c_d_id = 0;
        customer_buf[i].c_w_id = 0;

        strcpy(customer_buf[i].c_first,"");
        strcpy(customer_buf[i].c_middle,"");
        strcpy(customer_buf[i].c_last,"");
        strcpy(customer_buf[i].c_street_1,"");
        strcpy(customer_buf[i].c_street_2,"");
        strcpy(customer_buf[i].c_city,"");
        strcpy(customer_buf[i].c_state,"");
        strcpy(customer_buf[i].c_zip,"");
        strcpy(customer_buf[i].c_phone,"");
        strcpy(customer_buf[i].c_credit,"");

        customer_buf[i].c_credit_lim = 0;
        customer_buf[i].c_discount = (float) 0;

        // fix to avoid ODBC float to numeric conversion

        // customer_buf[i].c_balance = 0;
        strcpy(customer_buf[i].c_balance,"");

        customer_buf[i].c_ytd_payment = 0;
        customer_buf[i].c_payment_cnt = 0;

```

problem.

```

        customer_buf[i].c_delivery_cnt = 0;

        strcpy(customer_buf[i].c_data,"");

        customer_buf[i].h_amount = 0;

        strcpy(customer_buf[i].h_data,"");

    }

}

//=====
//
// Function : CustomerBufLoad
//
// Fills shared buffer for HISTORY and CUSTOMER
//=====

void CustomerBufLoad(int d_id, int w_id)
{
    long i;
    CUSTOMER_SORT_STRUCT c[CUSTOMERS_PER_DISTRICT];

    for (i=0;i<customers_per_district;i++)
    {
        if (i < 1000)
            LastName(i, c[i].c_last);
        else
            LastName(NURand(255,0,999,LOADER_NURAND_C), c[i].c_last);

        MakeAlphaString(8,16,FIRST_NAME_LEN,
            c[i].c_first);

        c[i].c_id = i+1;
    }

    printf("...Loading customer buffer for: d_id = %d, w_id = %d\n",
        d_id, w_id);

    for (i=0;i<customers_per_district;i++)
    {
        customer_buf[i].c_d_id = d_id;
        customer_buf[i].c_w_id = w_id;
        customer_buf[i].h_amount = 10.0;

        customer_buf[i].c_ytd_payment = 10.0;

        customer_buf[i].c_payment_cnt = 1;
        customer_buf[i].c_delivery_cnt = 0;

        // Generate CUSTOMER and HISTORY data

        customer_buf[i].c_id = c[i].c_id;

        strcpy(customer_buf[i].c_first, c[i].c_first);
        strcpy(customer_buf[i].c_last, c[i].c_last);

        customer_buf[i].c_middle[0] = 'O';
        customer_buf[i].c_middle[1] = 'E';

```

```

        MakeAddress(customer_buf[i].c_street_1,
                    customer_buf[i].c_street_2,
                    customer_buf[i].c_city,
                    customer_buf[i].c_state,
                    customer_buf[i].c_zip);

        MakeNumberString(16, 16, PHONE_LEN,
customer_buf[i].c_phone);

        if (RandomNumber(1L, 100L) > 10)
            customer_buf[i].c_credit[0] = 'G';
        else
            customer_buf[i].c_credit[0] = 'B';
            customer_buf[i].c_credit[1] = 'C';

        customer_buf[i].c_credit_lim = 50000.0;
        customer_buf[i].c_discount = ((float)
RandomNumber(0L, 5000L)) / 10000.0;

        // fix to avoid ODBC float to numeric conversion
        problem.

        // customer_buf[i].c_balance = -10.0;
        strcpy(customer_buf[i].c_balance, "-10.0");

        MakeAlphaString(300, 500, C_DATA_LEN,
customer_buf[i].c_data);

        // Generate HISTORY data
        MakeAlphaString(12, 24, H_DATA_LEN,
customer_buf[i].h_data);

    }
}

//=====
//
// Function : LoadCustomerTable
//
//=====

void LoadCustomerTable(LOADER_TIME_STRUCT *customer_time_start)
{
    int i;
    long c_id;
    short c_d_id;
    short c_w_id;
    char c_first[FIRST_NAME_LEN+1];
    char c_middle[MIDDLE_NAME_LEN+1];
    char c_last[LAST_NAME_LEN+1];
    char c_street_1[ADDRESS_LEN+1];
    char c_street_2[ADDRESS_LEN+1];
    char c_city[ADDRESS_LEN+1];
    char c_state[STATE_LEN+1];
    char c_zip[ZIP_LEN+1];
    char c_phone[PHONE_LEN+1];
    char c_credit[CREDIT_LEN+1];
    double c_credit_lim;
    double c_discount;

    // fix to avoid ODBC float to numeric conversion problem.
    // double c_balance;
    char c_balance[6];

    double c_ytd_payment;
    short c_payment_cnt;

```

```

    short c_delivery_cnt;
    char c_data[C_DATA_LEN+1];
    char c_since[C_SINCE_LEN+1];
    RETCODE rc;

    rc = bcp_bind(c_hdbc1, (BYTE *) &c_id, 0, SQL_VARLEN_DATA, NULL,
0, SQLINT4, 1);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) &c_d_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 2);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) &c_w_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 3);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_first, 0, FIRST_NAME_LEN, NULL, 0,
0, 4);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_middle, 0,
MIDDLE_NAME_LEN, NULL, 0, 0, 5);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_last, 0, LAST_NAME_LEN, NULL, 0,
0, 6);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_street_1, 0, ADDRESS_LEN, NULL, 0,
0, 7);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_street_2, 0, ADDRESS_LEN,
NULL, 0, 0, 8);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_city, 0, ADDRESS_LEN, NULL, 0, 0,
9);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_state, 0, STATE_LEN, NULL, 0, 0, 10);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_zip, 0, ZIP_LEN, NULL, 0, 0, 11);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_phone, 0, PHONE_LEN, NULL, 0, 0,
12);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) &c_since, 0, C_SINCE_LEN,
NULL, 0, SQLCHARACTER, 13);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

```

```

rc = bcp_bind(c_hdbc1, (BYTE *) c_credit, 0, CREDIT_LEN, NULL, 0, 0,
14);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

rc = bcp_bind(c_hdbc1, (BYTE *) &c_credit_lim, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 15);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

rc = bcp_bind(c_hdbc1, (BYTE *) &c_discount, 0, SQL_VARLEN_DATA,
NULL, 0, SQLFLT8, 16);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

// fix to avoid ODBC float to numeric conversion problem.

// rc = bcp_bind(c_hdbc1, (BYTE *) &c_balance, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 17);
// if (rc != SUCCEED)
//     HandleErrorDBC(c_hdbc1);
rc = bcp_bind(c_hdbc1, (BYTE *) c_balance, 0, 5, NULL, 0,
SQLCHARACTER, 17);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

rc = bcp_bind(c_hdbc1, (BYTE *) &c_ytd_payment, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 18);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

rc = bcp_bind(c_hdbc1, (BYTE *) &c_payment_cnt, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 19);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

rc = bcp_bind(c_hdbc1, (BYTE *) &c_delivery_cnt, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 20);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

rc = bcp_bind(c_hdbc1, (BYTE *) c_data, 0, 500, NULL, 0, 0, 21);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

for (i = 0; i < customers_per_district; i++)
{
    c_id = customer_buf[i].c_id;
    c_d_id = customer_buf[i].c_d_id;
    c_w_id = customer_buf[i].c_w_id;

    strcpy(c_first, customer_buf[i].c_first);
    strcpy(c_middle, customer_buf[i].c_middle);
    strcpy(c_last, customer_buf[i].c_last);
    strcpy(c_street_1, customer_buf[i].c_street_1);
    strcpy(c_street_2, customer_buf[i].c_street_2);
    strcpy(c_city, customer_buf[i].c_city);
    strcpy(c_state, customer_buf[i].c_state);
    strcpy(c_zip, customer_buf[i].c_zip);
    strcpy(c_phone, customer_buf[i].c_phone);
    strcpy(c_credit, customer_buf[i].c_credit);

    FormatDate(&c_since);

    c_credit_lim = customer_buf[i].c_credit_lim;

```

```

c_discount = customer_buf[i].c_discount;

// fix to avoid ODBC float to numeric conversion
problem.
// c_balance = customer_buf[i].c_balance;
strcpy(c_balance, customer_buf[i].c_balance);

c_ytd_payment = customer_buf[i].c_ytd_payment;
c_payment_cnt = customer_buf[i].c_payment_cnt;
c_delivery_cnt = customer_buf[i].c_delivery_cnt;

strcpy(c_data, customer_buf[i].c_data);

// Send data to server
rc = bcp_sendrow(c_hdbc1);
if (rc != SUCCEED)
    HandleErrorDBC(c_hdbc1);

customer_rows_loaded++;
CheckForCommit(c_hdbc1, c_hstmt1,
customer_rows_loaded, "customer", &customer_time_start->time_start);
}
}

//=====
//
// Function : LoadHistoryTable
//
//=====

void LoadHistoryTable(LOADER_TIME_STRUCT *history_time_start)
{
    int i;
    long c_id;
    short c_d_id;
    short c_w_id;
    double h_amount;
    char h_data[H_DATA_LEN+1];
    char h_date[H_DATE_LEN+1];
    RETCODE rc;

    rc = bcp_bind(c_hdbc2, (BYTE *) &c_id, 0, SQL_VARLEN_DATA, NULL,
0, SQLINT4, 1);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &c_d_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 2);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &c_w_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 3);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &c_d_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 4);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &c_w_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 5);
    if (rc != SUCCEED)

```

```

        HandleErrorDBC(c_hdbc2);

        rc = bcp_bind(c_hdbc2, (BYTE *) &h_date, 0, H_DATE_LEN,
        NULL, 0, SQLCHARACTER, 6);
        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc2);

        rc = bcp_bind(c_hdbc2, (BYTE *) &h_amount, 0, SQL_VAREN_DATA,
        NULL, 0, SQLFLT8, 7);
        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc2);

        rc = bcp_bind(c_hdbc2, (BYTE *) h_data, 0, H_DATA_LEN, NULL, 0, 0,
        8);
        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc2);

        for (i = 0; i < customers_per_district; i++)
        {
            c_id = customer_buf[i].c_id;
            c_d_id = customer_buf[i].c_d_id;
            c_w_id = customer_buf[i].c_w_id;
            h_amount = customer_buf[i].h_amount;
            strcpy(h_data, customer_buf[i].h_data);

            FormatDate(&h_date);

            // send to server
            rc = bcp_sendrow(c_hdbc2);
            if (rc != SUCCEED)
                HandleErrorDBC(c_hdbc2);

            history_rows_loaded++;
            CheckForCommit(c_hdbc2, c_hstmt2,
            history_rows_loaded, "history", &history_time_start->time_start);
        }
    }

//=====
//
// Function : LoadOrders
//
//=====

void LoadOrders()
{
    LOADER_TIME_STRUCT orders_time_start;
    LOADER_TIME_STRUCT new_order_time_start;
    LOADER_TIME_STRUCT order_line_time_start;
    short w_id;

    short d_id;

    DWORD
dwThreadID[MAX_ORDER_THREADS];
    HANDLE
hThread[MAX_ORDER_THREADS];
    char name[20];
    RETCODE

rc;
    char
bcphint[128];
    char
err_log_path_ord[256];
    char
err_log_path_nord[256];

```

```

    char
err_log_path_ordl[256];

    // seed with unique number
    seed(6);

    printf("Loading orders...\n");

    // if build index before load...
    if ((aptr->build_index == 1) && (aptr->index_order == 1))
    {
        BuildIndex("idxordcl");
        BuildIndex("idxnodcl");
        BuildIndex("idxodlcl");
    }

    // initialize bulk copy
    sprintf(name, "%s..%s", aptr->database, "orders");

    rc = bcp_init(o_hdbc1, name, NULL, "logs\\orders.err", DB_IN);
    strcpy(err_log_path_ord, aptr->log_path);
    strcat(err_log_path_ord, "orders.err");
    rc = bcp_init(o_hdbc1, name, NULL, err_log_path_ord, DB_IN);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    if ((aptr->build_index == 1) && (aptr->index_order == 1))
    {
        sprintf(bcpint, "tablock, order (o_w_id, o_d_id, o_id),
ROWS_PER_BATCH = %u", (aptr->num_warehouses * 30000));
        rc = bcp_control(o_hdbc1, BCPHINTS, (void*) bcpint);

        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc1);
    }

    sprintf(name, "%s..%s", aptr->database, "new_order");

    rc = bcp_init(o_hdbc2, name, NULL, "logs\\neword.err", DB_IN);
    strcpy(err_log_path_nord, aptr->log_path);
    strcat(err_log_path_nord, "neword.err");
    rc = bcp_init(o_hdbc2, name, NULL, err_log_path_nord, DB_IN);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc2);

    if ((aptr->build_index == 1) && (aptr->index_order == 1))
    {
        sprintf(bcpint, "tablock, order (no_w_id, no_d_id,
no_o_id), ROWS_PER_BATCH = %u", (aptr->num_warehouses * 9000));
        rc = bcp_control(o_hdbc2, BCPHINTS, (void*) bcpint);

        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc2);
    }

    sprintf(name, "%s..%s", aptr->database, "order_line");

    rc = bcp_init(o_hdbc3, name, NULL, "logs\\ordline.err", DB_IN);
    strcpy(err_log_path_ordl, aptr->log_path);
    strcat(err_log_path_ordl, "ordline.err");
    rc = bcp_init(o_hdbc3, name, NULL, err_log_path_ordl, DB_IN);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

    if ((aptr->build_index == 1) && (aptr->index_order == 1))
    {

```

```

        sprintf(bcp_hint, "tablock, order (ol_w_id, ol_d_id,
ol_o_id, ol_number), ROWS_PER_BATCH = %u", (aptr->num_warehouses *
300000));
        rc = bcp_control(o_hdbc3, BCPHINTS, (void*) bcp_hint);

        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc3);
    }

    orders_rows_loaded = 0;
    new_order_rows_loaded = 0;
    order_line_rows_loaded = 0;

    OrdersBufInit();

    orders_time_start.time_start = (TimeNow() / MILLI);
    new_order_time_start.time_start = (TimeNow() / MILLI);
    order_line_time_start.time_start = (TimeNow() / MILLI);

    for (w_id = (short)aptr->starting_warehouse; w_id <=
aptr->num_warehouses; w_id++)
    {
        for (d_id = 1; d_id <= DISTRICT_PER_WAREHOUSE;
d_id++)
        {
            OrdersBufLoad(d_id, w_id);

            // start parallel loading threads here...

            // start Orders table thread

            printf("...Loading Order Table for: d_id = %d,
w_id = %d\n", d_id, w_id);

            hThread[0] = CreateThread(NULL,

0,

(LPTHREAD_START_ROUTINE) LoadOrdersTable,

&orders_time_start,

0,

&dwThreadId[0]);

            if (hThread[0] == NULL)
            {
                printf("Error, failed in creating
creating thread = 0.\n");
                exit(-1);
            }

            // start NewOrder table thread

            printf("...Loading New-Order Table for: d_id
= %d, w_id = %d\n", d_id, w_id);

            hThread[1] = CreateThread(NULL,

0,

(LPTHREAD_START_ROUTINE) LoadNewOrderTable,

&new_order_time_start,

0,

```

```

&dwThreadId[1]);

            if (hThread[1] == NULL)
            {
                printf("Error, failed in creating
creating thread = 1.\n");
                exit(-1);
            }

            // start Order-Line table thread

            printf("...Loading Order-Line Table for: d_id
= %d, w_id = %d\n", d_id, w_id);

            hThread[2] = CreateThread(NULL,

0,

(LPTHREAD_START_ROUTINE) LoadOrderLineTable,

&order_line_time_start,

0,

&dwThreadId[2]);

            if (hThread[2] == NULL)
            {
                printf("Error, failed in creating
creating thread = 2.\n");
                exit(-1);
            }

            WaitForSingleObject( hThread[0], INFINITE

);

            WaitForSingleObject( hThread[1], INFINITE

);

            WaitForSingleObject( hThread[2], INFINITE

);

            if (CloseHandle(hThread[0]) == FALSE)
            {
                printf("Error, failed in closing
Orders thread handle with errno: %d\n", GetLastError());
            }

            if (CloseHandle(hThread[1]) == FALSE)
            {
                printf("Error, failed in closing
NewOrder thread handle with errno: %d\n", GetLastError());
            }

            if (CloseHandle(hThread[2]) == FALSE)
            {
                printf("Error, failed in closing
OrderLine thread handle with errno: %d\n", GetLastError());
            }
        }
    }

    printf("Finished loading orders.\n");

    return;
}

```

```

//=====
//
// Function : OrdersBufInit
//
// Clears shared buffer for ORDERS, NEWORDER, and ORDERLINE
//
//=====

void OrdersBufInit()
{
    int i;
    int j;

    for (i=0;i<orders_per_district;i++)
    {
        orders_buf[i].o_id = 0;
        orders_buf[i].o_d_id = 0;
        orders_buf[i].o_w_id = 0;
        orders_buf[i].o_c_id = 0;
        orders_buf[i].o_carrier_id = 0;
        orders_buf[i].o_ol_cnt = 0;
        orders_buf[i].o_all_local = 0;

        for (j=0;j<=14;j++)
        {
            orders_buf[i].o_ol[j].ol = 0;
            orders_buf[i].o_ol[j].ol_i_id = 0;

            orders_buf[i].o_ol[j].ol_supply_w_id = 0;
            orders_buf[i].o_ol[j].ol_quantity = 0;
            orders_buf[i].o_ol[j].ol_amount = 0;
            strcpy(orders_buf[i].o_ol[j].ol_dist_info,"");
        }
    }
}

//=====
//
// Function : OrdersBufLoad
//
// Fills shared buffer for ORDERS, NEWORDER, and ORDERLINE
//
//=====

void OrdersBufLoad(int d_id, int w_id)
{
    int cust[ORDERS_PER_DISTRICT+1];
    long o_id;
    short ol;

    printf("...Loading Order Buffer for: d_id = %d, w_id = %d\n",
           d_id, w_id);

    GetPermutation(cust, orders_per_district);

    for (o_id=0;o_id<orders_per_district;o_id++)
    {
        // Generate ORDER and NEW-ORDER data

```

```

        orders_buf[o_id].o_d_id = d_id;
        orders_buf[o_id].o_w_id = w_id;
        orders_buf[o_id].o_id = o_id+1;
        orders_buf[o_id].o_c_id = cust[o_id+1];
        orders_buf[o_id].o_ol_cnt = (short)RandomNumber(5L,
15L);

        if (o_id < first_new_order)
        {
            orders_buf[o_id].o_carrier_id =
(short)RandomNumber(1L, 10L);
            orders_buf[o_id].o_all_local = 1;
        }
        else
        {
            orders_buf[o_id].o_carrier_id = 0;
            orders_buf[o_id].o_all_local = 1;
        }

        for (ol=0; ol<orders_buf[o_id].o_ol_cnt; ol++)
        {
            orders_buf[o_id].o_ol[ol].ol = ol+1;
            orders_buf[o_id].o_ol[ol].ol_i_id =
RandomNumber(1L, max_items);
            orders_buf[o_id].o_ol[ol].ol_supply_w_id =
w_id;
            orders_buf[o_id].o_ol[ol].ol_quantity = 5;
            MakeAlphaString(24, 24,
OL_DIST_INFO_LEN, &orders_buf[o_id].o_ol[ol].ol_dist_info);

            // Generate ORDER-LINE data
            if (o_id < first_new_order)
            {
                orders_buf[o_id].o_ol[ol].ol_amount = 0;
                // Added to insure ol_delivery_d
                set properly during load

                FormatDate(&orders_buf[o_id].o_ol[ol].ol_delivery_d);
            }
            else
            {
                orders_buf[o_id].o_ol[ol].ol_amount = RandomNumber(1,999999)/100.0;
                // Added to insure ol_delivery_d
                set properly during load

                // odbc datetime format
                strcpy(orders_buf[o_id].o_ol[ol].ol_delivery_d,"1899-12-31 00:00:00.000");
            }
        }
    }
}

//=====
//
// Function : LoadOrdersTable
//

```

```
//=====
void LoadOrdersTable(LOADER_TIME_STRUCT *orders_time_start)
{
    int i;
    long o_id;
    short o_d_id;
    short o_w_id;

    long o_c_id;
    short o_carrier_id;
    short o_ol_cnt;
    short o_all_local;
    char o_entry_d[O_ENTRY_D_LEN+1];
    RETCODE rc;
    DBINT rcint;

    // bind ORDER data
    rc = bcp_bind(o_hdbc1, (BYTE *) &o_id, 0, SQL_VARLEN_DATA,
    NULL, 0, SQLINT4, 1);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_d_id, 0, SQL_VARLEN_DATA,
    NULL, 0, SQLINT2, 2);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_w_id, 0, SQL_VARLEN_DATA,
    NULL, 0, SQLINT2, 3);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_c_id, 0, SQL_VARLEN_DATA,
    NULL, 0, SQLINT4, 4);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_entry_d, 0,
    O_ENTRY_D_LEN, NULL, 0, SQLCHARACTER, 5);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_carrier_id, 0,
    SQL_VARLEN_DATA, NULL, 0, SQLINT2, 6);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_ol_cnt, 0, SQL_VARLEN_DATA,
    NULL, 0, SQLINT2, 7);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_all_local, 0, SQL_VARLEN_DATA,
    NULL, 0, SQLINT2, 8);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    for (i = 0; i < orders_per_district; i++)
    {
        o_id = orders_buf[i].o_id;
        o_d_id = orders_buf[i].o_d_id;
        o_w_id = orders_buf[i].o_w_id;
        o_c_id = orders_buf[i].o_c_id;
        o_carrier_id = orders_buf[i].o_carrier_id;
        o_ol_cnt = orders_buf[i].o_ol_cnt;
        o_all_local = orders_buf[i].o_all_local;
    }
}
```

```
FormatDate(&o_entry_d);

// send data to server
rc = bcp_sendrow(o_hdbc1);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc1);

orders_rows_loaded++;
CheckForCommit(o_hdbc1, o_hstmt1,
orders_rows_loaded, "orders", &orders_time_start->time_start);
}

// rcint = bcp_batch(o_hdbc1);
// if (rcint < 0)
//     HandleErrorDBC(o_hdbc1);

if ((o_w_id == aptr->num_warehouses) && (o_d_id == 10))
{
    rcint = bcp_done(o_hdbc1);
    if (rcint < 0)
        HandleErrorDBC(o_hdbc1);

    SQLFreeStmt(o_hstmt1, SQL_DROP);
    SQLDisconnect(o_hdbc1);
    SQLFreeConnect(o_hdbc1);

    // if build index after load...
    if ((aptr->build_index == 1) && (aptr->index_order ==
0))
        BuildIndex("idxordcl");

    // build non-clustered index
    if (aptr->build_index == 1)
        BuildIndex("idxordnc");
}
}

//=====
//
// Function : LoadNewOrderTable
//
//=====

void LoadNewOrderTable(LOADER_TIME_STRUCT *new_order_time_start)
{
    int i;
    long o_id;
    short o_d_id;
    short o_w_id;
    RETCODE rc;
    DBINT rcint;

    // Bind NEW-ORDER data

    rc = bcp_bind(o_hdbc2, (BYTE *) &o_id, 0, SQL_VARLEN_DATA,
    NULL, 0, SQLINT4, 1);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc2);

    rc = bcp_bind(o_hdbc2, (BYTE *) &o_d_id, 0, SQL_VARLEN_DATA,
    NULL, 0, SQLINT2, 2);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc2);
}
```

```

rc = bcp_bind(o_hdbc2, (BYTE *) &o_w_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 3);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc2);

for (i = first_new_order; i < last_new_order; i++)
{
    o_id = orders_buf[i].o_id;
    o_d_id = orders_buf[i].o_d_id;
    o_w_id = orders_buf[i].o_w_id;

    rc = bcp_sendrow(o_hdbc2);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc2);

    new_order_rows_loaded++;
    CheckForCommit(o_hdbc2, o_hstmt2,
new_order_rows_loaded, "new_order", &new_order_time_start->time_start);
}

// rcint = bcp_batch(o_hdbc2);
// if (rcint < 0)
//     HandleErrorDBC(o_hdbc2);

if ((o_w_id == aptr->num_warehouses) && (o_d_id == 10))
{
    rcint = bcp_done(o_hdbc2);
    if (rcint < 0)
        HandleErrorDBC(o_hdbc2);

    SQLFreeStmt(o_hstmt2, SQL_DROP);
    SQLDisconnect(o_hdbc2);
    SQLFreeConnect(o_hdbc2);

    // if build index after load...
    if ((aptr->build_index == 1) && (aptr->index_order ==
0))
        BuildIndex("idxnodel");
}
}

//=====
//
// Function : LoadOrderLineTable
//
//=====

void LoadOrderLineTable(LOADER_TIME_STRUCT *order_line_time_start)
{
    int    i,j;
    long   o_id;
    short  o_d_id;
    short  o_w_id;
    long   ol;
    long   ol_i_id;
    short  ol_supply_w_id;
    short  ol_quantity;
    double ol_amount;
    char   ol_dist_info[DIST_INFO_LEN+1];
    char   ol_delivery_d[OL_DELIVERY_D_LEN+1];
    RETCODE rc;
    DBINT  rcint;

```

```

// bind ORDER-LINE data
rc = bcp_bind(o_hdbc3, (BYTE *) &o_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT4, 1);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc3);

rc = bcp_bind(o_hdbc3, (BYTE *) &o_d_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 2);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc3);

rc = bcp_bind(o_hdbc3, (BYTE *) &o_w_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 3);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc3);

rc = bcp_bind(o_hdbc3, (BYTE *) &ol, 0, SQL_VARLEN_DATA, NULL,
0, SQLINT4, 4);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc3);

rc = bcp_bind(o_hdbc3, (BYTE *) &ol_i_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT4, 5);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc3);

rc = bcp_bind(o_hdbc3, (BYTE *) &ol_supply_w_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 6);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc3);

rc = bcp_bind(o_hdbc3, (BYTE *) &ol_delivery_d, 0,
OL_DELIVERY_D_LEN, NULL, 0, SQLCHARACTER, 7);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc3);

rc = bcp_bind(o_hdbc3, (BYTE *) &ol_quantity, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 8);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc3);

rc = bcp_bind(o_hdbc3, (BYTE *) &ol_amount, 0, SQL_VARLEN_DATA,
NULL, 0, SQLFLT8, 9);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc3);

rc = bcp_bind(o_hdbc3, (BYTE *) ol_dist_info, 0, DIST_INFO_LEN,
NULL, 0, 0, 10);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc3);

for (i = 0; i < orders_per_district; i++)
{
    o_id = orders_buf[i].o_id;
    o_d_id = orders_buf[i].o_d_id;
    o_w_id = orders_buf[i].o_w_id;

    for (j=0; j < orders_buf[i].o_ol_cnt; j++)
    {
        ol = orders_buf[i].o_ol[j].ol;
        ol_i_id = orders_buf[i].o_ol[j].ol_i_id;
        ol_supply_w_id =
orders_buf[i].o_ol[j].ol_supply_w_id;
        ol_quantity =
orders_buf[i].o_ol[j].ol_quantity;
        ol_amount =
orders_buf[i].o_ol[j].ol_amount;

```

```

strcpy(ol_delivery_d,orders_buf[i].o_ol[j].ol_delivery_d);

strcpy(ol_dist_info,orders_buf[i].o_ol[j].ol_dist_info);

        rc = bcp_sendrow(o_hdbc3);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc3);

        order_line_rows_loaded++;
        CheckForCommit(o_hdbc3, o_hstmt3,
order_line_rows_loaded, "order_line", &order_line_time_start->time_start);
    }

}

// rcint = bcp_batch(o_hdbc3);
// if (rcint < 0)
//     HandleErrorDBC(o_hdbc3);

if ((o_w_id == aptr->num_warehouses) && (o_d_id == 10))
{
    rcint = bcp_done(o_hdbc3);
    if (rcint < 0)
        HandleErrorDBC(o_hdbc3);

    SQLFreeStmt(o_hstmt3, SQL_DROP);
    SQLDisconnect(o_hdbc3);
    SQLFreeConnect(o_hdbc3);

    // if build index after load...
    if ((aptr->build_index == 1) && (aptr->index_order ==
0))
        BuildIndex("idxodlcl");

}

}

//=====
//
// Function : GetPermutation
//
//=====

void GetPermutation(int perm[], int n)
{
    int i, r, t;

    for (i=1;i<=n;i++)
        perm[i] = i;

    for (i=1;i<=n;i++)
    {
        r = RandomNumber(i,n);
        t = perm[i];
        perm[i] = perm[r];
        perm[r] = t;
    }

}

```

```

//=====
//
// Function : CheckForCommit
//
//=====

void CheckForCommit(HDBC hdbc,
                    HSTMT hstmt,
                    int rows_loaded,
                    char *table_name,
                    long *time_start)
{
    long    time_end, time_diff;
    // DBINT rcint;

    if ( !(rows_loaded % aptr->batch) )
    {
        // rcint = bcp_batch(hdbc);
        // if (rcint < 0)
        //     HandleErrorDBC(hdbc);

        time_end = (TimeNow() / MILLI);
        time_diff = time_end - *time_start;

        printf("-> Loaded %ld rows into %s in %ld sec - Total =
%d (%.2f rps)\n",
                    aptr->batch,
                    table_name,
                    time_diff,
                    rows_loaded,
                    (float) aptr->batch / (time_diff ?
time_diff : 1L));

        *time_start = time_end;
    }

    return;
}

//=====
//
// Function : OpenConnections
//
//=====

void OpenConnections()
{
    RETCODE    rc;

    char        szDriverString[300];
    char        szDriverStringOut[1024];
    SQLSMALLINT cbDriverStringOut;

    SQLAllocHandle(SQL_HANDLE_ENV, SQL_NULL_HANDLE,
&henv );

    SQLSetEnvAttr(henv, SQL_ATTR_ODBC_VERSION,
(void*)SQL_OV_ODBC3, 0 );

```

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| <pre> SQLAllocHandle(SQL_HANDLE_DBC, henv , &amp;i_hdbc1); SQLAllocHandle(SQL_HANDLE_DBC, henv , &amp;w_hdbc1); SQLAllocHandle(SQL_HANDLE_DBC, henv , &amp;c_hdbc1); SQLAllocHandle(SQL_HANDLE_DBC, henv , &amp;c_hdbc2); SQLAllocHandle(SQL_HANDLE_DBC, henv , &amp;o_hdbc1); SQLAllocHandle(SQL_HANDLE_DBC, henv , &amp;o_hdbc2); SQLAllocHandle(SQL_HANDLE_DBC, henv , &amp;o_hdbc3);  SQLSetConnectAttr(i_hdbc1, SQL_COPT_SS_BCP, (void *)SQL_BCP_ON, SQL_IS_INTEGER ); SQLSetConnectAttr(w_hdbc1, SQL_COPT_SS_BCP, (void *)SQL_BCP_ON, SQL_IS_INTEGER ); SQLSetConnectAttr(c_hdbc1, SQL_COPT_SS_BCP, (void *)SQL_BCP_ON, SQL_IS_INTEGER ); SQLSetConnectAttr(c_hdbc2, SQL_COPT_SS_BCP, (void *)SQL_BCP_ON, SQL_IS_INTEGER ); SQLSetConnectAttr(o_hdbc1, SQL_COPT_SS_BCP, (void *)SQL_BCP_ON, SQL_IS_INTEGER ); SQLSetConnectAttr(o_hdbc2, SQL_COPT_SS_BCP, (void *)SQL_BCP_ON, SQL_IS_INTEGER ); SQLSetConnectAttr(o_hdbc3, SQL_COPT_SS_BCP, (void *)SQL_BCP_ON, SQL_IS_INTEGER );  // Open connections to SQL Server  // Connection 1  sprintf( szDriverString , "DRIVER={SQL Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" , aptr-&gt;server,  aptr-&gt;password,  aptr-&gt;database );  rc = SQLSetConnectOption (i_hdbc1, SQL_PACKET_SIZE, aptr-&gt;pack_size); if (rc != SUCCEED) HandleErrorDBC(i_hdbc1);  rc = SQLDriverConnect ( i_hdbc1,  NULL,  (SQLCHAR*)&amp;szDriverString[0] ,  (SQLCHAR*)&amp;szDriverStringOut[0],  sizeof(szDriverStringOut),  &amp;cbDriverStringOut,  SQL_DRIVER_NOPROMPT ); if (rc != SUCCEED) HandleErrorDBC(i_hdbc1);  // Connection 2  sprintf( szDriverString , "DRIVER={SQL Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" , aptr-&gt;server,  aptr-&gt;password,</pre> | <pre> aptr-&gt;database );  rc = SQLSetConnectOption (w_hdbc1, SQL_PACKET_SIZE, aptr-&gt;pack_size); if (rc != SUCCEED) HandleErrorDBC(w_hdbc1);  rc = SQLDriverConnect ( w_hdbc1,  NULL,  (SQLCHAR*)&amp;szDriverString[0] ,  SQL_NTS,  (SQLCHAR*)&amp;szDriverStringOut[0],  sizeof(szDriverStringOut),  &amp;cbDriverStringOut,  SQL_DRIVER_NOPROMPT ); if (rc != SUCCEED) HandleErrorDBC(w_hdbc1);  // Connection 3  sprintf( szDriverString , "DRIVER={SQL Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" , aptr-&gt;server,  aptr-&gt;password,  aptr-&gt;database );  rc = SQLSetConnectOption (c_hdbc1, SQL_PACKET_SIZE, aptr-&gt;pack_size); if (rc != SUCCEED) HandleErrorDBC(c_hdbc1);  rc = SQLDriverConnect ( c_hdbc1,  NULL,  (SQLCHAR*)&amp;szDriverString[0] ,  SQL_NTS,  (SQLCHAR*)&amp;szDriverStringOut[0],  sizeof(szDriverStringOut),  &amp;cbDriverStringOut,  SQL_DRIVER_NOPROMPT ); if (rc != SUCCEED) HandleErrorDBC(c_hdbc1);  // Connection 4  sprintf( szDriverString , "DRIVER={SQL Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" , aptr-&gt;server,</pre> | <pre> aptr-&gt;user,  aptr-&gt;user,</pre> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|

```

aptr->password,
aptr->database );

    rc = SQLSetConnectOption (c_hdbc2, SQL_PACKET_SIZE,
aptr->pack_size);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    rc = SQLDriverConnect ( c_hdbc2,
NULL,
(SQLCHAR*)&szDriverString[0] ,
SQL_NTS,
(SQLCHAR*)&szDriverStringOut[0],
sizeof(szDriverStringOut),
&cbDriverStringOut,
SQL_DRIVER_NOPROMPT );
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    // Connection 5

    sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" ,
aptr->server,

aptr->password,
aptr->database );

    rc = SQLSetConnectOption (o_hdbc1, SQL_PACKET_SIZE,
aptr->pack_size);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = SQLDriverConnect ( o_hdbc1,
NULL,
(SQLCHAR*)&szDriverString[0] ,
SQL_NTS,
(SQLCHAR*)&szDriverStringOut[0],
sizeof(szDriverStringOut),
&cbDriverStringOut,
SQL_DRIVER_NOPROMPT );
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    // Connection 6

    sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" ,

```

aptr->user,

```

aptr->server,
aptr->user,

aptr->password,
aptr->database );

    rc = SQLSetConnectOption (o_hdbc2, SQL_PACKET_SIZE,
aptr->pack_size);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc2);

    rc = SQLDriverConnect ( o_hdbc2,
NULL,
(SQLCHAR*)&szDriverString[0] ,
SQL_NTS,
(SQLCHAR*)&szDriverStringOut[0],
sizeof(szDriverStringOut),
&cbDriverStringOut,
SQL_DRIVER_NOPROMPT );
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc2);

    // Connection 7

    sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" ,
aptr->server,

aptr->password,
aptr->database );

    rc = SQLSetConnectOption (o_hdbc3, SQL_PACKET_SIZE,
aptr->pack_size);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

    rc = SQLDriverConnect ( o_hdbc3,
NULL,
(SQLCHAR*)&szDriverString[0] ,
SQL_NTS,
(SQLCHAR*)&szDriverStringOut[0],
sizeof(szDriverStringOut),
&cbDriverStringOut,
SQL_DRIVER_NOPROMPT );
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

}

```

```

//=====
//
// Function name: BuildIndex
//
//=====

void BuildIndex(char *index_script)
{
    char    cmd[256];

    printf("Starting index creation: %s\n",index_script);

    sprintf(cmd, "osql -S%s -U%s -P%s -e -i%s\\%s.sql > %s%s.log",
            aptr->server,
            aptr->user,
            aptr->password,
            aptr->index_script_path,
            index_script,
            aptr->log_path,
            index_script);

    system(cmd);

    printf("Finished index creation: %s\n",index_script);
}

void HandleErrorDBC (SQLHDBC hdbc1)
{
    SQLCHAR          SqlState[6],
    Msg[SQL_MAX_MESSAGE_LENGTH];
    SQLINTEGER NativeError;
    SQLSMALLINT i, MsgLen;
    SQLRETURN rc2;
    char timebuf[128];
    char datebuf[128];
    char err_log_path[256];
    FILE *fp1;

    i = 1;
    while ((rc2 = SQLGetDiagRec(SQL_HANDLE_DBC , hdbc1, i,
    SqlState , &NativeError,
    Msg, sizeof(Msg) , &MsgLen ))
    != SQL_NO_DATA )
    {

        sprintf( szLastError , "%s" , Msg );

        _strtime(timebuf);
        _strdate(datebuf);

        printf( "[%s : %s] %s\n" , datebuf, timebuf, szLastError);

        strcpy(err_log_path,aptr->log_path);
        strcat(err_log_path,"tpccldr.err");
        fp1 = fopen(err_log_path,"w");
        //fp1 = fopen("logs\\tpccldr.err","w");
        if (fp1 == NULL)
            printf("ERROR: Unable to open errorlog
            file.\n");
        else
        {
            fprintf(fp1, "[%s : %s] %s\n" , datebuf,
            timebuf, szLastError);
            fclose(fp1);
        }

        i++;
    }
}

void FormatDate ( char* szTimeCOutput )
{
    struct tm when;
    time_t now;

    time( &now );
    when = *localtime( &now );

    mktime( &when );

    // odbc datetime format
    strftime( szTimeCOutput , 30 , "%Y-%m-%d %H:%M:%S.000",
    &when );
}

```

```

        return;
    }

//=====
//
// Function : CheckDataBase
//
//=====

void CheckDataBase()
{
    RETCODE      rc;

    char          szDriverString[300];
    char          szDriverStringOut[1024];
    char          TablesBitMap[9] =
{"0000000000"};
    int           i, ExitFlag;

    SQLSMALLINT   cbDriverStringOut;
    SQLCHAR       TabName[10];
    SQLINTEGER     TabNameInd, TabCount,
TabCountInd;

    ExitFlag = 0;

    SQLAllocHandle(SQL_HANDLE_ENV, SQL_NULL_HANDLE,
&henv );

    SQLSetEnvAttr(henv, SQL_ATTR_ODBC_VERSION,
(void*)SQL_OV_ODBC3, 0);

    SQLAllocHandle(SQL_HANDLE_DBC, henv, &v_hdbc);

    SQLSetConnectAttr(v_hdbc, SQL_COPT_SS_BCP, (void
*)SQL_BCP_ON, SQL_IS_INTEGER);

    // Open connection to SQL Server

    sprintf( szDriverString, "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s",
aptr->server,
aptr->user,
aptr->password,
aptr->database );

    rc = SQLSetConnectAttr( v_hdbc, SQL_ATTR_PACKET_SIZE,
(SQLPOINTER)aptr->pack_size, SQL_IS_INTEGER );
    if (rc != SQL_SUCCESS)
        HandleErrorDBC(v_hdbc);

    rc = SQLDriverConnect ( v_hdbc,
NULL,
(SQLCHAR*)&szDriverString[0],
SQL_NTS,
(SQLCHAR*)&szDriverStringOut[0],
sizeof(szDriverStringOut),
&cbDriverStringOut,
SQL_DRIVER_NOPROMPT );

    // if the rc is SQL_ERROR, the the TPCC database probably does
    not exist
    if (rc == SQL_ERROR)
    {
        printf("The database TPCC does not appear to exist!\n");
        printf("\nCheck LOGS\\ directory for database creation
errors.\n");

        // cleanup database connections and handles
        SQLFreeHandle(SQL_HANDLE_STMT, v_hstmt);
        SQLDisconnect(v_hdbc);
        SQLFreeHandle(SQL_HANDLE_DBC, v_hdbc);

        // since there is not a database, exit back to SETUP.CMD
        exit(1);
    }

    if ( SQLAllocHandle(SQL_HANDLE_STMT, v_hdbc, &v_hstmt)
!= SQL_SUCCESS )
        HandleErrorDBC(v_hdbc);

    if ( SQLBindCol(v_hstmt, 1, SQL_C_ULONG, &TabCount, 0,
&TabCountInd) != SQL_SUCCESS )
        HandleErrorSTMT(v_hstmt);

    // count the number of user tables from sysobjects
    rc = SQLExecDirect(v_hstmt, "select count(*) from sysobjects
where xtype = 'U'", SQL_NTS);
    if ((rc != SQL_SUCCESS) && (rc !=
SQL_SUCCESS_WITH_INFO))
        HandleErrorSTMT(v_hstmt);

    if ( SQLFetch(v_hstmt) != SQL_SUCCESS )
        HandleErrorSTMT(v_hstmt);

    // if the number of tables is less than 9, select all the user tables in
    TPCC
    if (TabCount != 9)
    {
        SQLFreeHandle(SQL_HANDLE_STMT, v_hstmt);

        SQLAllocHandle(SQL_HANDLE_STMT, v_hdbc,
&v_hstmt);

        if ( SQLBindCol(v_hstmt, 1, SQL_C_CHAR,
&TabName, sizeof(TabName), &TabNameInd) != SQL_SUCCESS )
            HandleErrorSTMT(v_hstmt);

        // select the list of user tables into a result set
        rc = SQLExecDirect(v_hstmt, "select * from sysobjects
where xtype = 'U'", SQL_NTS);
        if ((rc != SQL_SUCCESS) && (rc !=
SQL_SUCCESS_WITH_INFO))
            HandleErrorSTMT(v_hstmt);

        // go through the result set and set the bitmap for each
        found table
        // set the bitmap to '1' if the table name is found

        while ((rc = SQLFetch(v_hstmt)) != SQL_NO_DATA)
        {

```

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <pre> switch( TabName[0] ) { case 'w':     TablesBitMap[0] = '1';     break; case 'd':     TablesBitMap[1] = '1';     break; case 'c':     TablesBitMap[2] = '1';     break; case 'h':     TablesBitMap[3] = '1';     break; case 'n':     TablesBitMap[4] = '1';     break; case 'o':     if (TabName[5] = 's')         TablesBitMap[5] = '1';     if (TabName[5] = '_')         TablesBitMap[6] = '1';     break; case 'i':     TablesBitMap[7] = '1';     break; case 's':     TablesBitMap[8] = '1';     break; } }  // a '0' ExitFlag means do NOT exit the loader early, a '1' means exit the loader early ExitFlag = 0;  // iterate through the bitmap to display which table(s) is actually missing for (i = 0; i &lt;= 8; i++) {     switch(i)     {     case 0:         if (TablesBitMap[i] == '0')         {             printf("The Warehouse table is missing or damaged.\n");             ExitFlag = 1;         }         break;     case 1:         if (TablesBitMap[i] == '0')         {             printf("The District table is missing or damaged.\n");             ExitFlag = 1;         }         break;     case 2:         if (TablesBitMap[i] == '0')         {             printf("The Customer table is missing or damaged.\n");             ExitFlag = 1;         }         break;     case 3:         if (TablesBitMap[i] == '0') </pre> | <pre> {     printf("The History table is missing or damaged.\n");     ExitFlag = 1; } break; case 4:     if (TablesBitMap[i] == '0')     {         printf("The New_Order table is missing or damaged.\n");         ExitFlag = 1;     }     break; case 5:     if (TablesBitMap[i] == '0')     {         printf("The Orders table is missing or damaged.\n");         ExitFlag = 1;     }     break; case 6:     if (TablesBitMap[i] == '0')     {         printf("The Order_Line table is missing or damaged.\n");         ExitFlag = 1;     }     break; case 7:     if (TablesBitMap[i] == '0')     {         printf("The Item table is missing or damaged.\n");         ExitFlag = 1;     }     break; case 8:     if (TablesBitMap[i] == '0')     {         printf("The Stock table is missing or damaged.\n");         ExitFlag = 1;     }     break; } }  // if one or more tables are missing, display message and exit the loader if (ExitFlag = 1) {     printf("\nExiting TPC-C Loader!\n");     printf("\nCheck LOGS\\ directory for database\n");     printf("or table creation errors.\n");      // cleanup database connections and handles     SQLFreeHandle(SQL_HANDLE_STMT, v_hstmt);     SQLDisconnect(v_hdbc);     SQLFreeHandle(SQL_HANDLE_DBC, v_hdbc);      exit(1); } } </pre> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

```

// cleanup database connections and handles
SQLFreeHandle(SQL_HANDLE_STMT, v_hstmt);
SQLDisconnect(v_hdbc);
SQLFreeHandle(SQL_HANDLE_DBC, v_hdbc);

return;
}

```

## tpccldr.mak

```

# Microsoft Developer Studio Generated NMAKE File, Format Version 4.10
# ** DO NOT EDIT **

```

```

# TARGETTYPE "Win32 (x86) Console Application" 0x0103

```

```

!IF "$(CFG)" == ""
CFG=tpccldr - Win32 Debug
!MESSAGE No configuration specified. Defaulting to tpccldr - Win32 Debug.
!ENDIF

```

```

!IF "$(CFG)" != "tpccldr - Win32 Release" && "$(CFG)" != \
"tpccldr - Win32 Debug"
!MESSAGE Invalid configuration "$(CFG)" specified.
!MESSAGE You can specify a configuration when running NMAKE on this
makefile
!MESSAGE by defining the macro CFG on the command line. For example:
!MESSAGE
!MESSAGE NMAKE /f "tpccldr.mak" CFG="tpccldr - Win32 Debug"
!MESSAGE
!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "tpccldr - Win32 Release" (based on "Win32 (x86) Console
Application")
!MESSAGE "tpccldr - Win32 Debug" (based on "Win32 (x86) Console
Application")
!MESSAGE
!ERROR An invalid configuration is specified.
!ENDIF

```

```

!IF "$(OS)" == "Windows_NT"

```

```

NULL=
!ELSE
NULL=nul
!ENDIF

```

```

#####
#####

```

```

# Begin Project
# PROP Target_Last_Scanned "tpccldr - Win32 Debug"
RSC=rc.exe
CPP=cl.exe

```

```

!IF "$(CFG)" == "tpccldr - Win32 Release"

```

```

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "Release"
# PROP BASE Intermediate_Dir "Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir "bin"
# PROP Intermediate_Dir "objects"
# PROP Target_Dir ""
OUTDIR=.bin
INTDIR=.objects

```

```

ALL : "$(OUTDIR)\tpccldr.exe"

```

```

CLEAN :

```

```

-@erase "$(INTDIR)\getargs.obj"
-@erase "$(INTDIR)\random.obj"
-@erase "$(INTDIR)\strings.obj"
-@erase "$(INTDIR)\time.obj"
-@erase "$(INTDIR)\tpccldr.obj"
-@erase "$(OUTDIR)\tpccldr.exe"

```

```

"$(OUTDIR)" :
if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

```

```

"$(INTDIR)" :
if not exist "$(INTDIR)/$(NULL)" mkdir "$(INTDIR)"

```

```

# ADD BASE CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D
"_CONSOLE" /YX /c
# ADD CPP /nologo /MT /W3 /GX /O2 /I "c:\mssql\dblib\include" /D
"NDEBUG" /D "WIN32" /D "_CONSOLE" /D "DBNTWIN32" /c
# SUBTRACT CPP /YX
CPP_PROJ=/nologo /MT /W3 /GX /O2 /I "c:\mssql\dblib\include" /D
"NDEBUG" /D \
"WIN32" /D "_CONSOLE" /D "DBNTWIN32" /Fo"$(INTDIR)/" /c
CPP_OBJS=.objects/
CPP_SBRS=. \
# ADD BASE RSC /I 0x409 /d "NDEBUG"
# ADD RSC /I 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
BSC32_FLAGS=/nologo /o"$(OUTDIR)\tpccldr.bsc"
BSC32_SBRS= \

```

```

LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbccp32.lib /nologo /subsystem:console /machine:I386
# ADD LINK32 c:\mssql\dblib\lib\ntwdblib.lib kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib
uuid.lib odbcc32.lib odbccp32.lib /nologo /subsystem:console /pdb:none
/machine:I386
LINK32_FLAGS=c:\mssql\dblib\lib\ntwdblib.lib kernel32.lib user32.lib
gdi32.lib \
winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib \
uuid.lib odbcc32.lib odbccp32.lib /nologo /subsystem:console /pdb:none \
/machine:I386 /out:"$(OUTDIR)\tpccldr.exe"
LINK32_OBJS= \

```

```

"$(INTDIR)\getargs.obj" \
"$(INTDIR)\random.obj" \
"$(INTDIR)\strings.obj" \
"$(INTDIR)\time.obj" \
"$(INTDIR)\tpccldr.obj"

```

```

"$(OUTDIR)\tpccldr.exe" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
$(LINK32) @<<
$(LINK32_FLAGS) $(LINK32_OBJS)
<<

```

```

!ELSEIF "$(CFG)" == "tpccldr - Win32 Debug"

```

```

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "Debug"
# PROP BASE Intermediate_Dir "Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1

```

```

# PROP Output_Dir "bin"
# PROP Intermediate_Dir "objects"
# PROP Target_Dir ""
OUTDIR=.\\bin
INTDIR=.\\objects

ALL : "$(OUTDIR)\\tpccldr.exe"

CLEAN :
    -@erase "$(INTDIR)\\getargs.obj"
    -@erase "$(INTDIR)\\random.obj"
    -@erase "$(INTDIR)\\strings.obj"
    -@erase "$(INTDIR)\\time.obj"
    -@erase "$(INTDIR)\\tpccldr.obj"
    -@erase "$(INTDIR)\\vc40.idb"
    -@erase "$(INTDIR)\\vc40.pdb"
    -@erase "$(OUTDIR)\\tpccldr.exe"

"$(OUTDIR)" :
    if not exist "$(OUTDIR)\\$(NULL)" mkdir "$(OUTDIR)"

"$(INTDIR)" :
    if not exist "$(INTDIR)\\$(NULL)" mkdir "$(INTDIR)"

# ADD BASE CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG"
/D "_CONSOLE" /YX /c
# ADD CPP /nologo /MTd /W3 /Gm /GX /Zi /Od /I "c:\\mssql\\dblib\\include" /D
"_DEBUG" /D "WIN32" /D "_CONSOLE" /D "DBNTWIN32" /c
# SUBTRACT CPP /YX
CPP_PROJ=/nologo /MTd /W3 /Gm /GX /Zi /Od /I "c:\\mssql\\dblib\\include" /D\\
"_DEBUG" /D "WIN32" /D "_CONSOLE" /D "DBNTWIN32"
/Fo"$(INTDIR)\\\\"
/Fd"$(INTDIR)\\\\" /c
CPP_OBJS=.\\objects\\
CPP_SBRS=.\\
# ADD BASE RSC /I 0x409 /d "_DEBUG"
# ADD RSC /I 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
BSC32_FLAGS=/nologo /o"$(OUTDIR)\\tpccldr.bsc"
BSC32_SBRS=\\

LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbccp32.lib
odbc32.lib /nologo /subsystem:console /debug /machine:I386
# ADD LINK32 c:\\mssql\\dblib\\lib\\ntwdblib.lib kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib
uuid.lib odbc32.lib odbccp32.lib /nologo /subsystem:console /pdb:none /debug
/machine:I386
LINK32_FLAGS=c:\\mssql\\dblib\\lib\\ntwdblib.lib kernel32.lib user32.lib
gdi32.lib\\
winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib\\
uuid.lib odbc32.lib odbccp32.lib /nologo /subsystem:console /pdb:none /debug\\
/machine:I386 /out:"$(OUTDIR)\\tpccldr.exe"
LINK32_OBJS=\\
    "$(INTDIR)\\getargs.obj" \\
    "$(INTDIR)\\random.obj" \\
    "$(INTDIR)\\strings.obj" \\
    "$(INTDIR)\\time.obj" \\
    "$(INTDIR)\\tpccldr.obj"

"$(OUTDIR)\\tpccldr.exe" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
$(LINK32) @<<
$(LINK32_FLAGS) $(LINK32_OBJS)
<<

!ENDIF

.c{$(CPP_OBJS)}.obj:
    $(CPP) $(CPP_PROJ) $<

.cpp{$(CPP_OBJS)}.obj:
    $(CPP) $(CPP_PROJ) $<

.cxx{$(CPP_OBJS)}.obj:
    $(CPP) $(CPP_PROJ) $<

.c{$(CPP_SBRS)}.sbr:
    $(CPP) $(CPP_PROJ) $<

.cpp{$(CPP_SBRS)}.sbr:
    $(CPP) $(CPP_PROJ) $<

.cxx{$(CPP_SBRS)}.sbr:
    $(CPP) $(CPP_PROJ) $<

#####
#####
# Begin Target

# Name "tpccldr - Win32 Release"
# Name "tpccldr - Win32 Debug"

!IF "$(CFG)" == "tpccldr - Win32 Release"

!ELSEIF "$(CFG)" == "tpccldr - Win32 Debug"

!ENDIF

#####
#####
# Begin Source File

SOURCE=.\\src\\random.c
DEP_CPP_RAND0=\\
    ".\\src\\tpcc.h"\\
    "\\mssql\\dblib\\include\\sqldb.h"\\
    "\\mssql\\dblib\\include\\sqlfront.h"\\

"$(INTDIR)\\random.obj" : $(SOURCE) $(DEP_CPP_RAND0) "$(INTDIR)"
$(CPP) $(CPP_PROJ) $(SOURCE)

# End Source File
#####
#####
# Begin Source File

SOURCE=.\\src\\strings.c
DEP_CPP_STRIN=\\
    ".\\src\\tpcc.h"\\
    "\\mssql\\dblib\\include\\sqldb.h"\\
    "\\mssql\\dblib\\include\\sqlfront.h"\\

"$(INTDIR)\\strings.obj" : $(SOURCE) $(DEP_CPP_STRIN) "$(INTDIR)"
$(CPP) $(CPP_PROJ) $(SOURCE)

# End Source File
#####
#####
# Begin Source File

```

```

SOURCE=. \src\time.c
DEP_CPP_TIME_=\
    ".\src\tpcc.h"\
    "\mssql\dblib\include\sqldb.h"\
    "\mssql\dblib\include\sqlfront.h"\

"${INTDIR}\time.obj" : $(SOURCE) $(DEP_CPP_TIME_) "${INTDIR}"
$(CPP) $(CPP_PROJ) $(SOURCE)

# End Source File
#####
#####
# Begin Source File

SOURCE=. \src\tpccldr.c
DEP_CPP_TPCCCL=\
    ".\src\tpcc.h"\
    "\mssql\dblib\include\sqldb.h"\
    "\mssql\dblib\include\sqlfront.h"\

"${INTDIR}\tpccldr.obj" : $(SOURCE) $(DEP_CPP_TPCCCL) "${INTDIR}"
$(CPP) $(CPP_PROJ) $(SOURCE)

# End Source File
#####
#####
# Begin Source File

SOURCE=. \src\getargs.c
DEP_CPP_GETAR=\
    ".\src\tpcc.h"\
    "\mssql\dblib\include\sqldb.h"\
    "\mssql\dblib\include\sqlfront.h"\

"${INTDIR}\getargs.obj" : $(SOURCE) $(DEP_CPP_GETAR) "${INTDIR}"
$(CPP) $(CPP_PROJ) $(SOURCE)

# End Source File
# End Target
# End Project
#####
#####

```

## VerifyTpccLoad.sql

```

-- File:  VERIFYTPCCLOAD.SQL
--        Microsoft TPC-C Benchmark Kit Ver. 4.41
--        Copyright Microsoft, 2001
-- Purpose: Performs series of TPCC database checks to verify
--           that database load completed correctly

print    " "
select   convert(char(30), getdate(),9)
print    " "

use tpcc
go

--        *****

```

```

--
--        Check rows per table from SYSINDEXES
--
--        *****

print    'WAREHOUSE TABLE'

select   rows
from     sysindexes
where    id      = object_id("warehouse")
go

print    'DISTRICT TABLE = (10 * No of warehouses)'

select   rows
from     sysindexes
where    id      =object_id("district")
go

print    'ITEM TABLE = 100,000'

select   rows
from     sysindexes
where    id      =object_id("item")
go

print    'CUSTOMER TABLE = (30,000 * No of warehouses)'

select   rows
from     sysindexes
where    id      =object_id("customer")
go

print    'ORDERS TABLE = (30,000 * No of warehouses)'

select   rows
from     sysindexes
where    id      =object_id("orders")
go

print    'HISTORY TABLE = (30,000 * No of warehouses)'

select   rows
from     sysindexes
where    id      =object_id("history")
go

print    'STOCK TABLE = (100,000 * No of warehouses)'

select   rows
from     sysindexes
where    id      =object_id("stock")
go

print    'ORDER_LINE TABLE = (300,000 * No of warehouses + some
change)'

select   count_big(*)
from     order_line
go

print    'NEW_ORDER TABLE = (9000 * No of warehouses)'

select   rows
from     sysindexes
where    id      =object_id("new_order")
go

```

```
--      *****
--
--      Check indices
--
--      *****
```

```
print '*****Index Check*****'
```

```
use tpcc
go
```

```
sp_helpindex      customer
go
```

```
sp_helpindex      stock
go
```

```
sp_helpindex      district
go
```

```
sp_helpindex      item
go
```

```
sp_helpindex      new_order
go
```

```
sp_helpindex      orders
go
```

```
sp_helpindex      order_line
go
```

```
sp_helpindex      warehouse
Go
```

### ***version.sql***

```
-- File:  VERSION.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.41
--      Copyright Microsoft, 2001
-- Purpose: Extracts current version of SQL Server
```

```
use master
go
```

```
SELECT  CONVERT(char(20), SERVERPROPERTY('ProductVersion'))
go
```

```
SELECT  CONVERT(char(20), SERVERPROPERTY('ProductLevel'))
go
```

```
SELECT  CONVERT(char(30), getdate(),9)
go
```

## Appendix C: Tunable Parameters

### Microsoft SQL Server 2000 Configuration Parameters

```
1> 2> 3> 4> 5> 6> 7> 8> 9> 10> 11>
```

```
-- File:   VERSION.SQL
--        Microsoft TPC-C Benchmark Kit Ver. 4.22
--        Copyright Microsoft, 2001
-- Purpose: Returns SQL Server version string
```

```
print " "
select convert(char(30), getdate(),9)
print " "
```

```
-----
Mar  4 2003  6:23:20:400PM
```

(1 row affected)

```
1> 2> 3>
select @@version
```

```
-----
-----
-----
Microsoft SQL Server 2000 - 8.00.761 (Intel X86)
Feb 27 2003 12:09:37
Cop
yright (c) 1988-2003 Microsoft Corporation
Enterprise Edition on Windo
ws NT 5.2 (Build 3785: )
```

(1 row affected)

```
1> 2>
1> 2> 3> 4> 5> 6> 7> 8> 9> 10>
```

```
-- File:   CONFIG.SQL
--        Microsoft TPC-C Benchmark Kit Ver. 4.22
--        Copyright Microsoft, 2001
-- Purpose: Collects SQL Server configuration parameters
```

```
print " "
select convert(char(30), getdate(),9)
print " "
```

```
-----
Mar  4 2003  6:23:22:213PM
```

(1 row affected)

```
1> 2> 3> DBCC execution completed. If DBCC printed error messages, contact
your system administrator.
Configuration option 'show advanced options' changed from 1 to 1. Run the
RECONFIGURE statement to install.
```

```
sp_configure "show advanced",1
```

```
1> 2> reconfigure with override
```

```
1> 2> sp_configure
```

| name                           | minimum     | maximum    |
|--------------------------------|-------------|------------|
| config_value                   | run_value   |            |
| -----                          |             |            |
| affinity mask                  | -2147483648 | 2147483647 |
| -1 -1                          |             |            |
| allow updates                  | 0           | 1          |
| 0                              |             | 0          |
| awe enabled                    | 0           | 1          |
| 1                              |             | 1          |
| c2 audit mode                  | 0           | 1          |
| 0                              |             | 0          |
| cost threshold for parallelism | 0           | 32767      |
| 5 5                            |             |            |
| Cross DB Ownership Chaining    | 0           | 1          |
| 0 0                            |             |            |
| cursor threshold               | -1          | 2147483647 |
| -1 -1                          |             |            |
| default full-text language     | 0           | 2147483647 |
| 1033 1033                      |             |            |
| default language               | 0           | 9999       |
| 0                              |             | 0          |
| fill factor (%)                | 0           | 100        |
| 0                              |             | 0          |
| index create memory (KB)       | 704         | 2147483647 |
| 0 0                            |             |            |
| lightweight pooling            | 0           | 1          |
| 1                              |             | 1          |
| locks                          | 5000        | 2147483647 |
| 0                              |             | 0          |
| max degree of parallelism      | 0           | 32         |
| 1                              |             | 1          |
| max server memory (MB)         | 4           | 2147483647 |
| 62700 62700                    |             |            |
| max text repl size (B)         | 0           | 2147483647 |
| 65536 65536                    |             |            |
| max worker threads             | 32          | 32767      |
| 452 452                        |             |            |
| media retention                | 0           | 365        |
| 0                              |             | 0          |
| min memory per query (KB)      | 512         | 2147483647 |
| 1024 1024                      |             |            |
| min server memory (MB)         | 0           | 2147483647 |
| 0 0                            |             |            |
| nested triggers                | 0           | 1          |
| 1                              |             | 1          |
| network packet size (B)        | 512         | 65536      |
| 4096 4096                      |             |            |
| open objects                   | 0           | 2147483647 |
| 0                              |             | 0          |
| priority boost                 | 0           | 1          |
| 1                              |             | 1          |
| query governor cost limit      | 0           | 2147483647 |
| 0 0                            |             |            |
| query wait (s)                 | -1          | 2147483647 |
| -1                             |             | -1         |
| recovery interval (min)        | 0           | 32767      |
| 112 112                        |             |            |
| remote access                  | 0           | 1          |
| 1                              |             | 1          |
| remote login timeout (s)       | 0           | 2147483647 |
| 0 0                            |             |            |
| remote proc trans              | 0           | 1          |
| 0                              |             | 0          |
| remote query timeout (s)       | 0           | 2147483647 |
| 0 0                            |             |            |

```

scan for startup procs          0      1      0
0
set working set size           0      1      0
0
show advanced options          0      1      1
1
two digit year cutoff          1753    9999
2049    2049
user connections               0    32767    0
0
user options                   0    32767    0
0

1>

```

## Microsoft Windows 2003 Datacenter Edition

### Changes to the SUT

Changes made to the default installation of .NET DataCenter Edition on the SUT

All services were left in their default setup.

Control Panel - System - Advanced - Performance Options - Visual Effects - Adjust for best performance

Control Panel - System - Advanced - Performance Options - Advanced - Memory usage - Adjust for best performance of: Programs

c:\boot.ini added /PAE /MAXMEM=65536 /hal=halx440.dll /kernel=ntkrnl.exe

gpedit.msc - Computer Configuration - Windows Settings - Security Settings - Local Policies - User Rights Assignments - policy 'Lock pages in memory' added group 'Administrators'

Enabled VIA protocol for SQL Server

Microsoft SQL Server Startup Parameters

C:\Program Files\Microsoft SQL Server\MSSQL\Binn\sqlservr -c -x -t3502

where:

-c Start SQL Server independent of the Service Control Manager  
-x Disable the keeping of CPU timeand cache hit ratio statistice  
-t3502 writes a message to the SQL Server Errorlog showing the beginning and ending time of each checkpoint

regedit

Added DWORD value to  
HKLM\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters  
"MaxUserPort" 0x9c40

Key Name:

HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Control\Session Manager\Memory Management

Class Name: <NO CLASS>

Last Write Time: 1/23/2003 - 2:44 PM

Value 0

Name: ClearPageFileAtShutdown  
Type: REG\_DWORD  
Data: 0

Value 1

Name: DisablePagingExecutive  
Type: REG\_DWORD

