

**TPC Benchmark™ C**  
**Full Disclosure Report**  
**for**  
**IBM @server xSeries 370**  
**using**  
**Microsoft SQL Server 2000**  
**and**  
**Microsoft Windows 2000 Datacenter Server**

**Submitted for Review**  
**April 20, 2001**



## **First Edition - April 2001**

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### ***Notes***

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

<sup>2</sup> In the context of the TPC-C benchmark reported in this document, 1GB equals 1024\*1024MB. The reason for calculating GB in this way is to maintain compatibility with the method Windows' logical disk manager uses to report storage.



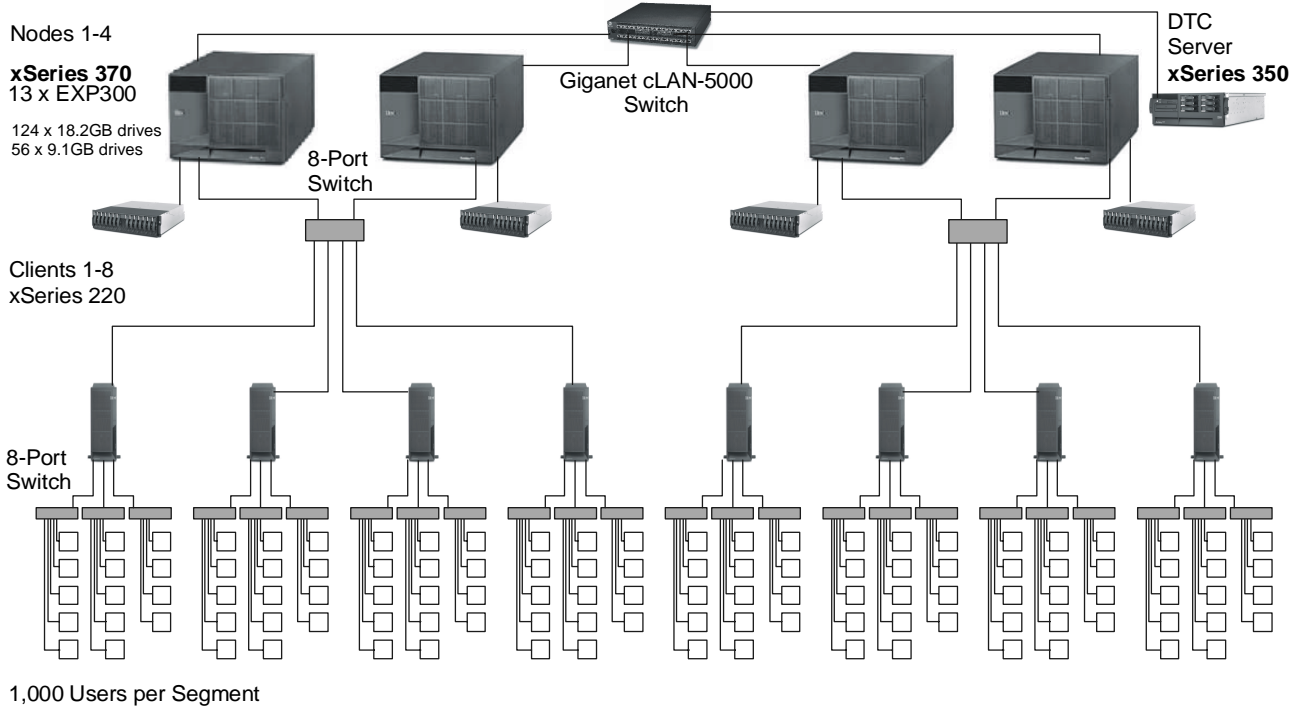
**IBM @server xSeries 370  
with  
Microsoft SQL Server 2000**

**TPC-C Rev. 3.5**

Report Date: April 20, 2001

|                    |                        |                       |                       |
|--------------------|------------------------|-----------------------|-----------------------|
| Total System Cost  | TPC-C Throughput       | Price/Performance     | Availability Date     |
| <b>\$3,158,505</b> | <b>136,766.67 tpmC</b> | <b>\$23.09 / tpmC</b> | <b>Sept. 20, 2001</b> |

| Processors  | Database Manager   | Operating System  | Other Software   | Number of Users |
|---|--|---|--|-----------------|
| <b>Database Servers = 32</b><br><b>Pentium III Xeon</b><br><b>900MHz/2MB</b><br><b>DTC Server = 4</b><br><b>Pentium III Xeon</b><br><b>700MHz/2MB</b> | <b>Microsoft<sup>(R)</sup></b><br><b>SQL Server</b><br><b>2000</b> | <b>Microsoft</b><br><b>Windows<sup>(R)</sup> 2000</b><br><b>Datacenter Server</b> | <b>Microsoft COM+</b><br><b>Microsoft Visual C++</b><br><b>6.0</b> | <b>112,000</b>  |



| System Component | Qty | Each of 4 Database Servers:            | Qty | Each of 8 xSeries 220 Clients:      |
|------------------|-----|--|-----|-------------------------------------|
| Processors       | 8   | 900MHz Pentium III Xeon w/2MB L2 Cache | 2   | 933MHz Pentium III w/256KB L2 Cache |
| Cache            |     |  |     |                                     |
| Memory           | 32  | 1GB ECC SDRAM                          | 4   | 128MB                               |
| Disk Controllers | 6   | Mylex cXtremeRAID 2000                 | 1   | Ultra160 SCSI Onboard               |
|                  | 1   | ServeRAID-4H Ultra160 SCSI Adapter     | 1   | 9.1GB (10000 rpm)                   |
| Disk Drives      | 56  | 9.1GB (15000 rpm)                      |     |                                     |
|                  | 124 | 18.2GB (15000 rpm)                     |     |                                     |
|                  | 2   | 9.1GB (10000 rpm)                      | 4   | One DTC Server:                     |
| Total Storage    |     |  | 4   | 700MHz/2MB Pentium III Xeon         |
| Other            |     |  | 4   | 128MB ECC SDRAM                     |
| Tape Drive       | 1   | 3502-R14 DLT Tape Library              | 1   | ServeRAID-4H Ultra160 SCSI Adapter  |
|                  | 1   | Giganet cLAN-1000 Host Adapter         | 1   | 9.1GB (10000 rpm)                   |
| Interconnect     | 1   | Giganet cLAN-5000 Switch               |     | Giganet cLAN-1000 Host Adapter      |
|                  |     |  |     |                                     |



**@server xSeries 370 c/s  
with  
Microsoft SQL Server 2000**

**TPC-C Revision 3.5**

**Report Date: April 20, 2001**

| Description                                     | Order Number | Third-Party Brand | Pricing | Unit Price | Qty    | Ext. Price         | 5-Yr. Maint.*    |
|---|--------------|-------------------|---------|------------|--------|--------------------|------------------|
| <b>Server Hardware</b>                          |              |                   |         |            |        |                    |                  |
| xSeries 370 900MHz/2MB Pentium III Xeon*        | 8681-3RX     | IBM               | 1       | \$19,114   | 4      | \$76,456           | \$42,740         |
| 900MHz/2MB L2 Cache Processor Upgrade           | 19K4637      | IBM               | 1       | 6,599      | 28     | 184,772            | 0                |
| 8500R Memory Expansion Card                     | 28L4454      | IBM               | 1       | 625        | 4      | 2,500              | 0                |
| 8500 >4X Accelerator Filter                     | 10K2335      | IBM               | 1       | 1,249      | 4      | 4,996              | 0                |
| 1GB SDRAM RDIMM Memory Kit                      | 33L3056      | IBM               | 1       | 2,596      | 128    | 332,288            | 0                |
| xSeries 350 700MHz/2MB Pentium III Xeon*        | 8682-5RY     | IBM               | 1       | 7,165      | 1      | 7,165              | 10,685           |
| 700MHz/2MB L2 Cache Processor Upgrade           | 00N7944      | IBM               | 1       | 3,625      | 3      | 10,875             | 0                |
| 9.1GB 10K Ultra160 SCSI Drive                   | 37L7204      | IBM               | 1       | 299        | 14     | 4,186              | 0                |
| ServeRAID-4H Ultra160 SCSI Adapter              | 37L6889      | IBM               | 1       | 2,439      | 5      | 12,195             | 0                |
| Mylex eXtremeRAID 2000 Adapter (incl. 10%)      | E2000-4-32NB | Mylex             | 4       | 1,872      | 27     | 50,544             | 0                |
| Ultra2 SCSI 4m Cable                            | 03K9311      | IBM               | 1       | 105        | 104    | 10,920             | 0                |
| 10/100 Ethernet Server Adapter with IPsec       | 06P3601      | IBM               | 1       | 99         | 4      | 396                | 0                |
| E54 15" (13.8" Viewable) Color Monitor*         | 6331N2N      | IBM               | 1       | 173        | 5      | 865                | 1,400            |
| 3502-R14 DLT Tape Autoloader*                   | 3502R14      | IBM               | 1       | 13,779     | 1      | 13,779             | 3,844            |
| IBM Smart-UPS Model 5000RMB                     | 37L6861      | IBM               | 1       | 3,299      | 4      | 13,196             | 0                |
| Netfinity Rack*                                 | 9306900      | IBM               | 1       | 1,725      | 6      | 10,350             | 7,848            |
| Side Panel Kit                                  | 94G6669      | IBM               | 1       | 195        | 1      | 195                | 0                |
| Hardware installation and prep fees             |              | IBM               | 1       |            |        | 21,180             | 0                |
| Giganet cLAN-1000 Host Adapter (incl. 10%)      | cLAN-1000    | Giganet           | 3       | 795        | 7      | 5,565              | 75,000           |
| Giganet cLAN-5000 8-Port Switch (incl. 10%)     | cLAN-5000    | Giganet           | 3       | 6,250      | 3      | 18,750             | incl. above      |
| Giganet cLAN-A1011 10M Cable (incl. 10%)        | cLAN-A1011   | Giganet           | 3       | 135        | 7      | 945                | incl. above      |
| <b>Storage Hardware</b>                         |              |                   |         |            |        |                    |                  |
| Netfinity EXP300 Rack Storage Enclosure*        | 35311RU      | IBM               | 1       | 3,179      | 52     | 165,308            | 31,512           |
| 9.1GB 15K Ultra160 SCSI Drive                   | 19K0655      | IBM               | 1       | 601        | 224    | 134,624            | 0                |
| 18.2GB 15K Ultra160 SCSI Drive                  | 19K0656      | IBM               | 1       | 789        | 496    | 391,344            | 0                |
| <b>Subtotal</b>                                 |              |                   |         |            |        | <b>\$1,473,394</b> | <b>\$173,029</b> |
| <b>Server Software</b>                          |              |                   |         |            |        |                    |                  |
| Datacenter OS Preload Kit/Ship Group/Warr.      | 22P4745      | IBM               | 1       |            |        | \$738,000          | 0                |
| Microsoft SQL Server 2000                       | 11K7641      | Microsoft         | 2       | 16,541     | 32     | 539,312            | 0                |
| Microsoft Windows 2000 Advanced Server          | C10-00475    | Microsoft         | 2       | 2,399      | 1      | 2,399              | incl. below      |
| 5-Year Maintenance for Software                 |              | Microsoft         | 2       | 2,095      | 20     |                    | \$41,900         |
| <b>Subtotal</b>                                 |              |                   |         |            |        | <b>\$1,269,711</b> | <b>\$41,900</b>  |
| <b>Client Hardware</b>                          |              |                   |         |            |        |                    |                  |
| xSeries 220 / 933MHz/256KB Pentium III*         | 8645-41X     | IBM               | 1       | 1,593      | 8      | 12,744             | 25,184           |
| 933MHz/256KB Pentium III Upgrade                | 10K3819      | IBM               | 1       | 999        | 8      | 7,992              | 0                |
| 256MB ECC SDRAM RDIMM                           | 33L3144      | IBM               | 1       | 365        | 16     | 5,840              | 0                |
| 9.1GB 10K Ultra160 SCSI Drive                   | 37L7204      | IBM               | 1       | 299        | 8      | 2,392              | 0                |
| Intel Pro/100+ Dual-Port Ethernet Adapter**     | 8472         | Intel             | 1       | 219        | 16     | 3,504              | 0                |
| E54 15" (13.8" Viewable) Color Monitor*         | 6331N2N      | IBM               | 1       | 173        | 8      | 1,384              | 2,240            |
| <b>Subtotal</b>                                 |              |                   |         |            |        | <b>\$33,856</b>    | <b>\$27,424</b>  |
| <b>Client Software</b>                          |              |                   |         |            |        |                    |                  |
| Microsoft Windows 2000 Server with COM+         | C11-00821    | Microsoft         | 2       | 738        | 8      | 5,904              | incl. above      |
| Microsoft Visual C++ Professional 6.0           | 048-00317    | Microsoft         | 2       | 549        | 1      | 549                | incl. above      |
| <b>Subtotal</b>                                 |              |                   |         |            |        | <b>\$6,453</b>     | <b>\$0</b>       |
| <b>User Connectivity</b>                        |              |                   |         |            |        |                    |                  |
| 8-Port 10Mbps Hub (+!0% )                       | Generic      |                   | 5       | 23         | 15,400 | 354,200            | 0                |
| 8-Port 10/100 Nway Fast Ethernet Switch (+!0% ) | NX-DSS8      |                   | 5       | 25         | 29     | 725                | 0                |
| <b>Subtotal</b>                                 |              |                   |         |            |        | <b>\$354,925</b>   | <b>\$0</b>       |
| <b>Total</b>                                    |              |                   |         |            |        | <b>\$3,138,339</b> | <b>\$242,353</b> |
| <b>Discount</b>                                 |              |                   |         |            |        | <b>(222,187)</b>   | <b>\$0</b>       |
| <b>Grand Total</b>                              |              |                   |         |            |        | <b>\$2,916,152</b> | <b>\$242,353</b> |

Large volume discount; prices will vary if purchased individually.

Notes: \* The standard 3-year warranty and the extended warranty on IBM hardware is for 7x24 , 4-hour response. \*\* Five-year warranty. \*\*\* 10% or minimum 2 spares are added in place of on-site service (products have a 5-year return-to-vendor warranty)

Pricing: 1 - IBM; 2 - Microsoft; 3 - Giganet; 4 - Mylex; 5 - Software House International

**Audited by Brad Askins of InfoSizing, Inc.**

**Five-Year Cost of Ownership: \$3,158,505**

**tpmC Rating: 136,766.67**

**\$/ tpmC: \$23.09**

Prices used in TPC benchmarks reflect the actual prices a customer would pay for a one-time purchase of the stated components. Individually negotiated discounts are not permitted. Special prices based on assumptions about past or future purchases are not permitted. All discounts reflect standard pricing policies for the listed components. For complete details, see the pricing sections of the TPC benchmark specification. If you find that stated prices are not available according to these terms, please inform the TPC at pricing@tpc.org. Thank you.

| <b>Numerical Quantities Summary</b>   |                      |                          |                          |
|---|----------------------|--------------------------|--------------------------|
| MQTh, Computed Maximum Qualified Throughput:<br>% throughput difference, reported and reproducibility runs: |                      |                          | 136,766.67 tpmC<br>.12 % |
| <b>Response Times<br/>(in seconds)</b>  | <b>90%</b>           | <b>Average</b>           | <b>Maximum</b>           |
| New-Order   | 1.12                 | 0.63                     | 19.16                    |
| Payment   | 1.22                 | 0.68                     | 20.01                    |
| Delivery (Interactive)  | 0.85                 | 0.36                     | 1.87                     |
| Stock-Level   | 0.98                 | 0.48                     | 2.44                     |
| Order Status  | 0.90                 | 0.41                     | 3.30                     |
| Delivery (Deferred)   | 0.27                 | 0.20                     | 0.78                     |
| Menu  | 0.86                 | 0.37                     | 3.47                     |
| <b>Transaction Mix (in percent of total transactions)</b>   |                      | <b>Total Occurrences</b> | <b>Percent</b>           |
| New-Order   |                      | 4,103,000                | 44.81                    |
| Payment   |                      | 3,940,308                | 43.03                    |
| Delivery  |                      | 370,994                  | 4.05                     |
| Stock Level   |                      | 371,032                  | 4.05                     |
| Order Status  |                      | 370,721                  | 4.05                     |
| <b>Emulation Delay (in<br/>seconds)</b>   | <b>Response Time</b> |                          | <b>Menu</b>              |
| New-Order   | 0.1                  |                          | 0.1                      |
| Payment   | 0.1                  |                          | 0.1                      |
| Order-Status  | 0.1                  |                          | 0.1                      |
| Delivery  | 0.1                  |                          | 0.1                      |
| Stock-Level   | 0.1                  |                          | 0.1                      |
| <b>Keying/Think Times<br/>(in seconds)</b>  | <b>Minimum</b>       | <b>Average</b>           | <b>Maximum</b>           |
| New-Order   | 18.00 / 0.00         | 18.01 / 12.05            | 18.06 / 120.53           |
| Payment   | 3.00 / 0.00          | 3.01 / 12.06             | 3.07 / 120.51            |
| Delivery  | 2.00 / 0.00          | 2.01 / 5.06              | 2.05 / 50.51             |
| Stock Level   | 2.00 / 0.00          | 2.01 / 5.07              | 2.05 / 50.50             |
| Order Status  | 2.00 / 0.00          | 2.01 / 10.06             | 2.06 / 100.50            |
| <b>Test Duration</b>  |                      |                          |                          |
| Ramp-up time  |                      |                          | 35 minutes 38 seconds    |
| Measurement interval  |                      |                          | 30 minutes               |
| Number of transactions (all types) completed in measurement interval  |                      |                          | 9,527,120                |
| Ramp-down time  |                      |                          | 37 minutes 52 seconds    |
| Number of checkpoints in measurement interval   |                      |                          | 1                        |
| Checkpoint interval   |                      |                          | 30 minutes               |

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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 3.5, released October 25, 1999.

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 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.*

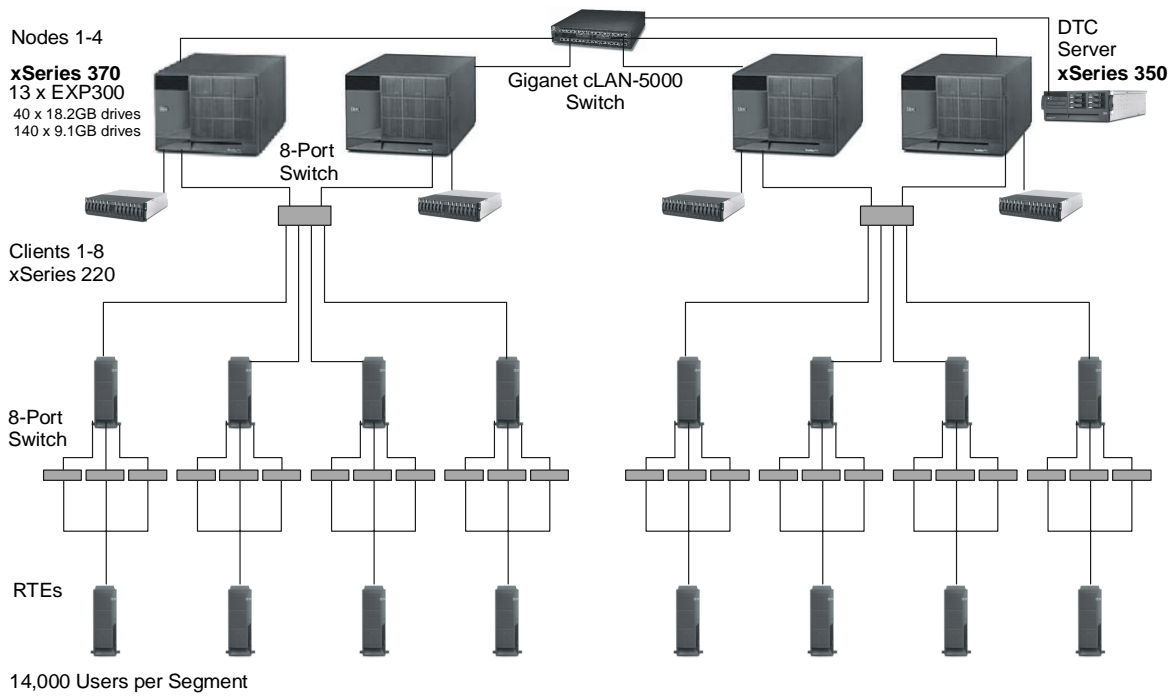
Appendix C contains the tunable parameters for the database, the operating system, and the transaction monitor.

### Configuration Diagrams

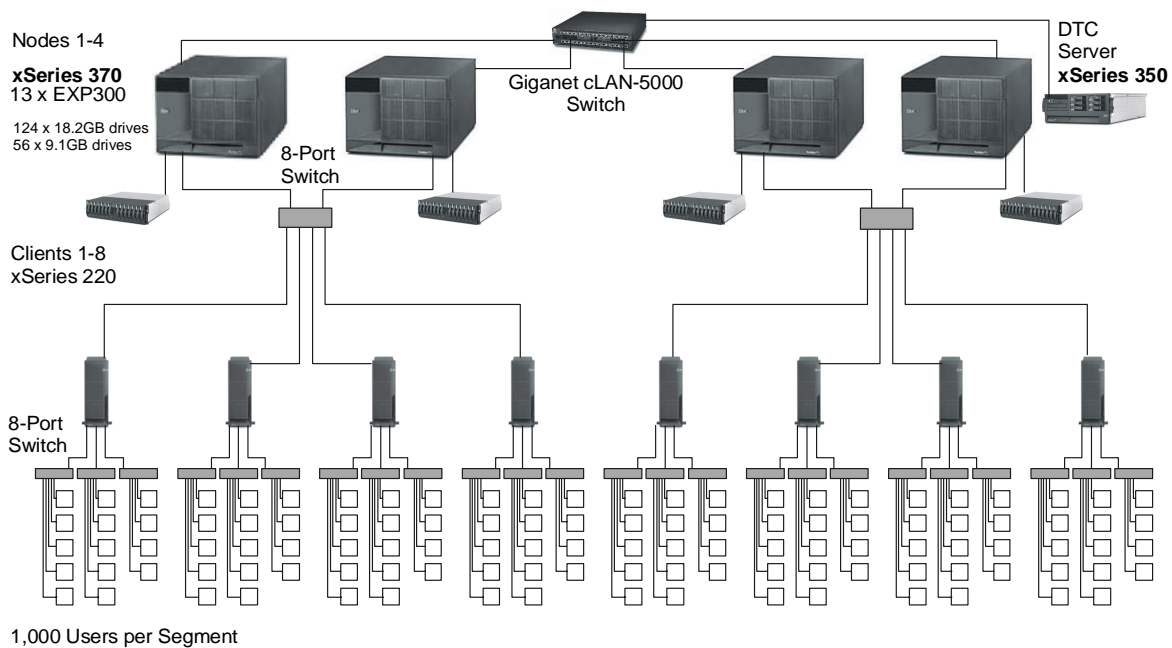
*Diagrams of both measured and priced configurations must be provided, accompanied by a description of the differences.*

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

## Measured Configuration



## Priced Configuration



## Disk Drive Substitution

The priced and measured configurations were identical with one exception. At each server node, the measured configuration used 140 9.1GB drives and 40 18.2GB drives. For the priced configuration, in order to satisfy the 180-day space requirement, we substituted 84 of the 9.1GB drives used in the measured configuration with 84 18.2GB drives. To verify equivalent performance of the drives, a regular TPC-C run was made with DISKPERF on to monitor the disk performance. The PERFMON data showed that the disk latency and the disk queuing depth for the 18.2GB drive is better or equivalent to the 9.1GB drive.

---

## 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. (8.1.2.1)*

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. (8.1.2.2)*

Physical space was allocated to SQL Server 2000 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. (8.1.2.3)*

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 SQL Server 2000 and priced as static space.

The insert and delete functions were verified by the auditor. In addition, the auditor verified that the primary key for each database table could be updated.

### 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. (8.1.2.4)*

The database tables, with one exception, were partitioned across the server nodes using range partitioning. The warehouse ID was used as the partition key. The specifics of the distribution of database partitions across the physical media can be found in Table 4-2. The exception is the ITEM table, which was replicated across all database server nodes.

### Replication

*Replication tables, if used, must be disclosed (see Clause 1.4.6). (8.1.2.5)*

The ITEM table was replicated across all database server nodes. Database triggers were used to ensure that updates to the ITEM table on one node were made to the ITEM table on the other nodes. Their consistency has been verified by the auditor.

### 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). (8.1.2.6)*

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 for each user were captured and verified by the auditor to be unique. In addition, the contents of the database were systematically searched and randomly sampled by the auditor for patterns that would indicate that the random number generator had effected any kind of discernible pattern; none was found.

### Screen Layout

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

All screen layouts followed the TPC Benchmark C Standard Specification exactly.

### 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 5.0 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 xSeries 220 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 xSeries 370 server.

### Transaction Profiles

*The percentage of home and remote order-lines in the New-Order transactions must be disclosed. (8.1.3.5)*

*The percentage of New-Order transactions that were rolled back as a result of an unused item number must be disclosed. (8.1.3.6)*

*The number of items per orders entered by New-Order transactions must be disclosed. (8.1.3.7)*

*The percentage of home and remote Payment transactions must be disclosed. (8.1.3.8)*

*The percentage of Payment and Order-Status transactions that used non-primary key (C\_LAST) access to the database must be disclosed. (8.1.3.9)*

*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. (8.1.3.10)*

*The mix (i.e., percentages) of transaction types seen by the SUT must be disclosed. (8.1.3.11)*

**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    | 85.04            |
| Remote warehouse payment transactions  | 14.96            |
| <b>Non-Primary Key Access</b>          |                  |
| Payment transactions using C_LAST      | 60.03            |
| Order-Status transactions using C_LAST | 60.02            |
| <b>Delivery</b>                        |                  |
| Delivery transactions skipped          | 0                |
| <b>Transaction Mix</b>                 |                  |
| New-Order                              | 44.81            |
| Payment                                | 43.03            |
| Delivery                               | 4.05             |
| Stock Level                            | 4.05             |
| Order Status                           | 4.05             |

## Deferred Delivery Mechanism

*The queuing mechanism used to defer execution of the Delivery transaction must be disclosed. (8.1.3.12)*

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. (8.1.4.1)*

### 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 twice to verify the Atomicity of completed transactions. One time a warehouse ID that was local to the node that the test was being run on was used. The second time a warehouse ID that was remote to the node that the test was being run on was used.

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 twice to verify the Atomicity of the aborted Payment transaction. One time a warehouse ID that was local to the node that the test was being run on was used. The second time a warehouse ID that was remote to the node that the test was being run on was used.