```

Data: 0

Value 2
Name: LargeSystemCache
Type: REG_DWORD
Data: 0

Value 3
Name: NonPagedPoolQuota
Type: REG_DWORD
Data: 0

Value 4
Name: NonPagedPoolSize
Type: REG_DWORD
Data: 0

Value 5
Name: PagedPoolQuota
Type: REG_DWORD
Data: 0

Value 6
Name: PagedPoolSize
Type: REG_DWORD
Data: 0

Value 7
Name: SecondLevelDataCache
Type: REG_DWORD
Data: 0

Value 8
Name: SystemPages
Type: REG_DWORD
Data: 0x33000

Value 9
Name: PagingFiles
Type: REG_MULTI_SZ
Data: c:\pagefile.sys 2046 4092

Value 10
Name: PhysicalAddressExtension
Type: REG_DWORD
Data: 0x1

Value 11
Name: WriteWatch
Type: REG_DWORD
Data: 0x1

Value 12
Name: SessionViewSize
Type: REG_DWORD
Data: 0x30

Value 13
Name: SessionPoolSize
Type: REG_DWORD
Data: 0x4

Value 14
Name: DontVerifyRandomDrivers
Type: REG_DWORD
Data: 0x1

```

Key Name:  
HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Control\Session  
Manager\I/O System  
Class Name: <NO CLASS>  
Last Write Time: 1/23/2003 - 1:41 PM  
Value 0  
Name: CountOperations  
Type: REG\_DWORD  
Data: 0

Key Name:  
HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika  
Class Name: <NO CLASS>  
Last Write Time: 3/4/2003 - 2:08 PM  
Value 0  
Name: ErrorControl  
Type: REG\_DWORD  
Data: 0x1

Value 1  
Name: start  
Type: REG\_DWORD  
Data: 0x2

Value 2  
Name: type  
Type: REG\_DWORD  
Data: 0x1

Value 3  
Name: Tag  
Type: REG\_DWORD  
Data: 0x1

Value 4  
Name: group  
Type: REG\_SZ  
Data: MVIA

Value 5  
Name: ImagePath  
Type: REG\_EXPAND\_SZ  
Data: system32\DRIVERS\qlvika.sys

Key Name:  
HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika  
Class Name: <NO CLASS>  
Last Write Time: 3/5/2003 - 11:10 AM  
Value 0  
Name: ErrorControl  
Type: REG\_DWORD  
Data: 0x1

Value 1  
Name: start  
Type: REG\_DWORD  
Data: 0x2

Value 2  
Name: type  
Type: REG\_DWORD  
Data: 0x1

Value 3  
Name: Tag  
Type: REG\_DWORD  
Data: 0x1

Value 4  
Name: group  
Type: REG\_SZ  
Data: MVIA

Value 5  
Name: ImagePath  
Type: REG\_EXPAND\_SZ  
Data: system32\DRIVERS\qlvika.sys

Key Name:  
HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Adap  
ters  
Class Name: <NO CLASS>  
Last Write Time: 2/26/2003 - 2:55 PM

Key Name:  
HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Adap  
ters\210000E08B0723B0  
Class Name: <NO CLASS>  
Last Write Time: 1/28/2003 - 3:29 PM  
Value 0  
Name: IPAddress  
Type: REG\_MULTI\_SZ  
Data: 192.168.165.1

Value 1  
Name: VIDeviceNumber  
Type: REG\_DWORD  
Data: 0

Key Name:  
HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Adap  
ters\210000E08B07E5AF  
Class Name: <NO CLASS>  
Last Write Time: 1/28/2003 - 3:28 PM  
Value 0  
Name: IPAddress  
Type: REG\_MULTI\_SZ  
Data: 192.168.175.1

Value 1  
Name: VIDeviceNumber  
Type: REG\_DWORD  
Data: 0x1

Key Name:  
HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Adap  
ters\210000E08b09315a  
Class Name: <NO CLASS>  
Last Write Time: 2/26/2003 - 2:55 PM  
Value 0  
Name: IPAddress  
Type: REG\_MULTI\_SZ  
Data: 192.168.185.1

Value 1  
Name: VIDeviceNumber  
Type: REG\_DWORD  
Data: 0x2

Key Name:  
HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Adapters\210000e08b09335a  
Class Name: <NO CLASS>  
Last Write Time: 2/25/2003 - 1:00 PM  
Value 0  
Name: IPAddress  
Type: REG\_MULTI\_SZ  
Data: 192.168.195.1

Value 1  
Name: VIDeviceNumber  
Type: REG\_DWORD  
Data: 0x3

Key Name:  
HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Parameters  
Class Name: <NO CLASS>  
Last Write Time: 1/28/2003 - 9:56 AM  
Value 0  
Name: MaxRegisterMBytes  
Type: REG\_DWORD  
Data: 0x200

Value 1  
Name: MaxRegisterRdmaMBytes  
Type: REG\_DWORD  
Data: 0x200

Value 2  
Name: MaxCQEntries  
Type: REG\_DWORD  
Data: 0x2000

Value 3  
Name: MaxRegisterRegions  
Type: REG\_DWORD  
Data: 0x1000

Value 4  
Name: MaxVIs  
Type: REG\_DWORD  
Data: 0x400

Value 5  
Name: MaxCQs  
Type: REG\_DWORD  
Data: 0x400

Value 6  
Name: MaxTransferSize  
Type: REG\_DWORD  
Data: 0x10000

Value 7  
Name: MaxPTags  
Type: REG\_DWORD  
Data: 0x800

Value 8  
Name: IuBuffers  
Type: REG\_DWORD  
Data: 0x100

Value 9  
Name: SendDescQuota

Type: REG\_DWORD  
Data: 0x8

Value 10  
Name: RecvDescQuota  
Type: REG\_DWORD  
Data: 0x8

Value 11  
Name: SupportPrototypeCards  
Type: REG\_DWORD  
Data: 0x1

Key Name:  
HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Security  
Class Name: <NO CLASS>  
Last Write Time: 1/27/2003 - 5:46 PM  
Value 0  
Name: Security  
Type: REG\_BINARY  
Data:

00000000 01 00 14 80 90 00 00 00 - 9c 00 00 00 14 00 00 00 .....  
00000010 30 00 00 00 02 00 1c 00 - 01 00 00 00 02 80 14 00 0.....  
00000020 ff 01 0f 00 01 01 00 00 - 00 00 00 01 00 00 00 00 ý.....  
00000030 02 00 60 00 04 00 00 00 - 00 00 14 00 fd 01 02 00 ..`.....ý..  
00000040 01 01 00 00 00 00 00 05 - 12 00 00 00 00 00 18 00 .....  
00000050 ff 01 0f 00 01 02 00 00 - 00 00 00 05 20 00 00 00 ý.....  
00000060 20 02 00 00 00 00 14 00 - 8d 01 02 00 01 01 00 00 .....  
00000070 00 00 00 05 0b 00 00 00 - 00 00 18 00 fd 01 02 00 .....ý..  
00000080 01 02 00 00 00 00 00 05 - 20 00 00 00 23 02 00 00 .....#..  
00000090 01 01 00 00 00 00 00 05 - 12 00 00 00 01 01 00 00 .....  
00 00 00 05 12 00 00 00 - .....

Key Name:  
HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Enum  
Class Name: <NO CLASS>  
Last Write Time: 3/5/2003 - 11:10 AM  
Value 0  
Name: 0  
Type: REG\_SZ  
Data: Root\LEGACY\_QLVIKA\0000

Value 1  
Name: Count  
Type: REG\_DWORD  
Data: 0x1

Value 2  
Name: NextInstance  
Type: REG\_DWORD  
Data: 0x1

## SUT System Information Report

System Information report written at: 03/25/03 13:08:45  
System Name: IBMSERV4  
[System Summary]

| Item            | Value                                                   |
|-----------------|---------------------------------------------------------|
| OS Name         | Microsoft(R) Windows(R) Server 2003, Datacenter Edition |
| Version         | 5.2.3785 Build 3785                                     |
| OS Manufacturer | Microsoft Corporation                                   |

Activation Status    Activation Pending (23 days remaining)  
 System Name        IBMSERV4  
 System Manufacturer IBM  
 System Model        eserver xSeries 440 -[4444aaa]-  
 System Type        X86-based PC  
 Processor    x86 Family 15 Model 2 Stepping 2 GenuineIntel ~1999 Mhz  
 Processor    x86 Family 15 Model 2 Stepping 2 GenuineIntel ~1999 Mhz  
 Processor    x86 Family 15 Model 2 Stepping 2 GenuineIntel ~1999 Mhz  
 Processor    x86 Family 15 Model 2 Stepping 2 GenuineIntel ~1999 Mhz  
 Processor    x86 Family 15 Model 2 Stepping 2 GenuineIntel ~1999 Mhz  
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 Processor    x86 Family 15 Model 2 Stepping 2 GenuineIntel ~1999 Mhz  
 Processor    x86 Family 15 Model 2 Stepping 2 GenuineIntel ~1999 Mhz  
 BIOS Version/Date    IBM-[VIJZ11AUS-1.01]-, 12/20/2002  
 SMBIOS Version        2.3  
 Windows Directory    C:\WINDOWS  
 System Directory      C:\WINDOWS\system32  
 Boot Device            \Device\HarddiskVolume1  
 Locale                United States  
 Hardware Abstraction Layer    Version = "1.20.0000 built by: (x86chk\_i)"  
 User Name\IBMSERV4\Administrator  
 Time Zone Eastern Standard Time  
 Total Physical Memory        16,384.00 MB  
 Available Physical Memory     62.28 GB  
 Total Virtual Memory        127.43 GB  
 Available Virtual Memory     126.57 GB  
 Page File Space            64.43 GB  
 Page File            C:\pagefile.sys

#### [Hardware Resources]

#### [Conflicts/Sharing]

| Resource                             | Device                          |
|--------------------------------------|---------------------------------|
| I/O Port 0x0000CC00-0x0000CDFF       | PCI bus                         |
| I/O Port 0x0000CC00-0x0000CDFF       | Other PCI Bridge Device         |
| I/O Port 0x00000000-0x00001FFF       | PCI bus                         |
| I/O Port 0x00000000-0x00001FFF       | Direct memory access controller |
| Memory Address 0xF4400000-0xF44FFFFF | Intel 21154 PCI to PCI bridge   |

Memory Address 0xF4400000-0xF44FFFFF Intel(R) PRO/100 S Dual Port Server Adapter

| Memory Address        | Device                  |
|-----------------------|-------------------------|
| 0xF0800000-0xF0BFFFFF | PCI bus                 |
| 0xF0800000-0xF0BFFFFF | Other PCI Bridge Device |

| I/O Port              | Device                                   |
|-----------------------|------------------------------------------|
| 0x00002A00-0x00002BFF | PCI bus                                  |
| 0x00002A00-0x00002BFF | QLogic QLA23xx PCI Fibre Channel Adapter |

| I/O Port              | Device                                  |
|-----------------------|-----------------------------------------|
| 0x00002000-0x000027FF | PCI bus                                 |
| 0x00002000-0x000027FF | Adaptec AIC-7899 Ultra160 PCI SCSI Card |

| Memory Address        | Device                              |
|-----------------------|-------------------------------------|
| 0xF1200000-0xF12FFFFF | PCI bus                             |
| 0xF1200000-0xF12FFFFF | Broadcom NetXtreme Gigabit Ethernet |

| I/O Port              | Device                                   |
|-----------------------|------------------------------------------|
| 0x00002800-0x000029FF | PCI bus                                  |
| 0x00002800-0x000029FF | QLogic QLA23xx PCI Fibre Channel Adapter |

| Memory Address        | Device                   |
|-----------------------|--------------------------|
| 0xE0000000-0xE7FFFFFF | PCI bus                  |
| 0xE0000000-0xE7FFFFFF | S3 Graphics Inc. Savage4 |

| I/O Port              | Device                                  |
|-----------------------|-----------------------------------------|
| 0x0000CE00-0x0000CFFF | PCI bus                                 |
| 0x0000CE00-0x0000CFFF | Adaptec AIC-7899 Ultra160 PCI SCSI Card |

| Memory Address  | Device                   |
|-----------------|--------------------------|
| 0xA0000-0xA7FFF | PCI bus                  |
| 0xA0000-0xA7FFF | S3 Graphics Inc. Savage4 |

| I/O Port              | Device                                      |
|-----------------------|---------------------------------------------|
| 0x00007000-0x00007FFF | Intel 21154 PCI to PCI bridge               |
| 0x00007000-0x00007FFF | Intel(R) PRO/100 S Dual Port Server Adapter |

| Memory Address         | Device                                 |
|------------------------|----------------------------------------|
| 0xFAC00000-0xFACFFFFFF | PCI bus                                |
| 0xFAC00000-0xFACFFFFFF | Broadcom NetXtreme Gigabit Ethernet #2 |

| Memory Address        | Device                  |
|-----------------------|-------------------------|
| 0xFA800000-0xFA9FFFFF | PCI bus                 |
| 0xFA800000-0xFA9FFFFF | Other PCI Bridge Device |

| I/O Port              | Device                                   |
|-----------------------|------------------------------------------|
| 0x0000D000-0x0000D1FF | PCI bus                                  |
| 0x0000D000-0x0000D1FF | QLogic QLA23xx PCI Fibre Channel Adapter |

#### [DMA]

| Resource  | Device                          | Status |
|-----------|---------------------------------|--------|
| Channel 2 | Standard floppy disk controller | OK     |
| Channel 4 | Direct memory access controller | OK     |

#### [Forced Hardware]

| Device | PNP Device ID |
|--------|---------------|
|--------|---------------|

#### [I/O]

| Resource              | Device                          | Status |
|-----------------------|---------------------------------|--------|
| 0x00000000-0x00001FFF | PCI bus                         | OK     |
| 0x00000000-0x00001FFF | Direct memory access controller | OK     |
| 0x000003B0-0x000003BB | S3 Graphics Inc. Savage4        | OK     |
| 0x000003C0-0x000003DF | S3 Graphics Inc. Savage4        | OK     |

|                       |                                             |    |                       |                                                         |        |
|-----------------------|---------------------------------------------|----|-----------------------|---------------------------------------------------------|--------|
| 0x00001800-0x0000187F | Other PCI Bridge Device                     | OK | 0x00009000-0x000090FF | QLogic QLA23xx PCI Fibre Channel Adapter                |        |
| 0x00000A79-0x00000A79 | ISAPNP Read Data Port                       | OK | OK                    |                                                         |        |
| 0x00000279-0x00000279 | ISAPNP Read Data Port                       | OK | 0x0000A000-0x0000BFFF | PCI bus                                                 | OK     |
| 0x00000274-0x00000277 | ISAPNP Read Data Port                       | OK | 0x0000B000-0x0000B0FF | QLogic QLA23xx PCI Fibre Channel Adapter                |        |
| 0x00000430-0x00000437 | Motherboard resources                       | OK | OK                    |                                                         |        |
| 0x00000438-0x00000439 | Motherboard resources                       | OK | 0x0000C000-0x0000C3FF | PCI bus                                                 | OK     |
| 0x0000002E-0x0000002F | Motherboard resources                       | OK | 0x0000C400-0x0000C7FF | PCI bus                                                 | OK     |
| 0x00000064-0x00000064 | Standard 101/102-Key or Microsoft Natural   |    | 0x0000C600-0x0000C6FF | QLogic QLA23xx PCI Fibre Channel Adapter                |        |
| PS/2 Keyboard         | OK                                          |    | OK                    |                                                         |        |
| 0x00000060-0x00000060 | Standard 101/102-Key or Microsoft Natural   |    | 0x0000C800-0x0000CBFF | PCI bus                                                 | OK     |
| PS/2 Keyboard         | OK                                          |    | 0x0000CA00-0x0000CAFF | QLogic QLA23xx PCI Fibre Channel Adapter                |        |
| 0x000003F0-0x000003F5 | Standard floppy disk controller             | OK | OK                    |                                                         |        |
| 0x000003F7-0x000003F7 | Standard floppy disk controller             | OK | 0x000002F8-0x000002FE | Communications Port (COM1)                              | OK     |
| 0x00000020-0x00000021 | Advanced programmable interrupt controller  |    |                       |                                                         |        |
| OK                    |                                             |    | [IRQs]                |                                                         |        |
| 0x000000A0-0x000000A1 | Advanced programmable interrupt controller  |    | Resource              | Device                                                  | Status |
| OK                    |                                             |    | IRQ 36                | Microsoft ACPI-Compliant System                         | OK     |
| 0x00000080-0x0000008F | Direct memory access controller             | OK | IRQ 5                 | Other PCI Bridge Device                                 | OK     |
| 0x000000C0-0x000000DF | Direct memory access controller             | OK | IRQ 1                 | Standard 101/102-Key or Microsoft Natural PS/2 Keyboard |        |
| 0x00000040-0x00000043 | System timer                                | OK | OK                    |                                                         |        |
| 0x00000070-0x00000073 | System CMOS/real time clock                 | OK | IRQ 12                | PS/2 Compatible Mouse                                   | OK     |
| 0x00000061-0x00000061 | System speaker                              | OK | IRQ 6                 | Standard floppy disk controller                         | OK     |
| 0x000000F0-0x000000FF | Numeric data processor                      | OK | IRQ 0                 | System timer                                            | OK     |
| 0x00000500-0x0000057F | Motherboard resources                       | OK | IRQ 8                 | System CMOS/real time clock                             | OK     |
| 0x00000700-0x0000070F | VIA Bus Master IDE Controller               | OK | IRQ 13                | Numeric data processor                                  | OK     |
| 0x000001F0-0x000001F7 | Primary IDE Channel                         | OK | IRQ 14                | Primary IDE Channel                                     | OK     |
| 0x000003F6-0x000003F6 | Primary IDE Channel                         | OK | IRQ 15                | Secondary IDE Channel                                   | OK     |
| 0x00000170-0x00000177 | Secondary IDE Channel                       | OK | IRQ 40                | Adaptec AIC-7899 Ultra160 PCI SCSI Card                 | OK     |
| 0x00000376-0x00000376 | Secondary IDE Channel                       | OK | IRQ 41                | Adaptec AIC-7899 Ultra160 PCI SCSI Card                 | OK     |
| 0x00002000-0x000027FF | PCI bus                                     | OK | IRQ 42                | Broadcom NetXtreme Gigabit Ethernet                     | OK     |
| 0x00002000-0x000027FF | Adaptec AIC-7899 Ultra160 PCI SCSI Card     |    | IRQ 51                | QLogic QLA23xx PCI Fibre Channel Adapter                | OK     |
| OK                    |                                             |    | IRQ 55                | QLogic QLA23xx PCI Fibre Channel Adapter                | OK     |
| 0x00002100-0x000021FF | Adaptec AIC-7899 Ultra160 PCI SCSI Card     |    | IRQ 67                | QLogic QLA23xx PCI Fibre Channel Adapter                | OK     |
| OK                    |                                             |    | IRQ 11                | Other PCI Bridge Device                                 | OK     |
| 0x00002800-0x000029FF | PCI bus                                     | OK | IRQ 193               | Adaptec AIC-7899 Ultra160 PCI SCSI Card                 | OK     |
| 0x00002800-0x000029FF | QLogic QLA23xx PCI Fibre Channel Adapter    |    | IRQ 194               | Adaptec AIC-7899 Ultra160 PCI SCSI Card                 | OK     |
| OK                    |                                             |    | IRQ 195               | Broadcom NetXtreme Gigabit Ethernet #2                  | OK     |
| 0x00002900-0x000029FF | QLogic QLA23xx PCI Fibre Channel Adapter    |    | IRQ 173               | QLogic QLA23xx PCI Fibre Channel Adapter                | OK     |
| OK                    |                                             |    | IRQ 174               | QLogic QLA23xx PCI Fibre Channel Adapter                | OK     |
| 0x00003000-0x00003FFF | PCI bus                                     | OK | IRQ 177               | QLogic QLA23xx PCI Fibre Channel Adapter                | OK     |
| 0x00002A00-0x00002BFF | PCI bus                                     | OK | IRQ 120               | Intel(R) PRO/100 S Dual Port Server Adapter             | OK     |
| 0x00002A00-0x00002BFF | QLogic QLA23xx PCI Fibre Channel Adapter    |    | IRQ 121               | Intel(R) PRO/100 S Dual Port Server Adapter #2          | OK     |
| OK                    |                                             |    | IRQ 109               | QLogic QLA23xx PCI Fibre Channel Adapter                | OK     |
| 0x00004000-0x00005FFF | PCI bus                                     | OK | IRQ 102               | QLogic QLA23xx PCI Fibre Channel Adapter                | OK     |
| 0x0000CC00-0x0000CDDF | PCI bus                                     | OK | IRQ 130               | QLogic QLA23xx PCI Fibre Channel Adapter                | OK     |
| 0x0000CC00-0x0000CDDF | Other PCI Bridge Device                     | OK | IRQ 123               | QLogic QLA23xx PCI Fibre Channel Adapter                | OK     |
| 0x0000CE00-0x0000CFFF | PCI bus                                     | OK | IRQ 3                 | Communications Port (COM1)                              | OK     |
| 0x0000CE00-0x0000CFFF | Adaptec AIC-7899 Ultra160 PCI SCSI Card     |    | [Memory]              |                                                         |        |
| OK                    |                                             |    | Resource              | Device                                                  | Status |
| 0x0000CF00-0x0000CFFF | Adaptec AIC-7899 Ultra160 PCI SCSI Card     |    | 0xA0000-0xA7FFF       | PCI bus                                                 | OK     |
| OK                    |                                             |    | 0xA0000-0xA7FFF       | S3 Graphics Inc. Savage4                                | OK     |
| 0x0000D000-0x0000D1FF | PCI bus                                     | OK | 0xA8000-0xAFFFF       | PCI bus                                                 | OK     |
| 0x0000D000-0x0000D1FF | QLogic QLA23xx PCI Fibre Channel Adapter    |    | 0xB0000-0xB7FFF       | PCI bus                                                 | OK     |
| OK                    |                                             |    | 0xB8000-0xBFFFF       | PCI bus                                                 | OK     |
| 0x0000D100-0x0000D1FF | QLogic QLA23xx PCI Fibre Channel Adapter    |    | 0xE0000000-0xE7FFFFFF | PCI bus                                                 | OK     |
| OK                    |                                             |    | 0xE0000000-0xE7FFFFFF | S3 Graphics Inc. Savage4                                | OK     |
| 0x0000D200-0x0000D3FF | PCI bus                                     | OK | 0xF0800000-0xF0BFFFF  | PCI bus                                                 | OK     |
| 0x0000D400-0x0000D5FF | PCI bus                                     | OK | 0xF0800000-0xF0BFFFF  | Other PCI Bridge Device                                 | OK     |
| 0x0000D800-0x0000DBFF | PCI bus                                     | OK | 0xF0A00000-0xF0A7FFF  | S3 Graphics Inc. Savage4                                | OK     |
| 0x0000DA00-0x0000DAFF | QLogic QLA23xx PCI Fibre Channel Adapter    |    | 0xF1200000-0xF12FFFF  | PCI bus                                                 | OK     |
| OK                    |                                             |    | 0xF1200000-0xF12FFFF  | Broadcom NetXtreme Gigabit Ethernet                     |        |
| 0x00006000-0x00007FFF | PCI bus                                     | OK | OK                    |                                                         |        |
| 0x00007000-0x00007FFF | Intel 21154 PCI to PCI bridge               | OK | 0xF1210000-0xF1210FFF | Adaptec AIC-7899 Ultra160 PCI SCSI Card                 |        |
| 0x00007000-0x00007FFF | Intel(R) PRO/100 S Dual Port Server Adapter |    | OK                    |                                                         |        |
| OK                    |                                             |    |                       |                                                         |        |
| 0x00007040-0x0000707F | Intel(R) PRO/100 S Dual Port Server Adapter |    |                       |                                                         |        |
| #2                    | OK                                          |    |                       |                                                         |        |
| 0x00008000-0x00009FFF | PCI bus                                     | OK |                       |                                                         |        |

[Components]

(srv03\_rtm.030312-1801) 10.50 KB (10,752 bytes) 3/17/2003 5:41 PM

[CD-ROM]

| Item                                        | Value                                                                                                                  |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Drive D:                                    |                                                                                                                        |
| Description                                 | CD-ROM Drive                                                                                                           |
| Media Loaded                                | No                                                                                                                     |
| Media Type                                  | CD-ROM                                                                                                                 |
| Name                                        | LG CD-ROM CRN-8245B                                                                                                    |
| Manufacturer                                | (Standard CD-ROM drives)                                                                                               |
| Status                                      | OK                                                                                                                     |
| Transfer Rate                               | Not Available                                                                                                          |
| SCSI Target ID                              | 0                                                                                                                      |
| PNP Device ID                               |                                                                                                                        |
| IDE\CDROMLG_CD-ROM_CRN-8245B_____1.16____\5 |                                                                                                                        |
| &2CDE688A&0&0.0.0                           |                                                                                                                        |
| Driver                                      | c:\windows\system32\drivers\cdrom.sys (5.2.3787.0 (srv03_rtm.030312-1801), 49.50 KB (50,688 bytes), 3/12/2003 3:25 PM) |

[Sound Device]

| Item | Value |
|------|-------|
|------|-------|

[Display]

| Item                                                         | Value                                                                                                          |
|--------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Name                                                         | S3 Graphics Inc. Savage4                                                                                       |
| PNP Device ID                                                |                                                                                                                |
| PCI\VEN_5333&DEV_8A22&SUBSYS_01C51014&REV_06\3&267A616A&0&18 |                                                                                                                |
| Adapter Type                                                 | S3 Savage4, S3 Graphics, Inc. compatible                                                                       |
| Adapter Description                                          | S3 Graphics Inc. Savage4                                                                                       |
| Adapter RAM                                                  | 8.00 MB (8,388,608 bytes)                                                                                      |
| Installed Drivers                                            | S3gsav4.dll                                                                                                    |
| Driver Version                                               | 6.13.10.8013-13.95.13                                                                                          |
| INF File                                                     | oem3.inf (S3SAVAGE4 section)                                                                                   |
| Color Planes                                                 | 1                                                                                                              |
| Color Table Entries                                          | 65536                                                                                                          |
| Resolution                                                   | 1024 x 768 x 85 hertz                                                                                          |
| Bits/Pixel                                                   | 16                                                                                                             |
| Memory Address                                               | 0xF0A00000-0xF0A7FFFF                                                                                          |
| Memory Address                                               | 0xE0000000-0xE7FFFFFFF                                                                                         |
| I/O Port                                                     | 0x000003B0-0x000003BB                                                                                          |
| I/O Port                                                     | 0x000003C0-0x000003DF                                                                                          |
| Memory Address                                               | 0xA0000-0xA7FFF                                                                                                |
| Driver                                                       | c:\windows\system32\drivers\s3gsav4m.sys (6.13.10.8013-13.95.13, 135.63 KB (138,880 bytes), 3/18/2003 3:30 PM) |

[Infrared]

| Item | Value |
|------|-------|
|------|-------|

[Input]

[Keyboard]

| Item                    | Value                                                   |
|-------------------------|---------------------------------------------------------|
| Description             | Standard 101/102-Key or Microsoft Natural PS/2 Keyboard |
| Name                    | Enhanced (101- or 102-key)                              |
| Layout                  | 00000409                                                |
| PNP Device ID           | ACPI\PNP0303\4&7FD7688&0                                |
| Number of Function Keys | 12                                                      |
| IRQ Channel             | IRQ 1                                                   |

|          |                                                                                                                           |
|----------|---------------------------------------------------------------------------------------------------------------------------|
| I/O Port | 0x00000064-0x00000064                                                                                                     |
| I/O Port | 0x00000060-0x00000060                                                                                                     |
| Driver   | c:\windows\system32\drivers\i8042prt.sys (5.2.3787.0 (srv03_rtm.030312-1801), 68.50 KB (70,144 bytes), 3/13/2003 1:27 PM) |

[Pointing Device]

| Item                       | Value                                                                                                                     |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Hardware Type              | PS/2 Compatible Mouse                                                                                                     |
| Number of Buttons          | 3                                                                                                                         |
| Status                     | OK                                                                                                                        |
| PNP Device ID              | ACPI\PNP0F13\4&7FD7688&0                                                                                                  |
| Power Management Supported | No                                                                                                                        |
| Double Click Threshold     | 6                                                                                                                         |
| Handedness                 | Right Handed Operation                                                                                                    |
| IRQ Channel                | IRQ 12                                                                                                                    |
| Driver                     | c:\windows\system32\drivers\i8042prt.sys (5.2.3787.0 (srv03_rtm.030312-1801), 68.50 KB (70,144 bytes), 3/13/2003 1:27 PM) |

[Modem]

| Item | Value |
|------|-------|
|------|-------|

[Network]

[Adapter]

| Item                                                         | Value                                                                                                             |
|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Name                                                         | [00000001] Broadcom NetXtreme Gigabit Ethernet                                                                    |
| Adapter Type                                                 | Ethernet 802.3                                                                                                    |
| Product Type                                                 | Broadcom NetXtreme Gigabit Ethernet                                                                               |
| Installed                                                    | Yes                                                                                                               |
| PNP Device ID                                                |                                                                                                                   |
| PCI\VEN_14E4&DEV_1644&SUBSYS_02771014&REV_12\3&13C0B0C5&0&20 |                                                                                                                   |
| Last Reset                                                   | 3/25/2003 10:22 AM                                                                                                |
| Index                                                        | 1                                                                                                                 |
| Service Name                                                 | b57w2k                                                                                                            |
| IP Address                                                   | 0.0.0.0                                                                                                           |
| IP Subnet                                                    | 0.0.0.0                                                                                                           |
| Default IP Gateway                                           | Not Available                                                                                                     |
| DHCP Enabled                                                 | No                                                                                                                |
| DHCP Server                                                  | Not Available                                                                                                     |
| DHCP Lease Expires                                           | Not Available                                                                                                     |
| DHCP Lease Obtained                                          | Not Available                                                                                                     |
| MAC Address                                                  | 00:02:55:DC:08:BD                                                                                                 |
| Memory Address                                               | 0xF1200000-0xF12FFFFFFF                                                                                           |
| IRQ Channel                                                  | IRQ 42                                                                                                            |
| Driver                                                       | c:\windows\system32\drivers\b57xp32.sys (2.91.0.0 built by: WinDDK, 137.00 KB (140,288 bytes), 3/10/2003 6:30 PM) |

|                     |                              |
|---------------------|------------------------------|
| Name                | [00000002] RAS Async Adapter |
| Adapter Type        | Not Available                |
| Product Type        | RAS Async Adapter            |
| Installed           | Yes                          |
| PNP Device ID       | Not Available                |
| Last Reset          | 3/25/2003 10:22 AM           |
| Index               | 2                            |
| Service Name        | AsyncMac                     |
| IP Address          | Not Available                |
| IP Subnet           | Not Available                |
| Default IP Gateway  | Not Available                |
| DHCP Enabled        | No                           |
| DHCP Server         | Not Available                |
| DHCP Lease Expires  | Not Available                |
| DHCP Lease Obtained | Not Available                |

MAC Address Not Available

Name [00000003] WAN Miniport (L2TP)  
 Adapter Type Not Available  
 Product Type WAN Miniport (L2TP)  
 Installed Yes  
 PNP Device ID ROOT\MS\_L2TPMINIPOINT\0000  
 Last Reset 3/25/2003 10:22 AM  
 Index 3  
 Service Name Rasl2tp  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled No  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Driver c:\windows\system32\drivers\rasl2tp.sys (5.2.3787.0 (srv03\_rtm.030312-1801), 77.00 KB (78,848 bytes), 3/17/2003 5:41 PM)

Name [00000004] WAN Miniport (PPTP)  
 Adapter Type Wide Area Network (WAN)  
 Product Type WAN Miniport (PPTP)  
 Installed Yes  
 PNP Device ID ROOT\MS\_PPTPMINIPOINT\0000  
 Last Reset 3/25/2003 10:22 AM  
 Index 4  
 Service Name PptpMiniport  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled No  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address 50:50:54:50:30:30  
 Driver c:\windows\system32\drivers\rasppptp.sys (5.2.3787.0 (srv03\_rtm.030312-1801), 70.50 KB (72,192 bytes), 3/17/2003 5:41 PM)

Name [00000005] WAN Miniport (PPPOE)  
 Adapter Type Wide Area Network (WAN)  
 Product Type WAN Miniport (PPPOE)  
 Installed Yes  
 PNP Device ID ROOT\MS\_PPPOEMINIPOINT\0000  
 Last Reset 3/25/2003 10:22 AM  
 Index 5  
 Service Name RasPppoe  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled No  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address 33:50:6F:45:30:30  
 Driver c:\windows\system32\drivers\raspppoe.sys (5.2.3787.0 (srv03\_rtm.030312-1801), 38.00 KB (38,912 bytes), 3/17/2003 5:41 PM)

Name [00000006] Direct Parallel  
 Adapter Type Not Available  
 Product Type Direct Parallel  
 Installed Yes  
 PNP Device ID ROOT\MS\_PTMINIPOINT\0000  
 Last Reset 3/25/2003 10:22 AM  
 Index 6  
 Service Name Raspti  
 IP Address Not Available

IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled No  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Driver c:\windows\system32\drivers\raspti.sys (5.2.3787.0 (srv03\_rtm.030312-1801), 18.50 KB (18,944 bytes), 3/17/2003 5:41 PM)

Name [00000007] WAN Miniport (IP)  
 Adapter Type Not Available  
 Product Type WAN Miniport (IP)  
 Installed Yes  
 PNP Device ID ROOT\MS\_NDISWANIP\0000  
 Last Reset 3/25/2003 10:22 AM  
 Index 7  
 Service Name NdisWan  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled No  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Driver c:\windows\system32\drivers\ndiswan.sys (5.2.3787.0 (srv03\_rtm.030312-1801), 100.50 KB (102,912 bytes), 3/17/2003 5:41 PM)

Name [00000008] Broadcom NetXtreme Gigabit Ethernet  
 Adapter Type Ethernet 802.3  
 Product Type Broadcom NetXtreme Gigabit Ethernet  
 Installed Yes  
 PNP Device ID PCI\VEN\_14E4&DEV\_1644&SUBSYS\_02771014&REV\_12\3&1D521019&0&20  
 Last Reset 3/25/2003 10:22 AM  
 Index 8  
 Service Name b57w2k  
 IP Address 0.0.0.0  
 IP Subnet 0.0.0.0  
 Default IP Gateway Not Available  
 DHCP Enabled Yes  
 DHCP Server  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address 00:02:55:DC:0C:D6  
 Memory Address 0xFAC00000-0xFACFFFFF  
 IRQ Channel IRQ 195  
 Driver c:\windows\system32\drivers\b57xp32.sys (2.91.0.0 built by: WinDDK, 137.00 KB (140,288 bytes), 3/10/2003 6:30 PM)

Name [00000009] Intel(R) PRO/100 S Dual Port Server Adapter  
 Adapter Type Ethernet 802.3  
 Product Type Intel(R) PRO/100 S Dual Port Server Adapter  
 Installed Yes  
 PNP Device ID PCI\VEN\_8086&DEV\_1229&SUBSYS\_10158086&REV\_0D\4&15E0FAB5&0&2010  
 Last Reset 3/25/2003 10:22 AM  
 Index 9  
 Service Name E100B  
 IP Address 192.168.128.130  
 IP Subnet 255.255.255.0  
 Default IP Gateway Not Available  
 DHCP Enabled No  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available

DHCP Lease Obtained Not Available  
 MAC Address 00:02:B3:A7:30:63  
 Memory Address 0xF4440000-0xF4440FFF  
 I/O Port 0x00007000-0x00007FFF  
 Memory Address 0xF4400000-0xF44FFFFF  
 IRQ Channel IRQ 120  
 Driver c:\windows\system32\drivers\e100b325.sys (6.6.8.1 built by:  
 WinDDK, 138.50 KB (141,824 bytes), 3/10/2003 6:35 PM)

Name [00000010] Intel(R) PRO/100 S Dual Port Server Adapter  
 Adapter Type Ethernet 802.3  
 Product Type Intel(R) PRO/100 S Dual Port Server Adapter  
 Installed Yes  
 PNP Device ID  
 PCI\VEN\_8086&DEV\_1229&SUBSYS\_10158086&REV\_0D\4&15E0FAB5&  
 0&2810  
 Last Reset 3/25/2003 10:22 AM  
 Index 10  
 Service Name E100B  
 IP Address 192.168.125.232  
 IP Subnet 255.255.255.0  
 Default IP Gateway Not Available  
 DHCP Enabled No  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address 00:02:B3:A7:30:64  
 Memory Address 0xF4441000-0xF4441FFF  
 I/O Port 0x00007040-0x0000707F  
 Memory Address 0xF4420000-0xF443FFFF  
 IRQ Channel IRQ 121  
 Driver c:\windows\system32\drivers\e100b325.sys (6.6.8.1 built by:  
 WinDDK, 138.50 KB (141,824 bytes), 3/10/2003 6:35 PM)

Name [00000011] Intel(R) PRO/1000 XF Server Adapter  
 Adapter Type Not Available  
 Product Type Intel(R) PRO/1000 XF Server Adapter  
 Installed Yes  
 PNP Device ID Not Available  
 Last Reset 3/25/2003 10:22 AM  
 Index 11  
 Service Name E1000  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled Yes  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available

Name [00000012] Broadcom NetXtreme Gigabit Ethernet  
 Adapter Type Not Available  
 Product Type Broadcom NetXtreme Gigabit Ethernet  
 Installed Yes  
 PNP Device ID Not Available  
 Last Reset 3/25/2003 10:22 AM  
 Index 12  
 Service Name b57w2k  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled Yes  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available

Name [00000013] Intel(R) PRO/1000 XF Server Adapter  
 Adapter Type Not Available  
 Product Type Intel(R) PRO/1000 XF Server Adapter  
 Installed Yes  
 PNP Device ID Not Available  
 Last Reset 3/25/2003 10:22 AM  
 Index 13  
 Service Name E1000  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled Yes  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available

#### [Protocol]

| Item                          | Value                |
|-------------------------------|----------------------|
| Name                          | MSAFD Tcpip [TCP/IP] |
| Connectionless Service        | No                   |
| Guarantees Delivery           | Yes                  |
| Guarantees Sequencing         | Yes                  |
| Maximum Address Size          | 16 bytes             |
| Maximum Message Size          | 0 bytes              |
| Message Oriented              | No                   |
| Minimum Address Size          | 16 bytes             |
| Pseudo Stream Oriented        | No                   |
| Supports Broadcasting         | No                   |
| Supports Connect Data         | No                   |
| Supports Disconnect Data      | No                   |
| Supports Encryption           | No                   |
| Supports Expedited Data       | Yes                  |
| Supports Graceful Closing     | Yes                  |
| Supports Guaranteed Bandwidth | No                   |
| Supports Multicasting         | No                   |

| Name                          | MSAFD Tcpip [UDP/IP]    |
|-------------------------------|-------------------------|
| Connectionless Service        | Yes                     |
| Guarantees Delivery           | No                      |
| Guarantees Sequencing         | No                      |
| Maximum Address Size          | 16 bytes                |
| Maximum Message Size          | 63.93 KB (65,467 bytes) |
| Message Oriented              | Yes                     |
| Minimum Address Size          | 16 bytes                |
| Pseudo Stream Oriented        | No                      |
| Supports Broadcasting         | Yes                     |
| Supports Connect Data         | No                      |
| Supports Disconnect Data      | No                      |
| Supports Encryption           | No                      |
| Supports Expedited Data       | No                      |
| Supports Graceful Closing     | No                      |
| Supports Guaranteed Bandwidth | No                      |
| Supports Multicasting         | Yes                     |

| Name                     | RSVP UDP Service Provider |
|--------------------------|---------------------------|
| Connectionless Service   | Yes                       |
| Guarantees Delivery      | No                        |
| Guarantees Sequencing    | No                        |
| Maximum Address Size     | 16 bytes                  |
| Maximum Message Size     | 63.93 KB (65,467 bytes)   |
| Message Oriented         | Yes                       |
| Minimum Address Size     | 16 bytes                  |
| Pseudo Stream Oriented   | No                        |
| Supports Broadcasting    | Yes                       |
| Supports Connect Data    | No                        |
| Supports Disconnect Data | No                        |

Supports Encryption Yes  
 Supports Expedited Data No  
 Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting Yes

Name RSVP TCP Service Provider  
 Connectionless Service No  
 Guarantees Delivery Yes  
 Guarantees Sequencing Yes  
 Maximum Address Size 16 bytes  
 Maximum Message Size 0 bytes  
 Message Oriented No  
 Minimum Address Size 16 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting No  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption Yes  
 Supports Expedited Data Yes  
 Supports Graceful Closing Yes  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{FB5AFF53-62F6-4D6B-8426-7BE2C286721D}]  
 SEQPACKET 8  
 Connectionless Service No  
 Guarantees Delivery Yes  
 Guarantees Sequencing Yes  
 Maximum Address Size 20 bytes  
 Maximum Message Size 62.50 KB (64,000 bytes)  
 Message Oriented Yes  
 Minimum Address Size 20 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting No  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption No  
 Supports Expedited Data No  
 Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{FB5AFF53-62F6-4D6B-8426-7BE2C286721D}]  
 DATAGRAM 8  
 Connectionless Service Yes  
 Guarantees Delivery No  
 Guarantees Sequencing No  
 Maximum Address Size 20 bytes  
 Maximum Message Size 62.50 KB (64,000 bytes)  
 Message Oriented Yes  
 Minimum Address Size 20 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting Yes  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption No  
 Supports Expedited Data No  
 Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{4C8B4E0E-D748-4CE8-B87B-5B1DEE14E6E4}]  
 SEQPACKET 7  
 Connectionless Service No

Guarantees Delivery Yes  
 Guarantees Sequencing Yes  
 Maximum Address Size 20 bytes  
 Maximum Message Size 62.50 KB (64,000 bytes)  
 Message Oriented Yes  
 Minimum Address Size 20 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting No  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption No  
 Supports Expedited Data No  
 Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{4C8B4E0E-D748-4CE8-B87B-5B1DEE14E6E4}]  
 DATAGRAM 7  
 Connectionless Service Yes  
 Guarantees Delivery No  
 Guarantees Sequencing No  
 Maximum Address Size 20 bytes  
 Maximum Message Size 62.50 KB (64,000 bytes)  
 Message Oriented Yes  
 Minimum Address Size 20 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting Yes  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption No  
 Supports Expedited Data No  
 Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{691E779C-0503-4904-A303-4F95E2DAA8C8}]  
 SEQPACKET 6  
 Connectionless Service No  
 Guarantees Delivery Yes  
 Guarantees Sequencing Yes  
 Maximum Address Size 20 bytes  
 Maximum Message Size 62.50 KB (64,000 bytes)  
 Message Oriented Yes  
 Minimum Address Size 20 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting No  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption No  
 Supports Expedited Data No  
 Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{691E779C-0503-4904-A303-4F95E2DAA8C8}]  
 DATAGRAM 6  
 Connectionless Service Yes  
 Guarantees Delivery No  
 Guarantees Sequencing No  
 Maximum Address Size 20 bytes  
 Maximum Message Size 62.50 KB (64,000 bytes)  
 Message Oriented Yes  
 Minimum Address Size 20 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting Yes

Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption No  
 Supports Expedited Data No  
 Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{E98BA139-9C65-4F54-9FED-7D831BAC9C72}]  
 SEQPACKET 5  
 Connectionless Service No  
 Guarantees Delivery Yes  
 Guarantees Sequencing Yes  
 Maximum Address Size 20 bytes  
 Maximum Message Size 62.50 KB (64,000 bytes)  
 Message Oriented Yes  
 Minimum Address Size 20 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting No  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption No  
 Supports Expedited Data No  
 Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{E98BA139-9C65-4F54-9FED-7D831BAC9C72}]  
 DATAGRAM 5  
 Connectionless Service Yes  
 Guarantees Delivery No  
 Guarantees Sequencing No  
 Maximum Address Size 20 bytes  
 Maximum Message Size 62.50 KB (64,000 bytes)  
 Message Oriented Yes  
 Minimum Address Size 20 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting Yes  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption No  
 Supports Expedited Data No  
 Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{041006D3-2AF8-4469-A170-5352DC7B851A}]  
 SEQPACKET 4  
 Connectionless Service No  
 Guarantees Delivery Yes  
 Guarantees Sequencing Yes  
 Maximum Address Size 20 bytes  
 Maximum Message Size 62.50 KB (64,000 bytes)  
 Message Oriented Yes  
 Minimum Address Size 20 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting No  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption No  
 Supports Expedited Data No  
 Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{041006D3-2AF8-4469-A170-5352DC7B851A}]  
 DATAGRAM 4  
 Connectionless Service Yes  
 Guarantees Delivery No  
 Guarantees Sequencing No  
 Maximum Address Size 20 bytes  
 Maximum Message Size 62.50 KB (64,000 bytes)  
 Message Oriented Yes  
 Minimum Address Size 20 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting Yes  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption No  
 Supports Expedited Data No  
 Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{45A5B705-49E3-4DA8-8935-423A4D86CFDC}]  
 SEQPACKET 3  
 Connectionless Service No  
 Guarantees Delivery Yes  
 Guarantees Sequencing Yes  
 Maximum Address Size 20 bytes  
 Maximum Message Size 62.50 KB (64,000 bytes)  
 Message Oriented Yes  
 Minimum Address Size 20 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting No  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption No  
 Supports Expedited Data No  
 Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{45A5B705-49E3-4DA8-8935-423A4D86CFDC}]  
 DATAGRAM 3  
 Connectionless Service Yes  
 Guarantees Delivery No  
 Guarantees Sequencing No  
 Maximum Address Size 20 bytes  
 Maximum Message Size 62.50 KB (64,000 bytes)  
 Message Oriented Yes  
 Minimum Address Size 20 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting Yes  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption No  
 Supports Expedited Data No  
 Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{86D06A23-80C1-49D1-A2BA-20AC83B66BA2}]  
 SEQPACKET 0  
 Connectionless Service No  
 Guarantees Delivery Yes  
 Guarantees Sequencing Yes  
 Maximum Address Size 20 bytes  
 Maximum Message Size 62.50 KB (64,000 bytes)

Message Oriented Yes  
 Minimum Address Size 20 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting No  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption No  
 Supports Expedited Data No  
 Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{86D06A23-80C1-49D1-A2BA-20AC83B66BA2}]  
 DATAGRAM 0  
 Connectionless Service Yes  
 Guarantees Delivery No  
 Guarantees Sequencing No  
 Maximum Address Size 20 bytes  
 Maximum Message Size 62.50 KB (64,000 bytes)  
 Message Oriented Yes  
 Minimum Address Size 20 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting Yes  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption No  
 Supports Expedited Data No  
 Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{3B1418C0-EFD7-4070-A3E9-003BCB0EDD08}]  
 SEQPACKET 1  
 Connectionless Service No  
 Guarantees Delivery Yes  
 Guarantees Sequencing Yes  
 Maximum Address Size 20 bytes  
 Maximum Message Size 62.50 KB (64,000 bytes)  
 Message Oriented Yes  
 Minimum Address Size 20 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting No  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption No  
 Supports Expedited Data No  
 Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{3B1418C0-EFD7-4070-A3E9-003BCB0EDD08}]  
 DATAGRAM 1  
 Connectionless Service Yes  
 Guarantees Delivery No  
 Guarantees Sequencing No  
 Maximum Address Size 20 bytes  
 Maximum Message Size 62.50 KB (64,000 bytes)  
 Message Oriented Yes  
 Minimum Address Size 20 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting Yes  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption No  
 Supports Expedited Data No

Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{5EF71894-7609-44A8-9960-F1E26AA41B62}]  
 SEQPACKET 2  
 Connectionless Service No  
 Guarantees Delivery Yes  
 Guarantees Sequencing Yes  
 Maximum Address Size 20 bytes  
 Maximum Message Size 62.50 KB (64,000 bytes)  
 Message Oriented Yes  
 Minimum Address Size 20 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting No  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption No  
 Supports Expedited Data No  
 Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{5EF71894-7609-44A8-9960-F1E26AA41B62}]  
 DATAGRAM 2  
 Connectionless Service Yes  
 Guarantees Delivery No  
 Guarantees Sequencing No  
 Maximum Address Size 20 bytes  
 Maximum Message Size 62.50 KB (64,000 bytes)  
 Message Oriented Yes  
 Minimum Address Size 20 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting Yes  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption No  
 Supports Expedited Data No  
 Supports Graceful Closing No  
 Supports Guaranteed Bandwidth No  
 Supports Multicasting No

#### [WinSock]

| Item    | Value                              |
|---------|------------------------------------|
| File    | c:\windows\system32\winsock.dll    |
| Size    | 2.80 KB (2,864 bytes)              |
| Version | 3.10                               |
| File    | c:\windows\system32\wssock32.dll   |
| Size    | 22.00 KB (22,528 bytes)            |
| Version | 5.2.3787.0 (srv03_rtm.030312-1801) |

#### [Ports]

#### [Serial]

| Item | Value |
|------|-------|
|------|-------|

#### [Parallel]

| Item | Value |
|------|-------|
|------|-------|

#### [Storage]

[Drives]

|                      |                                   |
|----------------------|-----------------------------------|
| Item                 | Value                             |
| Drive A:             |                                   |
| Description          | 3 1/2 Inch Floppy Drive           |
| Drive C:             |                                   |
| Description          | Local Fixed Disk                  |
| Compressed           | No                                |
| File System          | NTFS                              |
| Size                 | 16.94 GB (18,194,284,544 bytes)   |
| Free Space           | 7.85 GB (8,425,664,512 bytes)     |
| Volume Name          |                                   |
| Volume Serial Number | 84F031A4                          |
| Drive D:             |                                   |
| Description          | CD-ROM Disc                       |
| Drive E:             |                                   |
| Description          | Local Fixed Disk                  |
| Compressed           | Not Available                     |
| File System          | Not Available                     |
| Size                 | Not Available                     |
| Free Space           | Not Available                     |
| Volume Name          | Not Available                     |
| Volume Serial Number | Not Available                     |
| Drive F:             |                                   |
| Description          | Local Fixed Disk                  |
| Compressed           | No                                |
| File System          | NTFS                              |
| Size                 | 137.70 GB (147,849,371,648 bytes) |
| Free Space           | 137.62 GB (147,768,848,384 bytes) |
| Volume Name          | F_drive                           |
| Volume Serial Number | AC367C1E                          |
| Drive G:             |                                   |
| Description          | Local Fixed Disk                  |
| Compressed           | No                                |
| File System          | NTFS                              |
| Size                 | 415.04 GB (445,645,635,584 bytes) |
| Free Space           | 414.96 GB (445,564,420,096 bytes) |
| Volume Name          | G_drive                           |
| Volume Serial Number | 4C299B13                          |
| Drive H:             |                                   |
| Description          | Local Fixed Disk                  |
| Compressed           | No                                |
| File System          | NTFS                              |
| Size                 | 415.04 GB (445,645,635,584 bytes) |
| Free Space           | 227.37 GB (244,139,016,192 bytes) |
| Volume Name          | H_drive                           |
| Volume Serial Number | 64C01152                          |
| Drive I:             |                                   |
| Description          | Local Fixed Disk                  |
| Compressed           | No                                |
| File System          | NTFS                              |
| Size                 | 415.04 GB (445,645,635,584 bytes) |
| Free Space           | 227.37 GB (244,139,016,192 bytes) |
| Volume Name          | I_drive                           |
| Volume Serial Number | BCF8910F                          |
| Drive J:             |                                   |
| Description          | Local Fixed Disk                  |

|                      |                                   |
|----------------------|-----------------------------------|
| Compressed           | No                                |
| File System          | NTFS                              |
| Size                 | 415.04 GB (445,645,635,584 bytes) |
| Free Space           | 227.37 GB (244,139,016,192 bytes) |
| Volume Name          | J_drive                           |
| Volume Serial Number | 8401C6C7                          |
| Drive K:             |                                   |
| Description          | Local Fixed Disk                  |
| Compressed           | No                                |
| File System          | NTFS                              |
| Size                 | 415.04 GB (445,645,635,584 bytes) |
| Free Space           | 227.37 GB (244,139,016,192 bytes) |
| Volume Name          | K_drive                           |
| Volume Serial Number | E80A6450                          |
| Drive L:             |                                   |
| Description          | Local Fixed Disk                  |
| Compressed           | No                                |
| File System          | NTFS                              |
| Size                 | 415.04 GB (445,645,635,584 bytes) |
| Free Space           | 225.08 GB (241,673,371,648 bytes) |
| Volume Name          | L_drive                           |
| Volume Serial Number | 14D98603                          |
| Drive M:             |                                   |
| Description          | Local Fixed Disk                  |
| Compressed           | No                                |
| File System          | NTFS                              |
| Size                 | 415.04 GB (445,645,635,584 bytes) |
| Free Space           | 223.59 GB (240,074,358,784 bytes) |
| Volume Name          | M_drive                           |
| Volume Serial Number | 5821AA4F                          |
| Drive N:             |                                   |
| Description          | Local Fixed Disk                  |
| Compressed           | No                                |
| File System          | NTFS                              |
| Size                 | 415.04 GB (445,645,635,584 bytes) |
| Free Space           | 225.08 GB (241,673,420,800 bytes) |
| Volume Name          | N_drive                           |
| Volume Serial Number | D829B646                          |
| Drive O:             |                                   |
| Description          | Local Fixed Disk                  |
| Compressed           | No                                |
| File System          | NTFS                              |
| Size                 | 415.04 GB (445,645,635,584 bytes) |
| Free Space           | 225.08 GB (241,673,420,800 bytes) |
| Volume Name          | O_drive                           |
| Volume Serial Number | AC39B19D                          |
| Drive P:             |                                   |
| Description          | Local Fixed Disk                  |
| Compressed           | No                                |
| File System          | NTFS                              |
| Size                 | 415.04 GB (445,645,635,584 bytes) |
| Free Space           | 225.08 GB (241,673,420,800 bytes) |
| Volume Name          | P_drive                           |
| Volume Serial Number | BC496308                          |
| Drive Q:             |                                   |
| Description          | Local Fixed Disk                  |
| Compressed           | No                                |
| File System          | NTFS                              |
| Size                 | 415.04 GB (445,645,635,584 bytes) |
| Free Space           | 39.78 GB (42,713,546,752 bytes)   |
| Volume Name          | Q_drive                           |

Volume Serial Number 545280F6

Drive R:  
 Description Local Fixed Disk  
 Compressed No  
 File System NTFS  
 Size 415.04 GB (445,645,635,584 bytes)  
 Free Space 39.78 GB (42,713,612,288 bytes)  
 Volume Name R\_drive  
 Volume Serial Number 1C62AE54

Drive S:  
 Description Local Fixed Disk  
 Compressed No  
 File System NTFS  
 Size 415.04 GB (445,645,635,584 bytes)  
 Free Space 39.78 GB (42,713,612,288 bytes)  
 Volume Name S\_drive  
 Volume Serial Number E86A2DAB

Drive T:  
 Description Local Fixed Disk  
 Compressed No  
 File System NTFS  
 Size 415.04 GB (445,645,635,584 bytes)  
 Free Space 39.78 GB (42,713,612,288 bytes)  
 Volume Name T\_drive  
 Volume Serial Number B071ACEF

Drive U:  
 Description Local Fixed Disk  
 Compressed No  
 File System NTFS  
 Size 415.04 GB (445,645,635,584 bytes)  
 Free Space 39.78 GB (42,713,546,752 bytes)  
 Volume Name U\_drive  
 Volume Serial Number 38813830

Drive V:  
 Description Local Fixed Disk  
 Compressed No  
 File System NTFS  
 Size 415.04 GB (445,645,635,584 bytes)  
 Free Space 224.98 GB (241,568,493,568 bytes)  
 Volume Name V\_drive  
 Volume Serial Number 008994FD

Drive Z:  
 Description Network Connection  
 Provider Name \\192.168.125.1\gdrive

#### [Disks]

| Item              | Value                             |
|-------------------|-----------------------------------|
| Description       | Disk drive                        |
| Manufacturer      | (Standard disk drives)            |
| Model             | IBM 1742 SCSI Disk Device         |
| Bytes/Sector      | 512                               |
| Media Loaded      | Yes                               |
| Media Type        | Fixed hard disk                   |
| Partitions        | 3                                 |
| SCSI Bus          | 0                                 |
| SCSI Logical Unit | 0                                 |
| SCSI Port         | 9                                 |
| SCSI Target ID    | 0                                 |
| Sectors/Track     | 63                                |
| Size              | 473.52 GB (508,437,457,920 bytes) |
| Total Cylinders   | 61,814                            |

|                                  |                                   |
|----------------------------------|-----------------------------------|
| Total Sectors                    | 993,041,910                       |
| Total Tracks                     | 15,762,570                        |
| Tracks/Cylinder                  | 255                               |
| Partition Disk #13, Partition #0 |                                   |
| Partition Size                   | 36.13 GB (38,798,613,504 bytes)   |
| Partition Starting Offset        | 8,257,536 bytes                   |
| Partition Disk #13, Partition #1 |                                   |
| Partition Size                   | 20.51 GB (22,027,267,584 bytes)   |
| Partition Starting Offset        | 38,806,903,296 bytes              |
| Partition Disk #13, Partition #2 |                                   |
| Partition Size                   | 415.04 GB (445,645,638,144 bytes) |
| Partition Starting Offset        | 60,834,203,136 bytes              |

|                                  |                                   |
|----------------------------------|-----------------------------------|
| Description                      | Disk drive                        |
| Manufacturer                     | (Standard disk drives)            |
| Model                            | IBM 1742 SCSI Disk Device         |
| Bytes/Sector                     | 512                               |
| Media Loaded                     | Yes                               |
| Media Type                       | Fixed hard disk                   |
| Partitions                       | 3                                 |
| SCSI Bus                         | 0                                 |
| SCSI Logical Unit                | 2                                 |
| SCSI Port                        | 9                                 |
| SCSI Target ID                   | 0                                 |
| Sectors/Track                    | 63                                |
| Size                             | 473.52 GB (508,437,457,920 bytes) |
| Total Cylinders                  | 61,814                            |
| Total Sectors                    | 993,041,910                       |
| Total Tracks                     | 15,762,570                        |
| Tracks/Cylinder                  | 255                               |
| Partition Disk #14, Partition #0 |                                   |
| Partition Size                   | 36.13 GB (38,798,613,504 bytes)   |
| Partition Starting Offset        | 8,257,536 bytes                   |
| Partition Disk #14, Partition #1 |                                   |
| Partition Size                   | 20.51 GB (22,027,267,584 bytes)   |
| Partition Starting Offset        | 38,806,903,296 bytes              |
| Partition Disk #14, Partition #2 |                                   |
| Partition Size                   | 415.04 GB (445,645,638,144 bytes) |
| Partition Starting Offset        | 60,834,203,136 bytes              |

|                                  |                                   |
|----------------------------------|-----------------------------------|
| Description                      | Disk drive                        |
| Manufacturer                     | (Standard disk drives)            |
| Model                            | IBM 1742 SCSI Disk Device         |
| Bytes/Sector                     | 512                               |
| Media Loaded                     | Yes                               |
| Media Type                       | Fixed hard disk                   |
| Partitions                       | 3                                 |
| SCSI Bus                         | 0                                 |
| SCSI Logical Unit                | 1                                 |
| SCSI Port                        | 9                                 |
| SCSI Target ID                   | 1                                 |
| Sectors/Track                    | 63                                |
| Size                             | 473.52 GB (508,437,457,920 bytes) |
| Total Cylinders                  | 61,814                            |
| Total Sectors                    | 993,041,910                       |
| Total Tracks                     | 15,762,570                        |
| Tracks/Cylinder                  | 255                               |
| Partition Disk #15, Partition #0 |                                   |
| Partition Size                   | 36.13 GB (38,798,613,504 bytes)   |
| Partition Starting Offset        | 8,257,536 bytes                   |
| Partition Disk #15, Partition #1 |                                   |
| Partition Size                   | 20.51 GB (22,027,267,584 bytes)   |
| Partition Starting Offset        | 38,806,903,296 bytes              |
| Partition Disk #15, Partition #2 |                                   |
| Partition Size                   | 415.04 GB (445,645,638,144 bytes) |
| Partition Starting Offset        | 60,834,203,136 bytes              |

|             |            |
|-------------|------------|
| Description | Disk drive |
|-------------|------------|

Manufacturer (Standard disk drives)  
 Model IBM 1742 SCSI Disk Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 3  
 SCSI Port 9  
 SCSI Target ID 1  
 Sectors/Track 63  
 Size 473.52 GB (508,437,457,920 bytes)  
 Total Cylinders 61,814  
 Total Sectors 993,041,910  
 Total Tracks 15,762,570  
 Tracks/Cylinder 255  
 Partition Disk #16, Partition #0  
 Partition Size 36.13 GB (38,798,613,504 bytes)  
 Partition Starting Offset 8,257,536 bytes  
 Partition Disk #16, Partition #1  
 Partition Size 20.51 GB (22,027,267,584 bytes)  
 Partition Starting Offset 38,806,903,296 bytes  
 Partition Disk #16, Partition #2  
 Partition Size 415.04 GB (445,645,638,144 bytes)  
 Partition Starting Offset 60,834,203,136 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model IBM 1742 SCSI Disk Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 5  
 SCSI Target ID 0  
 Sectors/Track 63  
 Size 473.52 GB (508,437,457,920 bytes)  
 Total Cylinders 61,814  
 Total Sectors 993,041,910  
 Total Tracks 15,762,570  
 Tracks/Cylinder 255  
 Partition Disk #1, Partition #0  
 Partition Size 36.13 GB (38,798,613,504 bytes)  
 Partition Starting Offset 8,257,536 bytes  
 Partition Disk #1, Partition #1  
 Partition Size 20.51 GB (22,027,267,584 bytes)  
 Partition Starting Offset 38,806,903,296 bytes  
 Partition Disk #1, Partition #2  
 Partition Size 415.04 GB (445,645,638,144 bytes)  
 Partition Starting Offset 60,834,203,136 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model IBM 1742 SCSI Disk Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 2  
 SCSI Port 5  
 SCSI Target ID 0  
 Sectors/Track 63  
 Size 473.52 GB (508,437,457,920 bytes)  
 Total Cylinders 61,814  
 Total Sectors 993,041,910

Total Tracks 15,762,570  
 Tracks/Cylinder 255  
 Partition Disk #2, Partition #0  
 Partition Size 36.13 GB (38,798,613,504 bytes)  
 Partition Starting Offset 8,257,536 bytes  
 Partition Disk #2, Partition #1  
 Partition Size 20.51 GB (22,027,267,584 bytes)  
 Partition Starting Offset 38,806,903,296 bytes  
 Partition Disk #2, Partition #2  
 Partition Size 415.04 GB (445,645,638,144 bytes)  
 Partition Starting Offset 60,834,203,136 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model IBM 1742 SCSI Disk Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 1  
 SCSI Port 5  
 SCSI Target ID 1  
 Sectors/Track 63  
 Size 473.52 GB (508,437,457,920 bytes)  
 Total Cylinders 61,814  
 Total Sectors 993,041,910  
 Total Tracks 15,762,570  
 Tracks/Cylinder 255  
 Partition Disk #3, Partition #0  
 Partition Size 36.13 GB (38,798,613,504 bytes)  
 Partition Starting Offset 8,257,536 bytes  
 Partition Disk #3, Partition #1  
 Partition Size 20.51 GB (22,027,267,584 bytes)  
 Partition Starting Offset 38,806,903,296 bytes  
 Partition Disk #3, Partition #2  
 Partition Size 415.04 GB (445,645,638,144 bytes)  
 Partition Starting Offset 60,834,203,136 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model IBM 1742 SCSI Disk Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 3  
 SCSI Port 5  
 SCSI Target ID 1  
 Sectors/Track 63  
 Size 473.52 GB (508,437,457,920 bytes)  
 Total Cylinders 61,814  
 Total Sectors 993,041,910  
 Total Tracks 15,762,570  
 Tracks/Cylinder 255  
 Partition Disk #4, Partition #0  
 Partition Size 36.13 GB (38,798,613,504 bytes)  
 Partition Starting Offset 8,257,536 bytes  
 Partition Disk #4, Partition #1  
 Partition Size 20.51 GB (22,027,267,584 bytes)  
 Partition Starting Offset 38,806,903,296 bytes  
 Partition Disk #4, Partition #2  
 Partition Size 415.04 GB (445,645,638,144 bytes)  
 Partition Starting Offset 60,834,203,136 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)

Model IBM 1742 SCSI Disk Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 0  
 Sectors/Track 63  
 Size 473.52 GB (508,437,457,920 bytes)  
 Total Cylinders 61,814  
 Total Sectors 993,041,910  
 Total Tracks 15,762,570  
 Tracks/Cylinder 255  
 Partition Disk #9, Partition #0  
 Partition Size 36.13 GB (38,798,613,504 bytes)  
 Partition Starting Offset 8,257,536 bytes  
 Partition Disk #9, Partition #1  
 Partition Size 20.51 GB (22,027,267,584 bytes)  
 Partition Starting Offset 38,806,903,296 bytes  
 Partition Disk #9, Partition #2  
 Partition Size 415.04 GB (445,645,638,144 bytes)  
 Partition Starting Offset 60,834,203,136 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model IBM 1742 SCSI Disk Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 2  
 SCSI Port 8  
 SCSI Target ID 0  
 Sectors/Track 63  
 Size 473.52 GB (508,437,457,920 bytes)  
 Total Cylinders 61,814  
 Total Sectors 993,041,910  
 Total Tracks 15,762,570  
 Tracks/Cylinder 255  
 Partition Disk #10, Partition #0  
 Partition Size 36.13 GB (38,798,613,504 bytes)  
 Partition Starting Offset 8,257,536 bytes  
 Partition Disk #10, Partition #1  
 Partition Size 20.51 GB (22,027,267,584 bytes)  
 Partition Starting Offset 38,806,903,296 bytes  
 Partition Disk #10, Partition #2  
 Partition Size 415.04 GB (445,645,638,144 bytes)  
 Partition Starting Offset 60,834,203,136 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model IBM 1742 SCSI Disk Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 1  
 SCSI Port 8  
 SCSI Target ID 1  
 Sectors/Track 63  
 Size 473.52 GB (508,437,457,920 bytes)  
 Total Cylinders 61,814  
 Total Sectors 993,041,910  
 Total Tracks 15,762,570

Tracks/Cylinder 255  
 Partition Disk #11, Partition #0  
 Partition Size 36.13 GB (38,798,613,504 bytes)  
 Partition Starting Offset 8,257,536 bytes  
 Partition Disk #11, Partition #1  
 Partition Size 20.51 GB (22,027,267,584 bytes)  
 Partition Starting Offset 38,806,903,296 bytes  
 Partition Disk #11, Partition #2  
 Partition Size 415.04 GB (445,645,638,144 bytes)  
 Partition Starting Offset 60,834,203,136 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model IBM 1742 SCSI Disk Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 3  
 SCSI Port 8  
 SCSI Target ID 1  
 Sectors/Track 63  
 Size 473.52 GB (508,437,457,920 bytes)  
 Total Cylinders 61,814  
 Total Sectors 993,041,910  
 Total Tracks 15,762,570  
 Tracks/Cylinder 255  
 Partition Disk #12, Partition #0  
 Partition Size 36.13 GB (38,798,613,504 bytes)  
 Partition Starting Offset 8,257,536 bytes  
 Partition Disk #12, Partition #1  
 Partition Size 20.51 GB (22,027,267,584 bytes)  
 Partition Starting Offset 38,806,903,296 bytes  
 Partition Disk #12, Partition #2  
 Partition Size 415.04 GB (445,645,638,144 bytes)  
 Partition Starting Offset 60,834,203,136 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model IBM 1742 SCSI Disk Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 6  
 SCSI Target ID 0  
 Sectors/Track 63  
 Size 473.52 GB (508,437,457,920 bytes)  
 Total Cylinders 61,814  
 Total Sectors 993,041,910  
 Total Tracks 15,762,570  
 Tracks/Cylinder 255  
 Partition Disk #5, Partition #0  
 Partition Size 36.13 GB (38,798,613,504 bytes)  
 Partition Starting Offset 8,257,536 bytes  
 Partition Disk #5, Partition #1  
 Partition Size 20.51 GB (22,027,267,584 bytes)  
 Partition Starting Offset 38,806,903,296 bytes  
 Partition Disk #5, Partition #2  
 Partition Size 415.04 GB (445,645,638,144 bytes)  
 Partition Starting Offset 60,834,203,136 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model IBM 1742 SCSI Disk Device

Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 2  
 SCSI Port 6  
 SCSI Target ID 0  
 Sectors/Track 63  
 Size 473.52 GB (508,437,457,920 bytes)  
 Total Cylinders 61,814  
 Total Sectors 993,041,910  
 Total Tracks 15,762,570  
 Tracks/Cylinder 255  
 Partition Disk #6, Partition #0  
 Partition Size 36.13 GB (38,798,613,504 bytes)  
 Partition Starting Offset 8,257,536 bytes  
 Partition Disk #6, Partition #1  
 Partition Size 20.51 GB (22,027,267,584 bytes)  
 Partition Starting Offset 38,806,903,296 bytes  
 Partition Disk #6, Partition #2  
 Partition Size 415.04 GB (445,645,638,144 bytes)  
 Partition Starting Offset 60,834,203,136 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model IBM 1742 SCSI Disk Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 1  
 SCSI Port 6  
 SCSI Target ID 1  
 Sectors/Track 63  
 Size 473.52 GB (508,437,457,920 bytes)  
 Total Cylinders 61,814  
 Total Sectors 993,041,910  
 Total Tracks 15,762,570  
 Tracks/Cylinder 255  
 Partition Disk #7, Partition #0  
 Partition Size 36.13 GB (38,798,613,504 bytes)  
 Partition Starting Offset 8,257,536 bytes  
 Partition Disk #7, Partition #1  
 Partition Size 20.51 GB (22,027,267,584 bytes)  
 Partition Starting Offset 38,806,903,296 bytes  
 Partition Disk #7, Partition #2  
 Partition Size 415.04 GB (445,645,638,144 bytes)  
 Partition Starting Offset 60,834,203,136 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model IBM 1742 SCSI Disk Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 3  
 SCSI Port 6  
 SCSI Target ID 1  
 Sectors/Track 63  
 Size 473.52 GB (508,437,457,920 bytes)  
 Total Cylinders 61,814  
 Total Sectors 993,041,910  
 Total Tracks 15,762,570  
 Tracks/Cylinder 255

Partition Disk #8, Partition #0  
 Partition Size 36.13 GB (38,798,613,504 bytes)  
 Partition Starting Offset 8,257,536 bytes  
 Partition Disk #8, Partition #1  
 Partition Size 20.51 GB (22,027,267,584 bytes)  
 Partition Starting Offset 38,806,903,296 bytes  
 Partition Disk #8, Partition #2  
 Partition Size 415.04 GB (445,645,638,144 bytes)  
 Partition Starting Offset 60,834,203,136 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model IBM 1742 SCSI Disk Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 11  
 SCSI Target ID 0  
 Sectors/Track 63  
 Size 473.52 GB (508,437,457,920 bytes)  
 Total Cylinders 61,814  
 Total Sectors 993,041,910  
 Total Tracks 15,762,570  
 Tracks/Cylinder 255  
 Partition Disk #17, Partition #0  
 Partition Size 36.13 GB (38,798,613,504 bytes)  
 Partition Starting Offset 8,257,536 bytes  
 Partition Disk #17, Partition #1  
 Partition Size 20.51 GB (22,027,267,584 bytes)  
 Partition Starting Offset 38,806,903,296 bytes  
 Partition Disk #17, Partition #2  
 Partition Size 415.04 GB (445,645,638,144 bytes)  
 Partition Starting Offset 60,834,203,136 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model IBM 1742 SCSI Disk Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 2  
 SCSI Port 11  
 SCSI Target ID 0  
 Sectors/Track 63  
 Size 473.52 GB (508,437,457,920 bytes)  
 Total Cylinders 61,814  
 Total Sectors 993,041,910  
 Total Tracks 15,762,570  
 Tracks/Cylinder 255  
 Partition Disk #18, Partition #0  
 Partition Size 36.13 GB (38,798,613,504 bytes)  
 Partition Starting Offset 8,257,536 bytes  
 Partition Disk #18, Partition #1  
 Partition Size 20.51 GB (22,027,267,584 bytes)  
 Partition Starting Offset 38,806,903,296 bytes  
 Partition Disk #18, Partition #2  
 Partition Size 415.04 GB (445,645,638,144 bytes)  
 Partition Starting Offset 60,834,203,136 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model IBM 1742 SCSI Disk Device  
 Bytes/Sector 512

Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 1  
SCSI Port 11  
SCSI Target ID 1  
Sectors/Track 63  
Size 473.52 GB (508,437,457,920 bytes)  
Total Cylinders 61,814  
Total Sectors 993,041,910  
Total Tracks 15,762,570  
Tracks/Cylinder 255  
Partition Disk #19, Partition #0  
Partition Size 36.13 GB (38,798,613,504 bytes)  
Partition Starting Offset 8,257,536 bytes  
Partition Disk #19, Partition #1  
Partition Size 20.51 GB (22,027,267,584 bytes)  
Partition Starting Offset 38,806,903,296 bytes  
Partition Disk #19, Partition #2  
Partition Size 415.04 GB (445,645,638,144 bytes)  
Partition Starting Offset 60,834,203,136 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model IBM 1742 SCSI Disk Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk

Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 3  
SCSI Port 11  
SCSI Target ID 1  
Sectors/Track 63  
Size 473.52 GB (508,437,457,920 bytes)  
Total Cylinders 61,814  
Total Sectors 993,041,910  
Total Tracks 15,762,570  
Tracks/Cylinder 255  
Partition Disk #20, Partition #0  
Partition Size 36.13 GB (38,798,613,504 bytes)  
Partition Starting Offset 8,257,536 bytes  
Partition Disk #20, Partition #1  
Partition Size 20.51 GB (22,027,267,584 bytes)  
Partition Starting Offset 38,806,903,296 bytes  
Partition Disk #20, Partition #2  
Partition Size 415.04 GB (445,645,638,144 bytes)  
Partition Starting Offset 60,834,203,136 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model IBM 1742 SCSI Disk Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk

Partitions 2  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 2  
SCSI Target ID 0  
Sectors/Track 63  
Size 474.07 GB (509,029,678,080 bytes)  
Total Cylinders 61,886  
Total Sectors 994,198,590  
Total Tracks 15,780,930  
Tracks/Cylinder 255  
Partition Disk #0, Partition #0

Partition Size 334.97 GB (359,666,786,304 bytes)  
Partition Starting Offset 8,257,536 bytes  
Partition Disk #0, Partition #1  
Partition Size 137.70 GB (147,849,375,744 bytes)  
Partition Starting Offset 359,675,076,096 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model IBM-ESXS ST318305LC !# SCSI Disk Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 1  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 13  
SCSI Target ID 12  
Sectors/Track 63  
Size 16.94 GB (18,194,319,360 bytes)  
Total Cylinders 2,212  
Total Sectors 35,535,780  
Total Tracks 564,060  
Tracks/Cylinder 255  
Partition Disk #21, Partition #0  
Partition Size 16.94 GB (18,194,287,104 bytes)  
Partition Starting Offset 32,256 bytes

#### [SCSI]

| Item           | Value                                                                                                                             |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Name           | Adaptec AIC-7899 Ultra160 PCI SCSI Card                                                                                           |
| Manufacturer   | Adaptec                                                                                                                           |
| Status         | OK                                                                                                                                |
| PNP Device ID  | PCI\VEN_9005&DEV_00CF&SUBSYS_09AF1014&REV_01\3&13C0B0C5&0&18                                                                      |
| I/O Port       | 0x00002000-0x000027FF                                                                                                             |
| Memory Address | 0xF1210000-0xF1210FFF                                                                                                             |
| IRQ Channel    | IRQ 40                                                                                                                            |
| Driver         | c:\windows\system32\drivers\adpu160m.sys (RTC_XP07 (lab01_n(storbuild).010917-1031), 99.63 KB (102,016 bytes), 3/12/2003 3:33 PM) |

|                |                                                                                                                                   |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Name           | Adaptec AIC-7899 Ultra160 PCI SCSI Card                                                                                           |
| Manufacturer   | Adaptec                                                                                                                           |
| Status         | OK                                                                                                                                |
| PNP Device ID  | PCI\VEN_9005&DEV_00CF&SUBSYS_09AF1014&REV_01\3&13C0B0C5&0&19                                                                      |
| I/O Port       | 0x00002100-0x000021FF                                                                                                             |
| Memory Address | 0xF1211000-0xF1211FFF                                                                                                             |
| IRQ Channel    | IRQ 41                                                                                                                            |
| Driver         | c:\windows\system32\drivers\adpu160m.sys (RTC_XP07 (lab01_n(storbuild).010917-1031), 99.63 KB (102,016 bytes), 3/12/2003 3:33 PM) |

|                |                                                                                                               |
|----------------|---------------------------------------------------------------------------------------------------------------|
| Name           | QLogic QLA23xx PCI Fibre Channel Adapter                                                                      |
| Manufacturer   | QLogic                                                                                                        |
| Status         | OK                                                                                                            |
| PNP Device ID  | PCI\VEN_1077&DEV_2312&SUBSYS_01001077&REV_02\3&1070020&0&08                                                   |
| I/O Port       | 0x00002800-0x000029FF                                                                                         |
| Memory Address | 0xF1320000-0xF1320FFF                                                                                         |
| IRQ Channel    | IRQ 51                                                                                                        |
| Driver         | c:\windows\system32\drivers\ql2300.sys (8.2.0 Beta 10 (W2K VI), 431.38 KB (441,733 bytes), 3/19/2003 5:49 PM) |

Name QLogic QLA23xx PCI Fibre Channel Adapter  
 Manufacturer QLogic  
 Status OK  
 PNP Device ID  
 PCI\VEN\_1077&DEV\_2312&SUBSYS\_010C1077&REV\_02\3&1070020&0&10  
 I/O Port 0x00002900-0x000029FF  
 Memory Address 0xF1321000-0xF1321FFF  
 IRQ Channel IRQ 55  
 Driver c:\windows\system32\drivers\ql2300.sys (8.2.0 Beta 10 (W2K VI), 431.38 KB (441,733 bytes), 3/19/2003 5:49 PM)

Name QLogic QLA23xx PCI Fibre Channel Adapter  
 Manufacturer QLogic  
 Status OK  
 PNP Device ID  
 PCI\VEN\_1077&DEV\_2312&SUBSYS\_01001077&REV\_02\3&172E68DD&0&18  
 I/O Port 0x00002A00-0x00002BFF  
 Memory Address 0xF1520000-0xF1520FFF  
 IRQ Channel IRQ 67  
 Driver c:\windows\system32\drivers\ql2300.sys (8.2.0 Beta 10 (W2K VI), 431.38 KB (441,733 bytes), 3/19/2003 5:49 PM)

Name Adaptec AIC-7899 Ultra160 PCI SCSI Card  
 Manufacturer Adaptec  
 Status OK  
 PNP Device ID  
 PCI\VEN\_9005&DEV\_00CF&SUBSYS\_09AF1014&REV\_01\3&1D521019&0&18  
 I/O Port 0x0000CE00-0x0000CFFF  
 Memory Address 0xFAC10000-0xFAC10FFF  
 IRQ Channel IRQ 193  
 Driver c:\windows\system32\drivers\adpu160m.sys (RTC\_XP07 (lab01\_n(storbuild).010917-1031), 99.63 KB (102,016 bytes), 3/12/2003 3:33 PM)

Name Adaptec AIC-7899 Ultra160 PCI SCSI Card  
 Manufacturer Adaptec  
 Status OK  
 PNP Device ID  
 PCI\VEN\_9005&DEV\_00CF&SUBSYS\_09AF1014&REV\_01\3&1D521019&0&19  
 I/O Port 0x0000CF00-0x0000CFFF  
 Memory Address 0xFAC11000-0xFAC11FFF  
 IRQ Channel IRQ 194  
 Driver c:\windows\system32\drivers\adpu160m.sys (RTC\_XP07 (lab01\_n(storbuild).010917-1031), 99.63 KB (102,016 bytes), 3/12/2003 3:33 PM)

Name QLogic QLA23xx PCI Fibre Channel Adapter  
 Manufacturer QLogic  
 Status OK  
 PNP Device ID  
 PCI\VEN\_1077&DEV\_2312&SUBSYS\_01001077&REV\_02\3&300BC0BE&0&08  
 I/O Port 0x0000D000-0x0000D1FF  
 Memory Address 0xFAD20000-0xFAD20FFF  
 IRQ Channel IRQ 173  
 Driver c:\windows\system32\drivers\ql2300.sys (8.2.0 Beta 10 (W2K VI), 431.38 KB (441,733 bytes), 3/19/2003 5:49 PM)

Name QLogic QLA23xx PCI Fibre Channel Adapter  
 Manufacturer QLogic  
 Status OK  
 PNP Device ID  
 PCI\VEN\_1077&DEV\_2312&SUBSYS\_010C1077&REV\_02\3&300BC0BE&0&10

I/O Port 0x0000D100-0x0000D1FF  
 Memory Address 0xFAD21000-0xFAD21FFF  
 IRQ Channel IRQ 174  
 Driver c:\windows\system32\drivers\ql2300.sys (8.2.0 Beta 10 (W2K VI), 431.38 KB (441,733 bytes), 3/19/2003 5:49 PM)

Name QLogic QLA23xx PCI Fibre Channel Adapter  
 Manufacturer QLogic  
 Status OK  
 PNP Device ID  
 PCI\VEN\_1077&DEV\_2312&SUBSYS\_01001077&REV\_02\3&2C9E08A6&0&08  
 I/O Port 0x0000DA00-0x0000DAFF  
 Memory Address 0xDC420000-0xDC420FFF  
 IRQ Channel IRQ 177  
 Driver c:\windows\system32\drivers\ql2300.sys (8.2.0 Beta 10 (W2K VI), 431.38 KB (441,733 bytes), 3/19/2003 5:49 PM)

Name QLogic QLA23xx PCI Fibre Channel Adapter  
 Manufacturer QLogic  
 Status OK  
 PNP Device ID  
 PCI\VEN\_1077&DEV\_2312&SUBSYS\_01001077&REV\_02\3&F2FC708&0&08  
 I/O Port 0x00009000-0x000090FF  
 Memory Address 0xF4C20000-0xF4C20FFF  
 IRQ Channel IRQ 109  
 Driver c:\windows\system32\drivers\ql2300.sys (8.2.0 Beta 10 (W2K VI), 431.38 KB (441,733 bytes), 3/19/2003 5:49 PM)

Name QLogic QLA23xx PCI Fibre Channel Adapter  
 Manufacturer QLogic  
 Status OK  
 PNP Device ID  
 PCI\VEN\_1077&DEV\_2312&SUBSYS\_010C1077&REV\_02\3&21E977AD&0&08  
 I/O Port 0x0000B000-0x0000B0FF  
 Memory Address 0xF5420000-0xF5420FFF  
 IRQ Channel IRQ 102  
 Driver c:\windows\system32\drivers\ql2300.sys (8.2.0 Beta 10 (W2K VI), 431.38 KB (441,733 bytes), 3/19/2003 5:49 PM)

Name QLogic QLA23xx PCI Fibre Channel Adapter  
 Manufacturer QLogic  
 Status OK  
 PNP Device ID  
 PCI\VEN\_1077&DEV\_2312&SUBSYS\_01001077&REV\_02\3&1F67E9C9&0&08  
 I/O Port 0x0000C600-0x0000C6FF  
 Memory Address 0xF6420000-0xF6420FFF  
 IRQ Channel IRQ 130  
 Driver c:\windows\system32\drivers\ql2300.sys (8.2.0 Beta 10 (W2K VI), 431.38 KB (441,733 bytes), 3/19/2003 5:49 PM)

Name QLogic QLA23xx PCI Fibre Channel Adapter  
 Manufacturer QLogic  
 Status OK  
 PNP Device ID  
 PCI\VEN\_1077&DEV\_2312&SUBSYS\_010C1077&REV\_02\3&3ACAD158&0&08  
 I/O Port 0x0000CA00-0x0000CAFF  
 Memory Address 0xF6C20000-0xF6C20FFF  
 IRQ Channel IRQ 123  
 Driver c:\windows\system32\drivers\ql2300.sys (8.2.0 Beta 10 (W2K VI), 431.38 KB (441,733 bytes), 3/19/2003 5:49 PM)

[IDE]

Item Value  
Name VIA Bus Master IDE Controller  
Manufacturer VIA Technologies, Inc.  
Status OK  
PNP Device ID  
PCI\VEN\_1106&DEV\_0571&SUBSYS\_00000000&REV\_06\3&267A616A&0&29  
I/O Port 0x00000700-0x0000070F  
Driver c:\windows\system32\drivers\vviaide.sys (1.00.01.00, 7.00 KB (7,168 bytes), 3/12/2003 3:25 PM)

Name Primary IDE Channel  
Manufacturer (Standard IDE ATA/ATAPI controllers)  
Status OK  
PNP Device ID PCIIDE\IDECHANNEL\4&1C0B4DED&0&0  
I/O Port 0x000001F0-0x000001F7  
I/O Port 0x000003F6-0x000003F6  
IRQ Channel IRQ 14  
Driver c:\windows\system32\drivers\atapi.sys (5.2.3787.0 (srv03\_rtm.030312-1801), 89.00 KB (91,136 bytes), 3/12/2003 3:25 PM)

Name Secondary IDE Channel  
Manufacturer (Standard IDE ATA/ATAPI controllers)  
Status OK  
PNP Device ID PCIIDE\IDECHANNEL\4&1C0B4DED&0&1  
I/O Port 0x00000170-0x00000177  
I/O Port 0x00000376-0x00000376  
IRQ Channel IRQ 15  
Driver c:\windows\system32\drivers\atapi.sys (5.2.3787.0 (srv03\_rtm.030312-1801), 89.00 KB (91,136 bytes), 3/12/2003 3:25 PM)

#### [Printing]

| Name | Driver | Port Name | Server Name |
|------|--------|-----------|-------------|
|------|--------|-----------|-------------|

#### [Problem Devices]

| Device                                                       | PNP Device ID              | Error Code                                     |
|--------------------------------------------------------------|----------------------------|------------------------------------------------|
| Not Available                                                | ACPI\IBM37D4\2&DABA3FF&0   | The drivers for this device are not installed. |
| Other PCI Bridge Device                                      |                            |                                                |
| PCI\VEN_1014&DEV_010F&SUBSYS_01131014&REV_00\3&267A616A&0&20 |                            | The drivers for this device are not installed. |
| VIA Rev 5 or later USB Universal Host Controller             |                            |                                                |
| PCI\VEN_1106&DEV_3038&SUBSYS_12340925&REV_16\3&267A616A&0&2A |                            | This device is disabled.                       |
| VIA Rev 5 or later USB Universal Host Controller             |                            |                                                |
| PCI\VEN_1106&DEV_3038&SUBSYS_12340925&REV_16\3&267A616A&0&2B |                            | This device is disabled.                       |
| Other PCI Bridge Device                                      |                            |                                                |
| PCI\VEN_1014&DEV_010F&SUBSYS_01131014&REV_00\3&A985F74&0&20  |                            | The drivers for this device are not installed. |
| Communications Port (COM1)                                   | ROOT\*PNP0501\I_0_17_0_0_0 | This device cannot start.                      |

#### [USB]

| Device                                                       | PNP Device ID |
|--------------------------------------------------------------|---------------|
| VIA Rev 5 or later USB Universal Host Controller             |               |
| PCI\VEN_1106&DEV_3038&SUBSYS_12340925&REV_16\3&267A616A&0&2A |               |
| VIA Rev 5 or later USB Universal Host Controller             |               |
| PCI\VEN_1106&DEV_3038&SUBSYS_12340925&REV_16\3&267A616A&0&2B |               |

#### [Software Environment]

#### [System Drivers]

| Name                                    | Description                            | File                                     | Type          | Started | Start Mode  |
|-----------------------------------------|----------------------------------------|------------------------------------------|---------------|---------|-------------|
| State                                   | Status                                 | Error Control                            | Accept Pause  |         | Accept Stop |
| abiosdsk                                | Abiosdsk                               | Not Available                            | Kernel Driver | No      | No          |
| Disabled                                | Stopped                                | OK Ignore                                | No            | No      |             |
| acpi                                    | Microsoft ACPI Driver                  |                                          |               |         |             |
| c:\windows\system32\drivers\acpi.sys    |                                        |                                          | Kernel Driver |         | Yes         |
| Boot                                    | Running                                | OK Normal                                | No            | Yes     |             |
| acpiec                                  | ACPIEC                                 | c:\windows\system32\drivers\acpiec.sys   | Kernel        |         |             |
| Driver                                  | No                                     | Disabled Stopped                         | OK Normal     | No      | No          |
| No                                      |                                        |                                          |               |         |             |
| adpu160m                                | adpu160m                               | c:\windows\system32\drivers\adpu160m.sys | Kernel        |         |             |
| Driver                                  | Yes                                    | Boot Running                             | OK Normal     | No      | No          |
| Yes                                     |                                        |                                          |               |         |             |
| adpu320                                 | adpu320                                | Not Available                            | Kernel Driver |         | No          |
| Disabled                                | Stopped                                | OK Normal                                | No            | No      | No          |
| afcnt                                   | afcnt                                  | Not Available                            | Kernel Driver |         | No          |
| Disabled                                | Stopped                                | OK Normal                                | No            | No      | No          |
| afd                                     | AFD Networking Support Environment     |                                          |               |         |             |
| c:\windows\system32\drivers\afd.sys     |                                        |                                          | Kernel Driver |         | Yes         |
| Auto                                    | Running                                | OK Normal                                | No            | Yes     |             |
| aha154x                                 | Aha154x                                | Not Available                            | Kernel Driver |         | No          |
| Disabled                                | Stopped                                | OK Normal                                | No            | No      |             |
| aic78u2                                 | aic78u2                                | Not Available                            | Kernel Driver |         | No          |
| Disabled                                | Stopped                                | OK Normal                                | No            | No      | No          |
| aic78xx                                 | aic78xx                                | Not Available                            | Kernel Driver |         | No          |
| Disabled                                | Stopped                                | OK Normal                                | No            | No      | No          |
| aliide                                  | Alilide                                | Not Available                            | Kernel Driver |         | No          |
| Disabled                                | Stopped                                | OK Normal                                | No            | No      | No          |
| asynmac                                 | RAS Asynchronous Media Driver          |                                          |               |         |             |
| c:\windows\system32\drivers\asynmac.sys |                                        |                                          | Kernel Driver |         | No          |
| Manual                                  | Stopped                                | OK Normal                                | No            | No      |             |
| atapi                                   | Standard IDE/ESDI Hard Disk Controller |                                          |               |         |             |
| c:\windows\system32\drivers\atapi.sys   |                                        |                                          | Kernel Driver |         | Yes         |
| Boot                                    | Running                                | OK Normal                                | No            | Yes     |             |
| atdisk                                  | Atdisk                                 | Not Available                            | Kernel Driver |         | No          |
| Disabled                                | Stopped                                | OK Ignore                                | No            | No      |             |
| atmarpc                                 | ATM ARP Client Protocol                |                                          |               |         |             |
| c:\windows\system32\drivers\atmarpc.sys |                                        |                                          | Kernel Driver |         | No          |
| Manual                                  | Stopped                                | OK Normal                                | No            | No      |             |
| audstub                                 | Audio Stub Driver                      | c:\windows\system32\drivers\audstub.sys  |               |         |             |
| Kernel Driver                           | Yes                                    | Manual Running                           | OK Normal     |         |             |
| No                                      | Yes                                    |                                          |               |         |             |
| b57w2k                                  | Broadcom NetXtreme Gigabit Ethernet    |                                          |               |         |             |
| c:\windows\system32\drivers\b57xp32.sys |                                        |                                          | Kernel Driver |         | Yes         |
| Manual                                  | Running                                | OK Normal                                | No            | Yes     |             |
| beep                                    | Beep                                   | c:\windows\system32\drivers\beep.sys     | Kernel        |         |             |
| Driver                                  | Yes                                    | System Running                           | OK Normal     | No      | No          |
| Yes                                     |                                        |                                          |               |         |             |
| cbidf2k                                 | cbidf2k                                | c:\windows\system32\drivers\cbidf2k.sys  | Kernel        |         |             |
| Driver                                  | No                                     | Disabled Stopped                         | OK Normal     | No      | No          |
| No                                      |                                        |                                          |               |         |             |
| cdfs                                    | Cdfs                                   | c:\windows\system32\drivers\cdfs.sys     | File System   |         |             |
| Driver                                  | Yes                                    | Disabled Running                         | OK Normal     | No      | No          |
| Yes                                     |                                        |                                          |               |         |             |
| cdrom                                   | CD-ROM Driver                          | c:\windows\system32\drivers\cdrom.sys    |               |         |             |
| Kernel Driver                           | Yes                                    | System Running                           | OK Normal     |         |             |
| No                                      | Yes                                    |                                          |               |         |             |
| changer                                 | Changer                                | Not Available                            | Kernel Driver |         | No          |
| System                                  | Stopped                                | OK Ignore                                | No            | No      |             |
| clusdisk                                | Cluster Disk Driver                    | c:\windows\system32\drivers\clusdisk.sys |               |         |             |
| Kernel Driver                           | No                                     | Disabled Stopped                         | OK Normal     |         |             |
| No                                      | No                                     |                                          |               |         |             |
| cmdide                                  | CmdIde                                 | Not Available                            | Kernel Driver |         | No          |
| Disabled                                | Stopped                                | OK Normal                                | No            | No      |             |

|                                          |                                 |                                          |               |    |        |                                          |                                           |                                          |               |
|------------------------------------------|---------------------------------|------------------------------------------|---------------|----|--------|------------------------------------------|-------------------------------------------|------------------------------------------|---------------|
| cpqarray                                 | Cpqarray                        | Not Available                            | Kernel Driver | No |        | i8042prt                                 | i8042 Keyboard and PS/2 Mouse Port Driver |                                          |               |
| Disabled                                 | Stopped                         | OK                                       | Normal        | No | No     | c:\windows\system32\drivers\i8042prt.sys | Kernel Driver                             | Yes                                      |               |
| cpqarry2                                 | cpqarry2                        | Not Available                            | Kernel Driver | No |        | System                                   | Running                                   | OK                                       | Normal        |
| Disabled                                 | Stopped                         | OK                                       | Normal        | No | No     | iirsp                                    | iirsp                                     | Not Available                            | Kernel Driver |
| cpqcissm                                 | cpqcissm                        | Not Available                            | Kernel Driver | No |        | Disabled                                 | Stopped                                   | OK                                       | Normal        |
| Disabled                                 | Stopped                         | OK                                       | Normal        | No | No     | imapi                                    | CD-Burning Filter Driver                  |                                          |               |
| cpqfcalm                                 | cpqfcalm                        | Not Available                            | Kernel Driver | No |        | c:\windows\system32\drivers\imapi.sys    | Kernel Driver                             | No                                       |               |
| Disabled                                 | Stopped                         | OK                                       | Normal        | No | No     | System                                   | Stopped                                   | OK                                       | Normal        |
| credisk                                  | CRC Disk Filter Driver          |                                          |               |    |        | intelide                                 | IntelIde                                  | Not Available                            | Kernel Driver |
| c:\windows\system32\drivers\credisk.sys  | Kernel Driver                   | Yes                                      |               |    |        | Disabled                                 | Stopped                                   | OK                                       | Normal        |
| Boot                                     | Running                         | OK                                       | Normal        | No | Yes    | ipfilterdriver                           | IP Traffic Filter Driver                  |                                          |               |
| dac960nt                                 | dac960nt                        | Not Available                            | Kernel Driver | No |        | c:\windows\system32\drivers\ipfltdrv.sys | Kernel Driver                             | No                                       |               |
| Disabled                                 | Stopped                         | OK                                       | Normal        | No | No     | Manual                                   | Stopped                                   | OK                                       | Normal        |
| dellcerc                                 | dellcerc                        | Not Available                            | Kernel Driver | No |        | ipinip                                   | IP in IP Tunnel Driver                    | c:\windows\system32\drivers\ipinip.sys   |               |
| Disabled                                 | Stopped                         | OK                                       | Normal        | No | No     | Kernel Driver                            | No                                        | Manual                                   | Stopped       |
| dfsdriver                                | DfsDriver                       | c:\windows\system32\drivers\dfs.sys      | File System   | No |        | No                                       | No                                        |                                          |               |
| Driver                                   | Yes                             | Boot                                     | Running       | OK | Normal | ipnat                                    | IP Network Address Translator             |                                          |               |
| Yes                                      |                                 |                                          |               |    |        | c:\windows\system32\drivers\ipnat.sys    | Kernel Driver                             | No                                       |               |
| disk                                     | Disk Driver                     | c:\windows\system32\drivers\disk.sys     |               |    |        | Manual                                   | Stopped                                   | OK                                       | Normal        |
| Kernel Driver                            | Yes                             | Boot                                     | Running       | OK | Normal | ipsec                                    | IPSEC driver                              | c:\windows\system32\drivers\ipsec.sys    |               |
| No                                       | Yes                             |                                          |               |    |        | Kernel Driver                            | Yes                                       | System                                   | Running       |
| dmboot                                   | dmboot                          | c:\windows\system32\drivers\dmboot.sys   | Kernel        | No |        | No                                       | Yes                                       |                                          |               |
| Driver                                   | No                              | Disabled                                 | Stopped       | OK | Normal | ipsraidn                                 | ipsraidn                                  | Not Available                            | Kernel Driver |
| No                                       |                                 |                                          |               |    |        | Disabled                                 | Stopped                                   | OK                                       | Normal        |
| dmio                                     | Logical Disk Manager Driver     |                                          |               |    |        | isapnp                                   | PnP ISA/EISA Bus Driver                   |                                          |               |
| c:\windows\system32\drivers\dmio.sys     | Kernel Driver                   | Yes                                      |               |    |        | c:\windows\system32\drivers\isapnp.sys   | Kernel Driver                             | Yes                                      |               |
| Boot                                     | Running                         | OK                                       | Normal        | No | Yes    | Boot                                     | Running                                   | OK                                       | Critical      |
| dmload                                   | dmload                          | c:\windows\system32\drivers\dmload.sys   | Kernel        | No |        | kbdclass                                 | Keyboard Class Driver                     |                                          |               |
| Driver                                   | Yes                             | Boot                                     | Running       | OK | Normal | c:\windows\system32\drivers\kbdclass.sys | Kernel Driver                             | Yes                                      |               |
| Yes                                      |                                 |                                          |               |    |        | System                                   | Running                                   | OK                                       | Normal        |
| dpti2o                                   | dpti2o                          | Not Available                            | Kernel Driver | No |        | ksecdd                                   | KSecDD                                    | c:\windows\system32\drivers\ksecdd.sys   | Kernel        |
| Disabled                                 | Stopped                         | OK                                       | Normal        | No | No     | Driver                                   | Yes                                       | Boot                                     | Running       |
| e1000                                    | Intel(R) PRO/1000 Device Driver |                                          |               |    |        | Yes                                      |                                           |                                          |               |
| c:\windows\system32\drivers\e1000325.sys | Kernel Driver                   | No                                       |               |    |        | lp6nds35                                 | lp6nds35                                  | Not Available                            | Kernel Driver |
| Manual                                   | Stopped                         | OK                                       | Normal        | No | No     | Disabled                                 | Stopped                                   | OK                                       | Normal        |
| e100b                                    | Intel(R) PRO Adapter Driver     |                                          |               |    |        | mnmdm                                    | mnmdm                                     | c:\windows\system32\drivers\mnmdm.sys    | Kernel        |
| c:\windows\system32\drivers\e100b325.sys | Kernel Driver                   | Yes                                      |               |    |        | Driver                                   | Yes                                       | System                                   | Running       |
| Manual                                   | Running                         | OK                                       | Normal        | No | Yes    | Yes                                      |                                           |                                          |               |
| fastfat                                  | Fastfat                         | c:\windows\system32\drivers\fastfat.sys  | File System   | No |        | modem                                    | Modem                                     | c:\windows\system32\drivers\modem.sys    | Kernel        |
| Driver                                   | No                              | Disabled                                 | Stopped       | OK | Normal | Driver                                   | No                                        | Manual                                   | Stopped       |
| No                                       |                                 |                                          |               |    |        | No                                       |                                           |                                          |               |
| fdc                                      | Floppy Disk Controller Driver   |                                          |               |    |        | mouclass                                 | Mouse Class Driver                        | c:\windows\system32\drivers\mouclass.sys |               |
| c:\windows\system32\drivers\fdc.sys      | Kernel Driver                   | Yes                                      |               |    |        | Kernel Driver                            | Yes                                       | System                                   | Running       |
| Manual                                   | Running                         | OK                                       | Normal        | No | Yes    | No                                       | Yes                                       |                                          |               |
| fips                                     | Fips                            | c:\windows\system32\drivers\fips.sys     | Kernel        | No |        | mountmgr                                 | Mount Point Manager                       | c:\windows\system32\drivers\mountmgr.sys |               |
| Driver                                   | Yes                             | System                                   | Running       | OK | Normal | Kernel Driver                            | Yes                                       | Boot                                     | Running       |
| Yes                                      |                                 |                                          |               |    |        | No                                       | Yes                                       |                                          |               |
| flpydisk                                 | Floppy Disk Driver              | c:\windows\system32\drivers\flpydisk.sys |               |    |        | mrraid3x                                 | mrraid3x                                  | Not Available                            | Kernel Driver |
| Kernel Driver                            | Yes                             | Manual                                   | Running       | OK | Normal | Disabled                                 | Stopped                                   | OK                                       | Normal        |
| No                                       | Yes                             |                                          |               |    |        | mrxdav                                   | WebDav Client Redirector                  |                                          |               |
| ftdisk                                   | Volume Manager Driver           |                                          |               |    |        | c:\windows\system32\drivers\mrxdav.sys   | File System Driver                        | No                                       |               |
| c:\windows\system32\drivers\ftdisk.sys   | Kernel Driver                   | Yes                                      |               |    |        | Manual                                   | Stopped                                   | OK                                       | Normal        |
| Boot                                     | Running                         | OK                                       | Normal        | No | Yes    | mrxsmb                                   | MRXSMB                                    | c:\windows\system32\drivers\mrxsmb.sys   | File System   |
| gpc                                      | Generic Packet Classifier       |                                          |               |    |        | Driver                                   | Yes                                       | System                                   | Running       |
| c:\windows\system32\drivers\msgpc.sys    | Kernel Driver                   | Yes                                      |               |    |        | Yes                                      |                                           |                                          |               |
| Manual                                   | Running                         | OK                                       | Normal        | No | Yes    | msfs                                     | Msfs                                      | c:\windows\system32\drivers\msfs.sys     | File System   |
| hpn                                      | hpn                             | Not Available                            | Kernel Driver | No |        | Driver                                   | Yes                                       | System                                   | Running       |
| Disabled                                 | Stopped                         | OK                                       | Normal        | No | No     | Yes                                      |                                           |                                          |               |
| hpt3xx                                   | hpt3xx                          | Not Available                            | Kernel Driver | No |        | mup                                      | Mup                                       | c:\windows\system32\drivers\mup.sys      | File System   |
| Disabled                                 | Stopped                         | OK                                       | Normal        | No | No     | Driver                                   | Yes                                       | Boot                                     | Running       |
| http                                     | HTTP                            | c:\windows\system32\drivers\http.sys     | Kernel        | No |        | Yes                                      |                                           |                                          |               |
| Driver                                   | No                              | Manual                                   | Stopped       | OK | Normal | ndis                                     | NDIS System Driver                        | c:\windows\system32\drivers\ndis.sys     |               |
| No                                       |                                 |                                          |               |    |        | Kernel Driver                            | Yes                                       | Boot                                     | Running       |
| i2omgmt                                  | i2omgmt                         | Not Available                            | Kernel Driver | No |        | No                                       | Yes                                       |                                          |               |
| System                                   | Stopped                         | OK                                       | Normal        | No | No     | ndistapi                                 | Remote Access NDIS TAPI Driver            |                                          |               |
| i2omp                                    | i2omp                           | Not Available                            | Kernel Driver | No |        | c:\windows\system32\drivers\ndistapi.sys | Kernel Driver                             | Yes                                      |               |
| Disabled                                 | Stopped                         | OK                                       | Normal        | No | No     | Manual                                   | Running                                   | OK                                       | Normal        |

|                                             |                               |               |               |         |     |          |    |  |                                            |                                          |                                          |               |         |
|---------------------------------------------|-------------------------------|---------------|---------------|---------|-----|----------|----|--|--------------------------------------------|------------------------------------------|------------------------------------------|---------------|---------|
| ndisuo                                      | NDIS Usermode I/O Protocol    |               |               |         |     |          |    |  | ql1080                                     | ql1080                                   | Not Available                            | Kernel Driver | No      |
| c:\windows\system32\drivers\ndisuo.sys      | Kernel Driver                 | Yes           |               |         |     |          |    |  | Disabled                                   | Stopped                                  | OK                                       | Normal        | No      |
| Manual                                      | Running                       | OK            | Normal        | No      | Yes |          |    |  | ql10wnt                                    | ql10wnt                                  | Not Available                            | Kernel Driver | No      |
| ndiswan                                     | Remote Access NDIS WAN Driver |               |               |         |     |          |    |  | Disabled                                   | Stopped                                  | OK                                       | Normal        | No      |
| c:\windows\system32\drivers\ndiswan.sys     | Kernel Driver                 | Yes           |               |         |     |          |    |  | ql12160                                    | ql12160                                  | Not Available                            | Kernel Driver | No      |
| Manual                                      | Running                       | OK            | Normal        | No      | Yes |          |    |  | Disabled                                   | Stopped                                  | OK                                       | Normal        | No      |
| ndproxy                                     | NDIS Proxy                    |               |               |         |     |          |    |  | ql1240                                     | ql1240                                   | Not Available                            | Kernel Driver | No      |
| c:\windows\system32\drivers\ndproxy.sys     | Kernel Driver                 | Yes           | Manual        | Running | OK  | Normal   |    |  | Disabled                                   | Stopped                                  | OK                                       | Normal        | No      |
| No                                          | Yes                           |               |               |         |     |          |    |  | ql1280                                     | ql1280                                   | Not Available                            | Kernel Driver | No      |
| netbios                                     | NetBIOS Interface             |               |               |         |     |          |    |  | Disabled                                   | Stopped                                  | OK                                       | Normal        | No      |
| c:\windows\system32\drivers\netbios.sys     | File System Driver            | Yes           | System        | Running | OK  | Normal   |    |  | ql2100                                     | ql2100                                   | Not Available                            | Kernel Driver | No      |
| No                                          | Yes                           |               |               |         |     |          |    |  | Disabled                                   | Stopped                                  | OK                                       | Normal        | No      |
| netbt                                       | NetBios over Tcpip            |               |               |         |     |          |    |  | ql2200                                     | ql2200                                   | Not Available                            | Kernel Driver | No      |
| c:\windows\system32\drivers\netbt.sys       | Kernel Driver                 | Yes           | System        | Running | OK  | Normal   |    |  | Disabled                                   | Stopped                                  | OK                                       | Normal        | No      |
| No                                          | Yes                           |               |               |         |     |          |    |  | ql2300                                     | ql2300                                   | c:\windows\system32\drivers\ql2300.sys   | Kernel        | No      |
| nfrd960                                     | nfrd960                       | Not Available | Kernel Driver | No      |     |          |    |  | Driver                                     | Yes                                      | Boot                                     | Running       | OK      |
| Disabled                                    | Stopped                       | OK            | Normal        | No      | No  |          |    |  | Yes                                        |                                          |                                          |               |         |
| npfs                                        | Npfs                          |               |               |         |     |          |    |  | qldirect                                   | qldirect                                 | c:\windows\system32\drivers\qldirect.sys | Kernel        | No      |
| c:\windows\system32\drivers\npfs.sys        | Driver                        | Yes           | System        | Running | OK  | Normal   | No |  | Driver                                     | Yes                                      | Boot                                     | Running       | OK      |
| Yes                                         |                               |               |               |         |     |          |    |  | Yes                                        |                                          |                                          |               |         |
| ntfs                                        | Ntfs                          |               |               |         |     |          |    |  | qlperf                                     | QLogic Performance Filter Driver         |                                          |               |         |
| c:\windows\system32\drivers\ntfs.sys        | Driver                        | Yes           | Disabled      | Running | OK  | Normal   | No |  | c:\windows\system32\drivers\qlperf.sys     | Kernel Driver                            | Yes                                      |               |         |
| Yes                                         |                               |               |               |         |     |          |    |  | Boot                                       | Running                                  | OK                                       | Normal        | No      |
| null                                        | Null                          |               |               |         |     |          |    |  | qlvika                                     | qlvika                                   | c:\windows\system32\drivers\qlvika.sys   | Kernel        | No      |
| c:\windows\system32\drivers\null.sys        | Driver                        | Yes           | System        | Running | OK  | Normal   | No |  | Driver                                     | Yes                                      | Auto                                     | Running       | OK      |
| Yes                                         |                               |               |               |         |     |          |    |  | Yes                                        |                                          |                                          |               |         |
| parport                                     | Parallel port driver          |               |               |         |     |          |    |  | rasacd                                     | Remote Access Auto Connection Driver     |                                          |               |         |
| c:\windows\system32\drivers\parport.sys     | Kernel Driver                 | No            | Manual        | Stopped | OK  | Normal   |    |  | c:\windows\system32\drivers\rasacd.sys     | Kernel Driver                            | Yes                                      |               |         |
| No                                          | No                            |               |               |         |     |          |    |  | System                                     | Running                                  | OK                                       | Normal        | No      |
| partmgr                                     | Partition Manager             |               |               |         |     |          |    |  | rasl2tp                                    | WAN Miniport (L2TP)                      |                                          |               |         |
| c:\windows\system32\drivers\partmgr.sys     | Kernel Driver                 | Yes           | Boot          | Running | OK  | Normal   |    |  | c:\windows\system32\drivers\rasl2tp.sys    | Kernel Driver                            | Yes                                      |               |         |
| No                                          | Yes                           |               |               |         |     |          |    |  | Manual                                     | Running                                  | OK                                       | Normal        | No      |
| parvdm                                      | Parvdm                        |               |               |         |     |          |    |  | rasppoe                                    | Remote Access PPPOE Driver               |                                          |               |         |
| c:\windows\system32\drivers\parvdm.sys      | Driver                        | No            | Auto          | Stopped | OK  | Ignore   | No |  | c:\windows\system32\drivers\rasppoe.sys    | Kernel Driver                            | Yes                                      |               |         |
| No                                          |                               |               |               |         |     |          |    |  | Manual                                     | Running                                  | OK                                       | Normal        | No      |
| pci                                         | PCI Bus Driver                |               |               |         |     |          |    |  | raspti                                     | Direct Parallel                          |                                          |               |         |
| c:\windows\system32\drivers\pci.sys         | Kernel Driver                 | Yes           | Boot          | Running | OK  | Critical |    |  | c:\windows\system32\drivers\raspti.sys     | Kernel Driver                            | Yes                                      | Manual        | Running |
| No                                          | Yes                           |               |               |         |     |          |    |  | Yes                                        |                                          |                                          |               |         |
| pciide                                      | PCIIde                        |               |               |         |     |          |    |  | rdbss                                      | Rdbss                                    |                                          |               |         |
| c:\windows\system32\drivers\pciide.sys      | Disabled                      | Stopped       | OK            | Normal  | No  | No       |    |  | c:\windows\system32\drivers\rdbss.sys      | File System                              |                                          |               |         |
| pcmcia                                      | Pcmcia                        |               |               |         |     |          |    |  | Driver                                     | Yes                                      | System                                   | Running       | OK      |
| c:\windows\system32\drivers\pcmcia.sys      | Driver                        | No            | Disabled      | Stopped | OK  | Normal   | No |  | Yes                                        |                                          |                                          |               |         |
| No                                          |                               |               |               |         |     |          |    |  | rdpcdd                                     | RDPCDD                                   |                                          |               |         |
| pdcomp                                      | PDCOMP                        |               |               |         |     |          |    |  | c:\windows\system32\drivers\rdpcdd.sys     | Kernel                                   | No                                       |               |         |
| Manual                                      | Stopped                       | OK            | Ignore        | No      | No  |          |    |  | Driver                                     | Yes                                      | System                                   | Running       | OK      |
| pdframe                                     | PDFRAME                       |               |               |         |     |          |    |  | Yes                                        |                                          |                                          |               |         |
| No                                          | Manual                        | Stopped       | OK            | Ignore  | No  | No       |    |  | rdpdr                                      | Terminal Server Device Redirector Driver |                                          |               |         |
| pdreli                                      | PDRELI                        |               |               |         |     |          |    |  | c:\windows\system32\drivers\rdpdr.sys      | Kernel Driver                            | Yes                                      |               |         |
| Manual                                      | Stopped                       | OK            | Ignore        | No      | No  |          |    |  | Manual                                     | Running                                  | OK                                       | Normal        | No      |
| pdrrframe                                   | PDRFRAME                      |               |               |         |     |          |    |  | rdpwd                                      | RDPWD                                    |                                          |               |         |
| c:\windows\system32\drivers\pdrrframe.sys   | Driver                        | No            | Manual        | Stopped | OK  | Ignore   | No |  | c:\windows\system32\drivers\rdpwd.sys      | Kernel                                   | No                                       |               |         |
| No                                          |                               |               |               |         |     |          |    |  | Driver                                     | Yes                                      | Manual                                   | Running       | OK      |
| pecosnumadv                                 | PECOSNUMADrv                  |               |               |         |     |          |    |  | Yes                                        |                                          |                                          |               |         |
| c:\windows\system32\drivers\pecosnumadv.sys | Kernel Driver                 | No            |               |         |     |          |    |  | redbook                                    | Digital CD Audio Playback Filter Driver  |                                          |               |         |
| Manual                                      | Stopped                       | OK            | Normal        | No      | No  |          |    |  | c:\windows\system32\drivers\redbook.sys    | Kernel Driver                            | Yes                                      |               |         |
| perc2                                       | perc2                         |               |               |         |     |          |    |  | System                                     | Running                                  | OK                                       | Normal        | No      |
| Disabled                                    | Stopped                       | OK            | Normal        | No      | No  |          |    |  | s3savage4                                  | S3SAVAGE4                                |                                          |               |         |
| perc2hib                                    | perc2hib                      |               |               |         |     |          |    |  | c:\windows\system32\drivers\s3savage4m.sys | Kernel Driver                            | Yes                                      | Manual        | Running |
| Disabled                                    | Stopped                       | OK            | Normal        | No      | No  |          |    |  | No                                         | Yes                                      |                                          |               |         |
| pptpminiport                                | WAN Miniport (PPTP)           |               |               |         |     |          |    |  | secdrv                                     | Secdrv                                   |                                          |               |         |
| c:\windows\system32\drivers\rasppptp.sys    | Kernel Driver                 | Yes           |               |         |     |          |    |  | c:\windows\system32\drivers\secdrv.sys     | Kernel                                   | No                                       |               |         |
| Manual                                      | Running                       | OK            | Normal        | No      | Yes |          |    |  | Driver                                     | No                                       | Manual                                   | Stopped       | OK      |
| processor                                   | Processor Driver              |               |               |         |     |          |    |  | No                                         |                                          |                                          |               |         |
| c:\windows\system32\drivers\processr.sys    | Kernel Driver                 | Yes           | Manual        | Running | OK  | Normal   |    |  | serenum                                    | Serenum Filter Driver                    |                                          |               |         |
| No                                          | Yes                           |               |               |         |     |          |    |  | c:\windows\system32\drivers\serenum.sys    | Kernel Driver                            | No                                       | Manual        | Stopped |
| ptilink                                     | Direct Parallel Link Driver   |               |               |         |     |          |    |  | No                                         | No                                       |                                          |               |         |
| c:\windows\system32\drivers\ptilink.sys     | Kernel Driver                 | Yes           |               |         |     |          |    |  | serial                                     | Serial port driver                       |                                          |               |         |
| Manual                                      | Running                       | OK            | Normal        | No      | Yes |          |    |  | Kernel Driver                              | No                                       | System                                   | Stopped       | OK      |
|                                             |                               |               |               |         |     |          |    |  | No                                         | No                                       |                                          |               |         |
|                                             |                               |               |               |         |     |          |    |  | sfloppy                                    | Sfloppy                                  |                                          |               |         |
|                                             |                               |               |               |         |     |          |    |  | c:\windows\system32\drivers\sfloppy.sys    | Kernel                                   | No                                       |               |         |
|                                             |                               |               |               |         |     |          |    |  | Driver                                     | No                                       | System                                   | Stopped       | OK      |
|                                             |                               |               |               |         |     |          |    |  | No                                         |                                          |                                          |               |         |

|                                        |                                                         |                                         |                                        |         |        |        |                                                              |                          |                                |                |
|----------------------------------------|---------------------------------------------------------|-----------------------------------------|----------------------------------------|---------|--------|--------|--------------------------------------------------------------|--------------------------|--------------------------------|----------------|
| simbad                                 | Simbad                                                  | Not Available                           | Kernel Driver                          | No      |        |        | Device Name                                                  | Signed                   | Device Class                   | Driver Version |
| Disabled                               | Stopped                                                 | OK                                      | Normal                                 | No      | No     |        | Driver Date                                                  | Manufacturer             | INF Name                       | Driver Name    |
| sparrow                                | Sparrow                                                 | Not Available                           | Kernel Driver                          | No      |        |        | Device ID                                                    |                          |                                |                |
| Disabled                               | Stopped                                                 | OK                                      | Normal                                 | No      | No     |        | Not Available                                                | Not Available            | Not Available                  | Not            |
| srv                                    | Srv                                                     | c:\windows\system32\drivers\srv.sys     | File System                            |         |        |        | Available                                                    | Not Available            | Not Available                  | Not Available  |
| Driver                                 | Yes                                                     | Manual                                  | Running                                | OK      | Normal | No     | Not Available                                                | HTREE\ROOT\0             |                                |                |
| Yes                                    |                                                         |                                         |                                        |         |        |        | ACPI Multiprocessor Node                                     | No                       | COMPUTER                       | 1.0.3705.0     |
| swenum                                 | Software                                                | Bus Driver                              | c:\windows\system32\drivers\swenum.sys |         |        |        | 11/5/2002 (Node-based Computers)                             |                          | oem0.inf                       | Not Available  |
| Kernel Driver                          | Yes                                                     | Yes                                     | Manual                                 | Running | OK     | Normal | ROOT\ACPI_HAL\0000                                           |                          |                                |                |
| No                                     | Yes                                                     |                                         |                                        |         |        |        | Microsoft ACPI-Compliant System                              | Yes                      | SYSTEM                         | 5.2.3787.0     |
| symc810                                | symc810                                                 | Not Available                           | Kernel Driver                          | No      |        |        | 10/1/2002 Microsoft acpi.inf                                 | Not Available            |                                |                |
| Disabled                               | Stopped                                                 | OK                                      | Normal                                 | No      | No     |        | ACPI_HAL\PNP0C08\0                                           |                          |                                |                |
| symc8xx                                | symc8xx                                                 | Not Available                           | Kernel Driver                          | No      |        |        | Not Available                                                | Not Available            | Not Available                  | Not            |
| Disabled                               | Stopped                                                 | OK                                      | Normal                                 | No      | No     |        | Available                                                    | Not Available            | Not Available                  | Not Available  |
| symmpi                                 | symmpi                                                  | Not Available                           | Kernel Driver                          | No      |        |        | Not Available                                                | ACPI\IBM37D4\2&DABA3FF&0 |                                |                |
| Disabled                               | Stopped                                                 | OK                                      | Normal                                 | No      | No     |        | PCI bus                                                      | Yes                      | SYSTEM                         | 5.2.3787.0     |
| sym_hi                                 | sym_hi                                                  | Not Available                           | Kernel Driver                          | No      |        |        | devices                                                      | machine.inf              | Not Available                  | ACPI\PNP0A03\0 |
| Disabled                               | Stopped                                                 | OK                                      | Normal                                 | No      | No     |        | PCI standard host CPU bridge                                 | Yes                      | SYSTEM                         | 5.2.3787.0     |
| sym_u3                                 | sym_u3                                                  | Not Available                           | Kernel Driver                          | No      |        |        | (Standard system devices)                                    | machine.inf              | Not Available                  | 10/1/2002      |
| Disabled                               | Stopped                                                 | OK                                      | Normal                                 | No      | No     |        | PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_03\3&267A616A&0&00 |                          |                                |                |
| tcpip                                  | TCP/IP Protocol Driver                                  |                                         |                                        |         |        |        | S3 Graphics Inc. Savage4                                     | No                       | DISPLAY                        | 6.13.10.8013   |
| c:\windows\system32\drivers\tcpip.sys  |                                                         |                                         | Kernel Driver                          | Yes     |        |        | 8/20/2002 S3 Graphics, Inc.                                  | oem3.inf                 | Not Available                  |                |
| System                                 | Running                                                 | OK                                      | Normal                                 | No      | Yes    |        | PCI\VEN_5333&DEV_8A22&SUBSYS_01C51014&REV_06\3&267A616A&0&18 |                          |                                |                |
| tdpipe                                 | TDPIPE                                                  | c:\windows\system32\drivers\tdpipe.sys  | Kernel                                 |         |        |        | Default Monitor                                              | Yes                      | MONITOR                        | 5.1.2001.0     |
| Driver                                 | No                                                      | Manual                                  | Stopped                                | OK      | Ignore | No     | (Standard monitor types)                                     | monitor.inf              | Not Available                  | 6/6/2001       |
| No                                     |                                                         |                                         |                                        |         |        |        | DISPLAY\DEFAULT_MONITOR\4&509B198&0&11223344&00&03           |                          |                                |                |
| tdtcp                                  | TDTCP                                                   | c:\windows\system32\drivers\tdtcp.sys   | Kernel                                 |         |        |        | Other PCI Bridge Device                                      | Not Available            | UNKNOWN                        |                |
| Driver                                 | Yes                                                     | Manual                                  | Running                                | OK      | Ignore | No     | Not Available                                                | Not Available            | Not Available                  | Not            |
| Yes                                    |                                                         |                                         |                                        |         |        |        | Available                                                    | Not Available            |                                |                |
| termdd                                 | Terminal Device Driver                                  |                                         |                                        |         |        |        | PCI\VEN_1014&DEV_010F&SUBSYS_01131014&REV_00\3&267A616A&0&20 |                          |                                |                |
| c:\windows\system32\drivers\termdd.sys |                                                         |                                         | Kernel Driver                          | Yes     |        |        | VIA Tech PCI to ISA bridge                                   | Yes                      | SYSTEM                         | 5.2.3787.0     |
| System                                 | Running                                                 | OK                                      | Normal                                 | No      | Yes    |        | VIA                                                          | machine.inf              | Not Available                  | 10/1/2002      |
| toside                                 | TosIde                                                  | Not Available                           | Kernel Driver                          | No      |        |        | PCI\VEN_1106&DEV_0686&SUBSYS_00000000&REV_40\3&267A616A&0&28 |                          |                                |                |
| Disabled                               | Stopped                                                 | OK                                      | Normal                                 | No      | No     |        | ISAPNP Read Data Port                                        | Yes                      | SYSTEM                         | 5.2.3787.0     |
| udfs                                   | Udfs                                                    | c:\windows\system32\drivers\udfs.sys    | File System                            |         |        |        | (Standard system devices)                                    | machine.inf              | Not Available                  | 10/1/2002      |
| Driver                                 | No                                                      | Disabled                                | Stopped                                | OK      | Normal | No     | ISAPNP\READDATAPORT\0                                        |                          |                                |                |
| No                                     |                                                         |                                         |                                        |         |        |        | Motherboard resources                                        | Yes                      | SYSTEM                         | 5.2.3787.0     |
| update                                 | Microcode Update Driver                                 |                                         |                                        |         |        |        | (Standard system devices)                                    | machine.inf              | Not Available                  | 10/1/2002      |
| c:\windows\system32\drivers\update.sys |                                                         |                                         | Kernel Driver                          | Yes     |        |        | ACPI\PNP0C02\2                                               |                          |                                |                |
| Manual                                 | Running                                                 | OK                                      | Normal                                 | No      | Yes    |        | Standard 101/102-Key or Microsoft Natural PS/2 Keyboard      | Yes                      |                                |                |
| usbhub                                 | USB2 Enabled Hub                                        | c:\windows\system32\drivers\usbhub.sys  |                                        |         |        |        | KEYBOARD                                                     | 5.2.3787.0               | 10/1/2002 (Standard keyboards) | keyboard.inf   |
| Kernel Driver                          | No                                                      | Manual                                  | Stopped                                | OK      | Normal |        | Not Available                                                | ACPI\PNP0303\4&7FD7688&0 |                                |                |
| No                                     | No                                                      |                                         |                                        |         |        |        | PS/2 Compatible Mouse                                        | Yes                      | MOUSE                          | 5.2.3787.0     |
| usbhci                                 | Microsoft USB Universal Host Controller Miniport Driver |                                         |                                        |         |        |        | Microsoft                                                    | msmouse.inf              | Not Available                  | 10/1/2002      |
| c:\windows\system32\drivers\usbhci.sys |                                                         |                                         | Kernel Driver                          | No      |        |        | ACPI\PNP0F13\4&7FD7688&0                                     |                          |                                |                |
| Manual                                 | Stopped                                                 | OK                                      | Normal                                 | No      | No     |        | Standard floppy disk controller                              | Yes                      | FDC                            | 5.2.3787.0     |
| vga                                    | vga                                                     | c:\windows\system32\drivers\vgapnp.sys  | Kernel                                 |         |        |        | (Standard floppy disk controllers)                           | fdc.inf                  | Not Available                  | 10/1/2002      |
| Driver                                 | No                                                      | Manual                                  | Stopped                                | OK      | Ignore | No     | ACPI\PNP0700\4&7FD7688&0                                     |                          |                                |                |
| No                                     |                                                         |                                         |                                        |         |        |        | Floppy disk drive                                            | Yes                      | FLOPPYDISK                     | 5.2.3787.0     |
| vgasave                                | VGA Display Controller.                                 |                                         |                                        |         |        |        | (Standard floppy disk drives)                                | flydisk.inf              | Not Available                  | 10/1/2002      |
| c:\windows\system32\drivers\vga.sys    |                                                         |                                         | Kernel Driver                          | Yes     |        |        | FDC\GENERIC_FLOPPY_DRIVE\5&17D92A40&0&0                      |                          |                                |                |
| System                                 | Running                                                 | OK                                      | Ignore                                 | No      | Yes    |        | Advanced programmable interrupt controller                   | Yes                      | SYSTEM                         | 5.2.3787.0     |
| viaide                                 | Vialde                                                  | c:\windows\system32\drivers\viaide.sys  | Kernel                                 |         |        |        | 10/1/2002 (Standard system devices)                          | machine.inf              | Not                            |                |
| Driver                                 | Yes                                                     | Boot                                    | Running                                | OK      | Normal | No     | Available                                                    | ACPI\PNP0003\4&7FD7688&0 |                                |                |
| Yes                                    |                                                         |                                         |                                        |         |        |        | Direct memory access controller                              | Yes                      | SYSTEM                         | 5.2.3787.0     |
| volsnap                                | Storage volumes                                         | c:\windows\system32\drivers\volsnap.sys |                                        |         |        |        | (Standard system devices)                                    | machine.inf              | Not Available                  | 10/1/2002      |
| Kernel Driver                          | Yes                                                     | Boot                                    | Running                                | OK      | Normal |        | ACPI\PNP0200\4&7FD7688&0                                     |                          |                                |                |
| No                                     | Yes                                                     |                                         |                                        |         |        |        | System timer                                                 | Yes                      | SYSTEM                         | 5.2.3787.0     |
| wanarp                                 | Remote Access IP ARP Driver                             |                                         |                                        |         |        |        | system devices                                               | machine.inf              | Not Available                  | 10/1/2002      |
| c:\windows\system32\drivers\wanarp.sys |                                                         |                                         | Kernel Driver                          | Yes     |        |        | ACPI\PNP0100\4&7FD7688&0                                     |                          |                                |                |
| Manual                                 | Running                                                 | OK                                      | Normal                                 | No      | Yes    |        | System CMOS/real time clock                                  | Yes                      | SYSTEM                         | 5.2.3787.0     |
| wdica                                  | WDICA                                                   | Not Available                           | Kernel Driver                          | No      |        |        | (Standard system devices)                                    | machine.inf              | Not Available                  | 10/1/2002      |
| Manual                                 | Stopped                                                 | OK                                      | Ignore                                 | No      | No     |        | ACPI\PNP0B00\4&7FD7688&0                                     |                          |                                |                |
| wlbs                                   | Network Load Balancing                                  |                                         |                                        |         |        |        |                                                              |                          |                                |                |
| c:\windows\system32\drivers\wlbs.sys   |                                                         |                                         | Kernel Driver                          | No      |        |        |                                                              |                          |                                |                |
| Manual                                 | Stopped                                                 | OK                                      | Normal                                 | No      | No     |        |                                                              |                          |                                |                |

[Signed Drivers]

|                                                                        |        |             |            |           |                                      |              |               |
|------------------------------------------------------------------------|--------|-------------|------------|-----------|--------------------------------------|--------------|---------------|
| System speaker                                                         | Yes    | SYSTEM      | 5.2.3787.0 | 10/1/2002 | (Standard system devices)            | machine.inf  | Not Available |
| ACPI\PNP0800\4&7FD7688&0                                               |        |             |            |           |                                      |              |               |
| Numeric data processor                                                 | Yes    | SYSTEM      | 5.2.3787.0 | 10/1/2002 | (Standard system devices)            | machine.inf  | Not Available |
| ACPI\PNP0C04\4&7FD7688&0                                               |        |             |            |           |                                      |              |               |
| Motherboard resources                                                  | Yes    | SYSTEM      | 5.2.3787.0 | 10/1/2002 | (Standard system devices)            | machine.inf  | Not Available |
| ACPI\PNP0C02\3                                                         |        |             |            |           |                                      |              |               |
| VIA Bus Master IDE Controller                                          | Yes    | HDC         | 5.2.3787.0 | 10/1/2002 | VIA Technologies, Inc.               | mshdc.inf    | Not Available |
| PCI\VEN_1106&DEV_0571&SUBSYS_00000000&REV_06\3&267A616A&0&29           |        |             |            |           |                                      |              |               |
| Primary IDE Channel                                                    | Yes    | HDC         | 5.2.3787.0 | 10/1/2002 | (Standard IDE ATA/ATAPI controllers) | mshdc.inf    | Not Available |
| PCI\IDE\IDECHANNEL\4&1C0B4DED&0&0                                      |        |             |            |           |                                      |              |               |
| CD-ROM Drive                                                           | Yes    | CDROM       | 5.2.3787.0 | 10/1/2002 | (Standard CD-ROM drives)             | cdrom.inf    | Not Available |
| IDE\CDROMLG_CD-ROM_CRN-8245B_____1.16____\5&2CDE688A&0&0.0.0           |        |             |            |           |                                      |              |               |
| Secondary IDE Channel                                                  | Yes    | HDC         | 5.2.3787.0 | 10/1/2002 | (Standard IDE ATA/ATAPI controllers) | mshdc.inf    | Not Available |
| PCI\IDE\IDECHANNEL\4&1C0B4DED&0&1                                      |        |             |            |           |                                      |              |               |
| VIA Rev 5 or later USB Universal Host Controller                       | Yes    | USB         | 5.2.3787.0 | 10/1/2002 | VIA Technologies                     | usbport.inf  | Not Available |
| PCI\VEN_1106&DEV_3038&SUBSYS_12340925&REV_16\3&267A616A&0&2A           |        |             |            |           |                                      |              |               |
| VIA Rev 5 or later USB Universal Host Controller                       | Yes    | USB         | 5.2.3787.0 | 10/1/2002 | VIA Technologies                     | usbport.inf  | Not Available |
| PCI\VEN_1106&DEV_3038&SUBSYS_12340925&REV_16\3&267A616A&0&2B           |        |             |            |           |                                      |              |               |
| VIA Tech Power Management controller                                   | Yes    | SYSTEM      | 5.2.3787.0 | 10/1/2002 | VIA                                  | machine.inf  | Not Available |
| PCI\VEN_1106&DEV_3057&SUBSYS_00000000&REV_40\3&267A616A&0&2C           |        |             |            |           |                                      |              |               |
| ACPI Fixed Feature Button                                              | Yes    | SYSTEM      | 5.2.3787.0 | 10/1/2002 | (Standard system devices)            | machine.inf  | Not Available |
| ACPI\FIXEDBUTTON\2&DABA3FF&0                                           |        |             |            |           |                                      |              |               |
| Processor                                                              | Yes    | PROCESSOR   | 5.2.3787.0 | 10/1/2002 | (Standard processor types)           | cpu.inf      | Not Available |
| ACPI\GENUINEINTEL_-_X86_FAMILY_15_MODEL_2\_0                           |        |             |            |           |                                      |              |               |
| Processor                                                              | Yes    | PROCESSOR   | 5.2.3787.0 | 10/1/2002 | (Standard processor types)           | cpu.inf      | Not Available |
| ACPI\GENUINEINTEL_-_X86_FAMILY_15_MODEL_2\_1                           |        |             |            |           |                                      |              |               |
| Processor                                                              | Yes    | PROCESSOR   | 5.2.3787.0 | 10/1/2002 | (Standard processor types)           | cpu.inf      | Not Available |
| ACPI\GENUINEINTEL_-_X86_FAMILY_15_MODEL_2\_2                           |        |             |            |           |                                      |              |               |
| Processor                                                              | Yes    | PROCESSOR   | 5.2.3787.0 | 10/1/2002 | (Standard processor types)           | cpu.inf      | Not Available |
| ACPI\GENUINEINTEL_-_X86_FAMILY_15_MODEL_2\_3                           |        |             |            |           |                                      |              |               |
| Processor                                                              | Yes    | PROCESSOR   | 5.2.3787.0 | 10/1/2002 | (Standard processor types)           | cpu.inf      | Not Available |
| ACPI\GENUINEINTEL_-_X86_FAMILY_15_MODEL_2\_4                           |        |             |            |           |                                      |              |               |
| Processor                                                              | Yes    | PROCESSOR   | 5.2.3787.0 | 10/1/2002 | (Standard processor types)           | cpu.inf      | Not Available |
| ACPI\GENUINEINTEL_-_X86_FAMILY_15_MODEL_2\_6                           |        |             |            |           |                                      |              |               |
| Processor                                                              | Yes    | PROCESSOR   | 5.2.3787.0 | 10/1/2002 | (Standard processor types)           | cpu.inf      | Not Available |
| ACPI\GENUINEINTEL_-_X86_FAMILY_15_MODEL_2\_7                           |        |             |            |           |                                      |              |               |
| Processor                                                              | Yes    | PROCESSOR   | 5.2.3787.0 | 10/1/2002 | (Standard processor types)           | cpu.inf      | Not Available |
| ACPI\GENUINEINTEL_-_X86_FAMILY_15_MODEL_2\_8                           |        |             |            |           |                                      |              |               |
| Processor                                                              | Yes    | PROCESSOR   | 5.2.3787.0 | 10/1/2002 | (Standard processor types)           | cpu.inf      | Not Available |
| ACPI\GENUINEINTEL_-_X86_FAMILY_15_MODEL_2\_9                           |        |             |            |           |                                      |              |               |
| Processor                                                              | Yes    | PROCESSOR   | 5.2.3787.0 | 10/1/2002 | (Standard processor types)           | cpu.inf      | Not Available |
| ACPI\GENUINEINTEL_-_X86_FAMILY_15_MODEL_2\10                           |        |             |            |           |                                      |              |               |
| Processor                                                              | Yes    | PROCESSOR   | 5.2.3787.0 | 10/1/2002 | (Standard processor types)           | cpu.inf      | Not Available |
| ACPI\GENUINEINTEL_-_X86_FAMILY_15_MODEL_2\11                           |        |             |            |           |                                      |              |               |
| Processor                                                              | Yes    | PROCESSOR   | 5.2.3787.0 | 10/1/2002 | (Standard processor types)           | cpu.inf      | Not Available |