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 shell script 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 shell scripts to issue queries to the database. The shell scripts were run twice, once on a node that the warehouse being used locally and then again on a node that did not have the warehouse being used locally. Each script 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*
- *Instantaneous interruption (system crash/system hang) in processing that requires system reboot to recover*
- *Failure of all or part of memory (loss of contents)*

Recovery from all three of these failures was demonstrated as described in the following sections.

### **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 150 users submitting transactions over two server nodes.
4. A disk containing a portion of each of the tables in the tpc 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 tpc 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.



### **Combined Loss of Log and Loss of System Test (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. One disk from the log array was removed. Since the disk was RAID-1 mirrored, SQL Server continued to process transactions without interruption.
4. The test continued under full load with all users submitting transactions. A checkpoint was issued, and the system continued to run for another 5 minutes.
5. The server under test was powered off, which removed power from the system and the memory.
6. The server was powered on again.
7. SQL Server was started to initiate automatic recovery from its log.
8. Step 1 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.

### **Loss of Interconnect**

1. The four Consistency conditions were tested.
2. The current count of the total number of orders, SUM1, was determined by obtaining the sum of the D\_NEXT\_O\_ID column for all rows in the District table.
3. A measurement was started under full load with all users submitting transactions. When all users were submitting transactions, a checkpoint was executed.
4. The checkpoint lasted 9 minutes. During that time the measurement throughput reached a minimum of 90 percent of the reported throughput and maintained that level until the run was paused.
5. After the checkpoint had completed, power was removed from the interconnect switch and Benchcraft was paused and then stopped.
6. After one minute, the power cords were reconnected to the Gigaset switches. There was a burst of I/O on the database drives as the fabric came back up.
7. The database was checkpointed. The database was stopped on all nodes.
8. The four Consistency conditions were again tested successfully.
9. Step 1 was repeated to obtain the current count of the total number of orders, SUM2.
10. The following relationship was verified:  
$$\text{SUM2} \geq (\text{SUM1} + \text{New Order completed} - \text{New Orders rolled back})$$

### **Loss of DTC Server**

1. The four Consistency conditions were tested.
2. The current count of the total number of orders, SUM1, was determined by obtaining the sum of the D\_NEXT\_O\_ID column for all rows in the District table.
3. A measurement was started under full load with all users submitting transactions. When all users were submitting transactions a checkpoint was executed.
4. The checkpoint lasted 9 minutes. During that time the measurement throughput reached a minimum of 90 percent of the reported throughput and maintained that level until the run was paused.
5. After the checkpoint completed, the DTC server was powered off. Benchcraft was paused, then stopped.
6. The DTC server was powered on. When the DTC server booted, the DTC service was started automatically. When the DTC service started, there was a burst of database I/O.
7. The database was checkpointed.
8. After the checkpoint completed, the four Consistency tests were successfully executed. The current count of the total number of orders, SUM2, was obtained.
9. The following relationship was verified:  
$$\text{SUM2} > (\text{SUM1} + \text{New Order completed} - \text{New Orders rolled back})$$

---

## 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. (8.1.5.1)*

The database was built with 11,200 warehouses, and the audited run used 11,200 warehouses.

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

| Table Name          | Rows          |
|---------------------|---------------|
| Warehouse           | 11,200        |
| District            | 112,000       |
| Item                | 100,000       |
| New Order           | 100,800,000   |
| History             | 336,000,000   |
| Orders              | 336,000,000   |
| Customer            | 336,000,000   |
| Order Line          | 3,359,984,803 |
| Stock               | 1,120,000,000 |
| 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. (8.1.5.2)*

The following series of table depicts the database configuration of the tested system to meet the 8-hour steady state requirement. The configuration was the same on all 4 nodes. The big\_files file group contains the t\_customer and t\_stock tables. The misc\_file group contains the other TPC-C tables.

**Table 4-2. Distribution of Tables and Logs**

| Controller | Disk             | Drives                                  | Partition                 | Size                                      | Use                           |
|------------|------------------|---|---------------------------|---|-------------------------------|
| 1          | Disk 0<br>Disk 1 | 2 - 9.1GB RAID-1<br>12 - 18.2GB RAID-10 | C: NTFS<br>F: RAW         | 8.47GB<br>78.17GB<br>23.53GB              | OS<br>DB Log<br>Unallocated   |
| 2          | Disk 2           | 28 - 18.2GB RAID-0                      | 1 RAW<br>2 RAW            | 26.12GB<br>13.23GB<br>442.7GB             | G:<br>H:<br>Free              |
| 3          | Disk 3           | 28 - 9.1GB RAID-0                       | 1 RAW<br>2 RAW            | 26.12GB<br>13.23GB<br>197.32GB            | I:<br>J:<br>Free              |
| 4          | Disk 4           | 28 - 9.1GB RAID-0                       | 1 RAW<br>2 RAW<br>S: NTFS | 26.12GB<br>13.23GB<br>117.19GB<br>80.75GB | K:<br>L:<br>backup1-1<br>Free |
| 5          | Disk 5           | 28 - 9.1GB RAID-0                       | 1 RAW<br>2 RAW<br>T: NTFS | 26.12GB<br>13.23GB<br>117.19GB<br>80.75GB | M:<br>N:<br>backup1-2<br>Free |
| 6          | Disk 6           | 28 - 9.1GB RAID-0                       | 1 RAW<br>2 RAW<br>U: NTFS | 26.12GB<br>13.23GB<br>117.19GB<br>80.75GB | O:<br>P:<br>backup2-1<br>Free |
| 7          | Disk 7           | 28 - 9.1GB RAID-0                       | 1 RAW<br>2 RAW<br>V: NTFS | 26.12GB<br>13.23GB<br>117.19GB<br>80.75GB | Q:<br>R:<br>backup2-2<br>Free |

Controller 1 is a ServeRAID-4H Ultra160 adapter, which was used for the operating system logical drive and for the database log logical drive. Controllers 2 through 7 are Mylex eXtremeRAID 2000 adapters, which were used for the database logical drives. The write policy for all seven controllers was set to write-through. The DTC server, which used five 9.1GB drives with RAID-1E for the DTC log, also used write-through policy.

### 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.*

SQL Server 2000 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 tables, with one exception, were partitioned across the server nodes using range partitioning. The warehouse ID was used as the partition key. The specifics of the distribution of database partitions across the physical media can be found in Table 4-2. The exception is the ITEM table, which was replicated across all nodes.

## 180-Day Space Requirement

*Details of the 180-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). (8.1.5.5)*

See Appendix D for details about how the 180-day space requirements were calculated.

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

### Measured tpmC

*Measured tpmC must be reported. (8.1.6.1)*

Measured tpmC: 136,766.67 tpmC

Price per tpmC: \$23.09 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. (8.1.6.2)*

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 | 90th % |
|------------------------|---------|---------|--------|
| New-Order              | 0.63    | 19.16   | 1.12   |
| Payment                | 0.68    | 20.01   | 1.22   |
| Delivery (interactive) | 0.36    | 1.87    | 0.85   |
| Stock Level            | 0.48    | 2.44    | 0.98   |
| Order Status           | 0.41    | 3.30    | 0.90   |
| Delivery (deferred)    | 0.20    | 0.78    | 0.27   |
| Menu                   | 0.37    | 3.47    | 0.86   |

### Keying/Think Times

*The minimum, the average, and the maximum keying and think times must be reported for each transaction type. (8.1.6.3)*

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

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

| Transaction Type | Minimum      | Average       | Maximum        |
|------------------|--------------|---------------|----------------|
| New-Order        | 18.00 / 0.00 | 18.01 / 12.05 | 18.07 / 120.53 |
| Payment          | 3.00 / 0.00  | 3.01 / 12.06  | 3.07 / 120.51  |
| Delivery         | 2.00 / 0.00  | 2.01 / 5.06   | 2.05 / 50.51   |
| Stock Level      | 2.00 / 0.00  | 2.01 / 5.07   | 2.05 / 50.50   |
| Order Status     | 2.00 / 0.00  | 2.01 / 10.06  | 2.06 / 100.50  |

## Response Time Frequency Distribution Curves

Response time frequency distribution curves (see Clause 5.6.1) must be reported for each transaction type. (8.1.6.4)

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

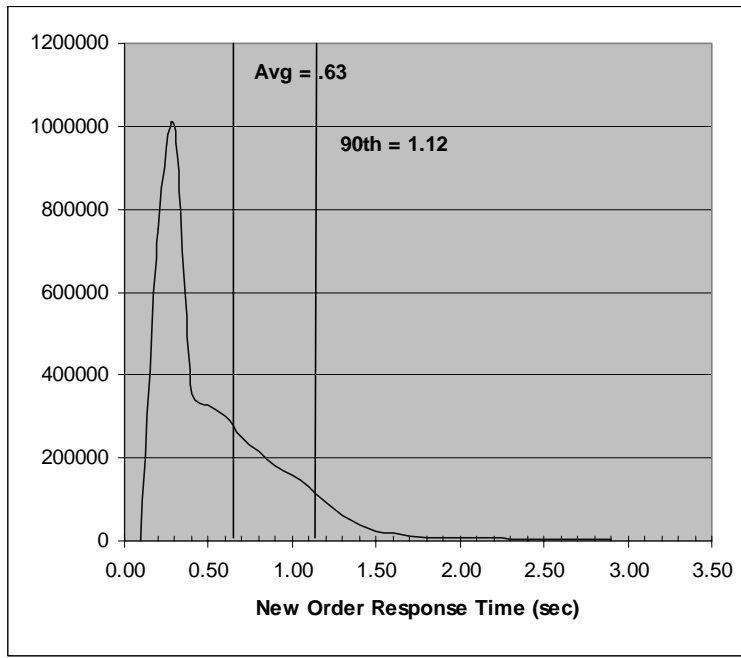
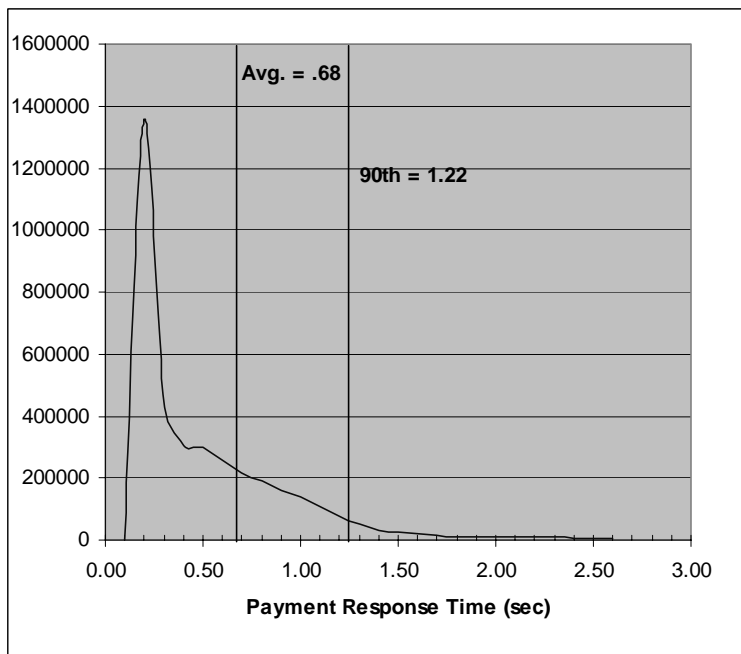
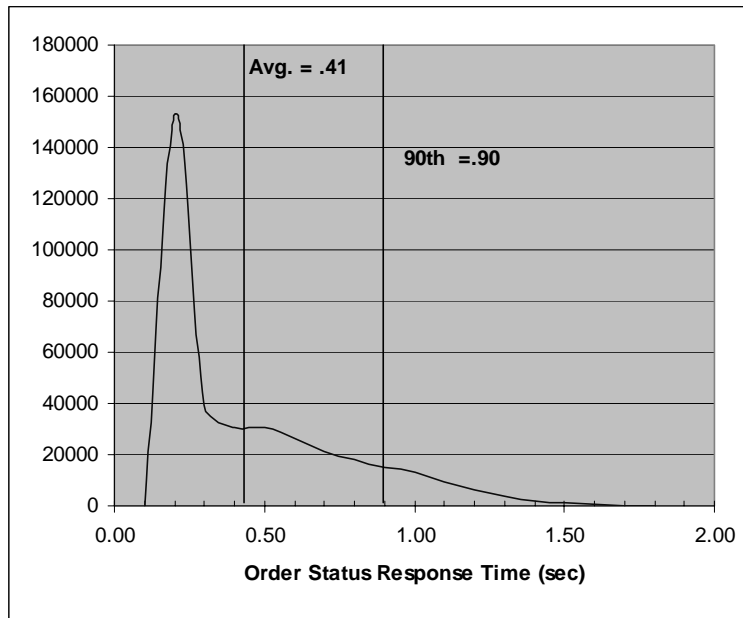


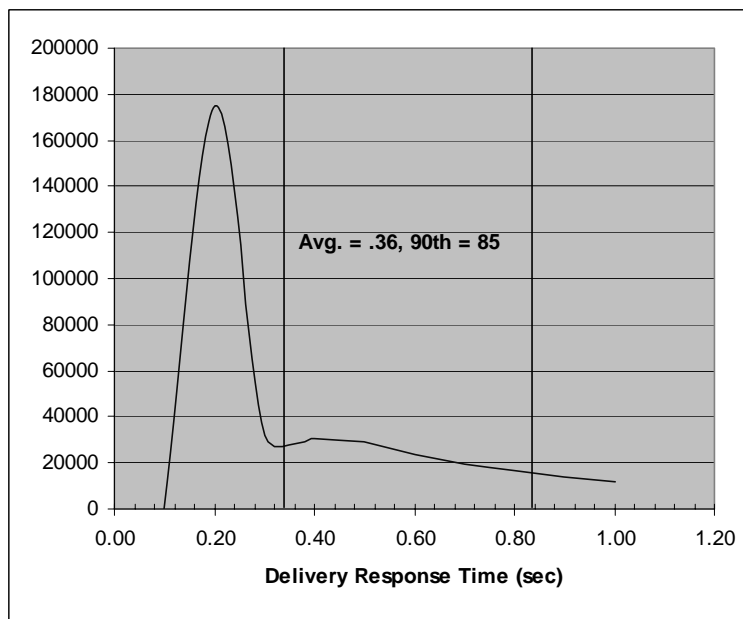
Figure 5-2. Payment Transaction - Response Time Frequency Distribution



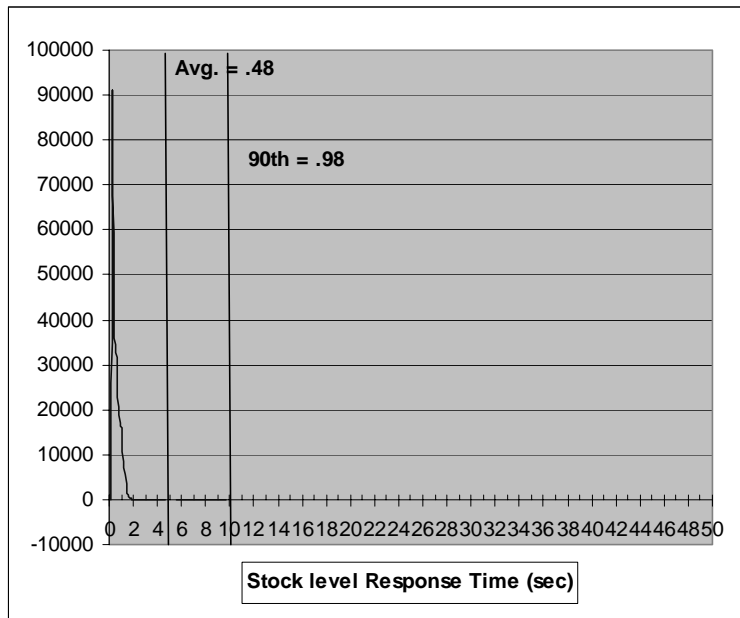
**Figure 5-3. Order-Status Transaction - Response Time Frequency Distribution**



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



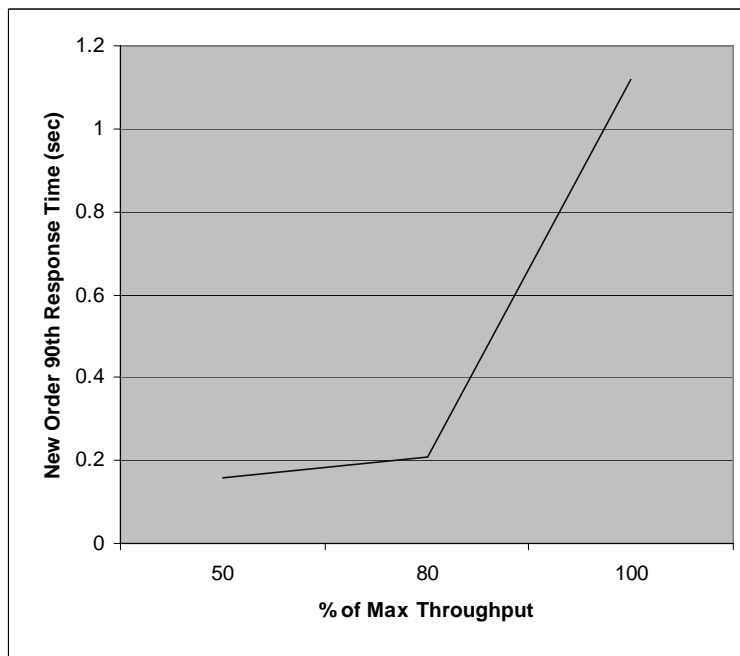
**Figure 5-5. Stock-Level Transaction - Response Time Frequency Distribution**



**Performance Curve for Response Time vs. Throughput**

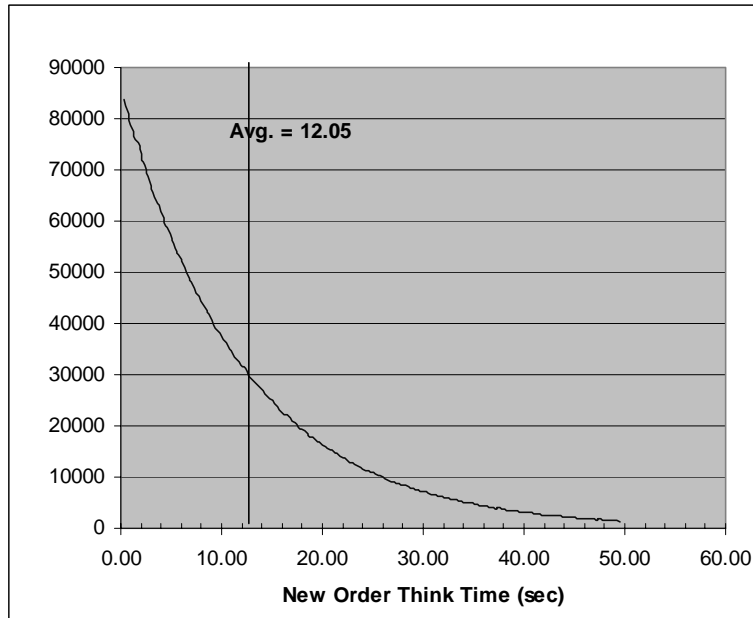
*The performance curve for response time vs. throughput (see Clause 5.6.2) must be reported for the New-Order transaction. (8.1.6.5)*

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





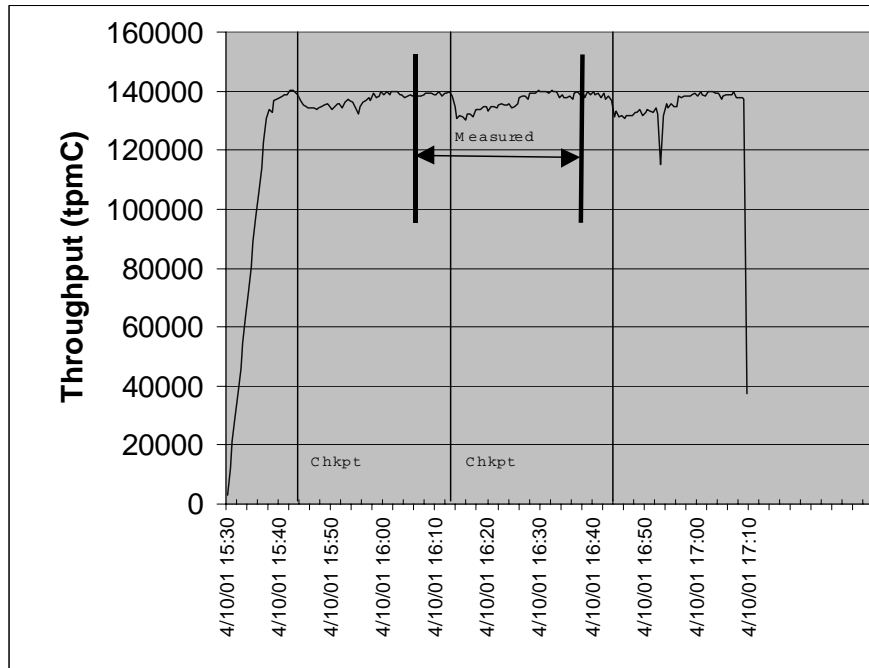
**Figure 5-7. New-Order Think Time Distribution**



### 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. (8.1.6.9)*

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. (8.1.6.10)*

### 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 another Ethernet LAN using SQL ODBC library and SQL Server remote stored procedure calls.

## Checkpoints

Checkpoints were executed on the server during the ramp-up phase and at 30-minute intervals. Each measured run contained one checkpoint. SQL Server was started with trace flag 3502, which causes 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.

## Reproducibility Methodology

*A description of the method used to determine the reproducibility of the measurement results must be reported. (8.1.6.11)*

A repeatability measurement was taken on the xSeries 370 server for the same length of time as the measured run. The repeatability measurement was 136,612 tpmC.

## Measurement Interval

*A statement of the duration of the measurement interval for the reported Maximum Qualified Throughput (tpmC) must be included. (8.1.6.12)*

The measurement interval was 30 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**

| <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    | 85.04            |
| Remote warehouse payment transactions  | 14.96            |
| <b>Non-Primary Key Access</b>          |                  |
| Payment transactions using C_LAST      | 60.03            |
| Order-Status transactions using C_LAST | 60.02            |
| <b>Delivery</b>                        |                  |
| Delivery transactions skipped          | 0                |
| <b>Transaction Mix</b>                 |                  |
| New-Order                              | 44.81            |
| Payment                                | 43.03            |
| Delivery                               | 4.05             |
| Stock Level                            | 4.05             |
| Order Status                           | 4.05             |

---

## 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. (8.1.7.1)*

The RTE used was Microsoft BenchCraft V2.0 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. (8.1.7.2)*

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). (8.1.7.4)*

The client-to-server LAN connections used 100Mbps switched Ethernet for both the measured and priced configurations. The server-to-server connections used a Gigaset cLAN-5000 Switch for both the measured and priced configurations. The server-to-server protocol was VIA.

In the measured configuration, the 24 LAN segment connections between clients and RTEs used the 8-port 10/100Mbps switch as shown in the measured configuration diagram. The priced configuration included 10Mbps hubs as shown in the priced configuration diagram.

## **Network Bandwidth**

*The bandwidth of the network(s) used in the tested/priced configuration must be disclosed. (8.1.7.5)*

The Ethernet used in the LAN complies with the IEEE.802.3 standard. The LANs that connected the driver RTEs to the clients had a bandwidth of 10Mbps. The LAN that connected the clients to the server had a bandwidth of 100Mbps.

## **Operator Intervention**

*If the configuration requires operator intervention (see Clause 6.6.6), the mechanism and the frequency of this intervention must be disclosed. (8.1.7.6)*

The configuration did not require any operator intervention to sustain the reported throughput during the eight-hour period.

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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. (8.1.8.1)*

*The total 5-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. (8.1.8.2)*

A detailed list of all hardware and software, including the 5-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. (8.1.8.3)*

All hardware is generally available. The Datacenter Server OS, as well as the system BIOS supporting the Mylex Adapter used in this benchmark, will be generally available September 20, 2001. The system BIOS will be available on the IBM Web site. All other software is generally available now. Total solution availability is September 20, 2001.

### 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. (8.1.8.4)*

- Maximum Qualified Throughput: 136,766.67 tpmC
- Price per tpmC: \$23.09 per tpmC
- Five-year cost of ownership: \$3,158,505

### 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. (8.1.8.6)

The component pricing based on usage is shown below:

- 4 copies of Microsoft Windows 2000 Datacenter Server
- 8 copies of Microsoft Windows 2000 Server
- 1 copy of Microsoft Windows 2000 Advanced Server

- 5-year support for all hardware components (spares were priced for hardware components for which 4-hour response time is not offered)

## **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). (8.1.8.7)*  
*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. (8.1.8.8)*

A detailed list of all hardware and software, including the 5-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.



---

## 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. (8.1.9.1)*

This implementation of the TPC-C benchmark was audited by Brad 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. (8.2)*

This implementation of the TPC Benchmark C was audited by Brad Askins of InfoSizing, Inc. Further information may be obtained from:

InfoSizing, Inc.  
1373 North Franklin Street  
Colorado Springs, CO 80903  
Phone: 719-473-7555  
Fax: 719-473-7554

Benchmark Sponsor: William D. Hall  
 Mgr., Server Systems Performance  
 IBM Server Group  
 3039 Cornwallis Road  
 Research Triangle Park, NC27709

April 16, 2001

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

Platform: **IBM @server xSeries 370**  
 Operating system: **Microsoft Windows 2000 Datacenter Server**  
 Database Manager: **Microsoft SQL Server 2000 Enterprise Edition**  
 Transaction Manager: **Microsoft COM+**

The results were:

| CPU's Speed  | Memory                                     | Disks(total)   | NewOrder 90% Response Time | tpmC              |
|--|--|--|----------------------------|-------------------|
| <b>4 Servers: IBM @server xSeries 370 each with:</b>     |  |  |                            |                   |
| 8 x Pentium III Xeon (900 MHz)                           | 32 GB Main (2MB L2 Cache per processor)    | 124 x 18.2 GB(15k)<br>56 x 9.1 GB(15k) 2<br>x 9.1 GB (10k) | 1.12 Seconds               | <b>136,766.67</b> |
| <b>8 Clients: IBM @server xSeries 220 each with:</b>     |  |  |                            |                   |
| 2 x Pentium III (933 MHz)                                | 256 MB Main (256KB L2 Cache per processor) | 1 x 9.1 GB   | n/a                        |                   |
| <b>1 DTC Servers: IBM @server xSeries 350 each with:</b> |  |  |                            |                   |
| 4 x Pentium III Xeon (700 MHz)                           | 512 MB Main (2MB L2 Cache per processor)   | 6 x 9.1 GB   | n/a                        |                   |

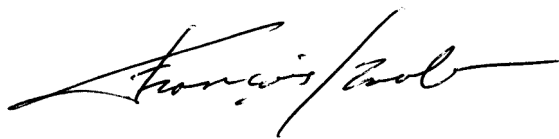
In my opinion, these performance results were produced in compliance with the TPC's requirements for the benchmark. The following verification items were given special attention:

- 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 30 minutes (1800 seconds)
- The reported measurement interval was representative of steady state conditions
- One checkpoint was taken during the reported measurement interval
- The repeatability of the measured performance was verified
- The 180 day storage requirement was correctly computed
- The ability to update primary keys with the same syntax as other columns was verified.
- The system pricing was verified for major components and maintenance

Additional Audit Notes:

The measured system included 336 9.1 GB 15K Ultra160 SCSI Drives that were substituted by (336) 18.2 GB 10K Wide Ultra160 SCSI Drives in the priced configuration. Based on the specifications of these disks and on additional performance data collected on these disks, it is my opinion that this substitution does not have a material effect on the reported performance.

Respectfully Yours,



François Raab, President



Bradley J. Askins, Auditor

# Appendix A: Source Code

## Web Client Source Code

### *dllldata.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
/dllldata command line option

*****

#include <rpcproxy.h>

#ifdef __cplusplus
extern "C" {
#endif

EXTERN_PROXY_FILE(tpcc_com_remote_ps )

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

DLLDATA_ROUTINES(aProxyFileList, GET_DLL_CLSID)

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

/* end of generated dllldata 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;
//error id of message
    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

// 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_INS_MEMORY "Insufficient
Memory to continue."
#define ERR_UNKNOWN "Unknown error."
#define ERR_MSG_BUF_SIZE 512
#define INV_ERROR_CODE -1

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;

```

```

};

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

    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,
    };

    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;};
};

```

### **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          versionDIIMS;
DWORD          versionDIILS;

// 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     CheckWWWebService(void);
static BOOL     StartWWWebService(void);
static BOOL     StopWWWebService(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)
    {
        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, (WPARAM)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);
                    free(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);

```

|   |  |
|---|--|
| <pre>                 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 )                 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) );             ReadTPCCRegistrySettings( &amp;Reg );             ReadRegistrySettings();              Reg.dwNumberOfDeliveryThreads=             7;              Reg.dwMaxConnections = 10000; </pre> | <pre> 1000;  "tpcc"); "sa");  strcpy(Reg.szDbUser, strcpy(Reg.szDbPassword, "");  // iMaxPhysicalMemory * 2;  iPoolThreadLimit = iPoolThreadLimit = 190;  iThreadTimeout = 86400; iListenBackLog = 150; iAcceptExOutstanding = 40;  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);  SetDlgItemText(hwnd, ED_DB_SERVER, Reg.szDbServer); SetDlgItemText(hwnd, ED_DB_USER_ID, Reg.szDbUser); 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 if (Reg.eDB_Protocol == ODBC) </pre> |
|---|--|



|  |   |
|--|---|
| <pre> IDC_ODBC, 1);         CheckDlgButton(hwnd, // 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);             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: </pre> | <pre> return TRUE;         case IDC_ODBC:             return TRUE;         case IDOK:             ProcessOK(hwnd, szDllPath);             return TRUE;         case IDC_CANCEL:             EndDialog(hwnd, FALSE);             return TRUE;         default:             return FALSE;         }         }         default:             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);     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) ) </pre> |
|--|---|

```

        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) occurred 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 occurred when
registering " );
        strcat( szErrTxt, szFullName );
        MessageBox(hwnd, szErrTxt, NULL,
MB_ICONSTOP | MB_OK);
        EndDialog(hwnd, 0);
        return;
    }
    // register remote com proxy stub
    strcpy(szFullName, szDllPath);
    strcat(szFullName, "tpcc_com_remote_ps.dll");
    if (!RegisterDLL(szFullName))
    {

```

```

        ShowWindow(hwnd, SW_SHOWNA);
        DestroyWindow(hDlg);
        strcpy( szErrTxt, "Error occurred 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 occurred
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 = 150;

        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, 15));
        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 = CheckWWWService();
    if ( bSvcRunning )
    {
        SetDlgItemText(hDlg, IDC_STATUS, "Stopping
Web Service.");
        SendDlgItemMessage(hDlg, IDC_PROGRESS1,
PBM_STEPIT, 0, 0);
        UpdateDialog(hDlg);

        StopWWWService();
        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);

// install tpcc_com_remote.tlb
strcpy( szLastFileName, "tpcc_com_remote.tlb" );
if (!FileFromResource("COM_REMTYPLIB",
IDR_COMREMTYPLIB_DLL, szDllPath, szLastFileName))
    return 0;
SendDlgItemMessage(hDlg, IDC_PROGRESS1,
PBM_STEPIT, 0, 0);
UpdateDialog(hDlg);

// install tpcc_com_remote_ps.dll
strcpy( szLastFileName, "tpcc_com_remote_ps.dll" );
if (!FileFromResource("COM_REMPES_DLL",
IDR_COMREMPES_DLL, szDllPath, szLastFileName))
    return 0;
SendDlgItemMessage(hDlg, IDC_PROGRESS1,
PBM_STEPIT, 0, 0);
UpdateDialog(hDlg);

// install tpcc_com_remote.dll
strcpy( szLastFileName, "tpcc_com_remote.dll" );
if (!FileFromResource("COM_REMOTE_DLL",
IDR_REMOTE_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;
    char *ptr;
    int iRc;

    szDllPath[0] = 0;
    bRc = TRUE;
    if ( RegOpenKeyEx(HKEY_LOCAL_MACHINE,
"SYSTEM\\CurrentControlSet\\Services\\W3SVC\\Parameters\\Virtual
Roots", 0, KEY_ALL_ACCESS, &hKey) == ERROR_SUCCESS )
    {
        sv = sizeof(szData);
        iRc = RegQueryValueEx( hKey, "/", NULL,
NULL, szData, &sv ); // used by IIS 3.0
        if (iRc == ERROR_FILE_NOT_FOUND)
            iRc = RegQueryValueEx( hKey, "/",
NULL, NULL, szData, &sv ); // used by IIS 4.0
        if (iRc == ERROR_SUCCESS)
        {
            bRc = FALSE;
            strcpy(szDllPath, szData);
            if ( ( ptr = strchr(szDllPath, '/') ) )
                *ptr = 0;

            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;

    versionDIIMS = 0;
    versionDIILS = 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);
            versionDIIMS =
vs->dwProductVersionMS;
            versionDIILS =
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.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 TEXTINCLUDE2 resource.
//
#include "afxres.h"

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

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

//
// Dialog
//

IDD_DIALOG1 DIALOGEX 0, 0, 367, 255
STYLE DS_MODALFRAME | DS_CENTER | WS_MINIMIZEBOX |
WS_POPUP | WS_CAPTION |
WS_VSCROLL | WS_SYSMENU
CAPTION "TPC-C Web Client Installation Utility"
FONT 8, "MS Sans Serif"
BEGIN
    EDITTEXT    ED_THREADS,134,36,34,12,ES_RIGHT |
ES_NUMBER,
        WS_EX_RTLREADING
    EDITTEXT    ED_MAXDELIVERIES,134,53,34,12,ES_RIGHT |
ES_NUMBER,
        WS_EX_RTLREADING
    EDITTEXT    ED_MAXCONNECTION,134,67,34,12,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_AUTORADIOBUTTO
N |
        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,270,89,67,12,ES_AUTOHSCROLL
    EDITTEXT
ED_DB_USER_ID,270,103,67,12,ES_AUTOHSCROLL
    EDITTEXT
ED_DB_PASSWORD,270,114,67,12,ES_AUTOHSCROLL
    EDITTEXT
ED_DB_NAME,270,127,67,12,ES_AUTOHSCROLL
    CONTROL
"DBLIB",IDC_DBLIB,"Button",BS_AUTORADIOBUTTON|
WS_GROUP|
        WS_TABSTOP,214,164,39,12
    CONTROL
"ODBC",IDC_ODBC,"Button",BS_AUTORADIOBUTTON|
WS_TABSTOP,
        259,164,39,12
    EDITTEXT
ED_IIS_MAX_THREAD_POOL_LIMIT,127,148,41,12,ES_RIGHT|
        ES_NUMBER,WS_EX_RTREADING
    EDITTEXT

ED_WEB_SERVICE_BACKLOG_QUEUE_SIZE,127,162,41,12,ES_
RIGHT|
        ES_NUMBER,WS_EX_RTREADING
    EDITTEXT
ED_IIS_THREAD_TIMEOUT,127,178,41,12,ES_RIGHT|
ES_NUMBER,
        WS_EX_RTREADING
    EDITTEXT
ED_IIS_LISTEN_BACKLOG,127,193,41,12,ES_RIGHT|
ES_NUMBER,
        WS_EX_RTREADING
    DEFPUSHBUTTON "OK",IDOK,115,233,50,14
    PUSHBUTTON "Cancel",IDCANCEL,181,233,50,14
    EDITTEXT IDC_PATH,76,20,92,13,ES_AUTOHSCROLL|
ES_READONLY
    LTEXT "Number of Delivery
Threads:",IDC_STATIC,29,39,93,8
    LTEXT "Max Number of
Connections:",IDC_STATIC,29,67,93,8
    RTEXT "Version 4.22",IDC_VERSION,302,4,45,9
    LTEXT "IIS Max Thread Pool
Limit:",IDC_STATIC,36,148,86,12
    LTEXT "Web Service Backlog Queue
Size:",IDC_STATIC,35,159,76,
        15
    LTEXT "IIS Thread Timeout
(seconds):",IDC_STATIC,36,177,83,17
    LTEXT "IIS Listen Backlog:",IDC_STATIC,35,196,73,10
    GROUPBOX "Database
Interface",IDC_STATIC,192,151,146,27,WS_GROUP
    LTEXT "Installation directory:",IDC_STATIC,29,20,39,16
    GROUPBOX "Transaction
Monitor",IDC_STATIC,22,90,146,37
    LTEXT "Server Name:",IDC_STATIC,200,92,56,8
    LTEXT "User ID:",IDC_STATIC,200,105,60,8
    LTEXT "User Password:",IDC_STATIC,200,119,57,8
    LTEXT "Database Name:",IDC_STATIC,200,130,54,8
    GROUPBOX "SQL Server Connection
Properties",IDC_STATIC,192,69,150,
        116
    GROUPBOX "Web Client
Properties",IDC_STATIC,22,11,146,116
    GROUPBOX "IIS Settings",IDC_STATIC,22,132,146,79
    LTEXT "Max Pending Deliveries:",IDC_STATIC,29,53,80,8
END

```

```

IDD_DIALOG2DIALOGEX 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_DIALOG3DIALOG 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_DIALOG4DIALOG 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, 347
        VERTGUIDE, 29
        VERTGUIDE, 168
        VERTGUIDE, 179
        VERTGUIDE, 342
        TOPMARGIN, 4
        BOTTOMMARGIN, 249
    END

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

```



```

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
#endif // 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
//

#ifdef _DEBUG
IDR_TPCCDLL      TPCCDLL DISCARDABLE
"..\\..\\isapi_dll\\bin\\debug\\tpcc.dll"
#else
IDR_TPCCDLL      TPCCDLL DISCARDABLE
"..\\..\\isapi_dll\\bin\\release\\tpcc.dll"

```

```

#endif

#ifndef _MAC
////////////////////////////////////
//
// Version
//

VS_VERSION_INFO VERSIONINFO
FILEVERSION 0,4,22,0
PRODUCTVERSION 0,4,22,0
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, 30, 0\0"
            VALUE "InternalName", "install\0"
            VALUE "LegalCopyright", "Copyright © 2001\0"
            VALUE "LegalTrademarks", "\0"
            VALUE "OriginalFilename", "install.exe\0"
            VALUE "PrivateBuild", "\0"
            VALUE "ProductName", "Microsoft install\0"
            VALUE "ProductVersion", "0, 4, 30, 0\0"
            VALUE "SpecialBuild", "\0"
        END
    END
    BLOCK "VarFileInfo"
    BEGIN
        VALUE "Translation", 0x409, 1200
    END
END
#endif // !_MAC

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

IDR_LICENSE1      LICENSE DISCARDABLE  "license.txt"

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

#ifdef _DEBUG
IDR_DBLIB_DLL      DBLIB_DLL DISCARDABLE
"..\\..\\db_dblib_dll\\bin\\debug\\tpcc_dblib.dll"
#else
IDR_DBLIB_DLL      DBLIB_DLL DISCARDABLE
"..\\..\\db_dblib_dll\\bin\\release\\tpcc_dblib.dll"
#endif

```

```

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

#ifdef _DEBUG
IDR_ODBC_DLL      ODBC_DLL DISCARDABLE
"..\\..\\db_odbc_dll\\bin\\debug\\tpcc_odbc.dll"
#else
IDR_ODBC_DLL      ODBC_DLL DISCARDABLE
"..\\..\\db_odbc_dll\\bin\\release\\tpcc_odbc.dll"
#endif

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

#ifdef _DEBUG
IDR_COM_DLL       COM_DLL DISCARDABLE
"..\\..\\tm_com_dll\\bin\\debug\\tpcc_com.dll"
#else
IDR_COM_DLL       COM_DLL DISCARDABLE
"..\\..\\tm_com_dll\\bin\\release\\tpcc_com.dll"
#endif

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

#ifdef _DEBUG
IDR_COMPS_DLL     COM_PS_DLL DISCARDABLE
"..\\..\\tpcc_com_ps\\bin\\debug\\tpcc_com_ps.dll"
#else
IDR_COMPS_DLL     COM_PS_DLL DISCARDABLE
"..\\..\\tpcc_com_ps\\bin\\release\\tpcc_com_ps.dll"
#endif

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

#ifdef _DEBUG
IDR_COMALL_DLL    COM_ALL_DLL DISCARDABLE
"..\\..\\tpcc_com_all\\bin\\debug\\tpcc_com_all.dll"
#else
IDR_COMALL_DLL    COM_ALL_DLL DISCARDABLE
"..\\..\\tpcc_com_all\\bin\\release\\tpcc_com_all.dll"
#endif

```

```

////////////////////////////////////
//
// COM_TYPLIB
//

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

////////////////////////////////////
//
// COM_REMOTE_DLL
//

#ifdef _DEBUG
IDR_REMOTE_DLL    COM_REMOTE_DLL DISCARDABLE
"..\\..\\tpcc_com_remote\\bin\\debug\\tpcc_com_remote.dll"
#else
IDR_REMOTE_DLL    COM_REMOTE_DLL DISCARDABLE
"..\\..\\tpcc_com_remote\\bin\\release\\tpcc_com_remote.dll"
#endif

////////////////////////////////////
//
// COM_REMYPLIB
//

IDR_COMREMYPLIB_DLL  COM_REMYPLIB
DISCARDABLE "..\\..\\tpcc_com_remote\\src\\tpcc_com_remote.tlb"

////////////////////////////////////
//
// COM_REMPS_DLL
//

#ifdef _DEBUG
IDR_COMREMPS_DLL  COM_REMPS_DLL DISCARDABLE
"..\\..\\tpcc_com_remote_ps\\bin\\debug\\tpcc_com_remote_ps.dll"
#else
IDR_COMREMPS_DLL  COM_REMPS_DLL DISCARDABLE
"..\\..\\tpcc_com_remote_ps\\bin\\release\\tpcc_com_remote_ps.dll"
#endif

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

#ifdef APSTUDIO_INVOKED
////////////////////////////////////
//
// Generated from the TEXTINCLUDE3 resource.
//

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

install_com.cpp

/*      FILE:          INSTALL_COM.CPP
 *
 *      4,20,000
 *
 *      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,
bstrTemp5, bstrTemp6, bstrTemp7;
    _bstr_t                 bstrDllPath =
szDllPath;
    _variant_t              vTmp, vKey;
    long                    lActProp,
ICount, ICountCo, ICountItf, ICountMethod;
    bool                    bTmp;
    bool
bRemote=FALSE;

    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
bstrTemp2 = bstrDllPath +
"tpcc_com_all.dll"; // DLL
bstrTemp5 = bstrDllPath + "tpcc_com_remote.dll";
bstrTemp6 = bstrDllPath + "tpcc_com_remote.tlb";
bstrTemp7 = bstrDllPath + "tpcc_com_remote_ps.dll";

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

hr = pCOMAdminCat->InstallComponent(bstrTemp,
bstrTemp5,
bstrTemp6,
bstrTemp7);
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;

```

```

if
(!wcsncmp(vTmp.bstrVal,L"TPCC.AllRemoteTxns.1"))
bRemote=TRUE;
else
bRemote=FALSE;

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)
if (!bRemote)
{
vTmp = (long)30;
}
else
{
vTmp = (long)5;
}

hr = pCatalogObjectCo->put_Value(bstrTemp,
vTmp);

if (!SUCCEEDED(hr)) goto Error;

bstrTemp = "CreationTimeout";
vTmp.Clear(); // clear variant so it isn't
stored as a bool (_variant_t feature)
vTmp = (long)300000;
hr = pCatalogObjectCo->put_Value(bstrTemp,
vTmp);

if (!SUCCEEDED(hr))
{
goto Error;
}

bstrTemp = "MinPoolSize";
vTmp.Clear(); // clear variant so it isn't
stored as a bool (_variant_t feature)
if (!bRemote)
{
vTmp = (long)1;
}
else
{
vTmp = (long)1;
}

hr = pCatalogObjectCo->put_Value(bstrTemp,
vTmp);

```

```

        if (!SUCCEEDED(hr))
        {
            goto Error;
        }

        bstrTemp = "ObjectPoolingEnabled";
        vTmp.Clear(); // clear variant so it isn't
stored as a bool (_variant_t feature)
        bTmp = TRUE;
        vTmp = bTmp;
        hr = pCatalogObjectCo->put_Value(bstrTemp,
vTmp);

        if (!SUCCEEDED(hr)) goto Error;

        bstrTemp = "EventTrackingEnabled";
        vTmp.Clear();
        bTmp = FALSE;
        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;

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

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

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

```

```

        hr =
pCatalogCollectionMethod->get_Count(&lCountMethod);
        if (!SUCCEEDED(hr)) goto Error;

        // iterate through methods of interface
        while (lCountMethod > 0)
        {
            hr =
pCatalogCollectionMethod->get_Item(lCountMethod - 1,
(IDispatch**) &pCatalogObjectMethod);
            if (!SUCCEEDED(hr))
                goto Error;

            bstrTemp =
"AutoComplete";
            vTmp.Clear(); //
clear variant so it isn't stored as a bool (_variant_t feature)

            bTmp = TRUE;
            vTmp = bTmp;
            hr =
pCatalogObjectMethod->put_Value(bstrTemp, vTmp);
            if (!SUCCEEDED(hr))
                goto Error;
        }

        pCatalogObjectMethod->Release();
        pCatalogObjectMethod =
NULL;

        ICountMethod--;
    }

    // save changes
    hr =
pCatalogCollectionMethod->SaveChanges(&lActProp);
    if (!SUCCEEDED(hr)) goto Error;

    pCatalogObjectItf->Release();
    pCatalogObjectItf = NULL;

    ICountItf--;
}

pCatalogObjectCo->Release();
pCatalogObjectCo = NULL;

ICountCo--;
}

// save changes
hr = pCatalogCollectionCo->SaveChanges(&lActProp);
if (!SUCCEEDED(hr)) goto Error;

pCatalogCollectionApp->Release();
pCatalogCollectionApp = NULL;

pCatalogCollectionCo->Release();
pCatalogCollectionCo = NULL;

pCatalogCollectionItf->Release();
pCatalogCollectionItf = NULL;

```

```

        pCatalogCollectionMethod->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) &lpBuf,

                0,

                NULL);
//
        _tprintf(_T("Error adding components.
HRESULT: 0x%x\n%s"), hr, lpBuf);
        return TRUE;
    }
    else
        return FALSE;
}

```

## install\_resource.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 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 IDR_REMOTE_DLL     131
#define IDR_COMREMTYPLIB_DLL 132
#define IDR_COMREMPD_DLL   133
#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_MAXDELIVERIES   1016
#define ED_WEB_SERVICE_BACKLOG_QUEUE_SIZE 1017
#define ED_IIS_THREAD_TIMEOUT 1018
#define ED_IIS_LISTEN_BACKLOG 1019
#define ED_MAXWAREHOUSES  1020
#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
#define ED_WAREHOUSE_PATH 1032

// Next default values for new objects
//
#ifdef APSTUDIO_INVOKED
#ifndef APSTUDIO_READONLY_SYMBOLS
#define _APS_NEXT_RESOURCE_VALUE 134
#define _APS_NEXT_COMMAND_VALUE 40001
#define _APS_NEXT_CONTROL_VALUE 1032
#define _APS_NEXT_SYMED_VALUE 101
#endif
#endif

```

## 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
#ifndef 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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MICROSOFT TPC-C BENCHMARK KIT

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```

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**methods.h**

```
/* FILE: METHODS.H
 * Microsoft TPC-C Kit Ver.
4.20.000
 * Copyright Microsoft,
1999
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 *
 * 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) {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
            DELIVERY_DATA
            STOCK_LEVEL_DATA
            ORDER_STATUS_DATA
        } 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)
    END_COM_MAP()
};

```

```

        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(          int* iSize,
    UCHAR** txn) {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(          int* iSize,
    UCHAR** txn) {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(          int* iSize,
    UCHAR** txn) {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(int* iSize, UCHAR** txn)
    {return E_NOTIMPL;}
    HRESULT __stdcall OrderStatus(VARIANT txn_in,
    VARIANT* txn_out) {return E_NOTIMPL;}
};

```

## ReadRegistry.cpp

```

/* FILE: READREGISTRY.CPP
 * Microsoft TPC-C Kit Ver.
4.20.000
 * Copyright Microsoft,
1999
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 *
 * 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
*
4.22.000      Microsoft TPC-C Kit Ver.
*
*          Copyright Microsoft,
2000
*      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 );

```

## ReadWHouse.cpp

```

/*      FILE:          ReadWHouse.cpp
*
4.20.000      Microsoft TPC-C Kit Ver.
*
*          Copyright Microsoft,
1999
*      All Rights Reserved
*
*      PURPOSE:      define entry points for
ReadWHouse.cpp
*      Contact:      Sally Martin (sallym@microsoft.com)
*
*      Change history:
*          4/25/00 - initial version
*/

#include <windows.h>
#include <stdio.h>

#include <assert.h>
#include <time.h>

#define DBNTWIN32
#include <sqltypes.h>
#include <sql.h>
#include <sqlext.h>
#include <odbcss.h>

#define SQLSUCCEEDED(rc) (rc == SQL_SUCCESS || rc ==
SQL_SUCCESS_WITH_INFO || rc == SQL_NO_DATA)

// forward decl of routine

```

```

static int ProcessError(SQLHANDLE henv, SQLHDBC hdbc,
SQLHSTMT hstmt);
static void WriteMessageToEventLog(LPTSTR lpszMsg);

// begin code

int GetWareHouseTable(void **ppWareHouseArray, // array of ints
int *piCount,
int
*piTotalWhs,
LPCSTR
szUser, // user name for login
LPCSTR
szPassword, // password for login
LPCSTR
szDSN // name of DSN to use
)
{
// this routine opens the local database and queries it for the
list
// of local warehouses
// it allocates space and builds an array of those warehouse
ids.
// first get the number of ids, and allocate the space required
// the second query gets the actual numbers
//SELECT W_ID FROM WAREHOUSE WHERE
NODENUMBER(W_ID)= CURRENT NODE ORDER BY W_ID
//SELECT COUNT (*) FROM WAREHOUSE WHERE
NODENUMBER(W_ID)= CURRENT NODE
// initialization
unsigned char szSQLStmt[1024];
RETCODE rc;
int
iNumWareHouses=0;
int iTTotalWhs=0;
int
iWareHouseNum=0;
int ii;
int *pArray =
NULL;
SQLHDBC hdbc =
SQL_NULL_HDBC;
SQLHSTMT hstmt =
SQL_NULL_HSTMT;
SQLHANDLE henv = 0;

rc=SQLSetEnvAttr(henv,
SQL_ATTR_CONNECTION_POOLING,
SQL_CP_OFF,
0);

if (!SQLSUCCEEDED(rc))
return ProcessError(henv,hdbc,hstmt);

if( SQLAllocEnv(&henv) != SQL_SUCCESS)
return ProcessError(henv,hdbc,hstmt);

if( SQLAllocConnect(henv, &hdbc) != SQL_SUCCESS)
return ProcessError(henv,hdbc,hstmt);

//
// Set AUTOCOMMIT OFF
//
if( SQLSetConnectOption(hdbc, SQL_AUTOCOMMIT,
SQL_AUTOCOMMIT_OFF) != SQL_SUCCESS)
return ProcessError(henv,hdbc,hstmt);

```

```

//
// set isolation
//
if ( SQLSetConnectAttr(hdbc,
SQL_ATTR_TXN_ISOLATION,
(SQLPOINTER)SQL_TXN_SERIALIZABLE,0) != SQL_SUCCESS )
return ProcessError(henv,hdbc,hstmt);

//
// Connect to db
//
{
char
szConnectStr[256];
char
szOutStr[1024];
SQLSMALLINT iOutStrLen;

sprintf( szConnectStr,
"UID=%s;PWD=%s;DSN=%s", szUser, szPassword, szDSN );

rc = SQLDriverConnect(hdbc, NULL,
(SQLCHAR*)szConnectStr, sizeof(szConnectStr),
(SQLCHAR*)szOutStr,
sizeof(szOutStr), &iOutStrLen, SQL_DRIVER_NOPROMPT );
if (rc != SQL_SUCCESS && rc !=
SQL_SUCCESS_WITH_INFO)
return ProcessError(henv,hdbc,hstmt);

}

// find out how large the array needs to be

rc = SQLAllocStmt(hdbc, &hstmt);
if (!SQLSUCCEEDED(rc)) return
ProcessError(henv,hdbc,hstmt);

// bind to the database
wsprintf((char *)szSQLStmt, "USE tpcc");
// exec the command
rc = SQLExecDirect(hstmt, szSQLStmt, SQL_NTS);
if (!SQLSUCCEEDED(rc)) return
ProcessError(henv,hdbc,hstmt);

wsprintf((char *)szSQLStmt, "SELECT COUNT (*) FROM
t_warehouse");

// bind the columns
rc = SQLBindCol(hstmt, 1, SQL_C_LONG,
&iNumWareHouses, 0, NULL);
if (!SQLSUCCEEDED(rc)) return
ProcessError(henv,hdbc,hstmt);

// exec the command
rc = SQLExecDirect(hstmt, szSQLStmt, SQL_NTS);
if (!SQLSUCCEEDED(rc)) return
ProcessError(henv,hdbc,hstmt);

rc = SQLFetch(hstmt);
if (!SQLSUCCEEDED(rc)) return
ProcessError(henv,hdbc,hstmt);