| ACPI\GENUINEINTEL_-_X86_FAMILY_15_MODEL_2\12                           |        |             |            |           |                                      |              |               |
| Processor                                                              | Yes    | PROCESSOR   | 5.2.3787.0 | 10/1/2002 | (Standard processor types)           | cpu.inf      | Not Available |
| ACPI\GENUINEINTEL_-_X86_FAMILY_15_MODEL_2\13                           |        |             |            |           |                                      |              |               |
| Processor                                                              | Yes    | PROCESSOR   | 5.2.3787.0 | 10/1/2002 | (Standard processor types)           | cpu.inf      | Not Available |
| ACPI\GENUINEINTEL_-_X86_FAMILY_15_MODEL_2\14                           |        |             |            |           |                                      |              |               |
| Processor                                                              | Yes    | PROCESSOR   | 5.2.3787.0 | 10/1/2002 | (Standard processor types)           | cpu.inf      | Not Available |
| ACPI\GENUINEINTEL_-_X86_FAMILY_15_MODEL_2\15                           |        |             |            |           |                                      |              |               |
| PCI bus                                                                | Yes    | SYSTEM      | 5.2.3787.0 | 10/1/2002 | (Standard system devices)            | machine.inf  | Not Available |
| PCI standard host CPU bridge                                           | Yes    | SYSTEM      | 5.2.3787.0 | 10/1/2002 | (Standard system devices)            | machine.inf  | Not Available |
| PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_03\3&13C0B0C5&0&00           |        |             |            |           |                                      |              |               |
| Adaptec AIC-7899 Ultra160 PCI SCSI Card                                | Yes    | SCSIADAPTER | 5.2.3787.0 | 10/1/2002 | Adaptec                              | pnpscsi.inf  | Not Available |
| PCI\VEN_9005&DEV_00CF&SUBSYS_09AF1014&REV_01\3&13C0B0C5&0&18           |        |             |            |           |                                      |              |               |
| Adaptec AIC-7899 Ultra160 PCI SCSI Card                                | Yes    | SCSIADAPTER | 5.2.3787.0 | 10/1/2002 | Adaptec                              | pnpscsi.inf  | Not Available |
| PCI\VEN_9005&DEV_00CF&SUBSYS_09AF1014&REV_01\3&13C0B0C5&0&19           |        |             |            |           |                                      |              |               |
| SCSI Processor Device                                                  | Yes    | SYSTEM      | 5.2.3787.0 | 10/1/2002 | IBM                                  | scsdev.inf   | Not Available |
| SCSI\PROCESSOR&VEN_IBM&PROD_GNHV1_S2&REV_0\4&25A2C38F&0&090            |        |             |            |           |                                      |              |               |
| Disk drive                                                             | Yes    | DISKDRIVE   | 5.2.3787.0 | 10/1/2002 | (Standard disk drives)               | disk.inf     | Not Available |
| SCSI\DISK&VEN_IBM-ESXS&PROD_ST318305LC____!#&REV_B245\4&25A2C38F&0&0C0 |        |             |            |           |                                      |              |               |
| Broadcom NetXtreme Gigabit Ethernet                                    | Yes    | NET         | 2.91.0.0   | 10/1/2002 | Broadcom                             | netb57xp.inf | Not Available |
| PCI\VEN_14E4&DEV_1644&SUBSYS_02771014&REV_12\3&13C0B0C5&0&20           |        |             |            |           |                                      |              |               |
| PCI bus                                                                | Yes    | SYSTEM      | 5.2.3787.0 | 10/1/2002 | (Standard system devices)            | machine.inf  | Not Available |
| PCI standard host CPU bridge                                           | Yes    | SYSTEM      | 5.2.3787.0 | 10/1/2002 | (Standard system devices)            | machine.inf  | Not Available |
| PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_03\3&1070020&0&00            |        |             |            |           |                                      |              |               |
| QLogic QLA23xx PCI Fibre Channel Adapter                               | No     |             |            |           |                                      |              |               |
| SCSIADAPTER 8.2.0.0 10/22/2002                                         | QLogic | oem5.inf    |            |           |                                      |              |               |
| Not Available                                                          |        |             |            |           |                                      |              |               |
| PCI\VEN_1077&DEV_2312&SUBSYS_01001077&REV_02\3&1070020&0&08            |        |             |            |           |                                      |              |               |
| Disk drive                                                             | Yes    | DISKDRIVE   | 5.2.3787.0 | 10/1/2002 | (Standard disk drives)               | disk.inf     | Not Available |
| SCSI\DISK&VEN_IBM&PROD_1742&REV_0521\4&3B4E3515&0&000                  |        |             |            |           |                                      |              |               |
| Qlogic processor device                                                | Yes    | SYSTEM      | 5.2.3787.0 | 10/1/2002 | QLOGIC                               | scsdev.inf   | Not Available |
| SCSI\PROCESSOR&VEN_QLOGIC&PROD_PSEUDO_LUN&REV_4&3B4E3515&0&07F0        |        |             |            |           |                                      |              |               |
| QLogic QLA23xx PCI Fibre Channel Adapter                               | No     |             |            |           |                                      |              |               |
| SCSIADAPTER 8.2.0.0 10/22/2002                                         | QLogic | oem5.inf    |            |           |                                      |              |               |
| Not Available                                                          |        |             |            |           |                                      |              |               |
| PCI\VEN_1077&DEV_2312&SUBSYS_010C1077&REV_02\3&1070020&0&10            |        |             |            |           |                                      |              |               |

|                                                                 |             |               |            |           |                                                              |               |               |            |           |                  |
|-----------------------------------------------------------------|-------------|---------------|------------|-----------|--------------------------------------------------------------|---------------|---------------|------------|-----------|------------------|
| Qlogic processor device                                         | Yes         | SYSTEM        | 5.2.3787.0 | 10/1/2002 | Processor                                                    | Yes           | PROCESSOR     | 5.2.3787.0 | 10/1/2002 | (Standard        |
| QLOGIC                                                          | scsdev.inf  | Not Available |            |           | processor types)                                             | cpu.inf       | Not Available |            |           |                  |
| SCSI\PROCESSOR&VEN_QLOGIC&PROD_PSEUDO_LUN&REV_4&37D8710D&0&07F0 |             |               |            |           | ACPI\GENUINEINTEL_-X86_FAMILY_15_MODEL_2\23                  |               |               |            |           |                  |
| PCI bus                                                         | Yes         | SYSTEM        | 5.2.3787.0 | 10/1/2002 | Processor                                                    | Yes           | PROCESSOR     | 5.2.3787.0 | 10/1/2002 | (Standard        |
| devices)                                                        | machine.inf | Not Available |            |           | processor types)                                             | cpu.inf       | Not Available |            |           |                  |
| PCI standard host CPU bridge                                    | Yes         | SYSTEM        | 5.2.3787.0 | 10/1/2002 | ACPI\GENUINEINTEL_-X86_FAMILY_15_MODEL_2\24                  |               |               |            |           |                  |
| (Standard system devices)                                       | machine.inf | Not Available |            |           | Processor                                                    | Yes           | PROCESSOR     | 5.2.3787.0 | 10/1/2002 | (Standard        |
| PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_03\3&29E81982&0&00    |             |               |            |           | processor types)                                             | cpu.inf       | Not Available |            |           |                  |
| PCI bus                                                         | Yes         | SYSTEM        | 5.2.3787.0 | 10/1/2002 | ACPI\GENUINEINTEL_-X86_FAMILY_15_MODEL_2\25                  |               |               |            |           |                  |
| devices)                                                        | machine.inf | Not Available |            |           | Processor                                                    | Yes           | PROCESSOR     | 5.2.3787.0 | 10/1/2002 | (Standard        |
| PCI standard host CPU bridge                                    | Yes         | SYSTEM        | 5.2.3787.0 | 10/1/2002 | processor types)                                             | cpu.inf       | Not Available |            |           |                  |
| (Standard system devices)                                       | machine.inf | Not Available |            |           | ACPI\GENUINEINTEL_-X86_FAMILY_15_MODEL_2\26                  |               |               |            |           |                  |
| PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_03\3&172E68DD&0&00    |             |               |            |           | Processor                                                    | Yes           | PROCESSOR     | 5.2.3787.0 | 10/1/2002 | (Standard        |
| QLogic QLA23xx PCI Fibre Channel Adapter                        |             | No            |            |           | processor types)                                             | cpu.inf       | Not Available |            |           |                  |
| SCSIADAPTER                                                     | 8.2.0.0     | 10/22/2002    | QLogic     | oem5.inf  | ACPI\GENUINEINTEL_-X86_FAMILY_15_MODEL_2\28                  |               |               |            |           |                  |
| Not Available                                                   |             |               |            |           | Processor                                                    | Yes           | PROCESSOR     | 5.2.3787.0 | 10/1/2002 | (Standard        |
| PCI\VEN_1077&DEV_2312&SUBSYS_01001077&REV_02\3&172E68DD&0&18    |             |               |            |           | processor types)                                             | cpu.inf       | Not Available |            |           |                  |
| Disk drive                                                      | Yes         | DISKDRIVE     | 5.2.3787.0 | 10/1/2002 | ACPI\GENUINEINTEL_-X86_FAMILY_15_MODEL_2\29                  |               |               |            |           |                  |
| (Standard disk drives)                                          | disk.inf    | Not Available |            |           | Processor                                                    | Yes           | PROCESSOR     | 5.2.3787.0 | 10/1/2002 | (Standard        |
| SCSI\DISK&VEN_IBM&PROD_1742&REV_0521\4&26D408A5&0&000           |             |               |            |           | processor types)                                             | cpu.inf       | Not Available |            |           |                  |
| Disk drive                                                      | Yes         | DISKDRIVE     | 5.2.3787.0 | 10/1/2002 | ACPI\GENUINEINTEL_-X86_FAMILY_15_MODEL_2\30                  |               |               |            |           |                  |
| (Standard disk drives)                                          | disk.inf    | Not Available |            |           | Processor                                                    | Yes           | PROCESSOR     | 5.2.3787.0 | 10/1/2002 | (Standard        |
| SCSI\DISK&VEN_IBM&PROD_1742&REV_0521\4&26D408A5&0&002           |             |               |            |           | processor types)                                             | cpu.inf       | Not Available |            |           |                  |
| Disk drive                                                      | Yes         | DISKDRIVE     | 5.2.3787.0 | 10/1/2002 | ACPI\GENUINEINTEL_-X86_FAMILY_15_MODEL_2\31                  |               |               |            |           |                  |
| (Standard disk drives)                                          | disk.inf    | Not Available |            |           | PCI bus                                                      | Yes           | SYSTEM        | 5.2.3787.0 | 10/1/2002 | (Standard system |
| SCSI\DISK&VEN_IBM&PROD_1742&REV_0521\4&26D408A5&0&011           |             |               |            |           | devices)                                                     | machine.inf   | Not Available |            |           |                  |
| Disk drive                                                      | Yes         | DISKDRIVE     | 5.2.3787.0 | 10/1/2002 | PCI standard host CPU bridge                                 | Yes           | SYSTEM        | 5.2.3787.0 | 10/1/2002 |                  |
| (Standard disk drives)                                          | disk.inf    | Not Available |            |           | (Standard system devices)                                    | machine.inf   | Not Available |            |           |                  |
| SCSI\DISK&VEN_IBM&PROD_1742&REV_0521\4&26D408A5&0&013           |             |               |            |           | PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_03\3&A985F74&0&00  |               |               |            |           |                  |
| Qlogic processor device                                         | Yes         | SYSTEM        | 5.2.3787.0 | 10/1/2002 | Other PCI Bridge Device                                      |               | Not Available |            | UNKNOWN   |                  |
| QLOGIC                                                          | scsdev.inf  | Not Available |            |           | Not Available                                                | Not Available | Not Available |            | Not       |                  |
| SCSI\PROCESSOR&VEN_QLOGIC&PROD_PSEUDO_LUN&REV_4&26D408A5&0&07F0 |             |               |            |           | Available                                                    | Not Available |               |            |           |                  |
| PCI bus                                                         | Yes         | SYSTEM        | 5.2.3787.0 | 10/1/2002 | PCI\VEN_1014&DEV_010F&SUBSYS_01131014&REV_00\3&A985F74&0&20  |               |               |            |           |                  |
| devices)                                                        | machine.inf | Not Available |            |           | VIA Tech PCI to ISA bridge                                   | Yes           | SYSTEM        | 5.2.3787.0 | 10/1/2002 |                  |
| PCI standard host CPU bridge                                    | Yes         | SYSTEM        | 5.2.3787.0 | 10/1/2002 | VIA                                                          | machine.inf   | Not Available |            |           |                  |
| (Standard system devices)                                       | machine.inf | Not Available |            |           | PCI\VEN_1106&DEV_0686&SUBSYS_00000000&REV_40\3&A985F74&0&28  |               |               |            |           |                  |
| PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_03\3&474B838&0&00     |             |               |            |           | VIA Tech Power Management controller                         | Yes           | SYSTEM        | 5.2.3787.0 |           |                  |
| Motherboard resources                                           | Yes         | SYSTEM        | 5.2.3787.0 | 10/1/2002 | 10/1/2002 VIA                                                | machine.inf   | Not Available |            |           |                  |
| (Standard system devices)                                       | machine.inf | Not Available |            |           | PCI\VEN_1106&DEV_3057&SUBSYS_00000000&REV_40\3&A985F74&0&2C  |               |               |            |           |                  |
| ACPI\PNP0C02\10                                                 |             |               |            |           | PCI bus                                                      | Yes           | SYSTEM        | 5.2.3787.0 | 10/1/2002 | (Standard system |
| Processor                                                       | Yes         | PROCESSOR     | 5.2.3787.0 | 10/1/2002 | devices)                                                     | machine.inf   | Not Available |            |           |                  |
| processor types)                                                | cpu.inf     | Not Available |            |           | PCI standard host CPU bridge                                 | Yes           | SYSTEM        | 5.2.3787.0 | 10/1/2002 |                  |
| ACPI\GENUINEINTEL_-X86_FAMILY_15_MODEL_2\16                     |             |               |            |           | (Standard system devices)                                    | machine.inf   | Not Available |            |           |                  |
| Processor                                                       | Yes         | PROCESSOR     | 5.2.3787.0 | 10/1/2002 | PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_03\3&1D521019&0&00 |               |               |            |           |                  |
| processor types)                                                | cpu.inf     | Not Available |            |           | Adaptec AIC-7899 Ultra160 PCI SCSI Card                      | Yes           | SCSIADAPTER   |            |           |                  |
| ACPI\GENUINEINTEL_-X86_FAMILY_15_MODEL_2\17                     |             |               |            |           | 5.2.3787.0 10/1/2002 Adaptec                                 | pnpscsi.inf   | Not Available |            |           |                  |
| Processor                                                       | Yes         | PROCESSOR     | 5.2.3787.0 | 10/1/2002 | PCI\VEN_9005&DEV_00CF&SUBSYS_09AF1014&REV_01\3&1D521019&0&18 |               |               |            |           |                  |
| processor types)                                                | cpu.inf     | Not Available |            |           | Adaptec AIC-7899 Ultra160 PCI SCSI Card                      | Yes           | SCSIADAPTER   |            |           |                  |
| ACPI\GENUINEINTEL_-X86_FAMILY_15_MODEL_2\18                     |             |               |            |           | 5.2.3787.0 10/1/2002 Adaptec                                 | pnpscsi.inf   | Not Available |            |           |                  |
| Processor                                                       | Yes         | PROCESSOR     | 5.2.3787.0 | 10/1/2002 | PCI\VEN_9005&DEV_00CF&SUBSYS_09AF1014&REV_01\3&1D521019&0&19 |               |               |            |           |                  |
| processor types)                                                | cpu.inf     | Not Available |            |           | SCSI Processor Device                                        | Yes           | SYSTEM        | 5.2.3787.0 | 10/1/2002 |                  |
| ACPI\GENUINEINTEL_-X86_FAMILY_15_MODEL_2\20                     |             |               |            |           | IBM                                                          | scsdev.inf    | Not Available |            |           |                  |
| Processor                                                       | Yes         | PROCESSOR     | 5.2.3787.0 | 10/1/2002 | SCSI\PROCESSOR&VEN_IBM&PROD_GNHV1_S2&REV_0\4&30016EC5&0&090  |               |               |            |           |                  |
| processor types)                                                | cpu.inf     | Not Available |            |           | Broadcom NetXtreme Gigabit Ethernet                          | Yes           | NET           | 2.91.0.0   |           |                  |
| ACPI\GENUINEINTEL_-X86_FAMILY_15_MODEL_2\21                     |             |               |            |           | 10/1/2002 Broadcom netb57xp.inf                              |               | Not Available |            |           |                  |
| Processor                                                       | Yes         | PROCESSOR     | 5.2.3787.0 | 10/1/2002 | PCI\VEN_14E4&DEV_1644&SUBSYS_02771014&REV_12\3&1D521019&0&20 |               |               |            |           |                  |
| processor types)                                                | cpu.inf     | Not Available |            |           |                                                              |               |               |            |           |                  |
| ACPI\GENUINEINTEL_-X86_FAMILY_15_MODEL_2\22                     |             |               |            |           |                                                              |               |               |            |           |                  |



|                                                                        |           |        |            |           |                                                                                   |     |        |            |           |                      |               |
|------------------------------------------------------------------------|-----------|--------|------------|-----------|-----------------------------------------------------------------------------------|-----|--------|------------|-----------|----------------------|---------------|
| SCSI\PROCESSOR&VEN_QLOGIC&PROD_PSEUDO_LUN&REV_4&1A64A01B&0&07F0        |           |        |            |           | STORAGE\VOLUME\1&30A96598&0&SIGNATURE606ED517OFFSET7E0000LENGTH53BDCFA000         |     |        |            |           |                      |               |
| Motherboard resources (Standard system devices)                        | Yes       | SYSTEM | 5.2.3787.0 | 10/1/2002 | Generic volume                                                                    | Yes | VOLUME | 5.2.3787.0 | 10/1/2002 | Microsoft volume.inf | Not Available |
| ACPI\PNP0C02\20                                                        |           |        |            |           | STORAGE\VOLUME\1&30A96598&0&SIGNATURE606ED517OFFSET53BE4E1E00LENGTH226C827000     |     |        |            |           |                      |               |
| PCI bus devices)                                                       | Yes       | SYSTEM | 5.2.3787.0 | 10/1/2002 | Generic volume                                                                    | Yes | VOLUME | 5.2.3787.0 | 10/1/2002 | Microsoft volume.inf | Not Available |
| (Standard system devices) machine.inf Not Available ACPI\PNP0A03\88    |           |        |            |           | STORAGE\VOLUME\1&30A96598&0&SIGNATURE91BEFD87OFFSET7E0000LENGTH90893DC00          |     |        |            |           |                      |               |
| PCI standard host CPU bridge (Standard system devices)                 | Yes       | SYSTEM | 5.2.3787.0 | 10/1/2002 | Generic volume                                                                    | Yes | VOLUME | 5.2.3787.0 | 10/1/2002 | Microsoft volume.inf | Not Available |
| PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_03\3&32219A6E&0&00           |           |        |            |           | STORAGE\VOLUME\1&30A96598&0&SIGNATURE91BEFD87OFFSETE2A004600LENGTH67C28CCA00      |     |        |            |           |                      |               |
| PCI bus devices)                                                       | Yes       | SYSTEM | 5.2.3787.0 | 10/1/2002 | Generic volume                                                                    | Yes | VOLUME | 5.2.3787.0 | 10/1/2002 | Microsoft volume.inf | Not Available |
| (Standard system devices) machine.inf Not Available ACPI\PNP0A03\89    |           |        |            |           | STORAGE\VOLUME\1&30A96598&0&SIGNATURE91BEFD87OFFSET909125A00LENGTH520ED6E00       |     |        |            |           |                      |               |
| PCI standard host CPU bridge (Standard system devices)                 | Yes       | SYSTEM | 5.2.3787.0 | 10/1/2002 | Generic volume                                                                    | Yes | VOLUME | 5.2.3787.0 | 10/1/2002 | Microsoft volume.inf | Not Available |
| PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_03\3&1F67E9C9&0&00           |           |        |            |           | STORAGE\VOLUME\1&30A96598&0&SIGNATURE91BEFD87OFFSETE2A004600LENGTH67C28CCA00      |     |        |            |           |                      |               |
| QLogic QLA23xx PCI Fibre Channel Adapter No QLogic oem5.inf            |           |        |            |           | STORAGE\VOLUME\1&30A96598&0&SIGNATURE66B1EDE3OFFSET7E0000LENGTH90893DC00          |     |        |            |           |                      |               |
| SCSIADAPTER 8.2.0.0 10/22/2002                                         |           |        |            |           | Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available |     |        |            |           |                      |               |
| Not Available                                                          |           |        |            |           | STORAGE\VOLUME\1&30A96598&0&SIGNATURE91BEFD84OFFSET7E0000LENGTH90893DC00          |     |        |            |           |                      |               |
| PCI\VEN_1077&DEV_2312&SUBSYS_01001077&REV_02\3&1F67E9C9&0&08           |           |        |            |           | Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available |     |        |            |           |                      |               |
| Disk drive Yes                                                         | DISKDRIVE |        | 5.2.3787.0 | 10/1/2002 | STORAGE\VOLUME\1&30A96598&0&SIGNATURE91BEFD84OFFSET909125A00LENGTH520ED6E00       |     |        |            |           |                      |               |
| (Standard disk drives) disk.inf Not Available                          |           |        |            |           | Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available |     |        |            |           |                      |               |
| SCSI\DISK&VEN_IBM&PROD_1742&REV_0521\4&17E5C005&0&000                  |           |        |            |           | STORAGE\VOLUME\1&30A96598&0&SIGNATURE91BEFD84OFFSETE2A004600LENGTH67C28CCA00      |     |        |            |           |                      |               |
| Disk drive Yes                                                         | DISKDRIVE |        | 5.2.3787.0 | 10/1/2002 | Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available |     |        |            |           |                      |               |
| (Standard disk drives) disk.inf Not Available                          |           |        |            |           | STORAGE\VOLUME\1&30A96598&0&SIGNATURE66B1EDE3OFFSET7E0000LENGTH90893DC00          |     |        |            |           |                      |               |
| SCSI\DISK&VEN_IBM&PROD_1742&REV_0521\4&17E5C005&0&002                  |           |        |            |           | Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available |     |        |            |           |                      |               |
| Disk drive Yes                                                         | DISKDRIVE |        | 5.2.3787.0 | 10/1/2002 | STORAGE\VOLUME\1&30A96598&0&SIGNATURE66B1EDE2OFFSET7E0000LENGTH90893DC00          |     |        |            |           |                      |               |
| (Standard disk drives) disk.inf Not Available                          |           |        |            |           | Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available |     |        |            |           |                      |               |
| SCSI\DISK&VEN_IBM&PROD_1742&REV_0521\4&17E5C005&0&011                  |           |        |            |           | STORAGE\VOLUME\1&30A96598&0&SIGNATURE66B1EDE2OFFSET909125A00LENGTH520ED6E00       |     |        |            |           |                      |               |
| Disk drive Yes                                                         | DISKDRIVE |        | 5.2.3787.0 | 10/1/2002 | Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available |     |        |            |           |                      |               |
| (Standard disk drives) disk.inf Not Available                          |           |        |            |           | STORAGE\VOLUME\1&30A96598&0&SIGNATURE66B1EDE2OFFSET7E0000LENGTH90893DC00          |     |        |            |           |                      |               |
| SCSI\DISK&VEN_IBM&PROD_1742&REV_0521\4&17E5C005&0&013                  |           |        |            |           | Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available |     |        |            |           |                      |               |
| Qlogic processor device Yes SYSTEM 5.2.3787.0 10/1/2002                |           |        |            |           | STORAGE\VOLUME\1&30A96598&0&SIGNATURE66B1EDE2OFFSETE2A004600LENGTH67C28CCA00      |     |        |            |           |                      |               |
| QLOGIC scsdev.inf Not Available                                        |           |        |            |           | Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available |     |        |            |           |                      |               |
| SCSI\PROCESSOR&VEN_QLOGIC&PROD_PSEUDO_LUN&REV_4&17E5C005&0&07F0        |           |        |            |           | STORAGE\VOLUME\1&30A96598&0&SIGNATURE66B1EDE2OFFSETE2A004600LENGTH67C28CCA00      |     |        |            |           |                      |               |
| PCI bus devices)                                                       | Yes       | SYSTEM | 5.2.3787.0 | 10/1/2002 | Generic volume                                                                    | Yes | VOLUME | 5.2.3787.0 | 10/1/2002 | Microsoft volume.inf | Not Available |
| (Standard system devices) machine.inf Not Available ACPI\PNP0A03\8A    |           |        |            |           | STORAGE\VOLUME\1&30A96598&0&SIGNATURE66B1EDE3OFFSETE2A004600LENGTH67C28CCA00      |     |        |            |           |                      |               |
| PCI standard host CPU bridge (Standard system devices)                 | Yes       | SYSTEM | 5.2.3787.0 | 10/1/2002 | Generic volume                                                                    | Yes | VOLUME | 5.2.3787.0 | 10/1/2002 | Microsoft volume.inf | Not Available |
| PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_03\3&3ACAD158&0&00           |           |        |            |           | STORAGE\VOLUME\1&30A96598&0&SIGNATURE66B1EDE2OFFSET7E0000LENGTH90893DC00          |     |        |            |           |                      |               |
| QLogic QLA23xx PCI Fibre Channel Adapter No QLogic oem5.inf            |           |        |            |           | Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available |     |        |            |           |                      |               |
| SCSIADAPTER 8.2.0.0 10/22/2002                                         |           |        |            |           | STORAGE\VOLUME\1&30A96598&0&SIGNATURE66B1EDE2OFFSET909125A00LENGTH520ED6E00       |     |        |            |           |                      |               |
| Not Available                                                          |           |        |            |           | Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available |     |        |            |           |                      |               |
| PCI\VEN_1077&DEV_2312&SUBSYS_010C1077&REV_02\3&3ACAD158&0&08           |           |        |            |           | STORAGE\VOLUME\1&30A96598&0&SIGNATURE66B1EDE2OFFSET909125A00LENGTH520ED6E00       |     |        |            |           |                      |               |
| Qlogic processor device Yes SYSTEM 5.2.3787.0 10/1/2002                |           |        |            |           | Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available |     |        |            |           |                      |               |
| QLOGIC scsdev.inf Not Available                                        |           |        |            |           | STORAGE\VOLUME\1&30A96598&0&SIGNATURE66B1EDE2OFFSETE2A004600LENGTH67C28CCA00      |     |        |            |           |                      |               |
| SCSI\PROCESSOR&VEN_QLOGIC&PROD_PSEUDO_LUN&REV_4&CD65BEB&0&07F0         |           |        |            |           | Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available |     |        |            |           |                      |               |
| Motherboard resources (Standard system devices)                        | Yes       | SYSTEM | 5.2.3787.0 | 10/1/2002 | STORAGE\VOLUME\1&30A96598&0&SIGNATURE79AD59FOFFSET7E0000LENGTH90893DC00           |     |        |            |           |                      |               |
| ACPI\PNP0C02\21                                                        |           |        |            |           | Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available |     |        |            |           |                      |               |
| Logical Disk Manager (Standard system devices)                         | Yes       | SYSTEM | 5.2.3787.0 | 10/1/2002 | STORAGE\VOLUME\1&30A96598&0&SIGNATURE79AD59FOFFSET909125A00LENGTH520ED6E00        |     |        |            |           |                      |               |
| ROOT\DMIO\0000                                                         |           |        |            |           | Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available |     |        |            |           |                      |               |
| Volume Manager (Standard system devices)                               | Yes       | SYSTEM | 5.2.3787.0 | 10/1/2002 | STORAGE\VOLUME\1&30A96598&0&SIGNATURE79AD59FOFFSETE2A004600LENGTH67C28CCA00       |     |        |            |           |                      |               |
| ROOT\FTDISK\0000                                                       |           |        |            |           | Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available |     |        |            |           |                      |               |
| Generic volume                                                         | Yes       | VOLUME | 5.2.3787.0 | 10/1/2002 | STORAGE\VOLUME\1&30A96598&0&SIGNATURE79AD59FOFFSETE2A004600LENGTH67C28CCA00       |     |        |            |           |                      |               |
| Microsoft volume.inf Not Available                                     |           |        |            |           | Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available |     |        |            |           |                      |               |
| STORAGE\VOLUME\1&30A96598&0&SIGNATURE95039503OFFSET7E00LENGTH43C76CA00 |           |        |            |           | STORAGE\VOLUME\1&30A96598&0&SIGNATURE79AD59FOFFSETE2A004600LENGTH67C28CCA00       |     |        |            |           |                      |               |
| Generic volume                                                         | Yes       | VOLUME | 5.2.3787.0 | 10/1/2002 | Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available |     |        |            |           |                      |               |
| Microsoft volume.inf Not Available                                     |           |        |            |           |                                                                                   |     |        |            |           |                      |               |

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STORAGE\VOLUME\1&30A96598&0&SIGNATUREFDF695193OFFSETE2
A004600LENGTH67C28CCA00
Generic volume      Yes      VOLUME 5.2.3787.0 10/1/2002  Microsoft
volume.infNot Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURECA102415OFFSET7E
0000LENGTH90893DC00
Generic volume      Yes      VOLUME 5.2.3787.0 10/1/2002  Microsoft
volume.infNot Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURECA102415OFFSETE2
A004600LENGTH67C28CCA00
Generic volume      Yes      VOLUME 5.2.3787.0 10/1/2002  Microsoft
volume.infNot Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURECA102415OFFSETE2
A004600LENGTH67C28CCA00
Generic volume      Yes      VOLUME 5.2.3787.0 10/1/2002  Microsoft
volume.infNot Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE17266159OFFSET7E0
000LENGTH90893DC00
Generic volume      Yes      VOLUME 5.2.3787.0 10/1/2002  Microsoft
volume.infNot Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE17266159OFFSET909
125A00LENGTH520ED6E00
Generic volume      Yes      VOLUME 5.2.3787.0 10/1/2002  Microsoft
volume.infNot Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE17266159OFFSETE2A
004600LENGTH67C28CCA00
Generic volume      Yes      VOLUME 5.2.3787.0 10/1/2002  Microsoft
volume.infNot Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE91BEFD80OFFSET7E
0000LENGTH90893DC00
Generic volume      Yes      VOLUME 5.2.3787.0 10/1/2002  Microsoft
volume.infNot Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE91BEFD80OFFSET90
9125A00LENGTH520ED6E00
Generic volume      Yes      VOLUME 5.2.3787.0 10/1/2002  Microsoft
volume.infNot Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE91BEFD80OFFSETE2
A004600LENGTH67C28CCA00
Generic volume      Yes      VOLUME 5.2.3787.0 10/1/2002  Microsoft
volume.infNot Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE91BEFD81OFFSET7E
0000LENGTH90893DC00
Generic volume      Yes      VOLUME 5.2.3787.0 10/1/2002  Microsoft
volume.infNot Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE91BEFD81OFFSET90
9125A00LENGTH520ED6E00
Generic volume      Yes      VOLUME 5.2.3787.0 10/1/2002  Microsoft
volume.infNot Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE91BEFD81OFFSETE2
A004600LENGTH67C28CCA00
Generic volume      Yes      VOLUME 5.2.3787.0 10/1/2002  Microsoft
volume.infNot Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE91BEFD81OFFSETE2
A004600LENGTH67C28CCA00
Generic volume      Yes      VOLUME 5.2.3787.0 10/1/2002  Microsoft
volume.infNot Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE91BEFD86OFFSET7E
0000LENGTH90893DC00
Generic volume      Yes      VOLUME 5.2.3787.0 10/1/2002  Microsoft
volume.infNot Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE91BEFD86OFFSET90
9125A00LENGTH520ED6E00
Generic volume      Yes      VOLUME 5.2.3787.0 10/1/2002  Microsoft
volume.infNot Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE91BEFD86OFFSETE2
A004600LENGTH67C28CCA00
Generic volume      Yes      VOLUME 5.2.3787.0 10/1/2002  Microsoft
volume.infNot Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE172666BBOFFSET7E
0000LENGTH90893DC00
Generic volume      Yes      VOLUME 5.2.3787.0 10/1/2002  Microsoft
volume.infNot Available

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|                                                                                   |                                      |                               |                          |               |
|-----------------------------------------------------------------------------------|--------------------------------------|-------------------------------|--------------------------|---------------|
| STORAGE\VOLUME\1&30A96598&0&SIGNATURE172666BBOFFSET909125A00LENGTH520ED6E00       | ksecdd                               | Not Available                 | LEGACYDRIVER             | Not Available |
| Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available | Not Available                        | Not Available                 | Not Available            | Not Available |
| STORAGE\VOLUME\1&30A96598&0&SIGNATURE172666BBOFFSET909125A00LENGTH520ED6E00       | Available                            | ROOT\LEGACY_KSECDD\0000       |                          |               |
| Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available | mnmdm                                | Not Available                 | LEGACYDRIVER             | Not Available |
| STORAGE\VOLUME\1&30A96598&0&SIGNATURE91BEFD8BOFFSET7E0000LENGTH90893DC00          | Not Available                        | Not Available                 | Not Available            | Not Available |
| Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available | Available                            | ROOT\LEGACY_MNMDM\0000        |                          |               |
| STORAGE\VOLUME\1&30A96598&0&SIGNATURE91BEFD8BOFFSET7E0000LENGTH90893DC00          | mountmgr                             | Not Available                 | LEGACYDRIVER             | Not Available |
| Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available | Not Available                        | Not Available                 | Not Available            | Not Available |
| STORAGE\VOLUME\1&30A96598&0&SIGNATURE91BEFD8BOFFSET7E0000LENGTH90893DC00          | Available                            | ROOT\LEGACY_MOUNTMGR\0000     |                          |               |
| Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available | NDIS System Driver                   | Not Available                 | LEGACYDRIVER             | Not Available |
| STORAGE\VOLUME\1&30A96598&0&SIGNATURE91BEFD8BOFFSET7E0000LENGTH90893DC00          | Not Available                        | Not Available                 | Not Available            | Not Available |
| Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available | Not Available                        | ROOT\LEGACY_NDIS\0000         |                          |               |
| STORAGE\VOLUME\1&30A96598&0&SIGNATURE91BEFD8BOFFSET7E0000LENGTH90893DC00          | Remote Access NDIS TAPI Driver       | Not Available                 | LEGACYDRIVER             | Not Available |
| Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available | LEGACYDRIVER                         | Not Available                 | Not Available            | Not Available |
| STORAGE\VOLUME\1&30A96598&0&SIGNATURE91BEFD8BOFFSET7E0000LENGTH90893DC00          | Available                            | Not Available                 | Not Available            |               |
| Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available | ROOT\LEGACY_NDIS\0000                |                               |                          |               |
| STORAGE\VOLUME\1&30A96598&0&SIGNATURE91BEFD8BOFFSET7E0000LENGTH90893DC00          | NDIS Usermode I/O Protocol           | Not Available                 | LEGACYDRIVER             | Not Available |
| Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available | Not Available                        | Not Available                 | Not Available            | Not Available |
| STORAGE\VOLUME\1&30A96598&0&SIGNATURE91BEFD8BOFFSET7E0000LENGTH90893DC00          | Available                            | Not Available                 | ROOT\LEGACY_NDISUIO\0000 |               |
| Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available | NDProxy                              | Not Available                 | LEGACYDRIVER             | Not Available |
| STORAGE\VOLUME\1&30A96598&0&SIGNATURE172666BAOFFSET7E0000LENGTH90893DC00          | Not Available                        | Not Available                 | Not Available            | Not Available |
| Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available | Available                            | ROOT\LEGACY_NDPROXY\0000      |                          |               |
| STORAGE\VOLUME\1&30A96598&0&SIGNATURE172666BAOFFSET909125A00LENGTH520ED6E00       | NetBios over Tcpip                   | Not Available                 | LEGACYDRIVER             | Not Available |
| Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available | Not Available                        | Not Available                 | Not Available            | Not Available |
| STORAGE\VOLUME\1&30A96598&0&SIGNATURE172666BAOFFSET909125A00LENGTH520ED6E00       | Not Available                        | ROOT\LEGACY_NETBT\0000        |                          |               |
| Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available | Null                                 | Not Available                 | LEGACYDRIVER             | Not Available |
| STORAGE\VOLUME\1&30A96598&0&SIGNATURE172666BAOFFSET909125A00LENGTH520ED6E00       | Not Available                        | Not Available                 | Not Available            | Not Available |
| Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available | Available                            | ROOT\LEGACY_NULL\0000         |                          |               |
| STORAGE\VOLUME\1&30A96598&0&SIGNATURE172666BAOFFSET909125A00LENGTH520ED6E00       | Partition Manager                    | Not Available                 | LEGACYDRIVER             | Not Available |
| Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available | Not Available                        | Not Available                 | Not Available            | Not Available |
| STORAGE\VOLUME\1&30A96598&0&SIGNATURE172666BAOFFSET909125A00LENGTH520ED6E00       | Not Available                        | ROOT\LEGACY_PARTMGR\0000      |                          |               |
| Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available | Parvdm                               | Not Available                 | LEGACYDRIVER             | Not Available |
| STORAGE\VOLUME\1&30A96598&0&SIGNATURE172666BAOFFSET909125A00LENGTH520ED6E00       | Not Available                        | Not Available                 | Not Available            | Not Available |
| Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available | Available                            | ROOT\LEGACY_PARVDM\0000       |                          |               |
| STORAGE\VOLUME\1&30A96598&0&SIGNATURE172666BAOFFSET909125A00LENGTH520ED6E00       | PECOSNUMADrv                         | Not Available                 | LEGACYDRIVER             | Not Available |
| Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available | Not Available                        | Not Available                 | Not Available            | Not Available |
| STORAGE\VOLUME\1&30A96598&0&SIGNATURE172666BAOFFSET909125A00LENGTH520ED6E00       | Not Available                        | ROOT\LEGACY_PECOSNUMADRV\0000 |                          |               |
| Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available | qldirect                             | Not Available                 | LEGACYDRIVER             | Not Available |
| STORAGE\VOLUME\1&30A96598&0&SIGNATURE172666BAOFFSET909125A00LENGTH520ED6E00       | Not Available                        | Not Available                 | Not Available            | Not Available |
| Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available | Available                            | ROOT\LEGACY_QLDIRECT\0000     |                          |               |
| STORAGE\VOLUME\1&30A96598&0&SIGNATURE172666BAOFFSET909125A00LENGTH520ED6E00       | qlvika                               | Not Available                 | LEGACYDRIVER             | Not Available |
| Generic volume Yes VOLUME 5.2.3787.0 10/1/2002 Microsoft volume.inf Not Available | Not Available                        | Not Available                 | Not Available            | Not Available |
| STORAGE\VOLUME\1&30A96598&0&SIGNATURE172666BAOFFSET909125A00LENGTH520ED6E00       | Available                            | ROOT\LEGACY_QLVIKA\0000       |                          |               |
| AFD Networking Support Environment Not Available                                  | Remote Access Auto Connection Driver | Not Available                 | LEGACYDRIVER             | Not Available |
| LEGACYDRIVER Not Available Not Available Not                                      | LEGACYDRIVER                         | Not Available                 | Not Available            | Not Available |
| Available Not Available Not Available                                             | Available                            | Not Available                 | Not Available            |               |
| ROOT\LEGACY_AFD\0000                                                              | Available                            | Not Available                 | Not Available            |               |
| Beep Not Available LEGACYDRIVER Not Available                                     | ROOT\LEGACY_RASACD\0000              |                               |                          |               |
| Not Available Not Available Not Available Not                                     | RDPCDD                               | Not Available                 | LEGACYDRIVER             | Not Available |
| Available ROOT\LEGACY_BEEP\0000                                                   | Not Available                        | Not Available                 | Not Available            | Not Available |
| CRC Disk Filter Driver Not Available LEGACYDRIVER                                 | Available                            | ROOT\LEGACY_RDPCDD\0000       |                          |               |
| Not Available Not Available Not Available Not                                     | RDPWD                                | Not Available                 | LEGACYDRIVER             | Not Available |
| Available Not Available ROOT\LEGACY_CRCDISK\0000                                  | Not Available                        | Not Available                 | Not Available            | Not Available |
| dmboot Not Available LEGACYDRIVER Not Available                                   | Available                            | ROOT\LEGACY_RDPWD\0000        |                          |               |
| Not Available Not Available Not Available Not                                     | TCP/IP Protocol Driver               | Not Available                 | LEGACYDRIVER             | Not Available |
| Available ROOT\LEGACY_DMBOOT\0000                                                 | Not Available                        | Not Available                 | Not Available            | Not Available |
| dmload Not Available LEGACYDRIVER Not Available                                   | Available                            | Not Available                 | ROOT\LEGACY_TCPIP\0000   |               |
| Not Available Not Available Not Available Not                                     | TDTCP                                | Not Available                 | LEGACYDRIVER             | Not Available |
| Available ROOT\LEGACY_DMLOAD\0000                                                 | Not Available                        | Not Available                 | Not Available            | Not Available |
| Fips Not Available LEGACYDRIVER Not Available                                     | Available                            | ROOT\LEGACY_TDTCP\0000        |                          |               |
| Not Available Not Available Not Available Not                                     | VGA Display Controller.              | Not Available                 | LEGACYDRIVER             | Not Available |
| Available ROOT\LEGACY_FIPS\0000                                                   | Not Available                        | Not Available                 | Not Available            | Not Available |
| Generic Packet Classifier Not Available LEGACYDRIVER                              | Available                            | Not Available                 | ROOT\LEGACY_VGASAVE\0000 |               |
| Not Available Not Available Not Available Not                                     | volsnap                              | Not Available                 | LEGACYDRIVER             | Not Available |
| Available Not Available ROOT\LEGACY_GPC\0000                                      | Not Available                        | Not Available                 | Not Available            | Not Available |
| IPSEC driver Not Available LEGACYDRIVER Not Available                             | Available                            | ROOT\LEGACY_VOLSNAP\0000      |                          |               |
| Available Not Available Not Available Not Available                               | Remote Access IP ARP Driver          | Not Available                 | LEGACYDRIVER             | Not Available |
| Not Available ROOT\LEGACY_IPSEC\0000                                              | Not Available                        | Not Available                 | Not Available            | Not Available |
|                                                                                   | Available                            | Not Available                 | ROOT\LEGACY_WANARP\0000  |               |

|                                          |               |                         |            |           |                           |
|------------------------------------------|---------------|-------------------------|------------|-----------|---------------------------|
| Audio Codecs                             | Yes           | MEDIA                   | 5.2.3787.0 | 10/1/2002 | (Standard system devices) |
| ROOT\MEDIA\MS_MMCM                       | wave.inf      | Not Available           |            |           |                           |
| Legacy Audio Drivers                     | Yes           | MEDIA                   | 5.2.3787.0 | 10/1/2002 | (Standard system devices) |
| ROOT\MEDIA\MS_MMDRV                      | wave.inf      | Not Available           |            |           |                           |
| Media Control Devices                    | Yes           | MEDIA                   | 5.2.3787.0 | 10/1/2002 | (Standard system devices) |
| ROOT\MEDIA\MS_MMCI                       | wave.inf      | Not Available           |            |           |                           |
| Legacy Video Capture Devices             | Yes           | MEDIA                   | 5.2.3787.0 | 10/1/2002 | (Standard system devices) |
| ROOT\MEDIA\MS_MMVCD                      | wave.inf      | Not Available           |            |           |                           |
| Video Codecs                             | Yes           | MEDIA                   | 5.2.3787.0 | 10/1/2002 | (Standard system devices) |
| ROOT\MEDIA\MS_MMVID                      | wave.inf      | Not Available           |            |           |                           |
| WAN Miniport (L2TP)                      | Yes           | NET                     | 5.2.3787.0 | 10/1/2002 |                           |
| Microsoft netrasa.inf                    | Not Available |                         |            |           |                           |
| ROOT\MS_L2TPMINIPORT\0000                |               |                         |            |           |                           |
| WAN Miniport (IP)                        | Yes           | NET                     | 5.2.3787.0 | 10/1/2002 | Microsoft                 |
| netrasa.inf                              | Not Available | ROOT\MS_NDISWANIP\0000  |            |           |                           |
| WAN Miniport (PPPOE)                     | Yes           | NET                     | 5.2.3787.0 | 10/1/2002 |                           |
| Microsoft netrasa.inf                    | Not Available |                         |            |           |                           |
| ROOT\MS_PPPOEMINIPORT\0000               |               |                         |            |           |                           |
| WAN Miniport (PPTP)                      | Yes           | NET                     | 5.2.3787.0 | 10/1/2002 |                           |
| Microsoft netrasa.inf                    | Not Available |                         |            |           |                           |
| ROOT\MS_PPTPMINIPORT\0000                |               |                         |            |           |                           |
| Direct Parallel                          | Yes           | NET                     | 5.2.3787.0 | 10/1/2002 | Microsoft                 |
| netrasa.inf                              | Not Available | ROOT\MS_PTMINIPORT\0000 |            |           |                           |
| Terminal Server Device Redirector        | Yes           | SYSTEM                  | 5.2.3787.0 |           |                           |
| 10/1/2002 (Standard system devices)      |               | machine.inf             |            |           | Not                       |
| Available                                |               | ROOT\RDPDR\0000         |            |           |                           |
| Terminal Server Keyboard Driver          | Yes           | SYSTEM                  | 5.2.3787.0 |           |                           |
| 10/1/2002 (Standard system devices)      |               | machine.inf             |            |           | Not                       |
| Available                                |               | ROOT\RDP_KBD\0000       |            |           |                           |
| Terminal Server Mouse Driver             | Yes           | SYSTEM                  | 5.2.3787.0 | 10/1/2002 |                           |
| (Standard system devices)                |               | machine.inf             |            |           | Not Available             |
| Available                                |               | ROOT\RDP_MOUSE\0000     |            |           |                           |
| Plug and Play Software Device Enumerator | Yes           | SYSTEM                  | 5.2.3787.0 |           |                           |
| 10/1/2002 (Standard system devices)      |               | machine.inf             |            |           | Not                       |
| Available                                |               | ROOT\SYSTEM\0000        |            |           |                           |
| Microcode Update Device                  | Yes           | SYSTEM                  | 5.2.3787.0 | 10/1/2002 |                           |
| (Standard system devices)                |               | machine.inf             |            |           | Not Available             |
| Available                                |               | ROOT\SYSTEM\0001        |            |           |                           |
| Communications Port                      | Yes           | PORTS                   | 5.2.3787.0 | 10/1/2002 | (Standard                 |
| port types) mspports.inf                 |               | Not Available           |            |           |                           |
| ROOT\*PNP0501\I_0_17_0_0_0               |               |                         |            |           |                           |

#### [Environment Variables]

| Variable               | Value                                                                                                                                                     | User Name |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| ClusterLog             | C:\WINDOWS\Cluster\cluster.log                                                                                                                            | <SYSTEM>  |
| ComSpec                | %SystemRoot%\system32\cmd.exe                                                                                                                             | <SYSTEM>  |
| NUMBER_OF_PROCESSORS   | 32                                                                                                                                                        | <SYSTEM>  |
| OS                     | Windows_NT                                                                                                                                                | <SYSTEM>  |
| Path                   | %SystemRoot%\system32;%SystemRoot%;%SystemRoot%\system32\WBEM;c:\tools;c:\batfiles;C:\dot_net_kemrate;C:\Program Files\Microsoft SQL Server\80\Tools\BINN | <SYSTEM>  |
| PATHEXT                | .COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH                                                                                                          | <SYSTEM>  |
| PROCESSOR_ARCHITECTURE | x86                                                                                                                                                       | <SYSTEM>  |
| PROCESSOR_IDENTIFIER   | x86 Family 15 Model 2 Stepping 2,                                                                                                                         |           |
| GenuineIntel           |                                                                                                                                                           | <SYSTEM>  |
| PROCESSOR_LEVEL        | 15                                                                                                                                                        | <SYSTEM>  |
| PROCESSOR_REVISION     | 0202                                                                                                                                                      | <SYSTEM>  |
| TEMP                   | %SystemRoot%\TEMP                                                                                                                                         | <SYSTEM>  |
| TMP                    | %SystemRoot%\TEMP                                                                                                                                         | <SYSTEM>  |
| windir                 | %SystemRoot%                                                                                                                                              | <SYSTEM>  |

|                           |                                   |    |
|---------------------------|-----------------------------------|----|
| TEMP                      | %USERPROFILE%\Local Settings\Temp | NT |
| AUTHORITY\SYSTEM          |                                   |    |
| TMP                       | %USERPROFILE%\Local Settings\Temp | NT |
| AUTHORITY\SYSTEM          |                                   |    |
| TEMP                      | %USERPROFILE%\Local Settings\Temp | NT |
| AUTHORITY\LOCAL SERVICE   |                                   |    |
| TMP                       | %USERPROFILE%\Local Settings\Temp | NT |
| AUTHORITY\LOCAL SERVICE   |                                   |    |
| TEMP                      | %USERPROFILE%\Local Settings\Temp | NT |
| AUTHORITY\NETWORK SERVICE |                                   |    |
| TMP                       | %USERPROFILE%\Local Settings\Temp | NT |
| AUTHORITY\NETWORK SERVICE |                                   |    |
| TEMP                      | %USERPROFILE%\Local Settings\Temp |    |
| IBMSERV4\Administrator    |                                   |    |
| TMP                       | %USERPROFILE%\Local Settings\Temp |    |
| IBMSERV4\Administrator    |                                   |    |

#### [Print Jobs]

| Document   | Size       | Owner        | Notify          | Status | Time Submitted |
|------------|------------|--------------|-----------------|--------|----------------|
| Start Time | Until Time | Elapsed Time | Pages Printed   | Job ID |                |
| Priority   | Parameters | Driver       | Print Processor | Host   | Print Queue    |
| Data Type  | Name       |              |                 |        |                |

#### [Network Connections]

| Local Name             | Remote Name            | Type | Status             | User Name |
|------------------------|------------------------|------|--------------------|-----------|
| Z:                     | \\192.168.125.1\gdrive | Disk | Current Connection |           |
| IBMSERV4\Administrator |                        |      |                    |           |

#### [Running Tasks]

| Name                    | Path                             | Process ID                | Priority                | Min Working Set | Max     |
|-------------------------|----------------------------------|---------------------------|-------------------------|-----------------|---------|
| Working Set             | Start Time                       | Version                   | Size                    | File Date       |         |
| system idle process     | Not Available                    | 0                         | 0                       | Not             |         |
| Available               | Not Available                    | Not Available             | Not Available           | Not Available   |         |
| Not Available           | Not Available                    | Not Available             | Not Available           | Not Available   |         |
| system                  | Not Available                    | 4                         | 8                       | 0               | 1413120 |
| Not Available           | Not Available                    | Not Available             | Not Available           | Not             |         |
| Available               |                                  |                           |                         |                 |         |
| smss.exe                | Not Available                    | 556                       | 11                      | 204800          | 1413120 |
| 3/25/2003 10:25 AM      | Not Available                    | Not Available             | Not Available           | Not             |         |
| Available               |                                  |                           |                         |                 |         |
| csrss.exe               | Not Available                    | 752                       | 13                      | Not Available   |         |
| Not Available           | 3/25/2003 10:28 AM               | Not Available             | Not Available           | Not             |         |
| Available               | Not Available                    |                           |                         |                 |         |
| winlogon.exe            | c:\windows\system32\winlogon.exe |                           |                         | 776             |         |
| 13                      | 204800                           | 1413120                   | 3/25/2003 10:28 AM      | 5.2.3787.0      |         |
| (srv03_rtm.030312-1801) |                                  | 536.50 KB (549,376 bytes) |                         | 3/17/2003       |         |
| 5:42 PM                 |                                  |                           |                         |                 |         |
| services.exe            | c:\windows\system32\services.exe |                           |                         | 820             | 9       |
| 204800                  | 1413120                          | 3/25/2003 10:28 AM        | 5.2.3787.0              |                 |         |
| (srv03_rtm.030312-1801) |                                  | 102.00 KB (104,448 bytes) |                         | 3/17/2003       |         |
| 5:42 PM                 |                                  |                           |                         |                 |         |
| lsass.exe               | c:\windows\system32\lsass.exe    | 832                       | 9                       | 204800          |         |
| 1413120                 | 3/25/2003 10:28 AM               | 5.2.3787.0                | (srv03_rtm.030312-1801) |                 |         |
| 13.00 KB (13,312 bytes) |                                  | 3/17/2003 5:41 PM         |                         |                 |         |
| svchost.exe             | c:\windows\system32\svchost.exe  |                           |                         | 988             | 8       |
| 204800                  | 1413120                          | 3/25/2003 10:28 AM        | 5.2.3787.0              |                 |         |
| (srv03_rtm.030312-1801) |                                  | 13.00 KB (13,312 bytes)   |                         | 3/17/2003       |         |
| 5:42 PM                 |                                  |                           |                         |                 |         |
| svchost.exe             | c:\windows\system32\svchost.exe  |                           |                         | 1052            | 8       |
| 204800                  | 1413120                          | 3/25/2003 10:28 AM        | 5.2.3787.0              |                 |         |
| (srv03_rtm.030312-1801) |                                  | 13.00 KB (13,312 bytes)   |                         | 3/17/2003       |         |
| 5:42 PM                 |                                  |                           |                         |                 |         |
| svchost.exe             | Not Available                    | 1288                      | 8                       | Not             |         |
| Available               | Not Available                    | 3/25/2003 10:29 AM        | Not Available           | Not Available   |         |
| Not Available           | Not Available                    |                           |                         |                 |         |

|                                  |                                                  |                                    |                   |                       |                                  |                                      |                           |
|----------------------------------|--------------------------------------------------|------------------------------------|-------------------|-----------------------|----------------------------------|--------------------------------------|---------------------------|
| svchost.exe                      | Not Available                                    | 1360                               | 8                 | Not Available         | gdi32                            | 5.2.3787.0 (srv03_rtm.030312-1801)   | 263.00 KB (269,312 bytes) |
| Available                        | Not Available                                    | 3/25/2003 10:29 AM                 | Not Available     |                       | bytes)                           | 3/17/2003 5:41 PM                    | Microsoft Corporation     |
| Not Available                    | Not Available                                    |                                    |                   |                       | c:\windows\system32\gdi32.dll    |                                      |                           |
| svchost.exe                      | c:\windows\system32\svchost.exe                  | 1372                               | 8                 |                       | userenv                          | 5.2.3787.0 (srv03_rtm.030312-1801)   | 732.50 KB (750,080 bytes) |
| 204800                           | 1413120                                          | 3/25/2003 10:29 AM                 | 5.2.3787.0        |                       | bytes)                           | 3/17/2003 5:42 PM                    | Microsoft Corporation     |
| (srv03_rtm.030312-1801)          | 13.00 KB (13,312 bytes)                          |                                    | 3/17/2003         |                       | c:\windows\system32\userenv.dll  |                                      |                           |
| 5:42 PM                          |                                                  |                                    |                   |                       | nddeapi                          | 5.2.3787.0 (srv03_rtm.030312-1801)   | 16.00 KB (16,384 bytes)   |
| msdtc.exe                        | Not Available                                    | 1704                               | 8                 | Not Available         | bytes)                           | 3/17/2003 5:41 PM                    | Microsoft Corporation     |
| Not Available                    | 3/25/2003 10:29 AM                               | Not Available                      | Not               |                       | c:\windows\system32\nddeapi.dll  |                                      |                           |
| Available                        | Not Available                                    |                                    |                   |                       | crypt32                          | 5.131.3787.0 (srv03_rtm.030312-1801) | 598.00 KB (612,352 bytes) |
| explorer.exe                     | c:\windows\explorer.exe                          | 1792                               | 8                 |                       | bytes)                           | 3/17/2003 5:41 PM                    | Microsoft Corporation     |
| 204800                           | 1413120                                          | 3/25/2003 10:29 AM                 | 6.00.3787.0       |                       | c:\windows\system32\crypt32.dll  |                                      |                           |
| (srv03_rtm.030312-1801)          | 1,008.50 KB (1,032,704 bytes)                    |                                    | 3/17/2003         |                       | msasn1                           | 5.2.3787.0 (srv03_rtm.030312-1801)   | 58.00 KB (59,392 bytes)   |
| 5:41 PM                          |                                                  |                                    |                   |                       | bytes)                           | 3/17/2003 5:41 PM                    | Microsoft Corporation     |
| svchost.exe                      | c:\windows\system32\svchost.exe                  | 452                                | 8                 |                       | c:\windows\system32\msasn1.dll   |                                      |                           |
| 204800                           | 1413120                                          | 3/25/2003 10:29 AM                 | 5.2.3787.0        |                       | secur32                          | 5.2.3787.0 (srv03_rtm.030312-1801)   | 63.00 KB (64,512 bytes)   |
| (srv03_rtm.030312-1801)          | 13.00 KB (13,312 bytes)                          |                                    | 3/17/2003         |                       | bytes)                           | 3/17/2003 5:42 PM                    | Microsoft Corporation     |
| 5:42 PM                          |                                                  |                                    |                   |                       | c:\windows\system32\secur32.dll  |                                      |                           |
| svchost.exe                      | Not Available                                    | 644                                | 8                 | Not                   | winsta                           | 5.2.3787.0 (srv03_rtm.030312-1801)   | 51.00 KB (52,224 bytes)   |
| Available                        | Not Available                                    | 3/25/2003 10:29 AM                 | Not Available     |                       | bytes)                           | 3/17/2003 5:42 PM                    | Microsoft Corporation     |
| Not Available                    | Not Available                                    |                                    |                   |                       | c:\windows\system32\winsta.dll   |                                      |                           |
| dfssvc.exe                       | c:\windows\system32\dfssvc.exe                   | 1712                               | 8                 | 204800                | netapi32                         | 5.2.3787.0 (srv03_rtm.030312-1801)   | 317.00 KB (324,608 bytes) |
| 1413120                          | 3/25/2003 10:29 AM                               | 5.2.3787.0 (srv03_rtm.030312-1801) |                   |                       | bytes)                           | 3/17/2003 5:41 PM                    | Microsoft Corporation     |
| 130.50 KB (133,632 bytes)        |                                                  | 3/17/2003 5:41 PM                  |                   |                       | c:\windows\system32\netapi32.dll |                                      |                           |
| wmiprvse.exe                     | Not Available                                    | 2256                               | 8                 | Not                   | profmap                          | 5.2.3787.0 (srv03_rtm.030312-1801)   | 22.00 KB (22,528 bytes)   |
| Available                        | Not Available                                    | 3/25/2003 10:30 AM                 | Not Available     |                       | bytes)                           | 3/17/2003 5:41 PM                    | Microsoft Corporation     |
| Not Available                    | Not Available                                    |                                    |                   |                       | c:\windows\system32\profmap.dll  |                                      |                           |
| wpabaln.exe                      | c:\windows\system32\wpabaln.exe                  | 2508                               | 8                 |                       | regapi                           | 5.2.3787.0 (srv03_rtm.030312-1801)   | 48.50 KB (49,664 bytes)   |
| 204800                           | 1413120                                          | 3/25/2003 10:31 AM                 | 5.2.3787.0        |                       | bytes)                           | 3/17/2003 5:41 PM                    | Microsoft Corporation     |
| (srv03_rtm.030312-1801)          | 31.00 KB (31,744 bytes)                          |                                    | 3/17/2003         |                       | c:\windows\system32\regapi.dll   |                                      |                           |
| 5:42 PM                          |                                                  |                                    |                   |                       | ws2_32                           | 5.2.3787.0 (srv03_rtm.030312-1801)   | 85.50 KB (87,552 bytes)   |
| helpctr.exe                      | c:\windows\pchealth\helpctr\binaries\helpctr.exe | 2328                               | 8                 |                       | bytes)                           | 3/17/2003 5:42 PM                    | Microsoft Corporation     |
| 204800                           | 1413120                                          | 3/25/2003 1:05 PM                  | 5.2.3787.0        |                       | c:\windows\system32\ws2_32.dll   |                                      |                           |
| (srv03_rtm.030312-1801)          | 764.00 KB (782,336 bytes)                        |                                    | 3/17/2003         |                       | ws2help                          | 5.2.3787.0 (srv03_rtm.030312-1801)   | 19.50 KB (19,968 bytes)   |
| 4:34 PM                          |                                                  |                                    |                   |                       | bytes)                           | 3/17/2003 5:42 PM                    | Microsoft Corporation     |
| wmiprvse.exe                     | Not Available                                    | 4060                               | 8                 | Not                   | c:\windows\system32\ws2help.dll  |                                      |                           |
| Available                        | Not Available                                    | 3/25/2003 1:05 PM                  | Not Available     |                       | psapi                            | 5.2.3787.0 (srv03_rtm.030312-1801)   | 21.50 KB (22,016 bytes)   |
| Not Available                    | Not Available                                    |                                    |                   |                       | bytes)                           | 3/17/2003 5:41 PM                    | Microsoft Corporation     |
| helpsvc.exe                      | c:\windows\pchealth\helpctr\binaries\helpsvc.exe |                                    |                   |                       | c:\windows\system32\psapi.dll    |                                      |                           |
| 1160                             | 8                                                | 204800                             | 1413120           | 3/25/2003 1:05 PM     | version                          | 5.2.3787.0 (srv03_rtm.030312-1801)   | 17.00 KB (17,408 bytes)   |
| (srv03_rtm.030312-1801)          | 720.00 KB (737,280 bytes)                        |                                    | 3/17/2003         |                       | bytes)                           | 3/17/2003 5:42 PM                    | Microsoft Corporation     |
| 4:34 PM                          |                                                  |                                    |                   |                       | c:\windows\system32\version.dll  |                                      |                           |
| [Loaded Modules]                 |                                                  |                                    |                   |                       |                                  |                                      |                           |
| Name                             | Version                                          | Size                               | File Date         | Manufacturer          | Path                             |                                      |                           |
| winlogon                         | 5.2.3787.0 (srv03_rtm.030312-1801)               | 536.50 KB (549,376 bytes)          | 3/17/2003 5:42 PM | Microsoft Corporation | msgina                           | 5.2.3787.0 (srv03_rtm.030312-1801)   | 1.14 MB (1,191,936 bytes) |
| c:\windows\system32\winlogon.exe |                                                  |                                    |                   |                       | bytes)                           | 3/17/2003 5:41 PM                    | Microsoft Corporation     |
| ntdll                            | 5.2.3787.0 (srv03_rtm.030312-1801)               | 722.00 KB (739,328 bytes)          | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\msgina.dll   |                                      |                           |
| c:\windows\system32\ntdll.dll    |                                                  |                                    |                   |                       | shsvcs                           | 6.00.3787.0 (srv03_rtm.030312-1801)  | 121.50 KB (124,416 bytes) |
| kernel32                         | 5.2.3787.0 (srv03_rtm.030312-1801)               | 965.00 KB (988,160 bytes)          | 3/17/2003 5:41 PM | Microsoft Corporation | bytes)                           | 3/17/2003 5:42 PM                    | Microsoft Corporation     |
| c:\windows\system32\kernel32.dll |                                                  |                                    |                   |                       | c:\windows\system32\shsvcs.dll   |                                      |                           |
| msvcrt                           | 7.0.3787.0 (srv03_rtm.030312-1801)               | 319.50 KB (327,168 bytes)          | 3/17/2003 5:41 PM | Microsoft Corporation | shlwapi                          | 6.00.3787.0 (srv03_rtm.030312-1801)  | 281.00 KB (287,744 bytes) |
| c:\windows\system32\msvcrt.dll   |                                                  |                                    |                   |                       | bytes)                           | 3/17/2003 5:42 PM                    | Microsoft Corporation     |
| advapi32                         | 5.2.3787.0 (srv03_rtm.030312-1801)               | 559.50 KB (572,928 bytes)          | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\shlwapi.dll  |                                      |                           |
| c:\windows\system32\advapi32.dll |                                                  |                                    |                   |                       | sfc                              | 5.2.3787.0 (srv03_rtm.030312-1801)   | 4.50 KB (4,608 bytes)     |
| rpert4                           | 5.2.3787.0 (srv03_rtm.030312-1801)               | 643.50 KB (658,944 bytes)          | 3/17/2003 5:42 PM | Microsoft Corporation | 3/17/2003 5:42 PM                | Microsoft Corporation                |                           |
| c:\windows\system32\rpert4.dll   |                                                  |                                    |                   |                       | c:\windows\system32\sfc.dll      |                                      |                           |
| user32                           | 5.2.3787.0 (srv03_rtm.030312-1801)               | 562.00 KB (575,488 bytes)          | 3/17/2003 5:42 PM | Microsoft Corporation | sfc_os                           | 5.2.3787.0 (srv03_rtm.030312-1801)   | 133.00 KB (136,192 bytes) |
| c:\windows\system32\user32.dll   |                                                  |                                    |                   |                       | bytes)                           | 3/17/2003 5:42 PM                    | Microsoft Corporation     |
|                                  |                                                  |                                    |                   |                       | c:\windows\system32\sfc_os.dll   |                                      |                           |
|                                  |                                                  |                                    |                   |                       | wintrust                         | 5.131.3787.0 (srv03_rtm.030312-1801) | 161.50 KB (165,376 bytes) |
|                                  |                                                  |                                    |                   |                       | bytes)                           | 3/17/2003 5:42 PM                    | Microsoft Corporation     |
|                                  |                                                  |                                    |                   |                       | c:\windows\system32\wintrust.dll |                                      |                           |
|                                  |                                                  |                                    |                   |                       | ole32                            | 5.2.3787.0 (srv03_rtm.030312-1801)   | 1.13 MB (1,187,328 bytes) |
|                                  |                                                  |                                    |                   |                       | bytes)                           | 3/17/2003 5:41 PM                    | Microsoft Corporation     |
|                                  |                                                  |                                    |                   |                       | c:\windows\system32\ole32.dll    |                                      |                           |

|          |                                        |                           |                    |                       |                                                                                                               |
|----------|----------------------------------------|---------------------------|--------------------|-----------------------|---------------------------------------------------------------------------------------------------------------|
| imagehlp | 5.2.3787.0 (srv03_rtm.030312-1801)     | 142.50 KB (145,920 bytes) | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\imagehlp.dll                                                                              |
| comctl32 | 6.0 (srv03_rtm.030312-1801)            | 907.00 KB (928,768 bytes) | 1/22/2003 12:37 PM | Microsoft Corporation | c:\windows\winsxs\x86_microsoft.windows.common-controls_6595b64144ccf1df_6.0.100.0_x-ww_8417450b\comctl32.dll |
| winscard | 5.2.3787.0 (srv03_rtm.030312-1801)     | 98.50 KB (100,864 bytes)  | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\winscard.dll                                                                              |
| wtsapi32 | 5.2.3787.0 (srv03_rtm.030312-1801)     | 17.50 KB (17,920 bytes)   | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\wtsapi32.dll                                                                              |
| winmm    | 5.2.3787.0 (srv03_rtm.030312-1801)     | 166.00 KB (169,984 bytes) | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\winmm.dll                                                                                 |
| sxs      | 5.2.3787.0 (srv03_rtm.030312-1801)     | 733.00 KB (750,592 bytes) | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\sxs.dll                                                                                   |
| shell32  | 6.00.3787.0 (srv03_rtm.030312-1801)    | 7.79 MB (8,166,400 bytes) | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\shell32.dll                                                                               |
| wldap32  | 5.2.3787.0 (srv03_rtm.030312-1801)     | 158.00 KB (161,792 bytes) | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\wldap32.dll                                                                               |
| rsaenh   | 5.2.3787.0 (srv03_rtm.030312-1801)     | 176.83 KB (181,072 bytes) | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\rsaenh.dll                                                                                |
| cscdll   | 5.2.3787.0 (srv03_rtm.030312-1801)     | 99.00 KB (101,376 bytes)  | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\cscdll.dll                                                                                |
| wnotify  | 5.2.3787.0 (srv03_rtm.030312-1801)     | 87.50 KB (89,600 bytes)   | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\wnotify.dll                                                                               |
| winspool | 5.2.3787.0 (srv03_rtm.030312-1801)     | 140.00 KB (143,360 bytes) | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\winspool.drv                                                                              |
| mpr      | 5.2.3787.0 (srv03_rtm.030312-1801)     | 56.00 KB (57,344 bytes)   | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\mpr.dll                                                                                   |
| comctl32 | 5.82 (srv03_rtm.030312-1801)           | 561.00 KB (574,464 bytes) | 1/22/2003 12:37 PM | Microsoft Corporation | c:\windows\winsxs\x86_microsoft.windows.common-controls_6595b64144ccf1df_5.82.0.0_x-ww_8a69ba05\comctl32.dll  |
| uxtheme  | 6.00.3787.0 (srv03_rtm.030312-1801)    | 196.00 KB (200,704 bytes) | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\uxtheme.dll                                                                               |
| samlib   | 5.2.3787.0 (srv03_rtm.030312-1801)     | 49.00 KB (50,176 bytes)   | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\samlib.dll                                                                                |
| cscui    | 5.2.3787.0 (srv03_rtm.030312-1801)     | 305.00 KB (312,320 bytes) | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\cscui.dll                                                                                 |
| mprapi   | 5.2.3787.0 (srv03_rtm.030312-1801)     | 81.00 KB (82,944 bytes)   | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\mprapi.dll                                                                                |
| activeds | 5.2.3787.0 (srv03_rtm.030312-1801)     | 189.00 KB (193,536 bytes) | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\activeds.dll                                                                              |
| adslsdp  | 5.2.3787.0 (srv03_rtm.030312-1801)     | 142.50 KB (145,920 bytes) | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\adslsdp.dll                                                                               |
| credui   | 5.2.3787.0 (srv03_rtm.030312-1801)     | 159.00 KB (162,816 bytes) | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\credui.dll                                                                                |
| atl      | 3.05.2283                              | 83.00 KB (84,992 bytes)   | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\atl.dll                                                                                   |
| oleaut32 | 5.2.3787.0                             | 486.00 KB (497,664 bytes) | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\oleaut32.dll                                                                              |
| rtutils  | 5.2.3787.0 (srv03_rtm.030312-1801)     | 32.00 KB (32,768 bytes)   | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\rtutils.dll                                                                               |
| ntmarta  | 5.2.3787.0 (srv03_rtm.030312-1801)     | 114.00 KB (116,736 bytes) | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\ntmarta.dll                                                                               |
| clbcatq  | 2001.12.4717.0 (srv03_rtm.030312-1801) | 481.00 KB (492,544 bytes) | 3/17/2003 4:31 PM  | Microsoft Corporation | c:\windows\system32\clbcatq.dll                                                                               |
| comres   | 2001.12.4717.0 (srv03_rtm.030312-1801) | 778.00 KB (796,672 bytes) | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\comres.dll                                                                                |
| wbemprox | 5.2.3787.0 (srv03_rtm.030312-1801)     | 17.50 KB (17,920 bytes)   | 3/17/2003 4:31 PM  | Microsoft Corporation | c:\windows\system32\wbem\wbemprox.dll                                                                         |
| wbemcomn | 5.2.3787.0 (srv03_rtm.030312-1801)     | 211.50 KB (216,576 bytes) | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\wbem\wbemcomn.dll                                                                         |
| wbemsvc  | 5.2.3787.0 (srv03_rtm.030312-1801)     | 42.50 KB (43,520 bytes)   | 3/17/2003 4:31 PM  | Microsoft Corporation | c:\windows\system32\wbem\wbemsvc.dll                                                                          |
| fastprox | 5.2.3787.0 (srv03_rtm.030312-1801)     | 443.00 KB (453,632 bytes) | 3/17/2003 4:31 PM  | Microsoft Corporation | c:\windows\system32\wbem\fastprox.dll                                                                         |
| msvcp60  | 6.05.2144.0                            | 388.00 KB (397,312 bytes) | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\msvcp60.dll                                                                               |
| ntdsapi  | 5.2.3787.0 (srv03_rtm.030312-1801)     | 76.00 KB (77,824 bytes)   | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\ntdsapi.dll                                                                               |
| dnsapi   | 5.2.3787.0 (srv03_rtm.030312-1801)     | 147.50 KB (151,040 bytes) | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\dnsapi.dll                                                                                |
| services | 5.2.3787.0 (srv03_rtm.030312-1801)     | 102.00 KB (104,448 bytes) | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\services.exe                                                                              |
| scsvr    | 5.2.3787.0 (srv03_rtm.030312-1801)     | 316.50 KB (324,096 bytes) | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\scsvr.dll                                                                                 |
| authz    | 5.2.3787.0 (srv03_rtm.030312-1801)     | 67.50 KB (69,120 bytes)   | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\authz.dll                                                                                 |
| umpnpgmr | 5.2.3787.0 (srv03_rtm.030312-1801)     | 121.50 KB (124,416 bytes) | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\umpnpgmr.dll                                                                              |
| ncobjapi | 5.2.3787.0 (srv03_rtm.030312-1801)     | 34.50 KB (35,328 bytes)   | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\ncobjapi.dll                                                                              |
| eventlog | 5.2.3787.0 (srv03_rtm.030312-1801)     | 60.50 KB (61,952 bytes)   | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\eventlog.dll                                                                              |
| lsass    | 5.2.3787.0 (srv03_rtm.030312-1801)     | 13.00 KB (13,312 bytes)   | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\lsass.exe                                                                                 |
| lsasrv   | 5.2.3787.0 (srv03_rtm.030312-1801)     | 781.00 KB (799,744 bytes) | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\lsasrv.dll                                                                                |
| samsrv   | 5.2.3787.0 (srv03_rtm.030312-1801)     | 452.00 KB (462,848 bytes) | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\samsrv.dll                                                                                |
| cryptdll | 5.2.3787.0 (srv03_rtm.030312-1801)     | 34.00 KB (34,816 bytes)   | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\cryptdll.dll                                                                              |
| msprivs  | 5.2.3787.0 (srv03_rtm.030312-1801)     | 46.50 KB (47,616 bytes)   | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\msprivs.dll                                                                               |

|          |                                      |                           |                   |                       |                                  |
|----------|--------------------------------------|---------------------------|-------------------|-----------------------|----------------------------------|
| kerberos | 5.2.3787.0 (srv03_rtm.030312-1801)   | 314.00 KB (321,536 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\kerberos.dll |
| msv1_0   | 5.2.3787.0 (srv03_rtm.030312-1801)   | 127.50 KB (130,560 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\msv1_0.dll   |
| netlogon | 5.2.3787.0 (srv03_rtm.030312-1801)   | 409.00 KB (418,816 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\netlogon.dll |
| w32time  | 5.2.3787.0 (srv03_rtm.030312-1801)   | 216.00 KB (221,184 bytes) | 3/17/2003 5:42 PM | Microsoft Corporation | c:\windows\system32\w32time.dll  |
| iphlpapi | 5.2.3787.0 (srv03_rtm.030312-1801)   | 82.50 KB (84,480 bytes)   | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\iphlpapi.dll |
| schannel | 5.2.3787.0 (srv03_rtm.030312-1801)   | 149.50 KB (153,088 bytes) | 3/17/2003 5:42 PM | Microsoft Corporation | c:\windows\system32\schannel.dll |
| wdigest  | 5.2.3787.0 (srv03_rtm.030312-1801)   | 61.00 KB (62,464 bytes)   | 3/17/2003 5:42 PM | Microsoft Corporation | c:\windows\system32\wdigest.dll  |
| rassfm   | 5.2.3787.0 (srv03_rtm.030312-1801)   | 20.50 KB (20,992 bytes)   | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\rassfm.dll   |
| kdcsvc   | 5.2.3787.0 (srv03_rtm.030312-1801)   | 220.50 KB (225,792 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\kdcsvc.dll   |
| ntdsa    | 5.2.3787.0 (srv03_rtm.030312-1801)   | 1.57 MB (1,648,128 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\ntdsa.dll    |
| ntdsatq  | 5.2.3787.0 (srv03_rtm.030312-1801)   | 32.00 KB (32,768 bytes)   | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\ntdsatq.dll  |
| mswsock  | 5.2.3787.0 (srv03_rtm.030312-1801)   | 254.00 KB (260,096 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\mswsock.dll  |
| esent    | 5.2.3787.0 (srv03_rtm.030312-1801)   | 952.50 KB (975,360 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\esent.dll    |
| scecli   | 5.2.3787.0 (srv03_rtm.030312-1801)   | 179.50 KB (183,808 bytes) | 3/17/2003 5:42 PM | Microsoft Corporation | c:\windows\system32\scecli.dll   |
| wshtcpip | 5.2.3787.0 (srv03_rtm.030312-1801)   | 18.00 KB (18,432 bytes)   | 3/17/2003 5:42 PM | Microsoft Corporation | c:\windows\system32\wshtcpip.dll |
| ipsecsvc | 5.2.3787.0 (srv03_rtm.030312-1801)   | 162.50 KB (166,400 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\ipsecsvc.dll |
| oakley   | 5.2.3787.0 (srv03_rtm.030312-1801)   | 325.50 KB (333,312 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\oakley.dll   |
| winipsec | 5.2.3787.0 (srv03_rtm.030312-1801)   | 34.50 KB (35,328 bytes)   | 3/17/2003 5:42 PM | Microsoft Corporation | c:\windows\system32\winipsec.dll |
| ptorsvc  | 5.2.3787.0 (srv03_rtm.030312-1801)   | 24.00 KB (24,576 bytes)   | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\ptorsvc.dll  |
| psbase   | 5.2.3787.0 (srv03_rtm.030312-1801)   | 81.00 KB (82,944 bytes)   | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\psbase.dll   |
| dssenh   | 5.2.3787.0 (srv03_rtm.030312-1801)   | 131.33 KB (134,480 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\dssenh.dll   |
| wlbcctl  | 5.2.3787.0 (srv03_rtm.030312-1801)   | 78.00 KB (79,872 bytes)   | 3/17/2003 5:42 PM | Microsoft Corporation | c:\windows\system32\wlbcctl.dll  |
| svchost  | 5.2.3787.0 (srv03_rtm.030312-1801)   | 13.00 KB (13,312 bytes)   | 3/17/2003 5:42 PM | Microsoft Corporation | c:\windows\system32\svchost.exe  |
| rpss     | 5.2.3787.0 (srv03_rtm.030312-1801)   | 276.50 KB (283,136 bytes) | 3/17/2003 5:42 PM | Microsoft Corporation | c:\windows\system32\rpss.dll     |
| termsrv  | 5.2.3787.0 (srv03_rtm.030312-1801)   | 216.50 KB (221,696 bytes) | 3/17/2003 4:31 PM | Microsoft Corporation | c:\windows\system32\termsrv.dll  |
| icaapi   | 5.2.3787.0 (srv03_rtm.030312-1801)   | 10.50 KB (10,752 bytes)   | 3/17/2003 4:31 PM | Microsoft Corporation | c:\windows\system32\icaapi.dll   |
| mstlsapi | 5.2.3787.0 (srv03_rtm.030312-1801)   | 104.50 KB (107,008 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\mstlsapi.dll |
| rdpwsx   | 5.2.3787.0 (srv03_rtm.030312-1801)   | 80.13 KB (82,056 bytes)   | 3/17/2003 4:31 PM | Microsoft Corporation | c:\windows\system32\rdpwsx.dll   |
| wzcsvc   | 5.2.3787.0 (srv03_rtm.030312-1801)   | 272.50 KB (279,040 bytes) | 3/13/2003 4:19 PM | Microsoft Corporation | c:\windows\system32\wzcsvc.dll   |
| wmi      | 5.2.3787.0 (srv03_rtm.030312-1801)   | 6.50 KB (6,656 bytes)     | 3/17/2003 5:42 PM | Microsoft Corporation | c:\windows\system32\wmi.dll      |
| dhcpcsvc | 5.2.3787.0 (srv03_rtm.030312-1801)   | 101.50 KB (103,936 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\dhcpcsvc.dll |
| rastls   | 5.2.3787.0 (srv03_rtm.030312-1801)   | 155.00 KB (158,720 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\rastls.dll   |
| cryptui  | 5.131.3787.0 (srv03_rtm.030312-1801) | 473.50 KB (484,864 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\cryptui.dll  |
| rasapi32 | 5.2.3787.0 (srv03_rtm.030312-1801)   | 227.50 KB (232,960 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\rasapi32.dll |
| rasman   | 5.2.3787.0 (srv03_rtm.030312-1801)   | 56.50 KB (57,856 bytes)   | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\rasman.dll   |
| tapi32   | 5.2.3787.0 (srv03_rtm.030312-1801)   | 175.00 KB (179,200 bytes) | 3/17/2003 5:42 PM | Microsoft Corporation | c:\windows\system32\tapi32.dll   |
| raschap  | 5.2.3787.0 (srv03_rtm.030312-1801)   | 106.00 KB (108,544 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\raschap.dll  |
| schedsvc | 5.2.3787.0 (srv03_rtm.030312-1801)   | 176.00 KB (180,224 bytes) | 3/17/2003 4:34 PM | Microsoft Corporation | c:\windows\system32\schedsvc.dll |
| msidle   | 6.00.3787.0 (srv03_rtm.030312-1801)  | 5.50 KB (5,632 bytes)     | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\msidle.dll   |
| wkssvc   | 5.2.3787.0 (srv03_rtm.030312-1801)   | 125.00 KB (128,000 bytes) | 3/17/2003 5:42 PM | Microsoft Corporation | c:\windows\system32\wkssvc.dll   |
| wiarpc   | 5.2.3787.0 (srv03_rtm.030312-1801)   | 30.00 KB (30,720 bytes)   | 3/17/2003 5:42 PM | Microsoft Corporation | c:\windows\system32\wiarpc.dll   |
| cryptsvc | 5.2.3787.0 (srv03_rtm.030312-1801)   | 51.00 KB (52,224 bytes)   | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\cryptsvc.dll |
| certcli  | 5.2.3787.0 (srv03_rtm.030312-1801)   | 228.00 KB (233,472 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\certcli.dll  |
| vssapi   | 5.2.3787.0 (srv03_rtm.030312-1801)   | 528.00 KB (540,672 bytes) | 3/17/2003 5:42 PM | Microsoft Corporation | c:\windows\system32\vssapi.dll   |

|          |                                        |                               |                    |                       |                                                                                            |
|----------|----------------------------------------|-------------------------------|--------------------|-----------------------|--------------------------------------------------------------------------------------------|
| dmserver | 5.2.3787.0 (srv03_rtm.030312-1801)     | 24.00 KB (24,576 bytes)       | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\dmservr.dll                                                            |
| es       | 2001.12.4717.0 (srv03_rtm.030312-1801) | 221.50 KB (226,816 bytes)     | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\es.dll                                                                 |
| srvsvc   | 5.2.3787.0 (srv03_rtm.030312-1801)     | 89.00 KB (91,136 bytes)       | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\srvsvc.dll                                                             |
| seclogon | 5.2.3787.0 (srv03_rtm.030312-1801)     | 16.50 KB (16,896 bytes)       | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\seclogon.dll                                                           |
| trkwks   | 5.2.3787.0 (srv03_rtm.030312-1801)     | 85.00 KB (87,040 bytes)       | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\trkwks.dll                                                             |
| wmisvc   | 5.2.3787.0 (srv03_rtm.030312-1801)     | 131.00 KB (134,144 bytes)     | 3/17/2003 4:31 PM  | Microsoft Corporation | c:\windows\system32\wbem\wmisvc.dll                                                        |
| wuauerv  | 5.4.3787.0 (srv03_rtm.030312-1801)     | 10.50 KB (10,752 bytes)       | 3/17/2003 4:31 PM  | Microsoft Corporation | c:\windows\system32\wuauerv.dll                                                            |
| wuaueng  | 5.4.3787.0 (srv03_rtm.030312-1801)     | 188.50 KB (193,024 bytes)     | 3/17/2003 4:31 PM  | Microsoft Corporation | c:\windows\system32\wuaueng.dll                                                            |
| advpack  | 6.00.3787.0 (srv03_rtm.030312-1801)    | 93.50 KB (95,744 bytes)       | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\advpack.dll                                                            |
| wininet  | 6.00.3787.0 (srv03_rtm.030312-1801)    | 609.00 KB (623,616 bytes)     | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\wininet.dll                                                            |
| sens     | 5.2.3787.0 (srv03_rtm.030312-1801)     | 35.50 KB (36,352 bytes)       | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\sens.dll                                                               |
| comsvcs  | 2001.12.4717.0 (srv03_rtm.030312-1801) | 1.14 MB (1,199,616 bytes)     | 3/17/2003 4:31 PM  | Microsoft Corporation | c:\windows\system32\comsvcs.dll                                                            |
| browser  | 5.2.3787.0 (srv03_rtm.030312-1801)     | 70.50 KB (72,192 bytes)       | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\browser.dll                                                            |
| netrap   | 5.2.3787.0 (srv03_rtm.030312-1801)     | 11.50 KB (11,776 bytes)       | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\netrap.dll                                                             |
| netman   | 5.2.3787.0 (srv03_rtm.030312-1801)     | 209.00 KB (214,016 bytes)     | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\netman.dll                                                             |
| wzcsapi  | 5.2.3787.0 (srv03_rtm.030312-1801)     | 24.50 KB (25,088 bytes)       | 3/13/2003 4:19 PM  | Microsoft Corporation | c:\windows\system32\wzcsapi.dll                                                            |
| netshell | 5.2.3787.0 (srv03_rtm.030312-1801)     | 1.67 MB (1,747,456 bytes)     | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\netshell.dll                                                           |
| clusapi  | 5.2.3787.0 (srv03_rtm.030312-1801)     | 56.00 KB (57,344 bytes)       | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\clusapi.dll                                                            |
| hnetcfg  | 5.2.3787.0 (srv03_rtm.030312-1801)     | 243.50 KB (249,344 bytes)     | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\hnetcfg.dll                                                            |
| wbemcore | 5.2.3787.0 (srv03_rtm.030312-1801)     | 457.00 KB (467,968 bytes)     | 3/17/2003 4:31 PM  | Microsoft Corporation | c:\windows\system32\wbem\wbemcore.dll                                                      |
| esscli   | 5.2.3787.0 (srv03_rtm.030312-1801)     | 235.50 KB (241,152 bytes)     | 3/17/2003 4:31 PM  | Microsoft Corporation | c:\windows\system32\wbem\esscli.dll                                                        |
| wmiutils | 5.2.3787.0 (srv03_rtm.030312-1801)     | 90.50 KB (92,672 bytes)       | 3/17/2003 4:31 PM  | Microsoft Corporation | c:\windows\system32\wbem\wmiutils.dll                                                      |
| repdrvfs | 5.2.3787.0 (srv03_rtm.030312-1801)     | 165.00 KB (168,960 bytes)     | 3/17/2003 4:31 PM  | Microsoft Corporation | c:\windows\system32\wbem\repdrvfs.dll                                                      |
| wmiprvsd | 5.2.3787.0 (srv03_rtm.030312-1801)     | 405.50 KB (415,232 bytes)     | 3/17/2003 4:31 PM  | Microsoft Corporation | c:\windows\system32\wbem\wmiprvsd.dll                                                      |
| wbemess  | 5.2.3787.0 (srv03_rtm.030312-1801)     | 256.50 KB (262,656 bytes)     | 3/17/2003 4:31 PM  | Microsoft Corporation | c:\windows\system32\wbem\wbemess.dll                                                       |
| rasdlg   | 5.2.3787.0 (srv03_rtm.030312-1801)     | 642.00 KB (657,408 bytes)     | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\rasdlg.dll                                                             |
| ncprov   | 5.2.3787.0 (srv03_rtm.030312-1801)     | 43.00 KB (44,032 bytes)       | 3/17/2003 4:31 PM  | Microsoft Corporation | c:\windows\system32\wbem\ncprov.dll                                                        |
| rasadhlp | 5.2.3787.0 (srv03_rtm.030312-1801)     | 6.50 KB (6,656 bytes)         | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\rasadhlp.dll                                                           |
| winhttp  | 5.2.3787.0 (srv03_rtm.030312-1801)     | 327.50 KB (335,360 bytes)     | 1/22/2003 12:37 PM | Microsoft Corporation | c:\windows\winsxs\x86_microsoft.windows.winhttp_6595b64144ccf1df_x-ww_e0651936\winhttp.dll |
| xactsrv  | 5.2.3787.0 (srv03_rtm.030312-1801)     | 86.50 KB (88,576 bytes)       | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\xactsrv.dll                                                            |
| pchsvc   | 5.2.3787.0 (srv03_rtm.030312-1801)     | 31.50 KB (32,256 bytes)       | 3/17/2003 4:34 PM  | Microsoft Corporation | c:\windows\pchealth\helpctr\binaries\pchsvc.dll                                            |
| wbemcons | 5.2.3787.0 (srv03_rtm.030312-1801)     | 69.00 KB (70,656 bytes)       | 3/17/2003 4:31 PM  | Microsoft Corporation | c:\windows\system32\wbem\wbemcons.dll                                                      |
| explorer | 6.00.3787.0 (srv03_rtm.030312-1801)    | 1,008.50 KB (1,032,704 bytes) | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\explorer.exe                                                                    |
| browseui | 6.00.3787.0 (srv03_rtm.030312-1801)    | 1.01 MB (1,057,280 bytes)     | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\browseui.dll                                                           |
| shdocvw  | 6.00.3787.0 (srv03_rtm.030312-1801)    | 1.33 MB (1,393,664 bytes)     | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\shdocvw.dll                                                            |
| apphelp  | 5.2.3787.0 (srv03_rtm.030312-1801)     | 122.00 KB (124,928 bytes)     | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\apphelp.dll                                                            |
| themeui  | 6.00.3787.0 (srv03_rtm.030312-1801)    | 360.50 KB (369,152 bytes)     | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\themeui.dll                                                            |
| msimg32  | 5.2.3787.0 (srv03_rtm.030312-1801)     | 4.50 KB (4,608 bytes)         | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\msimg32.dll                                                            |
| linkinfo | 5.2.3787.0 (srv03_rtm.030312-1801)     | 16.50 KB (16,896 bytes)       | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\linkinfo.dll                                                           |
| ntshrui  | 6.00.3787.0 (srv03_rtm.030312-1801)    | 136.00 KB (139,264 bytes)     | 3/17/2003 5:41 PM  | Microsoft Corporation | c:\windows\system32\ntshrui.dll                                                            |
| urlmon   | 6.00.3787.0 (srv03_rtm.030312-1801)    | 501.50 KB (513,536 bytes)     | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\urlmon.dll                                                             |
| webcheck | 6.00.3787.0 (srv03_rtm.030312-1801)    | 261.50 KB (267,776 bytes)     | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\webcheck.dll                                                           |
| wsock32  | 5.2.3787.0 (srv03_rtm.030312-1801)     | 22.00 KB (22,528 bytes)       | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\wsock32.dll                                                            |
| stobject | 5.2.3787.0 (srv03_rtm.030312-1801)     | 117.50 KB (120,320 bytes)     | 3/17/2003 5:42 PM  | Microsoft Corporation | c:\windows\system32\stobject.dll                                                           |

|                                                 |                                            |                           |                   |                       |                                                   |
|-------------------------------------------------|--------------------------------------------|---------------------------|-------------------|-----------------------|---------------------------------------------------|
| batmeter                                        | 6.00.3787.0 (srv03_rtm.030312-1801)        | 28.50 KB (29,184 bytes)   | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\batmeter.dll                  |
| powrprof                                        | 6.00.3787.0 (srv03_rtm.030312-1801)        | 14.50 KB (14,848 bytes)   | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\powrprof.dll                  |
| printui                                         | 5.2.3787.0 (srv03_rtm.030312-1801)         | 536.50 KB (549,376 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\printui.dll                   |
| cfgmgr32                                        | 5.2.3787.0 (srv03_rtm.030312-1801)         | 17.50 KB (17,920 bytes)   | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\cfgmgr32.dll                  |
| drprov                                          | 5.2.3787.0 (srv03_rtm.030312-1801)         | 12.50 KB (12,800 bytes)   | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\drprov.dll                    |
| ntlanman                                        | 5.2.3787.0 (srv03_rtm.030312-1801)         | 41.00 KB (41,984 bytes)   | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\ntlanman.dll                  |
| netui0                                          | 5.2.3787.0 (srv03_rtm.030312-1801)         | 75.50 KB (77,312 bytes)   | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\netui0.dll                    |
| netui1                                          | 5.2.3787.0 (srv03_rtm.030312-1801)         | 184.00 KB (188,416 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\netui1.dll                    |
| davclnt                                         | 5.2.3787.0 (srv03_rtm.030312-1801)         | 23.50 KB (24,064 bytes)   | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\davclnt.dll                   |
| shdoclc                                         | 6.00.3787.0 (srv03_rtm.030312-1801)        | 588.50 KB (602,624 bytes) | 3/17/2003 5:42 PM | Microsoft Corporation | c:\windows\system32\shdoclc.dll                   |
| browsecl                                        | 6.00.3787.0 (srv03_rtm.030312-1801)        | 62.00 KB (63,488 bytes)   | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\browsecl.dll                  |
| mprui                                           | 5.2.3787.0 (srv03_rtm.030312-1801)         | 49.00 KB (50,176 bytes)   | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\mprui.dll                     |
| netui2                                          | 5.2.3787.0 (srv03_rtm.030312-1801)         | 309.50 KB (316,928 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\netui2.dll                    |
| comdlg32                                        | 6.00.3787.0 (srv03_rtm.030312-1801)        | 261.00 KB (267,264 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\comdlg32.dll                  |
| netmsg                                          | 5.2.3787.0 (srv03_rtm.030312-1801)         | 178.00 KB (182,272 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\netmsg.dll                    |
| netplwiz                                        | 5.2.3787.0 (srv03_rtm.030312-1801)         | 843.00 KB (863,232 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\netplwiz.dll                  |
| mydocs                                          | 6.00.3787.0 (srv03_rtm.030312-1801)        | 88.00 KB (90,112 bytes)   | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\mydocs.dll                    |
| actxprxy                                        | 6.00.3787.0 (srv03_rtm.030312-1801)        | 95.00 KB (97,280 bytes)   | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\actxprxy.dll                  |
| mstask                                          | 5.2.3787.0 (srv03_rtm.030312-1801)         | 285.00 KB (291,840 bytes) | 3/17/2003 4:34 PM | Microsoft Corporation | c:\windows\system32\mstask.dll                    |
| ersvc                                           | 5.2.3787.0 (srv03_rtm.030312-1801)         | 22.00 KB (22,528 bytes)   | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\ersvc.dll                     |
| dfssvc                                          | 5.2.3787.0 (srv03_rtm.030312-1801)         | 130.50 KB (133,632 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\dfssvc.exe                    |
| resutils                                        | 5.2.3787.0 (srv03_rtm.030312-1801)         | 59.00 KB (60,416 bytes)   | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\resutils.dll                  |
| mfc42u                                          | 6.05.3014.0                                | 960.00 KB (983,040 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\mfc42u.dll                    |
| wpabaln                                         | 5.2.3787.0 (srv03_rtm.030312-1801)         | 31.00 KB (31,744 bytes)   | 3/17/2003 5:42 PM | Microsoft Corporation | c:\windows\system32\wpabaln.exe                   |
| helpctr                                         | 5.2.3787.0 (srv03_rtm.030312-1801)         | 764.00 KB (782,336 bytes) | 3/17/2003 4:34 PM | Microsoft Corporation | c:\windows\pchealth\helpctr\binaries\helpctr.exe  |
| hcappres                                        | 5.2.3787.0 (srv03_rtm.030312-1801)         | 6.50 KB (6,656 bytes)     | 3/17/2003 4:34 PM | Microsoft Corporation | c:\windows\pchealth\helpctr\binaries\hcappres.dll |
| itss                                            | 5.2.3787.0 (srv03_rtm.030312-1801)         | 119.50 KB (122,368 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\itss.dll                      |
| msxml3                                          | 8.40.9419.0                                | 1.28 MB (1,337,344 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\msxml3.dll                    |
| pchshell                                        | 5.2.3787.0 (srv03_rtm.030312-1801)         | 100.50 KB (102,912 bytes) | 3/17/2003 4:34 PM | Microsoft Corporation | c:\windows\pchealth\helpctr\binaries\pchshell.dll |
| mlang                                           | 6.00.3787.0 (srv03_rtm.030312-1801)        | 570.00 KB (583,680 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\mlang.dll                     |
| mshtml                                          | 6.00.3787.0 (srv03_rtm.030312-1801)        | 2.78 MB (2,916,352 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\mshtml.dll                    |
| msimtf                                          | 5.2.3787.0 (srv03_rtm.030312-1801)         | 149.00 KB (152,576 bytes) | 3/17/2003 5:42 PM | Microsoft Corporation | c:\windows\system32\msimtf.dll                    |
| msctf                                           | 5.2.3787.0 (srv03_rtm.030312-1801)         | 287.00 KB (293,888 bytes) | 3/17/2003 5:42 PM | Microsoft Corporation | c:\windows\system32\msctf.dll                     |
| jscript                                         | 5.6.0.8515                                 | 436.00 KB (446,464 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\jscript.dll                   |
| msls31                                          | 3.10.349.0                                 | 147.00 KB (150,528 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\msls31.dll                    |
| imm32                                           | 5.2.3787.0 (srv03_rtm.030312-1801)         | 105.50 KB (108,032 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\imm32.dll                     |
| mshtmlm                                         | 6.00.3787.0 (srv03_rtm.030312-1801)        | 443.50 KB (454,144 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\mshtmlm.dll                   |
| vbscript                                        | 5.6.0.8515                                 | 404.00 KB (413,696 bytes) | 3/17/2003 5:42 PM | Microsoft Corporation | c:\windows\system32\vbscript.dll                  |
| mfc42                                           | 6.05.3014.0                                | 960.00 KB (983,040 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\mfc42.dll                     |
| msinfo                                          | 5.2.3787.0 (srv03_rtm.030312-1801)         | 358.50 KB (367,104 bytes) | 3/17/2003 4:34 PM | Microsoft Corporation | c:\windows\pchealth\helpctr\binaries\msinfo.dll   |
| riched32                                        | 5.2.3787.0 (srv03_rtm.030312-1801)         | 3.50 KB (3,584 bytes)     | 3/17/2003 5:42 PM | Microsoft Corporation | c:\windows\system32\riched32.dll                  |
| riched20                                        | 5.31.23.1218                               | 406.00 KB (415,744 bytes) | 3/17/2003 5:41 PM | Microsoft Corporation | c:\windows\system32\riched20.dll                  |
| helpsvc                                         | 5.2.3787.0 (srv03_rtm.030312-1801)         | 720.00 KB (737,280 bytes) | 3/17/2003 4:34 PM | Microsoft Corporation | c:\windows\pchealth\helpctr\binaries\helpsvc.exe  |
| [Services]                                      |                                            |                           |                   |                       |                                                   |
| Display Name                                    | Name                                       | State                     | Start Mode        | Service Type          |                                                   |
| Path                                            | Error Control                              | Start Name                | Tag ID            |                       |                                                   |
| Alterer                                         | Alterer                                    | Stopped                   | Disabled          | Share Process         |                                                   |
| c:\windows\system32\svchost.exe -k localservice |                                            |                           |                   | Normal                | NT                                                |
| AUTHORITY\LocalService                          |                                            | 0                         |                   |                       |                                                   |
| Application Layer Gateway Service               |                                            | ALG                       | Stopped           | Manual                |                                                   |
| Own Process                                     | c:\windows\system32\alg.exe                |                           | Normal            | NT                    |                                                   |
| AUTHORITY\LocalService                          |                                            | 0                         |                   |                       |                                                   |
| Application Management                          | AppMgmt                                    | Stopped                   | Manual            | Share                 |                                                   |
| Process                                         | c:\windows\system32\svchost.exe -k netsvcs |                           | Normal            |                       |                                                   |
| LocalSystem                                     |                                            | 0                         |                   |                       |                                                   |

|                                                   |                                                 |                                      |             |                                  |                                                   |                                                   |                                             |                                |             |               |
|---------------------------------------------------|-------------------------------------------------|--------------------------------------|-------------|----------------------------------|---------------------------------------------------|---------------------------------------------------|---------------------------------------------|--------------------------------|-------------|---------------|
| Windows Audio                                     | AudioSrv                                        | Stopped                              | Disabled    | Share Process                    |                                                   | NetMeeting Remote Desktop Sharing                 | mnmsrvc                                     | Stopped                        | Manual      |               |
| c:\windows\system32\svchost.exe -k netsvcs        | Normal                                          | LocalSystem                          | 0           | Own Process                      | c:\windows\system32\mnmsrvc.exe                   | Normal                                            |                                             |                                |             |               |
| Background Intelligent Transfer Service           | BITS                                            | Stopped                              | Manual      | LocalSystem                      | 0                                                 | Distributed Transaction Coordinator               | MSDTC                                       | Running                        | Auto        |               |
| Share Process                                     | c:\windows\system32\svchost.exe -k netsvcs      | Normal                               |             | Own Process                      | c:\windows\system32\msdtc.exe                     | Normal                                            | NT                                          |                                |             |               |
| LocalSystem                                       | 0                                               |                                      |             | AUTHORITY\NetworkService         | 1                                                 | Windows Installer                                 | MSIServer                                   | Stopped                        | Manual      | Share Process |
| Computer Browser                                  | Browser                                         | Running                              | Auto        | Share Process                    |                                                   | c:\windows\system32\msiexec.exe /v                | Normal                                      | LocalSystem                    |             | 0             |
| c:\windows\system32\svchost.exe -k netsvcs        | Normal                                          | LocalSystem                          | 0           | MSSQLSERVER                      | MSSQLSERVER                                       | Stopped                                           | Manual                                      | Own                            |             |               |
| Indexing Service                                  | CiSvc                                           | Stopped                              | Manual      | Share Process                    | 0                                                 | Process                                           | c:\progra~1\microso~1\msql\bin\sqlservr.exe | Normal                         |             |               |
| c:\windows\system32\cisvc.exe                     | Normal                                          | LocalSystem                          | 0           | LocalSystem                      | 0                                                 | MSSQLServerADHelper                               | MSSQLServerADHelper                         | Stopped                        |             |               |
| ClipBook                                          | ClipSrv                                         | Stopped                              | Disabled    | Own Process                      |                                                   | Manual                                            | Own Process                                 | c:\program files\microsoft sql |             |               |
| c:\windows\system32\clipsrv.exe                   | Normal                                          | LocalSystem                          | 0           | server\80\tools\bin\sqladhlp.exe | Normal                                            | LocalSystem                                       | 0                                           |                                |             |               |
| COM+ System Application                           | COMSysApp                                       | Stopped                              | Manual      | Network DDE                      | NetDDE                                            | Stopped                                           | Disabled                                    | Share Process                  |             |               |
| Own Process                                       | c:\windows\system32\dlh.exe                     |                                      |             | c:\windows\system32\netdde.exe   | Normal                                            | LocalSystem                                       | 0                                           |                                |             |               |
| /processid:{02d4b3f1-fd88-11d1-960d-00805fc79235} | Normal                                          |                                      |             | Network DDE DSDM                 | NetDDEdsdm                                        | Stopped                                           | Disabled                                    | Share                          |             |               |
| LocalSystem                                       | 0                                               |                                      |             | Process                          | c:\windows\system32\netdde.exe                    | Normal                                            | LocalSystem                                 | 0                              |             |               |
| Cryptographic Services                            | CryptSvc                                        | Running                              | Auto        | Share                            |                                                   | Net Logon                                         | Netlogon                                    | Stopped                        | Manual      | Share Process |
| Process                                           | c:\windows\system32\svchost.exe -k netsvcs      | Normal                               |             | 0                                | c:\windows\system32\lsass.exe                     | Normal                                            | LocalSystem                                 | 0                              |             |               |
| LocalSystem                                       | 0                                               |                                      |             | DHCP Client                      | Dhcp                                              | Running                                           | Auto                                        | Share Process                  |             |               |
| Distributed File System                           | Dfs                                             | Running                              | Auto        | Own                              |                                                   | Network Connections                               | Netman                                      | Running                        | Manual      | Share Process |
| Process                                           | c:\windows\system32\dfsrv.exe                   | Normal                               | LocalSystem | 0                                | c:\windows\system32\svchost.exe -k networkservice | Normal                                            | LocalSystem                                 | 0                              |             |               |
| Logical Disk Manager                              | Administrative Service                          |                                      |             | dmadmin                          | Stopped                                           | Network Location Awareness (NLA)                  | Nla                                         | Running                        | Manual      |               |
| Manual                                            | Share Process                                   | c:\windows\system32\dmadmin.exe /com |             | Normal                           | LocalSystem                                       | 0                                                 |                                             |                                |             |               |
| Normal                                            | LocalSystem                                     | 0                                    |             | Logical Disk Manager             | dmserver                                          | Running                                           | Auto                                        | Share Process                  |             |               |
| c:\windows\system32\svchost.exe -k netsvcs        | Normal                                          | LocalSystem                          | 0           | DNS Client                       | Dnscache                                          | Running                                           | Auto                                        | Share Process                  |             |               |
| DNS Client                                        | Dnscache                                        | Running                              | Auto        | Share Process                    |                                                   | c:\windows\system32\svchost.exe -k networkservice | Normal                                      | NT                             |             |               |
| c:\windows\system32\svchost.exe -k networkservice | Normal                                          | NT                                   |             | AUTHORITY\NetworkService         | 0                                                 | Error Reporting Service                           | ERSvc                                       | Running                        | Auto        | Share         |
| Process                                           | c:\windows\system32\svchost.exe -k winerr       | Ignore                               |             | LocalSystem                      | 0                                                 | Event Log                                         | Eventlog                                    | Running                        | Auto        | Share Process |
| LocalSystem                                       | 0                                               |                                      |             | Event Log                        | Eventlog                                          | Running                                           | Auto                                        | Share Process                  |             |               |
| COM+ Event System                                 | EventSystem                                     | Running                              | Manual      | Share                            |                                                   | Protected Storage                                 | ProtectedStorage                            | Running                        | Auto        | Share         |
| Process                                           | c:\windows\system32\svchost.exe -k netsvcs      | Normal                               |             | 0                                | c:\windows\system32\lsass.exe                     | Normal                                            | LocalSystem                                 | 0                              |             |               |
| LocalSystem                                       | 0                                               |                                      |             | Help and Support                 | helpsvc                                           | Running                                           | Manual                                      | Share Process                  |             |               |
| c:\windows\system32\svchost.exe -k netsvcs        | Normal                                          | LocalSystem                          | 0           | Human Interface Device Access    | HidServ                                           | Stopped                                           | Disabled                                    | Share                          |             |               |
| Process                                           | c:\windows\system32\svchost.exe -k netsvcs      | Normal                               |             | LocalSystem                      | 0                                                 | HTTP SSL                                          | HTTPFilter                                  | Stopped                        | Manual      | Share Process |
| LocalSystem                                       | 0                                               |                                      |             | c:\windows\system32\lsass.exe    | Normal                                            | LocalSystem                                       | 0                                           |                                |             |               |
| IMAPI CD-Burning COM Service                      | ImapiService                                    | Stopped                              |             | Disabled                         | Own Process                                       | c:\windows\system32\imapi.exe                     | Normal                                      |                                |             |               |
| LocalSystem                                       | 0                                               |                                      |             | Intersite Messaging              | Ismserv                                           | Stopped                                           | Disabled                                    | Own Process                    |             |               |
| c:\windows\system32\ismssrv.exe                   | Normal                                          | LocalSystem                          | 0           | Kerberos Key Distribution Center | kdc                                               | Stopped                                           | Disabled                                    |                                |             |               |
| Share Process                                     | c:\windows\system32\lsass.exe                   | Normal                               |             | LocalSystem                      | 0                                                 | Remote Access                                     | Auto Connection Manager                     | RasAuto                        | Stopped     | Manual        |
| LocalSystem                                       | 0                                               |                                      |             | Server                           | lanmanserver                                      | Running                                           | Auto                                        | Share Process                  |             |               |
| c:\windows\system32\svchost.exe -k netsvcs        | Normal                                          | LocalSystem                          | 0           | Workstation                      | lanmanworkstation                                 | Running                                           | Auto                                        | Share                          |             |               |
| Process                                           | c:\windows\system32\svchost.exe -k netsvcs      | Normal                               |             | LocalSystem                      | 0                                                 | Resultant Set of Policy Provider                  | RSOPProv                                    | Stopped                        | Manual      | Share         |
| LocalSystem                                       | 0                                               |                                      |             | License Logging                  | LicenseService                                    | Stopped                                           | Disabled                                    | Own                            |             |               |
| c:\windows\system32\llssrv.exe                    | Normal                                          | NT                                   |             | AUTHORITY\NetworkService         | 0                                                 | Special Administration                            | Console Helper                              | sacsvr                         | Stopped     | Manual        |
| TCP/IP NetBIOS Helper                             | LmHosts                                         | Running                              | Auto        | Share                            |                                                   | Share Process                                     | c:\windows\system32\svchost.exe -k netsvcs  | Normal                         |             |               |
| Process                                           | c:\windows\system32\svchost.exe -k localservice | Normal                               |             | NT AUTHORITY\LocalService        | 0                                                 | Security Accounts Manager                         | SamSs                                       | Running                        | Auto        | Share         |
| Messenger                                         | Messenger                                       | Stopped                              | Disabled    | Share Process                    |                                                   | Process                                           | c:\windows\system32\lsass.exe               | Normal                         | LocalSystem | 0             |
| c:\windows\system32\svchost.exe -k netsvcs        | Normal                                          | LocalSystem                          | 0           |                                  |                                                   |                                                   |                                             |                                |             |               |

|                                                      |                                                               |                        |                |                           |   |
|------------------------------------------------------|---------------------------------------------------------------|------------------------|----------------|---------------------------|---|
| Smart Card                                           | SCardSvr                                                      | Stopped                | Manual         | Share Process             |   |
| c:\windows\system32\scardsvr.exe                     |                                                               |                        | Ignore         | NT                        |   |
| AUTHORITY\LocalService                               | 0                                                             |                        |                |                           |   |
| Task Scheduler                                       | Schedule                                                      | Running                | Auto           | Share Process             |   |
| c:\windows\system32\svchost.exe -k netsvcs           | Normal                                                        |                        |                | LocalSystem               | 0 |
| Secondary Logon                                      | seclogon                                                      | Running                | Auto           | Share Process             |   |
| c:\windows\system32\svchost.exe -k netsvcs           | Ignore                                                        |                        |                | LocalSystem               | 0 |
| System Event Notification                            | SENS                                                          | Running                | Auto           | Share                     |   |
| Process c:\windows\system32\svchost.exe -k netsvcs   | Normal                                                        |                        |                | LocalSystem               | 0 |
| Shell Hardware Detection                             | ShellHWDetection                                              | Running                | Auto           |                           |   |
| Share Process                                        | c:\windows\system32\svchost.exe -k netsvcs                    | Ignore                 |                |                           |   |
| LocalSystem                                          | 0                                                             |                        |                |                           |   |
| Print Spooler                                        | Spooler                                                       | Stopped                | Manual         | Own Process               |   |
| c:\windows\system32\spoolsv.exe                      |                                                               |                        | Normal         | LocalSystem               | 0 |
| SQLSERVERAGENT                                       | SQLSERVERAGENT                                                | Stopped                |                |                           |   |
| Manual Own Process                                   | c:\progra~1\microso~1\msql\bin\sqlagent.exe                   |                        |                |                           |   |
| Normal LocalSystem                                   | 0                                                             |                        |                |                           |   |
| Windows Image Acquisition (WIA)                      | stisvc                                                        | Stopped                | Disabled       |                           |   |
| Share Process                                        | c:\windows\system32\svchost.exe -k imgsvc                     | Normal                 |                |                           |   |
| NT AUTHORITY\LocalService                            | 0                                                             |                        |                |                           |   |
| Microsoft Software Shadow Copy Provider              | swprv                                                         | Stopped                | Manual         |                           |   |
| Own Process                                          | c:\windows\system32\svchost.exe -k swprv                      | Normal                 |                |                           |   |
| LocalSystem                                          | 0                                                             |                        |                |                           |   |
| Performance Logs and Alerts                          | SysmonLog                                                     | Stopped                | Manual         |                           |   |
| Own Process                                          | c:\windows\system32\smlogsvc.exe                              |                        | Normal         |                           |   |
| NT Authority\NetworkService                          | 0                                                             |                        |                |                           |   |
| Telephony TapiSrv                                    | Stopped                                                       | Manual                 | Share Process  |                           |   |
| c:\windows\system32\svchost.exe -k tapisrv           | Normal                                                        |                        |                | LocalSystem               | 0 |
| Terminal Services                                    | TermService                                                   | Running                | Manual         | Share                     |   |
| Process c:\windows\system32\svchost.exe -k termsvcs  |                                                               |                        |                | Normal                    |   |
| LocalSystem                                          | 0                                                             |                        |                |                           |   |
| Themes                                               | Themes                                                        | Stopped                | Disabled       | Share Process             |   |
| c:\windows\system32\svchost.exe -k netsvcs           | Normal                                                        |                        |                | LocalSystem               | 0 |
| Telnet                                               | TlntSvr                                                       | Stopped                | Disabled       | Own Process               |   |
| c:\windows\system32\tlntsvr.exe                      | Normal                                                        |                        |                | NT AUTHORITY\LocalService | 0 |
| Distributed Link Tracking Server                     | TrkSrv                                                        | Stopped                | Disabled       | Share                     |   |
| Process c:\windows\system32\svchost.exe -k netsvcs   | Normal                                                        |                        |                | LocalSystem               | 0 |
| Distributed Link Tracking Client                     | TrkWks                                                        | Running                | Auto           | Share                     |   |
| Process c:\windows\system32\svchost.exe -k netsvcs   | Normal                                                        |                        |                | LocalSystem               | 0 |
| Terminal Services Session Directory                  | Tssdis                                                        | Stopped                | Disabled       |                           |   |
| Own Process                                          | c:\windows\system32\tssdis.exe                                |                        | Normal         |                           |   |
| LocalSystem                                          | 0                                                             |                        |                |                           |   |
| Upload Manager                                       | uploadmgr                                                     | Stopped                | Disabled       | Share Process             |   |
| c:\windows\system32\svchost.exe -k netsvcs           | Normal                                                        |                        |                | LocalSystem               | 0 |
| Uninterruptible Power Supply                         | UPS                                                           | Stopped                | Manual         | Own                       |   |
| Process c:\windows\system32\ups.exe                  |                                                               |                        | Normal         | NT                        |   |
| AUTHORITY\LocalService                               | 0                                                             |                        |                |                           |   |
| Virtual Disk Service                                 | vds                                                           | Stopped                | Manual         | Own Process               |   |
| c:\windows\system32\vds.exe                          |                                                               |                        | Normal         | LocalSystem               | 0 |
| Volume Shadow Copy                                   | VSS                                                           | Stopped                | Manual         | Own                       |   |
| Process c:\windows\system32\vssvc.exe                |                                                               |                        | Normal         | LocalSystem               | 0 |
| Windows Time                                         | W32Time                                                       | Running                | Auto           | Share Process             |   |
| c:\windows\system32\svchost.exe -k netsvcs           | Normal                                                        |                        |                | LocalSystem               | 0 |
| WebClient                                            | WebClient                                                     | Stopped                | Disabled       | Share Process             |   |
| c:\windows\system32\svchost.exe -k localservice      |                                                               |                        | Normal         | NT                        |   |
| AUTHORITY\LocalService                               | 0                                                             |                        |                |                           |   |
| WinHTTP Web Proxy Auto-Discovery Service             | WinHttpAutoProxySvc                                           |                        |                |                           |   |
| Stopped Manual Share Process                         | c:\windows\system32\svchost.exe                               |                        |                |                           |   |
| -k localservice                                      | Normal                                                        |                        |                | NT AUTHORITY\LocalService | 0 |
| Windows Management Instrumentation                   | winmgmt                                                       | Running                | Auto           |                           |   |
| Share Process                                        | c:\windows\system32\svchost.exe -k netsvcs                    | Ignore                 |                |                           |   |
| LocalSystem                                          | 0                                                             |                        |                |                           |   |
| Portable Media Serial Number Service                 | WmdmPmSN                                                      | Stopped                |                |                           |   |
| Manual Share Process                                 | c:\windows\system32\svchost.exe -k netsvcs                    |                        |                |                           |   |
| Normal LocalSystem                                   | 0                                                             |                        |                |                           |   |
| Windows Management Instrumentation Driver Extensions | Wmi                                                           |                        |                |                           |   |
| Stopped Manual Share Process                         | c:\windows\system32\svchost.exe                               |                        |                |                           |   |
| -k netsvcs                                           | Normal                                                        |                        |                | LocalSystem               | 0 |
| WMI Performance Adapter                              | WmiApSrv                                                      | Stopped                | Manual         |                           |   |
| Own Process                                          | c:\windows\system32\wbem\wmiapsrv.exe                         |                        |                | Normal                    |   |
| LocalSystem                                          | 0                                                             |                        |                |                           |   |
| Automatic Updates                                    | wuauerv                                                       | Running                | Auto           | Share Process             |   |
| c:\windows\system32\svchost.exe -k netsvcs           | Normal                                                        |                        |                | LocalSystem               | 0 |
| Wireless Configuration                               | WZCSVC                                                        | Running                | Auto           | Share                     |   |
| Process c:\windows\system32\svchost.exe -k netsvcs   | Normal                                                        |                        |                | LocalSystem               | 0 |
| LocalSystem                                          | 0                                                             |                        |                |                           |   |
| [Program Groups]                                     |                                                               |                        |                |                           |   |
| Group Name                                           | Name                                                          | User Name              |                |                           |   |
| Accessories                                          | Default User:Accessories                                      | Default User           |                |                           |   |
| Accessories\Accessibility                            | Default User:Accessories\Accessibility                        |                        |                |                           |   |
| Default User                                         |                                                               |                        |                |                           |   |
| Accessories\Entertainment                            | Default User:Accessories\Entertainment                        |                        |                |                           |   |
| Default User                                         |                                                               |                        |                |                           |   |
| Startup                                              | Default User:Startup                                          | Default User           |                |                           |   |
| Accessories                                          | All Users:Accessories All Users                               |                        |                |                           |   |
| Accessories\Accessibility                            | All Users:Accessories\Accessibility                           |                        |                |                           |   |
| All Users                                            |                                                               |                        |                |                           |   |
| Accessories\Communications                           | All Users:Accessories\Communications                          |                        |                |                           |   |
| All Users                                            |                                                               |                        |                |                           |   |
| Accessories\Entertainment                            | All Users:Accessories\Entertainment                           |                        |                |                           |   |
| All Users                                            |                                                               |                        |                |                           |   |
| Accessories\System Tools                             | All Users:Accessories\System Tools                            |                        |                |                           |   |
| All Users                                            |                                                               |                        |                |                           |   |
| Administrative Tools                                 | All Users:Administrative Tools                                | All Users              |                |                           |   |
| Microsoft SQL Server                                 | All Users:Microsoft SQL Server                                | All Users              |                |                           |   |
| Startup                                              | All Users:Startup                                             | All Users              |                |                           |   |
| Accessories                                          | NT AUTHORITY\SYSTEM:Accessories                               | NT                     |                |                           |   |
| AUTHORITY\SYSTEM                                     |                                                               |                        |                |                           |   |
| Accessories\Accessibility                            | NT                                                            |                        |                |                           |   |
| AUTHORITY\SYSTEM:Accessories\Accessibility           |                                                               | NT                     |                |                           |   |
| AUTHORITY\SYSTEM                                     |                                                               |                        |                |                           |   |
| Accessories\Entertainment                            | NT                                                            |                        |                |                           |   |
| AUTHORITY\SYSTEM:Accessories\Entertainment           |                                                               | NT                     |                |                           |   |
| AUTHORITY\SYSTEM                                     |                                                               |                        |                |                           |   |
| Startup                                              | NT AUTHORITY\SYSTEM:Startup                                   | NT                     |                |                           |   |
| AUTHORITY\SYSTEM                                     |                                                               |                        |                |                           |   |
| Accessories                                          | IBMSERV4\Administrator:Accessories                            |                        |                |                           |   |
| IBMSERV4\Administrator                               |                                                               |                        |                |                           |   |
| Accessories\Accessibility                            |                                                               |                        |                |                           |   |
| IBMSERV4\Administrator:Accessories\Accessibility     |                                                               |                        |                |                           |   |
| IBMSERV4\Administrator                               |                                                               |                        |                |                           |   |
| Accessories\Entertainment                            |                                                               |                        |                |                           |   |
| IBMSERV4\Administrator:Accessories\Entertainment     |                                                               |                        |                |                           |   |
| IBMSERV4\Administrator                               |                                                               |                        |                |                           |   |
| QLogic Corporation                                   | IBMSERV4\Administrator:QLogic Corporation                     |                        |                |                           |   |
| IBMSERV4\Administrator                               |                                                               |                        |                |                           |   |
| QLogic Corporation\SANblade Control                  | VIXIBMSERV4\Administrator:QLogic Corporation\SANblade Control | VIX                    |                |                           |   |
| IBMSERV4\Administrator                               |                                                               |                        |                |                           |   |
| Startup                                              | IBMSERV4\Administrator:Startup                                |                        |                |                           |   |
| IBMSERV4\Administrator                               |                                                               |                        |                |                           |   |
| [Startup Programs]                                   |                                                               |                        |                |                           |   |
| Program                                              | Command                                                       | User Name              | Location       |                           |   |
| desktop                                              | desktop.ini                                                   | NT AUTHORITY\SYSTEM    | Startup        |                           |   |
| desktop                                              | desktop.ini                                                   | IBMSERV4\Administrator | Startup        |                           |   |
| syncntime                                            | syncntime.bat                                                 | IBMSERV4\Administrator | Startup        |                           |   |
| desktop                                              | desktop.ini                                                   | DEFAULT                | Startup        |                           |   |
| desktop                                              | desktop.ini                                                   | All Users              | Common Startup |                           |   |
| [OLE Registration]                                   |                                                               |                        |                |                           |   |

Object Local Server  
 Sound (OLE2) sndrec32.exe  
 Media Clip mplay32.exe  
 Video Clip mplay32.exe /avi  
 MIDI Sequence mplay32.exe /mid  
 Sound Not Available  
 Media Clip Not Available  
 WordPad Document "%programfiles%\windows nt\accessories\wordpad.exe"  
 Windows Media Services DRM Storage object Not Available  
 Bitmap Image mspaint.exe

[Windows Error Reporting]

Time Type Details

[Internet Settings]

[Internet Explorer]

[ Following are sub-categories of this main category ]  
 [Summary]

Item Value  
 Version 6.0.3787.0  
 Build 63787  
 Application Path C:\Program Files\Internet Explorer  
 Language English (United States)  
 Active Printer Not Available  
 Cipher Strength 128-bit  
 Content Advisor Disabled  
 IEAK Install No

[File Versions]

| File         | Version        | Size          | Date                 | Path                | Company               |
|--------------|----------------|---------------|----------------------|---------------------|-----------------------|
| actxprxy.dll | 6.0.3787.0     | 95 KB         | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32 | Microsoft Corporation |
| advpack.dll  | 6.0.3787.0     | 94 KB         | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32 | Microsoft Corporation |
| asctrls.ocx  | 6.0.3787.0     | 90 KB         | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32 | Microsoft Corporation |
| browseic.dll | 6.0.3787.0     | 62 KB         | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32 | Microsoft Corporation |
| browseui.dll | 6.0.3787.0     | 1,033 KB      | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32 | Microsoft Corporation |
| cdview.dll   | 6.0.3787.0     | 144 KB        | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32 | Microsoft Corporation |
| comctl32.dll | 5.82.3787.0    | 561 KB        | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32 | Microsoft Corporation |
| dxtrans.dll  | 6.3.3787.0     | 198 KB        | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32 | Microsoft Corporation |
| dxtmsft.dll  | 6.3.3787.0     | 344 KB        | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32 | Microsoft Corporation |
| iecont.dll   | <File Missing> | Not Available | Not Available        | Not Available       | Not Available         |
| iecontlc.dll | <File Missing> | Not Available | Not Available        | Not Available       | Not Available         |
| iedkcs32.dll | 16.0.3787.0    | 300 KB        | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32 | Microsoft Corporation |
| iepeers.dll  | 6.0.3787.0     | 230 KB        | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32 | Microsoft Corporation |
| iesetup.dll  | 6.0.3787.0     | 59 KB         | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32 | Microsoft Corporation |

|               |               |          |                      |                                    |                       |
|---------------|---------------|----------|----------------------|------------------------------------|-----------------------|
| ieuinit.inf   | Not Available | 20 KB    | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Not Available         |
| ieexplore.exe | 6.0.3787.0    | 90 KB    | 3/14/2003 4:00:00 AM | C:\Program Files\Internet Explorer | Microsoft Corporation |
| imgutil.dll   | 5.2.3787.0    | 35 KB    | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Microsoft Corporation |
| inetctl.cpl   | 6.0.3787.0    | 303 KB   | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Microsoft Corporation |
| inetctl.dll   | 6.0.3787.0    | 109 KB   | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Microsoft Corporation |
| inseng.dll    | 6.0.3787.0    | 72 KB    | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Microsoft Corporation |
| mlang.dll     | 6.0.3787.0    | 570 KB   | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Microsoft Corporation |
| msencode.dll  | 2002.10.4.0   | 112 KB   | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Not Available         |
| mshta.exe     | 6.0.3787.0    | 26 KB    | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Microsoft Corporation |
| mshtml.dll    | 6.0.3787.0    | 2,848 KB | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Microsoft Corporation |
| mshtml.tlb    | 6.0.3787.0    | 1,319 KB | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Microsoft Corporation |
| mshtml.dll    | 6.0.3787.0    | 444 KB   | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Microsoft Corporation |
| mshtmlr.dll   | 6.0.3787.0    | 55 KB    | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Microsoft Corporation |
| msident.dll   | 6.0.3787.0    | 47 KB    | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Microsoft Corporation |
| msidntld.dll  | 6.0.3787.0    | 15 KB    | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Microsoft Corporation |
| msieftp.dll   | 6.0.3787.0    | 230 KB   | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Microsoft Corporation |
| msrating.dll  | 6.0.3787.0    | 132 KB   | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Microsoft Corporation |
| mstime.dll    | 6.0.3787.0    | 491 KB   | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Microsoft Corporation |
| occache.dll   | 6.0.3787.0    | 89 KB    | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Microsoft Corporation |
| proctexte.ocx | 6.3.3787.0    | 78 KB    | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Intel Corporation     |
| sendmail.dll  | 6.0.3787.0    | 52 KB    | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Microsoft Corporation |
| shdoclc.dll   | 6.0.3787.0    | 589 KB   | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Microsoft Corporation |
| shdocvw.dll   | 6.0.3787.0    | 1,361 KB | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Microsoft Corporation |
| shfolder.dll  | 6.0.3787.0    | 23 KB    | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Microsoft Corporation |
| shlwapi.dll   | 6.0.3787.0    | 281 KB   | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Microsoft Corporation |
| tdc.ocx       | 1.3.0.3130    | 58 KB    | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Microsoft Corporation |
| url.dll       | 6.0.3787.0    | 36 KB    | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Microsoft Corporation |
| urlmon.dll    | 6.0.3787.0    | 502 KB   | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Microsoft Corporation |
| webcheck.dll  | 6.0.3787.0    | 262 KB   | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Microsoft Corporation |
| wininet.dll   | 6.0.3787.0    | 609 KB   | 3/14/2003 4:00:00 AM | C:\WINDOWS\system32                | Microsoft Corporation |

[Connectivity]

Item Value  
 Connection Preference Never dial

LAN Settings

AutoConfigProxy Not Available  
AutoProxyDetectMode Disabled  
AutoConfigURL  
Proxy Disabled  
ProxyServer  
ProxyOverride

[Cache]

[ Following are sub-categories of this main category ]  
[Summary]

| Item                            | Value                                                                            |
|---------------------------------|----------------------------------------------------------------------------------|
| Page Refresh Type               | Automatic                                                                        |
| Temporary Internet Files Folder | C:\Documents and Settings\NetworkService\Local Settings\Temporary Internet Files |
| Total Disk Space                | Not Available                                                                    |
| Available Disk Space            | Not Available                                                                    |
| Maximum Cache Size              | Not Available                                                                    |
| Available Cache Size            | Not Available                                                                    |

[List of Objects]

| Program File                           | Status | CodeBase |
|----------------------------------------|--------|----------|
| No cached object information available |        |          |

[Content]

[ Following are sub-categories of this main category ]  
[Summary]

| Item            | Value    |
|-----------------|----------|
| Content Advisor | Disabled |

[Personal Certificates]

| Issued To                                     | Issued By | Validity | Signature | Algorithm |
|-----------------------------------------------|-----------|----------|-----------|-----------|
| No personal certificate information available |           |          |           |           |

[Other People Certificates]

| Issued To                                         | Issued By | Validity | Signature | Algorithm |
|---------------------------------------------------|-----------|----------|-----------|-----------|
| No other people certificate information available |           |          |           |           |

[Publishers]

| Name                               |
|------------------------------------|
| No publisher information available |

[Security]

| Zone             | Security Level |
|------------------|----------------|
| My Computer      | Custom         |
| Local intranet   | Medium-low     |
| Trusted sites    | Medium         |
| Internet         | High           |
| Restricted sites | High           |

## Disk Controller Configuration Parameters

### TotalStorage FC2-133 Host Bus Adapter 1

// Logical configuration information from Storage Subsystem Flute 0 Database Log.  
// Saved on March 4, 2003