SQLFreeStmt(hstmt, SQL_CLOSE);
if (!SQLSUCCEEDED(rc))

```

```

    {
        return ProcessError(henv,hdbc,hstmt);
    }

    rc = SQLAllocStmt(hdbc, &hstmt);
    if (!SQLSUCCEEDED(rc))
    {
        return ProcessError(henv,hdbc,hstmt);
    }

    // get the total number of warehouses
    wsprintf((char *)szSQLStmt, "SELECT MAX (w_id)
FROM warehouse");

    // bind the columns
    rc = SQLBindCol(hstmt, 1, SQL_C_LONG, &iTotalWhs, 0,
NULL);
    if (!SQLSUCCEEDED(rc)) return
ProcessError(henv,hdbc,hstmt);

    // exec the command
    rc = SQLExecDirect(hstmt, szSQLStmt, SQL_NTS);
    if (!SQLSUCCEEDED(rc)) return
ProcessError(henv,hdbc,hstmt);

    rc = SQLFetch(hstmt);
    if (!SQLSUCCEEDED(rc)) return
ProcessError(henv,hdbc,hstmt);

    SQLFreeStmt(hstmt, SQL_CLOSE);
    if (!SQLSUCCEEDED(rc))
    {
        return ProcessError(henv,hdbc,hstmt);
    }

    if (piTotalWhs)
        *piTotalWhs = iTotalWhs;

    // allocate the array
    pArray=(int *)malloc(iTotalWhs * sizeof(int));
    *ppWareHouseArray = (void *)pArray;

    // zero out array
    memset ((void*)pArray,0,iTotalWhs);

    // select the data and copy to the array

    rc = SQLAllocStmt(hdbc, &hstmt);
    if (!SQLSUCCEEDED(rc))
    {
        free(pArray);
        *ppWareHouseArray = NULL;
        return ProcessError(henv,hdbc,hstmt);
    }

    wsprintf((char *)szSQLStmt,
"SELECT w_id FROM t_warehouse ORDER
BY w_id");

    // bind the columns
    rc = SQLBindCol(hstmt, 1, SQL_C_LONG,
&iWareHouseNum, 0, NULL);
    if (!SQLSUCCEEDED(rc))
    {
        free(pArray);

```

```

        *ppWareHouseArray = NULL;
        return ProcessError(henv,hdbc,hstmt);
    }

    // exec the command
    rc = SQLExecDirect(hstmt, szSQLStmt, SQL_NTS);
    if (!SQLSUCCEEDED(rc))
    {
        free(pArray);
        *ppWareHouseArray = NULL;
        return ProcessError(henv,hdbc,hstmt);
    }

    // in a loop do the fetches
    // loop around the result set using fetch
    ii = 0;
    while ((rc = SQLFetch(hstmt)) != SQL_NO_DATA)
    {
        if (!SQLSUCCEEDED(rc))
        {
            free(pArray);
            *ppWareHouseArray = NULL;
            return ProcessError(henv,hdbc,hstmt);
        }
        pArray[ii] = iWareHouseNum;
        ii++;
    }

    if (!SQLSUCCEEDED(rc))
    {
        free(pArray);
        *ppWareHouseArray = NULL;
        return ProcessError(henv,hdbc,hstmt);
    }

    *piCount = ii;

    rc=SQLFreeStmt(hstmt, SQL_CLOSE);
    if (!SQLSUCCEEDED(rc)) return
ProcessError(henv,hdbc,hstmt);

    // commit all transactions
    rc = SQLEndTran(SQL_HANDLE_ENV,
henv,
SQL_COMMIT);

    if (!SQLSUCCEEDED(rc))
    {
        free(pArray);
        *ppWareHouseArray = NULL;
        return ProcessError(henv,hdbc,hstmt);
    }

    // cleanup

    rc=SQLDisconnect(hdbc);
    if (!SQLSUCCEEDED(rc)) return
ProcessError(henv,hdbc,hstmt);
    rc=SQLFreeHandle(SQL_HANDLE_DBC,hdbc);
    if (!SQLSUCCEEDED(rc)) return
ProcessError(henv,hdbc,hstmt);
    rc=SQLFreeEnv(henv);
    if (!SQLSUCCEEDED(rc)) return
ProcessError(henv,hdbc,hstmt);

```

```

        return (ERROR_SUCCESS);
    }

static int ProcessError(SQLHANDLE henv, SQLHDBC hdbc,
SQLHSTMT hstmt)
{
    RETCODE          rc;
    SDWORD           lNativeError;
    char             szState[6];
    char
szMsg[SQL_MAX_MESSAGE_LENGTH];
    char
szTmp[6*SQL_MAX_MESSAGE_LENGTH];

    szTmp[0] = 0;
    while (TRUE)
    {
        rc = SQLError(henv, hdbc, hstmt, (BYTE
*)&szState, &lNativeError,
                                (BYTE
*)&szMsg, sizeof(szMsg), NULL);
        if (rc == SQL_NO_DATA)
            break;

        // 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 (strlen(szTmp) > 0)
    {
        WriteMessageToEventLog( szTmp );
    }

    // cleanup
    SQLFreeStmt(hstmt, SQL_CLOSE);
    SQLDisconnect(hdbc);
    SQLFreeHandle(SQL_HANDLE_DBC, hdbc);

    return (E_FAIL);
}

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.DLL"));

    sprintf(szMsg, TEXT("Error in ReadWHouse.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);
    }
}

```

## ReadWHouse.h

```

/* FILE: ReadWHouse.h
* Microsoft TPC-C Kit Ver.
4.20.000
* Copyright Microsoft,
1999
* All Rights Reserved
*
* PURPOSE: define entry points for
ReadWHouse.cpp
* Contact: Sally Martin (sallym@microsoft.com)
*
* Change history:
* 4/25/00 - initial version
*/

int GetWareHouseTable(void **ppWareHouseArray, // array of ints
int *piCount,
int
*piTotalWhs,
LPCSTR
szUser, // user name for login
LPCSTR
szPassword, // password for login
LPCSTR
szDSN // name of DSN to use
);

```

## rtetime.h

```

/* FILE: rtetime.h : header file
* Copyright 1997 Microsoft Corp., All rights reserved.
*
* Authors: Charles Levine, Philip Durr
* Microsoft Corp.
*/

#define MAX_JULIAN_TIME
0x7FFFFFFFFFFFFFFF
#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 );
}

```

## SetAuditTime.cpp

```

/*      FILE:          ReadWHouse.cpp
 *
 *      4.20.000
 *
 *      Copyright Microsoft,
 *
 *      1999
 *
 *      All Rights Reserved
 *
 *
 *      PURPOSE:       define entry points for
ReadWHouse.cpp
 *      Contact:      Sally Martin (sallym@microsoft.com)
 *
 *      Change history:
 *
 *      4/25/00 - initial version
 */

#include <windows.h>
#include <stdio.h>

#include <stdlib.h> // db2

#include <assert.h>
#include <time.h>

#define DBNTWIN32
#define DB2NT
#include <sql.h>

#include <sqlcli.h>
#include <sqlcli1.h>

#define DB2OUT "C:\\TMP\\" //db2
#include "sqlenv.h" //db2
#include "lval.h" //db2
#include "sqlca.h" //db2

#define SQLSUCCEEDED(rc) (rc == SQL_SUCCESS || rc ==
SQL_SUCCESS_WITH_INFO || rc == SQL_NO_DATA)

// forward decl of routine
static int ProcessError(SQLHANDLE henv, SQLHDBC hdbc,
SQLHSTMT hstmt);
static void WriteMessageToEventLog(LPTSTR lpszMsg);
void ConvertTime(TIMESTAMP_STRUCT *tsTime, __int64 iTime);
__int64 TPCC_GetTime(void);
int SetAuditTime( LPCSTR szUser, // user name
for login
LPCSTR
szPassword, // password for login
LPCSTR
szDSN // name of DSN to use
);
// begin code
int main(int argc, TCHAR* argv[])
{

```

```

SetAuditTime("tpcc","tpcc","tpcc");
}
int SetAuditTime( LPCSTR szUser, // user name
for login
LPCSTR
szPassword, // password for login
LPCSTR
szDSN // name of DSN to use
)
{
// this routine opens the local database and queries it for the
list
// of local warehouses
// it allocates space and builds an array of those warehouse
ids.
// first get the number of ids, and allocate the space required
// the second query gets the actual numbers
//SELECT W_ID FROM WAREHOUSE WHERE
NODENUMBER(W_ID)= CURRENT NODE ORDER BY W_ID
//SELECT COUNT (*) FROM WAREHOUSE WHERE
NODENUMBER(W_ID)= CURRENT NODE
// initialization
unsigned char szSQLStmt[1024];
RETCODE rc;
int *pArray =
NULL;
SQLHDBC hdbc =
SQL_NULL_HDBC;
SQLHSTMT hstmt =
SQL_NULL_HSTMT;
SQLHANDLE henv = 0;
TIMESTAMP_STRUCT tsTime1;
__int64 Auditdate_time;

rc=SQLSetEnvAttr(henv,
SQL_ATTR_CONNECTION_POOLING,
SQL_CP_OFF,
0);

if (!SQLSUCCEEDED(rc))
return ProcessError(henv,hdbc,hstmt);

if( SQLAllocEnv(&henv) != SQL_SUCCESS)
return ProcessError(henv,hdbc,hstmt);

if( SQLAllocConnect(henv, &hdbc) != SQL_SUCCESS)
return ProcessError(henv,hdbc,hstmt);

//
// Set AUTOCOMMIT OFF
//
if( SQLSetConnectOption(hdbc, SQL_AUTOCOMMIT,
SQL_AUTOCOMMIT_OFF) != SQL_SUCCESS)
return ProcessError(henv,hdbc,hstmt);

//
// set isolation
//
if ( SQLSetConnectAttr(hdbc,
SQL_ATTR_TXN_ISOLATION,
(SQLPOINTER)SQL_TXN_SERIALIZABLE,0) != SQL_SUCCESS )
return ProcessError(henv,hdbc,hstmt);

//
// Connect to db
//
{

```

```

char
szConnectStr[256];
char
szOutStr[1024];
SQLSMALLINT          iOutStrLen;

sprintf( szConnectStr,
"UID=%s;PWD=%s;DSN=%s", szUser, szPassword, szDSN );

rc = SQLDriverConnect(hdbc, NULL,
(SQLCHAR*)szConnectStr, sizeof(szConnectStr),
(SQLCHAR*)szOutStr,
sizeof(szOutStr), &iOutStrLen, SQL_DRIVER_NOPROMPT);
if (rc != SQL_SUCCESS && rc !=
SQL_SUCCESS_WITH_INFO)
return ProcessError(henv,hdbc,hstmt);

if ( SQLSetConnectOption(hdbc,
SQL_CURSOR_HOLD,SQL_CURSOR_HOLD_OFF) !=
SQL_SUCCESS)
return ProcessError(henv,hdbc,hstmt);
}

rc = SQLAllocStmt(hdbc, &hstmt);
if (!SQLSUCCEEDED(rc)) return
ProcessError(henv,hdbc,hstmt);
wsprintf((char *)szSQLStmt, "DELETE FROM AUDIT");
// exec the command
rc = SQLExecDirect(hstmt, szSQLStmt, SQL_NTS);
if (!SQLSUCCEEDED(rc)) return
ProcessError(henv,hdbc,hstmt);

SQLFreeStmt(hstmt, SQL_CLOSE);
if (!SQLSUCCEEDED(rc))
{
return ProcessError(henv,hdbc,hstmt);
}

rc = SQLAllocStmt(hdbc, &hstmt);
if (!SQLSUCCEEDED(rc)) return
ProcessError(henv,hdbc,hstmt);

wsprintf((char *)szSQLStmt, "INSERT INTO AUDIT
VALUES (?");
Auditdate_time = TPCC_GetTime();
// convert the date
ConvertTime(&tsTime1,Auditdate_time);

// bind the columns
rc = SQLBindCol(hstmt, 1, SQL_C_UBIGINT, &tsTime1,
0, NULL);
if (!SQLSUCCEEDED(rc)) return
ProcessError(henv,hdbc,hstmt);

// exec the command
rc = SQLExecDirect(hstmt, szSQLStmt, SQL_NTS);
if (!SQLSUCCEEDED(rc)) return
ProcessError(henv,hdbc,hstmt);

SQLFreeStmt(hstmt, SQL_CLOSE);
if (!SQLSUCCEEDED(rc))
{
return ProcessError(henv,hdbc,hstmt);
}
}

}

// commit all transactions
rc = SQLEndTran(SQL_HANDLE_ENV,
henv,
SQL_COMMIT);

if (!SQLSUCCEEDED(rc))
{
return ProcessError(henv,hdbc,hstmt);
}

// cleanup

rc=SQLDisconnect(hdbc);
if (!SQLSUCCEEDED(rc)) return
ProcessError(henv,hdbc,hstmt);
rc=SQLFreeHandle(SQL_HANDLE_DBC,hdbc);
if (!SQLSUCCEEDED(rc)) return
ProcessError(henv,hdbc,hstmt);
rc=SQLFreeEnv(henv);
if (!SQLSUCCEEDED(rc)) return
ProcessError(henv,hdbc,hstmt);

return (ERROR_SUCCESS);
}

static int ProcessError(SQLHANDLEhenv, SQLHDBC hdbc,
SQLHSTMT hstmt)
{
RETCODE          rc;
SDWORD          INativeError;
char            szState[6];
char
szMsg[SQL_MAX_MESSAGE_LENGTH];
char
szTmp[6*SQL_MAX_MESSAGE_LENGTH];

szTmp[0] = 0;
while (TRUE)
{
rc = SQLError(henv, hdbc, hstmt, (BYTE
*)&szState, &INativeError,
(BYTE
*)&szMsg, sizeof(szMsg), NULL);
if (rc == SQL_NO_DATA)
break;

// 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 (strlen(szTmp) > 0)
{
}
}

```



```

        WriteMessageToEventLog(szTmp);
    }

    // cleanup
    SQLFreeStmt(hstmt, SQL_CLOSE);
    SQLDisconnect(hdbc);
    SQLFreeHandle(SQL_HANDLE_DBC, hdbc);

    return (E_FAIL);
}

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.DLL"));

    sprintf(szMsg, TEXT("Error in ReadWHouse.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);
    }
}

void ConvertTime(TIMESTAMP_STRUCT *tsTime, __int64 iTime)
{
    union
    {
        __int64 i64Date;
        FILETIME ftDate;
    } comboDate;

    SYSTEMTIME sysTime;

    comboDate.i64Date=iTime;

    BOOL ret = FileTimeToSystemTime(&comboDate.ftDate,
    &sysTime);

    tsTime->year = sysTime.wYear;
    tsTime->month = sysTime.wMonth;
    tsTime->day = sysTime.wDay;
    tsTime->hour = sysTime.wHour;
    tsTime->minute = sysTime.wMinute;
    tsTime->second = sysTime.wSecond;
    tsTime->fraction = sysTime.wMilliseconds/1000;

    return;
}

```

```

    }

    __int64 TPCC_GetTime(void)
    {
        union
        {
            __int64 i64Date;
            FILETIME ftDate;
        } retValDate;

        SYSTEMTIME sysTime;

        GetLocalTime(&sysTime);

        SystemTimeToFileTime(&sysTime, &retValDate.ftDate);
        return retValDate.i64Date;
    }
}

```

### spinlock.h

```

/*      FILE: SPINLOCK.H
 *
 * Copyright 1997 Microsoft Corp., All rights reserved.
 *
 * 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
     * semaphore
     * lock wait by spinning and sometimes sleeping on a
     * cache
     * 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
     * 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 *s1 );

    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

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
#define EOL 10

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 "430"

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

#define MAXWHS 60001
BYTE
*pbLocalWhsTbl=NULL;
#ifdef COUNTSPLIT
LONG
gdwLocalNOCnt = 0;
LONG
gdwRemoteNOCnt = 0;
LONG
gdwLocalPayCnt = 0;
LONG
gdwRemotePayCnt = 0;
#endif

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

/* 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 APIENTRY DllMain(HANDLE hModule, DWORD
ul_reason_for_call, LPVOID lpReserved)
{
    DWORD i;
    char szEvent[LEN_ERR_STRING] = "\0";
    char szLogFile[128];
    char szDllName[128];
    BOOL  fComment = FALSE;
    int    cbSize=0;
    int    iWhs = 0;
    int *pWareHouseArray=NULL;
    int iCount = 0;
    int iLoop=0;
    int iTotalWhs=0;

    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);

        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
        TUXEDO)
        if (Reg.eTxnMon ==
        {

```

```

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)
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());

GetWareHouseTable(
                (void
***)&pWareHouseArray,// array of ints
                &iCount,
                &iTotalWhs,

Reg.szDbUser,          // user name for login

Reg.szDbPassword,    // password for login

Reg.szDbName);       // name of DSN to use

pbLocalWhsTbl = (BYTE *)malloc(sizeof(BYTE)*iTotalWhs + 1);
if
(!pbLocalWhsTbl)

throw new CWEBCLNT_ERR( ERR_GETPROCADDR_FAILED,
szDllName, GetLastError());

memset((void*)pbLocalWhsTbl,0,sizeof(BYTE)*iTotalWhs + 1);

for
(iLoop=0;iLoop<iCount;iLoop++)
{
if
(pWareHouseArray[iLoop] < (int)iTotalWhs)
pbLocalWhsTbl[pWareHouseArray[iLoop]] = 1;//local warehouse
}

free((void*)pWareHouseArray);
}
// load DLL for database
connection
if ((Reg.eTxnMon ==
None) || (dwNumDeliveryThreads > 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");
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(&DelBuffCriticalSection);
hWorkerSemaphore = CreateSemaphore( NULL, 0, dwDelBuffSize,
NULL );
dwDelBuffFreeCount = dwDelBuffSize;

InitJulianTime(NULL);

// create unique
log file name based on delilog-yyymmdd-hhmm.log

```

|  |                |  |   |
|--|----------------|--|---|
| SYSTEMTIME Time;   |                | pDelBuff;  | delete []                               |
| &Time );   | GetLocalTime(  | hWorkerSemaphore );  | CloseHandle(                            |
| szLogFile, "%sdelivery-%2.2d%2.2d%2.2d-%2.2d%2.2d.log",        | wsprintf(      | hDoneEvent );  | CloseHandle(                            |
| Reg.szPath, Time.wYear % 100, Time.wMonth, Time.wDay,          |                | DeleteCriticalSection(&DelBuffCriticalSection);                |   |
| Time.wHour, Time.wMinute );                                    |                | }  |   |
| new CTxnLog(szLogFile, TXN_LOG_WRITE);                         | txnDelilog =   | DeleteCriticalSection(&TermCriticalSection);                   |   |
|  | //write event  |  | if (hLibInstanceTm !=                   |
| into txn log for START   |                |  | FreeLibrary(                            |
| txnDelilog->WriteCtrlRecToLog(TXN_EVENT_START,                 |                | NULL)  | hLibInstanceTm = NULL;                  |
| szMyComputerName, sizeof(szMyComputerName));                   |                | hLibInstanceTm );  |   |
|  | // allocate    | NULL)  | if (hLibInstanceDb !=                   |
| structures for delivery buffers and thread mgmt                | pDeliHandles   | hLibInstanceDb );  | FreeLibrary(                            |
| = new HANDLE[dwNumDeliveryThreads];                            | pDelBuff =     | hLibInstanceDb = NULL;   |   |
| new DELIVERY_TRANSACTION[dwDelBuffSize];                       | // launch      | Sleep(500);  | break;                                  |
| DeliveryWorkerThread to perform actual delivery txns           | for(i=0;       |  |   |
| i<dwNumDeliveryThreads; i++)                                   | {              |  |   |
|  |                | default:   | /* nothing */;                          |
| pDeliHandles[i] = (HANDLE) _beginthread( DeliveryWorkerThread, |                | }  |   |
| 0, NULL );   | if             | catch (CBaseErr *e)  |   |
| (pDeliHandles[i] == INVALID_HANDLE_VALUE)                      |                | {  | WriteMessageToEventLog(e->ErrorText()); |
| throw new CWEBCLNT_ERR(  |                |  | delete e;                               |
| ERR_DELIVERY_THREAD_FAILED);                                   |                |  | TerminateExtension(0);                  |
|  |                |  | return FALSE;                           |
|  | break;         | catch (...)  |   |
|  |                | {  | WriteMessageToEventLog(TEXT("Unhandled  |
| case DLL_PROCESS_DETACH:                                       |                |  | exception. DLL could not load."));      |
| if   |                |  | TerminateExtension(0);                  |
| (dwNumDeliveryThreads)   |                |  | return FALSE;                           |
|  |                |  |   |
| != NULL)   | if (txnDelilog |  | return TRUE;                            |
|  | {              |  |   |
| //write event into txn log for STOP                            |                |  |   |
| txnDelilog->WriteCtrlRecToLog(TXN_EVENT_STOP,                  |                | /* FUNCTION: GetExtensionVersion                               |   |
| szMyComputerName, sizeof(szMyComputerName));                   |                | *  |   |
|  | //             | * PURPOSE: This function is called by the inet service when    |   |
| This will do a clean shutdown of the delivery log file         |                | the DLL is first loaded.                                       |   |
|  |                | *  |   |
| CTxnLog *txnDelilogLocal = txnDelilog;                         |                | * ARGUMENTS: HSE_VERSION_INFO *pVer                            |   |
|  |                | passed in structure in which to place expected version number. |   |
| txnDelilog= NULL;  |                | *  |   |
| delete txnDelilogLocal;  |                | * RETURNS: TRUE inet service expected                          |   |
|  |                | return value.  |   |
|  |                | */   |   |
|  | }              | BOOL WINAPI GetExtensionVersion(HSE_VERSION_INFO *pVer)        |   |
|  | delete []      | {  |   |
| pDeliHandles;  |                | pVer->dwExtensionVersion =                                     |   |
|  |                | MAKELONG(HSE_VERSION_MINOR, HSE_VERSION_MAJOR);                |   |

```

        Istrcpy(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.
 *              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;
ORDER_STATUS_FORM:
                                case
ProcessOrderStatusForm(pECB, TermId, szBuffer);
                                break;
STOCK_LEVEL_FORM:
                                case
ProcessStockLevelForm(pECB, TermId, szBuffer);
                                break;
                                }
                                break;
                                case 2:
display new-order input form
                                // new-order selected from menu;
INPUT_FORM, szBuffer);
                                MakeNewOrderForm(TermId, NULL,
                                break;
                                case 3:
display payment input form
                                // payment selected from menu;
INPUT_FORM, szBuffer);
                                MakePaymentForm(TermId, NULL,
                                break;
                                case 4:
display delivery input form
                                // delivery selected from menu;
INPUT_FORM, szBuffer);
                                MakeDeliveryForm(TermId, NULL,
                                break;
                                case 5:
display order-status input form
                                // order-status selected from menu;
NULL, INPUT_FORM, szBuffer);
                                MakeOrderStatusForm(TermId,
                                break;
                                case 6:
display stock-level input form
                                // stock-level selected from menu;
NULL, INPUT_FORM, szBuffer);
                                MakeStockLevelForm(TermId,
                                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
    int
static int        iRetryCnt = 0;
                iMaxRetries = 10;

    assert(txnDeliLog != NULL);

    assert(txnDeliLog != NULL);

Reconnect:
    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;

```

```

// will retry connection up to ten times
if (iRetryCnt++ < iMaxRetries)
{
    Sleep(5000); // delay for 5
seconds
    goto Reconnect;
}

wsprintf( szTmp, "Delivery Txn thread
terminating after %d retries.", iMaxRetries );
WriteMessageToEventLog( szTmp );
goto ErrorExit;
}
catch (...)
{
    WriteMessageToEventLog(TEXT("Unhandled
exception caught in DeliveryWorkerThread. Delivery Txn thread
terminating."));
    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);

        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(long 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, TERMIID, and SYNCID
    *pFormId = GetIntKeyValue(&ptr, "FORMID", NO_ERR,
NO_ERR);
    *pTermId = GetIntKeyValue(&ptr, "TERMIID", 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 4.30)</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'>"
"<INPUT TYPE='hidden' NAME='ERROR' VALUE='0'>"
"<INPUT TYPE='hidden' NAME='FORMID' VALUE='1'>"
"<INPUT TYPE='hidden' NAME='TERMIID' 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>"
        "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)
    {
        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>"

```

```

Server = <B>%s</B><BR>"

```

```

User ID = <B>%s</B><BR>"

```

```

Password = <B>%s</B><BR>"

```

```

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=6><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, 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    iTotals;

    EnterCriticalSection(&TermCriticalSection);

    iTotals = 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,
      "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
* 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="TERMID" 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-CMain
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="TERMID" 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: %6.6d 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></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></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>";

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

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

    c = wsprintf(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: %6.6d ",
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: %6.6d
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 += 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,
                "%%Disc: %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, "
%6.6d %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 += sprintf(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 )
    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\" 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 bInput, 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\" 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\">
Payment<BR>"
"Date: "
, PAYMENT_FORM, iTermId,
Term.pClientData[iTermId].iSyncId);

if ( !bInput )
{
    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 ( bInput )
{
    c += sprintf(szForm+c,
                "<BR> <BR>Warehouse: % 6.6d"
                " District: <INPUT
NAME=\"DID*\" SIZE=1><BR> <BR> <BR> <BR> <BR>"
                "Customer: <INPUT
NAME=\"CID*\" SIZE=4>"
                "Cust-Warehouse: <INPUT
NAME=\"CWI*\" SIZE=6> "
                "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: % 6.6d
District: % 2.2d<BR>"
                "% -20s % -20s<BR>"
                "% -20s % -20s<BR>"

```

```

"%-20s %-2s %5.5s-%4.4s  %-20s      strcpy(szForm+c, "Cust-Data: <BR>
%-2s %5.5s-%4.4s<BR> <BR>)"
"Customer: %4.4d Cust-Warehouse:
%6.6d 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_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

```

```

);
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> <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='TERMINID' VALUE='%d'>"
"<INPUT TYPE='hidden'
NAME='SYNCID' VALUE='%d'>"
"<PRE><font face='Courier'>
Order-Status<BR>"
"Warehouse: %6.6d ",
ORDER_STATUS_FORM, iTermId,
Term.pClientData[iTermId].iSyncId,
Term.pClientData[iTermId].w_id);
if ( bInput )
{
strcpy(szForm+c,

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```

        "District: <INPUT NAME=\"DID*\"
SIZE=1><BR>"
        "Customer: <INPUT
NAME=\"CID*\" SIZE=4> Name:
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> <BR> <BR></font></PRE>"
        "<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_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 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, " %6.6d
%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);
        }
    }

```

```

        strcpy( 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: %6.6d<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> <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;
    BOOL fLocalFlag = FALSE;

    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,
&fLocalFlag);

    Term.pClientData[iTermId].pTxn->NewOrder(fLocalFlag);

    pNewOrder =
Term.pClientData[iTermId].pTxn->BuffAddr_NewOrder();
    MakeNewOrderForm(iTermId, pNewOrder,
OUTPUT_FORM, szBuffer );
#ifdef COUNTSPLIT

```

```

        if (fLocalFlag)
            InterlockedIncrement(&gdwLocalNOCnt);
        else
            InterlockedIncrement(&gdwRemoteNOCnt);
    #endif
}

/* 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;
    BOOL fLocalFlag = FALSE;

    pPayment =
Term.pClientData[iTermId].pTxn->BuffAddr_Payment();
    ZeroMemory(pPayment, sizeof(PAYMENT_DATA));
    pPayment->w_id = Term.pClientData[iTermId].w_id;
    GetPaymentData(pECB->lpszQueryString, pPayment,
&fLocalFlag);

    Term.pClientData[iTermId].pTxn->Payment(fLocalFlag);

    pPayment =
Term.pClientData[iTermId].pTxn->BuffAddr_Payment();
    MakePaymentForm(iTermId, pPayment, OUTPUT_FORM,
szBuffer);
#ifdef COUNTSPLIT
    if (fLocalFlag)
        InterlockedIncrement(&gdwLocalPayCnt);
    else
        InterlockedIncrement(&gdwRemotePayCnt);
#endif
}

/* 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, BOOL *pfLocalFlag)
{
    char    szTmp[26];
    int     i;
    short   items;
    int     ol_i_id, ol_quantity;
    char    *ptr = lpszQueryString;
    BOOL    fRemoteFlag = FALSE;

    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 = (long)atoi(szTmp);
            if (!fRemoteFlag)
            {
                if
(!pbLocalWhsTbl[pNewOrderData->OL[items].ol_supply_w_id])
                    fRemoteFlag=TRUE;
            }

            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;
    if (pfLocalFlag)
        *pfLocalFlag = !fRemoteFlag;
}

/* 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, BOOL *pfLocalFlag)
{
    char    szTmp[26];
    char    *ptr = lpszQueryString;
    BOOL    bCustIdBlank;
    BOOL    fRemoteFlag = FALSE;

    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 (!pLocalWhsTbl[pPaymentData->c_w_id])

fRemoteFlag=TRUE;

        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(szTmp) > 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);
        if (pfLocalFlag)
            *pfLocalFlag = !fRemoteFlag;
    }

/* 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(szTmp) > LAST_NAME_LEN )
            throw new CWEBCLNT_ERR(
ERR_ORDERSTATUS_CLT_RANGE);
        //
        strcpy(pOrderStatusData->in_c_last, szTmp);
        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;
}

```

## tpc.def

```

LIBRARY TPCC.DLL

EXPORTS

    GetExtensionVersion @1
    HttpExtensionProc   @2
    TerminateExtension  @3

```

## tpcc.h

```

/*      FILE:      TPCC.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 ISAPI TPCC.DLL,
defines structures and functions used in the isapi tpcc.dll.
*/

//VERSION RESOURCE DEFINES
#define _APS_NEXT_RESOURCE_VALUE
    101
#define _APS_NEXT_COMMAND_VALUE
    40001
#define _APS_NEXT_CONTROL_VALUE
    1000
#define _APS_NEXT_SYMED_VALUE
    101

#define TP_MAX_RETRIES
    50

//note that the welcome form must be processed first as terminal ids
assigned here, once the
//terminal id is assigned then the forms can be processed in any order.
#define WELCOME_FORM
    1 //beginning form no term id assigned,
form id
#define MAIN_MENU_FORM
    2 //term id assigned main menu form id
#define NEW_ORDER_FORM
    3 //new order form id
#define PAYMENT_FORM
    4 //payment form id
#define DELIVERY_FORM
    5 //delivery form id
#define ORDER_STATUS_FORM
    6 //order status id
#define STOCK_LEVEL_FORM
    7 //stock level form id

//This macro is used to prevent the compiler error unused formal
parameter
#define UNUSEDPARAM(x) (x = x)

//This structure defines the data necessary to keep distinct for each
terminal or client connection.
typedef struct _CLIENTDATA
{
    int iNextFree;
    //index of next free element or -1 if this entry in use.
    int w_id;
    //warehouse id assigned at welcome form
    int d_id;
    //district id assigned at welcome form
}

```

```

int iSyncId;
//synchronization id
int iTickCount;
//time of last access;

CTPCC_BASE *pTxn;
} CLIENTDATA, *PCLIENTDATA;

//This structure is used to define the operational interface for terminal
id support
typedef struct _TERM
{
int iNumEntries;
//total allocated terminal array entries
int iFreeList;
//next available terminal array
element or -1 if none
int iMasterSyncId;
//synchronization id
CLIENTDATA *pClientData;
//pointer to allocated client data
} TERM;

typedef TERM *PTERM;
//pointer to terminal structure type

enum WEBERROR
{
NO_ERR,
ERR_COMMAND_UNDEFINED,
ERR_D_ID_INVALID,
ERR_DELIVERY_CARRIER_ID_RANGE,
ERR_DELIVERY_CARRIER_INVALID,
ERR_DELIVERY_MISSING_OCD_KEY,
ERR_DELIVERY_THREAD_FAILED,
ERR_GETPROCADDR_FAILED,
ERR_HTML_ILL_FORMED,
ERR_INVALID_SYNC_CONNECTION,
ERR_INVALID_TERMID,
ERR_LOADDLL_FAILED,
ERR_MAX_CONNECTIONS_EXCEEDED,
ERR_MEM_ALLOC_FAILED,
ERR_MISSING_REGISTRY_ENTRIES,
ERR_NEWORDER_CUSTOMER_INVALID,
ERR_NEWORDER_CUSTOMER_KEY,
ERR_NEWORDER_DISTRICT_INVALID,
ERR_NEWORDER_FORM_MISSING_DID,
ERR_NEWORDER_ITEMID_INVALID,
ERR_NEWORDER_ITEMID_RANGE,

ERR_NEWORDER_ITEMID_WITHOUT_SUPPW,
ERR_NEWORDER_MISSING_IID_KEY,
ERR_NEWORDER_MISSING_QTY_KEY,
ERR_NEWORDER_MISSING_SUPPW_KEY,
ERR_NEWORDER_NOITEMS_ENTERED,
ERR_NEWORDER_QTY_INVALID,
ERR_NEWORDER_QTY_RANGE,

ERR_NEWORDER_QTY_WITHOUT_SUPPW,
ERR_NEWORDER_SUPPW_INVALID,
ERR_NO_SERVER_SPECIFIED,
ERR_ORDERSTATUS_CID_AND_CLT,
ERR_ORDERSTATUS_CID_INVALID,
ERR_ORDERSTATUS_CLT_RANGE,
ERR_ORDERSTATUS_DID_INVALID,

```

```

ERR_ORDERSTATUS_MISSING_CID_CLT,
ERR_ORDERSTATUS_MISSING_CID_KEY,
ERR_ORDERSTATUS_MISSING_CLT_KEY,
ERR_ORDERSTATUS_MISSING_DID_KEY,
ERR_PAYMENT_CDI_INVALID,
ERR_PAYMENT_CID_AND_CLT,
ERR_PAYMENT_CUSTOMER_INVALID,
ERR_PAYMENT_CWI_INVALID,
ERR_PAYMENT_DISTRICT_INVALID,
ERR_PAYMENT_HAM_INVALID,
ERR_PAYMENT_HAM_RANGE,
ERR_PAYMENT_LAST_NAME_TO_LONG,
ERR_PAYMENT_MISSING_CDI_KEY,
ERR_PAYMENT_MISSING_CID_CLT,
ERR_PAYMENT_MISSING_CID_KEY,
ERR_PAYMENT_MISSING_CLT,
ERR_PAYMENT_MISSING_CLT_KEY,
ERR_PAYMENT_MISSING_CWI_KEY,
ERR_PAYMENT_MISSING_DID_KEY,
ERR_PAYMENT_MISSING_HAM_KEY,

ERR_STOCKLEVEL_MISSING_THRESHOLD_KEY,

ERR_STOCKLEVEL_THRESHOLD_INVALID,
ERR_STOCKLEVEL_THRESHOLD_RANGE,
ERR_VERSION_MISMATCH,
ERR_W_ID_INVALID
};

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

CWEBCLNT_ERR(WEBERROR 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;
};

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

WEBERROR m_Error;
char *m_szTextDetail; //
char *m_szErrorText;
DWORD m_SystemErr;

int ErrorType() {return
ERR_TYPE_WEBDLL;};

```

```

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

};

//These constants have already been defined in engstut.h, but since we
do
//not want to include it in the delisrv executable
#define TXN_EVENT_START 2
#define TXN_EVENT_STOP 4
#define TXN_EVENT_WARNING 6
//used to record a warning into the log

//function prototypes

BOOL APIENTRY DllMain(HANDLE hModule, DWORD
ul_reason_for_call, LPVOID lpReserved);
void WriteMessageToEventLog(LPTSTR lpszMsg);
void ProcessQueryString(EXTENSION_CONTROL_BLOCK *pECB,
int *pCmd, int *pFormId, int *pTermId, int *pSyncId);
void WelcomeForm(EXTENSION_CONTROL_BLOCK *pECB, char
*szBuffer);
void SubmitCmd(EXTENSION_CONTROL_BLOCK *pECB, char
*szBuffer);
void BeginCmd(EXTENSION_CONTROL_BLOCK *pECB, int
iFormId, int iTermId);
void ProcessCmd(EXTENSION_CONTROL_BLOCK *pECB, int
iFormId, int iTermId);
void StatsCmd(EXTENSION_CONTROL_BLOCK *pECB, char
*szBuffer);
void ErrorMessage(EXTENSION_CONTROL_BLOCK *pECB, int
iError, int iErrorType, char *szMsg, int iTermId);
void GetKeyValue(char **pQueryString, char *pKey, char *pValue,
int iMax, WEBERROR err);
int GetIntKeyValue(char **pQueryString, char *pKey, WEBERROR
NoKeyErr, WEBERROR NotIntErr);
void TermInit(void);
void TermDeleteAll(void);
int TermAdd(void);
void TermDelete(int id);
void ErrorForm(EXTENSION_CONTROL_BLOCK *pECB, int
iType, int iErrorNum, int iTermId, int iSyncId, char *szErrorText, char
*szBuffer );
void MakeMainMenuForm(int iTermId, int iSyncId, char *szForm);
void MakeStockLevelForm(int iTermId, STOCK_LEVEL_DATA
*pStockLevelData, BOOL bInput, char *szForm);
void MakeNewOrderForm(int iTermId, NEW_ORDER_DATA
*pNewOrderData, BOOL bInput, char *szForm);
void MakePaymentForm(int iTermId, PAYMENT_DATA
*pPaymentData, BOOL bInput, char *szForm);
void MakeOrderStatusForm(int iTermId, ORDER_STATUS_DATA
*pOrderStatusData, BOOL bInput, char *szForm);
void MakeDeliveryForm(int iTermId, DELIVERY_DATA
*pDeliveryData, BOOL bInput, char *szForm);
void ProcessNewOrderForm(EXTENSION_CONTROL_BLOCK
*pECB, int iTermId, char *szBuffer);
void ProcessPaymentForm(EXTENSION_CONTROL_BLOCK
*pECB, int iTermId, char *szBuffer);
void ProcessOrderStatusForm(EXTENSION_CONTROL_BLOCK
*pECB, int iTermId, char *szBuffer);
void ProcessDeliveryForm(EXTENSION_CONTROL_BLOCK
*pECB, int iTermId, char *szBuffer);
void ProcessStockLevelForm(EXTENSION_CONTROL_BLOCK
*pECB, int iTermId, char *szBuffer);
void GetNewOrderData(LPSTR lpszQueryString,
NEW_ORDER_DATA *pNewOrderData, BOOL *pfLocalFlag);
void GetPaymentData(LPSTR lpszQueryString, PAYMENT_DATA
*pPaymentData, BOOL *pfLocalFlag);

```

```

void GetOrderStatusData(LPSTR lpszQueryString,
ORDER_STATUS_DATA *pOrderStatusData);
BOOL PostDeliveryInfo(long w_id, short o_carrier_id);
BOOL IsNumeric(char *ptr);
BOOL IsDecimal(char *ptr);
void DeliveryWorkerThread(void *ptr);

```

## tpcc.rc

```

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

#define APSTUDIO_READONLY_SYMBOLS
//
// Generated from the TEXTINCLUDE2 resource.
//
#include "afxres.h"

//
// English (U.S.) resources
//
#ifndef _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

```

```

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
//

#ifdef 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
//

#ifdef APSTUDIO_INVOKED
//
// Generated from the TEXTINCLUDE3 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 definations 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"

#include "..\..\tpcc_com_remote_ps\src\tpcc_com_remote_ps_i.c"
#include "..\..\tpcc_com_remote\src\tpcc_com_remote_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_bSinglePool = bSinglePool;

m_pNewOrder          = NULL;
m_pPayment           = NULL;
m_pStockLevel        = NULL;
m_pOrderStatus       = NULL;
m_p_remNewOrder      = NULL;
m_p_remPayment       = NULL;
m_p_remStockLevel    = NULL;
m_p_remOrderStatus   = NULL;

/*
m_pTxn =
(COM_DATA*)CoTaskMemAlloc(sizeof(COM_DATA));
if (!m_pTxn)
    throw new CCOMERR( E_FAIL );
*/
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);

    hr = CoCreateInstance(CLSID_TPCCrem,
NULL, CLSCTX_SERVER, IID_ITPCCrem, (void
**)&m_p_remNewOrder);
    if (FAILED(hr))
        throw new CCOMERR(hr);

    // all local txns will use same component
    m_pPayment = m_pNewOrder;
    m_pStockLevel = m_pNewOrder;
    m_pOrderStatus = m_pNewOrder;

    // all remote txns will use same component
    m_p_remPayment=m_p_remNewOrder;
    m_p_remStockLevel = m_p_remNewOrder;

    m_p_remOrderStatus = m_p_remNewOrder;
}
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);

hr = m_p_remNewOrder->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);

    ReleaseInterface(m_p_remNewOrder);

    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].cElement
        s);
        SafeArrayDestroy(vTxn_out.parray);

        if ( m_pTxn->ErrorType != ERR_SUCCESS )
            throw new CCOMERR( m_pTxn->ErrorType,
        m_pTxn->error );
    }
    */
    void CTPCC_COM::NewOrder(BOOL fLocal)
    {
        VARIANT vTxn_out;
        HRESULT hr;
        if (fLocal)
            hr = m_pNewOrder->NewOrder(m_vTxn, &vTxn_out);
        else
            hr = m_p_remNewOrder->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].cElement
        s);
        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].cElement
        s);
        SafeArrayDestroy(vTxn_out.parray);

        if ( m_pTxn->ErrorType != ERR_SUCCESS )
            throw new CCOMERR( m_pTxn->ErrorType,
        m_pTxn->error );
    }
    */
    void CTPCC_COM::Payment(BOOL fLocal)
    {
        VARIANT vTxn_out;
        HRESULT hr;
        if (fLocal)
            hr = m_pPayment->Payment(m_vTxn,
        &vTxn_out);
        else

```

```

        hr = m_p_remPayment->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].cElement
        s);
        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].cElement
        s);
        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].cElement
        s);
        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.
*
*      1999          Copyright Microsoft,
*
*      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"
#include "..\..\tpcc_com_remote_ps\src\tpcc_com_remote_ps.h"

// 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 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;
    ITPCCrem*
m_p_remNewOrder;
    ITPCCrem*
m_p_remPayment;
    ITPCCrem*
m_p_remStockLevel;
    ITPCCrem*
m_p_remOrderStatus;

    struct COM_DATA

```

```

        {
            int ErrorType;
            int error;
            union
            {
                NEW_ORDER_DATA
                Payment;
                PAYMENT_DATA
                Delivery;
                DELIVERY_DATA
                StockLevel;
                STOCK_LEVEL_DATA
                ORDER_STATUS_DATA    OrderStatus;
            } u;
        } *m_pTxn;

        VARIANT m_vTxn;

    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 NewOrder          (BOOL
fLocal);
//          void Payment           ();
//          void Payment           (BOOL
fLocal);
        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 <atbase.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 <sqltext.h>

#include "tpcc_com_ps.h"
#include "..\..\common\src\trans.h"
//tpckit transaction header contains definations 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");

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");

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"));

    _stprintf(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)
        wsprintf( 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* pObjectContext = NULL;

    // get our object context
    HRESULT hr = CoGetObjectContext( IID_IObjectContext,
(void **)&pObjectContext );
    pObjectContext->SetComplete();
    ReleaseInterface(pObjectContext);
    return hr;
}

//
// called by the ctor activator
//
STDMETHODIMP 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;
}

```

```

HRESULT 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));

        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;

        m_pTxn->NewOrder(TRUE);

        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));

        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;

        m_pTxn->Payment(TRUE);

        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 (...)
    {
        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));

        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;

        m_pTxn->StockLevel();

        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));

        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;

    m_pTxn->OrderStatus();

    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.h**

/\* this ALWAYS GENERATED file contains the definitions for the interfaces \*/

```

/* File created by MIDL compiler version 5.01.0164 */
/* at Fri Jan 19 11:14:55 2001
*/
/* Compiler settings for .\src\tpcc_com_all.idl:
    Oicf (OptLev=i2), W1, Zp8, env=Win32, ms_ext, c_ext
    error checks: allocation ref bounds_check enum stub_data
*/
//@@@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__

```

```

#ifdef __cplusplus
extern "C" {
#endif

```

/\* 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__ */

```

```

#ifndef __Payment_FWD_DEFINED__
#define __Payment_FWD_DEFINED__

```

```

#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 "oidl.h"
#include "ocidl.h"
#include "tpcc_com_ps.h"

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 /* __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 "oidl.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"

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

```

```

FILEFLAGS0x1L
#else
FILEFLAGS0x0L
#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
//

STRINGTABLEDISCARDABLE
BEGIN
    IDS_PROJNAME     "tpcc_com_all"
END

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

#ifndef APSTUDIO_INVOKED
////////////////////////////////////
//
// Generated from the TEXTINCLUDE3 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

/* this file contains the actual definitions of */
/* the IIDs and CLSIDs */

/* link this file in with the server and any clients */

/* File created by MIDL compiler version 5.01.0164 */
/* at Fri Jan 19 11:14:55 2001
*/
/* Compiler settings for .\src\tpcc_com_all.idl:
    Oicf (OptLev=i2), W1, Zp8, env=Win32, ms_ext, c_ext
    error checks: allocation ref bounds_check enum stub_data
*/
//@@@MIDL_FILE_HEADING( )
#ifdef __cplusplus
extern "C"{
#endif

#ifdef __IID_DEFINED__
#define __IID_DEFINED__

typedef struct _IID
{
    unsigned long x;
    unsigned short s1;
    unsigned short s2;
    unsigned char c[8];
}

```

```

} IID;

#ifdef __IID_DEFINED__

#ifndef CLSID_DEFINED
#define CLSID_DEFINED
typedef IID CLSID;
#endif // CLSID_DEFINED

const IID LIBID_TPCCLib =
{0x122A3117,0x2520,0x11D3,{0xBA,0x71,0x00,0xC0,0x4F,0xBF,0xE0,0x8B}};

const CLSID CLSID_TPCC =
{0x122A3128,0x2520,0x11D3,{0xBA,0x71,0x00,0xC0,0x4F,0xBF,0xE0,0x8B}};

const CLSID CLSID_NewOrder =
{0x975BAABF,0x84A7,0x11D2,{0xBA,0x47,0x00,0xC0,0x4F,0xBF,0xE0,0x8B}};

const CLSID CLSID_OrderStatus =
{0x266836AD,0xA50D,0x11D2,{0xBA,0x4E,0x00,0xC0,0x4F,0xBF,0xE0,0x8B}};

const CLSID CLSID_Payment =
{0xCD02F7EF,0xA4FA,0x11D2,{0xBA,0x4E,0x00,0xC0,0x4F,0xBF,0xE0,0x8B}};

const CLSID CLSID_StockLevel =
{0x2668369E,0xA50D,0x11D2,{0xBA,0x4E,0x00,0xC0,0x4F,0xBF,0xE0,0x8B}};

#ifdef __cplusplus
}
#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
}
}
}
}
}

```

### 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
    }
}
}
}
}
}

```

### 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
    }
}
}
}
}
}

```

```

    }
}

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.h

```
/* this ALWAYS GENERATED file contains the definitions for the
interfaces */
```

```
/* File created by MIDL compiler version 5.01.0164 */
```

```
/* at Fri Jan 19 11:14:46 2001
```

```
*/
```

```
/* Compiler settings for .\src\tpcc_com_ps.idl:
```

```
    Oicf (OptLev=i2), W1, Zp8, env=Win32, ms_ext, c_ext
```

```
error checks: allocation ref bounds_check enum stub_data
```

```
*/
```

```
//@@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__
```

```
#ifdef __cplusplus
```

```
extern "C"{
```

```
#endif
```

```
/* Forward Declarations */
```

```
#ifndef __ITPCC_FWD_DEFINED__
```

```
#define __ITPCC_FWD_DEFINED__
```

```
typedef interface ITPCC ITPCC;
```

```
#endif /* __ITPCC_FWD_DEFINED__ */
```

```
/* header files for imported files */
```

```
#include "oidl.h"
```

```
#include "ocidl.h"
```

```
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) = 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 ( STDMETHODCALLTYPE __RPC_FAR *NewOrder)(
ITPCC __RPC_FAR * This,
/* [in] */ VARIANT txn_in,
/* [out] */ VARIANT __RPC_FAR *txn_out);

HRESULT ( STDMETHODCALLTYPE __RPC_FAR *Payment)(
ITPCC __RPC_FAR * This,
/* [in] */ VARIANT txn_in,
/* [out] */ VARIANT __RPC_FAR *txn_out);

HRESULT ( STDMETHODCALLTYPE __RPC_FAR *Delivery)(
ITPCC __RPC_FAR * This,
/* [in] */ VARIANT txn_in);

HRESULT ( STDMETHODCALLTYPE __RPC_FAR *StockLevel)(
ITPCC __RPC_FAR * This,
/* [in] */ VARIANT txn_in,
/* [out] */ VARIANT __RPC_FAR *txn_out);

HRESULT ( STDMETHODCALLTYPE __RPC_FAR *OrderStatus)(
ITPCC __RPC_FAR * This,
/* [in] */ VARIANT txn_in,
/* [out] */ VARIANT __RPC_FAR *txn_out);

HRESULT ( STDMETHODCALLTYPE __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) \

```

```

(This)->lpVtbl->Delivery(This,txn_in)

#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 STDMETHODCALLTYPE 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 STDMETHODCALLTYPE 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 STDMETHODCALLTYPE ITPCC_Delivery_Proxy(
ITPCC __RPC_FAR * This,
/* [in] */ VARIANT txn_in);

void __RPC_STUB ITPCC_Delivery_Stub(
IRpcStubBuffer *This,
IRpcChannelBuffer *pRpcChannelBuffer,
PRPC_MESSAGE_pRpcMessage,
DWORD *_pdwStubPhase);

HRESULT STDMETHODCALLTYPE 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);

#ifdef  /* __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
 *
 *      4.20.000      Microsoft TPC-C Kit Ver.
 *
 *      1999          Copyright Microsoft,
 *
 *      All Rights Reserved
 *
 *
 *
 *
 *      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 "oidl.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
        );

        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
        (
            );
    };

    // interface ITPCC

tpcc_com_ps.i.c

/* this file contains the actual definitions of */

```

```

/* the IIDs and CLSIDs */

/* link this file in with the server and any clients */

/* File created by MIDL compiler version 5.01.0164 */
/* at Fri Jan 19 11:14:46 2001
*/
/* Compiler settings for .\src\tpcc_com_ps.idl:
   Oicf (OptLev=i2), W1, Zp8, env=Win32, ms_ext, c_ext
   error checks: allocation ref bounds_check enum stub_data
*/
//@@@MIDL_FILE_HEADING( )
#ifdef __cplusplus
extern "C"{
#endif

#ifdef __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__

#ifdef CLSID_DEFINED
#define CLSID_DEFINED
typedef IID CLSID;
#endif // CLSID_DEFINED

const IID IID_ITPCC=
{0xFEEE6AA2,0x84B1,0x11d2,{0xBA,0x47,0x00,0xC0,0x4F,0xBF,0xE0,0x8B}};

#ifdef __cplusplus
}
#endif

tpcc_com_ps_p.c

/* this ALWAYS GENERATED file contains the proxy stub code */

/* File created by MIDL compiler version 5.01.0164 */
/* at Fri Jan 19 11:14:46 2001
*/
/* Compiler settings for .\src\tpcc_com_ps.idl:
   Oicf (OptLev=i2), W1, Zp8, env=Win32, ms_ext, c_ext
   error checks: allocation ref bounds_check enum stub_data
*/
//@@@MIDL_FILE_HEADING( )

#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 187

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,{0xC0,0x00,0x00,0x00,0x00,0x00,0x00,0x46}} */

/* 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")
extern const USER_MARSHAL_ROUTINE_QUADRUPLE
UserMarshalRoutines[1];

static const MIDL_STUB_DESC Object_StubDesc =
{
    0,
    NdrOleAllocate,
    NdrOleFree,
    0,
    0,
    0,
    0,
    0,

```

```

0,
0,
__MIDL_TypeFormatString.Format,
1, /* -error bounds_check flag */
0x20000, /* Ndr library version */
0,
0x50100a4, /* MIDL Version 5.1.164 */
0,
UserMarshalRoutines,
0, /* notify & notify_flag routine table */
1, /* Flags */
0, /* Reserved3 */
0, /* Reserved4 */
0 /* Reserved5 */
};

static const unsigned short ITPCC_FormatStringOffsetTable[] =
{
0,
34,
68,
96,
130,
164
};

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
};

#pragma data_seg(".rdata")

static const USER_MARSHAL_ROUTINE_QUADRUPLE
UserMarshalRoutines[1] =
{
{
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_marshall] or [user_marshall] attribute, more
than 32 methods in the interface.
#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 */
#ifdef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 8 */ NdrFcShort( 0x1c ), /* x86 Stack size/offset = 28 */
#else
NdrFcShort( 0x20 ), /* MIPS &
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, */
#ifdef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 18 */  NdrFcShort( 0x4 ), /* x86 Stack size/offset = 4 */
#else
NdrFcShort( 0x8 ), /* MIPS &
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 */
#ifdef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 24 */  NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */
#else
NdrFcShort( 0x18 ), /* MIPS &
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, */
#ifdef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 30 */  NdrFcShort( 0x18 ), /* x86 Stack size/offset = 24 */
#else
NdrFcShort( 0x1c ), /* MIPS &
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 */
#ifdef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 42 */  NdrFcShort( 0x1c ), /* x86 Stack size/offset = 28 */
#else
NdrFcShort( 0x20 ), /* MIPS &
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, */
#ifdef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 52 */  NdrFcShort( 0x4 ), /* x86 Stack size/offset = 4 */
#else
NdrFcShort( 0x8 ), /* MIPS &
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 */
#ifdef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 58 */  NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */
#else
NdrFcShort( 0x18 ), /* MIPS &
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, */
#ifdef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 64 */  NdrFcShort( 0x18 ), /* x86 Stack size/offset = 24 */
#else
NdrFcShort( 0x1c ), /* MIPS &
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 */
#ifdef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 76 */  NdrFcShort( 0x18 ), /* x86 Stack size/offset = 24 */
#endif
#endif