```
// Firmware package version for Storage Subsystem Flute 0 Database Log = 05.21.01.01
// NVSRAM package version for Storage Subsystem Flute 0 Database Log = NV1742R800NT004
// Deletes the existing configuration.
show "Deleting the existing configuration.";
set storagesubsystem resetConfiguration = true;
// Storage Subsystem global logical configuration script commands
show "Setting the Storage Subsystem user label to Flute 0 Database Log.";
set storagesubsystem userLabel="Flute 0 Database Log";
show "Setting the Storage Subsystem media scan rate to disabled.";
set storagesubsystem mediaScanRate=disabled;
```

```
// Remove default logical drive, if exists, script command. NOTE: Default logical drive name is always = "" (blank).
on error continue;
show "Deleting the default logical drive created during the removal of the existing configuration.";
delete logicaldrive[""];
```

```
// Copies the hot spare settings
// NOTE: These statements are wrapped in on-error continue and on-error stop statements to
// account for minor differences in capacity from the drive of the Storage Subsystem on which the
// configuration was saved to that of the drives on which the configuration will be copied.
```

```
show "Creating RAID 1 Logical Drive RAID 1 log on new Array 1.";
// This command creates the Array and the initial Logical Drive on that array.
// NOTE: For Arrays that use all available capacity, the last Logical Drive on this array is
// created using all remaining capacity by omitting the capacity= logical drive creation parameter.
create logicaldrive drives[0,1 1,14 1,13 1,12 1,11 1,10 1,9 1,8 1,7 1,6 1,5 1,4 1,3 1,2 1,1 0,14 0,13 0,12 0,11 0,10 0,9 0,8 0,7 0,6 0,5 0,4 0,3 0,2]
RAIDLevel=1 userLabel="RAID 1 log" owner=A segmentSize=64
mapping=default;
show "Setting additional attributes for Logical Drive RAID 1 log.";
// Configuration settings that can not be set during Logical Drive creation.
set logicaldrive["RAID 1 log"] cacheFlushModifier=10;
set logicaldrive["RAID 1 log"] cacheWithoutBatteryEnabled=false;
set logicaldrive["RAID 1 log"] mirrorEnabled=false;
set logicaldrive["RAID 1 log"] readCacheEnabled=false;
set logicaldrive["RAID 1 log"] writeCacheEnabled=false;
set logicaldrive["RAID 1 log"] mediaScanEnabled=false;
set logicaldrive["RAID 1 log"] redundancyCheckEnabled=false;
set logicaldrive["RAID 1 log"] readAheadMultiplier=0;
set logicaldrive["RAID 1 log"] modificationPriority=high;
show "Setting the Storage Subsystem cache block size to 4.";
set storagesubsystem cacheBlockSize=4;
```

```
show "Setting the Storage Subsystem to begin cache flush at 80% full.";
set storagesubsystem cacheFlushStart=80;
```

```
show "Setting the Storage Subsystem to end cache flush at 80% full.";
set storagesubsystem cacheFlushStop=80;
```

### TotalStorage FC2-133 Host Bus Adapter 2

```
// Logical configuration information from Storage Subsystem Flute_2.
// Saved on March 4, 2003
// Firmware package version for Storage Subsystem Flute_2 = 05.21.01.01
// NVSRAM package version for Storage Subsystem Flute_2 = NV1742R800NT004
// Deletes the existing configuration.
```

```

show "Deleting the existing configuration.";
set storagesubsystem resetConfiguration = true;
// Storage Subsystem global logical configuration script commands
show "Setting the Storage Subsystem user label to Flute_2.";
set storagesubsystem userLabel="Flute_2";
show "Setting the Storage Subsystem media scan rate to disabled.";
set storagesubsystem mediaScanRate=disabled;

// Remove default logical drive, if exists, script command. NOTE: Default
logical drive name is always = "" (blank).
on error continue;
show "Deleting the default logical drive created during the removal of the
existing configuration.";
delete logicaldrive[""];

// Copies the hot spare settings
// NOTE: These statements are wrapped in on-error continue and on-error stop
statements to
// account for minor differences in capacity from the drive of the Storage
Subsystem on which the
// configuration was saved to that of the drives on which the configuration will
be copied.