```

```

PPC Stack size/offset = 28 */
#endif
#else
    NdrFcShort( 0x1c ), /* MIPS &
/* 110 */ 0x7, /* Oi2 Flags: srv must size, clt must
size, has return, */
    0x3, /* 3 */
    /* Parameter txn_in */
/* 112 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by
val, */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 114 */ NdrFcShort( 0x4 ), /* x86 Stack size/offset = 4 */
#else
    NdrFcShort( 0x8 ), /* MIPS &
PPC Stack size/offset = 8 */
#endif
#else
    NdrFcShort( 0x8 ), /* Alpha Stack
size/offset = 8 */
#endif
/* 116 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */
/* Parameter txn_out */
/* 118 */ NdrFcShort( 0x4113 ), /* Flags: must size, must
free, out, simple ref, srv alloc size=16 */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 120 */ NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */
#else
    NdrFcShort( 0x18 ), /* MIPS &
PPC Stack size/offset = 24 */
#endif
#else
    NdrFcShort( 0x18 ), /* Alpha Stack
size/offset = 24 */
#endif
/* 122 */ NdrFcShort( 0x3da ), /* Type Offset=986 */
/* Return value */
/* 124 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 126 */ NdrFcShort( 0x18 ), /* x86 Stack size/offset = 24 */
#else
    NdrFcShort( 0x1c ), /* MIPS &
PPC Stack size/offset = 28 */
#endif
#else
    NdrFcShort( 0x20 ), /* Alpha Stack
size/offset = 32 */
#endif
/* 128 */ 0x8, /* FC_LONG */
0x0, /* 0 */
/* Procedure OrderStatus */
/* 130 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /* Old Flags:
object, Oi2 */
/* 132 */ NdrFcLong( 0x0 ), /* 0 */
/* 136 */ NdrFcShort( 0x7 ), /* 7 */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 138 */ NdrFcShort( 0x1c ), /* x86 Stack size/offset = 28 */
#else
    NdrFcShort( 0x20 ), /* MIPS &
PPC Stack size/offset = 32 */
#endif
#endif
#endif
/* 84 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by
val, */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 86 */ NdrFcShort( 0x4 ), /* x86 Stack size/offset = 4 */
#else
    NdrFcShort( 0x8 ), /* MIPS &
PPC Stack size/offset = 8 */
#endif
#else
    NdrFcShort( 0x8 ), /* Alpha Stack
size/offset = 8 */
#endif
/* 88 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */
/* Return value */
/* 90 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 92 */ NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */
#else
    NdrFcShort( 0x18 ), /* MIPS &
PPC Stack size/offset = 24 */
#endif
#else
    NdrFcShort( 0x18 ), /* Alpha Stack
size/offset = 24 */
#endif
/* 94 */ 0x8, /* FC_LONG */
0x0, /* 0 */
/* Procedure StockLevel */
/* 96 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /* Old Flags:
object, Oi2 */
/* 98 */ NdrFcLong( 0x0 ), /* 0 */
/* 102 */ NdrFcShort( 0x6 ), /* 6 */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 104 */ NdrFcShort( 0x1c ), /* x86 Stack size/offset = 28 */
#else
    NdrFcShort( 0x20 ), /* MIPS &
PPC Stack size/offset = 32 */
#endif
#else
    NdrFcShort( 0x28 ), /* Alpha Stack
size/offset = 40 */
#endif
/* 106 */ NdrFcShort( 0x0 ), /* 0 */
/* 108 */ NdrFcShort( 0x8 ), /* 8 */

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#endif
#else
    NdrFcShort( 0x28 ), /* Alpha Stack
size/offset = 40 */
#endif
/* 140 */ NdrFcShort( 0x0 ), /* 0 */
/* 142 */ NdrFcShort( 0x8 ), /* 8 */
/* 144 */ 0x7, /* Oi2 Flags: srv must size, clt must
size, has return, */
    0x3, /* 3 */
    /* Parameter txn_in */
/* 146 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by
val, */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 148 */ NdrFcShort( 0x4 ), /* x86 Stack size/offset = 4 */
#else
    NdrFcShort( 0x8 ), /* MIPS &
PPC Stack size/offset = 8 */
#endif
#else
    NdrFcShort( 0x8 ), /* Alpha Stack
size/offset = 8 */
#endif
/* 150 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */
    /* Parameter txn_out */
/* 152 */ NdrFcShort( 0x4113 ), /* Flags: must size, must
free, out, simple ref, srv alloc size=16 */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 154 */ NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */
#else
    NdrFcShort( 0x18 ), /* MIPS &
PPC Stack size/offset = 24 */
#endif
#else
    NdrFcShort( 0x18 ), /* Alpha Stack
size/offset = 24 */
#endif
/* 156 */ NdrFcShort( 0x3da ), /* Type Offset=986 */
    /* Return value */
/* 158 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 160 */ NdrFcShort( 0x18 ), /* x86 Stack size/offset = 24 */
#else
    NdrFcShort( 0x1c ), /* MIPS &
PPC Stack size/offset = 28 */
#endif
#else
    NdrFcShort( 0x20 ), /* Alpha Stack
size/offset = 32 */
#endif
/* 162 */ 0x8, /* FC_LONG */
    0x0, /* 0 */
    /* Procedure CallSetComplete */
/* 164 */ 0x33, /* FC_AUTO_HANDLE */
    0x6c, /* Old Flags:
object, Oi2 */
/* 166 */ NdrFcLong( 0x0 ), /* 0 */
/* 170 */ NdrFcShort( 0x8 ), /* 8 */
#ifndef _ALPHA_
/* 172 */ NdrFcShort( 0x8 ), /* x86, MIPS, PPC Stack size/offset
= 8 */
#else
    NdrFcShort( 0x10 ), /* Alpha Stack
size/offset = 16 */
#endif
/* 174 */ NdrFcShort( 0x0 ), /* 0 */
/* 176 */ NdrFcShort( 0x8 ), /* 8 */
/* 178 */ 0x4, /* Oi2 Flags: has return, */
    0x1, /* 1 */
    /* Return value */
/* 180 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifndef _ALPHA_
/* 182 */ NdrFcShort( 0x4 ), /* x86, MIPS, PPC Stack size/offset
= 4 */
#else
    NdrFcShort( 0x8 ), /* Alpha Stack
size/offset = 8 */
#endif
/* 184 */ 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 */
    }
}

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/* 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 */
/* 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( 0xffc ), /* -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 */

```

|                          |                           |                              |                    |                          |                              |
|--------------------------|---------------------------|------------------------------|--------------------|--------------------------|------------------------------|
| /* 338 */                | 0x0,                      | /* 0 */                      | /*                 | 0x8,                     | /* FC_LONG                   |
| /* 340 */                | 0x0,                      | /* 0 */                      | /* 448 */          | 0x5c,                    | /* FC_PAD */                 |
| /* 342 */                | 0x0,                      | /* 0 */                      | /* 450 */          | 0x5b,                    | /* FC_END */                 |
| /* 344 */                | 0x46,                     | /* 70 */                     | FC_PSTRUCT */      | 0x16,                    | /*                           |
| /* 346 */                | NdrFcShort( 0x2 ),        | /* FC_UP */                  | /* 452 */          | 0x3,                     | /* 3 */                      |
| /* 348 */                | /* Offset= 2 (348) */     | /*                           | /* 454 */          | 0x5c,                    | /* FC_PP */                  |
| /* 350 */                | NdrFcShort( 0x1fc ),      | /* FC_UP */                  | /* 456 */          | 0x4b,                    | /* FC_PAD */                 |
| /* 352 */                | /* Offset= 508 (858) */   | /*                           | FC_NO_REPEAT */    | 0x5c,                    | /*                           |
| FC_ENCAPSULATED_UNION */ | 0x2a,                     | /*                           | /* 458 */          | 0x5c,                    | /* FC_PAD */                 |
| /* 354 */                | NdrFcShort( 0x18 ),       | /* 73 */                     | /* 460 */          | NdrFcShort( 0x4 ),       | /* 4 */                      |
| /* 356 */                | NdrFcShort( 0xa ),        | /* 10 */                     | /* 462 */          | NdrFcShort( 0x4 ),       | /* 4 */                      |
| /* 358 */                | NdrFcLong( 0x8 ),         | /* 8 */                      | /* 464 */          | 0x11, 0x0, /* FC_RP */   | /*                           |
| /* 362 */                | NdrFcShort( 0x58 ),       | /* Offset= 88 (450) */       | /* 466 */          | NdrFcShort( 0xfffffd4 ), | /* Offset= -44 (420) */      |
| /* 364 */                | NdrFcLong( 0xd ),         | /* 13 */                     | /*                 | 0x5b,                    | /* FC_END */                 |
| /* 368 */                | NdrFcShort( 0x78 ),       | /* Offset= 120 (488) */      | /* 468 */          | 0x8,                     | /* FC_LONG                   |
| /* 370 */                | NdrFcLong( 0x9 ),         | /* 9 */                      | /*                 | /*                       | /*                           |
| /* 374 */                | NdrFcShort( 0x94 ),       | /* Offset= 148 (522) */      | /* 470 */          | 0x21,                    | /*                           |
| /* 376 */                | NdrFcLong( 0xc ),         | /* 12 */                     | FC_BOGUS_ARRAY */  | 0x3,                     | /* 3 */                      |
| /* 380 */                | NdrFcShort( 0xbc ),       | /* Offset= 188 (568) */      | /* 472 */          | NdrFcShort( 0x0 ),       | /* 0 */                      |
| /* 382 */                | NdrFcLong( 0x24 ),        | /* 36 */                     | /* 474 */          | 0x19,                    | /* Corr desc: field pointer, |
| /* 386 */                | NdrFcShort( 0x114 ),      | /* Offset= 276 (662) */      | FC_ULONG */        | 0x0,                     | /* */                        |
| /* 388 */                | NdrFcLong( 0x800d ),      | /* 32781 */                  | /* 476 */          | NdrFcShort( 0x0 ),       | /* 0 */                      |
| /* 392 */                | NdrFcShort( 0x130 ),      | /* Offset= 304 (696) */      | /* 478 */          | NdrFcLong( 0xffffffff ), | /* -1 */                     |
| /* 394 */                | NdrFcLong( 0x10 ),        | /* 16 */                     | /* 482 */          | 0x4c,                    | /* FC_EMBEDDED_COMPLEX */    |
| /* 398 */                | NdrFcShort( 0x148 ),      | /* Offset= 328 (726) */      | /* 484 */          | NdrFcShort( 0xfffff50 ), | /* Offset= -176 (308) */     |
| /* 400 */                | NdrFcLong( 0x2 ),         | /* 2 */                      | /* 486 */          | 0x5c,                    | /* FC_PAD */                 |
| /* 404 */                | NdrFcShort( 0x160 ),      | /* Offset= 352 (756) */      | /* 488 */          | 0x5b,                    | /* FC_END */                 |
| /* 406 */                | NdrFcLong( 0x3 ),         | /* 3 */                      | FC_BOGUS_STRUCT */ | 0x1a,                    | /*                           |
| /* 410 */                | NdrFcShort( 0x178 ),      | /* Offset= 376 (786) */      | /* 490 */          | NdrFcShort( 0x8 ),       | /* 8 */                      |
| /* 412 */                | NdrFcLong( 0x14 ),        | /* 20 */                     | /* 492 */          | NdrFcShort( 0x0 ),       | /* 0 */                      |
| /* 416 */                | NdrFcShort( 0x190 ),      | /* Offset= 400 (816) */      | /* 494 */          | NdrFcShort( 0x6 ),       | /* Offset= 6 (500) */        |
| /* 418 */                | NdrFcShort( 0xffffffff ), | /* Offset= -1 (417) */       | /* 496 */          | 0x8,                     | /* FC_LONG */                |
| /* 420 */                | 0x1b,                     | /*                           | FC_POINTER */      | 0x36,                    | /*                           |
| FC_CARRAY */             | 0x3,                      | /* 3 */                      | /* 498 */          | 0x5c,                    | /* FC_PAD */                 |
| /* 422 */                | NdrFcShort( 0x4 ),        | /* 4 */                      | /* 500 */          | 0x5b,                    | /* FC_END */                 |
| /* 424 */                | 0x19,                     | /* Corr desc: field pointer, | /* 502 */          | 0x11, 0x0, /* FC_RP */   | /*                           |
| FC_ULONG */              | 0x0,                      | /* */                        | /* 504 */          | NdrFcShort( 0xfffffe0 ), | /* Offset= -32 (470) */      |
| /* 426 */                | NdrFcShort( 0x0 ),        | /* 0 */                      | FC_BOGUS_ARRAY */  | 0x21,                    | /*                           |
| /* 428 */                | 0x4b,                     | /* FC_PP */                  | /* 506 */          | NdrFcShort( 0x0 ),       | /* 0 */                      |
| /* 430 */                | 0x5c,                     | /* FC_PAD */                 | /* 508 */          | 0x19,                    | /* Corr desc: field pointer, |
| FC_VARIABLE_REPEAT */    | 0x48,                     | /*                           | FC_ULONG */        | 0x0,                     | /* */                        |
| FC_FIXED_OFFSET */       | 0x49,                     | /*                           | /* 510 */          | NdrFcShort( 0x0 ),       | /* 0 */                      |
| /* 432 */                | NdrFcShort( 0x4 ),        | /* 4 */                      | /* 512 */          | NdrFcLong( 0xffffffff ), | /* -1 */                     |
| /* 434 */                | NdrFcShort( 0x0 ),        | /* 0 */                      | /* 516 */          | 0x4c,                    | /* FC_EMBEDDED_COMPLEX */    |
| /* 436 */                | NdrFcShort( 0x1 ),        | /* 1 */                      | /*                 | /*                       | /*                           |
| /* 438 */                | NdrFcShort( 0x0 ),        | /* 0 */                      | /*                 | /*                       | /*                           |
| /* 440 */                | NdrFcShort( 0x0 ),        | /* 0 */                      | /*                 | /*                       | /*                           |
| /* 442 */                | 0x12, 0x0, /* FC_UP */    | /*                           | /*                 | /*                       | /*                           |
| /* 444 */                | NdrFcShort( 0xfffff6e ),  | /* Offset= -146 (298) */     | /*                 | /*                       | /*                           |
| /* 446 */                | 0x5b,                     | /* FC_END */                 | /*                 | /*                       | /*                           |

|   |  |          |
|---|--|----------|
| 0x0, /* 0 */  | FC_CONSTANT_IID */   | 0x5a, /* |
| /* 518 */ NdrFcShort( 0xfffff40 ), /* Offset= -192 (326) */ | /* 586 */ NdrFcLong( 0x2f ), /* 47 */                      |          |
| /* 520 */ 0x5c, /* FC_PAD */                                | /* 590 */ NdrFcShort( 0x0 ), /* 0 */                       |          |
| /* 522 */   | /* 592 */ NdrFcShort( 0x0 ), /* 0 */                       |          |
| 0x1a, /*  | /* 594 */ 0xc0, /* 192 */                                  |          |
| FC_BOGUS_STRUCT */  | 0x0, /* 0 */   |          |
| 0x3, /* 3 */  | /* 596 */ 0x0, /* 0 */                                     |          |
| /* 524 */ NdrFcShort( 0x8 ), /* 8 */                        | /* 598 */ 0x0, /* 0 */                                     |          |
| /* 526 */ NdrFcShort( 0x0 ), /* 0 */                        | /* 600 */ 0x0, /* 0 */                                     |          |
| /* 528 */ NdrFcShort( 0x6 ), /* Offset= 6 (534) */          | /* 602 */  |          |
| /* 530 */ 0x8, /* FC_LONG */                                | 0x46, /* 70 */   |          |
| 0x36, /*  |  |          |
| FC_POINTER */   | 0x1b, /*   |          |
| /* 532 */ 0x5c, /* FC_PAD */                                | FC_CARRY */  |          |
| /* 534 */   | 0x0, /* 0 */   |          |
| 0x11, 0x0, /* FC_RP */                                      | /* 604 */ NdrFcShort( 0x1 ), /* 1 */                       |          |
| /* 536 */ NdrFcShort( 0xfffffe0 ), /* Offset= -32 (504) */  | /* 606 */ 0x19, /* Corr desc: field pointer,               |          |
| /* 538 */   | FC_ULONG */  |          |
| 0x1b, /*  | /* 608 */ NdrFcShort( 0x4 ), /* 4 */                       |          |
| FC_CARRY */   | /* 610 */ 0x1, /* FC_BYTE */                               |          |
| 0x3, /* 3 */  | 0x5b, /* FC_END */   |          |
| /* 540 */ NdrFcShort( 0x4 ), /* 4 */                        | /* 612 */  |          |
| /* 542 */ 0x19, /* Corr desc: field pointer,                | 0x1a, /*   |          |
| FC_ULONG */   | FC_BOGUS_STRUCT */   |          |
| 0x0, /* */  | 0x3, /* 3 */   |          |
| /* 544 */ NdrFcShort( 0x0 ), /* 0 */                        | /* 614 */ NdrFcShort( 0x10 ), /* 16 */                     |          |
| /* 546 */   | /* 616 */ NdrFcShort( 0x0 ), /* 0 */                       |          |
| 0x4b, /* FC_PP */   | /* 618 */ NdrFcShort( 0xa ), /* Offset= 10 (628) */        |          |
| 0x5c, /* FC_PAD */  | /* 620 */ 0x8, /* FC_LONG */                               |          |
| /* 548 */   | 0x8, /* FC_LONG  |          |
| FC_VARIABLE_REPEAT */                                       | */   |          |
| 0x48, /*  | /* 622 */ 0x4c, /* FC_EMBEDDED_COMPLEX */                  |          |
| 0x49, /*  | 0x0, /* 0 */   |          |
| FC_FIXED_OFFSET */  | /* 624 */ NdrFcShort( 0xfffffd8 ), /* Offset= -40 (584) */ |          |
| /* 550 */ NdrFcShort( 0x4 ), /* 4 */                        | /* 626 */ 0x36, /* FC_POINTER */                           |          |
| /* 552 */ NdrFcShort( 0x0 ), /* 0 */                        | 0x5b, /* FC_END */   |          |
| /* 554 */ NdrFcShort( 0x1 ), /* 1 */                        | /* 628 */  |          |
| /* 556 */ NdrFcShort( 0x0 ), /* 0 */                        | 0x12, 0x0, /* FC_UP */                                     |          |
| /* 558 */ NdrFcShort( 0x0 ), /* 0 */                        | /* 630 */ NdrFcShort( 0xfffffe4 ), /* Offset= -28 (602) */ |          |
| /* 560 */ 0x12, 0x0, /* FC_UP */                            | /* 632 */  |          |
| /* 562 */ NdrFcShort( 0xffffdce ), /* Offset= -562 (0) */   | 0x1b, /*   |          |
| /* 564 */   | FC_CARRY */  |          |
| 0x5b, /* FC_END */  | 0x3, /* 3 */   |          |
| 0x8, /* FC_LONG   | /* 634 */ NdrFcShort( 0x4 ), /* 4 */                       |          |
| /*  | /* 636 */ 0x19, /* Corr desc: field pointer,               |          |
| /* 566 */ 0x5c, /* FC_PAD */                                | FC_ULONG */  |          |
| /* 568 */   | /* 638 */ NdrFcShort( 0x0 ), /* 0 */                       |          |
| 0x1a, /*  | /* 640 */  |          |
| FC_BOGUS_STRUCT */  | 0x4b, /* FC_PP */  |          |
| 0x3, /* 3 */  | 0x5c, /* FC_PAD */   |          |
| /* 570 */ NdrFcShort( 0x8 ), /* 8 */                        | /* 642 */  |          |
| /* 572 */ NdrFcShort( 0x0 ), /* 0 */                        | 0x48, /*   |          |
| /* 574 */ NdrFcShort( 0x6 ), /* Offset= 6 (580) */          | FC_VARIABLE_REPEAT */                                      |          |
| /* 576 */ 0x8, /* FC_LONG */                                | 0x49, /*   |          |
| 0x36, /*  | FC_FIXED_OFFSET */   |          |
| FC_POINTER */   | /* 644 */ NdrFcShort( 0x4 ), /* 4 */                       |          |
| /* 578 */ 0x5c, /* FC_PAD */                                | /* 646 */ NdrFcShort( 0x0 ), /* 0 */                       |          |
| /* 580 */   | /* 648 */ NdrFcShort( 0x1 ), /* 1 */                       |          |
| 0x11, 0x0, /* FC_RP */                                      | /* 650 */ NdrFcShort( 0x0 ), /* 0 */                       |          |
| /* 582 */ NdrFcShort( 0xfffffd4 ), /* Offset= -44 (538) */  | /* 652 */ NdrFcShort( 0x0 ), /* 0 */                       |          |
| /* 584 */   | /* 654 */ 0x12, 0x0, /* FC_UP */                           |          |
| 0x2f, /* FC_IP */   | /* 656 */ NdrFcShort( 0xfffffd4 ), /* Offset= -44 (612) */ |          |
|   | /* 658 */  |          |
|   | 0x5b, /* FC_END */   |          |