show "Creating RAID 0 Logical Drive F2_df_1 on new Array 1.";
// This command creates the Array and the initial Logical Drive on that array.
// NOTE: For Arrays that use all available capacity, the last Logical Drive on
this array is
// created using all remaining capacity by omitting the capacity= logical drive
creation parameter.
create logicaldrive drives[20,9 20,8 20,7 20,6 20,5 20,4 20,3 20,2 20,1 21,11
21,10 21,9 21,8 21,7 21,6 21,5 21,4 21,3 21,2 21,1 20,14 20,13 20,12 20,11
20,10 21,14 21,13 21,12] RAIDLevel=0 userLabel="F2_df_1" owner=A
segmentSize=64 mapping=default;
show "Setting additional attributes for Logical Drive F2_df_1.";
// Configuration settings that can not be set during Logical Drive creation.
set logicaldrive["F2_df_1"] cacheFlushModifier=10;
set logicaldrive["F2_df_1"] cacheWithoutBatteryEnabled=false;
set logicaldrive["F2_df_1"] mirrorEnabled=false;
set logicaldrive["F2_df_1"] readCacheEnabled=true;
set logicaldrive["F2_df_1"] writeCacheEnabled=false;
set logicaldrive["F2_df_1"] mediaScanEnabled=false;
set logicaldrive["F2_df_1"] redundancyCheckEnabled=false;
set logicaldrive["F2_df_1"] readAheadMultiplier=0;
set logicaldrive["F2_df_1"] modificationPriority=high;

show "Creating RAID 0 Logical Drive F2_df_2 on new Array 2.";
// This command creates the Array and the initial Logical Drive on that array.
// NOTE: For Arrays that use all available capacity, the last Logical Drive on
this array is
// created using all remaining capacity by omitting the capacity= logical drive
creation parameter.
create logicaldrive drives[23,7 23,6 23,5 23,4 23,3 23,2 23,1 23,14 23,13 23,12
23,11 23,10 23,9 23,8 22,13 22,12 22,11 22,10 22,9 22,8 22,7 22,6 22,5 22,4
22,3 22,2 22,1 22,14] RAIDLevel=0 userLabel="F2_df_2" owner=B
segmentSize=64 mapping=default;
show "Setting additional attributes for Logical Drive F2_df_2.";
// Configuration settings that can not be set during Logical Drive creation.
set logicaldrive["F2_df_2"] cacheFlushModifier=10;
set logicaldrive["F2_df_2"] cacheWithoutBatteryEnabled=false;
set logicaldrive["F2_df_2"] mirrorEnabled=false;
set logicaldrive["F2_df_2"] readCacheEnabled=true;
set logicaldrive["F2_df_2"] writeCacheEnabled=false;
set logicaldrive["F2_df_2"] mediaScanEnabled=false;
set logicaldrive["F2_df_2"] redundancyCheckEnabled=false;
set logicaldrive["F2_df_2"] readAheadMultiplier=0;
set logicaldrive["F2_df_2"] modificationPriority=high;

```

```

show "Creating RAID 0 Logical Drive F2_df_3 on new Array 3.";
// This command creates the Array and the initial Logical Drive on that array.
// NOTE: For Arrays that use all available capacity, the last Logical Drive on
this array is
// created using all remaining capacity by omitting the capacity= logical drive
creation parameter.
create logicaldrive drives[25,14 25,13 25,12 25,11 25,10 25,9 25,8 25,7 25,6
25,5 25,4 25,3 25,2 25,1 24,3 24,2 24,1 24,14 24,13 24,12 24,11 24,10 24,9
24,8 24,7 24,6 24,5 24,4] RAIDLevel=0 userLabel="F2_df_3" owner=A
segmentSize=64 mapping=default;
show "Setting additional attributes for Logical Drive F2_df_3.";
// Configuration settings that can not be set during Logical Drive creation.
set logicaldrive["F2_df_3"] cacheFlushModifier=10;
set logicaldrive["F2_df_3"] cacheWithoutBatteryEnabled=false;
set logicaldrive["F2_df_3"] mirrorEnabled=false;
set logicaldrive["F2_df_3"] readCacheEnabled=true;
set logicaldrive["F2_df_3"] writeCacheEnabled=false;
set logicaldrive["F2_df_3"] mediaScanEnabled=false;
set logicaldrive["F2_df_3"] redundancyCheckEnabled=false;
set logicaldrive["F2_df_3"] readAheadMultiplier=0;
set logicaldrive["F2_df_3"] modificationPriority=high;

show "Creating RAID 0 Logical Drive F2_df_4 on new Array 4.";
// This command creates the Array and the initial Logical Drive on that array.
// NOTE: For Arrays that use all available capacity, the last Logical Drive on
this array is
// created using all remaining capacity by omitting the capacity= logical drive
creation parameter.
create logicaldrive drives[27,1 27,11 27,14 27,13 27,12 27,10 27,9 27,8 27,7
27,6 27,5 27,4 27,3 27,2 26,5 26,4 26,3 26,2 26,1 26,14 26,13 26,12 26,11
26,10 26,9 26,8 26,7 26,6] RAIDLevel=0 userLabel="F2_df_4" owner=B
segmentSize=64 mapping=default;
show "Setting additional attributes for Logical Drive F2_df_4.";
// Configuration settings that can not be set during Logical Drive creation.
set logicaldrive["F2_df_4"] cacheFlushModifier=10;
set logicaldrive["F2_df_4"] cacheWithoutBatteryEnabled=false;
set logicaldrive["F2_df_4"] mirrorEnabled=false;
set logicaldrive["F2_df_4"] readCacheEnabled=true;
set logicaldrive["F2_df_4"] writeCacheEnabled=false;
set logicaldrive["F2_df_4"] mediaScanEnabled=false;
set logicaldrive["F2_df_4"] redundancyCheckEnabled=false;
set logicaldrive["F2_df_4"] readAheadMultiplier=0;
set logicaldrive["F2_df_4"] modificationPriority=high;
show "Setting the Storage Subsystem cache block size to 4.";
set storagesubsystem cacheBlockSize=4;

show "Setting the Storage Subsystem to begin cache flush at 80% full.";
set storagesubsystem cacheFlushStart=80;

show "Setting the Storage Subsystem to end cache flush at 80% full.";
set storagesubsystem cacheFlushStop=80;

```

## **TotalStorage FC2-133 Host Bus Adapter 3**

```

// Logical configuration information from Storage Subsystem Flute_3.
// Saved on March 4, 2003
// Firmware package version for Storage Subsystem Flute_3 = 05.21.01.01
// NVSRAM package version for Storage Subsystem Flute_3 =
NV1742R800NT004
// Deletes the existing configuration.
show "Deleting the existing configuration.";
set storagesubsystem resetConfiguration = true;
// Storage Subsystem global logical configuration script commands
show "Setting the Storage Subsystem user label to Flute_3.";
set storagesubsystem userLabel="Flute_3";
show "Setting the Storage Subsystem media scan rate to disabled.";
set storagesubsystem mediaScanRate=disabled;

```

```
// Remove default logical drive, if exists, script command. NOTE: Default
logical drive name is always = "" (blank).
on error continue;
show "Deleting the default logical drive created during the removal of the
existing configuration.";
delete logicaldrive[""];
```

```
// Copies the hot spare settings
// NOTE: These statements are wrapped in on-error continue and on-error stop
statements to
// account for minor differences in capacity from the drive of the Storage
Subsystem on which the
// configuration was saved to that of the drives on which the configuration will
be copied.
```

```
show "Creating RAID 0 Logical Drive F3_df_1 on new Array 1.";
// This command creates the Array and the initial Logical Drive on that array.
// NOTE: For Arrays that use all available capacity, the last Logical Drive on
this array is
// created using all remaining capacity by omitting the capacity= logical drive
creation parameter.
create logicaldrive drives[31,14 31,13 31,12 31,11 31,10 31,9 31,8 31,7 31,6
31,5 31,4 31,3 31,2 31,1 30,7 30,6 30,5 30,4 30,3 30,2 30,1 30,14 30,13 30,12
30,11 30,10 30,9 30,8] RAIDLevel=0 userLabel="F3_df_1" owner=A
segmentSize=64 mapping=default;
show "Setting additional attributes for Logical Drive F3_df_1.";
// Configuration settings that can not be set during Logical Drive creation.
set logicaldrive["F3_df_1"] cacheFlushModifier=10;
set logicaldrive["F3_df_1"] cacheWithoutBatteryEnabled=false;
set logicaldrive["F3_df_1"] mirrorEnabled=false;
set logicaldrive["F3_df_1"] readCacheEnabled=true;
set logicaldrive["F3_df_1"] writeCacheEnabled=false;
set logicaldrive["F3_df_1"] mediaScanEnabled=false;
set logicaldrive["F3_df_1"] redundancyCheckEnabled=false;
set logicaldrive["F3_df_1"] readAheadMultiplier=0;
set logicaldrive["F3_df_1"] modificationPriority=high;
```

```
show "Creating RAID 0 Logical Drive F3_df_2 on new Array 2.";
// This command creates the Array and the initial Logical Drive on that array.
// NOTE: For Arrays that use all available capacity, the last Logical Drive on
this array is
// created using all remaining capacity by omitting the capacity= logical drive
creation parameter.
create logicaldrive drives[32,11 32,10 32,9 32,8 32,7 32,6 32,5 32,4 32,3 32,2
32,1 33,13 33,12 33,11 33,10 33,9 33,8 33,7 33,6 33,5 33,4 33,3 33,2 33,1
32,14 32,13 32,12 32,11] RAIDLevel=0 userLabel="F3_df_2" owner=B
segmentSize=64 mapping=default;
show "Setting additional attributes for Logical Drive F3_df_2.";
// Configuration settings that can not be set during Logical Drive creation.
set logicaldrive["F3_df_2"] cacheFlushModifier=10;
set logicaldrive["F3_df_2"] cacheWithoutBatteryEnabled=false;
set logicaldrive["F3_df_2"] mirrorEnabled=false;
set logicaldrive["F3_df_2"] readCacheEnabled=true;
set logicaldrive["F3_df_2"] writeCacheEnabled=false;
set logicaldrive["F3_df_2"] mediaScanEnabled=false;
set logicaldrive["F3_df_2"] redundancyCheckEnabled=false;
set logicaldrive["F3_df_2"] readAheadMultiplier=0;
set logicaldrive["F3_df_2"] modificationPriority=high;
```

```
show "Creating RAID 0 Logical Drive F3_df_3 on new Array 3.";
// This command creates the Array and the initial Logical Drive on that array.
// NOTE: For Arrays that use all available capacity, the last Logical Drive on
this array is
// created using all remaining capacity by omitting the capacity= logical drive
creation parameter.
create logicaldrive drives[35,1 35,14 35,13 35,12 35,11 35,10 35,9 35,8 35,7
35,6 35,5 35,4 35,3 35,2 34,5 34,4 34,3 34,2 34,1 34,14 34,13 34,12 34,11
```

```
34,10 34,9 34,8 34,7 34,6] RAIDLevel=0 userLabel="F3_df_3" owner=A
segmentSize=64 mapping=default;
show "Setting additional attributes for Logical Drive F3_df_3.";
// Configuration settings that can not be set during Logical Drive creation.
set logicaldrive["F3_df_3"] cacheFlushModifier=10;
set logicaldrive["F3_df_3"] cacheWithoutBatteryEnabled=false;
set logicaldrive["F3_df_3"] mirrorEnabled=false;
set logicaldrive["F3_df_3"] readCacheEnabled=true;
set logicaldrive["F3_df_3"] writeCacheEnabled=false;
set logicaldrive["F3_df_3"] mediaScanEnabled=false;
set logicaldrive["F3_df_3"] redundancyCheckEnabled=false;
set logicaldrive["F3_df_3"] readAheadMultiplier=0;
set logicaldrive["F3_df_3"] modificationPriority=high;
```

```
show "Creating RAID 0 Logical Drive F3_df_4 on new Array 4.";
// This command creates the Array and the initial Logical Drive on that array.
// NOTE: For Arrays that use all available capacity, the last Logical Drive on
this array is
// created using all remaining capacity by omitting the capacity= logical drive
creation parameter.
create logicaldrive drives[36,3 36,2 36,1 36,14 36,13 36,12 36,11 36,10 36,9
36,8 36,7 36,6 36,5 36,4 37,9 37,8 37,7 37,6 37,5 37,4 37,3 37,2 37,1 37,14
37,13 37,12 37,11 37,10] RAIDLevel=0 userLabel="F3_df_4" owner=B
segmentSize=64 mapping=default;
show "Setting additional attributes for Logical Drive F3_df_4.";
// Configuration settings that can not be set during Logical Drive creation.
set logicaldrive["F3_df_4"] cacheFlushModifier=10;
set logicaldrive["F3_df_4"] cacheWithoutBatteryEnabled=false;
set logicaldrive["F3_df_4"] mirrorEnabled=false;
set logicaldrive["F3_df_4"] readCacheEnabled=true;
set logicaldrive["F3_df_4"] writeCacheEnabled=false;
set logicaldrive["F3_df_4"] mediaScanEnabled=false;
set logicaldrive["F3_df_4"] redundancyCheckEnabled=false;
set logicaldrive["F3_df_4"] readAheadMultiplier=0;
set logicaldrive["F3_df_4"] modificationPriority=high;
show "Setting the Storage Subsystem cache block size to 4.";
set storagesubsystem cacheBlockSize=4;
```

```
show "Setting the Storage Subsystem to begin cache flush at 80% full.";
set storagesubsystem cacheFlushStart=80;
```

```
show "Setting the Storage Subsystem to end cache flush at 80% full.";
set storagesubsystem cacheFlushStop=80;
```

## TotalStorage FC2-133 Host Bus Adapter 4

```
// Logical configuration information from Storage Subsystem Flute_4.
// Saved on March 4, 2003
// Firmware package version for Storage Subsystem Flute_4 = 05.21.01.01
// NVSRAM package version for Storage Subsystem Flute_4 =
NV1742R800NT004
// Deletes the existing configuration.
show "Deleting the existing configuration.";
set storagesubsystem resetConfiguration = true;
// Storage Subsystem global logical configuration script commands
show "Setting the Storage Subsystem user label to Flute_4.";
set storagesubsystem userLabel="Flute_4";
show "Setting the Storage Subsystem media scan rate to disabled.";
set storagesubsystem mediaScanRate=disabled;
// Remove default logical drive, if exists, script command. NOTE: Default
logical drive name is always = "" (blank).
on error continue;
show "Deleting the default logical drive created during the removal of the
existing configuration.";
delete logicaldrive[""];
```

```
// Copies the hot spare settings
// NOTE: These statements are wrapped in on-error continue and on-error stop
statements to
// account for minor differences in capacity from the drive of the Storage
Subsystem on which the
// configuration was saved to that of the drives on which the configuration will
be copied.
```

```
show "Creating RAID 0 Logical Drive F4_df_1 on new Array 1.";
// This command creates the Array and the initial Logical Drive on that array.
// NOTE: For Arrays that use all available capacity, the last Logical Drive on
this array is
// created using all remaining capacity by omitting the capacity= logical drive
creation parameter.
create logicaldrive drives[40,3 40,2 40,1 41,5 41,4 41,3 41,2 41,1 40,14 40,13
40,12 40,11 40,10 40,9 40,8 40,7 40,6 40,5 40,4 41,14 41,13 41,12 41,11 41,10
41,9 41,8 41,7 41,6] RAIDLevel=0 userLabel="F4_df_1" owner=A
segmentSize=64 mapping=default;
show "Setting additional attributes for Logical Drive F4_df_1.";
// Configuration settings that can not be set during Logical Drive creation.
set logicaldrive["F4_df_1"] cacheFlushModifier=10;
set logicaldrive["F4_df_1"] cacheWithoutBatteryEnabled=false;
set logicaldrive["F4_df_1"] mirrorEnabled=false;
set logicaldrive["F4_df_1"] readCacheEnabled=true;
set logicaldrive["F4_df_1"] writeCacheEnabled=false;
set logicaldrive["F4_df_1"] mediaScanEnabled=false;
set logicaldrive["F4_df_1"] redundancyCheckEnabled=false;
set logicaldrive["F4_df_1"] readAheadMultiplier=0;
set logicaldrive["F4_df_1"] readAheadMultiplier=0;
set logicaldrive["F4_df_1"] modificationPriority=high;
```

```
show "Creating RAID 0 Logical Drive F4_df_2 on new Array 2.";
// This command creates the Array and the initial Logical Drive on that array.
// NOTE: For Arrays that use all available capacity, the last Logical Drive on
this array is
// created using all remaining capacity by omitting the capacity= logical drive
creation parameter.
create logicaldrive drives[42,1 43,14 43,13 43,12 43,11 43,10 43,9 43,8 43,7
43,6 43,5 43,4 43,3 43,2 43,1 42,14 42,13 42,12 42,11 42,10 42,9 42,8 42,7
42,6 42,5 42,4 42,3 42,2] RAIDLevel=0 userLabel="F4_df_2" owner=B
segmentSize=64 mapping=default;
show "Setting additional attributes for Logical Drive F4_df_2.";
// Configuration settings that can not be set during Logical Drive creation.
set logicaldrive["F4_df_2"] cacheFlushModifier=10;
set logicaldrive["F4_df_2"] cacheWithoutBatteryEnabled=false;
set logicaldrive["F4_df_2"] mirrorEnabled=false;
set logicaldrive["F4_df_2"] readCacheEnabled=true;
set logicaldrive["F4_df_2"] writeCacheEnabled=false;
set logicaldrive["F4_df_2"] mediaScanEnabled=false;
set logicaldrive["F4_df_2"] redundancyCheckEnabled=false;
set logicaldrive["F4_df_2"] readAheadMultiplier=0;
set logicaldrive["F4_df_2"] readAheadMultiplier=0;
set logicaldrive["F4_df_2"] modificationPriority=high;
```

```
show "Creating RAID 0 Logical Drive F4_df_3 on new Array 3.";
// This command creates the Array and the initial Logical Drive on that array.
// NOTE: For Arrays that use all available capacity, the last Logical Drive on
this array is
// created using all remaining capacity by omitting the capacity= logical drive
creation parameter.
create logicaldrive drives[44,7 44,6 44,5 44,4 44,3 44,2 44,1 44,14 44,13 44,12
44,11 44,10 44,9 44,8 45,11 45,10 45,9 45,8 45,7 45,6 45,5 45,4 45,3 45,2 45,1
45,14 45,13 45,12] RAIDLevel=0 userLabel="F4_df_3" owner=A
segmentSize=64 mapping=default;
show "Setting additional attributes for Logical Drive F4_df_3.";
// Configuration settings that can not be set during Logical Drive creation.
set logicaldrive["F4_df_3"] cacheFlushModifier=10;
set logicaldrive["F4_df_3"] cacheWithoutBatteryEnabled=false;
set logicaldrive["F4_df_3"] mirrorEnabled=false;
set logicaldrive["F4_df_3"] readCacheEnabled=true;
```

```
set logicaldrive["F4_df_3"] writeCacheEnabled=false;
set logicaldrive["F4_df_3"] mediaScanEnabled=false;
set logicaldrive["F4_df_3"] redundancyCheckEnabled=false;
set logicaldrive["F4_df_3"] readAheadMultiplier=0;
set logicaldrive["F4_df_3"] modificationPriority=high;
```

```
show "Creating RAID 0 Logical Drive F4_df_4 on new Array 4.";
// This command creates the Array and the initial Logical Drive on that array.
// NOTE: For Arrays that use all available capacity, the last Logical Drive on
this array is
// created using all remaining capacity by omitting the capacity= logical drive
creation parameter.
create logicaldrive drives[46,9 46,8 46,7 46,6 46,5 46,4 46,3 46,2 46,1 46,14
46,13 46,12 46,11 46,10 47,13 47,12 47,11 47,10 47,9 47,8 47,7 47,6 47,5 47,4
47,3 47,2 47,1 47,14] RAIDLevel=0 userLabel="F4_df_4" owner=B
segmentSize=64 mapping=default;
show "Setting additional attributes for Logical Drive F4_df_4.";
// Configuration settings that can not be set during Logical Drive creation.
set logicaldrive["F4_df_4"] cacheFlushModifier=10;
set logicaldrive["F4_df_4"] cacheWithoutBatteryEnabled=false;
set logicaldrive["F4_df_4"] mirrorEnabled=false;
set logicaldrive["F4_df_4"] readCacheEnabled=true;
set logicaldrive["F4_df_4"] writeCacheEnabled=false;
set logicaldrive["F4_df_4"] mediaScanEnabled=false;
set logicaldrive["F4_df_4"] redundancyCheckEnabled=false;
set logicaldrive["F4_df_4"] readAheadMultiplier=0;
set logicaldrive["F4_df_4"] modificationPriority=high;
show "Setting the Storage Subsystem cache block size to 4.";
set storagesubsystem cacheBlockSize=4;
```

```
show "Setting the Storage Subsystem to begin cache flush at 80% full.";
set storagesubsystem cacheFlushStart=80;
```

```
show "Setting the Storage Subsystem to end cache flush at 80% full.";
set storagesubsystem cacheFlushStop=80;
```

## **TotalStorage FC2-133 Host Bus Adapter 5**

```
// Logical configuration information from Storage Subsystem Flute_5.
// Saved on March 4, 2003
// Firmware package version for Storage Subsystem Flute_5 = 05.21.01.01
// NVSRAM package version for Storage Subsystem Flute_5 =
NV1742R800NT004
// Deletes the existing configuration.
show "Deleting the existing configuration.";
set storagesubsystem resetConfiguration= true;
// Storage Subsystem global logical configuration script commands
show "Setting the Storage Subsystem user label to Flute_5.";
set storagesubsystem userLabel="Flute_5";
show "Setting the Storage Subsystem media scan rate to disabled.";
set storagesubsystem mediaScanRate=disabled;
// Remove default logical drive, if exists, script command. NOTE: Default
logical drive name is always = "" (blank).
on error continue;
show "Deleting the default logical drive created during the removal of the
existing configuration.";
delete logicaldrive[""];
```

```
// Copies the hot spare settings
// NOTE: These statements are wrapped in on-error continue and on-error stop
statements to
// account for minor differences in capacity from the drive of the Storage
Subsystem on which the
// configuration was saved to that of the drives on which the configuration will
be copied.
```

```

show "Creating RAID 0 Logical Drive F5_df_1 on new Array 1.";
// This command creates the Array and the initial Logical Drive on that array.
// NOTE: For Arrays that use all available capacity, the last Logical Drive on
this array is
// created using all remaining capacity by omitting the capacity= logical drive
creation parameter.
create logicaldrive drives[50,14 50,13 50,12 50,11 50,10 50,9 50,8 50,7 50,6
50,5 50,4 50,3 50,2 50,1 51,7 51,6 51,5 51,4 51,3 51,2 51,1 51,14 51,13 51,12
51,11 51,10 51,9 51,8] RAIDLevel=0 userLabel="F5_df_1" owner=A
segmentSize=64 mapping=default;
show "Setting additional attributes for Logical Drive F5_df_1.";
// Configuration settings that can not be set during Logical Drive creation.
set logicaldrive["F5_df_1"] cacheFlushModifier=10;
set logicaldrive["F5_df_1"] cacheWithoutBatteryEnabled=false;
set logicaldrive["F5_df_1"] mirrorEnabled=false;
set logicaldrive["F5_df_1"] readCacheEnabled=true;
set logicaldrive["F5_df_1"] writeCacheEnabled=false;
set logicaldrive["F5_df_1"] mediaScanEnabled=false;
set logicaldrive["F5_df_1"] redundancyCheckEnabled=false;
set logicaldrive["F5_df_1"] readAheadMultiplier=0;
set logicaldrive["F5_df_1"] modificationPriority=high;

```

```

show "Creating RAID 0 Logical Drive F5_df_2 on new Array 2.";
// This command creates the Array and the initial Logical Drive on that array.
// NOTE: For Arrays that use all available capacity, the last Logical Drive on
this array is
// created using all remaining capacity by omitting the capacity= logical drive
creation parameter.
create logicaldrive drives[52,3 52,2 52,1 53,5 53,4 53,3 53,2 53,1 52,14 52,13
52,12 52,11 52,10 52,9 52,8 52,7 52,6 52,5 52,4 53,14 53,13 53,12 53,11 53,10
53,9 53,8 53,7 53,6] RAIDLevel=0 userLabel="F5_df_2" owner=B
segmentSize=64 mapping=default;
show "Setting additional attributes for Logical Drive F5_df_2.";
// Configuration settings that can not be set during Logical Drive creation.
set logicaldrive["F5_df_2"] cacheFlushModifier=10;
set logicaldrive["F5_df_2"] cacheWithoutBatteryEnabled=false;
set logicaldrive["F5_df_2"] mirrorEnabled=false;
set logicaldrive["F5_df_2"] readCacheEnabled=true;
set logicaldrive["F5_df_2"] writeCacheEnabled=false;
set logicaldrive["F5_df_2"] mediaScanEnabled=false;
set logicaldrive["F5_df_2"] redundancyCheckEnabled=false;
set logicaldrive["F5_df_2"] readAheadMultiplier=0;
set logicaldrive["F5_df_2"] modificationPriority=high;

```

```

show "Creating RAID 0 Logical Drive F5_df_3 on new Array 3.";
// This command creates the Array and the initial Logical Drive on that array.
// NOTE: For Arrays that use all available capacity, the last Logical Drive on
this array is
// created using all remaining capacity by omitting the capacity= logical drive
creation parameter.
create logicaldrive drives[54,1 54,14 54,13 54,12 54,11 54,10 54,9 54,8 54,7
54,6 54,5 54,4 54,3 54,2 55,11 55,10 55,9 55,8 55,7 55,6 55,5 55,4 55,3 55,2
55,1 55,14 55,13 55,12] RAIDLevel=0 userLabel="F5_df_3" owner=A
segmentSize=64 mapping=default;
show "Setting additional attributes for Logical Drive F5_df_3.";
// Configuration settings that can not be set during Logical Drive creation.
set logicaldrive["F5_df_3"] cacheFlushModifier=10;
set logicaldrive["F5_df_3"] cacheWithoutBatteryEnabled=false;
set logicaldrive["F5_df_3"] mirrorEnabled=false;
set logicaldrive["F5_df_3"] readCacheEnabled=true;
set logicaldrive["F5_df_3"] writeCacheEnabled=false;
set logicaldrive["F5_df_3"] mediaScanEnabled=false;
set logicaldrive["F5_df_3"] redundancyCheckEnabled=false;
set logicaldrive["F5_df_3"] readAheadMultiplier=0;
set logicaldrive["F5_df_3"] modificationPriority=high;

```

```

show "Creating RAID 0 Logical Drive F5_df_4 on new Array 4.";
// This command creates the Array and the initial Logical Drive on that array.

```

```

// NOTE: For Arrays that use all available capacity, the last Logical Drive on
this array is
// created using all remaining capacity by omitting the capacity= logical drive
creation parameter.
create logicaldrive drives[56,9 56,8 56,7 56,6 56,5 56,4 56,3 56,2 56,1 56,14
56,13 56,12 56,11 56,10 57,13 57,12 57,11 57,10 57,9 57,8 57,7 57,6 57,5 57,4
57,3 57,2 57,1 57,14] RAIDLevel=0 userLabel="F5_df_4" owner=B
segmentSize=64 mapping=default;
show "Setting additional attributes for Logical Drive F5_df_4.";
// Configuration settings that can not be set during Logical Drive creation.
set logicaldrive["F5_df_4"] cacheFlushModifier=10;
set logicaldrive["F5_df_4"] cacheWithoutBatteryEnabled=false;
set logicaldrive["F5_df_4"] mirrorEnabled=false;
set logicaldrive["F5_df_4"] readCacheEnabled=true;
set logicaldrive["F5_df_4"] writeCacheEnabled=false;
set logicaldrive["F5_df_4"] mediaScanEnabled=false;
set logicaldrive["F5_df_4"] redundancyCheckEnabled=false;
set logicaldrive["F5_df_4"] readAheadMultiplier=0;
set logicaldrive["F5_df_4"] modificationPriority=high;
show "Setting the Storage Subsystem cache block size to 4.";
set storagesubsystem cacheBlockSize=4;

```

```

show "Setting the Storage Subsystem to begin cache flush at 80% full.";
set storagesubsystem cacheFlushStart=80;

```

```

show "Setting the Storage Subsystem to end cache flush at 80% full.";
set storagesubsystem cacheFlushStop=80;

```

## TotalStorage FC2-133 Host Bus Adapter 6

```

// Logical configuration information from Storage Subsystem Flute_6.
// Saved on March 4, 2003
// Firmware package version for Storage Subsystem Flute_6 = 05.21.01.01
// NVSRAM package version for Storage Subsystem Flute_6 =
CNV1742R821NT007
// Deletes the existing configuration.
show "Deleting the existing configuration.";
set storagesubsystem resetConfiguration = true;
// Storage Subsystem global logical configuration script commands
show "Setting the Storage Subsystem user label to Flute_6.";
set storagesubsystem userLabel="Flute_6";
show "Setting the Storage Subsystem media scan rate to disabled.";
set storagesubsystem mediaScanRate=disabled;
// Remove default logical drive, if exists, script command. NOTE: Default
logical drive name is always = "" (blank).
on error continue;
show "Deleting the default logical drive created during the removal of the
existing configuration.";
delete logicaldrive[""];
// Copies the hot spare settings
// NOTE: These statements are wrapped in on-error continue and on-error stop
statements to
// account for minor differences in capacity from the drive of the Storage
Subsystem on which the
// configuration was saved to that of the drives on which the configuration will
be copied.

```

```

show "Creating RAID 0 Logical Drive F6_df_1 on new Array 1.";
// This command creates the Array and the initial Logical Drive on that array.
// NOTE: For Arrays that use all available capacity, the last Logical Drive on
this array is
// created using all remaining capacity by omitting the capacity= logical drive
creation parameter.
create logicaldrive drives[61,3 61,2 61,1 61,5 61,14 61,13 61,12 61,11 61,10
61,9 61,8 61,7 61,6 61,4 60,13 60,12 60,11 60,10 60,9 60,8 60,7 60,6 60,5 60,4
60,3 60,2 60,1 60,14] RAIDLevel=0 userLabel="F6_df_1" owner=A
segmentSize=64 mapping=default;
show "Setting additional attributes for Logical Drive F6_df_1.";

```

```
// Configuration settings that can not be set during Logical Drive creation.
set logicaldrive["F6_df_1"] cacheFlushModifier=10;
set logicaldrive["F6_df_1"] cacheWithoutBatteryEnabled=false;
set logicaldrive["F6_df_1"] mirrorEnabled=false;
set logicaldrive["F6_df_1"] readCacheEnabled=true;
set logicaldrive["F6_df_1"] writeCacheEnabled=false;
set logicaldrive["F6_df_1"] mediaScanEnabled=false;
set logicaldrive["F6_df_1"] redundancyCheckEnabled=false;
set logicaldrive["F6_df_1"] readAheadMultiplier=0;
set logicaldrive["F6_df_1"] modificationPriority=high;

show "Creating RAID 0 Logical Drive F6_df_2 on new Array 2.";
// This command creates the Array and the initial Logical Drive on that array.
// NOTE: For Arrays that use all available capacity, the last Logical Drive on
this array is
// created using all remaining capacity by omitting the capacity= logical drive
creation parameter.
create logicaldrive drives[62,5 62,4 62,3 62,2 62,1 63,7 63,6 63,5 63,4 63,3
63,2 63,1 62,14 62,13 62,12 62,11 62,10 62,9 62,8 62,7 62,6 63,14 63,13 63,12
63,11 63,10 63,9 63,8] RAIDLevel=0 userLabel="F6_df_2" owner=B
segmentSize=64 mapping=default;
show "Setting additional attributes for Logical Drive F6_df_2.";
// Configuration settings that can not be set during Logical Drive creation.
set logicaldrive["F6_df_2"] cacheFlushModifier=10;
set logicaldrive["F6_df_2"] cacheWithoutBatteryEnabled=false;
set logicaldrive["F6_df_2"] mirrorEnabled=false;
set logicaldrive["F6_df_2"] readCacheEnabled=true;
set logicaldrive["F6_df_2"] writeCacheEnabled=false;
set logicaldrive["F6_df_2"] mediaScanEnabled=false;
set logicaldrive["F6_df_2"] redundancyCheckEnabled=false;
set logicaldrive["F6_df_2"] readAheadMultiplier=0;
set logicaldrive["F6_df_2"] modificationPriority=high;

show "Creating RAID 0 Logical Drive F6_df_3 on new Array 3.";
// This command creates the Array and the initial Logical Drive on that array.
// NOTE: For Arrays that use all available capacity, the last Logical Drive on
this array is
// created using all remaining capacity by omitting the capacity= logical drive
creation parameter.
create logicaldrive drives[64,1 64,14 64,13 64,12 64,11 64,10 64,9 64,8 64,7
64,6 64,5 64,4 64,3 64,2 65,11 65,10 65,9 65,8 65,7 65,6 65,5 65,4 65,3 65,2
65,1 65,14 65,13 65,12] RAIDLevel=0 userLabel="F6_df_3" owner=A
segmentSize=64 mapping=default;
show "Setting additional attributes for Logical Drive F6_df_3.";
// Configuration settings that can not be set during Logical Drive creation.
set logicaldrive["F6_df_3"] cacheFlushModifier=10;
set logicaldrive["F6_df_3"] cacheWithoutBatteryEnabled=false;
set logicaldrive["F6_df_3"] mirrorEnabled=false;
set logicaldrive["F6_df_3"] readCacheEnabled=true;
set logicaldrive["F6_df_3"] writeCacheEnabled=false;
set logicaldrive["F6_df_3"] mediaScanEnabled=false;
set logicaldrive["F6_df_3"] redundancyCheckEnabled=false;
set logicaldrive["F6_df_3"] readAheadMultiplier=0;
set logicaldrive["F6_df_3"] modificationPriority=high;

show "Creating RAID 0 Logical Drive F6_df_4 on new Array 4.";
// This command creates the Array and the initial Logical Drive on that array.
// NOTE: For Arrays that use all available capacity, the last Logical Drive on
this array is
// created using all remaining capacity by omitting the capacity= logical drive
creation parameter.
create logicaldrive drives[66,14 66,13 66,12 66,11 66,10 66,9 66,8 66,7 66,6
66,5 66,4 66,3 66,2 66,1 67,9 67,8 67,7 67,6 67,5 67,4 67,3 67,2 67,1 67,14
67,13 67,12 67,11 67,10] RAIDLevel=0 userLabel="F6_df_4" owner=B
segmentSize=64 mapping=default;
show "Setting additional attributes for Logical Drive F6_df_4.";
// Configuration settings that can not be set during Logical Drive creation.
set logicaldrive["F6_df_4"] cacheFlushModifier=10;
```

```
set logicaldrive["F6_df_4"] cacheWithoutBatteryEnabled=false;
set logicaldrive["F6_df_4"] mirrorEnabled=false;
set logicaldrive["F6_df_4"] readCacheEnabled=true;
set logicaldrive["F6_df_4"] writeCacheEnabled=false;
set logicaldrive["F6_df_4"] mediaScanEnabled=false;
set logicaldrive["F6_df_4"] redundancyCheckEnabled=false;
set logicaldrive["F6_df_4"] readAheadMultiplier=0;
set logicaldrive["F6_df_4"] modificationPriority=high;
show "Setting the Storage Subsystem cache block size to 4.";
set storagesubsystem cacheBlockSize=4;
```

```
show "Setting the Storage Subsystem to begin cache flush at 80% full.";
set storagesubsystem cacheFlushStart=80;
```

```
show "Setting the Storage Subsystem to end cache flush at 80% full.";
set storagesubsystem cacheFlushStop=80;
```

## Microsoft Windows 2000 Server

### Client System Information Report

The system configuration is identical for all four clients.

System Information report written at: 03/04/2003 04:32:55 PM  
[System Information]

[ Following are sub-categories of this main category ]

[System Summary]

| Item                      | Value                                                   |
|---------------------------|---------------------------------------------------------|
| OS Name                   | Microsoft Windows 2000 Server                           |
| Version                   | 5.0.2195 Service Pack 3 Build 2195                      |
| OS Manufacturer           | Microsoft Corporation                                   |
| System Name               | FCLIENT10                                               |
| System Manufacturer       | IBM                                                     |
| System Model              | -[8647xxx]-                                             |
| System Type               | X86-based PC                                            |
| Processor                 | x86 Family 15 Model 2 Stepping 7 GenuineIntel ~2400 Mhz |
| Processor                 | x86 Family 15 Model 2 Stepping 7 GenuineIntel ~2400 Mhz |
| Processor                 | x86 Family 15 Model 2 Stepping 7 GenuineIntel ~2400 Mhz |
| Processor                 | x86 Family 15 Model 2 Stepping 7 GenuineIntel ~2400 Mhz |
| BIOS Version              | )Phoenix - Award WorkstationBIOS v6.00PG                |
| Windows Directory         | C:\WINNT                                                |
| System Directory          | C:\WINNT\System32                                       |
| Boot Device               | \Device\Harddisk0\Partition1                            |
| Locale                    | United States                                           |
| User Name                 | FCLIENT10\Administrator                                 |
| Time Zone                 | Eastern Standard Time                                   |
| Total Physical Memory     | 1,572,316 KB                                            |
| Available Physical Memory | 1,347,424 KB                                            |
| Total Virtual Memory      | 4,563,448 KB                                            |
| Available Virtual Memory  | 4,260,268 KB                                            |
| Page File Space           | 2,991,132 KB                                            |
| Page File                 | C:\pagefile.sys                                         |

[Hardware Resources]

[ Following are sub-categories of this main category ]

[Conflicts/Sharing]

|                                |        |
|--------------------------------|--------|
| Resource                       | Device |
| No conflicted/shared resources |        |

[DMA]

| Channel | Device                          | Status |
|---------|---------------------------------|--------|
| 4       | Direct memory access controller | OK     |
| 2       | Standard floppy disk controller | OK     |

[Forced Hardware]

| Device             | PNP Device ID |
|--------------------|---------------|
| No Forced Hardware |               |

[I/O]

| Address Range | Device                                                  | Status |
|---------------|---------------------------------------------------------|--------|
| 0x0000-0x0CF7 | PCI bus                                                 | OK     |
| 0x0000-0x0CF7 | Direct memory access controller                         | OK     |
| 0x0D00-0x40B7 | PCI bus                                                 | OK     |
| 0x40B9-0xFFFF | PCI bus                                                 | OK     |
| 0x7000-0xBFFF | Intel(R) E7000 Series Hub Interface B PCI-to-PCI Bridge |        |
| - 2553        | OK                                                      |        |
| 0x7000-0xBFFF | Intel(R) P64H2 PCI to PCI Bridge - 1460                 | OK     |
| 0x7000-0xBFFF | PCI standard PCI-to-PCI bridge                          | OK     |
| 0x7000-0xBFFF | Intel(R) PRO/100 S Dual Port Server Adapter             |        |
| OK            |                                                         |        |
| 0xA000-0xBFFF | Intel(R) P64H2 PCI to PCI Bridge - 1460                 | OK     |
| 0xA000-0xBFFF | DEC 21154 PCI to PCI bridge                             | OK     |
| 0xA000-0xBFFF | Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet        |        |
| Adapter       | OK                                                      |        |
| 0xB000-0xB0FF | QLogic QLA23xx PCI Fibre Channel Adapter                |        |
| OK            |                                                         |        |
| 0xA400-0xA4FF | Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet        |        |
| Adapter #2    | OK                                                      |        |
| 0xA800-0xA8FF | Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet        |        |
| Adapter #3    | OK                                                      |        |
| 0xAC00-0xACFF | Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet        |        |
| Adapter #4    | OK                                                      |        |
| 0x7400-0x743F | Intel(R) PRO/100 S Dual Port Server Adapter #2          |        |
| OK            |                                                         |        |
| 0x8000-0x8FFF | PCI standard PCI-to-PCI bridge                          | OK     |
| 0x8000-0x8FFF | Intel(R) PRO/100 S Dual Port Server Adapter #3          |        |
| OK            |                                                         |        |
| 0x8400-0x843F | Intel(R) PRO/100 S Dual Port Server Adapter #4          |        |
| OK            |                                                         |        |
| 0x9000-0x90FF | LSI Logic 1020/1030 Ultra320 SCSI Adapter               |        |
| OK            |                                                         |        |
| 0x9400-0x94FF | LSI Logic 1020/1030 Ultra320 SCSI Adapter               |        |
| OK            |                                                         |        |
| 0xD400-0xD41F | Intel(R) 82801DB/DBM USB Universal Host Controller      |        |
| - 24C2        | OK                                                      |        |
| 0xD000-0xD01F | Intel(R) 82801DB/DBM USB Universal Host Controller      |        |
| - 24C4        | OK                                                      |        |
| 0xC000-0xC0FF | RAGE XL PCI                                             | OK     |
| 0x03B0-0x03BB | RAGE XL PCI                                             | OK     |
| 0x03C0-0x03DF | RAGE XL PCI                                             | OK     |
| 0x0A79-0x0A79 | ISAPNP Read Data Port                                   | OK     |
| 0x0279-0x0279 | ISAPNP Read Data Port                                   | OK     |
| 0x0274-0x0277 | ISAPNP Read Data Port                                   | OK     |
| 0x0010-0x001F | Motherboard resources                                   | OK     |
| 0x0022-0x003F | Motherboard resources                                   | OK     |
| 0x0044-0x005F | Motherboard resources                                   | OK     |
| 0x0062-0x0063 | Motherboard resources                                   | OK     |
| 0x0065-0x006F | Motherboard resources                                   | OK     |
| 0x0074-0x007F | Motherboard resources                                   | OK     |
| 0x0091-0x0093 | Motherboard resources                                   | OK     |
| 0x00A2-0x00BF | Motherboard resources                                   | OK     |
| 0x00E0-0x00EF | Motherboard resources                                   | OK     |
| 0x04D0-0x04D1 | Motherboard resources                                   | OK     |
| 0x0800-0x087F | Motherboard resources                                   | OK     |
| 0x0020-0x0021 | Programmable interrupt controller                       | OK     |

|               |                                                      |    |
|---------------|------------------------------------------------------|----|
| 0x00A0-0x00A1 | Programmable interrupt controller                    | OK |
| 0x0080-0x0090 | Direct memory access controller                      | OK |
| 0x0094-0x009F | Direct memory access controller                      | OK |
| 0x00C0-0x00DF | Direct memory access controller                      | OK |
| 0x0040-0x0043 | System timer                                         | OK |
| 0x0070-0x0073 | System CMOS/real time clock                          | OK |
| 0x0061-0x0061 | System speaker                                       | OK |
| 0x00F0-0x00FF | Numeric data processor                               | OK |
| 0x03F2-0x03F5 | Standard floppy disk controller                      | OK |
| 0x03F7-0x03F7 | Standard floppy disk controller                      | OK |
| 0x03F8-0x03FF | Communications Port (COM1)                           | OK |
| 0x02F8-0x02FF | Communications Port (COM2)                           | OK |
| 0x0378-0x037F | Printer Port (LPT1)                                  | OK |
| 0x0060-0x0060 | Standard 101/102-Key or Microsoft Natural PS/2       |    |
| Keyboard      | OK                                                   |    |
| 0x0064-0x0064 | Standard 101/102-Key or Microsoft Natural PS/2       |    |
| Keyboard      | OK                                                   |    |
| 0xF000-0xF00F | Intel(R) 82801DB Ultra ATA Storage Controller - 24CB |    |
| OK            |                                                      |    |
| 0x01F0-0x01F7 | Primary IDE Channel                                  | OK |
| 0x03F6-0x03F6 | Primary IDE Channel                                  | OK |
| 0x0170-0x0177 | Secondary IDE Channel                                | OK |
| 0x0376-0x0376 | Secondary IDE Channel                                | OK |
| 0x5000-0x501F | Intel(R) 82801DB/DBM SMBus Controller - 24C3         |    |
| OK            |                                                      |    |
| 0xDC00-0xDCFF | SoundMAX Integrated Digital Audio                    | OK |
| 0xE000-0xE03F | SoundMAX Integrated Digital Audio                    | OK |
| 0x4000-0x40BF | Motherboard resources                                | OK |
| 0x40B8-0x40B8 | Not Available                                        | OK |

[IRQs]

| IRQ Number | Device                                                      |
|------------|-------------------------------------------------------------|
| 9          | Microsoft ACPI-Compliant System                             |
| 48         | Broadcom NetXtreme Gigabit Ethernet                         |
| 52         | QLogic QLA23xx PCI Fibre Channel Adapter                    |
| 56         | Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter    |
| 57         | Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter #2 |
| 58         | Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter #3 |
| 59         | Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter #4 |
| 24         | Intel(R) PRO/100 S Dual Port Server Adapter                 |
| 25         | Intel(R) PRO/100 S Dual Port Server Adapter #2              |
| 28         | Intel(R) PRO/100 S Dual Port Server Adapter #3              |
| 29         | Intel(R) PRO/100 S Dual Port Server Adapter #4              |
| 32         | LSI Logic 1020/1030 Ultra320 SCSI Adapter                   |
| 33         | LSI Logic 1020/1030 Ultra320 SCSI Adapter                   |
| 16         | Intel(R) 82801DB/DBM USB Universal Host Controller - 24C2   |
| 19         | Intel(R) 82801DB/DBM USB Universal Host Controller - 24C4   |
| 23         | Intel PCI to USB Enhanced Host Controller                   |
| 22         | RAGE XL PCI                                                 |
| 8          | System CMOS/real time clock                                 |
| 13         | Numeric data processor                                      |
| 6          | Standard floppy disk controller                             |
| 4          | Communications Port (COM1)                                  |
| 3          | Communications Port (COM2)                                  |
| 12         | PS/2 Compatible Mouse                                       |
| 1          | Standard 101/102-Key or Microsoft Natural PS/2 Keyboard     |
| 14         | Primary IDE Channel                                         |
| 15         | Secondary IDE Channel                                       |
| 5          | Intel(R) 82801DB/DBM SMBus Controller - 24C3                |
| 17         | SoundMAX Integrated Digital Audio                           |

[Memory]

| Range           | Device       | Status |
|-----------------|--------------|--------|
| 0xCA000-0xCFFFF | System board | OK     |
| 0xCE200-0xCFFFF | System board | OK     |
| 0xF0000-0xFBFFF | System board | OK     |

|                             |                                                          |    |                                                        |                                                      |                       |
|-----------------------------|----------------------------------------------------------|----|--------------------------------------------------------|------------------------------------------------------|-----------------------|
| 0xFC000-0xFFFFF             | System board                                             | OK | 0xFA000000-0xFA0003FF                                  | Intel PCI to USB Enhanced Host Controller            | OK                    |
| 0x5FFF0000-0x5FFFFFFF       | System board                                             | OK | 0xF7000000-0xF7FFFFFF                                  | RAGE XL PCI                                          | OK                    |
| 0x0000-0x9FFFF              | System board                                             | OK | 0xF9000000-0xF9000FFF                                  | RAGE XL PCI                                          | OK                    |
| 0x100000-0x5FEFFFFF         | System board                                             | OK | 0xFEBFFC00-0xFEBFFFFFFF                                | Intel(R) 82801DB Ultra ATA Storage Controller - 24CB | OK                    |
| 0xFEC00000-0xFECFFFFFFF     | System board                                             | OK | 0xFA001000-0xFA0011FF                                  | SoundMAX Integrated Digital Audio                    | OK                    |
| 0xFEE00000-0xFEEFFFFFFF     | System board                                             | OK | 0xFA002000-0xFA0020FF                                  | SoundMAX Integrated Digital Audio                    | OK                    |
| 0xFFB00000-0xFFB7FFFF       | System board                                             | OK | [Components]                                           |                                                      |                       |
| 0xFFF00000-0xFFFFFFFF       | System board                                             | OK | [ Following are sub-categories of this main category ] |                                                      |                       |
| 0xE0000-0xEFFFF             | System board                                             | OK | [Multimedia]                                           |                                                      |                       |
| 0xFFB80000-0xFFBFFFFFFF     | Intel(r) 82802 Firmware Hub Device                       | OK | [ Following are sub-categories of this main category ] |                                                      |                       |
| 0xA0000-0xBFFFF             | PCI bus                                                  | OK | [Audio Codecs]                                         |                                                      |                       |
| 0xA0000-0xBFFFF             | RAGE XL PCI                                              | OK | Codec Version                                          | Manufacturer Size Creation Date                      | Status File           |
| 0xC0000-0xDFFFF             | PCI bus                                                  | OK | c:\winnt\system32\lhacm.acm                            | Microsoft Corporation                                |                       |
| 0x60000000-0xFEBFFFFFFF     | PCI bus                                                  | OK | OK C:\WINNT\System32\LHACM.ACM                         | 4.4.3385                                             | 33.27 KB              |
| 0xEC000000-0xEFFFFFFF       | Intel(R) E7000 Series Processor to AGP Controller - 2552 | OK | (34,064 bytes) 2/12/2003 12:55:58 PM                   |                                                      |                       |
| 0xE8000000-0xEBFFFFFFF      | Intel(R) E7000 Series Processor to AGP Controller - 2552 | OK | c:\winnt\system32\tsoft32.acm                          | DSP GROUP, INC.                                      | OK                    |
| 0xF0000000-0xF6FFFFFFF      | Intel(R) E7000 Series Hub Interface B                    | OK | C:\WINNT\System32\TSSOFT32.ACM                         | 1.01                                                 | 9.27 KB (9,488 bytes) |
| 0xF0000000-0xF6FFFFFFF      | Intel(R) P64H2 PCI to PCI Bridge - 1460                  | OK | 12/7/1999 7:00:00 AM                                   |                                                      |                       |
| 0xF6001000-0xF6001FFF       | Intel(R) P64H2 I/O Advanced Programmable                 | OK | c:\winnt\system32\iac25_32.ax                          | Intel Corporation                                    | Indeo® audio software |
| Interrupt Controller - 1461 | Broadcom NetXtreme Gigabit Ethernet                      | OK | OK C:\WINNT\System32\IAC25_32.AX                       | 2.05.53                                              | 195.00 KB             |
| 0xF3000000-0xF300FFFF       | QLogic QLA23xx PCI Fibre Channel Adapter                 | OK | (199,680 bytes) 12/7/1999 7:00:00 AM                   |                                                      |                       |
| 0xF3010000-0xF3010FFF       | DEC 21154 PCI to PCI bridge                              | OK | c:\winnt\system32\msgsm32.acm                          | Microsoft Corporation                                |                       |
| 0xF1000000-0xF2FFFFFFF      | Adaptec ANA62044 64-bit 4 port PCI Fast                  | OK | OK C:\WINNT\System32\MSGSM32.ACM                       | 5.00.2134.1                                          |                       |
| 0xF2000000-0xF207FFFF       | Adaptec ANA62044 64-bit 4 port PCI Fast                  | OK | 22.27 KB (22,800 bytes) 12/7/1999 7:00:00 AM           |                                                      |                       |
| 0xF2080000-0xF20FFFFFFF     | Adaptec ANA62044 64-bit 4 port PCI Fast                  | OK | c:\winnt\system32\msg723.acm                           | Microsoft Corporation                                |                       |
| 0xF2100000-0xF217FFFF       | Adaptec ANA62044 64-bit 4 port PCI Fast                  | OK | OK C:\WINNT\System32\MSG723.ACM                        | 4.4.3385                                             | 106.77 KB             |
| 0xF2180000-0xF21FFFFFFF     | Adaptec ANA62044 64-bit 4 port PCI Fast                  | OK | (109,328 bytes) 2/12/2003 12:55:58 PM                  |                                                      |                       |
| 0xF2180000-0xF21FFFFFFF     | Intel(R) P64H2 I/O Advanced Programmable                 | OK | c:\winnt\system32\msg711.acm                           | Microsoft Corporation                                |                       |
| 0xF6000000-0xF6000FFF       | Intel(R) P64H2 PCI to PCI Bridge - 1460                  | OK | OK C:\WINNT\System32\MSG711.ACM                        | 5.00.2134.1                                          |                       |
| 0xF4000000-0xF5FFFFFFF      | PCI standard PCI-to-PCI bridge                           | OK | 10.27 KB (10,512 bytes) 12/7/1999 7:00:00 AM           |                                                      |                       |
| 0xF5100000-0xF51FFFFFFF     | Intel(R) PRO/100 S Dual Port Server Adapter              | OK | c:\winnt\system32\msadp32.acm                          | Microsoft Corporation                                |                       |
| 0xF5100000-0xF51FFFFFFF     | Intel(R) PRO/100 S Dual Port Server Adapter              | OK | OK C:\WINNT\System32\MSADP32.ACM                       | 5.00.2134.1                                          |                       |
| 0xF5141000-0xF5141FFF       | Intel(R) PRO/100 S Dual Port Server Adapter              | OK | 14.77 KB (15,120 bytes) 12/7/1999 7:00:00 AM           |                                                      |                       |
| 0xF5140000-0xF5140FFF       | Intel(R) PRO/100 S Dual Port Server Adapter              | OK | c:\winnt\system32\imaadp32.acm                         | Microsoft Corporation                                |                       |
| 0xF5120000-0xF513FFFF       | Intel(R) PRO/100 S Dual Port Server Adapter              | OK | OK C:\WINNT\System32\IMAADP32.ACM                      | 5.00.2134.1                                          |                       |
| 0xF5000000-0xF50FFFFFFF     | PCI standard PCI-to-PCI bridge                           | OK | 16.27 KB (16,656 bytes) 12/7/1999 7:00:00 AM           |                                                      |                       |
| 0xF5000000-0xF50FFFFFFF     | Intel(R) PRO/100 S Dual Port Server Adapter              | OK | [Video Codecs]                                         |                                                      |                       |
| 0xF5000000-0xF50FFFFFFF     | Intel(R) PRO/100 S Dual Port Server Adapter              | OK | Codec Version                                          | Manufacturer Size Creation Date                      | Status File           |
| 0xF5041000-0xF5041FFF       | Intel(R) PRO/100 S Dual Port Server Adapter              | OK | c:\winnt\system32\msyuv.dll                            | Microsoft Corporation                                |                       |
| 0xF5040000-0xF5040FFF       | Intel(R) PRO/100 S Dual Port Server Adapter              | OK | OK C:\WINNT\System32\MSYUV.DLL                         | 5.00.2134.1                                          |                       |
| 0xF5020000-0xF503FFFF       | Intel(R) PRO/100 S Dual Port Server Adapter              | OK | 14.77 KB (15,120 bytes) 2/12/2003 2:09:29 PM           |                                                      |                       |
| 0xF5210000-0xF521FFFF       | LSI Logic 1020/1030 Ultra320 SCSI Adapter                | OK | c:\winnt\system32\ir50_32.dll                          | Intel Corporation                                    | Indeo® video 5.10     |
| 0xF5200000-0xF520FFFF       | LSI Logic 1020/1030 Ultra320 SCSI Adapter                | OK | OK C:\WINNT\System32\IR50_32.DLL                       | R.5.10.15.2.55                                       |                       |
| 0xF5220000-0xF522FFFF       | LSI Logic 1020/1030 Ultra320 SCSI Adapter                | OK | 737.50 KB (755,200 bytes) 12/7/1999 7:00:00 AM         |                                                      |                       |
| 0xF5230000-0xF523FFFF       | LSI Logic 1020/1030 Ultra320 SCSI Adapter                | OK | c:\winnt\system32\msh261.drv                           | Microsoft Corporation                                |                       |
|                             |                                                          |    | OK C:\WINNT\System32\MSH261.DRV                        | 4.4.3385                                             | 163.77 KB             |
|                             |                                                          |    | (167,696 bytes) 2/12/2003 12:55:58 PM                  |                                                      |                       |
|                             |                                                          |    | c:\winnt\system32\msh263.drv                           | Microsoft Corporation                                |                       |
|                             |                                                          |    | OK C:\WINNT\System32\MSH263.DRV                        | 4.4.3385                                             | 252.27 KB             |
|                             |                                                          |    | (258,320 bytes) 2/12/2003 12:55:39 PM                  |                                                      |                       |
|                             |                                                          |    | c:\winnt\system32\ir32_32.dll                          | Intel(R) Corporation                                 | OK                    |
|                             |                                                          |    | C:\WINNT\System32\IR32_32.DLL                          | Not Available                                        | 194.50 KB             |
|                             |                                                          |    | (199,168 bytes) 12/7/1999 7:00:00 AM                   |                                                      |                       |

```

c:\winnt\system32\msvidc32.dll  Microsoft Corporation
OK      C:\WINNT\System32\MSVIDC32.DLL  5.00.2134.1
27.27 KB (27,920 bytes)      12/7/1999 7:00:00 AM
c:\winnt\system32\msrle32.dll  Microsoft Corporation
OK      C:\WINNT\System32\MSRLE32.DLL  5.00.2134.1
10.77 KB (11,024 bytes)      12/7/1999 7:00:00 AM
c:\winnt\system32\iccvld.dll   Radius Inc.      OK
C:\WINNT\System32\ICCVLD.DLL  1.10.0.6  108.00 KB (110,592
bytes)      12/7/1999 7:00:00 AM

```

#### [CD-ROM]

| Item                                                             | Value                     |
|------------------------------------------------------------------|---------------------------|
| Drive                                                            | Z:                        |
| Description                                                      | CD-ROM Drive              |
| Media Loaded                                                     | False                     |
| Media Type                                                       | CD-ROM                    |
| Name                                                             | HL-DT-ST CD-ROM GCR-8480B |
| Manufacturer                                                     | (Standard CD-ROM drives)  |
| Status                                                           | OK                        |
| Transfer Rate                                                    | Not Available             |
| SCSI Target ID                                                   | 0                         |
| PNP Device ID                                                    |                           |
| IDE\CDROMHL-DT-ST_CD-ROM_GCR-8480B_____1.02____\5&74A80B&0&0.0.0 |                           |

#### [Sound Device]

| Item                                                         | Value                                                     |
|--------------------------------------------------------------|-----------------------------------------------------------|
| Name                                                         | SoundMAX Integrated Digital Audio                         |
| Status                                                       | OK                                                        |
| PNP Device ID                                                |                                                           |
| PCI\VEN_8086&DEV_24C5&SUBSYS_027A1014&REV_02\3&13C0B0C5&0&FD |                                                           |
| IRQ Number                                                   | 17                                                        |
| I/O Port                                                     | 0xDC00-0xDCFF                                             |
| I/O Port                                                     | 0xE000-0xE03F                                             |
| Memory Range                                                 | 0xFA001000-0xFA0011FF                                     |
| Memory Range                                                 | 0xFA002000-0xFA0020FF                                     |
| Driver                                                       | c:\winnt\system32\drivers\smwdm.sys (552932, PRE-RELEASE) |

#### [Display]

| Item                                                           | Value                                                   |
|----------------------------------------------------------------|---------------------------------------------------------|
| Name                                                           | RAGE XL PCI                                             |
| PNP Device ID                                                  |                                                         |
| PCI\VEN_1002&DEV_4752&SUBSYS_02401014&REV_27\4&1A671D0C&0&08F0 |                                                         |
| Adapter Type                                                   | ATI RAGE XL PCI (B41), ATI Technologies Inc. compatible |
| Adapter Description                                            | RAGE XL PCI                                             |
| Adapter RAM                                                    | 8.00 MB (8,388,608 bytes)                               |
| Installed Drivers                                              | ati2drad.dll                                            |
| Driver Version                                                 | 5.00.2195.5005                                          |
| INF File                                                       | oem1.inf (ati2mpad section)                             |
| Color Planes                                                   | 1                                                       |
| Color Table Entries                                            | 65536                                                   |
| Resolution                                                     | 1024 x 768 x 85 hertz                                   |
| Bits/Pixel                                                     | 16                                                      |

#### [Infrared]

| Item                | Value |
|---------------------|-------|
| No infrared devices |       |

#### [Input]

[ Following are sub-categories of this main category ]

#### [Keyboard]

| Item                 | Value                                                   |
|----------------------|---------------------------------------------------------|
| Description          | Standard 101/102-Key or Microsoft Natural PS/2 Keyboard |
| Name                 | Enhanced (101- or 102-key)                              |
| Layout               | 00000409                                                |
| PNP Device ID        | ACPI\PNP0303\4&323CF337&0                               |
| NumberOfFunctionKeys | 12                                                      |

#### [Pointing Device]

| Item                       | Value                     |
|----------------------------|---------------------------|
| Hardware Type              | PS/2 Compatible Mouse     |
| Number of Buttons          | 2                         |
| Status                     | OK                        |
| PNP Device ID              | ACPI\PNP0F13\4&323CF337&0 |
| Power Management Supported | False                     |
| Double Click Threshold     | 6                         |
| Handedness                 | Right Handed Operation    |

#### [Modem]

| Item      | Value |
|-----------|-------|
| No modems |       |

#### [Network]

[ Following are sub-categories of this main category ]

#### [Adapter]

| Item                | Value                          |
|---------------------|--------------------------------|
| Name                | [00000000] RAS Async Adapter   |
| Adapter Type        | Not Available                  |
| Product Name        | RAS Async Adapter              |
| Installed           | True                           |
| PNP Device ID       | Not Available                  |
| Last Reset          | 3/4/2003 10:47:06 AM           |
| Index               | 0                              |
| Service Name        | AsyncMac                       |
| IP Address          | Not Available                  |
| IP Subnet           | Not Available                  |
| Default IP Gateway  | Not Available                  |
| DHCP Enabled        | False                          |
| DHCP Server         | Not Available                  |
| DHCP Lease Expires  | Not Available                  |
| DHCP Lease Obtained | Not Available                  |
| MAC Address         | Not Available                  |
| Service Name        | Not Available                  |
| Name                | [00000001] WAN Miniport (L2TP) |
| Adapter Type        | Not Available                  |
| Product Name        | WAN Miniport (L2TP)            |
| Installed           | True                           |
| PNP Device ID       | ROOT\MS_L2TPMINIPOINT\0000     |
| Last Reset          | 3/4/2003 10:47:06 AM           |
| Index               | 1                              |
| Service Name        | Rasl2tp                        |
| IP Address          | Not Available                  |
| IP Subnet           | Not Available                  |
| Default IP Gateway  | Not Available                  |

DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Service Name Rsl2tp  
 Driver c:\winnt\system32\drivers\rsl2tp.sys (52112, 5.00.2195.4052)

Name [00000002] WAN Miniport (PPTP)  
 Adapter Type Wide Area Network (WAN)  
 Product Name WAN Miniport (PPTP)  
 Installed True  
 PNP Device ID ROOT\MS\_PPTP\MINIPOINT\0000  
 Last Reset 3/4/2003 10:47:06 AM  
 Index 2  
 Service Name PptpMiniport  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address 50:50:54:50:30:30  
 Service Name PptpMiniport  
 Driver c:\winnt\system32\drivers\raspptp.sys (47888, 5.00.2195.4080)

Name [00000003] Direct Parallel  
 Adapter Type Not Available  
 Product Name Direct Parallel  
 Installed True  
 PNP Device ID ROOT\MS\_PT\MINIPOINT\0000  
 Last Reset 3/4/2003 10:47:06 AM  
 Index 3  
 Service Name Raspti  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Service Name Raspti  
 Driver c:\winnt\system32\drivers\raspti.sys (16880, 5.00.2146.1)

Name [00000004] WAN Miniport (IP)  
 Adapter Type Not Available  
 Product Name WAN Miniport (IP)  
 Installed True  
 PNP Device ID ROOT\MS\_NDISWANIP\0000  
 Last Reset 3/4/2003 10:47:06 AM  
 Index 4  
 Service Name NdisWan  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Service Name NdisWan  
 Driver c:\winnt\system32\drivers\ndiswan.sys (93104, 5.00.2195.5241)

Name [00000005] Broadcom NetXtreme Gigabit Ethernet  
 Adapter Type Ethernet 802.3  
 Product Name Broadcom NetXtreme Gigabit Ethernet

Installed True  
 PNP Device ID PCI\VEN\_14E4&DEV\_16A7&SUBSYS\_026F1014&REV\_02\5&121CC7C2&0&08E810  
 Last Reset 3/4/2003 10:47:06 AM  
 Index 5  
 Service Name b57w2k  
 IP Address 192.168.125.10  
 IP Subnet 255.255.255.0  
 Default IP Gateway Not Available  
 DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address 00:10:DC:76:E2:A7  
 Service Name b57w2k  
 IRQ Number 48  
 Driver c:\winnt\system32\drivers\b57w2k.sys (79336, 2.90.0.0)

Name [00000006] Intel(R) PRO/100 S Dual Port Server Adapter  
 Adapter Type Ethernet 802.3  
 Product Name Intel(R) PRO/100 S Dual Port Server Adapter  
 Installed True  
 PNP Device ID PCI\VEN\_8086&DEV\_1229&SUBSYS\_10158086&REV\_0D\6&11588895&0&2008F810  
 Last Reset 3/4/2003 10:47:06 AM  
 Index 6  
 Service Name E100B  
 IP Address 192.168.121.99  
 IP Subnet 255.255.255.0  
 Default IP Gateway Not Available  
 DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address 00:02:B3:AC:6A:5C  
 Service Name E100B  
 IRQ Number 24  
 I/O Port 0x7000-0xBFFF  
 Driver c:\winnt\system32\drivers\e100bnt5.sys (141584, 6.04.14.0000)

Name [00000007] Intel(R) PRO/100 S Dual Port Server Adapter  
 Adapter Type Ethernet 802.3  
 Product Name Intel(R) PRO/100 S Dual Port Server Adapter  
 Installed True  
 PNP Device ID PCI\VEN\_8086&DEV\_1229&SUBSYS\_10158086&REV\_0D\6&11588895&0&2808F810  
 Last Reset 3/4/2003 10:47:06 AM  
 Index 7  
 Service Name E100B  
 IP Address 192.168.120.99  
 IP Subnet 255.255.255.0  
 Default IP Gateway Not Available  
 DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address 00:02:B3:AC:6A:5D  
 Service Name E100B  
 IRQ Number 25  
 I/O Port 0x7400-0x743F  
 Driver c:\winnt\system32\drivers\e100bnt5.sys (141584, 6.04.14.0000)

Name [00000008] Intel(R) PRO/100 S Dual Port Server Adapter  
 Adapter Type Ethernet 802.3  
 Product Name Intel(R) PRO/100 S Dual Port Server Adapter

Installed True  
 PNP Device ID  
 PCI\VEN\_8086&DEV\_1229&SUBSYS\_10158086&REV\_0D\6&34E7E7F4&0&2010F810  
 Last Reset 3/4/2003 10:47:06 AM  
 Index 8  
 Service Name E100B  
 IP Address 192.168.123.99  
 IP Subnet 255.255.255.0  
 Default IP Gateway Not Available  
 DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address 00:02:B3:AC:67:F2  
 Service Name E100B  
 IRQ Number 28  
 I/O Port 0x8000-0x8FFF  
 Driver c:\winnt\system32\drivers\e100bnt5.sys (141584, 6.04.14.0000)

Name [00000009] Intel(R) PRO/100 S Dual Port Server Adapter  
 Adapter Type Ethernet 802.3  
 Product Name Intel(R) PRO/100 S Dual Port Server Adapter  
 Installed True  
 PNP Device ID  
 PCI\VEN\_8086&DEV\_1229&SUBSYS\_10158086&REV\_0D\6&34E7E7F4&0&2810F810  
 Last Reset 3/4/2003 10:47:06 AM  
 Index 9  
 Service Name E100B  
 IP Address 192.168.122.99  
 IP Subnet 255.255.255.0  
 Default IP Gateway Not Available  
 DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address 00:02:B3:AC:67:F3  
 Service Name E100B  
 IRQ Number 29  
 I/O Port 0x8400-0x843F  
 Driver c:\winnt\system32\drivers\e100bnt5.sys (141584, 6.04.14.0000)

Name [00000014] Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter  
 Adapter Type Ethernet 802.3  
 Product Name Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter  
 Installed True  
 PNP Device ID  
 PCI\VEN\_9004&DEV\_6915&SUBSYS\_00199004&REV\_03\6&1CD10E71&0&2018E810  
 Last Reset 3/4/2003 10:47:06 AM  
 Index 14  
 Service Name ADPTSF  
 IP Address 192.168.113.99  
 IP Subnet 255.255.255.0  
 Default IP Gateway Not Available  
 DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address 00:00:D1:EF:69:61  
 Service Name ADPTSF  
 IRQ Number 56  
 I/O Port 0xA000-0xBFFF  
 Driver c:\winnt\system32\drivers\adptsf50.sys (48384, 5.20.0.24)

Name [00000015] Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter  
 Adapter Type Ethernet 802.3  
 Product Name Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter  
 Installed True  
 PNP Device ID  
 PCI\VEN\_9004&DEV\_6915&SUBSYS\_00199004&REV\_03\6&1CD10E71&0&2818E810  
 Last Reset 3/4/2003 10:47:06 AM  
 Index 15  
 Service Name ADPTSF  
 IP Address 192.168.112.99  
 IP Subnet 255.255.255.0  
 Default IP Gateway Not Available  
 DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address 00:00:D1:EF:69:62  
 Service Name ADPTSF  
 IRQ Number 57  
 I/O Port 0xA400-0xA4FF  
 Driver c:\winnt\system32\drivers\adptsf50.sys (48384, 5.20.0.24)

Name [00000016] Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter  
 Adapter Type Ethernet 802.3  
 Product Name Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter  
 Installed True  
 PNP Device ID  
 PCI\VEN\_9004&DEV\_6915&SUBSYS\_00199004&REV\_03\6&1CD10E71&0&3018E810  
 Last Reset 3/4/2003 10:47:06 AM  
 Index 16  
 Service Name ADPTSF  
 IP Address 192.168.111.99  
 IP Subnet 255.255.255.0  
 Default IP Gateway Not Available  
 DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address 00:00:D1:EF:69:63  
 Service Name ADPTSF  
 IRQ Number 58  
 I/O Port 0xA800-0xA8FF  
 Driver c:\winnt\system32\drivers\adptsf50.sys (48384, 5.20.0.24)

Name [00000017] Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter  
 Adapter Type Ethernet 802.3  
 Product Name Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter  
 Installed True  
 PNP Device ID  
 PCI\VEN\_9004&DEV\_6915&SUBSYS\_00199004&REV\_03\6&1CD10E71&0&3818E810  
 Last Reset 3/4/2003 10:47:06 AM  
 Index 17  
 Service Name ADPTSF  
 IP Address 192.168.110.99  
 IP Subnet 255.255.255.0  
 Default IP Gateway Not Available  
 DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available

DHCP Lease Obtained Not Available  
 MAC Address 00:00:D1:EF:69:64  
 Service Name ADPTSF  
 IRQ Number 59  
 I/O Port 0xAC00-0xACFF  
 Driver c:\winnt\system32\drivers\adptsf50.sys (48384, 5.20.0.24)

[Protocol]

| Item                        | Value                |
|-----------------------------|----------------------|
| Name                        | MSAFD Tcpip [TCP/IP] |
| ConnectionlessService       | False                |
| GuaranteesDelivery          | True                 |
| GuaranteesSequencing        | True                 |
| MaximumAddressSize          | 16 bytes             |
| MaximumMessageSize          | 0 bytes              |
| MessageOriented             | False                |
| MinimumAddressSize          | 16 bytes             |
| PseudoStreamOriented        | False                |
| SupportsBroadcasting        | False                |
| SupportsConnectData         | False                |
| SupportsDisconnectData      | False                |
| SupportsEncryption          | False                |
| SupportsExpeditedData       | True                 |
| SupportsGracefulClosing     | True                 |
| SupportsGuaranteedBandwidth | False                |
| SupportsMulticasting        | False                |

|                             |                      |
|-----------------------------|----------------------|
| Name                        | MSAFD Tcpip [UDP/IP] |
| ConnectionlessService       | True                 |
| GuaranteesDelivery          | False                |
| GuaranteesSequencing        | False                |
| MaximumAddressSize          | 16 bytes             |
| MaximumMessageSize          | 65467 bytes          |
| MessageOriented             | True                 |
| MinimumAddressSize          | 16 bytes             |
| PseudoStreamOriented        | False                |
| SupportsBroadcasting        | True                 |
| SupportsConnectData         | False                |
| SupportsDisconnectData      | False                |
| SupportsEncryption          | False                |
| SupportsExpeditedData       | False                |
| SupportsGracefulClosing     | False                |
| SupportsGuaranteedBandwidth | False                |
| SupportsMulticasting        | True                 |

|                             |                           |
|-----------------------------|---------------------------|
| Name                        | RSVP UDP Service Provider |
| ConnectionlessService       | True                      |
| GuaranteesDelivery          | False                     |
| GuaranteesSequencing        | False                     |
| MaximumAddressSize          | 16 bytes                  |
| MaximumMessageSize          | 65467 bytes               |
| MessageOriented             | True                      |
| MinimumAddressSize          | 16 bytes                  |
| PseudoStreamOriented        | False                     |
| SupportsBroadcasting        | True                      |
| SupportsConnectData         | False                     |
| SupportsDisconnectData      | False                     |
| SupportsEncryption          | True                      |
| SupportsExpeditedData       | False                     |
| SupportsGracefulClosing     | False                     |
| SupportsGuaranteedBandwidth | False                     |
| SupportsMulticasting        | True                      |

|                       |                           |
|-----------------------|---------------------------|
| Name                  | RSVP TCP Service Provider |
| ConnectionlessService | False                     |
| GuaranteesDelivery    | True                      |

|                             |          |
|-----------------------------|----------|
| GuaranteesSequencing        | True     |
| MaximumAddressSize          | 16 bytes |
| MaximumMessageSize          | 0 bytes  |
| MessageOriented             | False    |
| MinimumAddressSize          | 16 bytes |
| PseudoStreamOriented        | False    |
| SupportsBroadcasting        | False    |
| SupportsConnectData         | False    |
| SupportsDisconnectData      | False    |
| SupportsEncryption          | True     |
| SupportsExpeditedData       | True     |
| SupportsGracefulClosing     | True     |
| SupportsGuaranteedBandwidth | False    |
| SupportsMulticasting        | False    |

|                             |                                                                               |
|-----------------------------|-------------------------------------------------------------------------------|
| Name                        | MSAFD NetBIOS<br>[\Device\NetBT_Tcpip_{0BCE0365-C341-4AD3-8978-DD0996C8BA12}] |
| SEQPACKET                   | 14                                                                            |
| ConnectionlessService       | False                                                                         |
| GuaranteesDelivery          | True                                                                          |
| GuaranteesSequencing        | True                                                                          |
| MaximumAddressSize          | 20 bytes                                                                      |
| MaximumMessageSize          | 64000 bytes                                                                   |
| MessageOriented             | True                                                                          |
| MinimumAddressSize          | 20 bytes                                                                      |
| PseudoStreamOriented        | False                                                                         |
| SupportsBroadcasting        | False                                                                         |
| SupportsConnectData         | False                                                                         |
| SupportsDisconnectData      | False                                                                         |
| SupportsEncryption          | False                                                                         |
| SupportsExpeditedData       | False                                                                         |
| SupportsGracefulClosing     | False                                                                         |
| SupportsGuaranteedBandwidth | False                                                                         |
| SupportsMulticasting        | False                                                                         |

|                             |                                                                               |
|-----------------------------|-------------------------------------------------------------------------------|
| Name                        | MSAFD NetBIOS<br>[\Device\NetBT_Tcpip_{0BCE0365-C341-4AD3-8978-DD0996C8BA12}] |
| DATAGRAM                    | 14                                                                            |
| ConnectionlessService       | True                                                                          |
| GuaranteesDelivery          | False                                                                         |
| GuaranteesSequencing        | False                                                                         |
| MaximumAddressSize          | 20 bytes                                                                      |
| MaximumMessageSize          | 64000 bytes                                                                   |
| MessageOriented             | True                                                                          |
| MinimumAddressSize          | 20 bytes                                                                      |
| PseudoStreamOriented        | False                                                                         |
| SupportsBroadcasting        | True                                                                          |
| SupportsConnectData         | False                                                                         |
| SupportsDisconnectData      | False                                                                         |
| SupportsEncryption          | False                                                                         |
| SupportsExpeditedData       | False                                                                         |
| SupportsGracefulClosing     | False                                                                         |
| SupportsGuaranteedBandwidth | False                                                                         |
| SupportsMulticasting        | False                                                                         |

|                       |                                                                               |
|-----------------------|-------------------------------------------------------------------------------|
| Name                  | MSAFD NetBIOS<br>[\Device\NetBT_Tcpip_{DC5C9BD6-34CB-4009-B5E2-6141DC7599A4}] |
| SEQPACKET             | 11                                                                            |
| ConnectionlessService | False                                                                         |
| GuaranteesDelivery    | True                                                                          |
| GuaranteesSequencing  | True                                                                          |
| MaximumAddressSize    | 20 bytes                                                                      |
| MaximumMessageSize    | 64000 bytes                                                                   |
| MessageOriented       | True                                                                          |
| MinimumAddressSize    | 20 bytes                                                                      |
| PseudoStreamOriented  | False                                                                         |
| SupportsBroadcasting  | False                                                                         |
| SupportsConnectData   | False                                                                         |

SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{DC5C9BD6-34CB-4009-B5E2-6141DC7599A4}]  
 DATAGRAM 11  
 ConnectionlessService True  
 GuaranteesDelivery False  
 GuaranteesSequencing False  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting True  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{4A2A9C9A-DDD8-4FED-BF81-B957B71EB0BE}]  
 SEQPACKET 4  
 ConnectionlessService False  
 GuaranteesDelivery True  
 GuaranteesSequencing True  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting False  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{4A2A9C9A-DDD8-4FED-BF81-B957B71EB0BE}]  
 DATAGRAM 4  
 ConnectionlessService True  
 GuaranteesDelivery False  
 GuaranteesSequencing False  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting True  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{04626D60-9758-487A-8A9E-33BA956B6C94}]  
 SEQPACKET 3  
 ConnectionlessService False  
 GuaranteesDelivery True  
 GuaranteesSequencing True  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting False  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{04626D60-9758-487A-8A9E-33BA956B6C94}]  
 DATAGRAM 3  
 ConnectionlessService True  
 GuaranteesDelivery False  
 GuaranteesSequencing False  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting True  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{A330D6A6-3682-45AA-A21E-C98C4527F207}]  
 SEQPACKET 13  
 ConnectionlessService False  
 GuaranteesDelivery True  
 GuaranteesSequencing True  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting False  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{A330D6A6-3682-45AA-A21E-C98C4527F207}]  
 DATAGRAM 13  
 ConnectionlessService True  
 GuaranteesDelivery False  
 GuaranteesSequencing False  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes

|                                                              |               |  |                                                              |               |
|--------------------------------------------------------------|---------------|--|--------------------------------------------------------------|---------------|
| MessageOriented                                              | True          |  | SupportsGracefulClosing                                      | False         |
| MinimumAddressSize                                           | 20 bytes      |  | SupportsGuaranteedBandwidth                                  | False         |
| PseudoStreamOriented                                         | False         |  | SupportsMulticasting                                         | False         |
| SupportsBroadcasting                                         | True          |  |                                                              |               |
| SupportsConnectData                                          | False         |  | Name                                                         | MSAFD NetBIOS |
| SupportsDisconnectData                                       | False         |  | [\Device\NetBT_Tcpip_{A3F279E1-7BCC-4CA2-B33C-18E41C7FF498}] |               |
| SupportsEncryption                                           | False         |  | DATAGRAM                                                     | 12            |
| SupportsExpeditedData                                        | False         |  | ConnectionlessService                                        | True          |
| SupportsGracefulClosing                                      | False         |  | GuaranteesDelivery                                           | False         |
| SupportsGuaranteedBandwidth                                  | False         |  | GuaranteesSequencing                                         | False         |
| SupportsMulticasting                                         | False         |  | MaximumAddressSize                                           | 20 bytes      |
|                                                              |               |  | MaximumMessageSize                                           | 64000 bytes   |
| Name                                                         | MSAFD NetBIOS |  | MessageOriented                                              | True          |
| [\Device\NetBT_Tcpip_{F37FFD50-F485-4FB7-A01E-55B193228DED}] |               |  | MinimumAddressSize                                           | 20 bytes      |
| SEQPACKET                                                    | 6             |  | PseudoStreamOriented                                         | False         |
| ConnectionlessService                                        | False         |  | SupportsBroadcasting                                         | True          |
| GuaranteesDelivery                                           | True          |  | SupportsConnectData                                          | False         |
| GuaranteesSequencing                                         | True          |  | SupportsDisconnectData                                       | False         |
| MaximumAddressSize                                           | 20 bytes      |  | SupportsEncryption                                           | False         |
| MaximumMessageSize                                           | 64000 bytes   |  | SupportsExpeditedData                                        | False         |
| MessageOriented                                              | True          |  | SupportsGracefulClosing                                      | False         |
| MinimumAddressSize                                           | 20 bytes      |  | SupportsGuaranteedBandwidth                                  | False         |
| PseudoStreamOriented                                         | False         |  | SupportsMulticasting                                         | False         |
| SupportsBroadcasting                                         | False         |  |                                                              |               |
| SupportsConnectData                                          | False         |  | Name                                                         | MSAFD NetBIOS |
| SupportsDisconnectData                                       | False         |  | [\Device\NetBT_Tcpip_{70347C08-B8F8-4918-93D1-FFF1CE9DB212}] |               |
| SupportsEncryption                                           | False         |  | SEQPACKET                                                    | 5             |
| SupportsExpeditedData                                        | False         |  | ConnectionlessService                                        | False         |
| SupportsGracefulClosing                                      | False         |  | GuaranteesDelivery                                           | True          |
| SupportsGuaranteedBandwidth                                  | False         |  | GuaranteesSequencing                                         | True          |
| SupportsMulticasting                                         | False         |  | MaximumAddressSize                                           | 20 bytes      |
|                                                              |               |  | MaximumMessageSize                                           | 64000 bytes   |
| Name                                                         | MSAFD NetBIOS |  | MessageOriented                                              | True          |
| [\Device\NetBT_Tcpip_{F37FFD50-F485-4FB7-A01E-55B193228DED}] |               |  | MinimumAddressSize                                           | 20 bytes      |
| DATAGRAM                                                     | 6             |  | PseudoStreamOriented                                         | False         |
| ConnectionlessService                                        | True          |  | SupportsBroadcasting                                         | False         |
| GuaranteesDelivery                                           | False         |  | SupportsConnectData                                          | False         |
| GuaranteesSequencing                                         | False         |  | SupportsDisconnectData                                       | False         |
| MaximumAddressSize                                           | 20 bytes      |  | SupportsEncryption                                           | False         |
| MaximumMessageSize                                           | 64000 bytes   |  | SupportsExpeditedData                                        | False         |
| MessageOriented                                              | True          |  | SupportsGracefulClosing                                      | False         |
| MinimumAddressSize                                           | 20 bytes      |  | SupportsGuaranteedBandwidth                                  | False         |
| PseudoStreamOriented                                         | False         |  | SupportsMulticasting                                         | False         |
| SupportsBroadcasting                                         | True          |  |                                                              |               |
| SupportsConnectData                                          | False         |  | Name                                                         | MSAFD NetBIOS |
| SupportsDisconnectData                                       | False         |  | [\Device\NetBT_Tcpip_{70347C08-B8F8-4918-93D1-FFF1CE9DB212}] |               |
| SupportsEncryption                                           | False         |  | DATAGRAM                                                     | 5             |
| SupportsExpeditedData                                        | False         |  | ConnectionlessService                                        | True          |
| SupportsGracefulClosing                                      | False         |  | GuaranteesDelivery                                           | False         |
| SupportsGuaranteedBandwidth                                  | False         |  | GuaranteesSequencing                                         | False         |
| SupportsMulticasting                                         | False         |  | MaximumAddressSize                                           | 20 bytes      |
|                                                              |               |  | MaximumMessageSize                                           | 64000 bytes   |
| Name                                                         | MSAFD NetBIOS |  | MessageOriented                                              | True          |
| [\Device\NetBT_Tcpip_{A3F279E1-7BCC-4CA2-B33C-18E41C7FF498}] |               |  | MinimumAddressSize                                           | 20 bytes      |
| SEQPACKET                                                    | 12            |  | PseudoStreamOriented                                         | False         |
| ConnectionlessService                                        | False         |  | SupportsBroadcasting                                         | True          |
| GuaranteesDelivery                                           | True          |  | SupportsConnectData                                          | False         |
| GuaranteesSequencing                                         | True          |  | SupportsDisconnectData                                       | False         |
| MaximumAddressSize                                           | 20 bytes      |  | SupportsEncryption                                           | False         |
| MaximumMessageSize                                           | 64000 bytes   |  | SupportsExpeditedData                                        | False         |
| MessageOriented                                              | True          |  | SupportsGracefulClosing                                      | False         |
| MinimumAddressSize                                           | 20 bytes      |  | SupportsGuaranteedBandwidth                                  | False         |
| PseudoStreamOriented                                         | False         |  | SupportsMulticasting                                         | False         |
| SupportsBroadcasting                                         | False         |  |                                                              |               |
| SupportsConnectData                                          | False         |  | Name                                                         | MSAFD NetBIOS |
| SupportsDisconnectData                                       | False         |  | [\Device\NetBT_Tcpip_{4DA8936B-544A-43FE-B2F7-D71CAF394BCD}] |               |
| SupportsEncryption                                           | False         |  | SEQPACKET                                                    | 0             |
| SupportsExpeditedData                                        | False         |  | ConnectionlessService                                        | False         |

|                             |             |
|-----------------------------|-------------|
| GuaranteesDelivery          | True        |
| GuaranteesSequencing        | True        |
| MaximumAddressSize          | 20 bytes    |
| MaximumMessageSize          | 64000 bytes |
| MessageOriented             | True        |
| MinimumAddressSize          | 20 bytes    |
| PseudoStreamOriented        | False       |
| SupportsBroadcasting        | False       |
| SupportsConnectData         | False       |
| SupportsDisconnectData      | False       |
| SupportsEncryption          | False       |
| SupportsExpeditedData       | False       |
| SupportsGracefulClosing     | False       |
| SupportsGuaranteedBandwidth | False       |
| SupportsMulticasting        | False       |

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{4DA8936B-544A-43FE-B2F7-D71CAF394BCD}]\n
 DATAGRAM 0

|                             |             |
|-----------------------------|-------------|
| ConnectionlessService       | True        |
| GuaranteesDelivery          | False       |
| GuaranteesSequencing        | False       |
| MaximumAddressSize          | 20 bytes    |
| MaximumMessageSize          | 64000 bytes |
| MessageOriented             | True        |
| MinimumAddressSize          | 20 bytes    |
| PseudoStreamOriented        | False       |
| SupportsBroadcasting        | True        |
| SupportsConnectData         | False       |
| SupportsDisconnectData      | False       |
| SupportsEncryption          | False       |
| SupportsExpeditedData       | False       |
| SupportsGracefulClosing     | False       |
| SupportsGuaranteedBandwidth | False       |
| SupportsMulticasting        | False       |

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{E4642D43-676A-4938-B902-1D94A9E14871}]\n
 SEQPACKET 1

|                             |             |
|-----------------------------|-------------|
| ConnectionlessService       | False       |
| GuaranteesDelivery          | True        |
| GuaranteesSequencing        | True        |
| MaximumAddressSize          | 20 bytes    |
| MaximumMessageSize          | 64000 bytes |
| MessageOriented             | True        |
| MinimumAddressSize          | 20 bytes    |
| PseudoStreamOriented        | False       |
| SupportsBroadcasting        | False       |
| SupportsConnectData         | False       |
| SupportsDisconnectData      | False       |
| SupportsEncryption          | False       |
| SupportsExpeditedData       | False       |
| SupportsGracefulClosing     | False       |
| SupportsGuaranteedBandwidth | False       |
| SupportsMulticasting        | False       |

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{E4642D43-676A-4938-B902-1D94A9E14871}]\n
 DATAGRAM 1

|                       |             |
|-----------------------|-------------|
| ConnectionlessService | True        |
| GuaranteesDelivery    | False       |
| GuaranteesSequencing  | False       |
| MaximumAddressSize    | 20 bytes    |
| MaximumMessageSize    | 64000 bytes |
| MessageOriented       | True        |
| MinimumAddressSize    | 20 bytes    |
| PseudoStreamOriented  | False       |
| SupportsBroadcasting  | True        |

|                             |       |
|-----------------------------|-------|
| SupportsConnectData         | False |
| SupportsDisconnectData      | False |
| SupportsEncryption          | False |
| SupportsExpeditedData       | False |
| SupportsGracefulClosing     | False |
| SupportsGuaranteedBandwidth | False |
| SupportsMulticasting        | False |

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{7A1A1C49-720E-4C27-ADCC-2C8703574F7C}]\n
 SEQPACKET 2

|                             |             |
|-----------------------------|-------------|
| ConnectionlessService       | False       |
| GuaranteesDelivery          | True        |
| GuaranteesSequencing        | True        |
| MaximumAddressSize          | 20 bytes    |
| MaximumMessageSize          | 64000 bytes |
| MessageOriented             | True        |
| MinimumAddressSize          | 20 bytes    |
| PseudoStreamOriented        | False       |
| SupportsBroadcasting        | False       |
| SupportsConnectData         | False       |
| SupportsDisconnectData      | False       |
| SupportsEncryption          | False       |
| SupportsExpeditedData       | False       |
| SupportsGracefulClosing     | False       |
| SupportsGuaranteedBandwidth | False       |
| SupportsMulticasting        | False       |

Name MSAFD NetBIOS  
 [\Device\NetBT\_Tcpip\_{7A1A1C49-720E-4C27-ADCC-2C8703574F7C}]\n
 DATAGRAM 2

|                             |             |
|-----------------------------|-------------|
| ConnectionlessService       | True        |
| GuaranteesDelivery          | False       |
| GuaranteesSequencing        | False       |
| MaximumAddressSize          | 20 bytes    |
| MaximumMessageSize          | 64000 bytes |
| MessageOriented             | True        |
| MinimumAddressSize          | 20 bytes    |
| PseudoStreamOriented        | False       |
| SupportsBroadcasting        | True        |
| SupportsConnectData         | False       |
| SupportsDisconnectData      | False       |
| SupportsEncryption          | False       |
| SupportsExpeditedData       | False       |
| SupportsGracefulClosing     | False       |
| SupportsGuaranteedBandwidth | False       |
| SupportsMulticasting        | False       |

#### [WinSock]

|         |                               |
|---------|-------------------------------|
| Item    | Value                         |
| File    | c:\winnt\system32\winsock.dll |
| Version | 3.10                          |
| Size    | 2.80 KB (2,864 bytes)         |

|         |                               |
|---------|-------------------------------|
| File    | c:\winnt\system32\wsock32.dll |
| Version | 5.00.2195.4874                |
| Size    | 21.27 KB (21,776 bytes)       |

#### [Ports]

[ Following are sub-categories of this main category ]

#### [Serial]

|      |       |
|------|-------|
| Item | Value |
|------|-------|

Name COM1  
 Status OK  
 PNP Device ID ACPI\PNP0501\1  
 Maximum Input Buffer Size 0  
 Maximum Output Buffer Size False  
 Settable Baud Rate True  
 Settable Data Bits True  
 Settable Flow Control True  
 Settable Parity True  
 Settable Parity Check True  
 Settable Stop Bits True  
 Settable RLSD True  
 Supports RLSD True  
 Supports 16 Bit Mode False  
 Supports Special Characters False  
 Baud Rate 9600  
 Bits/Byte 8  
 Stop Bits 1  
 Parity None  
 Busy 0  
 Abort Read/Write on Error 0  
 Binary Mode Enabled -1  
 Continue XMit on XOff 0  
 CTS Outflow Control 0  
 Discard NULL Bytes 0  
 DSR Outflow Control 0  
 DSR Sensitivity 0  
 DTR Flow Control Type Enable  
 EOF Character 0  
 Error Replace Character 0  
 Error Replacement Enabled 0  
 Event Character 0  
 Parity Check Enabled 0  
 RTS Flow Control Type Enable  
 XOff Character 19  
 XOffXMit Threshold 512  
 XOn Character 17  
 XOnXMit Threshold 2048  
 XOnXOff InFlow Control 0  
 XOnXOff OutFlow Control 0  
 IRQ Number 3  
 I/O Port 0x02F8-0x02FF  
 Driver c:\winnt\system32\drivers\serial.sys (62512, 5.00.2195.5080)

Name COM2  
 Status OK  
 PNP Device ID ACPI\PNP0501\2  
 Maximum Input Buffer Size 0  
 Maximum Output Buffer Size False  
 Settable Baud Rate True  
 Settable Data Bits True  
 Settable Flow Control True  
 Settable Parity True  
 Settable Parity Check True  
 Settable Stop Bits True  
 Settable RLSD True  
 Supports RLSD True  
 Supports 16 Bit Mode False  
 Supports Special Characters False  
 Baud Rate 9600  
 Bits/Byte 8  
 Stop Bits 1  
 Parity None  
 Busy 0  
 Abort Read/Write on Error 0  
 Binary Mode Enabled -1  
 Continue XMit on XOff 0  
 CTS Outflow Control 0

Discard NULL Bytes 0  
 DSR Outflow Control 0  
 DSR Sensitivity 0  
 DTR Flow Control Type Enable  
 EOF Character 0  
 Error Replace Character 0  
 Error Replacement Enabled 0  
 Event Character 0  
 Parity Check Enabled 0  
 RTS Flow Control Type Enable  
 XOff Character 19  
 XOffXMit Threshold 512  
 XOn Character 17  
 XOnXMit Threshold 2048  
 XOnXOff InFlow Control 0  
 XOnXOff OutFlow Control 0  
 IRQ Number 3  
 I/O Port 0x02F8-0x02FF  
 Driver c:\winnt\system32\drivers\serial.sys (62512, 5.00.2195.5080)

#### [Parallel]

Item Value  
 Name LPT1  
 PNP Device ID ACPI\PNP0400\4&323CF337&0

#### [Storage]

[ Following are sub-categories of this main category ]

#### [Drives]

Item Value  
 Drive A:  
 Description 3 1/2 Inch Floppy Drive  
 Drive C:  
 Description Local Fixed Disk  
 Compressed False  
 File System NTFS  
 Size 16.94 GB (18,194,284,544 bytes)  
 Free Space 12.38 GB (13,289,791,488 bytes)  
 Volume Name C\_Drive  
 Volume Serial Number 5C29133F  
 Partition Disk #1, Partition #0  
 Partition Size 16.94 GB (18,194,287,104 bytes)  
 Starting Offset 32256 bytes  
 Drive Description Disk drive  
 Drive Manufacturer (Standard disk drives)  
 Drive Model IBM-ESXS ST318432LC FN SCSI Disk Device  
 Drive BytesPerSector 512  
 Drive MediaLoaded True  
 Drive MediaType Fixed hard disk media  
 Drive Partitions 1  
 Drive SCSI Bus 0  
 Drive SCSI LogicalUnit 0  
 Drive SCSI Port 2  
 Drive SCSTargetId 4  
 Drive SectorsPerTrack 63  
 Drive Size 18194319360 bytes  
 Drive TotalCylinders 2212  
 Drive TotalSectors 35535780  
 Drive TotalTracks 564060  
 Drive TracksPerCylinder 255  
 Drive D:

Description Local Fixed Disk  
Compressed False  
File System FAT32  
Size 16.93 GB (18,177,163,264 bytes)  
Free Space 10.65 GB (11,439,702,016 bytes)  
Volume Name BACKUP  
Volume Serial Number 54FAAB2B  
Partition Disk #0, Partition #0  
Partition Size 16.94 GB (18,186,094,080 bytes)  
Starting Offset 8225280 bytes  
Drive Description Disk drive  
Drive Manufacturer (Standard disk drives)  
Drive Model IBM-ESXS ST318432LC FN SCSI Disk Device  
Drive BytesPerSector 512  
Drive MediaLoaded True  
Drive MediaType Fixed hard disk media  
Drive Partitions 1  
Drive SCSI Bus 0  
Drive SCSI Logical Unit 0  
Drive SCSI Port 2  
Drive SCSI Target ID 1  
Drive SectorsPerTrack 63  
Drive Size 18194319360 bytes  
Drive TotalCylinders 2212  
Drive TotalSectors 35535780  
Drive TotalTracks 564060  
Drive TracksPerCylinder 255

#### [SCSI]

Item Value  
Name QLogic QLA23xx PCI Fibre Channel Adapter  
Caption QLogic QLA23xx PCI Fibre Channel Adapter  
Driver ql2300  
Status OK  
PNP Device ID  
PCI\VEN\_1077&DEV\_2312&SUBSYS\_010C1077&REV\_02\5&121CC7C2&0&10E810  
Device ID  
PCI\VEN\_1077&DEV\_2312&SUBSYS\_010C1077&REV\_02\5&121CC7C2&0&10E810  
Device Map Not Available  
Index Not Available  
Max Number Controlled Not Available  
IRQ Number 52  
I/O Port 0xB000-0xB0FF  
Driver c:\winnt\system32\drivers\ql2300.sys (441733, 8.2.0 Beta 10 (W2K VI))

Name LSI Logic 1020/1030 Ultra320 SCSI Adapter  
Caption LSI Logic 1020/1030 Ultra320 SCSI Adapter  
Driver SYMMPI  
Status OK  
PNP Device ID  
PCI\VEN\_1000&DEV\_0030&SUBSYS\_10001014&REV\_07\5&21593F33&0&18F810  
Device ID  
PCI\VEN\_1000&DEV\_0030&SUBSYS\_10001014&REV\_07\5&21593F33&0&18F810  
Device Map Not Available  
Index Not Available  
Max Number Controlled Not Available  
IRQ Number 32  
I/O Port 0x9000-0x90FF  
Driver c:\winnt\system32\drivers\symmpi.sys (38512, 1.08.22.00)

Name LSI Logic 1020/1030 Ultra320 SCSI Adapter

Caption LSI Logic 1020/1030 Ultra320 SCSI Adapter  
Driver SYMMPI  
Status OK  
PNP Device ID  
PCI\VEN\_1000&DEV\_0030&SUBSYS\_10001014&REV\_07\5&21593F33&0&19F810  
Device ID  
PCI\VEN\_1000&DEV\_0030&SUBSYS\_10001014&REV\_07\5&21593F33&0&19F810  
Device Map Not Available  
Index Not Available  
Max Number Controlled Not Available  
IRQ Number 33  
I/O Port 0x9400-0x94FF  
Driver c:\winnt\system32\drivers\symmpi.sys (38512, 1.08.22.00)

#### [Printing]

Name Port Name Server Name  
No printing information

#### [Problem Devices]

| Device        | PNP Device ID            | Error Code |
|---------------|--------------------------|------------|
| Not Available | ACPI\IBM37D6\2&DABA3FF&0 | 28         |
| Not Available | ACPI\ASF0001\2&DABA3FF&0 | 28         |

#### [USB]

Device PNP Device ID  
Intel(R) 82801DB/DBM USB Universal Host Controller - 24C2  
PCI\VEN\_8086&DEV\_24C2&SUBSYS\_027A1014&REV\_02\3&13C0B0C5&0&E8  
USB Root Hub USB\ROOT\_HUB\4&BF47197&0  
Intel(R) 82801DB/DBM USB Universal Host Controller - 24C4  
PCI\VEN\_8086&DEV\_24C4&SUBSYS\_027A1014&REV\_02\3&13C0B0C5&0&E9  
USB Root Hub USB\ROOT\_HUB\4&31A3CFF4&0  
Intel PCI to USB Enhanced Host Controller  
PCI\VEN\_8086&DEV\_24CD&SUBSYS\_027A1014&REV\_02\3&13C0B0C5&0&EF  
USB 2.0 Root Hub USB\ROOT\_HUB20\4&E58626F&0

#### [Software Environment]

[ Following are sub-categories of this main category ]

#### [Drivers]

| Name          | Description                                                   | File                                   | Type          | Started     | Start Mode |
|---------------|---------------------------------------------------------------|----------------------------------------|---------------|-------------|------------|
| State         | Status                                                        | Error Control                          | Accept Pause  | Accept Stop |            |
| abiosdsk      | Abiosdsk                                                      | Not Available                          | Kernel Driver | False       | False      |
| Disabled      | Stopped                                                       | OK                                     | Ignore        | False       | False      |
| abp480n5      | abp480n5                                                      | Not Available                          | Kernel Driver | False       | False      |
| Disabled      | Stopped                                                       | OK                                     | Normal        | False       | False      |
| acpi          | Microsoft ACPI Driver                                         | c:\winnt\system32\drivers\acpi.sys     | Kernel Driver | True        | Boot       |
| Kernel Driver | True                                                          | Boot                                   | Running       | OK          | Normal     |
| False         | True                                                          |                                        |               |             |            |
| acpiec        | ACPIEC                                                        | c:\winnt\system32\drivers\acpiec.sys   | Kernel Driver | False       | Normal     |
| Driver        | False                                                         | Disabled                               | Stopped       | OK          | Normal     |
| False         |                                                               |                                        |               |             |            |
| adptsf        | Adaptec DuraLAN PCI Ethernet/Fast Ethernet driver for Windows | c:\winnt\system32\drivers\adptsf50.sys | Kernel Driver | True        | Manual     |
| 2000          | Manual                                                        | Running                                | OK            | Normal      | False      |
| True          | Manual                                                        | Running                                | OK            | Normal      | False      |
| adpu160m      | adpu160m                                                      | Not Available                          | Kernel Driver | False       | False      |
| Disabled      | Stopped                                                       | OK                                     | Normal        | False       | False      |

|                                       |                                        |           |                                      |                                        |               |         |
|---------------------------------------|----------------------------------------|-----------|--------------------------------------|----------------------------------------|---------------|---------|
| aeaudio                               | Kernel                                 | cpqarray  | Cpqarray                             | Not Available                          | Kernel Driver | False   |
| Driver                                | True                                   | Disabled  | Stopped                              | OK                                     | False         | False   |
| True                                  | Manual                                 | cpqarry2  | cpqarry2                             | Not Available                          | Kernel Driver | False   |
| afd                                   | AFD Networking Support Environment     | cpqfcalm  | cpqfcalm                             | Not Available                          | Kernel Driver | False   |
| c:\winnt\system32\drivers\afd.sys     | Kernel Driver                          | Disabled  | Stopped                              | OK                                     | False         | False   |
| Running                               | True                                   | cpqfws2e  | cpqfws2e                             | Not Available                          | Kernel Driver | False   |
| OK                                    | Normal                                 | Disabled  | Stopped                              | OK                                     | False         | False   |
| False                                 | True                                   | dac960nt  | dac960nt                             | Not Available                          | Kernel Driver | False   |
| agp440                                | Intel AGP                              | deckzpsx  | deckzpsx                             | Not Available                          | Kernel Driver | False   |
| Kernel Driver                         | True                                   | dfsdriver | DfsDriver                            | c:\winnt\system32\drivers\dfs.sys      | File System   | Driver  |
| False                                 | True                                   | disk      | Disk Driver                          | c:\winnt\system32\drivers\disk.sys     | Kernel Driver | True    |
| aha154x                               | Aha154x                                | dmboot    | dmboot                               | c:\winnt\system32\drivers\dmboot.sys   | Kernel Driver | False   |
| Disabled                              | Stopped                                | False     | True                                 | True                                   | True          | True    |
| aic116x                               | aic116x                                | diskperf  | Diskperf                             | c:\winnt\system32\drivers\diskperf.sys | Kernel Driver | False   |
| Disabled                              | Stopped                                | Driver    | True                                 | Boot                                   | Running       | OK      |
| aic78u2                               | aic78u2                                | dmio      | Logical Disk Manager Driver          | c:\winnt\system32\drivers\dmio.sys     | Kernel Driver | True    |
| Disabled                              | Stopped                                | Boot      | Running                              | OK                                     | Normal        | False   |
| aic78xx                               | aic78xx                                | dmload    | dmload                               | c:\winnt\system32\drivers\dmload.sys   | Kernel Driver | False   |
| Disabled                              | Stopped                                | Driver    | True                                 | Boot                                   | Running       | OK      |
| ami0nt                                | ami0nt                                 | dmusic    | Microsoft DirectMusic SW Synth (WDM) | c:\winnt\system32\drivers\dmusic.sys   | Kernel Driver | False   |
| Disabled                              | Stopped                                | Manual    | Stopped                              | OK                                     | Normal        | False   |
| amsint                                | amsint                                 | e100b     | Intel(R) PRO Adapter Driver          | c:\winnt\system32\drivers\e100bnt5.sys | Kernel Driver | True    |
| Disabled                              | Stopped                                | Manual    | Running                              | OK                                     | Normal        | False   |
| asc                                   | asc                                    | efs       | EFS                                  | c:\winnt\system32\drivers\efs.sys      | File System   | Driver  |
| Disabled                              | Stopped                                | fastfat   | Fastfat                              | c:\winnt\system32\drivers\fastfat.sys  | File System   | Driver  |
| asc3350p                              | asc3350p                               | fd16_700  | Fd16_700                             | Not Available                          | Kernel Driver | False   |
| Disabled                              | Stopped                                | fdc       | Floppy Disk Controller Driver        | c:\winnt\system32\drivers\fdc.sys      | Kernel Driver | Normal  |
| asc3550                               | asc3550                                | False     | True                                 | True                                   | Manual        | Running |
| Disabled                              | Stopped                                | fips      | Fips                                 | c:\winnt\system32\drivers\fips.sys     | Kernel Driver | False   |
| asynmac                               | RAS Asynchronous Media Driver          | True      | True                                 | Auto                                   | Running       | OK      |
| c:\winnt\system32\drivers\asynmac.sys | Kernel Driver                          | fireport  | fireport                             | Not Available                          | Kernel Driver | False   |
| Manual                                | Stopped                                | Disabled  | Stopped                              | OK                                     | Normal        | False   |
| atapi                                 | Standard IDE/ESDI Hard Disk Controller | flashpnt  | flashpnt                             | Not Available                          | Kernel Driver | False   |
| c:\winnt\system32\drivers\atapi.sys   | Kernel Driver                          | flpydisk  | Floppy Disk Driver                   | c:\winnt\system32\drivers\flpydisk.sys | Kernel Driver | Normal  |
| Boot                                  | Running                                | False     | True                                 | True                                   | Manual        | Running |
| atdisk                                | Atdisk                                 | ftdisk    | Volume Manager Driver                | c:\winnt\system32\drivers\ftdisk.sys   | Kernel Driver | True    |
| Disabled                              | Stopped                                | gpc       | Generic Packet Classifier            | c:\winnt\system32\drivers\msgpc.sys    | Kernel Driver | True    |
| ati2mpad                              | ati2mpad                               | Manual    | Running                              | OK                                     | Normal        | False   |
| Driver                                | True                                   | Manual    | Running                              | OK                                     | Normal        | False   |
| True                                  | Manual                                 | ini910u   | ini910u                              | Not Available                          | Kernel Driver | False   |
| atirage3                              | atirage3                               | intelite  | IntellIde                            | Not Available                          | Kernel Driver | False   |
| Driver                                | False                                  | Disabled  | Stopped                              | OK                                     | Normal        | False   |
| False                                 | Manual                                 | Disabled  | Stopped                              | OK                                     | Normal        | False   |
| atmarpc                               | ATM ARP Client Protocol                | True      | True                                 | Auto                                   | Running       | OK      |
| c:\winnt\system32\drivers\atmarpc.sys | Kernel Driver                          | True      | True                                 | Auto                                   | Running       | OK      |
| Manual                                | Stopped                                | True      | True                                 | Auto                                   | Running       | OK      |
| audstub                               | Audio Stub Driver                      | True      | True                                 | Auto                                   | Running       | OK      |
| Kernel Driver                         | True                                   | True      | True                                 | Auto                                   | Running       | OK      |
| False                                 | True                                   | True      | True                                 | Auto                                   | Running       | OK      |
| b57w2k                                | Broadcom NetXtreme Gigabit Ethernet    | True      | True                                 | Auto                                   | Running       | OK      |
| c:\winnt\system32\drivers\b57w2k.sys  | Kernel Driver                          | True      | True                                 | Auto                                   | Running       | OK      |
| Manual                                | Running                                | True      | True                                 | Auto                                   | Running       | OK      |
| beep                                  | Beep                                   | True      | True                                 | Auto                                   | Running       | OK      |
| Driver                                | True                                   | True      | True                                 | Auto                                   | Running       | OK      |
| True                                  | System                                 | True      | True                                 | Auto                                   | Running       | OK      |
| buslogic                              | BusLogic                               | True      | True                                 | Auto                                   | Running       | OK      |
| Disabled                              | Stopped                                | True      | True                                 | Auto                                   | Running       | OK      |
| cd20xrnt                              | cd20xrnt                               | True      | True                                 | Auto                                   | Running       | OK      |
| Disabled                              | Stopped                                | True      | True                                 | Auto                                   | Running       | OK      |
| cdaudio                               | Cdaudio                                | True      | True                                 | Auto                                   | Running       | OK      |
| Driver                                | False                                  | True      | True                                 | Auto                                   | Running       | OK      |
| False                                 | System                                 | True      | True                                 | Auto                                   | Running       | OK      |
| cdfs                                  | Cdfs                                   | True      | True                                 | Auto                                   | Running       | OK      |
| Driver                                | True                                   | True      | True                                 | Auto                                   | Running       | OK      |
| True                                  | Disabled                               | True      | True                                 | Auto                                   | Running       | OK      |
| cdrom                                 | CD-ROM Driver                          | True      | True                                 | Auto                                   | Running       | OK      |
| Kernel Driver                         | True                                   | True      | True                                 | Auto                                   | Running       | OK      |
| False                                 | True                                   | True      | True                                 | Auto                                   | Running       | OK      |
| changer                               | Changer                                | True      | True                                 | Auto                                   | Running       | OK      |
| System                                | Stopped                                | True      | True                                 | Auto                                   | Running       | OK      |

|                                        |                                           |                                       |             |               |          |                                         |
|----------------------------------------|-------------------------------------------|---------------------------------------|-------------|---------------|----------|-----------------------------------------|
| ipfilterdriver                         | IP Traffic Filter Driver                  |                                       |             |               |          |                                         |
| c:\winnt\system32\drivers\ipfltdrv.sys | Kernel Driver                             | False                                 |             |               |          |                                         |
| Manual                                 | Stopped                                   | OK                                    | Normal      | False         | False    |                                         |
| ipinip                                 | IP in IP Tunnel Driver                    |                                       |             |               |          | c:\winnt\system32\drivers\ipinip.sys    |
| Kernel Driver                          | False                                     | Manual                                | Stopped     | OK            | Normal   |                                         |
| False                                  | False                                     |                                       |             |               |          |                                         |
| ipnat                                  | IP Network Address Translator             |                                       |             |               |          | c:\winnt\system32\drivers\ipnat.sys     |
| Kernel Driver                          | False                                     | Manual                                | Stopped     | OK            | Normal   |                                         |
| False                                  | False                                     |                                       |             |               |          |                                         |
| ipsec                                  | IPSEC driver                              |                                       |             |               |          | c:\winnt\system32\drivers\ipsec.sys     |
| Kernel Driver                          | True                                      | Manual                                | Running     | OK            | Normal   |                                         |
| False                                  | True                                      |                                       |             |               |          |                                         |
| ipsraidn                               | ipsraidn                                  | Not Available                         |             | Kernel Driver | False    |                                         |
| Disabled                               | Stopped                                   | OK                                    | Normal      | False         | False    |                                         |
| irenum                                 | IR Enumerator Service                     |                                       |             |               |          |                                         |
| c:\winnt\system32\drivers\irenum.sys   | Kernel Driver                             | False                                 |             |               |          |                                         |
| Manual                                 | Stopped                                   | OK                                    | Normal      | False         | False    |                                         |
| isapnp                                 | PnP ISA/EISA Bus Driver                   |                                       |             |               |          |                                         |
| c:\winnt\system32\drivers\isapnp.sys   | Kernel Driver                             | True                                  |             |               |          |                                         |
| Boot                                   | Running                                   | OK                                    | Critical    | False         | True     |                                         |
| kbdclass                               | Keyboard Class Driver                     |                                       |             |               |          |                                         |
| c:\winnt\system32\drivers\kbdclass.sys | Kernel Driver                             | True                                  |             |               |          |                                         |
| System                                 | Running                                   | OK                                    | Normal      | False         | True     |                                         |
| kmixer                                 | Microsoft Kernel Wave Audio Mixer         |                                       |             |               |          |                                         |
| c:\winnt\system32\drivers\kmixer.sys   | Kernel Driver                             | False                                 |             |               |          |                                         |
| Manual                                 | Stopped                                   | OK                                    | Normal      | False         | False    |                                         |
| ksecdd                                 | KSecDD                                    |                                       |             |               |          | c:\winnt\system32\drivers\ksecdd.sys    |
| Driver                                 | True                                      | Boot                                  | Running     | OK            | Normal   | Kernel                                  |
| True                                   |                                           |                                       |             |               |          | False                                   |
| lbtrfdc                                | lbtrfdc                                   | Not Available                         |             | Kernel Driver | False    |                                         |
| System                                 | Stopped                                   | OK                                    | Ignore      | False         | False    |                                         |
| lp6nds35                               | lp6nds35                                  | Not Available                         |             | Kernel Driver | False    |                                         |
| Disabled                               | Stopped                                   | OK                                    | Normal      | False         | False    |                                         |
| mnmd                                   | mnmd                                      | c:\winnt\system32\drivers\mnmd.sys    | Kernel      |               |          |                                         |
| Driver                                 | True                                      | System                                | Running     | OK            | Ignore   | False                                   |
| True                                   |                                           |                                       |             |               |          |                                         |
| modem                                  | Modem                                     | c:\winnt\system32\drivers\modem.sys   | Kernel      |               |          |                                         |
| Driver                                 | False                                     | Manual                                | Stopped     | OK            | Ignore   | False                                   |
| False                                  |                                           |                                       |             |               |          |                                         |
| mouclass                               | Mouse Class Driver                        |                                       |             |               |          | c:\winnt\system32\drivers\mouclass.sys  |
| Kernel Driver                          | True                                      | System                                | Running     | OK            | Normal   |                                         |
| False                                  | True                                      |                                       |             |               |          |                                         |
| mountmgr                               | MountMgr                                  |                                       |             |               |          | c:\winnt\system32\drivers\mountmgr.sys  |
| Driver                                 | True                                      | Boot                                  | Running     | OK            | Normal   | Kernel                                  |
| True                                   |                                           |                                       |             |               |          | False                                   |
| mrraid35x                              | mrraid35x                                 | Not Available                         |             | Kernel Driver | False    |                                         |
| Disabled                               | Stopped                                   | OK                                    | Normal      | False         | False    |                                         |
| mrxsmb                                 | MRXSMB                                    |                                       |             |               |          | c:\winnt\system32\drivers\mrxsmb.sys    |
| Driver                                 | True                                      | System                                | Running     | OK            | Normal   | File System                             |
| True                                   |                                           |                                       |             |               |          | False                                   |
| msfs                                   | Msfs                                      | c:\winnt\system32\drivers\msfs.sys    | File System |               |          |                                         |
| Driver                                 | True                                      | System                                | Running     | OK            | Normal   | False                                   |
| True                                   |                                           |                                       |             |               |          |                                         |
| mskssrv                                | Microsoft Streaming Service Proxy         |                                       |             |               |          |                                         |
| c:\winnt\system32\drivers\mskssrv.sys  | Kernel Driver                             | False                                 |             |               |          |                                         |
| Manual                                 | Stopped                                   | OK                                    | Normal      | False         | False    |                                         |
| mspclock                               | Microsoft Streaming Clock Proxy           |                                       |             |               |          |                                         |
| c:\winnt\system32\drivers\mspclock.sys | Kernel Driver                             | False                                 |             |               |          |                                         |
| Manual                                 | Stopped                                   | OK                                    | Normal      | False         | False    |                                         |
| mspqm                                  | Microsoft Streaming Quality Manager Proxy |                                       |             |               |          |                                         |
| c:\winnt\system32\drivers\mspqm.sys    | Kernel Driver                             | False                                 |             |               |          |                                         |
| Manual                                 | Stopped                                   | OK                                    | Normal      | False         | False    |                                         |
| mup                                    | Mup                                       | c:\winnt\system32\drivers\mup.sys     | File System |               |          |                                         |
| Driver                                 | True                                      | Boot                                  | Running     | OK            | Normal   | False                                   |
| True                                   |                                           |                                       |             |               |          |                                         |
| ncrc710                                | Nrc710                                    | Not Available                         |             | Kernel Driver | False    |                                         |
| Disabled                               | Stopped                                   | OK                                    | Normal      | False         | False    |                                         |
| ndis                                   | NDIS System Driver                        |                                       |             |               |          | c:\winnt\system32\drivers\ndis.sys      |
| Kernel Driver                          | True                                      | Boot                                  | Running     | OK            | Normal   |                                         |
| False                                  | True                                      |                                       |             |               |          |                                         |
| ndistapi                               | Remote Access NDIS TAPI Driver            |                                       |             |               |          |                                         |
| c:\winnt\system32\drivers\ndistapi.sys | Kernel Driver                             | True                                  |             |               |          |                                         |
| Manual                                 | Running                                   | OK                                    | Normal      | False         | True     |                                         |
| ndiswan                                | Remote Access NDIS WAN Driver             |                                       |             |               |          |                                         |
| c:\winnt\system32\drivers\ndiswan.sys  | Kernel Driver                             | True                                  |             |               |          |                                         |
| Manual                                 | Running                                   | OK                                    | Normal      | False         | True     |                                         |
| ndproxy                                | NDIS Proxy                                |                                       |             |               |          | c:\winnt\system32\drivers\ndproxy.sys   |
| Kernel Driver                          | True                                      | Manual                                | Running     | OK            | Normal   |                                         |
| False                                  | True                                      |                                       |             |               |          |                                         |
| netbios                                | NetBIOS Interface                         |                                       |             |               |          | c:\winnt\system32\drivers\netbios.sys   |
| File System Driver                     | True                                      | System                                | Running     | OK            | Normal   |                                         |
| False                                  | True                                      |                                       |             |               |          |                                         |
| netbt                                  | NetBios over Tcpip                        |                                       |             |               |          | c:\winnt\system32\drivers\netbt.sys     |
| Kernel Driver                          | True                                      | System                                | Running     | OK            | Normal   |                                         |
| False                                  | True                                      |                                       |             |               |          |                                         |
| netdetect                              | NetDetect                                 |                                       |             |               |          | c:\winnt\system32\drivers\netdetect.sys |
| Driver                                 | False                                     | Manual                                | Stopped     | OK            | Normal   | Kernel                                  |
| False                                  |                                           |                                       |             |               |          | False                                   |
| npfs                                   | Npfs                                      | c:\winnt\system32\drivers\npfs.sys    | File System |               |          |                                         |
| Driver                                 | True                                      | System                                | Running     | OK            | Normal   | False                                   |
| True                                   |                                           |                                       |             |               |          |                                         |
| ntfs                                   | Ntfs                                      | c:\winnt\system32\drivers\ntfs.sys    | File System |               |          |                                         |
| Driver                                 | True                                      | Disabled                              | Running     | OK            | Normal   | False                                   |
| True                                   |                                           |                                       |             |               |          |                                         |
| null                                   | Null                                      | c:\winnt\system32\drivers\null.sys    | Kernel      |               |          |                                         |
| Driver                                 | True                                      | System                                | Running     | OK            | Normal   | False                                   |
| True                                   |                                           |                                       |             |               |          |                                         |
| nwlkflt                                | IPX Traffic Filter Driver                 |                                       |             |               |          |                                         |
| c:\winnt\system32\drivers\nwlkflt.sys  | Kernel Driver                             | False                                 |             |               |          |                                         |
| Manual                                 | Stopped                                   | OK                                    | Normal      | False         | False    |                                         |
| nwlkfw                                 | IPX Traffic Forwarder Driver              |                                       |             |               |          |                                         |
| c:\winnt\system32\drivers\nwlkfw.sys   | Kernel Driver                             | False                                 |             |               |          |                                         |
| Manual                                 | Stopped                                   | OK                                    | Normal      | False         | False    |                                         |
| parallel                               | Parallel class driver                     |                                       |             |               |          | c:\winnt\system32\drivers\parallel.sys  |
| Kernel Driver                          | True                                      | Manual                                | Running     | OK            | Normal   |                                         |
| False                                  | True                                      |                                       |             |               |          |                                         |
| parport                                | Parallel port driver                      |                                       |             |               |          | c:\winnt\system32\drivers\parport.sys   |
| Kernel Driver                          | True                                      | System                                | Running     | OK            | Ignore   |                                         |
| False                                  | True                                      |                                       |             |               |          |                                         |
| partmgr                                | PartMgr                                   | c:\winnt\system32\drivers\partmgr.sys | Kernel      |               |          |                                         |
| Driver                                 | True                                      | Boot                                  | Running     | OK            | Normal   | False                                   |
| True                                   |                                           |                                       |             |               |          |                                         |
| parvdm                                 | ParVdm                                    | c:\winnt\system32\drivers\parvdm.sys  | Kernel      |               |          |                                         |
| Driver                                 | True                                      | Auto                                  | Running     | OK            | Ignore   | False                                   |
| True                                   |                                           |                                       |             |               |          |                                         |
| pci                                    | PCI Bus Driver                            |                                       |             |               |          | c:\winnt\system32\drivers\pci.sys       |
| Driver                                 | True                                      | Boot                                  | Running     | OK            | Critical | Kernel                                  |
| True                                   |                                           |                                       |             |               |          | False                                   |
| pcidump                                | PCIDump                                   | Not Available                         |             | Kernel Driver | False    |                                         |
| System                                 | Stopped                                   | OK                                    | Ignore      | False         | False    |                                         |
| pciide                                 | PCIIde                                    | c:\winnt\system32\drivers\pciide.sys  | Kernel      |               |          |                                         |
| Driver                                 | True                                      | Boot                                  | Running     | OK            | Normal   | False                                   |
| True                                   |                                           |                                       |             |               |          |                                         |
| pcmcia                                 | Pcmcia                                    | c:\winnt\system32\drivers\pcmcia.sys  | Kernel      |               |          |                                         |
| Driver                                 | False                                     | Disabled                              | Stopped     | OK            | Normal   | False                                   |
| False                                  |                                           |                                       |             |               |          |                                         |
| pdcomp                                 | PDCOMP                                    | Not Available                         |             | Kernel Driver | False    |                                         |
| Manual                                 | Stopped                                   | OK                                    | Ignore      | False         | False    |                                         |
| pdframe                                | PDFRAME                                   | Not Available                         |             | Kernel Driver |          |                                         |
| False                                  | Manual                                    | Stopped                               | OK          | Ignore        | False    | False                                   |
| pdreli                                 | PDRELI                                    | Not Available                         |             | Kernel Driver | False    | False                                   |
| Manual                                 | Stopped                                   | OK                                    | Ignore      | False         | False    |                                         |
| pdframe                                | PDRFRAME                                  | Not Available                         |             | Kernel Driver |          |                                         |
| False                                  | Manual                                    | Stopped                               | OK          | Ignore        | False    | False                                   |

|                                                                     |                                         |                                       |                                      |                                    |        |                    |                                                                    |                                                |                                      |         |                                     |        |  |
|---------------------------------------------------------------------|-----------------------------------------|---------------------------------------|--------------------------------------|------------------------------------|--------|--------------------|--------------------------------------------------------------------|------------------------------------------------|--------------------------------------|---------|-------------------------------------|--------|--|
| pptpminiport WAN Miniport (PPTP)                                    |                                         |                                       |                                      |                                    |        |                    | swmidi Microsoft Kernel GS Wavetable Synthesizer                   |                                                |                                      |         |                                     |        |  |
| c:\winnt\system32\drivers\raspttp.sys Kernel Driver True            |                                         |                                       |                                      |                                    |        |                    | c:\winnt\system32\drivers\swmidi.sys Kernel Driver False           |                                                |                                      |         |                                     |        |  |
| Manual                                                              | Running                                 | OK                                    | Normal                               | False                              | True   |                    | Manual                                                             | Stopped                                        | OK                                   | Normal  | False                               | False  |  |
| ptlink Direct Parallel Link Driver                                  |                                         |                                       |                                      |                                    |        |                    | symc810 symc810 Not Available Kernel Driver False                  |                                                |                                      |         |                                     |        |  |
| c:\winnt\system32\drivers\ptlink.sys Kernel Driver True             |                                         |                                       |                                      |                                    |        |                    | Disabled Stopped OK Normal False False                             |                                                |                                      |         |                                     |        |  |
| Manual                                                              | Running                                 | OK                                    | Normal                               | False                              | True   |                    | symc8xx symc8xx                                                    | Not Available                                  |                                      |         | Kernel Driver                       | False  |  |
| ql1080                                                              | ql1080                                  | Not Available                         |                                      | Kernel Driver                      |        | False              | Disabled                                                           | Stopped                                        | OK                                   | Normal  | False                               | False  |  |
| Disabled                                                            | Stopped                                 | OK                                    | Normal                               | False                              | False  |                    | symmpi                                                             | symmpi                                         | c:\winnt\system32\drivers\symmpi.sys |         |                                     | Kernel |  |
| ql10wnt                                                             | ql10wnt                                 | Not Available                         |                                      | Kernel Driver                      |        | False              | Driver                                                             | True                                           | Boot                                 | Running | OK                                  | Normal |  |
| Disabled                                                            | Stopped                                 | OK                                    | Normal                               | False                              | False  |                    | True                                                               |                                                |                                      |         |                                     |        |  |
| ql1240                                                              | ql1240                                  | Not Available                         |                                      | Kernel Driver                      |        | False              | sym_hi                                                             | sym_hi                                         | Not Available                        |         | Kernel Driver                       |        |  |
| Disabled                                                            | Stopped                                 | OK                                    | Normal                               | False                              | False  |                    | Disabled                                                           | Stopped                                        | OK                                   | Normal  | False                               | False  |  |
| ql2100                                                              | ql2100                                  | Not Available                         |                                      | Kernel Driver                      |        | False              | sysaudio Microsoft System Audio Device                             |                                                |                                      |         |                                     |        |  |
| Disabled                                                            | Stopped                                 | OK                                    | Normal                               | False                              | False  |                    | c:\winnt\system32\drivers\sysaudio.sys Kernel Driver True          |                                                |                                      |         |                                     |        |  |
| ql2300                                                              | ql2300                                  | c:\winnt\system32\drivers\ql2300.sys  |                                      |                                    |        | Kernel             | Manual                                                             | Running                                        | OK                                   | Normal  | False                               | True   |  |
| Driver                                                              | True                                    | Boot                                  | Running                              | OK                                 | Normal | False              | tcpip TCP/IP Protocol Driver                                       |                                                |                                      |         | c:\winnt\system32\drivers\tcpip.sys |        |  |
| True                                                                |                                         |                                       |                                      |                                    |        |                    | Kernel Driver                                                      | True                                           | System                               | Running | OK                                  | Normal |  |
| qlvika                                                              | qlvika                                  | c:\winnt\system32\drivers\qlvika.sys  |                                      |                                    |        | Kernel             | False                                                              | True                                           |                                      |         |                                     |        |  |
| Driver                                                              | True                                    | Auto                                  | Running                              | OK                                 | Normal | False              | tdasync TDASYNC c:\winnt\system32\drivers\tdasync.sys              |                                                |                                      |         |                                     |        |  |
| True                                                                |                                         |                                       |                                      |                                    |        |                    | Kernel Driver                                                      | False                                          | Manual                               | Stopped | OK                                  | Ignore |  |
| rasacd Remote Access Auto Connection Driver                         |                                         |                                       |                                      |                                    |        |                    | False                                                              | False                                          |                                      |         |                                     |        |  |
| c:\winnt\system32\drivers\rasacd.sys Kernel Driver True             |                                         |                                       |                                      |                                    |        |                    | tdipx TDIPX c:\winnt\system32\drivers\tdipx.sys                    |                                                |                                      |         |                                     |        |  |
| System                                                              | Running                                 | OK                                    | Normal                               | False                              | True   |                    | Driver                                                             | False                                          | Manual                               | Stopped | OK                                  | Ignore |  |
| rasl2tp WAN Miniport (L2TP)                                         |                                         |                                       |                                      |                                    |        |                    | False                                                              |                                                |                                      |         |                                     |        |  |
| c:\winnt\system32\drivers\rasl2tp.sys Kernel Driver True            |                                         |                                       |                                      |                                    |        |                    | tdnetb                                                             | TDNETB                                         | c:\winnt\system32\drivers\tdnetb.sys |         | Kernel                              |        |  |
| Manual                                                              | Running                                 | OK                                    | Normal                               | False                              | True   |                    | Driver                                                             | False                                          | Manual                               | Stopped | OK                                  | Ignore |  |
| raspti Direct Parallel c:\winnt\system32\drivers\raspti.sys         |                                         |                                       |                                      |                                    |        |                    | False                                                              |                                                |                                      |         |                                     |        |  |
| Kernel Driver                                                       | True                                    | Manual                                | Running                              | OK                                 | Normal |                    | tdpipe                                                             | TDPIPE                                         | c:\winnt\system32\drivers\tdpipe.sys |         | Kernel                              |        |  |
| False                                                               | True                                    |                                       |                                      |                                    |        |                    | Driver                                                             | False                                          | Manual                               | Stopped | OK                                  | Ignore |  |
| rca Microsoft Streaming Network Raw Channel Access                  |                                         |                                       |                                      |                                    |        |                    | False                                                              |                                                |                                      |         |                                     |        |  |
| c:\winnt\system32\drivers\rca.sys Kernel Driver False Manual        |                                         |                                       |                                      |                                    |        |                    | tdspx                                                              | TDSPX                                          | c:\winnt\system32\drivers\tdspx.sys  |         | Kernel                              |        |  |
| Stopped                                                             | OK                                      | Normal                                | False                                | False                              |        |                    | Driver                                                             | False                                          | Manual                               | Stopped | OK                                  | Ignore |  |
| rdbss                                                               | Rdbss                                   | c:\winnt\system32\drivers\rdbss.sys   |                                      |                                    |        | File System        | False                                                              |                                                |                                      |         |                                     |        |  |
| Driver                                                              | True                                    | System                                | Running                              | OK                                 | Normal | False              | tdtcp                                                              | TDTCP                                          | c:\winnt\system32\drivers\tdtcp.sys  |         | Kernel                              |        |  |
| True                                                                |                                         |                                       |                                      |                                    |        |                    | Driver                                                             | False                                          | Manual                               | Stopped | OK                                  | Ignore |  |
| rdpwd                                                               | RDPWD                                   | c:\winnt\system32\drivers\rdpwd.sys   |                                      |                                    |        | Kernel             | False                                                              |                                                |                                      |         |                                     |        |  |
| Driver                                                              | False                                   | Manual                                | Stopped                              | OK                                 | Ignore | False              | termdd Terminal Device Driver                                      |                                                |                                      |         |                                     |        |  |
| False                                                               |                                         |                                       |                                      |                                    |        |                    | c:\winnt\system32\drivers\termdd.sys Kernel Driver False           |                                                |                                      |         |                                     |        |  |
| redbook                                                             | Digital CD Audio Playback Filter Driver |                                       |                                      |                                    |        |                    | Disabled                                                           | Stopped                                        | OK                                   | Normal  | False                               | False  |  |
| c:\winnt\system32\drivers\redbook.sys Kernel Driver False           |                                         |                                       |                                      |                                    |        |                    | tga                                                                | tga                                            | Not Available                        |         | Kernel Driver                       |        |  |
| System                                                              | Stopped                                 | OK                                    | Normal                               | False                              | False  |                    | System                                                             | Stopped                                        | OK                                   | Ignore  | False                               | False  |  |
| serenum Serenum Filter Driver c:\winnt\system32\drivers\serenum.sys |                                         |                                       |                                      |                                    |        |                    | udfs                                                               | Udfs                                           | c:\winnt\system32\drivers\udfs.sys   |         | File System                         |        |  |
| Kernel Driver                                                       | True                                    | Manual                                | Running                              | OK                                 | Normal |                    | Driver                                                             | False                                          | Disabled                             | Stopped | OK                                  | Normal |  |
| False                                                               | True                                    |                                       |                                      |                                    |        |                    | False                                                              |                                                |                                      |         |                                     |        |  |
| serial                                                              | Serial port driver                      |                                       | c:\winnt\system32\drivers\serial.sys |                                    |        |                    | uhcd                                                               | Microsoft USB Universal Host Controller Driver |                                      |         |                                     |        |  |
| Kernel Driver                                                       | True                                    | System                                | Running                              | OK                                 | Ignore |                    | c:\winnt\system32\drivers\uhcd.sys Kernel Driver True              |                                                |                                      |         |                                     |        |  |
| False                                                               | True                                    |                                       |                                      |                                    |        |                    | Manual                                                             | Running                                        | OK                                   | Normal  | False                               | True   |  |
| sfloppy                                                             | Sfloppy                                 | c:\winnt\system32\drivers\sfloppy.sys |                                      |                                    |        | Kernel             | ultra66                                                            | ultra66                                        | Not Available                        |         | Kernel Driver                       |        |  |
| Driver                                                              | False                                   | System                                | Stopped                              | OK                                 | Ignore | False              | Disabled                                                           | Stopped                                        | OK                                   | Normal  | False                               | False  |  |
| False                                                               |                                         |                                       |                                      |                                    |        |                    | update Microcode Update Driver                                     |                                                |                                      |         |                                     |        |  |
| sglfb                                                               | sglfb                                   | Not Available                         |                                      | Kernel Driver                      |        | False              | c:\winnt\system32\drivers\update.sys Kernel Driver True            |                                                |                                      |         |                                     |        |  |
| System                                                              | Stopped                                 | OK                                    | Normal                               | False                              | False  |                    | Manual                                                             | Running                                        | OK                                   | Normal  | False                               | True   |  |
| simbad                                                              | Simbad                                  | Not Available                         |                                      | Kernel Driver                      |        | False              | usbehci Microsoft USB 2.0 Enhanced Host Controller Miniport Driver |                                                |                                      |         |                                     |        |  |
| Disabled                                                            | Stopped                                 | OK                                    | Normal                               | False                              | False  |                    | c:\winnt\system32\drivers\usbehci.sys Kernel Driver True           |                                                |                                      |         |                                     |        |  |
| smwdm                                                               | smwdm                                   | c:\winnt\system32\drivers\smwdm.sys   |                                      |                                    |        | Kernel             | Manual                                                             | Running                                        | OK                                   | Normal  | False                               | True   |  |
| Driver                                                              | True                                    | Manual                                | Running                              | OK                                 | Normal | False              | usbhub Microsoft USB Standard Hub Driver                           |                                                |                                      |         |                                     |        |  |
| True                                                                |                                         |                                       |                                      |                                    |        |                    | c:\winnt\system32\drivers\usbhub.sys Kernel Driver True            |                                                |                                      |         |                                     |        |  |
| sparrow                                                             | Sparrow                                 | Not Available                         |                                      | Kernel Driver                      |        | False              | Manual                                                             | Running                                        | OK                                   | Normal  | False                               | True   |  |
| Disabled                                                            | Stopped                                 | OK                                    | Normal                               | False                              | False  |                    | usbhub20 USB 2.0 Root Hub Support                                  |                                                |                                      |         |                                     |        |  |
| spud                                                                | Special Purpose Utility Driver          |                                       |                                      | c:\winnt\system32\drivers\spud.sys |        |                    | c:\winnt\system32\drivers\usbhub20.sys Kernel Driver True          |                                                |                                      |         |                                     |        |  |
| Kernel Driver                                                       | True                                    | Manual                                | Running                              | OK                                 | Normal |                    | Manual                                                             | Running                                        | OK                                   | Normal  | False                               | True   |  |
| False                                                               | True                                    |                                       |                                      |                                    |        |                    | vgasave                                                            | VgaSave                                        | c:\winnt\system32\drivers\vga.sys    |         | Kernel                              |        |  |
| srv                                                                 | Srv                                     | c:\winnt\system32\drivers\srv.sys     |                                      |                                    |        | File System Driver | Driver                                                             | True                                           | System                               | Running | OK                                  | Ignore |  |
| True                                                                | Manual                                  | Running                               | OK                                   | Normal                             | False  | True               | True                                                               |                                                |                                      |         |                                     | False  |  |
| swenum                                                              | Software Bus Driver                     |                                       | c:\winnt\system32\drivers\swenum.sys |                                    |        |                    | wanarp Remote Access IP ARP Driver                                 |                                                |                                      |         |                                     |        |  |
| Kernel Driver                                                       | True                                    | Manual                                | Running                              | OK                                 | Normal |                    | c:\winnt\system32\drivers\wanarp.sys Kernel Driver True            |                                                |                                      |         |                                     |        |  |
| False                                                               | True                                    |                                       |                                      |                                    |        |                    | Manual                                                             | Running                                        | OK                                   | Normal  | False                               | True   |  |

|                                      |           |               |               |                      |
|--------------------------------------|-----------|---------------|---------------|----------------------|
| wdica                                | WDICA     | Not Available | Kernel Driver | False                |
| Manual                               | Stopped   | OK            | Ignore        | False                |
| wdmaud                               | Microsoft | WINMM         | WDM Audio     | Compatibility Driver |
| c:\winnt\system32\drivers\wdmaud.sys |           |               | Kernel Driver | True                 |
| Manual                               | Running   | OK            | Normal        | False                |
|                                      |           |               |               | True                 |

#### [Environment Variables]

| Variable                | Value                                                                    | User Name |
|-------------------------|--------------------------------------------------------------------------|-----------|
| ComSpec                 | %SystemRoot%\system32\cmd.exe                                            | <SYSTEM>  |
| NUMBER_OF_PROCESSORS    | 4                                                                        | <SYSTEM>  |
| OS                      | Windows_NT                                                               | <SYSTEM>  |
| Os2LibPath              | %SystemRoot%\system32\os2\dll;                                           | <SYSTEM>  |
| Path                    | %SystemRoot%\system32;%SystemRoot%;%SystemRoot%\System32\Wbem;           |           |
|                         | C:\Program Files\Microsoft SQL Server\80\Tools\BINN;c:\batfiles;c:\tools |           |
|                         | <SYSTEM>                                                                 |           |
| PATHEXT                 | .COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH                         | <SYSTEM>  |
| PROCESSOR_ARCHITECTURE  | x86                                                                      | <SYSTEM>  |
| PROCESSOR_IDENTIFIER    | x86 Family 15 Model 2 Stepping 7,                                        |           |
|                         | GenuineIntel                                                             | <SYSTEM>  |
| PROCESSOR_LEVEL         | 15                                                                       | <SYSTEM>  |
| PROCESSOR_REVISION      | 0207                                                                     | <SYSTEM>  |
| TEMP                    | %SystemRoot%\TEMP                                                        | <SYSTEM>  |
| TMP                     | %SystemRoot%\TEMP                                                        | <SYSTEM>  |
| windir                  | %SystemRoot%                                                             | <SYSTEM>  |
| TEMP                    | %USERPROFILE%\Local Settings\Temp                                        |           |
| FCLIENT10\Administrator |                                                                          |           |
| TMP                     | %USERPROFILE%\Local Settings\Temp                                        |           |
| FCLIENT10\Administrator |                                                                          |           |

#### [Jobs]

[ Following are sub-categories of this main category ]

#### [Print]

| Document      | Size       | Owner        | Notify | Status          | Time Submitted |
|---------------|------------|--------------|--------|-----------------|----------------|
| Start Time    | Until Time | Elapsed Time |        | Pages Printed   | Job ID         |
| Priority      | Parameters | Driver Name  |        | Print Processor | Host Print     |
| Queue         | Data Type  | Name         |        |                 |                |
| No print jobs |            |              |        |                 |                |

#### [Network Connections]

| Local Name             | Remote Name | Type | Status | User Name |
|------------------------|-------------|------|--------|-----------|
| No network connections | information |      |        |           |

#### [Running Tasks]

| Name                | Path                           | Process ID          | Priority       | Min Working Set | Max       |
|---------------------|--------------------------------|---------------------|----------------|-----------------|-----------|
| Working Set         |                                | Start Time          | Version        | Size            | File Date |
| system idle process | Not Available                  | 0                   | 0              | 0               | Not       |
| Available           | Not Available                  | Not Available       | Unknown        | Unknown         | Unknown   |
| system              | Not Available                  | 8                   | 8              | 0               | 1413120   |
| Not Available       | Unknown                        | Unknown             | Unknown        |                 |           |
| smss.exe            | c:\winnt\system32\smss.exe     | 176                 | 11             | 204800          |           |
| 1413120             | 3/4/2003 3:47:38 PM            | 5.00.2195.5382      |                | 44.77 KB        | (45,840   |
| bytes)              | 12/7/1999 7:00:00 AM           |                     |                |                 |           |
| csrss.exe           | Not Available                  | 200                 | 13             | Not Available   |           |
| Not Available       | 3/4/2003 3:47:41 PM            | Unknown             | Unknown        | Unknown         |           |
| winlogon.exe        | c:\winnt\system32\winlogon.exe | 196                 | 13             |                 |           |
| 204800              | 1413120                        | 3/4/2003 3:47:41 PM | 5.00.2195.5386 |                 | 174.77 KB |
| (178,960 bytes)     | 2/28/2003 2:03:49 PM           |                     |                |                 |           |

|                 |                                       |                       |                |               |           |
|-----------------|---------------------------------------|-----------------------|----------------|---------------|-----------|
| services.exe    | c:\winnt\system32\services.exe        | 248                   | 9              |               |           |
| 204800          | 1413120                               | 3/4/2003 3:47:42 PM   | 5.00.2195.3940 |               | 86.77 KB  |
| (88,848 bytes)  | 12/7/1999 7:00:00 AM                  |                       |                |               |           |
| lsass.exe       | c:\winnt\system32\lsass.exe           | 260                   | 9              | 204800        |           |
| 1413120         | 3/4/2003 3:47:42 PM                   | 5.00.2195.5430        |                |               | 32.77 KB  |
| (33,552         | bytes)                                | 12/7/1999 7:00:00 AM  |                |               |           |
| svchost.exe     | c:\winnt\system32\svchost.exe         | 440                   | 8              |               |           |
| 204800          | 1413120                               | 3/4/2003 3:47:44 PM   | 5.00.2134.1    |               | 7.77 KB   |
| (7,952 bytes)   | 12/7/1999 7:00:00 AM                  |                       |                |               |           |
| spoolsv.exe     | c:\winnt\system32\spoolsv.exe         | 464                   | 8              |               |           |
| 204800          | 1413120                               | 3/4/2003 3:47:44 PM   | 5.00.2195.4299 |               | 44.27 KB  |
| (45,328 bytes)  | 2/12/2003 7:39:06 AM                  |                       |                |               |           |
| msdtc.exe       | c:\winnt\system32\msdtc.exe           | 492                   | 8              | 204800        |           |
| 1413120         | 3/4/2003 3:47:44 PM                   | 1999.9.3421.3         |                |               | 6.77 KB   |
| (6,928 bytes)   | 2/12/2003 7:52:40 AM                  |                       |                |               |           |
| svchost.exe     | c:\winnt\system32\svchost.exe         | 652                   | 8              |               |           |
| 204800          | 1413120                               | 3/4/2003 3:47:45 PM   | 5.00.2134.1    |               | 7.77 KB   |
| (7,952 bytes)   | 12/7/1999 7:00:00 AM                  |                       |                |               |           |
| llssrv.exe      | c:\winnt\system32\llssrv.exe          | 676                   | 9              | 204800        |           |
| 1413120         | 3/4/2003 3:47:45 PM                   | 5.00.2195.4907        |                |               | 81.27 KB  |
| (83,216         | bytes)                                | 7/22/2002 12:05:04 PM |                |               |           |
| regsvc.exe      | c:\winnt\system32\regsvc.exe          | 760                   | 8              | 204800        |           |
| 1413120         | 3/4/2003 3:47:45 PM                   | 5.00.2195.3649        |                |               | 65.27 KB  |
| (66,832         | bytes)                                | 2/28/2003 2:03:45 PM  |                |               |           |
| rsys.exe        | Not Available                         | 860                   | 8              | Not Available |           |
| Not Available   | 3/4/2003 3:47:47 PM                   | Unknown               | Unknown        | Unknown       |           |
| explorer.exe    | c:\winnt\explorer.exe                 | 988                   | 8              | 204800        |           |
| 1413120         | 3/4/2003 3:47:55 PM                   | 5.00.3502.5321        |                |               | 237.27 KB |
| (242,960        | bytes)                                | 2/28/2003 2:03:49 PM  |                |               |           |
| mstask.exe      | c:\winnt\system32\mstask.exe          | 1080                  | 8              | 204800        |           |
| 1413120         | 3/4/2003 3:47:58 PM                   | 4.71.2195.1           |                |               | 115.77 KB |
| (118,544        | bytes)                                | 2/28/2003 2:03:40 PM  |                |               |           |
| tcpsvcs.exe     | c:\winnt\system32\tcpsvcs.exe         | 1124                  | 8              |               |           |
| 204800          | 1413120                               | 3/4/2003 3:47:59 PM   | 5.00.2134.1    |               | 24.77 KB  |
| (25,360 bytes)  | 12/7/1999 7:00:00 AM                  |                       |                |               |           |
| winmgmt.exe     | c:\winnt\system32\wbem\winmgmt.exe    | 1148                  | 8              |               |           |
| 204800          | 1413120                               | 3/4/2003 3:47:59 PM   | 1.50.1085.0070 |               | 192.08 KB |
| (196,685 bytes) | 2/28/2003 2:03:52 PM                  |                       |                |               |           |
| svchost.exe     | c:\winnt\system32\svchost.exe         | 1168                  | 8              |               |           |
| 204800          | 1413120                               | 3/4/2003 3:47:59 PM   | 5.00.2134.1    |               | 7.77 KB   |
| (7,952 bytes)   | 12/7/1999 7:00:00 AM                  |                       |                |               |           |
| inetinfo.exe    | c:\winnt\system32\inetrv\inetinfo.exe | 1180                  | 8              |               |           |
| 204800          | 1413120                               | 3/4/2003 3:47:59 PM   | 5.00.0984      |               | 14.27 KB  |
| (14,608         | bytes)                                | 2/28/2003 2:04:01 PM  |                |               |           |
| dfssvc.exe      | c:\winnt\system32\dfssvc.exe          | 748                   | 8              | 204800        |           |
| 1413120         | 3/4/2003 3:48:15 PM                   | 5.00.2195.3649        |                |               | 88.27 KB  |
| (90,384         | bytes)                                | 2/28/2003 2:03:31 PM  |                |               |           |
| svchost.exe     | c:\winnt\system32\svchost.exe         | 1380                  | 8              |               |           |
| 204800          | 1413120                               | 3/4/2003 3:49:35 PM   | 5.00.2134.1    |               | 7.77 KB   |
| (7,952 bytes)   | 12/7/1999 7:00:00 AM                  |                       |                |               |           |
| mmc.exe         | c:\winnt\system32\mmc.exe             | 944                   | 8              | 204800        |           |
| 1413120         | 3/4/2003 4:32:02 PM                   | 5.00.2195.4933        |                |               | 589.27 KB |
| (603,408        | bytes)                                | 2/28/2003 2:03:37 PM  |                |               |           |
| rsvp.exe        | c:\winnt\system32\rsvp.exe            | 1448                  | 8              | 204800        |           |
| 1413120         | 3/4/2003 4:32:40 PM                   | 5.00.2167.1           |                |               | 172.77 KB |
| (176,912        | bytes)                                | 12/7/1999 7:00:00 AM  |                |               |           |

#### [Loaded Modules]

| Name                          | Version     | Size      | File Date       | Manufacturer          | Path      |
|-------------------------------|-------------|-----------|-----------------|-----------------------|-----------|
| traffic.dll                   | 5.00.2139.1 | 30.77 KB  | (31,504 bytes)  | Microsoft Corporation | 12/7/1999 |
| 7:00:00 AM                    |             |           |                 |                       |           |
| c:\winnt\system32\traffic.dll |             |           |                 |                       |           |
| rsvp.exe                      | 5.00.2167.1 | 172.77 KB | (176,912 bytes) | Microsoft Corporation | 12/7/1999 |
| 7:00:00 AM                    |             |           |                 |                       |           |
| c:\winnt\system32\rsvp.exe    |             |           |                 |                       |           |

|                                                         |                                                    |                           |            |                                                                               |                                   |                           |                                       |
|---------------------------------------------------------|----------------------------------------------------|---------------------------|------------|-------------------------------------------------------------------------------|-----------------------------------|---------------------------|---------------------------------------|
| wbemprox.dll                                            | 1.50.1085.0045                                     | 40.08 KB (41,040 bytes)   |            | ntmsapi.dll                                                                   | 5.00.1948.1                       | 52.27 KB (53,520 bytes)   | 2/28/2003                             |
| 2/28/2003 2:03:52 PM                                    | Microsoft Corporation                              |                           |            | 2:03:42 PM                                                                    | Microsoft Corporation             |                           |                                       |
| c:\winnt\system32\wbem\wbemprox.dll                     |                                                    |                           |            | c:\winnt\system32\ntmsapi.dll                                                 |                                   |                           |                                       |
| mlang.dll                                               | 6.00.2800.1106                                     | 561.50 KB (574,976 bytes) | 8/29/2002  | dmdskmgr.dll                                                                  | 2195.3649.297.3                   | 159.77 KB (163,600 bytes) |                                       |
| 7:14:40 AM                                              | Microsoft Corporation                              |                           |            | 2/28/2003 2:03:32 PM                                                          | Microsoft Corp., VERITAS Software |                           |                                       |
| c:\winnt\system32\mlang.dll                             |                                                    |                           |            | c:\winnt\system32\dmdskmgr.dll                                                |                                   |                           |                                       |
| rassapi.dll                                             | 5.00.2195.5438                                     | 14.27 KB (14,608 bytes)   | 2/28/2003  | mycomput.dll                                                                  | 5.00.2134.1                       | 107.77 KB (110,352 bytes) |                                       |
| 2:03:44 PM                                              | Microsoft Corporation                              |                           |            | 12/7/1999 7:00:00 AM                                                          | Microsoft Corporation             |                           |                                       |
| c:\winnt\system32\rassapi.dll                           |                                                    |                           |            | c:\winnt\system32\mycomput.dll                                                |                                   |                           |                                       |
| adsnt.dll                                               | 5.00.2195.5206                                     | 196.27 KB (200,976 bytes) | 2/28/2003  | mmcmdmgr.dll                                                                  | 5.00.2195.5352                    | 816.27 KB (835,856 bytes) |                                       |
| 2:03:28 PM                                              | Microsoft Corporation                              |                           |            | 2/28/2003 2:03:37 PM                                                          | Microsoft Corporation             |                           |                                       |
| c:\winnt\system32\adsnt.dll                             |                                                    |                           |            | c:\winnt\system32\mmcmdmgr.dll                                                |                                   |                           |                                       |
| dbghelp.dll                                             | 5.00.2195.5242                                     | 159.27 KB (163,088 bytes) |            | mmc.exe                                                                       | 5.00.2195.4933                    | 589.27 KB (603,408 bytes) | 2/28/2003                             |
| 7/22/2002 12:05:04 PM                                   | Microsoft Corporation                              |                           |            | 2:03:37 PM                                                                    | Microsoft Corporation             |                           |                                       |
| c:\winnt\system32\dbghelp.dll                           |                                                    |                           |            | c:\winnt\system32\mmc.exe                                                     |                                   |                           |                                       |
| localsec.dll                                            | 5.00.2195.4663                                     | 230.27 KB (235,792 bytes) |            | tapisrv.dll                                                                   | 5.00.2195.5227                    | 169.27 KB (173,328 bytes) | 2/28/2003                             |
| 2/28/2003 2:03:37 PM                                    | Microsoft Corporation                              |                           |            | 2:03:47 PM                                                                    | Microsoft Corporation             |                           |                                       |
| c:\winnt\system32\localsec.dll                          |                                                    |                           |            | c:\winnt\system32\tapisrv.dll                                                 |                                   |                           |                                       |
| devmgr.dll                                              | 5.00.2195.5305                                     | 216.77 KB (221,968 bytes) | 2/28/2003  | dfssvc.exe                                                                    | 5.00.2195.3649                    | 88.27 KB (90,384 bytes)   | 2/28/2003                             |
| 2:03:31 PM                                              | Microsoft Corporation                              |                           |            | 2:03:31 PM                                                                    | Microsoft Corporation             |                           |                                       |
| c:\winnt\system32\devmgr.dll                            |                                                    |                           |            | c:\winnt\system32\dfssvc.exe                                                  |                                   |                           |                                       |
| filemgmt.dll                                            | 5.00.2195.3649                                     | 287.27 KB (294,160 bytes) |            | iislog.dll                                                                    | 5.00.0984                         | 76.77 KB (78,608 bytes)   | 9/17/2002 10:40:50                    |
| 2/28/2003 2:03:34 PM                                    | Microsoft Corporation                              |                           |            | AM                                                                            | Microsoft Corporation             |                           | c:\winnt\system32\inetrv\iislog.dll   |
| c:\winnt\system32\filemgmt.dll                          |                                                    |                           |            | ntlsapi.dll                                                                   | 5.00.2195.4907                    | 6.77 KB (6,928 bytes)     | 12/7/1999 7:00:00 AM                  |
| pdh.dll                                                 | 5.00.2195.4952                                     | 149.27 KB (152,848 bytes) | 2/28/2003  | Microsoft Corporation                                                         |                                   |                           | c:\winnt\system32\ntlsapi.dll         |
| 2:03:44 PM                                              | Microsoft Corporation                              |                           |            | httpext.dll                                                                   | 5.00.0984                         | 240.27 KB (246,032 bytes) | 9/17/2002 10:40:50                    |
| c:\winnt\system32\pdh.dll                               |                                                    |                           |            | AM                                                                            | Microsoft Corporation             |                           |                                       |
| smlogcfg.dll                                            | 5.00.2195.3975                                     | 278.77 KB (285,456 bytes) |            | c:\winnt\system32\inetrv\httpext.dll                                          |                                   |                           |                                       |
| 2/28/2003 2:03:46 PM                                    | Microsoft Corporation                              |                           |            | rpceproxy.dll                                                                 | 5.00.2195.5419                    | 16.27 KB (16,656 bytes)   |                                       |
| c:\winnt\system32\smlogcfg.dll                          |                                                    |                           |            | 2/28/2003 2:03:56 PM                                                          | Microsoft Corporation             |                           |                                       |
| cabinet.dll                                             | 5.00.2147.1                                        | 54.77 KB (56,080 bytes)   | 12/7/1999  | c:\winnt\system32\rpceproxy\rpceproxy.dll                                     |                                   |                           |                                       |
| 7:00:00 AM                                              | Microsoft Corporation                              |                           |            | fpexedll.dll                                                                  | 4.0.2.5526                        | 20.06 KB (20,541 bytes)   | 2/28/2003                             |
| c:\winnt\system32\cabinet.dll                           |                                                    |                           |            | 2:03:55 PM                                                                    | Microsoft Corporation             |                           | c:\program                            |
| msinfo32.dll                                            | 5.00.2195.4601                                     | 312.27 KB (319,760 bytes) |            | files\common files\microsoft shared\web server extensions\40\bin\fpexedll.dll |                                   |                           |                                       |
| 2/28/2003 2:03:53 PM                                    | Microsoft Corporation                              |                           | c:\program | md5filt.dll                                                                   | 5.00.0984                         | 32.77 KB (33,552 bytes)   | 2/28/2003 2:04:01 PM                  |
| files\common files\microsoft shared\msinfo\msinfo32.dll |                                                    |                           |            | Microsoft Corporation                                                         |                                   |                           | c:\winnt\system32\inetrv\md5filt.dll  |
| riched20.dll                                            | 5.30.23.1209                                       | 421.77 KB (431,888 bytes) |            | gzip.dll                                                                      | 5.00.0984                         | 30.27 KB (30,992 bytes)   | 2/28/2003 2:04:01 PM                  |
| 2/28/2003 2:03:45 PM                                    | Microsoft Corporation                              |                           |            | Microsoft Corporation                                                         |                                   |                           | c:\winnt\system32\inetrv\gzip.dll     |
| c:\winnt\system32\riched20.dll                          |                                                    |                           |            | compfilt.dll                                                                  | 5.00.0984                         | 22.77 KB (23,312 bytes)   | 2/28/2003                             |
| riched32.dll                                            | 5.00.2134.1                                        | 3.77 KB (3,856 bytes)     | 12/7/1999  | 2:04:01 PM                                                                    | Microsoft Corporation             |                           |                                       |
| 7:00:00 AM                                              | Microsoft Corporation                              |                           |            | c:\winnt\system32\inetrv\compfilt.dll                                         |                                   |                           |                                       |
| c:\winnt\system32\riched32.dll                          |                                                    |                           |            | sspifilt.dll                                                                  | 5.00.0984                         | 42.77 KB (43,792 bytes)   | 2/28/2003 2:04:02 PM                  |
| els.dll                                                 | 5.00.2195.4749                                     | 153.77 KB (157,456 bytes) | 2/28/2003  | Microsoft Corporation                                                         |                                   |                           | c:\winnt\system32\inetrv\sspifilt.dll |
| 2:03:33 PM                                              | Microsoft Corporation                              |                           |            | iscomlog.dll                                                                  | 5.00.0984                         | 24.27 KB (24,848 bytes)   | 2/28/2003                             |
| c:\winnt\system32\els.dll                               |                                                    |                           |            | 2:04:01 PM                                                                    | Microsoft Corporation             |                           |                                       |
| ntsmgr.dll                                              | 1,0,0,1                                            | 427.77 KB (438,032 bytes) | 12/7/1999  | c:\winnt\system32\inetrv\iscomlog.dll                                         |                                   |                           |                                       |
| 7:00:00 AM                                              | Microsoft Corporation and HighGround Systems, Inc. |                           |            | lonsint.dll                                                                   | 5.00.0984                         | 11.77 KB (12,048 bytes)   | 2/28/2003 2:04:01 PM                  |
| c:\winnt\system32\ntsmgr.dll                            |                                                    |                           |            | Microsoft Corporation                                                         |                                   |                           | c:\winnt\system32\inetrv\lonsint.dll  |
| mmfutil.dll                                             | 1.50.1085.0000                                     | 32.06 KB (32,829 bytes)   | 12/7/1999  | inetsloc.dll                                                                  | 5.00.0984                         | 20.27 KB (20,752 bytes)   | 2/28/2003 2:03:35 PM                  |
| 7:00:00 AM                                              | Microsoft Corporation                              |                           |            | Microsoft Corporation                                                         |                                   |                           | c:\winnt\system32\inetrv\inetsloc.dll |
| c:\winnt\system32\mmfutil.dll                           |                                                    |                           |            | iisfecnv.dll                                                                  | 5.00.0984                         | 7.27 KB (7,440 bytes)     | 2/12/2003 7:53:06 AM                  |
| logdrive.dll                                            | 1.50.1085.0000                                     | 200.06 KB (204,863 bytes) |            | Microsoft Corporation                                                         |                                   |                           | c:\winnt\system32\inetrv\iisfecnv.dll |
| 12/7/1999 7:00:00 AM                                    | Microsoft Corporation                              |                           |            | isatq.dll                                                                     | 5.00.0984                         | 61.27 KB (62,736 bytes)   | 9/17/2002 10:40:50                    |
| c:\winnt\system32\logdrive.dll                          |                                                    |                           |            | AM                                                                            | Microsoft Corporation             |                           | c:\winnt\system32\inetrv\isatq.dll    |
| dfrgres.dll                                             | 5.00.2150.1                                        | 27.50 KB (28,160 bytes)   | 12/7/1999  | 10:40:50 AM                                                                   | Microsoft Corporation             |                           |                                       |
| 7:00:00 AM                                              | Executive Software International, Inc.             |                           |            | infocomm.dll                                                                  | 5.00.0984                         | 240.77 KB (246,544 bytes) | 9/17/2002                             |
| c:\winnt\system32\dfrgres.dll                           |                                                    |                           |            | 10:40:50 AM                                                                   | Microsoft Corporation             |                           |                                       |
| dfrgsnap.dll                                            | 5.00.2195.3649                                     | 41.77 KB (42,768 bytes)   |            | c:\winnt\system32\inetrv\infocomm.dll                                         |                                   |                           |                                       |
| 2/28/2003 2:03:31 PM                                    | Executive Software International, Inc.             |                           |            | w3svc.dll                                                                     | 5.00.0984                         | 341.27 KB (349,456 bytes) | 9/17/2002 10:40:52                    |
| c:\winnt\system32\dfrgsnap.dll                          |                                                    |                           |            | AM                                                                            | Microsoft Corporation             |                           |                                       |
| dmdskres.dll                                            | 2195.3649.297.3                                    | 119.50 KB (122,368 bytes) |            | c:\winnt\system32\inetrv\w3svc.dll                                            |                                   |                           |                                       |
| 2/28/2003 2:03:32 PM                                    | Microsoft Corp., VERITAS Software                  |                           |            | security.dll                                                                  | 5.00.2154.1                       | 5.77 KB (5,904 bytes)     | 12/7/1999 7:00:00 AM                  |
| c:\winnt\system32\dmdskres.dll                          |                                                    |                           |            | Microsoft Corporation                                                         |                                   |                           | c:\winnt\system32\security.dll        |
| dmutil.dll                                              | 2195.3649.297.3                                    | 42.27 KB (43,280 bytes)   | 2/28/2003  | svcext.dll                                                                    | 5.00.0984                         | 39.77 KB (40,720 bytes)   | 2/28/2003 2:04:02 PM                  |
| 2:03:32 PM                                              | VERITAS Software Corp.                             |                           |            | Microsoft Corporation                                                         |                                   |                           | c:\winnt\system32\inetrv\svcext.dll   |
| c:\winnt\system32\dmutil.dll                            |                                                    |                           |            | admexs.dll                                                                    | 5.00.0984                         | 27.77 KB (28,432 bytes)   | 2/28/2003 2:04:00 PM                  |
|                                                         |                                                    |                           |            | Microsoft Corporation                                                         |                                   |                           | c:\winnt\system32\inetrv\admexs.dll   |
|                                                         |                                                    |                           |            | wamreg.dll                                                                    | 5.00.0984                         | 45.77 KB (46,864 bytes)   | 2/28/2003 2:04:02 PM                  |
|                                                         |                                                    |                           |            | Microsoft Corporation                                                         |                                   |                           | c:\winnt\system32\inetrv\wamreg.dll   |

|                                        |                                      |                              |                       |                                     |                                |                           |                      |
|----------------------------------------|--------------------------------------|------------------------------|-----------------------|-------------------------------------|--------------------------------|---------------------------|----------------------|
| metadata.dll                           | 5.00.0984                            | 68.77 KB (70,416 bytes)      | 2/28/2003             | cimwin32.dll                        | 1.50.1085.0073                 | 1.04 MB (1,085,520 bytes) |                      |
| 2:04:01 PM                             | Microsoft Corporation                |                              |                       | 2/28/2003 2:03:51 PM                | Microsoft Corporation          |                           |                      |
| c:\winnt\system32\inetsrv\metadata.dll |                                      |                              |                       | c:\winnt\system32\wbem\cimwin32.dll |                                |                           |                      |
| iismap.dll                             | 5.00.0984                            | 55.77 KB (57,104 bytes)      | 2/28/2003 2:03:35 PM  | wbemsvcs.dll                        | 1.50.1085.0007                 | 40.07 KB (41,036 bytes)   |                      |
| Microsoft Corporation                  | c:\winnt\system32\iismap.dll         |                              |                       | 2/28/2003 2:03:52 PM                | Microsoft Corporation          |                           |                      |
| nsepm.dll                              | 5.00.0984                            | 43.27 KB (44,304 bytes)      | 2/28/2003 2:04:02 PM  | c:\winnt\system32\wbem\wbemsvcs.dll |                                |                           |                      |
| Microsoft Corporation                  | c:\winnt\system32\inetsrv\nsepm.dll  |                              |                       | wbemess.dll                         | 1.50.1085.0074                 | 364.07 KB (372,804 bytes) |                      |
| admwprow.dll                           | 5.00.0984                            | 31.77 KB (32,528 bytes)      | 2/12/2003             | 2/28/2003 2:03:52 PM                | Microsoft Corporation          |                           |                      |
| 7:53:06 AM                             | Microsoft Corporation                |                              |                       | c:\winnt\system32\wbem\wbemess.dll  |                                |                           |                      |
| c:\winnt\system32\admwprow.dll         |                                      |                              |                       | fastprox.dll                        | 1.50.1085.0056                 | 144.08 KB (147,536 bytes) |                      |
| coadmin.dll                            | 5.00.0984                            | 39.77 KB (40,720 bytes)      | 2/28/2003             | 2/28/2003 2:03:51 PM                | Microsoft Corporation          |                           |                      |
| 2:04:01 PM                             | Microsoft Corporation                |                              |                       | c:\winnt\system32\wbem\fastprox.dll |                                |                           |                      |
| c:\winnt\system32\inetsrv\coadmin.dll  |                                      |                              |                       | wbemcore.dll                        | 1.50.1085.0085                 | 628.07 KB (643,146 bytes) |                      |
| iisadmin.dll                           | 5.00.0984                            | 15.27 KB (15,632 bytes)      | 2/28/2003             | 2/28/2003 2:03:52 PM                | Microsoft Corporation          |                           |                      |
| 2:04:01 PM                             | Microsoft Corporation                |                              |                       | c:\winnt\system32\wbem\wbemcore.dll |                                |                           |                      |
| c:\winnt\system32\inetsrv\iisadmin.dll |                                      |                              |                       | wbemcomm.dll                        | 1.50.1085.0077                 | 692.07 KB (708,675 bytes) |                      |
| rpcref.dll                             | 5.00.0984                            | 4.27 KB (4,368 bytes)        | 2/28/2003 2:04:02 PM  | 2/28/2003 2:03:52 PM                | Microsoft Corporation          |                           |                      |
| Microsoft Corporation                  | c:\winnt\system32\inetsrv\rpcref.dll |                              |                       | c:\winnt\system32\wbem\wbemcomm.dll |                                |                           |                      |
| iisrtl.dll                             | 5.00.0984                            | 119.77 KB (122,640 bytes)    | 9/17/2002 10:40:50    | winmgmt.exe                         | 1.50.1085.0070                 | 192.08 KB (196,685 bytes) |                      |
| AM                                     | Microsoft Corporation                | c:\winnt\system32\iisrtl.dll |                       | 2/28/2003 2:03:52 PM                | Microsoft Corporation          |                           |                      |
| inetinfo.exe                           | 5.00.0984                            | 14.27 KB (14,608 bytes)      | 2/28/2003             | c:\winnt\system32\wbem\winmgmt.exe  |                                |                           |                      |
| 2:04:01 PM                             | Microsoft Corporation                |                              |                       | simptcp.dll                         | 5.00.2134.1                    | 19.27 KB (19,728 bytes)   | 2/12/2003            |
| c:\winnt\system32\inetsrv\inetinfo.exe |                                      |                              |                       | 7:52:36 AM                          | Microsoft Corporation          |                           |                      |
| sensapi.dll                            | 5.00.2163.1                          | 6.77 KB (6,928 bytes)        | 12/7/1999 7:00:00 AM  | c:\winnt\system32\simptcp.dll       |                                |                           |                      |
| Microsoft Corporation                  | c:\winnt\system32\sensapi.dll        |                              |                       | tcpsvcs.exe                         | 5.00.2134.1                    | 24.77 KB (25,360 bytes)   |                      |
| winhttp.dll                            | 5.1.2600.1039 (xpsp1.020511-1800)    | 303.00 KB (310,272 bytes)    | 2/28/2003 2:04:00 PM  | 12/7/1999 7:00:00 AM                | Microsoft Corporation          |                           |                      |
| c:\winnt\system32\winhttp.dll          |                                      |                              |                       | c:\winnt\system32\tcpsvcs.exe       |                                |                           |                      |
| regapi.dll                             | 5.00.2195.5201                       | 35.27 KB (36,112 bytes)      | 2/28/2003             | msidle.dll                          | 5.00.2920.0000                 | 6.27 KB (6,416 bytes)     | 12/7/1999 7:00:00 AM |
| 2:03:45 PM                             | Microsoft Corporation                |                              |                       | Microsoft Corporation               | c:\winnt\system32\msidle.dll   |                           |                      |
| c:\winnt\system32\regapi.dll           |                                      |                              |                       | mstask.exe                          | 4.71.2195.1                    | 115.77 KB (118,544 bytes) | 2/28/2003            |
| util.dll                               | 5.00.2153.1                          | 25.77 KB (26,384 bytes)      | 12/7/1999             | 2:03:40 PM                          | Microsoft Corporation          |                           |                      |
| 7:00:00 AM                             | Microsoft Corporation                |                              |                       | c:\winnt\system32\mstask.exe        |                                |                           |                      |
| c:\winnt\system32\util.dll             |                                      |                              |                       | faxshell.dll                        | 5.00.2134.1                    | 8.27 KB (8,464 bytes)     | 12/7/1999 7:00:00 AM |
| wtsapi32.dll                           | 5.00.2134.1                          | 14.27 KB (14,608 bytes)      | 12/7/1999 7:00:00 AM  | Microsoft Corporation               | c:\winnt\system32\faxshell.dll |                           |                      |
| c:\winnt\system32\wtsapi32.dll         |                                      |                              |                       | avifil32.dll                        | 5.00.2134.1                    | 76.27 KB (78,096 bytes)   | 12/7/1999            |
| advpack.dll                            | 6.00.2800.1106                       | 89.00 KB (91,136 bytes)      | 8/29/2002 7:14:40 AM  | 7:00:00 AM                          | Microsoft Corporation          |                           |                      |
| Microsoft Corporation                  |                                      |                              |                       | c:\winnt\system32\avifil32.dll      |                                |                           |                      |
| c:\winnt\system32\advpack.dll          |                                      |                              |                       | msvfw32.dll                         | 5.00.2134.1                    | 113.77 KB (116,496 bytes) |                      |
| wuaueng.dll                            | 5.4.3628.1 built by: lab04_n         | 182.50 KB (186,880 bytes)    | 2/28/2003 2:04:00 PM  | 12/7/1999 7:00:00 AM                | Microsoft Corporation          |                           |                      |
| Microsoft Corporation                  |                                      |                              |                       | c:\winnt\system32\msvfw32.dll       |                                |                           |                      |
| c:\winnt\system32\wuaueng.dll          |                                      |                              |                       | docprop2.dll                        | 5.00.2178.1                    | 297.77 KB (304,912 bytes) |                      |
| wuauerv.dll                            | 5.4.3628.1 built by: lab04_n         | 8.50 KB (8,704 bytes)        | 2/28/2003 2:04:00 PM  | 12/7/1999 7:00:00 AM                | Microsoft Corporation          |                           |                      |
| Microsoft Corporation                  |                                      |                              |                       | c:\winnt\system32\docprop2.dll      |                                |                           |                      |
| c:\winnt\system32\wuauerv.dll          |                                      |                              |                       | shdoclc.dll                         | 6.00.2800.1106                 | 521.00 KB (533,504 bytes) | 8/29/2002            |
| wshnetbs.dll                           | 5.00.2134.1                          | 7.77 KB (7,952 bytes)        | 12/7/1999             | 7:14:40 AM                          | Microsoft Corporation          |                           |                      |
| 7:00:00 AM                             | Microsoft Corporation                |                              |                       | c:\winnt\system32\shdoclc.dll       |                                |                           |                      |
| c:\winnt\system32\wshnetbs.dll         |                                      |                              |                       | urlmon.dll                          | 6.00.2800.1106                 | 471.50 KB (482,816 bytes) | 8/29/2002            |
| ntmarta.dll                            | 5.00.2195.4836                       | 99.77 KB (102,160 bytes)     | 2/28/2003             | 7:14:40 AM                          | Microsoft Corporation          |                           |                      |
| 2:03:42 PM                             | Microsoft Corporation                |                              |                       | c:\winnt\system32\urlmon.dll        |                                |                           |                      |
| c:\winnt\system32\ntmarta.dll          |                                      |                              |                       | browsecl.dll                        | 6.00.2800.1106                 | 61.50 KB (62,976 bytes)   |                      |
| provthrd.dll                           | 1.50.1085.0000                       | 68.07 KB (69,708 bytes)      | 2/12/2003 12:55:49 PM | 8/29/2002 7:14:40 AM                | Microsoft Corporation          |                           |                      |
| Microsoft Corporation                  |                                      |                              |                       | c:\winnt\system32\browsecl.dll      |                                |                           |                      |
| c:\winnt\system32\wbem\provthrd.dll    |                                      |                              |                       | wininet.dll                         | 6.00.2800.1106                 | 572.00 KB (585,728 bytes) | 8/29/2002            |
| ntevt.dll                              | 1.50.1085.0072                       | 192.06 KB (196,671 bytes)    | 2/28/2003             | 7:14:40 AM                          | Microsoft Corporation          |                           |                      |
| 2:03:51 PM                             | Microsoft Corporation                |                              |                       | c:\winnt\system32\wininet.dll       |                                |                           |                      |
| c:\winnt\system32\wbem\ntevt.dll       |                                      |                              |                       | linkinfo.dll                        | 5.00.2134.1                    | 15.77 KB (16,144 bytes)   | 12/7/1999            |
| perfos.dll                             | 5.00.2155.1                          | 21.27 KB (21,776 bytes)      | 12/7/1999             | 7:00:00 AM                          | Microsoft Corporation          |                           |                      |
| 7:00:00 AM                             | Microsoft Corporation                |                              |                       | c:\winnt\system32\linkinfo.dll      |                                |                           |                      |
| c:\winnt\system32\perfos.dll           |                                      |                              |                       | msacm32.dll                         | 5.00.2134.1                    | 65.27 KB (66,832 bytes)   |                      |
| psapi.dll                              | 5.00.2134.1                          | 28.27 KB (28,944 bytes)      | 12/7/1999             | 12/7/1999 7:00:00 AM                | Microsoft Corporation          |                           |                      |
| 7:00:00 AM                             | Microsoft Corporation                |                              |                       | c:\winnt\system32\msacm32.dll       |                                |                           |                      |
| c:\winnt\system32\psapi.dll            |                                      |                              |                       | msacm32.drv                         | 5.00.2134.1                    | 20.77 KB (21,264 bytes)   |                      |
| framedyn.dll                           | 1.50.1085.0076                       | 164.07 KB (168,009 bytes)    | 2/28/2003 2:03:51 PM  | 12/7/1999 7:00:00 AM                | Microsoft Corporation          |                           |                      |
| Microsoft Corporation                  |                                      |                              |                       | c:\winnt\system32\msacm32.drv       |                                |                           |                      |
| c:\winnt\system32\wbem\framedyn.dll    |                                      |                              |                       | msi.dll                             | 2.0.2600.1                     | 1.90 MB (1,991,168 bytes) | 2/28/2003 2:03:39 PM |
|                                        |                                      |                              |                       | Microsoft Corporation               | c:\winnt\system32\msi.dll      |                           |                      |

|                                                          |                                                          |                              |                       |
|----------------------------------------------------------|----------------------------------------------------------|------------------------------|-----------------------|
| powrprof.dll                                             | 5.00.3502.5305                                           | 13.27 KB (13,584 bytes)      |                       |
| 2/28/2003 2:03:44 PM                                     | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\powrprof.dll                           |                                                          |                              |                       |
| batmeter.dll                                             | 5.00.3502.5305                                           | 20.27 KB (20,752 bytes)      |                       |
| 2/28/2003 2:03:28 PM                                     | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\batmeter.dll                           |                                                          |                              |                       |
| stobject.dll                                             | 5.00.2195.4455                                           | 79.27 KB (81,168 bytes)      | 2/28/2003             |
| 2:03:47 PM                                               | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\stobject.dll                           |                                                          |                              |                       |
| webcheck.dll                                             | 6.00.2800.1106                                           | 252.00 KB (258,048 bytes)    |                       |
| 8/29/2002 7:14:40 AM                                     | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\webcheck.dll                           |                                                          |                              |                       |
| netui1.dll                                               | 5.00.2134.1                                              | 210.27 KB (215,312 bytes)    | 12/7/1999             |
| 7:00:00 AM                                               | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\netui1.dll                             |                                                          |                              |                       |
| netui0.dll                                               | 5.00.2195.4874                                           | 70.77 KB (72,464 bytes)      | 2/28/2003             |
| 2:03:42 PM                                               | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\netui0.dll                             |                                                          |                              |                       |
| ntlanman.dll                                             | 5.00.2195.5428                                           | 35.27 KB (36,112 bytes)      |                       |
| 12/7/1999 7:00:00 AM                                     | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\ntlanman.dll                           |                                                          |                              |                       |
| ntshrui.dll                                              | 5.00.2134.1                                              | 46.77 KB (47,888 bytes)      | 12/7/1999             |
| 7:00:00 AM                                               | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\ntshrui.dll                            |                                                          |                              |                       |
| mydocs.dll                                               | 5.00.3315.4065                                           | 55.27 KB (56,592 bytes)      | 2/28/2003             |
| 2:03:41 PM                                               | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\mydocs.dll                             |                                                          |                              |                       |
| hhsetup.dll                                              | 4.74.8702                                                | 66.27 KB (67,856 bytes)      | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation                                    | c:\winnt\system32\hhsetup.dll                            |                              |                       |
| mmshext.dll                                              | 5.00.2153.1                                              | 24.27 KB (24,848 bytes)      |                       |
| 12/7/1999 7:00:00 AM                                     | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\mmshext.dll                            |                                                          |                              |                       |
| browseui.dll                                             | 6.00.2800.1106                                           | 1002.00 KB (1,026,048 bytes) |                       |
| 8/29/2002 7:14:40 AM                                     | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\browseui.dll                           |                                                          |                              |                       |
| shdocvw.dll                                              | 6.00.2800.1106                                           | 1.28 MB (1,338,368 bytes)    |                       |
| 8/29/2002 7:14:40 AM                                     | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\shdocvw.dll                            |                                                          |                              |                       |
| explorer.exe                                             | 5.00.3502.5321                                           | 237.27 KB (242,960 bytes)    |                       |
| 2/28/2003 2:03:49 PM                                     | Microsoft Corporation                                    |                              |                       |
| c:\winnt\explorer.exe                                    |                                                          |                              |                       |
| regsvc.exe                                               | 5.00.2195.3649                                           | 65.27 KB (66,832 bytes)      | 2/28/2003             |
| 2:03:45 PM                                               | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\regsvc.exe                             |                                                          |                              |                       |
| llsrpc.dll                                               | 5.00.2195.4907                                           | 47.77 KB (48,912 bytes)      | 12/7/1999             |
| 7:00:00 AM                                               | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\llsrpc.dll                             |                                                          |                              |                       |
| llssrv.exe                                               | 5.00.2195.4907                                           | 81.27 KB (83,216 bytes)      | 7/22/2002             |
| 12:05:04 PM                                              | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\llssrv.exe                             |                                                          |                              |                       |
| rasdlg.dll                                               | 5.00.2195.5438                                           | 515.77 KB (528,144 bytes)    | 12/7/1999             |
| 7:00:00 AM                                               | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\rasdlg.dll                             |                                                          |                              |                       |
| netcfgx.dll                                              | 5.00.2195.4874                                           | 534.77 KB (547,600 bytes)    | 2/28/2003             |
| 2:03:41 PM                                               | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\netcfgx.dll                            |                                                          |                              |                       |
| rasmans.dll                                              | 5.00.2195.5436                                           | 149.27 KB (152,848 bytes)    |                       |
| 2/28/2003 2:03:44 PM                                     | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\rasmans.dll                            |                                                          |                              |                       |
| wmi.dll                                                  | 5.00.2191.1                                              | 6.27 KB (6,416 bytes)        | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation                                    | c:\winnt\system32\wmi.dll                                |                              |                       |
| netshell.dll                                             | 5.00.2195.5431                                           | 457.77 KB (468,752 bytes)    | 2/28/2003             |
| 2:03:42 PM                                               | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\netshell.dll                           |                                                          |                              |                       |
| netman.dll                                               | 5.00.2195.5282                                           | 89.27 KB (91,408 bytes)      | 2/28/2003             |
| 2:03:42 PM                                               | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\netman.dll                             |                                                          |                              |                       |
| comsvcs.dll                                              | 2000.2.3497.0                                            | 1.37 MB (1,439,504 bytes)    |                       |
| 2/28/2003 2:03:30 PM                                     | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\comsvcs.dll                            |                                                          |                              |                       |
| ntmsdba.dll                                              | 5.00.2195.5279                                           | 169.27 KB (173,328 bytes)    |                       |
| 2/28/2003 2:03:42 PM                                     | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\ntmsdba.dll                            |                                                          |                              |                       |
| sens.dll                                                 | 5.00.2163.1                                              | 36.77 KB (37,648 bytes)      | 12/7/1999             |
| 7:00:00 AM                                               | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\sens.dll                               |                                                          |                              |                       |
| iashlpr.dll                                              | 5.00.2184.1                                              | 33.27 KB (34,064 bytes)      | 12/7/1999             |
| 7:00:00 AM                                               | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\iaslpr.dll                             |                                                          |                              |                       |
| iasacct.dll                                              | 5.00.2195.4115                                           | 28.27 KB (28,944 bytes)      | 2/28/2003             |
| 2:03:34 PM                                               | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\iasacct.dll                            |                                                          |                              |                       |
| iasuser.dll                                              | 5.00.2195.4609                                           | 19.77 KB (20,240 bytes)      | 12/7/1999             |
| 7:00:00 AM                                               | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\iasuser.dll                            |                                                          |                              |                       |
| iasnap.dll                                               | 5.00.2195.4115                                           | 58.77 KB (60,176 bytes)      | 2/28/2003             |
| 2:03:34 PM                                               | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\iasnap.dll                             |                                                          |                              |                       |
| iaspipe.dll                                              | 5.00.2134.1                                              | 41.77 KB (42,768 bytes)      | 12/7/1999             |
| 7:00:00 AM                                               | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\iaspipe.dll                            |                                                          |                              |                       |
| expsrv.dll                                               | 6.72.9414                                                | 371.77 KB (380,688 bytes)    | 2/28/2003 2:03:33 PM  |
| Microsoft Corporation                                    | c:\winnt\system32\expsrv.dll                             |                              |                       |
| vbajet32.dll                                             | 6.1.8268                                                 | 30.27 KB (30,992 bytes)      | 2/28/2003             |
| 2:03:48 PM                                               | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\vbajet32.dll                           |                                                          |                              |                       |
| msjtes40.dll                                             | 4.00.5914.0                                              | 236.27 KB (241,936 bytes)    |                       |
| 2/28/2003 2:03:40 PM                                     | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\msjtes40.dll                           |                                                          |                              |                       |
| oledb32r.dll                                             | 2.70.9001.0 built by: Lab06_N(dagbuild)                  | 64.00 KB (65,536 bytes)      | 3/1/2003 7:36:05 PM   |
| Microsoft Corporation                                    | c:\program files\common files\system\ole db\oledb32r.dll |                              |                       |
| c:\program files\common files\system\ole db\oledb32r.dll |                                                          |                              |                       |
| comdlg32.dll                                             | 5.00.3315.3727                                           | 221.27 KB (226,576 bytes)    |                       |
| 12/7/1999 7:00:00 AM                                     | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\comdlg32.dll                           |                                                          |                              |                       |
| msdart.dll                                               | 2.71.9031.4 built by: Lab06_N(dagbuild)                  | 124.00 KB (126,976 bytes)    | 9/27/2002 11:22:40 AM |
| Microsoft Corporation                                    | c:\winnt\system32\msdart.dll                             |                              |                       |
| c:\winnt\system32\msdart.dll                             |                                                          |                              |                       |
| oledb32.dll                                              | 2.71.9031.4 built by: Lab06_N(dagbuild)                  | 408.00 KB (417,792 bytes)    | 9/27/2002 11:22:42 AM |
| Microsoft Corporation                                    | c:\program files\common files\system\ole db\oledb32.dll  |                              |                       |
| c:\program files\common files\system\ole db\oledb32.dll  |                                                          |                              |                       |
| msjint40.dll                                             | 4.00.2927.2                                              | 148.27 KB (151,824 bytes)    |                       |
| 2/28/2003 2:03:40 PM                                     | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\msjint40.dll                           |                                                          |                              |                       |
| msjter40.dll                                             | 4.00.2927.2                                              | 52.27 KB (53,520 bytes)      |                       |
| 2/28/2003 2:03:40 PM                                     | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\msjter40.dll                           |                                                          |                              |                       |
| mswstr10.dll                                             | 4.00.3829.2                                              | 600.27 KB (614,672 bytes)    |                       |
| 2/28/2003 2:03:41 PM                                     | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\mswstr10.dll                           |                                                          |                              |                       |
| msjet40.dll                                              | 4.00.6218.0                                              | 1.43 MB (1,503,504 bytes)    | 2/28/2003             |
| 2:03:39 PM                                               | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\msjet40.dll                            |                                                          |                              |                       |
| msjetoledb40.dll                                         | 4.00.5919.0                                              | 340.27 KB (348,432 bytes)    |                       |
| 2/28/2003 2:03:40 PM                                     | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\msjetoledb40.dll                       |                                                          |                              |                       |
| iasrad.dll                                               | 5.00.2195.4841                                           | 94.77 KB (97,040 bytes)      | 2/28/2003             |
| 2:03:34 PM                                               | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\iasrad.dll                             |                                                          |                              |                       |
| iassam.dll                                               | 5.00.2195.5427                                           | 98.27 KB (100,624 bytes)     | 2/28/2003             |
| 2:03:34 PM                                               | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\iassam.dll                             |                                                          |                              |                       |
| iasads.dll                                               | 5.00.2195.5080                                           | 73.77 KB (75,536 bytes)      | 2/28/2003             |
| 2:03:34 PM                                               | Microsoft Corporation                                    |                              |                       |
| c:\winnt\system32\iasads.dll                             |                                                          |                              |                       |

|                                |                       |                           |                      |                                |                       |                              |                      |
|--------------------------------|-----------------------|---------------------------|----------------------|--------------------------------|-----------------------|------------------------------|----------------------|
| iaspolcy.dll                   | 5.00.2134.1           | 25.27 KB (25,872 bytes)   |                      | localspl.dll                   | 5.00.2195.5423        | 250.27 KB (256,272 bytes)    | 12/7/1999            |
| 12/7/1999 7:00:00 AM           | Microsoft Corporation |                           |                      | 7:00:00 AM                     | Microsoft Corporation |                              |                      |
| c:\winnt\system32\iaspolcy.dll |                       |                           |                      | c:\winnt\system32\localspl.dll |                       |                              |                      |
| iassvcs.dll                    | 5.00.2195.4916        | 58.77 KB (60,176 bytes)   | 2/28/2003            | spoolss.dll                    | 5.00.2195.5400        | 61.77 KB (63,248 bytes)      | 2/12/2003            |
| 2:03:34 PM                     | Microsoft Corporation |                           |                      | 7:39:06 AM                     | Microsoft Corporation |                              |                      |
| c:\winnt\system32\iassvcs.dll  |                       |                           |                      | c:\winnt\system32\spoolss.dll  |                       |                              |                      |
| iassdo.dll                     | 5.00.2195.4115        | 263.27 KB (269,584 bytes) | 2/28/2003            | spoolsv.exe                    | 5.00.2195.4299        | 44.27 KB (45,328 bytes)      |                      |
| 2:03:34 PM                     | Microsoft Corporation |                           |                      | 2/12/2003 7:39:06 AM           | Microsoft Corporation |                              |                      |
| c:\winnt\system32\iassdo.dll   |                       |                           |                      | c:\winnt\system32\spoolsv.exe  |                       |                              |                      |
| ntmssvc.dll                    | 5.00.2195.5254        | 391.77 KB (401,168 bytes) |                      | rpss.dll                       | 5.00.2195.5429        | 231.27 KB (236,816 bytes)    | 2/28/2003            |
| 2/28/2003 2:03:42 PM           | Microsoft Corporation |                           |                      | 2:03:45 PM                     | Microsoft Corporation |                              |                      |
| c:\winnt\system32\ntmssvc.dll  |                       |                           |                      | c:\winnt\system32\rpss.dll     |                       |                              |                      |
| ias.dll                        | 5.00.2134.1           | 7.27 KB (7,440 bytes)     | 12/7/1999 7:00:00 AM | svchost.exe                    | 5.00.2134.1           | 7.77 KB (7,952 bytes)        | 12/7/1999            |
| Microsoft Corporation          |                       |                           |                      | 7:00:00 AM                     | Microsoft Corporation |                              |                      |
| c:\winnt\system32\ias.dll      |                       |                           |                      | c:\winnt\system32\svchost.exe  |                       |                              |                      |
| es.dll                         | 2000.2.3497.0         | 225.27 KB (230,672 bytes) | 2/28/2003            | dssenh.dll                     | 5.00.2195.3665        | 142.77 KB (146,192 bytes)    | 2/28/2003            |
| 2:03:33 PM                     | Microsoft Corporation |                           |                      | 2:03:57 PM                     | Microsoft Corporation |                              |                      |
| c:\winnt\system32\es.dll       |                       |                           |                      | c:\winnt\system32\dssenh.dll   |                       |                              |                      |
| mtxoci.dll                     | 2000.2.3497.0         | 103.77 KB (106,256 bytes) | 2/28/2003            | oakley.dll                     | 5.00.2195.5326        | 382.27 KB (391,440 bytes)    | 2/28/2003            |
| 2:03:41 PM                     | Microsoft Corporation |                           |                      | 2:03:43 PM                     | Microsoft Corporation |                              |                      |
| c:\winnt\system32\mtxoci.dll   |                       |                           |                      | c:\winnt\system32\oakley.dll   |                       |                              |                      |
| resutils.dll                   | 5.00.2195.5339        | 39.77 KB (40,720 bytes)   | 2/28/2003            | mfc42u.dll                     | 6.00.8665.0           | 972.05 KB (995,384 bytes)    | 12/7/1999            |
| 2:03:45 PM                     | Microsoft Corporation |                           |                      | 7:00:00 AM                     | Microsoft Corporation |                              |                      |
| c:\winnt\system32\resutils.dll |                       |                           |                      | c:\winnt\system32\mfc42u.dll   |                       |                              |                      |
| clusapi.dll                    | 5.00.2195.4678        | 54.27 KB (55,568 bytes)   | 2/28/2003            | polagent.dll                   | 5.00.2195.5428        | 94.77 KB (97,040 bytes)      |                      |
| 2:03:29 PM                     | Microsoft Corporation |                           |                      | 2/28/2003 2:03:44 PM           | Microsoft Corporation |                              |                      |
| c:\winnt\system32\clusapi.dll  |                       |                           |                      | c:\winnt\system32\polagent.dll |                       |                              |                      |
| msvcp50.dll                    | 5.00.7051             | 552.50 KB (565,760 bytes) | 12/7/1999            | scecli.dll                     | 5.00.2195.4874        | 109.27 KB (111,888 bytes)    | 2/28/2003            |
| 7:00:00 AM                     | Microsoft Corporation |                           |                      | 2:03:45 PM                     | Microsoft Corporation |                              |                      |
| c:\winnt\system32\msvcp50.dll  |                       |                           |                      | c:\winnt\system32\scecli.dll   |                       |                              |                      |
| xolehlp.dll                    | 1999.9.3421.3         | 17.27 KB (17,680 bytes)   | 2/12/2003            | atl.dll                        | 3.00.9435             | 73.06 KB (74,810 bytes)      | 2/28/2003 2:03:28 PM |
| 7:52:40 AM                     | Microsoft Corporation |                           |                      | Microsoft Corporation          |                       |                              |                      |
| c:\winnt\system32\xolehlp.dll  |                       |                           |                      | c:\winnt\system32\atl.dll      |                       |                              |                      |
| msdtclog.dll                   | 2000.2.3497.0         | 86.77 KB (88,848 bytes)   |                      | certcli.dll                    | 5.00.2195.3649        | 130.27 KB (133,392 bytes)    | 2/28/2003            |
| 2/28/2003 2:03:38 PM           | Microsoft Corporation |                           |                      | 2:03:29 PM                     | Microsoft Corporation |                              |                      |
| c:\winnt\system32\msdtclog.dll |                       |                           |                      | c:\winnt\system32\certcli.dll  |                       |                              |                      |
| mtxclu.dll                     | 2000.2.3497.0         | 51.27 KB (52,496 bytes)   | 2/28/2003            | esent.dll                      | 6.0.3940.25           | 1.09 MB (1,137,936 bytes)    | 2/28/2003            |
| 2:03:41 PM                     | Microsoft Corporation |                           |                      | 2:03:33 PM                     | Microsoft Corporation |                              |                      |
| c:\winnt\system32\mtxclu.dll   |                       |                           |                      | c:\winnt\system32\esent.dll    |                       |                              |                      |
| msdtcprx.dll                   | 2000.2.3497.0         | 683.77 KB (700,176 bytes) |                      | ntdsatq.dll                    | 5.00.2195.5246        | 31.27 KB (32,016 bytes)      | 2/28/2003            |
| 2/28/2003 2:03:38 PM           | Microsoft Corporation |                           |                      | 2:03:42 PM                     | Microsoft Corporation |                              |                      |
| c:\winnt\system32\msdtcprx.dll |                       |                           |                      | c:\winnt\system32\ntdsatq.dll  |                       |                              |                      |
| txfaux.dll                     | 2000.2.3497.0         | 383.27 KB (392,464 bytes) | 2/28/2003            | ntdsa.dll                      | 5.00.2195.5438        | 1002.27 KB (1,026,320 bytes) | 2/28/2003            |
| 2:03:48 PM                     | Microsoft Corporation |                           |                      | 2:03:42 PM                     | Microsoft Corporation |                              |                      |
| c:\winnt\system32\txfaux.dll   |                       |                           |                      | c:\winnt\system32\ntdsa.dll    |                       |                              |                      |
| msdtctm.dll                    | 2000.2.3497.0         | 1.08 MB (1,128,208 bytes) |                      | kdcsvc.dll                     | 5.00.2195.5246        | 141.77 KB (145,168 bytes)    | 2/28/2003            |
| 2/28/2003 2:03:38 PM           | Microsoft Corporation |                           |                      | 2:03:36 PM                     | Microsoft Corporation |                              |                      |
| c:\winnt\system32\msdtctm.dll  |                       |                           |                      | c:\winnt\system32\kdcsvc.dll   |                       |                              |                      |
| msdtc.exe                      | 1999.9.3421.3         | 6.77 KB (6,928 bytes)     | 2/12/2003 7:52:40 AM | sfmapi.dll                     | 5.00.2134.1           | 38.77 KB (39,696 bytes)      | 12/7/1999            |
| Microsoft Corporation          |                       |                           |                      | 7:00:00 AM                     | Microsoft Corporation |                              |                      |
| c:\winnt\system32\msdtc.exe    |                       |                           |                      | c:\winnt\system32\sfmapi.dll   |                       |                              |                      |
| inetpp.dll                     | 5.00.2195.4299        | 64.27 KB (65,808 bytes)   | 2/28/2003            | rassfm.dll                     | 5.00.2195.4874        | 21.27 KB (21,776 bytes)      | 2/28/2003            |
| 2:03:35 PM                     | Microsoft Corporation |                           |                      | 2:03:45 PM                     | Microsoft Corporation |                              |                      |
| c:\winnt\system32\inetpp.dll   |                       |                           |                      | c:\winnt\system32\rassfm.dll   |                       |                              |                      |
| win32spl.dll                   | 5.00.2195.5201        | 92.27 KB (94,480 bytes)   |                      | rsabase.dll                    | 5.00.2195.3839        | 128.27 KB (131,344 bytes)    | 7/22/2002            |
| 12/7/1999 7:00:00 AM           | Microsoft Corporation |                           |                      | 12:05:04 PM                    | Microsoft Corporation |                              |                      |
| c:\winnt\system32\win32spl.dll |                       |                           |                      | c:\winnt\system32\rsabase.dll  |                       |                              |                      |
| usbmon.dll                     | 5.00.2195.4299        | 11.27 KB (11,536 bytes)   | 2/28/2003            | schannel.dll                   | 5.00.2195.5284        | 139.27 KB (142,608 bytes)    |                      |
| 2:03:48 PM                     | Microsoft Corporation |                           |                      | 5/4/2001 12:05:02 PM           | Microsoft Corporation |                              |                      |
| c:\winnt\system32\usbmon.dll   |                       |                           |                      | c:\winnt\system32\schannel.dll |                       |                              |                      |
| tcpmon.dll                     | 5.00.2195.4299        | 40.77 KB (41,744 bytes)   | 2/28/2003            | netlogon.dll                   | 5.00.2195.5400        | 362.77 KB (371,472 bytes)    |                      |
| 2:03:47 PM                     | Microsoft Corporation |                           |                      | 2/28/2003 2:03:42 PM           | Microsoft Corporation |                              |                      |
| c:\winnt\system32\tcpmon.dll   |                       |                           |                      | c:\winnt\system32\netlogon.dll |                       |                              |                      |
| pjlmon.dll                     | 5.00.2165.1           | 12.77 KB (13,072 bytes)   | 11/30/1999           | kerberos.dll                   | 5.00.2195.5246        | 202.77 KB (207,632 bytes)    |                      |
| 6:39:36 PM                     | Microsoft Corporation |                           |                      | 2/28/2003 2:03:36 PM           | Microsoft Corporation |                              |                      |
| c:\winnt\system32\pjlmon.dll   |                       |                           |                      | c:\winnt\system32\kerberos.dll |                       |                              |                      |
| cnbjmon.dll                    | 5.00.2134.1           | 43.77 KB (44,816 bytes)   |                      | msprivs.dll                    | 5.00.2154.1           | 41.50 KB (42,496 bytes)      | 12/7/1999            |
| 11/30/1999 6:38:48 PM          | Microsoft Corporation |                           |                      | 7:00:00 AM                     | Microsoft Corporation |                              |                      |
| c:\winnt\system32\cnbjmon.dll  |                       |                           |                      | c:\winnt\system32\msprivs.dll  |                       |                              |                      |

|                                                                                                  |                                                                                                  |
|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| samsrv.dll 5.00.2195.5201 374.27 KB (383,248 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation   | lmhsvc.dll 5.00.2195.4874 9.77 KB (10,000 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation      |
| c:\winnt\system32\samsrv.dll                                                                     | c:\winnt\system32\lmhsvc.dll                                                                     |
| lsasrv.dll 5.00.2195.5430 500.27 KB (512,272 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation   | dnssrslvr.dll 5.00.2195.5354 89.77 KB (91,920 bytes) 2/28/2003 2:03:32 PM Microsoft Corporation  |
| c:\winnt\system32\lsasrv.dll                                                                     | c:\winnt\system32\dnssrslvr.dll                                                                  |
| lsass.exe 5.00.2195.5430 32.77 KB (33,552 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation      | tapi32.dll 5.00.2182.1 123.27 KB (126,224 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation      |
| c:\winnt\system32\lsass.exe                                                                      | c:\winnt\system32\tapi32.dll                                                                     |
| wmicore.dll 5.00.2195.3649 72.27 KB (74,000 bytes) 2/28/2003 2:03:49 PM Microsoft Corporation    | rasman.dll 5.00.2195.5292 54.77 KB (56,080 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation     |
| c:\winnt\system32\wmicore.dll                                                                    | c:\winnt\system32\rasman.dll                                                                     |
| rasadhlp.dll 5.00.2168.1 7.27 KB (7,440 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation        | rasapi32.dll 5.00.2195.5438 191.77 KB (196,368 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation |
| c:\winnt\system32\rasadhlp.dll                                                                   | c:\winnt\system32\rasapi32.dll                                                                   |
| winmr.dll 5.00.2160.1 18.77 KB (19,216 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation         | rtutils.dll 5.00.2168.1 43.77 KB (44,816 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation       |
| c:\winnt\system32\winmr.dll                                                                      | c:\winnt\system32\rtutils.dll                                                                    |
| mr20.dll 5.00.2195.4874 35.77 KB (36,624 bytes) 2/28/2003 2:03:45 PM Microsoft Corporation       | adslldpc.dll 5.00.2195.5400 127.77 KB (130,832 bytes) 2/28/2003 2:03:27 PM Microsoft Corporation |
| c:\winnt\system32\mr20.dll                                                                       | c:\winnt\system32\adslldpc.dll                                                                   |
| wshtcpip.dll 5.00.2195.4874 17.27 KB (17,680 bytes) 2/28/2003 2:03:49 PM Microsoft Corporation   | activeds.dll 5.00.2195.5312 175.27 KB (179,472 bytes) 2/28/2003 2:03:25 PM Microsoft Corporation |
| c:\winnt\system32\wshtcpip.dll                                                                   | c:\winnt\system32\activeds.dll                                                                   |
| msafd.dll 5.00.2195.4874 103.27 KB (105,744 bytes) 2/28/2003 2:03:38 PM Microsoft Corporation    | mprapi.dll 5.00.2181.1 79.27 KB (81,168 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation        |
| c:\winnt\system32\msafd.dll                                                                      | c:\winnt\system32\mprapi.dll                                                                     |
| mswsock.dll 5.00.2195.4874 62.77 KB (64,272 bytes) 2/28/2003 2:03:41 PM Microsoft Corporation    | iphlpapi.dll 5.00.2195.2 68.27 KB (69,904 bytes) 2/28/2003 2:03:35 PM Microsoft Corporation      |
| c:\winnt\system32\mswsock.dll                                                                    | c:\winnt\system32\iphlpapi.dll                                                                   |
| msgsv.dll 5.00.2195.4874 34.77 KB (35,600 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation      | icmp.dll 5.00.2134.1 7.27 KB (7,440 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation            |
| c:\winnt\system32\msgsv.dll                                                                      | c:\winnt\system32\icmp.dll                                                                       |
| alrsvc.dll 5.00.2134.1 17.77 KB (18,192 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation        | dhcpcsvc.dll 5.00.2195.4874 87.77 KB (89,872 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation   |
| c:\winnt\system32\alrsvc.dll                                                                     | c:\winnt\system32\dhcpcsvc.dll                                                                   |
| trkwks.dll 5.00.2195.4874 88.77 KB (90,896 bytes) 2/28/2003 2:03:48 PM Microsoft Corporation     | eventlog.dll 5.00.2195.5336 44.27 KB (45,328 bytes) 2/28/2003 2:03:33 PM Microsoft Corporation   |
| c:\winnt\system32\trkwks.dll                                                                     | c:\winnt\system32\eventlog.dll                                                                   |
| seclogon.dll 5.00.2195.5201 17.27 KB (17,680 bytes) 2/28/2003 2:03:45 PM Microsoft Corporation   | ntdsapi.dll 5.00.2195.4827 56.27 KB (57,616 bytes) 2/28/2003 2:03:42 PM Microsoft Corporation    |
| c:\winnt\system32\seclogon.dll                                                                   | c:\winnt\system32\ntdsapi.dll                                                                    |
| psbase.dll 5.00.2195.4822 111.77 KB (114,448 bytes) 2/28/2003 2:03:44 PM Microsoft Corporation   | scsersv.dll 5.00.2195.5316 242.77 KB (248,592 bytes) 2/28/2003 2:03:45 PM Microsoft Corporation  |
| c:\winnt\system32\psbase.dll                                                                     | c:\winnt\system32\scsersv.dll                                                                    |
| cryptsvc.dll 5.00.2195.4368 73.27 KB (75,024 bytes) 2/28/2003 2:03:31 PM Microsoft Corporation   | umpnpgmr.dll 5.00.2182.1 86.27 KB (88,336 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation      |
| c:\winnt\system32\cryptsvc.dll                                                                   | c:\winnt\system32\umpnpgmr.dll                                                                   |
| cryptdll.dll 5.00.2135.1 41.27 KB (42,256 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation      | services.exe 5.00.2195.3940 86.77 KB (88,848 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation   |
| c:\winnt\system32\cryptdll.dll                                                                   | c:\winnt\system32\services.exe                                                                   |
| wkssvc.dll 5.00.2195.4874 95.27 KB (97,552 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation     | msv1_0.dll 5.00.2195.4745 112.27 KB (114,960 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation   |
| c:\winnt\system32\wkssvc.dll                                                                     | c:\winnt\system32\msv1_0.dll                                                                     |
| srsvcs.dll 5.00.2195.5400 81.77 KB (83,728 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation     | clbcatq.dll 2000.2.3497.0 497.77 KB (509,712 bytes) 2/28/2003 2:03:29 PM Microsoft Corporation   |
| c:\winnt\system32\srsvcs.dll                                                                     | c:\winnt\system32\clbcatq.dll                                                                    |
| cfgmgr32.dll 5.00.2134.1 16.77 KB (17,168 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation      | oleaut32.dll 2.40.4518 612.27 KB (626,960 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation      |
| c:\winnt\system32\cfgmgr32.dll                                                                   | c:\winnt\system32\oleaut32.dll                                                                   |
| dmserver.dll 2195.3649.297.3 12.27 KB (12,560 bytes) 2/28/2003 2:03:32 PM VERITAS Software Corp. | cscui.dll 5.00.2195.4104 233.77 KB (239,376 bytes) 2/28/2003 2:03:31 PM Microsoft Corporation    |
| c:\winnt\system32\dmserver.dll                                                                   | c:\winnt\system32\cscui.dll                                                                      |
| winsta.dll 5.00.2195.4655 36.77 KB (37,648 bytes) 2/28/2003 2:03:49 PM Microsoft Corporation     | winspool.drv 5.00.2195.5225 111.27 KB (113,936 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation |
| c:\winnt\system32\winsta.dll                                                                     | c:\winnt\system32\winspool.drv                                                                   |
|                                                                                                  | winscard.dll 5.00.2134.1 77.27 KB (79,120 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation      |
|                                                                                                  | c:\winnt\system32\winscard.dll                                                                   |

|                                |                       |                           |                        |
|--------------------------------|-----------------------|---------------------------|------------------------|
| wlnotify.dll                   | 5.00.2195.5377        | 54.27 KB (55,568 bytes)   |                        |
| 2/28/2003 2:03:49 PM           | Microsoft Corporation |                           |                        |
| c:\winnt\system32\wlnotify.dll |                       |                           |                        |
| cscdll.dll                     | 5.00.2195.5434        | 98.77 KB (101,136 bytes)  | 2/28/2003              |
| 2:03:31 PM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\cscdll.dll   |                       |                           |                        |
| wdmaud.drv                     | 5.00.2195.3649        | 21.27 KB (21,776 bytes)   |                        |
| 2/28/2003 2:03:49 PM           | Microsoft Corporation |                           |                        |
| c:\winnt\system32\wdmaud.drv   |                       |                           |                        |
| lz32.dll                       | 5.00.2134.1           | 9.77 KB (10,000 bytes)    | 12/7/1999              |
| 7:00:00 AM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\lz32.dll     |                       |                           |                        |
| version.dll                    | 5.00.2134.1           | 15.77 KB (16,144 bytes)   | 12/7/1999              |
| 7:00:00 AM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\version.dll  |                       |                           |                        |
| rsaenh.dll                     | 5.00.2195.3839        | 130.77 KB (133,904 bytes) | 2/28/2003              |
| 2:03:57 PM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\rsaenh.dll   |                       |                           |                        |
| mscat32.dll                    | 5.131.2134.1          | 7.77 KB (7,952 bytes)     | 12/7/1999              |
| 7:00:00 AM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\mscat32.dll  |                       |                           |                        |
| ole32.dll                      | 5.00.2195.5400        | 968.27 KB (991,504 bytes) | 2/28/2003              |
| 2:03:43 PM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\ole32.dll    |                       |                           |                        |
| imagehlp.dll                   | 5.00.2195.5242        | 125.77 KB (128,784 bytes) |                        |
| 5/4/2001 12:05:02 PM           | Microsoft Corporation |                           |                        |
| c:\winnt\system32\imagehlp.dll |                       |                           |                        |
| msasn1.dll                     | 5.00.2195.4067        | 51.27 KB (52,496 bytes)   | 12/7/1999              |
| 7:00:00 AM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\msasn1.dll   |                       |                           |                        |
| crypt32.dll                    | 5.131.2195.4558       | 464.27 KB (475,408 bytes) | 2/28/2003              |
| 2:03:30 PM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\crypt32.dll  |                       |                           |                        |
| wintrust.dll                   | 5.131.2195.3775       | 162.27 KB (166,160 bytes) |                        |
| 2/28/2003 2:03:49 PM           | Microsoft Corporation |                           |                        |
| c:\winnt\system32\wintrust.dll |                       |                           |                        |
| setupapi.dll                   | 5.00.2195.5400        | 553.77 KB (567,056 bytes) |                        |
| 12/7/1999 7:00:00 AM           | Microsoft Corporation |                           |                        |
| c:\winnt\system32\setupapi.dll |                       |                           |                        |
| winmm.dll                      | 5.00.2161.1           | 184.77 KB (189,200 bytes) | 12/7/1999              |
| 7:00:00 AM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\winmm.dll    |                       |                           |                        |
| mpr.dll                        | 5.00.2195.3649        | 53.77 KB (55,056 bytes)   | 2/28/2003              |
| 2:03:37 PM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\mpr.dll      |                       |                           |                        |
| comctl32.dll                   | 5.81                  | 517.27 KB (529,680 bytes) | 8/29/2002              |
| 7:14:40 AM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\comctl32.dll |                       |                           |                        |
| shlwapi.dll                    | 6.00.2800.1106        | 386.00 KB (395,264 bytes) | 8/29/2002              |
| 7:14:40 AM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\shlwapi.dll  |                       |                           |                        |
| shell32.dll                    | 5.00.3502.5436        | 2.26 MB (2,374,416 bytes) | 2/28/2003              |
| 2:03:46 PM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\shell32.dll  |                       |                           |                        |
| msgina.dll                     | 5.00.2195.4733        | 324.77 KB (332,560 bytes) | 12/7/1999              |
| 7:00:00 AM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\msgina.dll   |                       |                           |                        |
| wsock32.dll                    | 5.00.2195.4874        | 21.27 KB (21,776 bytes)   |                        |
| 2/28/2003 2:03:49 PM           | Microsoft Corporation |                           |                        |
| c:\winnt\system32\wsock32.dll  |                       |                           |                        |
| dnsapi.dll                     | 5.00.2195.5354        | 131.27 KB (134,416 bytes) | 2/28/2003              |
| 2:03:32 PM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\dnsapi.dll   |                       |                           |                        |
| wldap32.dll                    | 5.00.2195.5400        | 158.77 KB (162,576 bytes) |                        |
| 2/28/2003 2:03:49 PM           | Microsoft Corporation |                           |                        |
| c:\winnt\system32\wldap32.dll  |                       |                           |                        |
| ws2help.dll                    | 5.00.2134.1           | 17.77 KB (18,192 bytes)   |                        |
| 12/7/1999 7:00:00 AM           | Microsoft Corporation |                           |                        |
| c:\winnt\system32\ws2help.dll  |                       |                           |                        |
| ws2_32.dll                     | 5.00.2195.4874        | 66.77 KB (68,368 bytes)   | 2/28/2003              |
| 2:03:49 PM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\ws2_32.dll   |                       |                           |                        |
| samlib.dll                     | 5.00.2195.4827        | 49.77 KB (50,960 bytes)   | 12/7/1999              |
| 7:00:00 AM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\samlib.dll   |                       |                           |                        |
| netrap.dll                     | 5.00.2134.1           | 11.27 KB (11,536 bytes)   | 12/7/1999              |
| 7:00:00 AM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\netrap.dll   |                       |                           |                        |
| netapi32.dll                   | 5.00.2195.5427        | 305.27 KB (312,592 bytes) |                        |
| 2/28/2003 2:03:41 PM           | Microsoft Corporation |                           |                        |
| c:\winnt\system32\netapi32.dll |                       |                           |                        |
| profmap.dll                    | 5.00.2181.1           | 29.27 KB (29,968 bytes)   |                        |
| 12/7/1999 7:00:00 AM           | Microsoft Corporation |                           |                        |
| c:\winnt\system32\profmap.dll  |                       |                           |                        |
| secur32.dll                    | 5.00.2195.4587        | 47.27 KB (48,400 bytes)   | 2/28/2003              |
| 2:03:45 PM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\secur32.dll  |                       |                           |                        |
| sfc.dll                        | 5.00.2195.3649        | 92.11 KB (94,320 bytes)   | 2/28/2003              |
| 2:03:45 PM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\sfc.dll      |                       |                           |                        |
| nddeapi.dll                    | 5.00.2195.4509        | 15.77 KB (16,144 bytes)   | 2/28/2003              |
| 2:03:41 PM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\nddeapi.dll  |                       |                           |                        |
| userenv.dll                    | 5.00.2195.5425        | 363.77 KB (372,496 bytes) | 12/7/1999              |
| 7:00:00 AM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\userenv.dll  |                       |                           |                        |
| user32.dll                     | 5.00.2195.4314        | 395.77 KB (405,264 bytes) | 12/7/1999              |
| 7:00:00 AM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\user32.dll   |                       |                           |                        |
| gdi32.dll                      | 5.00.2195.5252        | 228.77 KB (234,256 bytes) | 12/7/1999              |
| 7:00:00 AM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\gdi32.dll    |                       |                           |                        |
| rpert4.dll                     | 5.00.2195.5419        | 440.27 KB (450,832 bytes) | 2/28/2003              |
| 2:03:45 PM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\rpert4.dll   |                       |                           |                        |
| advapi32.dll                   | 5.00.2195.5385        | 358.77 KB (367,376 bytes) |                        |
| 12/7/1999 7:00:00 AM           | Microsoft Corporation |                           |                        |
| c:\winnt\system32\advapi32.dll |                       |                           |                        |
| kernel32.dll                   | 5.00.2195.5400        | 716.77 KB (733,968 bytes) |                        |
| 12/7/1999 7:00:00 AM           | Microsoft Corporation |                           |                        |
| c:\winnt\system32\kernel32.dll |                       |                           |                        |
| msvrt.dll                      | 6.10.9359.0           | 284.05 KB (290,869 bytes) | 7/22/2002              |
| 12:05:04 PM                    | Microsoft Corporation |                           |                        |
| c:\winnt\system32\msvrt.dll    |                       |                           |                        |
| winlogon.exe                   | 5.00.2195.5386        | 174.77 KB (178,960 bytes) |                        |
| 2/28/2003 2:03:49 PM           | Microsoft Corporation |                           |                        |
| c:\winnt\system32\winlogon.exe |                       |                           |                        |
| sfcfiles.dll                   | 5.00.2195.5426        | 951.27 KB (974,096 bytes) | 2/28/2003              |
| 2:03:46 PM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\sfcfiles.dll |                       |                           |                        |
| ntdll.dll                      | 5.00.2195.5400        | 479.27 KB (490,768 bytes) | 5/4/2001               |
| 12:05:02 PM                    | Microsoft Corporation |                           |                        |
| c:\winnt\system32\ntdll.dll    |                       |                           |                        |
| smss.exe                       | 5.00.2195.5382        | 44.77 KB (45,840 bytes)   | 12/7/1999              |
| 7:00:00 AM                     | Microsoft Corporation |                           |                        |
| c:\winnt\system32\smss.exe     |                       |                           |                        |
| [Services]                     |                       |                           |                        |
| Display Name                   | Name                  | State                     | Start ModeService Type |
| Path                           | Error Control         | Start NameTag ID          |                        |
| Alerter                        | Alerter               | Running                   | Auto Share Process     |
| c:\winnt\system32\services.exe |                       | Normal                    | LocalSystem 0          |

|                                                 |                                            |         |             |               |          |                                                 |                                         |                |             |               |             |
|-------------------------------------------------|--------------------------------------------|---------|-------------|---------------|----------|-------------------------------------------------|-----------------------------------------|----------------|-------------|---------------|-------------|
| Application Management                          | AppMgmt                                    | Stopped | Manual      | Share         | 0        | File Replication                                | NtFrs                                   | Stopped        | Manual      | Own Process   |             |
| Process c:\winnt\system32\services.exe          |                                            | Normal  | LocalSystem |               |          | c:\winnt\system32\ntfrs.exe                     |                                         | Ignore         | LocalSystem | 0             |             |
| Background Intelligent Transfer Service         | BITS                                       | Stopped | Manual      |               |          | NT LM Security Support Provider                 |                                         |                | NtLmSsp     | Stopped       | Manual      |
| Share Process                                   | c:\winnt\system32\svchost.exe -k bitsgroup | Normal  |             |               |          | Share Process                                   | c:\winnt\system32\lsass.exe             |                |             | Normal        |             |
| LocalSystem                                     | 0                                          |         |             |               |          | LocalSystem                                     | 0                                       |                |             |               |             |
| Computer Browser                                | Browser                                    | Stopped | Manual      | Share Process |          | Removable Storage                               | NtmsSvc                                 | Running        | Auto        | Share Process |             |
| c:\winnt\system32\services.exe                  |                                            | Normal  | LocalSystem | 0             |          | c:\winnt\system32\svchost.exe -k netvcs         |                                         | Normal         | LocalSystem | 0             |             |
| Indexing Service                                | cisvc                                      | Stopped | Manual      | Share Process |          | Plug and Play                                   | PlugPlay                                | Running        | Auto        | Share Process |             |
| c:\winnt\system32\cisvc.exe                     |                                            | Normal  | LocalSystem | 0             |          | c:\winnt\system32\services.exe                  |                                         | Normal         | LocalSystem | 0             |             |
| ClipBook                                        | ClipSrv                                    | Stopped | Manual      | Own Process   |          | IPSEC Policy Agent                              | PolicyAgent                             |                | Running     | Auto          | Share       |
| c:\winnt\system32\clipsrv.exe                   |                                            | Normal  | LocalSystem | 0             |          | Process c:\winnt\system32\lsass.exe             |                                         | Normal         | LocalSystem | 0             |             |
| Distributed File System                         | Dfs                                        | Running | Auto        | Own           |          | Protected Storage                               | ProtectedStorage                        | Running        | Auto        | Share         |             |
| Process c:\winnt\system32\dfsrv.exe             |                                            | Normal  | LocalSystem | 0             |          | Process c:\winnt\system32\services.exe          |                                         | Normal         | LocalSystem | 0             |             |
| DHCP Client                                     | Dhcp                                       | Running | Auto        | Share Process |          | Remote Access Auto Connection Manager           |                                         | RasAuto        | Stopped     | Manual        |             |
| c:\winnt\system32\services.exe                  |                                            | Normal  | LocalSystem | 0             |          | Share Process                                   | c:\winnt\system32\svchost.exe -k netvcs |                | Normal      |               |             |
| Logical Disk Manager Administrative Service     |                                            |         | dmadmin     | Stopped       |          | LocalSystem                                     | 0                                       |                |             |               |             |
| Manual Share Process                            | c:\winnt\system32\dmadmin.exe /com         |         |             |               |          | Remote Access Connection Manager                |                                         | RasMan         | Stopped     | Manual        |             |
| Normal LocalSystem                              | 0                                          |         |             |               |          | Share Process                                   | c:\winnt\system32\svchost.exe -k netvcs |                | Normal      |               |             |
| Logical Disk Managerdmserver                    |                                            | Running | Auto        | Share Process |          | LocalSystem                                     | 0                                       |                |             |               |             |
| c:\winnt\system32\services.exe                  |                                            | Normal  | LocalSystem | 0             |          | Routing and Remote Access                       |                                         | RemoteAccess   |             | Stopped       | Disabled    |
| DNS Client                                      | Dnscache                                   | Running | Auto        | Share Process |          | Share Process                                   | c:\winnt\system32\svchost.exe -k netvcs |                | Normal      |               |             |
| c:\winnt\system32\services.exe                  |                                            | Normal  | LocalSystem | 0             |          | LocalSystem                                     | 0                                       |                |             |               |             |
| Event Log                                       | Eventlog                                   | Running | Auto        | Share Process |          | Remote Registry Service                         |                                         | RemoteRegistry |             | Running       | Auto        |
| c:\winnt\system32\services.exe                  |                                            | Normal  | LocalSystem | 0             |          | Own Process                                     | c:\winnt\system32\regsvc.exe            |                | Normal      |               |             |
| COM+ Event System                               | EventSystem                                | Running | Manual      | Share         |          | LocalSystem                                     | 0                                       |                |             |               |             |
| Process c:\winnt\system32\svchost.exe -k netvcs |                                            | Normal  |             |               |          | Remote Command Service                          |                                         | RMSYS          | Running     | Auto          | Own         |
| LocalSystem                                     | 0                                          |         |             |               |          | Process c:\program files\benchcraft\rsys.exe    |                                         |                | Normal      |               |             |
| Fax Service                                     | Fax                                        | Stopped | Manual      | Own Process   |          | Administrator                                   | 0                                       |                |             |               |             |
| c:\winnt\system32\faxsvc.exe                    |                                            | Normal  | LocalSystem | 0             |          | Remote Procedure Call (RPC) Locator             |                                         | RpcLocator     |             | Stopped       |             |
| Internet Authentication Service                 | IAS                                        | Running | Auto        | Share         |          | Manual Own Process                              | c:\winnt\system32\locator.exe           |                | Normal      |               |             |
| Process c:\winnt\system32\svchost.exe -k netvcs |                                            | Normal  |             |               |          | LocalSystem                                     | 0                                       |                |             |               |             |
| LocalSystem                                     | 0                                          |         |             |               |          | Remote Procedure Call (RPC)                     |                                         | RpcSs          | Running     | Auto          | Share       |
| IIS Admin Service                               | IISADMIN                                   |         | Running     | Auto          | Share    | Process c:\winnt\system32\svchost -k rpss       |                                         |                | Normal      |               |             |
| Process c:\winnt\system32\inetrv\inetinfo.exe   |                                            |         | Normal      |               |          | LocalSystem                                     | 0                                       |                |             |               |             |
| LocalSystem                                     | 0                                          |         |             |               |          | QoS RSVP                                        |                                         | RSVP           | Running     | Manual        | Own Process |
| Intersite Messaging                             | IsmServ                                    | Stopped | Disabled    | Own Process   |          | c:\winnt\system32\rsvp.exe -s                   |                                         | Normal         | LocalSystem | 0             |             |
| c:\winnt\system32\ismserv.exe                   |                                            | Normal  | LocalSystem | 0             |          | Security Accounts Manager                       |                                         | SamSs          | Running     | Auto          | Share       |
| Kerberos Key Distribution Center                |                                            |         | kdc         | Stopped       | Disabled | Process c:\winnt\system32\lsass.exe             |                                         | Normal         | LocalSystem | 0             |             |
| Share Process                                   | c:\winnt\system32\lsass.exe                |         | Normal      |               |          | Smart Card Helper                               | SCardDrv                                | Stopped        | Manual      | Share Process |             |
| LocalSystem                                     | 0                                          |         |             |               |          | c:\winnt\system32\scardsvr.exe                  |                                         | Ignore         | LocalSystem | 0             |             |
| Server lanmanserver                             |                                            | Running | Auto        | Share Process |          | Smart Card                                      | SCardSvr                                | Stopped        | Manual      | Share Process |             |
| c:\winnt\system32\services.exe                  |                                            | Normal  | LocalSystem | 0             |          | c:\winnt\system32\scardsvr.exe                  |                                         | Ignore         | LocalSystem | 0             |             |
| Workstation                                     | lanmanworkstation                          | Running | Auto        | Share         |          | Task Scheduler                                  | Schedule                                | Running        | Auto        | Share Process |             |
| Process c:\winnt\system32\services.exe          |                                            | Normal  | LocalSystem | 0             |          | c:\winnt\system32\mtask.exe                     |                                         | Normal         | LocalSystem | 0             |             |
| License Logging Service                         | LicenseService                             |         | Running     | Auto          |          | RunAs Service                                   | seclogon                                | Running        | Auto        | Share Process |             |
| Own Process                                     | c:\winnt\system32\llssrv.exe               |         | Normal      |               |          | c:\winnt\system32\services.exe                  |                                         | Ignore         | LocalSystem | 0             |             |
| LocalSystem                                     | 0                                          |         |             |               |          | System Event Notification                       |                                         | SENS           | Running     | Auto          | Share       |
| TCP/IP NetBIOS Helper Service                   | LmHosts                                    | Running | Auto        | Share         |          | Process c:\winnt\system32\svchost.exe -k netvcs |                                         |                | Normal      |               |             |
| Process c:\winnt\system32\services.exe          |                                            | Normal  | LocalSystem | 0             |          | LocalSystem                                     | 0                                       |                |             |               |             |
| Messenger Messenger                             | Running                                    |         | Auto        | Share Process |          | Internet Connection Sharing                     |                                         | SharedAccess   |             | Stopped       | Manual      |
| c:\winnt\system32\services.exe                  |                                            | Normal  | LocalSystem | 0             |          | Share Process                                   | c:\winnt\system32\svchost.exe -k netvcs |                | Normal      |               |             |
| NetMeeting Remote Desktop Sharing               |                                            |         | mnmsrvc     | Stopped       | Manual   | LocalSystem                                     | 0                                       |                |             |               |             |
| Own Process                                     | c:\winnt\system32\mnmsrvc.exe              |         | Normal      |               |          | Simple TCP/IP Services                          |                                         | SimpTcp        | Running     | Auto          | Share       |
| LocalSystem                                     | 0                                          |         |             |               |          | Process c:\winnt\system32\tpcsrvs.exe           |                                         | Normal         | LocalSystem | 0             |             |
| Distributed Transaction Coordinator             |                                            |         | MSDTC       | Running       | Auto     | Print Spooler                                   | Spooler                                 | Running        | Auto        | Own Process   |             |
| Own Process                                     | c:\winnt\system32\msdtc.exe                |         | Normal      |               |          | c:\winnt\system32\spoolsv.exe                   |                                         | Normal         | LocalSystem | 0             |             |
| LocalSystem                                     | 0                                          |         |             |               |          | Performance Logs and Alerts                     |                                         | SysmonLog      |             | Stopped       | Manual      |
| Windows Installer                               | MSIServer                                  | Stopped | Manual      | Share Process |          | Own Process                                     | c:\winnt\system32\smlogsvc.exe          |                | Normal      |               |             |
| c:\winnt\system32\msiexec.exe /v                |                                            |         | Normal      | LocalSystem   | 0        | LocalSystem                                     | 0                                       |                |             |               |             |
| Network DDE                                     | NetDDE                                     | Stopped | Manual      | Share Process |          | Telephony TapiSrv                               |                                         | Running        | Manual      | Share Process |             |
| c:\winnt\system32\netdde.exe                    |                                            | Normal  | LocalSystem | 0             |          | c:\winnt\system32\svchost.exe -k tapisrv        |                                         |                | Normal      | LocalSystem   | 0           |
| Network DDE DSDM                                | NetDDEdsdm                                 |         | Stopped     | Manual        | Share    | Terminal Services                               | TermService                             |                | Stopped     | Disabled      | Own         |
| Process c:\winnt\system32\netdde.exe            |                                            |         | Normal      | LocalSystem   | 0        | Process c:\winnt\system32\termsrv.exe           |                                         |                | Normal      | LocalSystem   | 0           |
| Net Logon Netlogon                              | Stopped                                    |         | Manual      | Share Process |          | Telnet TlntSvr                                  | Stopped                                 |                | Manual      | Own Process   |             |
| c:\winnt\system32\lsass.exe                     |                                            | Normal  | LocalSystem | 0             |          | c:\winnt\system32\tlntsvr.exe                   |                                         | Normal         | LocalSystem | 0             |             |
| Network Connections                             | Netman                                     | Running | Manual      | Share Process |          | Distributed Link Tracking Server                | TrkSvr                                  |                | Stopped     | Manual        | Share       |
| c:\winnt\system32\svchost.exe -k netvcs         |                                            | Normal  | LocalSystem | 0             |          | Process c:\winnt\system32\services.exe          |                                         |                | Normal      | LocalSystem   | 0           |

|                                                      |                                                                 |                                                                 |                                |               |                                           |                                |                                    |                          |                               |                      |         |                                                                 |                          |           |
|------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|--------------------------------|---------------|-------------------------------------------|--------------------------------|------------------------------------|--------------------------|-------------------------------|----------------------|---------|-----------------------------------------------------------------|--------------------------|-----------|
| Distributed Link Tracking Client TrkWks              |                                                                 |                                                                 |                                |               | Running                                   | Auto                           | Share                              | Shortcut to synctime.cmd |                               |                      |         |                                                                 | c:\batfiles\synctime.cmd | All Users |
| Process                                              | c:\winnt\system32\services.exe                                  | Normal                                                          | LocalSystem                    | 0             | Common Startup                            |                                |                                    |                          |                               |                      |         |                                                                 |                          |           |
| Uninterruptible Power Supply                         |                                                                 |                                                                 |                                |               | UPS                                       | Stopped                        | Manual                             | Own                      |                               |                      |         |                                                                 |                          |           |
| Process                                              | c:\winnt\system32\ups.exe                                       | Normal                                                          | LocalSystem                    | 0             | [OLE Registration]                        |                                |                                    |                          |                               |                      |         |                                                                 |                          |           |
| Utility Manager                                      | UtilMan                                                         | Stopped                                                         | Manual                         | Own Process   |                                           |                                |                                    |                          |                               |                      |         |                                                                 |                          |           |
| c:\winnt\system32\utilman.exe                        | Normal                                                          | LocalSystem                                                     | 0                              | Object        |                                           |                                |                                    |                          | Local Server                  |                      |         |                                                                 |                          |           |
| Windows Time                                         | W32Time                                                         | Stopped                                                         | Manual                         | Share Process | Sound (OLE2)                              |                                |                                    |                          |                               | sndrec32.exe         |         |                                                                 |                          |           |
| c:\winnt\system32\services.exe                       | Normal                                                          | LocalSystem                                                     | 0                              | Media Clip    |                                           |                                |                                    |                          | mplay32.exe                   |                      |         |                                                                 |                          |           |
| World Wide Web Publishing Service                    | W3SVC                                                           | Running                                                         | Auto                           | Video Clip    |                                           |                                |                                    |                          | mplay32.exe /avi              |                      |         |                                                                 |                          |           |
| Share Process                                        | c:\winnt\system32\inetsrv\inetinfo.exe                          | Normal                                                          | LocalSystem                    | 0             | MIDI Sequence                             |                                |                                    |                          |                               | mplay32.exe /mid     |         |                                                                 |                          |           |
| Windows Management Instrumentation                   | WinMgmt                                                         | Running                                                         | Auto                           | Sound         |                                           |                                |                                    |                          | Not Available                 |                      |         |                                                                 |                          |           |
| Own Process                                          | c:\winnt\system32\wbem\winmgmt.exe                              | Ignore                                                          | LocalSystem                    | 0             | Media Clip                                |                                |                                    |                          |                               | Not Available        |         |                                                                 |                          |           |
| Windows Management Instrumentation Driver Extensions | Wmi                                                             |                                                                 |                                |               |                                           |                                | Image Document                     |                          |                               |                      |         | "C:\Program Files\Windows NT\Accessories\ImageVue\KodakImg.exe" |                          |           |
| Running                                              | Manual                                                          | Share Process                                                   | c:\winnt\system32\services.exe | Normal        | LocalSystem                               | 0                              | WordPad Document                   |                          |                               |                      |         | "%ProgramFiles%\Windows NT\Accessories\WORDPAD.EXE"             |                          |           |
| Automatic Updates                                    | wuauclt                                                         | Running                                                         | Auto                           | Share Process | Windows Media Services DRM Storage object |                                |                                    |                          |                               | Not Available        |         |                                                                 |                          |           |
| c:\winnt\system32\svchost.exe -k wugroup             | Normal                                                          | LocalSystem                                                     | 0                              | Bitmap Image  |                                           |                                |                                    |                          | C:\WINNT\System32\mspaint.exe |                      |         |                                                                 |                          |           |
| [Program Groups]                                     |                                                                 |                                                                 |                                |               | [Internet Explorer]                       |                                |                                    |                          |                               |                      |         |                                                                 |                          |           |
| [Following are sub-categories of this main category] |                                                                 |                                                                 |                                |               |                                           |                                |                                    |                          |                               |                      |         |                                                                 |                          |           |
| [Summary]                                            |                                                                 |                                                                 |                                |               |                                           |                                |                                    |                          |                               |                      |         |                                                                 |                          |           |
| Group Name                                           | Name                                                            | User Name                                                       |                                |               |                                           | Item                           | Value                              |                          |                               |                      |         |                                                                 |                          |           |
| Accessories                                          | Default User:Accessories                                        | Default User                                                    |                                |               |                                           | Version                        | 6.0.2800.1106                      |                          |                               |                      |         |                                                                 |                          |           |
| Accessories\Accessibility                            | Default User:Accessories\Accessibility                          | Default User                                                    |                                |               |                                           | Build                          | 62800.1106                         |                          |                               |                      |         |                                                                 |                          |           |
| Accessories\Entertainment                            | Default User:Accessories\Entertainment                          | Default User                                                    |                                |               |                                           | Product ID                     | 55736-276-6004927-04967            |                          |                               |                      |         |                                                                 |                          |           |
| Accessories\System Tools                             | Default User:Accessories\System Tools                           | Default User                                                    |                                |               |                                           | Application Path               | C:\Program Files\Internet Explorer |                          |                               |                      |         |                                                                 |                          |           |
| Startup                                              | Default User:Startup                                            | All Users:Accessories                                           | All Users                      |               |                                           |                                | Language                           | English (United States)  |                               |                      |         |                                                                 |                          |           |
| Accessories\Accessibility                            | All Users:Accessories\Accessibility                             | All Users                                                       |                                |               |                                           | Active Printer                 | Not Available                      |                          |                               |                      |         |                                                                 |                          |           |
| Accessories\Communications                           | All Users:Accessories\Communications                            | All Users                                                       |                                |               |                                           | Cipher Strength                | 128-bit                            |                          |                               |                      |         |                                                                 |                          |           |
| Accessories\Entertainment                            | All Users:Accessories\Entertainment                             | All Users                                                       |                                |               |                                           | Content Advisor                | Disabled                           |                          |                               |                      |         |                                                                 |                          |           |
| Accessories\Games                                    | All Users:Accessories\Games                                     | All Users                                                       |                                |               |                                           | Update Versions                | ;SP1;                              |                          |                               |                      |         |                                                                 |                          |           |
| Accessories\System Tools                             | All Users:Accessories\System Tools                              | All Users                                                       |                                |               |                                           | Java VM Version                | 5.0.3805.0                         |                          |                               |                      |         |                                                                 |                          |           |
| Administrative Tools                                 | All Users:Administrative Tools                                  | All Users                                                       |                                |               |                                           | IEAK Install                   | No                                 |                          |                               |                      |         |                                                                 |                          |           |
| Microsoft SQL Server                                 | All Users:Microsoft SQL Server                                  | All Users                                                       |                                |               |                                           | [File Versions]                |                                    |                          |                               |                      |         |                                                                 |                          |           |
| Startup                                              | All Users:Startup                                               | FCLIENT10\Administrator:Accessories                             |                                |               |                                           | File                           | Version                            | Size                     | Date                          | Path                 | Company |                                                                 |                          |           |
| Accessories                                          | FCLIENT10\Administrator:Accessories                             | FCLIENT10\Administrator                                         |                                |               |                                           | advapi32.dll                   | 5.0.2195.5385                      | 359 KB                   | 7/22/2002 12:05:04 PM         |                      |         |                                                                 |                          |           |
| FCLIENT10\Administrator                              | Accessories\Accessibility                                       | FCLIENT10\Administrator:Accessories\Accessibility               |                                |               |                                           | C:\WINNT\system32\advpack.dll  | Microsoft Corporation              | 6.0.2800.1106            | 89 KB                         | 8/29/2002 7:14:40 AM |         |                                                                 |                          |           |
| Accessories\Accessibility                            | FCLIENT10\Administrator:Accessories\Accessibility               | FCLIENT10\Administrator                                         |                                |               |                                           | C:\WINNT\system32\browseui.dll | Microsoft Corporation              | 6.0.2800.1106            | 62 KB                         | 8/29/2002 7:14:40 AM |         |                                                                 |                          |           |
| FCLIENT10\Administrator                              | Accessories\Entertainment                                       | FCLIENT10\Administrator:Accessories\Entertainment               |                                |               |                                           | C:\WINNT\system32\browseui.dll | Microsoft Corporation              | 6.0.2800.1106            | 1002 KB                       | 8/29/2002 7:14:40 AM |         |                                                                 |                          |           |
| Accessories\Entertainment                            | FCLIENT10\Administrator:Accessories\Entertainment               | FCLIENT10\Administrator                                         |                                |               |                                           | C:\WINNT\system32\ckcnv.exe    | 5.0.2189.1                         | 9 KB                     | 12/7/1999 7:00:00 AM          |                      |         |                                                                 |                          |           |
| FCLIENT10\Administrator                              | Accessories\System Tools                                        | FCLIENT10\Administrator:Accessories\System Tools                |                                |               |                                           | C:\WINNT\system32\comctl32.dll | Microsoft Corporation              | 5.81.4916.400            | 517 KB                        | 8/29/2002 7:14:40 AM |         |                                                                 |                          |           |
| Accessories\System Tools                             | FCLIENT10\Administrator:Accessories\System Tools                | FCLIENT10\Administrator                                         |                                |               |                                           | C:\WINNT\system32\crypt32.dll  | 5.131.2195.4558                    | 464 KB                   | 7/22/2002 12:05:04 PM         |                      |         |                                                                 |                          |           |
| FCLIENT10\Administrator                              | Benchcraft                                                      | FCLIENT10\Administrator:Benchcraft                              |                                |               |                                           | C:\WINNT\system32\enhshg.dll   | File not present                   | Not Available            | Not Available                 |                      |         |                                                                 |                          |           |
| Benchcraft                                           | FCLIENT10\Administrator:Benchcraft                              | FCLIENT10\Administrator:QLogic Corporation                      |                                |               |                                           | iemigrat.dll                   | File not present                   | Not Available            | Not Available                 |                      |         |                                                                 |                          |           |
| FCLIENT10\Administrator                              | FCLIENT10\Administrator:QLogic Corporation                      | FCLIENT10\Administrator:QLogic Corporation\SANblade Control VIX |                                |               |                                           | Available                      | Not Available                      |                          |                               |                      |         |                                                                 |                          |           |
| QLogic Corporation                                   | FCLIENT10\Administrator:QLogic Corporation\SANblade Control VIX | FCLIENT10\Administrator                                         |                                |               |                                           | iesetup.dll                    | 6.0.2800.1106                      | 57 KB                    | 8/29/2002 7:14:40 AM          |                      |         |                                                                 |                          |           |
| FCLIENT10\Administrator                              | FCLIENT10\Administrator:Startup                                 | C:\Program Files\Internet Explorer                              |                                |               |                                           | C:\WINNT\system32\iexplore.exe | Microsoft Corporation              | 6.0.2800.1106            | 89 KB                         | 8/29/2002 7:14:40 AM |         |                                                                 |                          |           |
| Startup                                              | FCLIENT10\Administrator:Startup                                 | C:\Program Files\Internet Explorer                              |                                |               |                                           | imagehlp.dll                   | 5.0.2195.5242                      | 126 KB                   | 7/22/2002 12:05:04 PM         |                      |         |                                                                 |                          |           |
| FCLIENT10\Administrator                              | C:\WINNT\system32\inseng.dll                                    | C:\WINNT\system32\inseng.dll                                    |                                |               |                                           | C:\WINNT\system32\inseng.dll   | Microsoft Corporation              | 6.0.2800.1106            | 68 KB                         | 8/29/2002 7:14:40 AM |         |                                                                 |                          |           |
| [Startup Programs]                                   |                                                                 |                                                                 |                                |               |                                           |                                |                                    |                          |                               |                      |         |                                                                 |                          |           |
| Program                                              | Command                                                         | User Name                                                       | Location                       |               |                                           |                                |                                    |                          |                               |                      |         |                                                                 |                          |           |