|                                    |                              |                                    |                              |
|------------------------------------|------------------------------|------------------------------------|------------------------------|
| 0x8,                               | /* FC_LONG                   | /* 722 */ NdrFcShort( 0x0 ),       | /* 0 */                      |
| /* 660 */ 0x5c,                    | /* FC_PAD */                 | /* 724 */ 0x1,                     | /* FC_BYTE */                |
| /* 662 */                          | 0x5b,                        | /* 726 */                          | 0x5b,                        |
| FC_BOGUS_STRUCT */                 | /* FC_END */                 | FC_PSTRUCT */                      | /* FC_END */                 |
| 0x1a,                              | /*                           | 0x16,                              | /*                           |
| 0x3,                               | /* 3 */                      | 0x3,                               | /* 3 */                      |
| /* 664 */ NdrFcShort( 0x8 ),       | /* 8 */                      | /* 728 */ NdrFcShort( 0x8 ),       | /* 8 */                      |
| /* 666 */ NdrFcShort( 0x0 ),       | /* 0 */                      | /* 730 */                          | 0x4b,                        |
| /* 668 */ NdrFcShort( 0x6 ),       | /* Offset= 6 (674) */        | /* 732 */                          | 0x5c,                        |
| /* 670 */ 0x8,                     | /* FC_LONG */                | /* 734 */                          | /* FC_PP */                  |
| FC_POINTER */                      | 0x36,                        | FC_NO_REPEAT */                    | /* FC_PAD */                 |
| /* 672 */ 0x5c,                    | /* FC_PAD */                 | 0x5c,                              | /* FC_PAD */                 |
| /* 674 */                          | 0x5b,                        | /* 734 */ NdrFcShort( 0x4 ),       | /* 4 */                      |
| 0x11, 0x0, /* FC_RP */             | /* FC_END */                 | /* 736 */ NdrFcShort( 0x4 ),       | /* 4 */                      |
| /* 676 */ NdrFcShort( 0xfffffd4 ), | /* Offset= -44 (632) */      | /* 738 */ 0x12, 0x0, /* FC_UP */   | /*                           |
| /* 678 */                          | 0x1d,                        | /* 740 */ NdrFcShort( 0xfffffe8 ), | /* Offset= -24 (716) */      |
| FC_SMFARRAY */                     | /*                           | /* 742 */                          | 0x5b,                        |
| 0x0,                               | /* 0 */                      | 0x8,                               | /* FC_END */                 |
| /* 680 */ NdrFcShort( 0x8 ),       | /* 8 */                      | /*                                 | 0x8,                         |
| /* 682 */ 0x2,                     | /* FC_CHAR */                | /* 744 */ 0x8,                     | /* FC_LONG */                |
| /* 684 */                          | 0x5b,                        | /* 746 */                          | 0x5b,                        |
| FC_STRUCT */                       | /* FC_END */                 | FC_CARRAY */                       | /* FC_END */                 |
| 0x15,                              | /*                           | 0x1b,                              | /*                           |
| /* 686 */ NdrFcShort( 0x10 ),      | /* 3 */                      | 0x1,                               | /* 1 */                      |
| /* 688 */ 0x8,                     | /* 16 */                     | /* 748 */ NdrFcShort( 0x2 ),       | /* 2 */                      |
| /*                                 | /* FC_LONG */                | /* 750 */ 0x19,                    | /* Corr desc: field pointer, |
| /* 690 */ 0x6,                     | /* FC_SHORT                  | FC_ULONG */                        | /*                           |
| /*                                 | 0x4c,                        | 0x0,                               | /* *                         |
| FC_EMBEDDED_COMPLEX */             | /* FC_SHORT */               | /* 752 */ NdrFcShort( 0x0 ),       | /* 0 */                      |
| /* 692 */ 0x0,                     | /*                           | /* 754 */ 0x6,                     | /* FC_SHORT */               |
| Offset= -15 (678) */               | NdrFcShort( 0xffffffff ),    | /* 756 */                          | 0x5b,                        |
| /* 696 */                          | /* FC_END */                 | FC_PSTRUCT */                      | /* FC_END */                 |
| FC_BOGUS_STRUCT */                 | 0x5b,                        | /* 758 */ NdrFcShort( 0x8 ),       | /* 8 */                      |
| 0x1a,                              | /*                           | /* 760 */                          | 0x4b,                        |
| 0x3,                               | /* 3 */                      | /* 762 */                          | 0x5c,                        |
| /* 698 */ NdrFcShort( 0x18 ),      | /* 24 */                     | 0x46,                              | /*                           |
| /* 700 */ NdrFcShort( 0x0 ),       | /* 0 */                      | FC_NO_REPEAT */                    | /* FC_PAD */                 |
| /* 702 */ NdrFcShort( 0xa ),       | /* Offset= 10 (712) */       | 0x5c,                              | /* FC_PAD */                 |
| /* 704 */ 0x8,                     | /* FC_LONG */                | /* 764 */ NdrFcShort( 0x4 ),       | /* 4 */                      |
| FC_POINTER */                      | 0x36,                        | /* 766 */ NdrFcShort( 0x4 ),       | /* 4 */                      |
| /* 706 */ 0x4c,                    | /* FC_EMBEDDED_COMPLEX */    | /* 768 */ 0x12, 0x0, /* FC_UP */   | /*                           |
| /*                                 | 0x0,                         | /* 770 */ NdrFcShort( 0xfffffe8 ), | /* Offset= -24 (746) */      |
| /* 708 */ NdrFcShort( 0xfffffe8 ), | /* Offset= -24 (684) */      | /* 772 */                          | 0x5b,                        |
| /* 710 */ 0x5c,                    | /* FC_PAD */                 | 0x8,                               | /* FC_END */                 |
| /* 712 */                          | 0x5b,                        | /*                                 | 0x8,                         |
| 0x11, 0x0, /* FC_RP */             | /* FC_END */                 | /* 774 */ 0x8,                     | /* FC_LONG */                |
| /* 714 */ NdrFcShort( 0xfffff0c ), | /* Offset= -244 (470) */     | 0x5b,                              | /* FC_END */                 |
| /* 716 */                          | 0x1b,                        | /* 776 */                          | 0x1b,                        |
| FC_CARRAY */                       | /*                           | FC_CARRAY */                       | /*                           |
| 0x0,                               | /* 0 */                      | 0x3,                               | /* 3 */                      |
| /* 718 */ NdrFcShort( 0x1 ),       | /* 1 */                      | /* 778 */ NdrFcShort( 0x4 ),       | /* 4 */                      |
| /* 720 */ 0x19,                    | /* Corr desc: field pointer, | /* 780 */ 0x19,                    | /* Corr desc: field pointer, |
| FC_ULONG */                        | 0x0,                         | FC_ULONG */                        | /*                           |
| /*                                 | /* *                         | 0x0,                               | /* *                         |

```

/* 782 */ NdrFcShort( 0x0 ), /* 0 */
/* 784 */ 0x8, /* FC_LONG */
/* 786 */
FC_PSTRUCT */
/* 788 */ NdrFcShort( 0x8 ), /* 8 */
/* 790 */
/* 792 */
FC_NO_REPEAT */
/* 794 */ NdrFcShort( 0x4 ), /* 4 */
/* 796 */ NdrFcShort( 0x4 ), /* 4 */
/* 798 */ 0x12, 0x0, /* FC_UP */
/* 800 */ NdrFcShort( 0xfffffe8 ), /* Offset= -24 (776) */
/* 802 */
/* 804 */ 0x8, /* FC_LONG */
/* 806 */
FC_CARRAY */
/* 808 */ NdrFcShort( 0x8 ), /* 8 */
/* 810 */ 0x19, /* Corr desc: field pointer,
FC_ULONG */
/* 812 */ NdrFcShort( 0x0 ), /* 0 */
/* 814 */ 0xb, /* FC_HYPER */
/* 816 */
FC_PSTRUCT */
/* 818 */ NdrFcShort( 0x8 ), /* 8 */
/* 820 */
/* 822 */
FC_NO_REPEAT */
/* 824 */ NdrFcShort( 0x4 ), /* 4 */
/* 826 */ NdrFcShort( 0x4 ), /* 4 */
/* 828 */ 0x12, 0x0, /* FC_UP */
/* 830 */ NdrFcShort( 0xfffffe8 ), /* Offset= -24 (806) */
/* 832 */
/* 834 */ 0x8, /* FC_LONG */
/* 836 */
FC_STRUCT */
/* 838 */ NdrFcShort( 0x8 ), /* 8 */
/* 840 */ 0x8, /* FC_LONG */
/*
/* 842 */ 0x5c, /* FC_PAD */
/* 844 */
FC_CARRAY */
/* 846 */ NdrFcShort( 0x8 ), /* 8 */
/* 848 */ 0x7, /* Corr desc: FC_USHORT */
/* 850 */ NdrFcShort( 0xffd8 ), /* -40 */
/* 852 */ 0x4c, /* FC_EMBEDDED_COMPLEX */
/* 854 */ NdrFcShort( 0xfffffee ), /* Offset= -18 (836) */
/* 856 */ 0x5c, /* FC_PAD */
/* 858 */
FC_BOGUS_STRUCT */
/* 860 */ NdrFcShort( 0x28 ), /* 40 */
/* 862 */ NdrFcShort( 0xfffffee ), /* Offset= -18 (844) */
/* 864 */ NdrFcShort( 0x0 ), /* Offset= 0 (864) */
/* 866 */ 0x6, /* FC_SHORT */
/* 868 */ 0x38, /* FC_ALIGNM4 */
/* 870 */ 0x8, /* FC_LONG */
FC_EMBEDDED_COMPLEX */
/* 872 */ 0x0, /* 0 */
Offset= -521 (352) */
/* 876 */
/* 878 */ NdrFcShort( 0xfffffe6 ), /* Offset= -266 (612) */
/* 880 */
[simple_pointer] */
/* 882 */ 0x1, /* FC_BYTE */
/* 884 */
[simple_pointer] */
/* 886 */ 0x6, /* FC_SHORT */
/* 888 */
[simple_pointer] */
/* 890 */ 0x8, /* FC_LONG */
/* 892 */
[simple_pointer] */
/* 894 */ 0xa, /* FC_FLOAT */
/* 896 */
[simple_pointer] */
/* 898 */ 0xc, /* FC_DOUBLE */
/* 900 */
/* 902 */ NdrFcShort( 0xffffd90 ), /* Offset= -624 (278) */
/* 904 */
/*
0x12, 0x10, /* FC_UP */

```



```

/* 906 */ NdrFcShort( 0xffffd92 ), /* Offset= -622 (284) */
/* 908 */
                                0x12, 0x10, /* FC_UP */
/* 910 */ NdrFcShort( 0xffffda6 ), /* Offset= -602 (308) */
/* 912 */
                                0x12, 0x10, /* FC_UP */
/* 914 */ NdrFcShort( 0xffffdb4 ), /* Offset= -588 (326) */
/* 916 */
                                0x12, 0x10, /* FC_UP */
/* 918 */ NdrFcShort( 0xffffdc2 ), /* Offset= -574 (344) */
/* 920 */
                                0x12, 0x10, /* FC_UP */
/* 922 */ NdrFcShort( 0x2 ), /* Offset= 2 (924) */
/* 924 */
                                0x12, 0x0, /* FC_UP */
/* 926 */ NdrFcShort( 0xffffc62 ), /* Offset= -926 (0) */
/* 928 */
                                0x15, /*
FC_STRUCT */
                                0x7, /* 7 */
/* 930 */ NdrFcShort( 0x10 ), /* 16 */
/* 932 */ 0x6, /* FC_SHORT */
                                0x1, /* FC_BYTE */
/*
/* 934 */ 0x1, /* FC_BYTE */
FC_ALIGNM4 */
                                0x38, /*
/* 936 */ 0x8, /* FC_LONG */
                                0x39, /*
FC_ALIGNM8 */
/* 938 */ 0xb, /* FC_HYPER */
                                0x5b, /* FC_END */
/* 940 */
                                0x12, 0x0, /* FC_UP */
/* 942 */ NdrFcShort( 0xfffff2 ), /* 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( 0xffffc42 ), /* 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( 0xffffc32 ), /* Offset= -974 (2) */
/* 978 */
                                0x11, 0x4, /* FC_RP
[allocated_on_stack] */
/* 980 */ NdrFcShort( 0x6 ), /* Offset= 6 (986) */
/* 982 */
                                0x13, 0x0, /* FC_OP */
/* 984 */ NdrFcShort( 0xfffff4c ), /* Offset= -36 (948) */
/* 986 */ 0xb4, /* FC_USER_MARSHAL */
                                0x83, /* 131 */
/* 988 */ NdrFcShort( 0x0 ), /* 0 */
/* 990 */ NdrFcShort( 0x10 ), /* 16 */
/* 992 */ NdrFcShort( 0x0 ), /* 0 */
/* 994 */ NdrFcShort( 0xfffff4 ), /* 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_uid] interfaces */
0, /* Filler1 */
0, /* Filler2 */
0 /* Filler3 */
};

```

## tpcc\_com\_rem.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_rem.h"

#include "..\..\tpcc_com_remote_ps\src\tpcc_com_remote_ps_i.c"
#include "..\..\tpcc_com_remote\src\tpcc_com_remote_i.c"

// wrapper routine for class constructor
__declspec(dllexport) CTPCC_COM_REM*
CTPCC_COM_REM_new(BOOL bSinglePool)
{
    return new CTPCC_COM_REM(bSinglePool);
}

CTPCC_COM_REM::CTPCC_COM_REM(BOOL bSinglePool)
{
    HRESULT hr = NULL;
    long lRet = 0;
    ULONG ulTmpSize = 0;

    m_bSinglePool = bSinglePool;

    m_pNewOrder = NULL;
    m_pPayment = NULL;
    m_pStockLevel = NULL;
    m_pOrderStatus = NULL;
}

/*
(COM_DATA*)CoTaskMemAlloc(sizeof(COM_DATA));
if (!m_pTxn)
    throw new CCOMERR( E_FAIL );
*/

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_TPCCrem,
NULL, CLSCTX_SERVER, IID_ITPCCrem, (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_ITPCCrem, (void
***)&m_pNewOrder);
if (FAILED(hr))
    throw new CCOMERR(hr);

    hr = CoCreateInstance(CLSID_Payment, NULL,
CLSCTX_SERVER, IID_ITPCCrem, (void ***)&m_pPayment);
if (FAILED(hr))
    throw new CCOMERR(hr);

    hr = CoCreateInstance(CLSID_StockLevel,
NULL, CLSCTX_SERVER, IID_ITPCCrem, (void
***)&m_pStockLevel);
if (FAILED(hr))
    throw new CCOMERR(hr);

    hr = CoCreateInstance(CLSID_OrderStatus,
NULL, CLSCTX_SERVER, IID_ITPCCrem, (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_REM::~~CTPCC_COM_REM()
{
    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_REM::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].cElement
s);
    SafeArrayDestroy(vTxn_out.parray);

    if ( m_pTxn->ErrorType != ERR_SUCCESS )
        throw new CCOMERR( m_pTxn->ErrorType,
m_pTxn->error );
}

void CTPCC_COM_REM::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].cElement
s);
    SafeArrayDestroy(vTxn_out.parray);

    if ( m_pTxn->ErrorType != ERR_SUCCESS )
        throw new CCOMERR( m_pTxn->ErrorType,
m_pTxn->error );
}

void CTPCC_COM_REM::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].cElement
s);
    SafeArrayDestroy(vTxn_out.parray);

    if ( m_pTxn->ErrorType != ERR_SUCCESS )
        throw new CCOMERR( m_pTxn->ErrorType,
m_pTxn->error );
}

void CTPCC_COM_REM::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].cElement
s);
    SafeArrayDestroy(vTxn_out.parray);

    if ( m_pTxn->ErrorType != ERR_SUCCESS )
        throw new CCOMERR( m_pTxn->ErrorType,
m_pTxn->error );
}

```

### **tpcc\_com\_rem.h**

```

/*      FILE:          TPCC_COM.H
*                               Microsoft TPC-C Kit Ver.
4.20.000
*                               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"
#include "..\..\tpcc_com_remote_ps\src\tpcc_com_remote_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 OrderStatus;
        } u;
    } *m_pTxn;

    VARIANT m_vTxn;

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);

class DllDecl CTPCC_COM_REM : public CTPCC_BASE
{
private:
    BOOL m_bSinglePool;

    // COM Interface pointers
    ITPCCrem* m_pNewOrder;

```

```

m_pPayment;          ITPCCrem*
m_pStockLevel;      ITPCCrem*
m_pOrderStatus;     ITPCCrem*

struct COM_DATA
{
    int ErrorType;
    int error;
    union
    {
        NEW_ORDER_DATA
        Payment;
        DELIVERY_DATA
        STOCK_LEVEL_DATA
        ORDER_STATUS_DATA OrderStatus;
    } u;
    *m_pTxn;

    VARIANT m_vTxn;
public:
    CTPCC_COM_REM(BOOL bSinglePool);
    ~CTPCC_COM_REM(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
};

// wrapper routine for class constructor
extern "C" __declspec(dllexport) CTPCC_COM_REM*
CTPCC_COM_REMOTE_new(BOOL);

typedef CTPCC_COM_REM* (TYPE_CTPCC_COM_REM)(BOOL);

tpcc_com_remote.cpp

/* FILE:          TPCC_COM_REMOTE.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 <atbase.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 <atimpl.cpp>
#include <comsvcs.h>

#include <sqltypes.h>
#include <sql.h>
#include <sqlext.h>

#include "tpcc_com_remote_ps.h"
#include "..\common\src\trans.h"
//tpckit transaction header contains definations 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_remote.h"
#include "tpcc_com_remote_i.c"
#include "Methods.h"
#include "..\tpcc_com_remote_ps\src\tpcc_com_remote_ps_i.c"
#include "..\common\src\ReadRegistry.cpp"

CComModule _Module;

BEGIN_OBJECT_MAP(ObjectMap)
    OBJECT_ENTRY(CLSID_TPCCrem, CTPCCrem)
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());

                ODBC)
            else if (Reg.eDB_Protocol ==
{
                strcpy( szDllName,
Reg.szPath );
                strcat( szDllName,
"tpcc_odbc.dll");

```

```

                hLibInstanceDb =
                if (hLibInstanceDb ==
                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_remote.dll"));

    _stprintf(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. GetProcAddress 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)
        wsprintf( szTmp+strlen(szTmp), " Error=%d",
        m_SystemErr );

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

CTPCC_Common_Remote::CTPCC_Common_Remote()
{
    m_pTxn = NULL;
    m_bCanBePooled = TRUE;
}

CTPCC_Common_Remote::~CTPCC_Common_Remote()
{
    if (m_pTxn)
        delete m_pTxn;
}

HRESULT CTPCC_Common_Remote::CallSetComplete()
{
    IObjectContext* pObjectContext = NULL;

    // get our object context
    HRESULT hr = CoGetObjectContext( IID_IObjectContext,
    (void **)&pObjectContext );
    pObjectContext->SetComplete();
    ReleaseInterface(pObjectContext);
    return hr;
}

//
// called by the ctor activator
//

```

```

STDMETHODIMP CTPCC_Common_Remote::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;
}

HRESULT CTPCC_Common_Remote::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));

        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;

        m_pTxn->Payment(FALSE);

        memcpy( &pData->u.Payment, pNewOrder,
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
}

```

```

        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_Remote::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));

        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;

        m_pTxn->Payment(FALSE);

        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 (...)
    {
        WriteMessageToEventLog(TEXT("Unhandled
exception.));

        pData->retval = ERR_TYPE_LOGIC;
        pData->error = 0;
        m_bCanBePooled = FALSE;
        return E_FAIL;
    }
}

HRESULT CTPCC_Common_Remote::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));

        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;

        m_pTxn->StockLevel();

        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)) ||
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_Remote::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));

        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;

        m_pTxn->OrderStatus();

        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)) ||
ERR_TYPE_ODBC) && (e->ErrorNum() == 10054)) )
            m_bCanBePooled = FALSE;
    }
}

```

```

        {
            WriteMessageToEventLog(TEXT("Unhandled
exception."));
            pData->retval = ERR_TYPE_LOGIC;
            pData->error = 0;
            m_bCanBePooled = FALSE;
            return E_FAIL;
        }
    }
}

```

## **tpcc\_com\_remote.def**

: tpcc\_com\_remote.def : Declares the module parameters.

```
LIBRARY "tpcc_com_remote.dll"
```

```
EXPORTS
```

```

    DllCanUnloadNow @1 PRIVATE
    DllGetClassObject @2 PRIVATE
    DllRegisterServer @3 PRIVATE
    DllUnregisterServer @4 PRIVATE

```

## **tpcc\_com\_remote.h**

/\* this ALWAYS GENERATED file contains the definitions for the interfaces \*/

/\* File created by MIDL compiler version 5.01.0164 \*/

/\* at Fri Jan 19 11:15:15 2001

\*/

/\* Compiler settings for .\src\tpcc\_com\_remote.idl:  
 Oicf (OptLev=i2), W1, Zp8, env=Win32, ms\_ext, c\_ext  
 error checks: allocation ref bounds\_check enum stub\_data  
 \*/

```
//@@MIDL_FILE_HEADING( )
```

/\* verify that the <rpcndr.h> version is high enough to compile this file\*/

```

#ifdef __REQUIRED_RPCNDR_H_VERSION__
#define __REQUIRED_RPCNDR_H_VERSION__ 440
#endif

```

```

#include "rpc.h"
#include "rpcndr.h"

```

```

#ifdef __tpcc_com_remote_h__
#define __tpcc_com_remote_h__

```

```

#ifdef __cplusplus
extern "C"{
#endif

```

/\* Forward Declarations \*/

```

#ifdef __TPCCrem_FWD_DEFINED__
#define __TPCCrem_FWD_DEFINED__

```

```

#ifdef __cplusplus
typedef class TPCCrem TPCCrem;
#else
typedef struct TPCCrem TPCCrem;
#endif /* __cplusplus */

```

```
#endif /* __TPCCrem_FWD_DEFINED__ */
```

/\* header files for imported files \*/

```

#include "oidl.h"
#include "ocidl.h"
#include "tpcc_com_remote_ps.h"

```

```

void __RPC_FAR * __RPC_USER MIDL_user_allocate(size_t);
void __RPC_USER MIDL_user_free( void __RPC_FAR * );

```

```

/* interface __MIDL_itf_tpcc_com_remote_0000 */
/* [local] */

```

```

extern RPC_IF_HANDLE
__MIDL_itf_tpcc_com_remote_0000_v0_0_c_ifspec;
extern RPC_IF_HANDLE
__MIDL_itf_tpcc_com_remote_0000_v0_0_s_ifspec;

```

```

#ifdef __TPCCremLib_LIBRARY_DEFINED__
#define __TPCCremLib_LIBRARY_DEFINED__

```

```

/* library TPCCremLib */
/* [helpstring][version][uuid] */

```

```
EXTERN_C const IID LIBID_TPCCremLib;
```

```
EXTERN_C const CLSID CLSID_TPCCrem;
```

```
#ifdef __cplusplus
```

```

class
DECLSPEC_UUID("63EC25AB-828A-4ed7-8C6C-B46D29889594")
TPCCrem;
#endif
#endif /* __TPCCremLib_LIBRARY_DEFINED__ */

```

/\* Additional Prototypes for ALL interfaces \*/

/\* end of Additional Prototypes \*/

```

#ifdef __cplusplus
}
#endif

```

```
#endif
```

## **tpcc\_com\_remote.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 TPCCrem;

import "oidl.idl";
import "ocidl.idl";
import "..\tpcc_com_remote_ps\src\tpcc_com_remote_ps.idl";

[
    uuid(B207575F-7A88-489a-9383-859E2D771537),
    version(1.0),
    helpstring("Remote TPC-C 1.0 Type Library")
]
library TPCCremLib
{
    importlib("stdole32.tlb");
    importlib("stdole2.tlb");

    [
        uuid(63EC25AB-828A-4ed7-8C6C-B46D29889594),
        helpstring("Remote All Txns Class")
    ]
    coclass TPCCrem
    {
        [default] interface ITPCCrem;
    };
};

```

### **tpcc\_com\_remote.rc**

```

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

#define APSTUDIO_READONLY_SYMBOLS
//
// Generated from the TEXTINCLUDE2 resource.
//
#include "winres.h"

//
// 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

#ifndef 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_remote.tlb""\r\n"
    "\0"
END

#endif // APSTUDIO_INVOKED

#ifndef _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_remote Module\0"
            VALUE "FileVersion", "1, 0, 0, 1\0"
            VALUE "InternalName", "TPCCNEWORDER\0"
            VALUE "LegalCopyright", "Copyright 1997\0"
            VALUE "OriginalFilename", "tpcc_com_remote.DLL\0"
            VALUE "ProductName", "tpcc_com_remote 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_TPCCrem          REGISTRY DISCARDABLE
"tpcc_com_remote.rgs"
```

```
////////////////////////////////////
//
// String Table
//
```

```
STRINGTABLEDISCARDABLE
BEGIN
    IDS_PROJNAME          "tpcc_com_remote"
END
```

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

```
#ifndef APSTUDIO_INVOKED
////////////////////////////////////
//
// Generated from the TEXTINCLUDE3 resource.
//
1 TYPELIB "tpcc_com_remote.tlb"
```

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

### ***tpcc\_com\_remote.rgs***

```
HKCR
{
    TPCC.AllRemoteTxns.1 = s 'All RemoteTxns Class'
    {
        CLSID = s
        '{63EC25AB-828A-4ed7-8C6C-B46D29889594}'
    }
    TPCC.AllRemoteTxns = s 'TPCC Remote Class'
    {
        CurVer = s 'TPCC.AllRemoteTxns.1'
    }
    NoRemove CLSID
    {
        ForceRemove
        {63EC25AB-828A-4ed7-8C6C-B46D29889594} = s 'TPCC Remote
        Class'
    }
    {
        ProgID = s 'TPCC.AllRemoteTxns.1'
        VersionIndependentProgID = s
        'TPCC.AllRemoteTxns'
        InprocServer32 = s '%MODULE%'
        {
            val ThreadingModel = s
            'Both'
        }
    }
}
}
```

### ***tpcc\_com\_remote.i.c***

```
/* this file contains the actual definitions of */
/* the IIDs and CLSIDs */

/* link this file in with the server and any clients */
```

```
/* File created by MIDL compiler version 5.01.0164 */
/* at Fri Jan 19 11:15:15 2001
*/
/* Compiler settings for .\src\tpcc_com_remote.idl:
Oicf (OptLev=i2), W1, Zp8, env=Win32, ms_ext, c_ext
error checks: allocation ref bounds_check enum stub_data
*/
//@@@MIDL_FILE_HEADING( )
#ifdef __cplusplus
extern "C"{
#endif
```

```
#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
```

```
const IID LIBID_TPCCremLib =
{0xB207575F,0x7A88,0x489a,{0x93,0x83,0x85,0x9E,0x2D,0x77,0x1
5,0x37}};
```

```
const CLSID CLSID_TPCCrem =
{0x63EC25AB,0x828A,0x4ed7,{0x8C,0x6C,0xB4,0x6D,0x29,0x88,0
x95,0x94}};
```

```
#ifdef __cplusplus
}
#endif
```

### ***tpcc\_com\_remote.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_Remote :
public ITPCCrem,
public IObjectControl,
public IObjectConstruct,
public CComObjectRootEx<CComSingleThreadModel>
{
public:
    BEGIN_COM_MAP(CTPCC_Common_Remote)
        COM_INTERFACE_ENTRY(ITPCCrem)
        COM_INTERFACE_ENTRY(IObjectControl)

```

```

        COM_INTERFACE_ENTRY(IObjectConstruct)
    END_COM_MAP()

    CTPCC_Common_Remote();
    ~CTPCC_Common_Remote();

// ITPCCrem
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) {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
            DELIVERY_DATA
            STOCK_LEVEL_DATA
            ORDER_STATUS_DATA
        } u;
    };
};

////////////////////////////////////
// CTPCC
class CTPCCrem :
public CTPCC_Common_Remote,
public CComCoClass<CTPCCrem, &CLSID_TPCCrem>
{
public:
    DECLARE_REGISTRY_RESOURCEID(IDR_TPCCrem)
    BEGIN_COM_MAP(CTPCCrem)

```

```

        COM_INTERFACE_ENTRY2(IUnknown,
        CComObjectRootEx)

COM_INTERFACE_ENTRY_CHAIN(CTPCC_Common_Remote)
END_COM_MAP()

};

```

### **tpcc\_com\_remote\_ps.def**

```
LIBRARY "tpcc_com_remote_ps"
```

```
DESCRIPTION 'Proxy/Stub DLL'
```

```
EXPORTS
```

```

        DllGetClassObject    @1    PRIVATE
        DllCanUnloadNow     @2    PRIVATE
        GetProxyDllInfo     @3    PRIVATE
        DllRegisterServer   @4    PRIVATE
        DllUnregisterServer @5    PRIVATE

```

### **tpcc\_com\_remote\_ps.h**

```
/* this ALWAYS GENERATED file contains the definitions for the
interfaces */
```

```

/* File created by MIDL compiler version 5.01.0164 */
/* at Fri Jan 19 11:15:07 2001
*/
/* Compiler settings for .\src\tpcc_com_remote_ps.idl:
   Oicf (OptLev=i2), W1, Zp8, env=Win32, ms_ext, c_ext
   error checks: allocation ref bounds_check enum stub_data
*/
//@@@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_remote_ps_h__
#define __tpcc_com_remote_ps_h__

```

```

#ifdef __cplusplus
extern "C"{
#endif

```

```
/* Forward Declarations */
```

```

#ifndef __ITPCCrem_FWD_DEFINED__
#define __ITPCCrem_FWD_DEFINED__

```

```

typedef interface ITPCCrem ITPCCrem;
#endif /* __ITPCCrem_FWD_DEFINED__ */

```

```

/* header files for imported files */
#include "oidl.h"
#include "ocidl.h"

```

```

void __RPC_FAR * __RPC_USER MIDL_user_allocate(size_t);
void __RPC_USER MIDL_user_free( void __RPC_FAR * );

```

```

/* interface __MIDL_itf_tpcc_com_remote_ps_0000 */
/* [local] */

```

```

extern RPC_IF_HANDLE
__MIDL_itf_tpcc_com_remote_ps_0000_v0_0_c_ifspec;
extern RPC_IF_HANDLE
__MIDL_itf_tpcc_com_remote_ps_0000_v0_0_s_ifspec;

```

```

#ifndef __ITPCCrem_INTERFACE_DEFINED__
#define __ITPCCrem_INTERFACE_DEFINED__

```

```

/* interface ITPCCrem */
/* [unique][helpstring][uuid][oleautomation][object] */

```

```
EXTERN_C const IID IID_ITPCCrem;
```

```
#if defined(__cplusplus) && !defined(CINTERFACE)
```

```
MIDL_INTERFACE("4899AD2E-D521-4d59-824A-4381438FD840")
```

```

ITPCCrem : 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) = 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 ITPCCremVtbl
{
    BEGIN_INTERFACE

```

```

HRESULT ( STDMETHODCALLTYPE __RPC_FAR
*QueryInterface)(
    ITPCCrem __RPC_FAR * This,
    /* [in] */ REFIID riid,
    /* [iid_is][out] */ void __RPC_FAR * __RPC_FAR
*ppvObject);

ULONG ( STDMETHODCALLTYPE __RPC_FAR *AddRef)(
    ITPCCrem __RPC_FAR * This);

ULONG ( STDMETHODCALLTYPE __RPC_FAR *Release)(
    ITPCCrem __RPC_FAR * This);