```

jobexec.dll 5.0.0.1 47 KB 12/7/1999 7:00:00 AM
C:\WINNT\system32 Microsoft Corporation
jscrip.dll 5.6.0.6626 576 KB 6/26/2001 4:36:02 PM
C:\WINNT\system32 Microsoft Corporation
jsproxy.dll 6.0.2800.1106 12 KB 8/29/2002 7:14:40 AM
C:\WINNT\system32 Microsoft Corporation
mshtml.dll 6.0.2800.1106 2722 KB 8/29/2002 7:14:40 AM
C:\WINNT\system32 Microsoft Corporation
msjava.dll 5.0.3805.0 924 KB 7/22/2002 12:05:04 PM
C:\WINNT\system32 Microsoft Corporation
msoss.dll File not present Not Available Not Available
Not Available
msxml.dll 8.0.6730.0 494 KB 7/22/2002 12:05:04 PM
C:\WINNT\system32 Microsoft Corporation
occache.dll 6.0.2800.1106 86 KB 8/29/2002 7:14:40 AM
C:\WINNT\system32 Microsoft Corporation
ole32.dll 5.0.2195.5400 968 KB 7/22/2002 12:05:04 PM
C:\WINNT\system32 Microsoft Corporation
oleaut32.dll 2.40.4518.0 612 KB 7/22/2002 12:05:04 PM
C:\WINNT\system32 Microsoft Corporation
olepro32.dll 5.0.4518.0 160 KB 7/22/2002 12:05:04 PM
C:\WINNT\system32 Microsoft Corporation
rsabase.dll 5.0.2195.3839 128 KB 7/22/2002 12:05:04 PM
C:\WINNT\system32 Microsoft Corporation
rsaenh.dll 5.0.2195.3839 131 KB 7/22/2002 12:05:04 PM
C:\WINNT\system32 Microsoft Corporation
rasapi32.dll 5.0.2195.5438 192 KB 7/22/2002 12:05:04 PM
C:\WINNT\system32 Microsoft Corporation
rsasig.dll File not present Not Available Not Available
Not Available
schannel.dll 5.1.2195.0 139 KB 7/22/2002 12:05:04 PM
C:\WINNT\system32 Microsoft Corporation
shdoc401.dll File not present Not Available Not
Available
Not Available
shdocvw.dll 6.0.2800.1106 1307 KB 8/29/2002 7:14:40 AM
C:\WINNT\system32 Microsoft Corporation
shell32.dll 5.0.3502.5436 2319 KB 7/22/2002 12:05:04 PM
C:\WINNT\system32 Microsoft Corporation
shlwapi.dll 6.0.2800.1106 386 KB 8/29/2002 7:14:40 AM
C:\WINNT\system32 Microsoft Corporation
url.dll 6.0.2800.1106 104 KB 8/29/2002 7:14:40 AM
C:\WINNT\system32 Microsoft Corporation
urlmon.dll 6.0.2800.1106 472 KB 8/29/2002 7:14:40 AM
C:\WINNT\system32 Microsoft Corporation
vbscript.dll 5.6.0.7426 452 KB 2/26/2002 3:58:06 PM
C:\WINNT\system32 Microsoft Corporation
webcheck.dll 6.0.2800.1106 252 KB 8/29/2002 7:14:40 AM
C:\WINNT\system32 Microsoft Corporation
win.com 5.0.2134.1 24 KB 12/7/1999 7:00:00 AM
C:\WINNT\system32 Microsoft Corporation
wininet.dll 6.0.2800.1106 572 KB 8/29/2002 7:14:40 AM
C:\WINNT\system32 Microsoft Corporation
winsock.dll 3.10.0.103 3 KB 12/7/1999 7:00:00 AM
C:\WINNT\system32 Microsoft Corporation
wintrust.dll 5.131.2195.3775 162 KB 7/22/2002 12:05:04 PM
C:\WINNT\system32 Microsoft Corporation
wsock.vxd File not present Not Available Not Available
Not Available
wsock32.dll 5.0.2195.4874 21 KB 7/22/2002 12:05:04 PM
C:\WINNT\system32 Microsoft Corporation
wsock32n.dll File not present Not Available Not
Available
Not Available

```

#### [Connectivity]

| Item                  | Value      |
|-----------------------|------------|
| Connection Preference | Never dial |
| EnableHttp1.1         | 1          |

ProxyHttp1.1 0

#### LAN Settings

|                     |             |
|---------------------|-------------|
| AutoConfigProxy     | wininet.dll |
| AutoProxyDetectMode | Disabled    |
| AutoConfigURL       |             |
| Proxy               | Disabled    |
| ProxyServer         |             |
| ProxyOverride       |             |

#### [Cache]

[ Following are sub-categories of this main category ]

#### [Summary]

| Item                            | Value                                                                           |
|---------------------------------|---------------------------------------------------------------------------------|
| Page Refresh Type               | Automatic                                                                       |
| Temporary Internet Files Folder | C:\Documents and Settings\Administrator\Local Settings\Temporary Internet Files |
| Total Disk Space                | 17351 MB                                                                        |
| Available Disk Space            | 12674 MB                                                                        |
| Maximum Cache Size              | 541 MB                                                                          |
| Available Cache Size            | 542 MB                                                                          |

#### [List of Objects]

| Program File                           | Status | Version | CodeBase |
|----------------------------------------|--------|---------|----------|
| No cached object information available |        |         |          |

#### [Content]

[ Following are sub-categories of this main category ]

#### [Summary]

| Item            | Value    |
|-----------------|----------|
| Content Advisor | Disabled |

#### [Personal Certificates]

| Issued To     | Issued By     | Validity               | Signature Algorithm |
|---------------|---------------|------------------------|---------------------|
| Administrator | Administrator | 2/12/2003 to 1/19/2103 | sha1RSA             |

#### [Other People Certificates]

| Issued To                                         | Issued By | Validity | Signature Algorithm |
|---------------------------------------------------|-----------|----------|---------------------|
| No other people certificate information available |           |          |                     |

#### [Publishers]

| Name                               |
|------------------------------------|
| No publisher information available |

#### [Security]

| Zone             | Security Level |
|------------------|----------------|
| Local intranet   | Custom         |
| Trusted sites    | Custom         |
| Internet         | Custom         |
| Restricted sites | Custom         |

## Registry Parameters

Windows Registry Editor Version 5.00

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika]
"ErrorControl"=dword:00000001
"start"=dword:00000002
"type"=dword:00000001
"Tag"=dword:00000001
"group"="MVIA"
"ImagePath"=hex(2):53,00,79,00,73,00,74,00,65,00,6d,00,33,00,32,00,5c,00,44
,00,\
52,00,49,00,56,00,45,00,52,00,53,00,5c,00,71,00,6c,00,76,00,69,00,6b,00,61,\
00,2e,00,73,00,79,00,73,00,00,00
```

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Adapters]

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Adapters\210000E08B07E8AF]
"IPAddress"=hex(7):31,00,39,00,32,00,2e,00,31,00,36,00,38,00,2e,00,31,00,36,00,\
35,00,2e,00,31,00,30,00,00,00,00,00
```

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Parameters]
"MaxRegisterMBytes"=dword:00000200
"MaxRegisterRdmaMBytes"=dword:00000200
"MaxCQEntries"=dword:00002000
"MaxRegisterRegions"=dword:00001000
"MaxVIs"=dword:00000400
"MaxCQs"=dword:00000400
"MaxTransferSize"=dword:00010000
"MaxPTags"=dword:00000800
"IuBuffers"=dword:00000100
"SendDescQuota"=dword:00000008
"RecvDescQuota"=dword:00000008
"SupportPrototypeCards"=dword:00000001
```

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Security]
"Security"=hex:01,00,14,80,a0,00,00,00,ac,00,00,00,14,00,00,00,30,00,00,00,0
2,\
00,1c,00,01,00,00,00,02,80,14,00,ff,01,0f,00,01,01,00,00,00,00,00,01,00,00,\
00,00,02,00,70,00,04,00,00,00,00,00,18,00,fd,01,02,00,01,01,00,00,00,00,00,\
05,12,00,00,00,00,00,00,00,00,00,00,1c,00,ff,01,0f,00,01,02,00,00,00,00,00,05,\
20,00,00,00,20,02,00,00,9c,06,00,00,00,00,18,00,8d,01,02,00,01,01,00,00,00,\
00,00,05,0b,00,00,00,20,02,00,00,00,00,1c,00,fd,01,02,00,01,02,00,00,00,00,\
00,05,20,00,00,00,23,02,00,00,9c,06,00,00,01,01,00,00,00,00,00,05,12,00,00,\
00,01,01,00,00,00,00,00,05,12,00,00,00
```

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Enum]
"0"="Root\LEGACY_QLVIKA\0000"
"Count"=dword:00000001
"NextInstance"=dword:00000001
```

SYTPTUNE.TXT

COM+ Settings  
TPCC.AllTxns:  
Activation:  
Enable Object Pooling - Selected  
Minimum Pool Size - 90  
Maximum Pool Size - 90  
Creation Timeout (ms) - 300000  
Enable object construction - Selected

Enable Just In Time Activation - Selected  
Component supports events and statistics - Unselected

Windows Registry Editor Version 5.00

Windows Registry Editor Version 5.00

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\TPCC]
"Path"="C:\Inetpub\wwwroot\"
"NumberOfDeliveryThreads"=dword:00000012
"MaxConnections"=dword:000084d0
"MaxPendingDeliveries"=dword:00000d48
"DB_Protocol"="ODBC"
"TxnMonitor"="COM"
"DbServer"="ibmserv4"
"DbName"="tpcc"
"DbUser"="sa"
"DbPassword"=""
"COM_SinglePool"="YES"
```

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC]
>Type=dword:00000020
>Start=dword:00000002
>ErrorControl=dword:00000001
>ImagePath=hex(2):43,00,3a,00,5c,00,57,00,49,00,4e,00,4e,00,54,00,5c,00,53,
00,\
    79,00,73,00,74,00,65,00,6d,00,33,00,32,00,5c,00,69,00,6e,00,65,00,74,00,73,\
    00,72,00,76,00,5c,00,69,00,6e,00,65,00,74,00,69,00,6e,00,66,00,6f,00,2e,00,\
    65,00,78,00,65,00,00,00
>DisplayName=""World Wide Web Publishing Service"
>DependOnService=hex(7):49,00,49,00,53,00,41,00,44,00,4d,00,49,00,4e,00,0
0,00,\
    00,00
>DependOnGroup=hex(7):00,00
>ObjectName=""LocalSystem"
>Description=""Provides Web connectivity and administration through the
Internet Information Services snap-in."
>FailureActions=hex(ff,ff,ff,ff,00,00,00,00,00,00,00,00,03,00,00,00,70,bf,0c,\
    00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,
```

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\
ASP]
"NOTE"="This is for backward compatibility only."
```

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\ASP\Parameters]

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters]
"MajorVersion"=dword:00000005
"MinorVersion"=dword:00000000
"InstallPath"="C:\\WINNT\\System32\\inetrv"
"CertMapList"="C:\\WINNT\\System32\\inetrv\\iisrmap.dll"
"AccessDeniedMessage"="Error: Access is Denied."
"Filter DLLs"=""
"LogFileDirectory"="C:\\WINNT\\System32\\LogFiles"
"AcceptExOutstanding"=dword:0000003c
```

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\ADCLaunch]

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\ADCLaunch\AdvancedDataFactory]

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\ADCLaunch\RDSServer.DataFactory]

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\Script Map]

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\Virtual Roots]

"/"="c:\\inetpub\\wwwroot,,205"  
"/Scripts"="c:\\inetpub\\scripts,,1"  
"/IISHelp"="c:\\winnt\\help\\iishelp,,1"  
"/IISAdmin"="C:\\WINNT\\System32\\inetrv\\iisadmin,,1"  
"/IISamples"="c:\\inetpub\\iisamples,,1"  
"/MSADC"="c:\\program files\\common files\\system\\msadc,,1"  
"/\_vti\_bin"="C:\\Program Files\\Common Files\\Microsoft Shared\\Web Server Extensions\\40\\isapi,,1"  
"/Rpc"="C:\\WINNT\\System32\\RpcProxy,,1"  
"/Printers"="C:\\WINNT\\web\\printers,,201"

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Performance]

"Library"="w3ctrs.dll"  
"Open"="OpenW3PerformanceData"  
"Close"="CloseW3PerformanceData"  
"Collect"="CollectW3PerformanceData"  
"WbemAdapFileTime"=hex:00,5a,65,9a,60,5e,c2,01  
"WbemAdapFileSize"=dword:00001d10  
"WbemAdapStatus"=dword:00000000  
"Last Counter"=dword:00000b76  
"Last Help"=dword:00000b77  
"First Counter"=dword:00000ad4  
"First Help"=dword:00000ad5  
"Library Validation  
Code"=hex:00,5a,65,9a,60,5e,c2,01,10,1d,00,00,00,00,00

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Security]

"Security"=hex:01,00,14,80,a0,00,00,00,ac,00,00,00,14,00,00,00,30,00,00,00,02,\\00,1c,00,01,00,00,00,02,80,14,00,ff,01,0f,00,01,01,00,00,00,00,01,00,00,\\00,00,02,00,70,00,04,00,00,00,00,00,18,00,fd,01,02,00,01,01,00,00,00,00,\\05,12,00,00,00,74,00,06,00,00,00,1c,00,ff,01,0f,00,01,02,00,00,00,00,05,\\20,00,00,00,20,02,00,00,72,00,73,00,00,00,18,00,8d,01,02,00,01,01,00,00,\\00,00,05,0b,00,00,00,20,02,00,00,00,1c,00,fd,01,02,00,01,02,00,00,00,\\00,05,20,00,00,00,23,02,00,00,72,00,73,00,01,01,00,00,00,00,05,12,00,00,\\00,01,01,00,00,00,00,05,12,00,00,00

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Enum]

"0"="Root\LEGACY\_W3SVC\0000"  
"Count"=dword:00000001  
"NextInstance"=dword:00000001

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\InetInfo]

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\InetInfo\Parameters]

"ListenBackLog"=dword:00000096  
"DispatchEntries"=hex(7):4c,00,44,00,41,00,50,00,53,00,56,00,43,00,00,00,00  
"PoolThreadLimit"=dword:00000200  
"ThreadTimeout"=dword:00015180

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\InetInfo\Performance]

"Library"="infectrs.dll"  
"Open"="OpenINFOPerformanceData"  
"Close"="CloseINFOPerformanceData"  
"Collect"="CollectINFOPerformanceData"  
"WbemAdapFileTime"=hex:00,a0,13,ec,a1,31,c2,01  
"WbemAdapFileSize"=dword:00002510

"WbemAdapStatus"=dword:00000000  
"Last Counter"=dword:00000bfe  
"Last Help"=dword:00000bff  
"First Counter"=dword:00000bbe  
"First Help"=dword:00000bbf  
"Library Validation  
Code"=hex:7c,c8,2a,18,5c,df,c2,01,10,25,00,00,00,00,00,00

## Client 2

Windows Registry Editor Version 5.00

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika]

"ErrorControl"=dword:00000001  
"start"=dword:00000002  
"type"=dword:00000001  
"Tag"=dword:00000001  
"group"="MVIa"  
"ImagePath"=hex(2):53,00,79,00,73,00,74,00,65,00,6d,00,33,00,32,00,5c,00,44,00,\\52,00,49,00,56,00,45,00,52,00,53,00,5c,00,71,00,6c,00,76,00,69,00,6b,00,61,\\00,2e,00,73,00,79,00,73,00,00,00

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Adapters]

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Adapters\210000E08B07E3AF]

"IPAddress"=hex(7):31,00,39,00,32,00,2e,00,31,00,36,00,38,00,2e,00,31,00,38,00,\\35,00,2e,00,33,00,30,00,00,00,00,00  
"VIDeviceNumber"=dword:00000000

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Parameters]

"MaxRegisterMBytes"=dword:00000200  
"MaxRegisterRdmaMBytes"=dword:00000200  
"MaxCQEntries"=dword:00002000  
"MaxRegisterRegions"=dword:00001000  
"MaxVIs"=dword:00000400  
"MaxCQs"=dword:00000400  
"MaxTransferSize"=dword:00010000  
"MaxPTags"=dword:00000800  
"IuBuffers"=dword:00000100  
"SendDescQuota"=dword:00000008  
"RecvDescQuota"=dword:00000008  
"SupportPrototypeCards"=dword:00000000

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Security]

"Security"=hex:01,00,14,80,a0,00,00,00,ac,00,00,00,14,00,00,00,30,00,00,00,02,\\00,1c,00,01,00,00,00,02,80,14,00,ff,01,0f,00,01,01,00,00,00,00,01,00,00,\\00,00,02,00,70,00,04,00,00,00,00,00,18,00,fd,01,02,00,01,01,00,00,00,00,\\05,12,00,00,00,72,76,69,63,00,00,1c,00,ff,01,0f,00,01,02,00,00,00,00,05,\\20,00,00,00,20,02,00,00,65,00,00,00,00,18,00,8d,01,02,00,01,01,00,00,\\00,00,05,0b,00,00,00,20,02,00,00,00,1c,00,fd,01,02,00,01,02,00,00,00,\\00,05,20,00,00,00,23,02,00,00,65,00,00,00,01,01,00,00,00,00,05,12,00,00,\\00,01,01,00,00,00,00,05,12,00,00,00

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Enum]

"0"="Root\LEGACY\_QLVIKA\0000"  
"Count"=dword:00000001  
"NextInstance"=dword:00000001

SYTPTUNE.TXT



"ThreadTimeout"=dword:00015180

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\InetInfo\Performance]

"Library"="infcotrs.dll"

"Open"="OpenINFOPerformanceData"

"Close"="CloseINFOPerformanceData"

"Collect"="CollectINFOPerformanceData"

"WbemAdapFileTime"=hex:00,a0,13,ec,a1,31,c2,01

"WbemAdapFileSize"=dword:00002510

"WbemAdapStatus"=dword:00000000

"Last Counter"=dword:00000bfe

"Last Help"=dword:00000bff

"First Counter"=dword:00000bbe

"First Help"=dword:00000bbf

"Library Validation

Code"=hex:7c,c8,2a,18,5c,df,c2,01,10,25,00,00,00,00,00

## Client 3

Windows Registry Editor Version 5.00

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika]

"ErrorControl"=dword:00000001

"start"=dword:00000002

"type"=dword:00000001

"Tag"=dword:00000001

"group"="MVIA"

"ImagePath"=hex(2):53,00,79,00,73,00,74,00,65,00,6d,00,33,00,32,00,5c,00,44,00,52,00,49,00,56,00,45,00,52,00,53,00,5c,00,71,00,6c,00,76,00,69,00,6b,00,61,00,2e,00,73,00,79,00,73,00,00,00

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Adapters]

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Adapters\210000e08b09345a]

"IPAddress"=hex(7):31,00,39,00,32,00,2e,00,31,00,36,00,38,00,2e,00,31,00,37,00,

35,00,2e,00,35,00,30,00,00,00,00,00

"VIDeviceNumber"=dword:00000000

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Parameters]

"MaxRegisterMBytes"=dword:00000200

"MaxRegisterRdmaMBytes"=dword:00000200

"MaxCQEntries"=dword:00002000

"MaxRegisterRegions"=dword:00001000

"MaxVIs"=dword:00000400

"MaxCQs"=dword:00000400

"MaxTransferSize"=dword:00010000

"MaxPTags"=dword:00000800

"IuBuffers"=dword:00000100

"SendDescQuota"=dword:00000008

"RecvDescQuota"=dword:00000008

"SupportPrototypeCards"=dword:00000001

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Security]

"Security"=hex:01,00,14,80,a0,00,00,00,ac,00,00,00,14,00,00,00,30,00,00,00,02,

00,1c,00,01,00,00,00,02,80,14,00,ff,01,0f,00,01,01,00,00,00,00,01,00,00,

00,00,02,00,70,00,04,00,00,00,00,18,00,fd,01,02,00,01,01,00,00,00,00,00,

05,12,00,00,00,72,76,69,63,00,00,1c,00,ff,01,0f,00,01,02,00,00,00,00,05,

20,00,00,00,20,02,00,00,65,00,00,00,00,18,00,8d,01,02,00,01,01,00,00,00,

00,00,05,0b,00,00,00,20,02,00,00,00,00,1c,00,fd,01,02,00,01,02,00,00,00,00,

00,05,20,00,00,00,23,02,00,00,65,00,00,00,01,01,00,00,00,00,05,12,00,00,

00,01,01,00,00,00,00,05,12,00,00,00

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Enum]

"0"="Root\LEGACY\_QLVIKA\0000"

"Count"=dword:00000001

"NextInstance"=dword:00000001

SYTPTUNE.TXT

-----

COM+ Settings

TPCC.AllTxns:

Activation:

Enable Object Pooling - Selected

Minimum Pool Size - 90

Maximum Pool Size - 90

Creation Timeout (ms) - 300000

Enable object construction - Selected

Enable Just In Time Activation - Selected

Component supports events and statistics - Unselected

Windows Registry Editor Version 5.00

Windows Registry Editor Version 5.00

[HKEY\_LOCAL\_MACHINE\SOFTWARE\Microsoft\TPCC]

"Path"="C:\\Inetpub\\wwwroot\\"

"NumberOfDeliveryThreads"=dword:00000012

"MaxConnections"=dword:000084d0

"MaxPendingDeliveries"=dword:00000d48

"DB\_Protocol"="ODBC"

"TxnMonitor"="COM"

"DbServer"="ibmserv4"

"DbName"="tpcc"

"DbUser"="sa"

"DbPassword"=""

"COM\_SinglePool"="YES"

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC]

"Type"=dword:00000020

"Start"=dword:00000002

"ErrorControl"=dword:00000001

"ImagePath"=hex(2):43,00,3a,00,5c,00,57,00,49,00,4e,00,4e,00,54,00,5c,00,53,00,

79,00,73,00,74,00,65,00,6d,00,33,00,32,00,5c,00,69,00,6e,00,65,00,74,00,73,

00,72,00,76,00,5c,00,69,00,6e,00,65,00,74,00,69,00,6e,00,66,00,6f,00,2e,00,

65,00,78,00,65,00,00,00

"DisplayName"="World Wide Web Publishing Service"

"DependOnService"=hex(7):49,00,49,00,53,00,41,00,44,00,4d,00,49,00,4e,00,0

0,00,

00,00

"DependOnGroup"=hex(7):00,00

"ObjectName"="LocalSystem"

"Description"="Provides Web connectivity and administration through the

Internet Information Services snap-in."

"FailureActions"=hex:ff,ff,ff,ff,00,00,00,00,00,00,00,00,03,00,00,00,70,bf,0c,

00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\ASP]

"NOTE"="This is for backward compatibility only."

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\ASP\Parameters]

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <pre>[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters] "MajorVersion"=dword:00000005 "MinorVersion"=dword:00000000 "InstallPath"="C:\\WINNT\\System32\\inetrv" "CertMapList"="C:\\WINNT\\System32\\inetrv\\iisrmap.dll" "AccessDeniedMessage"="Error: Access is Denied." "Filter DLLs"="" "LogFileDirectory"="C:\\WINNT\\System32\\LogFiles" "AcceptExOutstanding"=dword:0000003c</pre>                                                                                                                                                                                                                                                                                                                                                         | <pre>"NextInstance"=dword:00000001  [HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\InetInfo]  [HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\InetInfo\Parameters] "ListenBackLog"=dword:00000096 "DispatchEntries"=hex(7):4c,00,44,00,41,00,50,00,53,00,56,00,43,00,00,00,00 "PoolThreadLimit"=dword:00000200 "ThreadTimeout"=dword:00015180</pre>                                                                                                                                                                              |
| <pre>[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\ADCLaunch]  [HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\ADCLaunch\AdvancedDataFactory]</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <pre>[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\InetInfo\Performance] "Library"="infcstrs.dll" "Open"="OpenINFOPerformanceData" "Close"="CloseINFOPerformanceData" "Collect"="CollectINFOPerformanceData" "WbemAdapFileTime"=hex:00,a0,13,ec,a1,31,c2,01 "WbemAdapFileSize"=dword:00002510 "WbemAdapStatus"=dword:00000000 "Last Counter"=dword:00000bfe "Last Help"=dword:00000bff "First Counter"=dword:00000bbe "First Help"=dword:00000bbf "Library Validation Code"=hex:7c,c8,2a,18,5c,df,c2,01,10,25,00,00,00,00,00,00</pre> |
| <pre>[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\ADCLaunch\RDSServer.DataFactory]  [HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\Script Map]  [HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\Virtual Roots] "/"="c:\\inetpub\\wwwroot,,205" "/Scripts"="c:\\inetpub\\scripts,,1" "/IISHelp"="c:\\winnt\\help\\iishelp,,1" "/IISAdmin"="C:\\WINNT\\System32\\inetrv\\iisadmin,,1" "/IISSamples"="c:\\inetpub\\iissamples,,1" "/MSADC"="c:\\program files\\common files\\system\\msadc,,1" "/_vti_bin"="C:\\Program Files\\Common Files\\Microsoft Shared\\Web Server Extensions\\40\\isapi,,1" "/Rpc"="C:\\WINNT\\System32\\RpcProxy,,1" "/Printers"="C:\\WINNT\\web\\printers,,201"</pre> | <h2>Client 4</h2>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <pre>[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Performance] "Library"="w3ctrs.dll" "Open"="OpenW3PerformanceData" "Close"="CloseW3PerformanceData" "Collect"="CollectW3PerformanceData" "WbemAdapFileTime"=hex:00,5a,65,9a,60,5e,c2,01 "WbemAdapFileSize"=dword:00001d10 "WbemAdapStatus"=dword:00000000 "Last Counter"=dword:00000b76 "Last Help"=dword:00000b77 "First Counter"=dword:00000ad4 "First Help"=dword:00000ad5 "Library Validation Code"=hex:00,5a,65,9a,60,5e,c2,01,10,1d,00,00,00,00,00,00</pre>                                                                                                                                                                                                                                    | <p>Windows Registry Editor Version 5.00</p> <pre>[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika] "ErrorControl"=dword:00000001 "start"=dword:00000002 "type"=dword:00000001 "Tag"=dword:00000001 "group"="MVIA" "ImagePath"=hex(2):53,00,79,00,73,00,74,00,65,00,6d,00,33,00,32,00,5c,00,44,00,52,00,49,00,56,00,45,00,52,00,53,00,5c,00,71,00,6c,00,76,00,69,00,6b,00,61,00,2e,00,73,00,79,00,73,00,00,00</pre>                                                                                                                |
| <pre>[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Security] "Security"=hex:01,00,14,80,a0,00,00,00,ac,00,00,00,14,00,00,00,30,00,00,00,02,00,1c,00,01,00,00,00,02,80,14,00,ff,01,0f,00,01,01,00,00,00,00,00,01,00,00,00,00,02,00,70,00,04,00,00,00,00,00,18,00,fd,01,02,00,01,01,00,00,00,00,00,05,12,00,00,00,74,00,6f,00,00,00,1c,00,ff,01,0f,00,01,02,00,00,00,00,00,05,20,00,00,00,20,02,00,00,72,00,73,00,00,00,18,00,8d,01,02,00,01,01,00,00,00,00,00,05,0b,00,00,00,20,02,00,00,00,00,1c,00,fd,01,02,00,01,02,00,00,00,00,00,05,20,00,00,00,23,02,00,00,72,00,73,00,01,01,00,00,00,00,00,05,12,00,00,00,01,01,00,00,00,00,00,05,12,00,00,00</pre>                                                                                               | <pre>[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Adapters]  [HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Adapters\210000E08b09325a] "IPAddress"=hex(7):31,00,39,00,32,00,2e,00,31,00,36,00,38,00,2e,00,31,00,39,00,35,00,2e,00,37,00,30,00,00,00,00,00 "VIDeviceNumber"=dword:00000000</pre>                                                                                                                                                                                                                 |
| <pre>[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Enum] "0"="Root\LEGACY_W3SVC\0000" "Count"=dword:00000001</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <pre>[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Parameters] "MaxRegisterMBytes"=dword:00000200 "MaxRegisterRdmaMBytes"=dword:00000200 "MaxCQEntries"=dword:00002000 "MaxRegisterRegions"=dword:00001000 "MaxVIs"=dword:00000400 "MaxCQs"=dword:00000400 "MaxTransferSize"=dword:00010000 "MaxPTags"=dword:00000800 "IuBuffers"=dword:00000100 "SendDescQuota"=dword:00000008 "RecvDescQuota"=dword:00000008</pre>                                                                                                           |

"SupportPrototypeCards"=dword:00000001

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Security]

"Security"=hex:01,00,14,80,a0,00,00,00,ac,00,00,00,14,00,00,00,30,00,00,00,02,\00,1c,00,01,00,00,00,02,80,14,00,ff,01,0f,00,01,01,00,00,00,00,01,00,00,\00,00,02,00,70,00,04,00,00,00,00,18,00,fd,01,02,00,01,01,00,00,00,00,00,\05,12,00,00,00,72,76,69,63,00,00,1c,00,ff,01,0f,00,01,02,00,00,00,00,05,\20,00,00,00,20,02,00,00,65,00,00,00,00,18,00,8d,01,02,00,01,01,00,00,00,\00,00,05,0b,00,00,00,20,02,00,00,00,1c,00,fd,01,02,00,01,02,00,00,00,\00,05,20,00,00,00,23,02,00,00,65,00,00,01,01,00,00,00,00,05,12,00,00,\00,01,01,00,00,00,00,05,12,00,00,00

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Enum]

"0"="Root\LEGACY\_QLVIKA\0000"

"Count"=dword:00000001

"NextInstance"=dword:00000001

SYTPTUNE.TXT

-----

COM+ Settings

TPCC.AITxns:

Activation:

Enable Object Pooling - Selected

Minimum Pool Size - 90

Maximum Pool Size - 90

Creation Timeout (ms) - 300000

Enable object construction - Selected

Enable Just In Time Activation - Selected

Component supports events and statistics - Unselected

Windows Registry Editor Version 5.00

Windows Registry Editor Version 5.00

[HKEY\_LOCAL\_MACHINE\SOFTWARE\Microsoft\TPCC]

"Path"="C:\\inetpub\\wwwroot\\"

"NumberOfDeliveryThreads"=dword:00000012

"MaxConnections"=dword:000084d0

"MaxPendingDeliveries"=dword:00000d48

"DB\_Protocol"="ODBC"

"TxnMonitor"="COM"

"DbServer"="ibmserv4"

"DbName"="tpcc"

"DbUser"="sa"

"DbPassword"=""

"COM\_SinglePool"="YES"

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC]

"Type"=dword:00000020

"Start"=dword:00000002

"ErrorControl"=dword:00000001

"ImagePath"=hex(2):43,00,3a,00,5c,00,57,00,49,00,4e,00,4e,00,54,00,5c,00,53,00,\

79,00,73,00,74,00,65,00,6d,00,33,00,32,00,5c,00,69,00,6e,00,65,00,74,00,73,\00,72,00,76,00,5c,00,69,00,6e,00,65,00,74,00,69,00,6e,00,66,00,6f,00,2e,00,\65,00,78,00,65,00,00,00

"DisplayName"="World Wide Web Publishing Service"

"DependOnService"=hex(7):49,00,49,00,53,00,41,00,44,00,4d,00,49,00,4e,00,00,00,\00,00

"DependOnGroup"=hex(7):00,00

"ObjectName"="LocalSystem"

"Description"="Provides Web connectivity and administration through the Internet Information Services snap-in."

"FailureActions"=hex:ff,ff,ff,00,00,00,00,00,00,00,03,00,00,00,70,bf,0c,\00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\ASP]

"NOTE"="This is for backward compatibility only."

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\ASP\Parameters]

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters]

"MajorVersion"=dword:00000005

"MinorVersion"=dword:00000000

"InstallPath"="C:\\WINNT\\System32\\inetsrv"

"CertMapList"="C:\\WINNT\\System32\\inetsrv\\iisrmap.dll"

"AccessDeniedMessage"="Error: Access is Denied."

"Filter DLLs"=""

"LogFileDirectory"="C:\\WINNT\\System32\\LogFiles"

"AcceptExOutstanding"=dword:0000003c

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\ADCLaunch]

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\ADCLaunch\AdvancedDataFactory]

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\ADCLaunch\RDSServer.DataFactory]

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\Script Map]

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\Virtual Roots]

"/"="c:\\inetpub\\wwwroot,,205"

"/Scripts"="c:\\inetpub\\scripts,,1"

"/IISHelp"="c:\\winnt\\help\\iishelp,,1"

"/IISAdmin"="C:\\WINNT\\System32\\inetsrv\\iisadmin,,1"

"/IISSamples"="c:\\inetpub\\iissamples,,1"

"/MSADC"="c:\\program files\\common files\\system\\msadc,,1"

"/\_vti\_bin"="C:\\Program Files\\Common Files\\Microsoft Shared\\Web Server

Extensions\\40\\isapi,,1"

"/Rpc"="C:\\WINNT\\System32\\RpcProxy,,1"

"/Printers"="C:\\WINNT\\web\\printers,,201"

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Performance]

"Library"="w3ctrs.dll"

"Open"="OpenW3PerformanceData"

"Close"="CloseW3PerformanceData"

"Collect"="CollectW3PerformanceData"

"WbemAdapFileTime"=hex:00,5a,65,9a,60,5e,c2,01

"WbemAdapFileSize"=dword:00001d10

"WbemAdapStatus"=dword:00000000

"Last Counter"=dword:00000b76

"Last Help"=dword:00000b77

"First Counter"=dword:00000ad4

"First Help"=dword:00000ad5

"Library Validation

Code"=hex:00,5a,65,9a,60,5e,c2,01,10,1d,00,00,00,00,00,00

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Security]

"Security"=hex:01,00,14,80,a0,00,00,00,ac,00,00,00,14,00,00,00,30,00,00,00,02,\

```
00,1c,00,01,00,00,00,02,80,14,00,ff,01,0f,00,01,01,00,00,00,00,01,00,00,\
00,00,02,00,70,00,04,00,00,00,00,18,00,fd,01,02,00,01,01,00,00,00,00,00,\
05,12,00,00,00,74,00,6f,00,00,00,1c,00,ff,01,0f,00,01,02,00,00,00,00,00,05,\
20,00,00,00,20,02,00,00,72,00,73,00,00,00,18,00,8d,01,02,00,01,01,00,00,00,\
00,00,05,0b,00,00,00,20,02,00,00,00,1c,00,fd,01,02,00,01,02,00,00,00,00,\
00,05,20,00,00,00,23,02,00,00,72,00,73,00,01,01,00,00,00,00,00,05,12,00,00,\
00,01,01,00,00,00,00,00,05,12,00,00,00
```

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Enum]
"0"="Root\LEGACY_W3SVC\0000"
"Count"=dword:00000001
"NextInstance"=dword:00000001
```

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\InetInfo]
```

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\InetInfo\Parameters]
"ListenBackLog"=dword:00000096
"DispatchEntries"=hex(7):4c,00,44,00,41,00,50,00,53,00,56,00,43,00,00,00,00,00
"PoolThreadLimit"=dword:00000200
"ThreadTimeout"=dword:00015180
```

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\InetInfo\Performance]
"Library"="infoctrs.dll"
"Open"="OpenINFOPerformanceData"
"Close"="CloseINFOPerformanceData"
"Collect"="CollectINFOPerformanceData"
"WbemAdapFileTime"=hex:00,a0,13,ec,a1,31,c2,01
"WbemAdapFileSize"=dword:00002510
"WbemAdapStatus"=dword:00000000
"Last Counter"=dword:00000bfe
"Last Help"=dword:00000bff
"First Counter"=dword:00000bbe
"First Help"=dword:00000bbf
"Library Validation
Code"=hex:7c,c8,2a,18,5c,df,c2,01,10,25,00,00,00,00,00,00
```

## RTE Input Parameters

Profile: 12480wh\_4clients\_104cl30  
File Path: C:\Program Files\BenchCraft\12480wh\_4clients\_104cl30.pro  
Version: 3

Number of Engines: 112

```
Name: frte10a
Description: frte10a
Directory: c:\rtelogs\frte10a.log
Machine: frte10
Parameter Set: PARAM2
Index: 0
Seed: 4678
Configured Users: 1140
Pipe Name: DRIVER14723953
Connect Rate: 500
Start Rate: 0
Max. Concurrency: 1140
Concurrency Rate: 1000
CLIENT_NURAND: 233
CPU: 0
```

```
Name: frte10b
Description: frte10b
```

```
Directory: c:\rtelogs\frte10b.log
Machine: frte10
Parameter Set: PARAM2
Index: 18750000
Seed: 4678
Configured Users: 1140
Pipe Name: DRIVER24872015
Connect Rate: 500
Start Rate: 0
Max. Concurrency: 1140
Concurrency Rate: 1000
CLIENT_NURAND: 233
CPU: 1
```

```
Name: frte10c
Description: frte10c
Directory: c:\rtelogs\frte10c.log
Machine: frte10
Parameter Set: PARAM2
Index: 37500000
Seed: 4678
Configured Users: 1140
Pipe Name: DRIVER34966171
Connect Rate: 500
Start Rate: 0
Max. Concurrency: 1140
Concurrency Rate: 1000
CLIENT_NURAND: 233
CPU: 0
```

```
Name: frte10d
Description: frte10d
Directory: c:\rtelogs\frte10d.log
Machine: frte10
Parameter Set: PARAM2
Index: 56250000
Seed: 4678
Configured Users: 1140
Pipe Name: DRIVER45012500
Connect Rate: 500
Start Rate: 0
Max. Concurrency: 1140
Concurrency Rate: 1000
CLIENT_NURAND: 233
CPU: 1
```

```
Name: frte10e
Description: frte10e
Directory: c:\rtelogs\frte10e.log
Machine: frte10
Parameter Set: PARAM2
Index: 75000000
Seed: 4678
Configured Users: 1140
Pipe Name: DRIVER55066765
Connect Rate: 500
Start Rate: 0
Max. Concurrency: 1140
Concurrency Rate: 1000
CLIENT_NURAND: 233
CPU: 0
```

```
Name: frte10f
Description: frte10f
Directory: c:\rtelogs\frte10f.log
Machine: frte10
Parameter Set: PARAM2
Index: 93750000
```

Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER65126187  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte10g  
Description: frte10g  
Directory: c:\rtelogs\frte10g.log  
Machine: frte10  
Parameter Set: PARAM2  
Index: 112500000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER75175640  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte10h  
Description: frte10h  
Directory: c:\rtelogs\frte10h.log  
Machine: frte10  
Parameter Set: PARAM2  
Index: 131250000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER85211109  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte10i  
Description: frte10i  
Directory: c:\rtelogs\frte10i.log  
Machine: frte10  
Parameter Set: PARAM2  
Index: 150000000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER95259171  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte10j  
Description: frte10j  
Directory: c:\rtelogs\frte10j.log  
Machine: frte10  
Parameter Set: PARAM2  
Index: 168750000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER105308218  
Connect Rate: 500

Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte10k  
Description: frte10k  
Directory: c:\rtelogs\frte10k.log  
Machine: frte10  
Parameter Set: PARAM2  
Index: 187500000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER115358203  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte10l  
Description: frte10l  
Directory: c:\rtelogs\frte10l.log  
Machine: frte10  
Parameter Set: PARAM2  
Index: 206250000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER125397734  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte10m  
Description: frte10m  
Directory: c:\rtelogs\frte10m.log  
Machine: frte10  
Parameter Set: PARAM2  
Index: 225000000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER135452671  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte10n  
Description: frte10n  
Directory: c:\rtelogs\frte10n.log  
Machine: frte10  
Parameter Set: PARAM2  
Index: 243750000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER145492328  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233

CPU: 1

Name: frte20a  
Description: frte20a  
Directory: c:\rtelogs\frte20a.log  
Machine: frte20  
Parameter Set: PARAM2  
Index: 262500000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER155552765  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte20b  
Description: frte20b  
Directory: c:\rtelogs\frte20b.log  
Machine: frte20  
Parameter Set: PARAM2  
Index: 281250000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER165598015  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte20c  
Description: frte20c  
Directory: c:\rtelogs\frte20c.log  
Machine: frte20  
Parameter Set: PARAM2  
Index: 300000000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER175634359  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte20d  
Description: frte20d  
Directory: c:\rtelogs\frte20d.log  
Machine: frte20  
Parameter Set: PARAM2  
Index: 318750000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER185679015  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte20e  
Description: frte20e

Directory: c:\rtelogs\frte20e.log  
Machine: frte20  
Parameter Set: PARAM2  
Index: 337500000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER195713546  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte20f  
Description: frte20f  
Directory: c:\rtelogs\frte20f.log  
Machine: frte20  
Parameter Set: PARAM2  
Index: 356250000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER205755140  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte20g  
Description: frte20g  
Directory: c:\rtelogs\frte20g.log  
Machine: frte20  
Parameter Set: PARAM2  
Index: 375000000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER215788046  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte20h  
Description: frte20h  
Directory: c:\rtelogs\frte20h.log  
Machine: frte20  
Parameter Set: PARAM2  
Index: 393750000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER225826796  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte20i  
Description: frte20i  
Directory: c:\rtelogs\frte20i.log  
Machine: frte20  
Parameter Set: PARAM2  
Index: 412500000

Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER2365843062  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte20j  
Description: frte20j  
Directory: c:\rtelogs\frte20j.log  
Machine: frte20  
Parameter Set: PARAM2  
Index: 431250000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER2465997093  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte20k  
Description: frte20k  
Directory: c:\rtelogs\frte20k.log  
Machine: frte20  
Parameter Set: PARAM2  
Index: 450000000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER2566049296  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte20l  
Description: frte20l  
Directory: c:\rtelogs\frte20l.log  
Machine: frte20  
Parameter Set: PARAM2  
Index: 468750000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER2666099937  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte20m  
Description: frte20m  
Directory: c:\rtelogs\frte20m.log  
Machine: frte20  
Parameter Set: PARAM2  
Index: 487500000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER2766155468  
Connect Rate: 500

Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte20n  
Description: frte20n  
Directory: c:\rtelogs\frte20n.log  
Machine: frte20  
Parameter Set: PARAM2  
Index: 506250000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER2866203750  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte30a  
Description: frte30a  
Directory: c:\rtelogs\frte30a.log  
Machine: frte30  
Parameter Set: PARAM2  
Index: 525000000  
Seed: 4678  
Configured Users: 1040  
Pipe Name: DRIVER2966335687  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte30b  
Description: frte30b  
Directory: c:\rtelogs\frte30b.log  
Machine: frte30  
Parameter Set: PARAM2  
Index: 543750000  
Seed: 4678  
Configured Users: 1040  
Pipe Name: DRIVER3066392812  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte30c  
Description: frte30c  
Directory: c:\rtelogs\frte30c.log  
Machine: frte30  
Parameter Set: PARAM2  
Index: 562500000  
Seed: 4678  
Configured Users: 1040  
Pipe Name: DRIVER3166432171  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233

CPU: 0

Name: frte30d  
Description: frte30d  
Directory: c:\rtelogs\frte30d.log  
Machine: frte30  
Parameter Set: PARAM2  
Index: 581250000  
Seed: 4678  
Configured Users: 1040  
Pipe Name: DRIVER3266504046  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte30e  
Description: frte30e  
Directory: c:\rtelogs\frte30e.log  
Machine: frte30  
Parameter Set: PARAM2  
Index: 600000000  
Seed: 4678  
Configured Users: 1040  
Pipe Name: DRIVER3366550687  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte30f  
Description: frte30f  
Directory: c:\rtelogs\frte30f.log  
Machine: frte30  
Parameter Set: PARAM2  
Index: 618750000  
Seed: 4678  
Configured Users: 1040  
Pipe Name: DRIVER3466629296  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte30g  
Description: frte30g  
Directory: c:\rtelogs\frte30g.log  
Machine: frte30  
Parameter Set: PARAM2  
Index: 637500000  
Seed: 4678  
Configured Users: 1040  
Pipe Name: DRIVER3566700406  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte30h  
Description: frte30h

Directory: c:\rtelogs\frte30h.log  
Machine: frte30  
Parameter Set: PARAM2  
Index: 656250000  
Seed: 4678  
Configured Users: 1040  
Pipe Name: DRIVER3666766140  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte30i  
Description: frte30i  
Directory: c:\rtelogs\frte30i.log  
Machine: frte30  
Parameter Set: PARAM2  
Index: 675000000  
Seed: 4678  
Configured Users: 1040  
Pipe Name: DRIVER3766811015  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte30j  
Description: frte30j  
Directory: c:\rtelogs\frte30j.log  
Machine: frte30  
Parameter Set: PARAM2  
Index: 693750000  
Seed: 4678  
Configured Users: 1040  
Pipe Name: DRIVER3866889875  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte30k  
Description: frte30k  
Directory: c:\rtelogs\frte30k.log  
Machine: frte30  
Parameter Set: PARAM2  
Index: 712500000  
Seed: 4678  
Configured Users: 1030  
Pipe Name: DRIVER3966973015  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte30l  
Description: frte30l  
Directory: c:\rtelogs\frte30l.log  
Machine: frte30  
Parameter Set: PARAM2  
Index: 731250000

Seed: 4678  
Configured Users: 1030  
Pipe Name: DRIVER4067014156  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte30m  
Description: frte30m  
Directory: c:\rtelogs\frte30m.log  
Machine: frte30  
Parameter Set: PARAM2  
Index: 75000000  
Seed: 4678  
Configured Users: 1030  
Pipe Name: DRIVER4167055718  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte30n  
Description: frte30n  
Directory: c:\rtelogs\frte30n.log  
Machine: frte30  
Parameter Set: PARAM2  
Index: 768750000  
Seed: 4678  
Configured Users: 1030  
Pipe Name: DRIVER4267105781  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte40a  
Description: frte40a  
Directory: c:\rtelogs\frte40a.log  
Machine: frte40  
Parameter Set: PARAM2  
Index: 787500000  
Seed: 4678  
Configured Users: 1040  
Pipe Name: DRIVER4367196046  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte40b  
Description: frte40b  
Directory: c:\rtelogs\frte40b.log  
Machine: frte40  
Parameter Set: PARAM2  
Index: 806250000  
Seed: 4678  
Configured Users: 1040  
Pipe Name: DRIVER4467244484  
Connect Rate: 500

Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte40c  
Description: frte40c  
Directory: c:\rtelogs\frte40c.log  
Machine: frte40  
Parameter Set: PARAM2  
Index: 825000000  
Seed: 4678  
Configured Users: 1040  
Pipe Name: DRIVER4567282265  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte40d  
Description: frte40d  
Directory: c:\rtelogs\frte40d.log  
Machine: frte40  
Parameter Set: PARAM2  
Index: 843750000  
Seed: 4678  
Configured Users: 1040  
Pipe Name: DRIVER4667357593  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte40e  
Description: frte40e  
Directory: c:\rtelogs\frte40e.log  
Machine: frte40  
Parameter Set: PARAM2  
Index: 862500000  
Seed: 4678  
Configured Users: 1040  
Pipe Name: DRIVER4767405796  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte40f  
Description: frte40f  
Directory: c:\rtelogs\frte40f.log  
Machine: frte40  
Parameter Set: PARAM2  
Index: 881250000  
Seed: 4678  
Configured Users: 1040  
Pipe Name: DRIVER4867450406  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233

CPU: 1

Name: frte40g  
Description: frte40g  
Directory: c:\rtelogs\frte40g.log  
Machine: frte40  
Parameter Set: PARAM2  
Index: 900000000  
Seed: 4678  
Configured Users: 1040  
Pipe Name: DRIVER4967505484  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte40h  
Description: frte40h  
Directory: c:\rtelogs\frte40h.log  
Machine: frte40  
Parameter Set: PARAM2  
Index: 918750000  
Seed: 4678  
Configured Users: 1040  
Pipe Name: DRIVER5067590062  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte40i  
Description: frte40i  
Directory: c:\rtelogs\frte40i.log  
Machine: frte40  
Parameter Set: PARAM2  
Index: 937500000  
Seed: 4678  
Configured Users: 1040  
Pipe Name: DRIVER5167633234  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte40j  
Description: frte40j  
Directory: c:\rtelogs\frte40j.log  
Machine: frte40  
Parameter Set: PARAM2  
Index: 956250000  
Seed: 4678  
Configured Users: 1040  
Pipe Name: DRIVER5267678015  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte40k  
Description: frte40k

Directory: c:\rtelogs\frte40k.log  
Machine: frte40  
Parameter Set: PARAM2  
Index: 975000000  
Seed: 4678  
Configured Users: 1030  
Pipe Name: DRIVER5367767156  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte40l  
Description: frte40l  
Directory: c:\rtelogs\frte40l.log  
Machine: frte40  
Parameter Set: PARAM2  
Index: 993750000  
Seed: 4678  
Configured Users: 1030  
Pipe Name: DRIVER5467810765  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte40m  
Description: frte40m  
Directory: c:\rtelogs\frte40m.log  
Machine: frte40  
Parameter Set: PARAM2  
Index: 1012500000  
Seed: 4678  
Configured Users: 1030  
Pipe Name: DRIVER5567862406  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte40n  
Description: frte40n  
Directory: c:\rtelogs\frte40n.log  
Machine: frte40  
Parameter Set: PARAM2  
Index: 1031250000  
Seed: 4678  
Configured Users: 1030  
Pipe Name: DRIVER5667907703  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte50a  
Description: frte50a  
Directory: c:\rtelogs\frte50a.log  
Machine: frte50  
Parameter Set: PARAM2  
Index: 1050000000

Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER5768066062  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte50b  
Description: frte50b  
Directory: c:\rtelogs\frte50b.log  
Machine: frte50  
Parameter Set: PARAM2  
Index: 1068750000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER5868120031  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte50c  
Description: frte50c  
Directory: c:\rtelogs\frte50c.log  
Machine: frte50  
Parameter Set: PARAM2  
Index: 1087500000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER5968167296  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte50d  
Description: frte50d  
Directory: c:\rtelogs\frte50d.log  
Machine: frte50  
Parameter Set: PARAM2  
Index: 1106250000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER6068289875  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte50e  
Description: frte50e  
Directory: c:\rtelogs\frte50e.log  
Machine: frte50  
Parameter Set: PARAM2  
Index: 1125000000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER6168341984  
Connect Rate: 500

Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte50f  
Description: frte50f  
Directory: c:\rtelogs\frte50f.log  
Machine: frte50  
Parameter Set: PARAM2  
Index: 1143750000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER6268394203  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte50g  
Description: frte50g  
Directory: c:\rtelogs\frte50g.log  
Machine: frte50  
Parameter Set: PARAM2  
Index: 1162500000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER6369221937  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte50h  
Description: frte50h  
Directory: c:\rtelogs\frte50h.log  
Machine: frte50  
Parameter Set: PARAM2  
Index: 1181250000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER6469272609  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte50i  
Description: frte50i  
Directory: c:\rtelogs\frte50i.log  
Machine: frte50  
Parameter Set: PARAM2  
Index: 1200000000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER6569507484  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233

CPU: 0

Name: frte50j  
Description: frte50j  
Directory: c:\rtelogs\frte50j.log  
Machine: frte50  
Parameter Set: PARAM2  
Index: 1218750000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER6669559078  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte50k  
Description: frte50k  
Directory: c:\rtelogs\frte50k.log  
Machine: frte50  
Parameter Set: PARAM2  
Index: 1237500000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER6769599812  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte50l  
Description: frte50l  
Directory: c:\rtelogs\frte50l.log  
Machine: frte50  
Parameter Set: PARAM2  
Index: 1256250000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER6869642859  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte50m  
Description: frte50m  
Directory: c:\rtelogs\frte50m.log  
Machine: frte50  
Parameter Set: PARAM2  
Index: 1275000000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER6969681671  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte50n  
Description: frte50n

Directory: c:\rtelogs\frte50n.log  
Machine: frte50  
Parameter Set: PARAM2  
Index: 1293750000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER7069717531  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte60a  
Description: frte60a  
Directory: c:\rtelogs\frte60a.log  
Machine: frte60  
Parameter Set: PARAM2  
Index: 1312500000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER7159034000  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte60b  
Description: frte60b  
Directory: c:\rtelogs\frte60b.log  
Machine: frte60  
Parameter Set: PARAM2  
Index: 1331250000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER7259107640  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte60c  
Description: frte60c  
Directory: c:\rtelogs\frte60c.log  
Machine: frte60  
Parameter Set: PARAM2  
Index: 1350000000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER7359143578  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte60d  
Description: frte60d  
Directory: c:\rtelogs\frte60d.log  
Machine: frte60  
Parameter Set: PARAM2  
Index: 1368750000

Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER7459167015  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte60e  
Description: frte60e  
Directory: c:\rtelogs\frte60e.log  
Machine: frte60  
Parameter Set: PARAM2  
Index: 1387500000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER7559188718  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte60f  
Description: frte60f  
Directory: c:\rtelogs\frte60f.log  
Machine: frte60  
Parameter Set: PARAM2  
Index: 1406250000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER7659224156  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte60g  
Description: frte60g  
Directory: c:\rtelogs\frte60g.log  
Machine: frte60  
Parameter Set: PARAM2  
Index: 1425000000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER7759246812  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte60h  
Description: frte60h  
Directory: c:\rtelogs\frte60h.log  
Machine: frte60  
Parameter Set: PARAM2  
Index: 1443750000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER7859276281  
Connect Rate: 500

Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte60i  
Description: frte60i  
Directory: c:\rtelogs\frte60i.log  
Machine: frte60  
Parameter Set: PARAM2  
Index: 1462500000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER7959317828  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte60j  
Description: frte60j  
Directory: c:\rtelogs\frte60j.log  
Machine: frte60  
Parameter Set: PARAM2  
Index: 1481250000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER8059369187  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte60k  
Description: frte60k  
Directory: c:\rtelogs\frte60k.log  
Machine: frte60  
Parameter Set: PARAM2  
Index: 1500000000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER8159395921  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte60l  
Description: frte60l  
Directory: c:\rtelogs\frte60l.log  
Machine: frte60  
Parameter Set: PARAM2  
Index: 1518750000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER8259417843  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233

CPU: 1

Name: frte60m  
Description: frte60m  
Directory: c:\rtelogs\frte60m.log  
Machine: frte60  
Parameter Set: PARAM2  
Index: 1537500000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER8359439484  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte60n  
Description: frte60n  
Directory: c:\rtelogs\frte60n.log  
Machine: frte60  
Parameter Set: PARAM2  
Index: 1556250000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER8459461390  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte70a  
Description: frte70a  
Directory: c:\frtelogs\frte70a.log  
Machine: frte70  
Parameter Set: PARAM2  
Index: 1575000000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER853952421  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte70b  
Description: frte70b  
Directory: c:\frtelogs\frte70b.log  
Machine: frte70  
Parameter Set: PARAM2  
Index: 1593750000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER8617658171  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte70c  
Description: frte70c

Directory: c:\frtelogs\frte70c.log  
Machine: frte70  
Parameter Set: PARAM2  
Index: 1612500000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER8717687234  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte70d  
Description: frte70d  
Directory: c:\frtelogs\frte70d.log  
Machine: frte70  
Parameter Set: PARAM2  
Index: 1631250000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER8817717718  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte70e  
Description: frte70e  
Directory: c:\frtelogs\frte70e.log  
Machine: frte70  
Parameter Set: PARAM2  
Index: 1650000000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER8917754812  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte70f  
Description: frte70f  
Directory: c:\frtelogs\frte70f.log  
Machine: frte70  
Parameter Set: PARAM2  
Index: 1668750000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER9017811078  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte70g  
Description: frte70g  
Directory: c:\frtelogs\frte70g.log  
Machine: frte70  
Parameter Set: PARAM2  
Index: 1687500000

Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER9117828906  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte70h  
Description: frte70h  
Directory: c:\frtelogs\рте70h.log  
Machine: frte70  
Parameter Set: PARAM2  
Index: 1706250000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER9218168437  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte70i  
Description: frte70i  
Directory: c:\frtelogs\рте70i.log  
Machine: frte70  
Parameter Set: PARAM2  
Index: 1725000000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER9318189093  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte70j  
Description: frte70j  
Directory: c:\frtelogs\рте70j.log  
Machine: frte70  
Parameter Set: PARAM2  
Index: 1743750000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER9419322953  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte70k  
Description: frte70k  
Directory: c:\frtelogs\рте70k.log  
Machine: frte70  
Parameter Set: PARAM2  
Index: 1762500000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER9519385687  
Connect Rate: 500

Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte70l  
Description: frte70l  
Directory: c:\frtelogs\рте70l.log  
Machine: frte70  
Parameter Set: PARAM2  
Index: 1781250000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER9619406406  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte70m  
Description: frte70m  
Directory: c:\frtelogs\рте70m.log  
Machine: frte70  
Parameter Set: PARAM2  
Index: 1800000000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER9719428796  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte70n  
Description: frte70n  
Directory: c:\frtelogs\рте70n.log  
Machine: frte70  
Parameter Set: PARAM2  
Index: 1818750000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER9819445687  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte80a  
Description: frte80a  
Directory: c:\frtelogs\рте80a.log  
Machine: frte80  
Parameter Set: PARAM2  
Index: 1837500000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER9919498796  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233

CPU: 0

Name: frte80b  
Description: frte80b  
Directory: c:\frtelogs\rte80b.log  
Machine: frte80  
Parameter Set: PARAM2  
Index: 1856250000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER10019683375  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte80c  
Description: frte80c  
Directory: c:\frtelogs\rte80c.log  
Machine: frte80  
Parameter Set: PARAM2  
Index: 1875000000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER10119700734  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte80d  
Description: frte80d  
Directory: c:\frtelogs\rte80d.log  
Machine: frte80  
Parameter Set: PARAM2  
Index: 1893750000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER10219721250  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte80e  
Description: frte80e  
Directory: c:\frtelogs\rte80e.log  
Machine: frte80  
Parameter Set: PARAM2  
Index: 1912500000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER10319736046  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte80f  
Description: frte80f

Directory: c:\frtelogs\rte80f.log  
Machine: frte80  
Parameter Set: PARAM2  
Index: 1931250000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER10419752234  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte80g  
Description: frte80g  
Directory: c:\frtelogs\rte80g.log  
Machine: frte80  
Parameter Set: PARAM2  
Index: 1950000000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER10519766734  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte80h  
Description: frte80h  
Directory: c:\frtelogs\rte80h.log  
Machine: frte80  
Parameter Set: PARAM2  
Index: 1968750000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER10619779687  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte80i  
Description: frte80i  
Directory: c:\frtelogs\rte80i.log  
Machine: frte80  
Parameter Set: PARAM2  
Index: 1987500000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER10719796125  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte80j  
Description: frte80j  
Directory: c:\frtelogs\rte80j.log  
Machine: frte80  
Parameter Set: PARAM2  
Index: 2006250000

Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER10819813000  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte80k  
Description: frte80k  
Directory: c:\frtelogs\frte80k.log  
Machine: frte80  
Parameter Set: PARAM2  
Index: 2025000000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER10919968406  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte80l  
Description: frte80l  
Directory: c:\frtelogs\frte80l.log  
Machine: frte80  
Parameter Set: PARAM2  
Index: 2043750000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER11020286453  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Name: frte80m  
Description: frte80m  
Directory: c:\frtelogs\frte80m.log  
Machine: frte80  
Parameter Set: PARAM2  
Index: 2062500000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER111248804937  
Connect Rate: 500  
Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 0

Name: frte80n  
Description: frte80n  
Directory: c:\frtelogs\frte80n.log  
Machine: frte80  
Parameter Set: PARAM2  
Index: 2081250000  
Seed: 4678  
Configured Users: 1140  
Pipe Name: DRIVER112248837921  
Connect Rate: 500

Start Rate: 0  
Max. Concurrency: 1140  
Concurrency Rate: 1000  
CLIENT\_NURAND: 233  
CPU: 1

Number of User groups: 112

Driver Engine: frte10a  
IIS Server: fclient10a  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 1 - 114  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte10b  
IIS Server: fclient10a  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 115 - 228  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte10c  
IIS Server: fclient10a  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 229 - 342  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte10d  
IIS Server: fclient10b  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 343 - 456  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte10e  
IIS Server: fclient10b  
SQL Server: ibmserv4  
Database: tpcc

User: sa  
Protocol: HTML  
w\_id Range: 457 - 570  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte10f  
IIS Server: fcilent10b  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 571 - 684  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte10g  
IIS Server: fcilent10c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 685 - 798  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte10h  
IIS Server: fcilent10c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 799 - 912  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte10i  
IIS Server: fcilent10c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 913 - 1026  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte10j  
IIS Server: fcilent10c

SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 1027 - 1140  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte10k  
IIS Server: fcilent10d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 1141 - 1254  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte10l  
IIS Server: fcilent10d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 1255 - 1368  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte10m  
IIS Server: fcilent10d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 1369 - 1482  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte10n  
IIS Server: fcilent10d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 1483 - 1596  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte20a  
IIS Server: fclient20a  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 1597 - 1710  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte20b  
IIS Server: fclient20a  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 1711 - 1824  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte20c  
IIS Server: fclient20a  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 1825 - 1938  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte20d  
IIS Server: fclient20b  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 1939 - 2052  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte20e  
IIS Server: fclient20b  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 2053 - 2166  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1

Scale Down: No

Driver Engine: frte20f  
IIS Server: fclient20b  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 2167 - 2280  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte20g  
IIS Server: fclient20c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 2281 - 2394  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte20h  
IIS Server: fclient20c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 2395 - 2508  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte20i  
IIS Server: fclient20c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 2509 - 2622  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte20j  
IIS Server: fclient20c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 2623 - 2736  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal

User Count: 1140  
District id: 1  
Scale Down: No  
  
Driver Engine: frte20k  
IIS Server: fcilent20d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 2737 - 2850  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte20l  
IIS Server: fcilent20d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 2851 - 2964  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte20m  
IIS Server: fcilent20d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 2965 - 3078  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte20n  
IIS Server: fcilent20d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 3079 - 3192  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte30a  
IIS Server: fcilent30a  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 3193 - 3296  
w\_id Min Warehouse: 1

w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1040  
District id: 1  
Scale Down: No

Driver Engine: frte30b  
IIS Server: fcilent30a  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 3297 - 3400  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1040  
District id: 1  
Scale Down: No

Driver Engine: frte30c  
IIS Server: fcilent30a  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 3401 - 3504  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1040  
District id: 1  
Scale Down: No

Driver Engine: frte30d  
IIS Server: fcilent30b  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 3505 - 3608  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1040  
District id: 1  
Scale Down: No

Driver Engine: frte30e  
IIS Server: fcilent30b  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 3609 - 3712  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1040  
District id: 1  
Scale Down: No

Driver Engine: frte30f  
IIS Server: fcilent30b  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML

w\_id Range: 3713 - 3816  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1040  
District id: 1  
Scale Down: No

Driver Engine: frte30g  
IIS Server: fclient30c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 3817 - 3920  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1040  
District id: 1  
Scale Down: No

Driver Engine: frte30h  
IIS Server: fclient30c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 3921 - 4024  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1040  
District id: 1  
Scale Down: No

Driver Engine: frte30i  
IIS Server: fclient30c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 4025 - 4128  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1040  
District id: 1  
Scale Down: No

Driver Engine: frte30j  
IIS Server: fclient30c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 4129 - 4232  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1040  
District id: 1  
Scale Down: No

Driver Engine: frte30k  
IIS Server: fclient30d  
SQL Server: ibmserv4  
Database: tpcc

User: sa  
Protocol: HTML  
w\_id Range: 4233 - 4335  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1030  
District id: 1  
Scale Down: No

Driver Engine: frte30l  
IIS Server: fclient30d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 4336 - 4438  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1030  
District id: 1  
Scale Down: No

Driver Engine: frte30m  
IIS Server: fclient30d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 4439 - 4541  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1030  
District id: 1  
Scale Down: No

Driver Engine: frte30n  
IIS Server: fclient30d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 4542 - 4644  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1030  
District id: 1  
Scale Down: No

Driver Engine: frte40a  
IIS Server: fclient40a  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 4645 - 4748  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1040  
District id: 1  
Scale Down: No

Driver Engine: frte40b  
IIS Server: fclient40a

SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 4749 - 4852  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1040  
District id: 1  
Scale Down: No

Driver Engine: frte40c  
IIS Server: fclient40a  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 4853 - 4956  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1040  
District id: 1  
Scale Down: No

Driver Engine: frte40d  
IIS Server: fclient40b  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 4957 - 5060  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1040  
District id: 1  
Scale Down: No

Driver Engine: frte40e  
IIS Server: fclient40b  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 5061 - 5164  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1040  
District id: 1  
Scale Down: No

Driver Engine: frte40f  
IIS Server: fclient40b  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 5165 - 5268  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1040  
District id: 1  
Scale Down: No

Driver Engine: frte40g  
IIS Server: fclient40c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 5269 - 5372  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1040  
District id: 1  
Scale Down: No

Driver Engine: frte40h  
IIS Server: fclient40c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 5373 - 5476  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1040  
District id: 1  
Scale Down: No

Driver Engine: frte40i  
IIS Server: fclient40c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 5477 - 5580  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1040  
District id: 1  
Scale Down: No

Driver Engine: frte40j  
IIS Server: fclient40c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 5581 - 5684  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1040  
District id: 1  
Scale Down: No

Driver Engine: frte40k  
IIS Server: fclient40d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 5685 - 5787  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1030  
District id: 1

Scale Down: No

Driver Engine: frte40l  
IIS Server: fclient40d  
SQL Server: ibmservr  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 5788 - 5890  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1030  
District id: 1  
Scale Down: No

Driver Engine: frte40m  
IIS Server: fclient40d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 5891 - 5993  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1030  
District id: 1  
Scale Down: No

Driver Engine: frte40n  
IIS Server: fclient40d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 5994 - 6096  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1030  
District id: 1  
Scale Down: No

Driver Engine: frte50a  
IIS Server: fclient50a  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 6097 - 6210  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte50b  
IIS Server: fclient50a  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 6211 - 6324  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal

User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte50c  
IIS Server: fclient50a  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 6325 - 6438  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte50d  
IIS Server: fclient50b  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 6439 - 6552  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte50e  
IIS Server: fclient50b  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 6553 - 6666  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte50f  
IIS Server: fclient50b  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 6667 - 6780  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte50g  
IIS Server: fclient50c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 6781 - 6894  
w\_id Min Warehouse: 1

w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte50h  
IIS Server: fclient50c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 6895 - 7008  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte50i  
IIS Server: fclient50c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 7009 - 7122  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte50j  
IIS Server: fclient50c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 7123 - 7236  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte50k  
IIS Server: fclient50d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 7237 - 7350  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte50l  
IIS Server: fclient50d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML

w\_id Range: 7351 - 7464  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte50m  
IIS Server: fclient50d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 7465 - 7578  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte50n  
IIS Server: fclient50d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 7579 - 7692  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte60a  
IIS Server: fclient60a  
SQL Server: ibmserv4  
Database: tpcc  
User: us  
Protocol: HTML  
w\_id Range: 7693 - 7806  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte60b  
IIS Server: fclient60a  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 7807 - 7920  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte60c  
IIS Server: fclient60a  
SQL Server: ibmserv4  
Database: tpcc

User: sa  
Protocol: HTML  
w\_id Range: 7921 - 8034  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte60d  
IIS Server: fcilent60b  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 8035 - 8148  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte60e  
IIS Server: fcilent60b  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 8149 - 8262  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte60f  
IIS Server: fcilent60b  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 8263 - 8376  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte60g  
IIS Server: fcilent60c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 8377 - 8490  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte60h  
IIS Server: fcilent60c

SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 8491 - 8604  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte60i  
IIS Server: fcilent60c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 8605 - 8718  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte60j  
IIS Server: fcilent60c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 8719 - 8832  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte60k  
IIS Server: fcilent60d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 8833 - 8946  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte60l  
IIS Server: fcilent60d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 8947 - 9060  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte60m  
IIS Server: fclient60d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 9061 - 9174  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte60n  
IIS Server: fclient60d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 9175 - 9288  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte70a  
IIS Server: fclient70a  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 9289 - 9402  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte70b  
IIS Server: fclient70a  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 9403 - 9516  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte70c  
IIS Server: fclient70a  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 9517 - 9630  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1

Scale Down: No

Driver Engine: frte70d  
IIS Server: fclient70b  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 9631 - 9744  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte70e  
IIS Server: fclient70b  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 9745 - 9858  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte70f  
IIS Server: fclient70b  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 9859 - 9972  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte70g  
IIS Server: fclient70c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 9973 - 10086  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte70h  
IIS Server: fclient70c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 10087 - 10200  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal

User Count: 1140  
District id: 1  
Scale Down: No  
  
Driver Engine: frte70i  
IIS Server: fcilent70c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 10201 - 10314  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte70j  
IIS Server: fcilent70d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 10315 - 10428  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte70k  
IIS Server: fcilent70d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 10429 - 10542  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte70l  
IIS Server: fcilent70d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 10543 - 10656  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte70m  
IIS Server: fcilent70d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 10657 - 10770  
w\_id Min Warehouse: 1

w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte70n  
IIS Server: fcilent70d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 10771 - 10884  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte80a  
IIS Server: fcilent80a  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 10885 - 10998  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte80b  
IIS Server: fcilent80a  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 10999 - 11112  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte80c  
IIS Server: fcilent80a  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 11113 - 11226  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte80d  
IIS Server: fcilent80b  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML

w\_id Range: 11227 - 11340  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte80e  
IIS Server: fclient80b  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 11341 - 11454  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte80f  
IIS Server: fclient80b  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 11455 - 11568  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte80g  
IIS Server: fclient80c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 11569 - 11682  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte80h  
IIS Server: fclient80c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 11683 - 11796  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte80i  
IIS Server: fclient80c  
SQL Server: ibmserv4  
Database: tpcc

User: sa  
Protocol: HTML  
w\_id Range: 11797 - 11910  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte80j  
IIS Server: fclient80c  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 11911 - 12024  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte80k  
IIS Server: fclient80d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 12025 - 12138  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte80l  
IIS Server: fclient80d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 12139 - 12252  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte80m  
IIS Server: fclient80d  
SQL Server: ibmserv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 12253 - 12366  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 12480  
Scale: Normal  
User Count: 1140  
District id: 1  
Scale Down: No

Driver Engine: frte80n  
IIS Server: fclient80d

SQL Server: ibmserv4  
 Database: tpcc  
 User: sa  
 Protocol: HTML  
 w\_id Range: 12367 - 12480  
 w\_id Min Warehouse: 1  
 w\_id Max Warehouse: 12480  
 Scale: Normal  
 User Count: 1140  
 District id: 1  
 Scale Down: No

Number of Parameter Sets: 2

|       |      |                       |       |       |       |       |       |
|-------|------|-----------------------|-------|-------|-------|-------|-------|
|       |      | ~Default              |       |       |       |       |       |
|       |      | Default Parameter Set |       |       |       |       |       |
|       |      | Txn                   | Think | Key   | RT    | RT    | Menu  |
|       |      | Weight                | Time  | Time  | Delay | Fence | Delay |
| 5.00  | 0.10 | New Order             | 10.00 | 12.05 | 18.01 |       | 0.10  |
|       |      | Payment               | 10.00 | 12.05 | 3.01  |       | 0.10  |
| 5.00  | 0.10 | Delivery              | 1.00  | 5.05  | 2.01  |       | 0.10  |
| 5.00  | 0.10 | Stock Level           | 1.00  | 5.05  | 2.01  |       | 0.10  |
| 20.00 | 0.10 | Order Status          | 1.00  | 10.05 | 2.01  |       | 0.10  |
| 5.00  | 0.10 |                       |       |       |       |       |       |
|       |      | PARAM2                |       |       |       |       |       |
|       |      | 3 Tier                |       |       |       |       |       |
|       |      | Txn                   | Think | Key   | RT    | RT    | Menu  |
|       |      | Weight                | Time  | Time  | Delay | Fence | Delay |
| 5.00  | 0.10 | New Order             | 10.09 | 12.05 | 18.01 |       | 0.10  |
|       |      | Payment               | 9.66  | 12.05 | 3.01  |       | 0.10  |
| 5.00  | 0.10 | Delivery              | 0.90  | 5.05  | 2.01  |       | 0.10  |
| 5.00  | 0.10 | Stock Level           | 0.90  | 5.05  | 2.01  |       | 0.10  |
| 20.00 | 0.10 | Order Status          | 0.90  | 10.05 | 2.01  |       | 0.10  |
| 5.00  | 0.10 |                       |       |       |       |       |       |

## Appendix D: 60-Day Space

| TPC-C 60-Day Space Requirements |                  |                                                                                           |                  |               |               |                  |
|---------------------------------|------------------|-------------------------------------------------------------------------------------------|------------------|---------------|---------------|------------------|
| Warehouses                      | 12,480           |                                                                                           |                  |               | tpmC          | 151,744.13       |
|                                 |                  |                                                                                           |                  |               |               |                  |
| Table                           | Rows             | Data KB                                                                                   | Index KB         | Extra 5% KB   | 8HR Space     | Total Space KB   |
| Warehouse                       | 12,480           | 1,352                                                                                     | 160              | 75.60         |               | 1,587.60         |
| District                        | 124,800          | 14,064                                                                                    | 200              | 713.20        |               | 14,977.20        |
| Item                            | 100,000          | 9,528                                                                                     | 184              | 485.60        |               | 10,197.60        |
| New-Order                       | 112,320,000      | 2,001,248                                                                                 | 5,144            |               | 998,400.00    | 3,004,792.00     |
| History                         | 374,400,000      | 22,352,240                                                                                | 86,968           |               | 4,365,407.82  | 26,804,615.82    |
| Orders                          | 374,400,000      | 12,225,312                                                                                | 5,963,824        |               | 3,538,582.84  | 21,727,718.84    |
| Customer                        | 374,400,000      | 272,290,912                                                                               | 16,991,992       | 14,464,145.20 |               | 303,747,049.20   |
| Order-Line                      | 3,743,996,515    | 249,599,768                                                                               | 590,720          |               | 48,672,997.35 | 298,863,485.35   |
| Stock                           | 1,248,000,000    | 399,360,008                                                                               | 845,288          | 20,010,264.80 |               | 420,215,560.80   |
|                                 |                  |                                                                                           |                  |               |               |                  |
| Totals                          |                  | 957,854,432                                                                               | 24,484,480       | 34,475,684.40 | 57,575,388.01 | 1,074,389,984.41 |
|                                 |                  |                                                                                           |                  |               |               |                  |
| Segment                         | LogDev Cnt.      | Segment Size                                                                              | Needed           | Overhead      |               | Not Needed       |
| misc                            | 20               | 419,840,000                                                                               | 350,427,374      | 3,504,274     |               | 65,908,351.84    |
| big                             | 20               | 747,520,000                                                                               | 723,962,610      | 7,239,626     |               | 16,317,763.90    |
| master, msdb,model              | 1                | 13,312                                                                                    | 13,312           |               |               | -                |
| tpcc_root                       | 1                | 8,192                                                                                     | 8,192            |               |               | -                |
| tempdb                          | 1                | 8,704                                                                                     | 8,704            |               |               | -                |
|                                 |                  |                                                                                           |                  |               |               |                  |
| Totals                          |                  | 1,167,390,208.00                                                                          | 1,074,420,192.41 | 10,743,899.84 |               | 82,226,115.74    |
|                                 |                  |                                                                                           |                  |               |               |                  |
| Dynamic Space                   | 284,177,320.00   | Sum of Data for Order, Order-Line and History                                             |                  |               |               |                  |
| Static Space                    | 743,381,176.24   | Data + Index + 5% Space + Overhead - Dynamic Space                                        |                  |               |               |                  |
| Free Space                      | 57,605,596.01    | Total Segment Size - Dynamic Space - Static Space - Not needed                            |                  |               |               |                  |
| Daily Growth                    | 55,284,923.32    | (Dynamic Space/W * 62.5)* tpmC                                                            |                  |               |               |                  |
| Daily Spread                    | (25,321,788.97)  | Free Space - 1.5 * Daily Growth (Zero If Negative)                                        |                  |               |               |                  |
|                                 |                  |                                                                                           |                  |               |               |                  |
| 60-Day Space (KB)               | 4,060,476,575.41 | Static Space + 60 (Daily Growth + Daily Spread)                                           |                  |               |               |                  |
| 60-Day Space (GB)               | 3,872.37         | 60-Day Space in GB (Excludes OS,Paging and RDBMS Logs)                                    |                  |               |               |                  |
| Available (GB)                  | 9,480.80         | Total storage configured and available for database, minus logs, in RAID-0 configuration. |                  |               |               |                  |
| Log File Storage Requirement    |                  |                                                                                           |                  |               |               |                  |
| Log Size (MB)                   | 342,000.00       | Total Size of Log File                                                                    |                  |               |               |                  |
| % Log Used                      | 31.9006          | % of Log File Used During Entire Run                                                      |                  |               |               |                  |
| Total N-O Txn                   | 24,460,772.00    | Total Count of New-Order Transactions during Entire Run                                   |                  |               |               |                  |
| Log / N-O Txn                   | 4.57             | KB of Log per New-Order Transaction                                                       |                  |               |               |                  |
| 8 Hour Log (GB)                 | 317.25           | 8 Hours of Log in GB (Excluding Space for Redundancy)                                     |                  |               |               |                  |
| Log Configured (GB)             | 474.04           |                                                                                           |                  |               |               |                  |
| Disk Capacity                   | MB               | GB                                                                                        |                  |               |               |                  |
| 18.2GB                          | 17,736           | 16.93                                                                                     |                  |               |               |                  |
| 36.4GB                          | 35,472           | 33.86                                                                                     |                  |               |               |                  |
|                                 |                  |                                                                                           |                  |               |               |                  |
| Space Usage                     | GB Needed        |                                                                                           | Disks Priced     | Disk Size     | GB Priced     | GB Usable        |
| 60-Day (RAID-0)                 | 3,872.37         |                                                                                           | 560              | 18.2GB        | 9,480.80      | 9,480.80         |
|                                 |                  |                                                                                           |                  |               | Total DB      | 9,480.80         |
| 8hr Log (RAID-1)                | 317.25           |                                                                                           | 28               | 36.4GB        | 948.08        | 474.04           |
|                                 |                  |                                                                                           |                  |               |               |                  |
|                                 |                  |                                                                                           |                  |               | Total Log     | 474.04           |
| OS, SQL Server                  | 4.00             |                                                                                           | 1                | 18.2GB        | 16.93         | 16.93            |
| Total Space                     | 4,193.63         |                                                                                           | 589              |               | 10,445.81     | 9,971.77         |

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## Appendix E: Third-Party Quotations



Protect Your Data - Grow Your Business

To:  
Attention:  
Phone:  
Fax:  
Email:

From: Alan Powers  
Phone: (248)223-1020 x344  
Fax: (248)223-1026  
Email: [apowers@compsat.com](mailto:apowers@compsat.com)

QUOTE # : 16WDC440\_030703  
DATE: March 25, 2003

## IBM x440 Configuration

|                                |                                                                             | List Price |              | Compsat Discounted Price |                |                         |
|--------------------------------|-----------------------------------------------------------------------------|------------|--------------|--------------------------|----------------|-------------------------|
| Part No.                       | Description                                                                 | Qty        | (per unit)   | (quantity x unit price)  | (per unit)     | (quantity x unit price) |
|                                |                                                                             |            | US Dollar    | US Dollar                | US Dollar      | US Dollar               |
| <b>x440 SERVER(s)</b>          |                                                                             |            |              |                          |                |                         |
| 868778X                        | x440, 8xXeon MP 2.0GHz/400MHz, 2MB, 0GB, O/Bay, 2x1050W p/s, Rack           | 2          | \$ 72,399.00 | \$ 144,798.00            | \$63,711.12    | \$127,422.24            |
| 96P1984                        | 3 YR onsite repair 24x7x4 hour (x440)                                       | 2          | \$ 3,221.00  | \$ 6,442.00              | \$2,802.27     | \$5,604.54              |
| 31P8300                        | 1GB PC133 ECC SDRAM RDIMM                                                   | 64         | \$ 989.00    | \$ 63,296.00             | \$870.32       | \$55,700.48             |
| 06P5754                        | IBM 18.2GB 10K Ultra160 SCSI Hot-Swap SL HDD                                | 1          | \$ 275.00    | \$ 275.00                | \$231.00       | \$231.00                |
| 24P0960                        | IBM Total Storage FASTT FC2-133 Host Bus Adapter                            | 4          | \$ 1,485.00  | \$ 5,940.00              | \$1,247.40     | \$4,989.60              |
| QLA2350-BK                     | QLogic 2350 FC-VI Adapter                                                   | 2          | \$ 1,995.00  | \$ 3,990.00              | \$1,545.00     | \$ 3,090.00             |
| 31P6087                        | IBM 3.5M Interconnect Management Cable Kit                                  | 5          | \$ 49.00     | \$ 245.00                | \$41.16        | \$205.80                |
| 633147N                        | E54 15" Colour Monitor (Stealth Grey)/MPRII                                 | 1          | \$ 129.00    | \$ 129.00                | \$122.55       | \$122.55                |
| 30L9183                        | 3 YR onsite exch. 24x7x4 hour (E54 Monitor)                                 | 1          | \$ 90.00     | \$ 90.00                 | \$78.30        | \$78.30                 |
| 31P7415                        | IBM Preferred Pro Full-size Keyboard PS/2                                   | 1          | \$ 29.00     | \$ 29.00                 | \$27.55        | \$27.55                 |
| 28L3673                        | IBM Sleek 2-Button Mouse                                                    | 1          | \$ 19.00     | \$ 19.00                 | \$18.05        | \$18.05                 |
| <b>RXE100</b>                  |                                                                             |            |              |                          |                |                         |
| 86841RX                        | RXE-100 Remote Expansion Enclosure                                          | 1          | \$ 4,569.00  | \$ 4,569.00              | \$4,020.72     | \$4,020.72              |
|                                | 3 YR onsite exch. 24x7x4 hour (RXE100)                                      | 2          | \$ 1,050.00  | \$ 2,100.00              | \$1,050.00     | \$2,100.00              |
| 31P5998                        | IBM Remote I/O PCI-X 6-slot Expansion Kit                                   | 1          | \$ 1,699.00  | \$ 1,699.00              | \$1,427.16     | \$1,427.16              |
| 24P0960                        | IBM Total Storage FASTT FC2-133 Host Bus Adapter                            | 2          | \$ 1,485.00  | \$ 2,970.00              | \$1,247.40     | \$2,494.80              |
| QLA2350-BK                     | QLogic 2350 FC-VI Adapter (2 will be used as Spares)                        | 4          | \$ 1,995.00  | \$ 7,980.00              | \$1,545.00     | \$ 6,180.00             |
| <b>FAST700(s)</b>              |                                                                             |            |              |                          |                |                         |
| 17421RU                        | IBM Total Storage FASTT700 Storage Server                                   | 6          | \$ 46,499.00 | \$ 278,994.00            | \$40,919.12    | \$245,514.72            |
| 41L2768                        | 3 YR onsite repair 24x7x4 hour (FASTT700)                                   | 6          | \$ 760.00    | \$ 4,560.00              | \$661.20       | \$3,967.20              |
| 19K1269                        | IBM FASTT700 Mini Hub                                                       | 10         | \$ 899.00    | \$ 8,990.00              | \$755.16       | \$7,551.60              |
| 19K1271                        | IBM Short Wave SFP Module                                                   | 182        | \$ 499.00    | \$ 90,818.00             | \$419.16       | \$76,287.12             |
| 19K1248                        | IBM 5M LC-LC Fibre Channel Cable                                            | 44         | \$ 129.00    | \$ 5,676.00              | \$108.36       | \$4,767.84              |
| 19K1247                        | IBM 1M LC-LC Fibre Channel Cable                                            | 62         | \$ 79.00     | \$ 4,898.00              | \$66.36        | \$4,114.32              |
| 2109F16                        | IBM TotalStorage SAN Switch F16 - 16-port (incl. rack power cable)          | 2          | \$ 31,083.00 | \$ 62,166.00             | \$27,353.04    | \$54,706.08             |
| 96P2033                        | 3 YR onsite repair 24x7x4 hour (SAN Switch F16)                             | 2          | \$ 2,880.00  | \$ 5,760.00              | \$2,505.60     | \$5,011.20              |
| <b>EXP700(s)</b>               |                                                                             |            |              |                          |                |                         |
| 17401RU                        | IBM TotalStorage FAST EXP700 Expansion Unit                                 | 42         | \$ 6,000.00  | \$ 252,000.00            | \$5,280.00     | \$221,760.00            |
| 41L2768                        | 3 YR onsite repair 24x7x4 hour (EXP700)                                     | 42         | \$ 760.00    | \$ 31,920.00             | \$661.20       | \$27,770.40             |
| 06P5772                        | IBM 2Gbps FC 36.4 GB 15K Hot-Swap HDD                                       | 28         | \$ 1,115.00  | \$ 31,220.00             | \$936.60       | \$26,224.80             |
| 06P5771                        | IBM 2Gbps FC 18.2 GB 15K Hot-Swap HDD                                       | 560        | \$ 681.00    | \$ 381,360.00            | \$572.04       | \$320,342.40            |
| <b>RACK and OPTIONS</b>        |                                                                             |            |              |                          |                |                         |
| 9306421                        | NetBAY42 SX Standard Expansion Rack Cabinet - includes Perforated front doc | 5          | \$ 1,439.00  | \$ 7,195.00              | \$1,208.76     | \$6,043.80              |
| 41L2758                        | 3 YR onsite repair 24x7x4 hour (NetBAY Rack)                                | 6          | \$ 168.00    | \$ 1,008.00              | \$146.16       | \$876.96                |
| 00N7991                        | IBM 20/40GB DDS/4 4mm Internal Tape Drive -SCSI                             | 1          | \$ 769.00    | \$ 769.00                | \$645.96       | \$645.96                |
| 3551001                        | IBM NetMEDIA Storage Expansion Unit EL                                      | 1          | \$ 689.00    | \$ 689.00                | \$606.32       | \$606.32                |
| 41L2768                        | 3 YR onsite repair 24x7x4 hour (NetMEDIA)                                   | 1          | \$ 760.00    | \$ 760.00                | \$661.20       | \$661.20                |
| <b>x225 SERVER(s)</b>          |                                                                             |            |              |                          |                |                         |
| 86473AX                        | x225, Intel Xeon 2.4GHz/533MHz, 512KB, 512MB, O/Bay, 1x425W p/s, Tower      | 4          | \$ 1,269.00  | \$ 5,076.00              | \$1,116.72     | \$4,466.88              |
| 69P9511                        | 3 YR onsite repair 24x7x4 hour (x225)                                       | 4          | \$ 698.00    | \$ 2,792.00              | \$607.26       | \$2,429.04              |
| 59P5108                        | 2.4GHz/533Mhz, 512KB Upgrade with Intel Xeon Processor                      | 4          | \$ 699.00    | \$ 2,796.00              | \$587.16       | \$2,348.64              |
| 33L5038                        | 512MB PC2100 CL2.5 ECC DDR SDRAM RDIMM                                      | 8          | \$ 389.00    | \$ 3,112.00              | \$326.76       | \$2,614.08              |
| 06P5754                        | IBM 18.2GB 10K Ultra160 SCSI Hot-Swap SL HDD                                | 4          | \$ 275.00    | \$ 1,100.00              | \$231.00       | \$924.00                |
| 22P4901                        | IBM 10/100 Dual Port Ethernet Server Adapter                                | 8          | \$ 209.00    | \$ 1,672.00              | \$175.56       | \$1,404.48              |
| 1932500                        | Adaptec Quartet66 Network 4-port Interface Adapter (ANA64044)               | 6          | \$ 550.00    | \$ 3,300.00              | \$408.71       | \$2,452.26              |
| QLA2350-BK                     | QLogic 2350 FC-VI Adapter                                                   | 4          | \$ 1,995.00  | \$ 7,980.00              | \$1,545.00     | \$ 6,180.00             |
| 633147N                        | E54 15" Colour Monitor (Stealth Grey)/MPRII                                 | 4          | \$ 129.00    | \$ 516.00                | \$122.55       | \$490.20                |
| 30L9183                        | 3 YR onsite exch. 24x7x4 hour (E54 Monitor)                                 | 4          | \$ 90.00     | \$ 360.00                | \$78.30        | \$313.20                |
| <b>SOFTWARE &amp; SERVICES</b> |                                                                             |            |              |                          |                |                         |
| 4816-1DU                       | IBM Preload Kit for Datacenter (1-16 Processors)                            | 1          | \$ 65,999.00 | \$ 65,999.00             | \$58,079.12    | \$ 58,079.12            |
| 4816-ADX                       | IBM Software Update for Datacenter (1-16 Processors)                        | 3          | \$ 22,158.00 | \$ 66,474.00             | \$19,499.92    | \$ 58,499.76            |
|                                | 3 Years of Support for Datacenter - MAPS 10 incidents at \$13,950/year      | 3          | \$ 13,950.00 | \$ 41,850.00             | \$12,136.50    | \$ 36,409.50            |
| 06P7514                        | Enterprise Rack Prep Fee                                                    | 5          | \$ 500.00    | \$ 2,500.00              | \$ 500.00      | \$ 2,500.00             |
| 06P7515                        | Enterprise Rack Installation Fee                                            | 6          | \$ 150.00    | \$ 900.00                | \$ 150.00      | \$ 900.00               |
| 06P8665                        | Option Integration Fee                                                      | 5          | \$ 110.00    | \$ 550.00                | \$ 110.00      | \$ 550.00               |
| 06P7505                        | Image Load Fee                                                              | 1          | \$ 150.00    | \$ 150.00                | \$ 150.00      | \$ 150.00               |
| <b>TOTAL =</b>                 |                                                                             |            |              | <b>\$1,620,481.00</b>    | <b>TOTAL =</b> | <b>\$1,401,275.87</b>   |

13.53%

25330 Telegraph Road / Suite 200 Raleigh Officentre / Southfield, Michigan 48034  
Phone: 248-223-1020 / Fax: 248-223-1026 / [www.compsat.com](http://www.compsat.com)

**NOTE:**

- This quote may include Compsat Technology consulting and configuration charges.
- Mfg. pricing is out of our control and could change without notice.
- Pricing good for 30 Days from date quoted.

Microsoft Corporation  
One Microsoft Way  
Redmond, WA 98052-6399

Tel 425 882 8080  
Fax 425 936 7329  
<http://www.microsoft.com/>

**Microsoft**

February 28, 2003

IBM Corporation  
Chris King  
3039 Cornwallis Road  
Research Triangle Park,  
NC 27709

Ms. King:

Here is the information you requested regarding pricing for several Microsoft products to be used in conjunction with your TPC-C benchmark testing.

All pricing shown is in US Dollars (\$).

| Part Number      | Description                                                                                                                                                                                            | Unit Price | Quantity | Price     |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------|-----------|
| 810-00846        | <b>SQL Server 2000 Enterprise Edition</b><br><i>Per processor licensing<br/>Discount Schedule: Open Program Level C<br/>Unit Price reflects a 17% discount from the retail unit price of \$19,999.</i> | \$16,541   | 16       | \$264,656 |
| C11-00821        | <b>Windows 2000 Server</b><br><i>Server license only - No CALs<br/>Discount Schedule: Open Program - No Level<br/>Unit Price reflects a 8% discount from the retail unit price of \$799.</i>           | \$738      | 4        | \$2,952   |
| 254-00170        | <b>Visual C++ Standard</b><br><i>No discounts applied</i>                                                                                                                                              | \$109      | 1        | \$109     |
| PRO-PRORS-16U-01 | <b>Database Server Support Package</b><br><i>1 Year Term</i>                                                                                                                                           | \$1,950    | 3        | \$5,850   |

All products are currently orderable through Microsoft's normal distribution channels.

This quote is valid for the next 90 days.

If we can be of any further assistance, please contact Jamie Reding at (425) 703-0510 or [jamiere@microsoft.com](mailto:jamiere@microsoft.com).

Reference ID: PCchki0328022481

Please include this Reference ID in any correspondence regarding this price quote.


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**Product Detail**

|                             | Plat. | Item # | Manufacturer/Product                                                                    | Availability         | Price           |
|-----------------------------|-------|--------|-----------------------------------------------------------------------------------------|----------------------|-----------------|
| <a href="#">ADD TO CART</a> | PC    | 252277 | IBM Features and Options<br>IBM UPS 500 - UPS - 500 VA - UPS battery - lead acid - 5 Ah | <b>Special Order</b> | <b>\$101.95</b> |

**OPTIONS by IBM.**



*Don't let power problems cost you your work or equipment.*

The IBM DataSaver 500 UPS provides battery backup and helps protect computer systems from blackouts, brownouts and surges. Network and phone line surge protection helps protect surges from entering two connected devices sharing a phone line. It has a 10-minute battery backup time that enables you to save precious data and safely shutdown your systems in the event of a power outage, and features 6 outlets to protect multiple devices from power problems. Power management shutdown software saves and closes all open files and applications, and provides unattended operating system shutdown.

**Product Features**

|                     |                                                             |
|---------------------|-------------------------------------------------------------|
| Product Description | IBM UPS 500 - UPS - 500 VA - UPS battery - lead acid - 5 Ah |
| Output connector(s) | 6 x power NEMA 5-15                                         |
| Output Voltage      | AC 120 V ± 5%                                               |
| Input Voltage       | AC 120 V                                                    |
| Battery Form Factor | Plug-in module                                              |
| Average Run Time    | 10 min                                                      |
| Capacity            | 5 Ah                                                        |
| Power Provided      | 500 VA                                                      |
| Device Type         | UPS                                                         |
| Battery             | UPS battery - lead acid - 12 V                              |
| Warranty            | 3 years warranty                                            |
| Weight              | 17.2 lbs                                                    |
| Dimensions (WxDxH)  | 6.9 in x 13 in x 3.9 in                                     |
| Form Factor         | External                                                    |

**Product Details**

|                  |         |
|------------------|---------|
| Labor Warranty   | 3 Years |
| Product Warranty | 3 Years |
| Shipping Weight  | 12 lbs  |
| Mfr. Part No.    | 33L3477 |

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