HRESULT ( _stdcall __RPC_FAR *NewOrder)(
    ITPCCrem __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);

HRESULT ( _stdcall __RPC_FAR *Payment)(
    ITPCCrem __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);

HRESULT ( _stdcall __RPC_FAR *Delivery)(
    ITPCCrem __RPC_FAR * This,
    /* [in] */ VARIANT txn_in);

HRESULT ( _stdcall __RPC_FAR *StockLevel)(
    ITPCCrem __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);

HRESULT ( _stdcall __RPC_FAR *OrderStatus)(
    ITPCCrem __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);

HRESULT ( _stdcall __RPC_FAR *CallSetComplete)(
    ITPCCrem __RPC_FAR * This);

END_INTERFACE
} ITPCCremVtbl;

interface ITPCCrem
{
    CONST_VTBL struct ITPCCremVtbl __RPC_FAR *IpVtbl;
};

#ifdef COBJMACROS

#define ITPCCrem_QueryInterface(This,riid,ppvObject) \
    (This)->IpVtbl -> QueryInterface(This,riid,ppvObject)

#define ITPCCrem_AddRef(This) \
    (This)->IpVtbl -> AddRef(This)

#define ITPCCrem_Release(This) \
    (This)->IpVtbl -> Release(This)

#define ITPCCrem_NewOrder(This,txn_in,txn_out) \
    (This)->IpVtbl -> NewOrder(This,txn_in,txn_out)

#define ITPCCrem_Payment(This,txn_in,txn_out) \
    (This)->IpVtbl -> Payment(This,txn_in,txn_out)

```

```

#define ITPCCrem_Delivery(This,txn_in) \
    (This)->IpVtbl -> Delivery(This,txn_in)

#define ITPCCrem_StockLevel(This,txn_in,txn_out) \
    (This)->IpVtbl -> StockLevel(This,txn_in,txn_out)

#define ITPCCrem_OrderStatus(This,txn_in,txn_out) \
    (This)->IpVtbl -> OrderStatus(This,txn_in,txn_out)

#define ITPCCrem_CallSetComplete(This) \
    (This)->IpVtbl -> CallSetComplete(This)

#endif /* COBJMACROS */

#ifdef /* C style interface */

HRESULT _stdcall ITPCCrem_NewOrder_Proxy(
    ITPCCrem __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);

void __RPC_STUB ITPCCrem_NewOrder_Stub(
    IRpcStubBuffer *This,
    IRpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE _pRpcMessage,
    DWORD *_pdwStubPhase);

HRESULT _stdcall ITPCCrem_Payment_Proxy(
    ITPCCrem __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);

void __RPC_STUB ITPCCrem_Payment_Stub(
    IRpcStubBuffer *This,
    IRpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE _pRpcMessage,
    DWORD *_pdwStubPhase);

HRESULT _stdcall ITPCCrem_Delivery_Proxy(
    ITPCCrem __RPC_FAR * This,
    /* [in] */ VARIANT txn_in);

void __RPC_STUB ITPCCrem_Delivery_Stub(
    IRpcStubBuffer *This,
    IRpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE _pRpcMessage,
    DWORD *_pdwStubPhase);

HRESULT _stdcall ITPCCrem_StockLevel_Proxy(
    ITPCCrem __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);

void __RPC_STUB ITPCCrem_StockLevel_Stub(
    IRpcStubBuffer *This,
    IRpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE _pRpcMessage,

```

```

DWORD *_pdwStubPhase);

HRESULT __stdcall ITPCCrem_OrderStatus_Proxy(
    ITPCCrem __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);

void __RPC_STUB ITPCCrem_OrderStatus_Stub(
    IRpcStubBuffer *This,
    IRpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE _pRpcMessage,
    DWORD *_pdwStubPhase);

HRESULT __stdcall ITPCCrem_CallSetComplete_Proxy(
    ITPCCrem __RPC_FAR * This);

void __RPC_STUB ITPCCrem_CallSetComplete_Stub(
    IRpcStubBuffer *This,
    IRpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE _pRpcMessage,
    DWORD *_pdwStubPhase);

#endif /* __ITPCCrem_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_remote_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 ITPCCrem;
import "oidl.idl";
import "ocidl.idl";

[
    object,
    oleautomation,
    uuid(4899AD2E-D521-4d59-824A-4381438FD840),
    helpstring("ITPCC Interface"),
    pointer_default(unique)
]
interface ITPCCrem : 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
    );

    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
    (
    );

}; // interface ITPCC

tpcc_com_remote_ps_i.c

```



```

/* this file contains the actual definitions of */
/* the IIDs and CLSIDs */

/* link this file in with the server and any clients */

/* File created by MIDL compiler version 5.01.0164 */
/* at Fri Jan 19 11:15:07 2001
*/
/* Compiler settings for .\src\tpcc_com_remote_ps.idl:
Oicf (OptLev=i2), W1, Zp8, env=Win32, ms_ext, c_ext
error checks: allocation ref bounds_check enum stub_data
*/
//@@@MIDL_FILE_HEADING( )
#ifdef __cplusplus
extern "C"{
#endif

#ifdef __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__

#ifdef CLSID_DEFINED
#define CLSID_DEFINED
typedef IID CLSID;
#endif // CLSID_DEFINED

const IID IID_ITPCCrem =
{0x4899AD2E,0xD521,0x4d59,{0x82,0x4A,0x43,0x81,0x43,0x8F,0x
D8,0x40}};

#ifdef __cplusplus
}
#endif

tpcc_com_remote_ps_p.c

/* this ALWAYS GENERATED file contains the proxy stub code */

/* File created by MIDL compiler version 5.01.0164 */
/* at Fri Jan 19 11:15:07 2001
*/
/* Compiler settings for .\src\tpcc_com_remote_ps.idl:
Oicf (OptLev=i2), W1, Zp8, env=Win32, ms_ext, c_ext
error checks: allocation ref bounds_check enum stub_data
*/
//@@@MIDL_FILE_HEADING( )

#define USE_STUBLESS_PROXY

/* verify that the <rpcproxy.h> version is high enough to compile this
file*/
#endif __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_remote_ps.h"

#define TYPE_FORMAT_STRING_SIZE 997
#define PROC_FORMAT_STRING_SIZE 187

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_remote_ps_0000, ver.
0.0,
GUID={0x00000000,0x0000,0x0000,{0x00,0x00,0x00,0x00,0x00,0x
00,0x00,0x00}} */

/* Object interface: IUnknown, ver. 0.0,
GUID={0x00000000,0x0000,0x0000,{0xC0,0x00,0x00,0x00,0x00,0x
00,0x00,0x46}} */

/* Object interface: ITPCCrem, ver. 0.0,
GUID={0x4899AD2E,0xD521,0x4d59,{0x82,0x4A,0x43,0x81,0x43,0
x8F,0xD8,0x40}} */

extern const MIDL_STUB_DESC Object_StubDesc;

extern const MIDL_SERVER_INFO ITPCCrem_ServerInfo;

#pragma code_seg(".orpc")
extern const USER_MARSHAL_ROUTINE_QUADRUPLE
UserMarshalRoutines[1];

static const MIDL_STUB_DESC Object_StubDesc =
{
    0,
    NdrOleAllocate,
    NdrOleFree,
    0,

```

```

0,
0,
0,
0,
__MIDL_TypeFormatString.Format,
1, /* -error bounds_check flag */
0x20000, /* Ndr library version */
0,
0x50100a4, /* MIDL Version 5.1.164 */
0,
UserMarshalRoutines,
0, /* notify & notify_flag routine table */
1, /* Flags */
0, /* Reserved3 */
0, /* Reserved4 */
0 /* Reserved5 */
};

static const unsigned short ITPCCrem_FormatStringOffsetTable[] =
{
0,
34,
68,
96,
130,
164
};

static const MIDL_SERVER_INFO ITPCCrem_ServerInfo =
{
&Object_StubDesc,
0,
__MIDL_ProcFormatString.Format,
&ITPCCrem_FormatStringOffsetTable[-3],
0,
0,
0,
0
};

static const MIDL_STUBLESS_PROXY_INFO ITPCCrem_ProxyInfo =
{
&Object_StubDesc,
__MIDL_ProcFormatString.Format,
&ITPCCrem_FormatStringOffsetTable[-3],
0,
0,
0
};

CINTERFACE_PROXY_VTABLE(9)_ITPCCremProxyVtbl =
{
&ITPCCrem_ProxyInfo,
&IID_ITPCCrem,
IUnknown_QueryInterface_Proxy,
IUnknown_AddRef_Proxy,
IUnknown_Release_Proxy,
(void *)-1 /* ITPCCrem::NewOrder */,
(void *)-1 /* ITPCCrem::Payment */,
(void *)-1 /* ITPCCrem::Delivery */,
(void *)-1 /* ITPCCrem::StockLevel */,
(void *)-1 /* ITPCCrem::OrderStatus */,
(void *)-1 /* ITPCCrem::CallSetComplete */
};

const CInterfaceStubVtbl _ITPCCremStubVtbl =
{

```

```

&IID_ITPCCrem,
&ITPCCrem_ServerInfo,
9,
0, /* pure interpreted */
CStdStubBuffer_METHODS
};

#pragma data_seg("rdata")

static const USER_MARSHAL_ROUTINE_QUADRUPLE
UserMarshalRoutines[1] =
{
{
VARIANT_UserSize,
VARIANT_UserMarshal,
VARIANT_UserUnmarshal,
VARIANT_UserFree
}
};

#ifndef __RPC_WIN32__
#error Invalid build platform for this stub.
#endif

#ifndef 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_marshall] or [user_marshall] attribute, more
than 32 methods in the interface.
#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, /*
object, Oi2 /* 0x6c, /* Old Flags:
/* 2 */ NdrFcLong( 0x0 ), /* 0 */
/* 6 */ NdrFcShort( 0x3 ), /* 3 */
#ifdef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 8 */ NdrFcShort( 0x1c ), /* x86 Stack size/offset = 28 */
#else
NdrFcShort( 0x20 ), /* MIPS &
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_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 18 */ NdrFcShort( 0x4 ), /* x86 Stack size/offset = 4 */
#else
                                NdrFcShort( 0x8 ), /* MIPS &
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_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 24 */ NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */
#else
                                NdrFcShort( 0x18 ), /* MIPS &
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_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 30 */ NdrFcShort( 0x18 ), /* x86 Stack size/offset = 24 */
#else
                                NdrFcShort( 0x1c ), /* MIPS &
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_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 42 */ NdrFcShort( 0x1c ), /* x86 Stack size/offset = 28 */
#else
                                NdrFcShort( 0x20 ), /* MIPS &
PPC Stack size/offset = 32 */
#endif
#else
                                NdrFcShort( 0x20 ), /* 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_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 52 */ NdrFcShort( 0x4 ), /* x86 Stack size/offset = 4 */
#else
                                NdrFcShort( 0x8 ), /* MIPS &
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_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 58 */ NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */
#else
                                NdrFcShort( 0x18 ), /* MIPS &
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_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 64 */ NdrFcShort( 0x18 ), /* x86 Stack size/offset = 24 */
#else
                                NdrFcShort( 0x1c ), /* MIPS &
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_

```

```

#if !defined(_MIPS_) && !defined(_PPC_)
/* 76 */ NdrFcShort( 0x18 ), /* x86 Stack size/offset = 24 */
#else
NdrFcShort( 0x1c ), /* MIPS &
PPC Stack size/offset = 28 */
#endif
#else
NdrFcShort( 0x20 ), /* Alpha Stack
size/offset = 32 */
#endif
/* 78 */ NdrFcShort( 0x0 ), /* 0 */
/* 80 */ NdrFcShort( 0x8 ), /* 8 */
/* 82 */ 0x6, /* Oi2 Flags: clt must size, has
return, */
0x2, /* 2 */
/* Parameter txn_in */
/* 84 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by
val, */
#ifdef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 86 */ NdrFcShort( 0x4 ), /* x86 Stack size/offset = 4 */
#else
NdrFcShort( 0x8 ), /* MIPS &
PPC Stack size/offset = 8 */
#endif
#else
NdrFcShort( 0x8 ), /* Alpha Stack
size/offset = 8 */
#endif
/* 88 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */
/* Return value */
/* 90 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifdef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 92 */ NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */
#else
NdrFcShort( 0x18 ), /* MIPS &
PPC Stack size/offset = 24 */
#endif
#else
NdrFcShort( 0x18 ), /* Alpha Stack
size/offset = 24 */
#endif
/* 94 */ 0x8, /* FC_LONG */
0x0, /* 0 */
/* Procedure StockLevel */
/* 96 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /* Old Flags:
object, Oi2 */
/* 98 */ NdrFcLong( 0x0 ), /* 0 */
/* 102 */ NdrFcShort( 0x6 ), /* 6 */
#ifdef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 104 */ NdrFcShort( 0x1c ), /* x86 Stack size/offset = 28 */
#else
NdrFcShort( 0x20 ), /* MIPS &
PPC Stack size/offset = 32 */
#endif
#else
NdrFcShort( 0x28 ), /* Alpha Stack
size/offset = 40 */
#endif
/* 106 */ NdrFcShort( 0x0 ), /* 0 */
/* 108 */ NdrFcShort( 0x8 ), /* 8 */
/* 110 */ 0x7, /* Oi2 Flags: srv must size, clt must
size, has return, */
0x3, /* 3 */
/* Parameter txn_in */
/* 112 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by
val, */
#ifdef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 114 */ NdrFcShort( 0x4 ), /* x86 Stack size/offset = 4 */
#else
NdrFcShort( 0x8 ), /* MIPS &
PPC Stack size/offset = 8 */
#endif
#else
NdrFcShort( 0x8 ), /* Alpha Stack
size/offset = 8 */
#endif
/* 116 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */
/* Parameter txn_out */
/* 118 */ NdrFcShort( 0x4113 ), /* Flags: must size, must
free, out, simple ref, srv alloc size=16 */
#ifdef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 120 */ NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */
#else
NdrFcShort( 0x18 ), /* MIPS &
PPC Stack size/offset = 24 */
#endif
#else
NdrFcShort( 0x18 ), /* Alpha Stack
size/offset = 24 */
#endif
/* 122 */ NdrFcShort( 0x3da ), /* Type Offset=986 */
/* Return value */
/* 124 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifdef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 126 */ NdrFcShort( 0x18 ), /* x86 Stack size/offset = 24 */
#else
NdrFcShort( 0x1c ), /* MIPS &
PPC Stack size/offset = 28 */
#endif
#else
NdrFcShort( 0x20 ), /* Alpha Stack
size/offset = 32 */
#endif
/* 128 */ 0x8, /* FC_LONG */
0x0, /* 0 */
/* Procedure OrderStatus */
/* 130 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /* Old Flags:
object, Oi2 */
/* 132 */ NdrFcLong( 0x0 ), /* 0 */
/* 136 */ NdrFcShort( 0x7 ), /* 7 */
#ifdef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 138 */ NdrFcShort( 0x1c ), /* x86 Stack size/offset = 28 */
#endif
#endif

```

```

NdrFcShort( 0x20 ), /* MIPS &
PPC Stack size/offset = 32 */
#endif
#else
NdrFcShort( 0x28 ), /* Alpha Stack
size/offset = 40 */
#endif
/* 140 */ NdrFcShort( 0x0 ), /* 0 */
/* 142 */ NdrFcShort( 0x8 ), /* 8 */
/* 144 */ 0x7, /* Oi2 Flags: srv must size, clt must
size, has return, */
0x3, /* 3 */
/* Parameter txn_in */
/* 146 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by
val, */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 148 */ NdrFcShort( 0x4 ), /* x86 Stack size/offset = 4 */
#else
NdrFcShort( 0x8 ), /* MIPS &
PPC Stack size/offset = 8 */
#endif
#else
NdrFcShort( 0x8 ), /* Alpha Stack
size/offset = 8 */
#endif
/* 150 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */
/* Parameter txn_out */
/* 152 */ NdrFcShort( 0x4113 ), /* Flags: must size, must
free, out, simple ref, srv alloc size=16 */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 154 */ NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */
#else
NdrFcShort( 0x18 ), /* MIPS &
PPC Stack size/offset = 24 */
#endif
#else
NdrFcShort( 0x18 ), /* Alpha Stack
size/offset = 24 */
#endif
/* 156 */ NdrFcShort( 0x3da ), /* Type Offset=986 */
/* Return value */
/* 158 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifndef _ALPHA_
#if !defined(_MIPS_) && !defined(_PPC_)
/* 160 */ NdrFcShort( 0x18 ), /* x86 Stack size/offset = 24 */
#else
NdrFcShort( 0x1c ), /* MIPS &
PPC Stack size/offset = 28 */
#endif
#else
NdrFcShort( 0x20 ), /* Alpha Stack
size/offset = 32 */
#endif
/* 162 */ 0x8, /* FC_LONG */
0x0, /* 0 */
/* Procedure CallSetComplete */
/* 164 */ 0x33, /* FC_AUTO_HANDLE */
object, Oi2 */
/* 166 */ NdrFcLong( 0x0 ), /* 0 */
/* 170 */ NdrFcShort( 0x8 ), /* 8 */
#ifndef _ALPHA_
/* 172 */ NdrFcShort( 0x8 ), /* x86, MIPS, PPC Stack size/offset
= 8 */
#else
NdrFcShort( 0x10 ), /* Alpha Stack
size/offset = 16 */
#endif
/* 174 */ NdrFcShort( 0x0 ), /* 0 */
/* 176 */ NdrFcShort( 0x8 ), /* 8 */
/* 178 */ 0x4, /* Oi2 Flags: has return, */
0x1, /* 1 */
/* Return value */
/* 180 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifndef _ALPHA_
/* 182 */ NdrFcShort( 0x4 ), /* x86, MIPS, PPC Stack size/offset
= 4 */
#else
NdrFcShort( 0x8 ), /* Alpha Stack
size/offset = 8 */
#endif
/* 184 */ 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( 0xffff8 ), /* -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 */
/* 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, /*
/* 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 */

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/* 332 */ NdrFcShort( 0x0 ), /* 0 */
/* 334 */ NdrFcShort( 0x0 ), /* 0 */
/* 336 */ 0xc0, /* 192 */
/* 338 */ 0x0, /* 0 */
/* 340 */ 0x0, /* 0 */
/* 342 */ 0x0, /* 0 */
/* 344 */ /* 70 */
/* 346 */ NdrFcShort( 0x2 ), /* Offset= 2 (348) */
/* 348 */ /* FC_UP */
/* 350 */ NdrFcShort( 0x1fc ), /* Offset= 508 (858) */
/* 352 */ /* FC_UP */
FC_ENCAPSULATED_UNION /*
0x2a, /*
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( 0xfffffff ), /* Offset= -1 (417) */
/* 420 */ /* FC_UP */
0x1b, /*
FC_CARRAY */
0x3, /* 3 */
/* 422 */ NdrFcShort( 0x4 ), /* 4 */
/* 424 */ 0x19, /* Corr desc: field pointer,
FC_ULONG */
0x0, /*
/* 426 */ NdrFcShort( 0x0 ), /* 0 */
/* 428 */ /* FC_PP */
0x4b, /* FC_PP */
/* 430 */ /* FC_PAD */
0x5c, /* FC_PAD */
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( 0xfffff6e ), /* 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 */ /* FC_PP */
0x4b, /* FC_PP */
0x5c, /* FC_PAD */
/* 456 */ /* FC_END */
0x46, /*
FC_NO_REPEAT */
0x5c, /* FC_PAD */
/* 458 */ NdrFcShort( 0x4 ), /* 4 */
/* 460 */ NdrFcShort( 0x4 ), /* 4 */
/* 462 */ 0x11, 0x0, /* FC_RP */
/* 464 */ NdrFcShort( 0xfffffd4 ), /* Offset= -44 (420) */
/* 466 */ /* FC_END */
0x5b, /* FC_END */
0x8, /* FC_LONG
*/
/* 468 */ 0x8, /* FC_LONG */
0x5b, /* FC_END */
/* 470 */ /* FC_END */
0x21, /*
FC_BOGUS_ARRAY */
0x3, /* 3 */
/* 472 */ NdrFcShort( 0x0 ), /* 0 */
/* 474 */ 0x19, /* Corr desc: field pointer,
FC_ULONG */
0x0, /*
/* 476 */ NdrFcShort( 0x0 ), /* 0 */
/* 478 */ NdrFcLong( 0xffffffff ), /* -1 */
/* 482 */ 0x4c, /* FC_EMBEDDED_COMPLEX */
0x0, /* 0 */
/* 484 */ NdrFcShort( 0xfffff50 ), /* Offset= -176 (308) */
/* 486 */ 0x5c, /* FC_PAD */
0x5b, /* FC_END */
/* 488 */ /* FC_END */
0x1a, /*
FC_BOGUS_STRUCT */
0x3, /* 3 */
/* 490 */ NdrFcShort( 0x8 ), /* 8 */
/* 492 */ NdrFcShort( 0x0 ), /* 0 */
/* 494 */ NdrFcShort( 0x6 ), /* Offset= 6 (500) */
/* 496 */ 0x8, /* FC_LONG */
0x36, /*
FC_POINTER */
/* 498 */ 0x5c, /* FC_PAD */
0x5b, /* FC_END */
/* 500 */ /* FC_RP */
0x11, 0x0, /* FC_RP */
/* 502 */ NdrFcShort( 0xfffffe0 ), /* Offset= -32 (470) */
/* 504 */ /*
0x21, /*
FC_BOGUS_ARRAY */
0x3, /* 3 */
/* 506 */ NdrFcShort( 0x0 ), /* 0 */
/* 508 */ 0x19, /* Corr desc: field pointer,
FC_ULONG */
0x0, /*
/* 510 */ NdrFcShort( 0x0 ), /* 0 */

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/* 512 */ NdrFcLong( 0xffffffff ), /* -1 */
/* 516 */ 0x4c, /* FC_EMBEDDED_COMPLEX */
/* 518 */ NdrFcShort( 0xffffffff40 ), /* Offset= -192 (326) */
/* 520 */ 0x5c, /* FC_PAD */
/* 522 */ 0x5b, /* FC_END */
/* 524 */ 0x1a, /*
FC_BOGUS_STRUCT */
/* 526 */ 0x3, /* 3 */
/* 528 */ NdrFcShort( 0x8 ), /* 8 */
/* 530 */ NdrFcShort( 0x0 ), /* 0 */
/* 532 */ NdrFcShort( 0x6 ), /* Offset= 6 (534) */
/* 534 */ 0x8, /* FC_LONG */
/* 536 */ 0x36, /*
FC_POINTER */
/* 538 */ 0x5c, /* FC_PAD */
/* 540 */ 0x5b, /* FC_END */
/* 542 */ 0x11, 0x0, /* FC_RP */
/* 544 */ NdrFcShort( 0xffffffffe0 ), /* Offset= -32 (504) */
/* 546 */ 0x1b, /*
FC_CARRAY */
/* 548 */ 0x3, /* 3 */
/* 550 */ NdrFcShort( 0x4 ), /* 4 */
/* 552 */ 0x19, /* Corr desc: field pointer,
FC_ULONG */
/* 554 */ 0x0, /*
FC_ULONG */
/* 556 */ NdrFcShort( 0x0 ), /* 0 */
/* 558 */ 0x4b, /* FC_PP */
/* 560 */ 0x5c, /* FC_PAD */
/* 562 */ 0x48, /*
FC_CARRAY */
/* 564 */ 0x49, /*
FC_VARIABLE_REPEAT */
/* 566 */ 0x49, /*
FC_FIXED_OFFSET */
/* 568 */ NdrFcShort( 0x4 ), /* 4 */
/* 570 */ NdrFcShort( 0x0 ), /* 0 */
/* 572 */ NdrFcShort( 0x1 ), /* 1 */
/* 574 */ NdrFcShort( 0x0 ), /* 0 */
/* 576 */ NdrFcShort( 0x0 ), /* 0 */
/* 578 */ 0x12, 0x0, /* FC_UP */
/* 580 */ NdrFcShort( 0xffffffffdce ), /* Offset= -562 (0) */
/* 582 */ 0x5b, /* FC_END */
/* 584 */ 0x8, /* FC_LONG
*/
/* 586 */ 0x5c, /* FC_PAD */
/* 588 */ 0x5b, /* FC_END */
/* 590 */ 0x1a, /*
FC_BOGUS_STRUCT */
/* 592 */ 0x3, /* 3 */
/* 594 */ NdrFcShort( 0x8 ), /* 8 */
/* 596 */ NdrFcShort( 0x0 ), /* 0 */
/* 598 */ NdrFcShort( 0x6 ), /* Offset= 6 (580) */
/* 600 */ 0x8, /* FC_LONG */
/* 602 */ 0x36, /*
FC_POINTER */
/* 604 */ 0x5c, /* FC_PAD */
/* 606 */ 0x5b, /* FC_END */
/* 608 */ 0x11, 0x0, /* FC_RP */
/* 610 */ NdrFcShort( 0xffffffffd4 ), /* Offset= -44 (538) */
/* 612 */
/* 614 */
/* 616 */
/* 618 */
/* 620 */
/* 622 */
/* 624 */
/* 626 */
/* 628 */
/* 630 */
/* 632 */
/* 634 */
/* 636 */
/* 638 */
/* 640 */
/* 642 */
/* 644 */
/* 646 */
/* 648 */
/* 650 */
/* 652 */
/* 654 */
/* 656 */
/* 658 */
FC_CONSTANT_IID */
/* 586 */ NdrFcLong( 0x2f ), /* 47 */
/* 590 */ NdrFcShort( 0x0 ), /* 0 */
/* 592 */ NdrFcShort( 0x0 ), /* 0 */
/* 594 */ 0xc0, /* 192 */
/* 596 */ 0x0, /* 0 */
/* 598 */ 0x0, /* 0 */
/* 600 */ 0x0, /* 0 */
/* 602 */ 0x46, /* 70 */
/* 604 */ 0x1b, /*
FC_CARRAY */
/* 606 */ NdrFcShort( 0x1 ), /* 1 */
/* 608 */ 0x19, /* Corr desc: field pointer,
FC_ULONG */
/* 610 */ 0x0, /*
FC_ULONG */
/* 612 */ NdrFcShort( 0x4 ), /* 4 */
/* 614 */ 0x1, /* FC_BYTE */
/* 616 */ 0x5b, /* FC_END */
/* 618 */ 0x1a, /*
FC_BOGUS_STRUCT */
/* 620 */ 0x3, /* 3 */
/* 622 */ NdrFcShort( 0x10 ), /* 16 */
/* 624 */ NdrFcShort( 0x0 ), /* 0 */
/* 626 */ NdrFcShort( 0xa ), /* Offset= 10 (628) */
/* 628 */ 0x8, /* FC_LONG */
/* 630 */ 0x8, /* FC_LONG
*/
/* 632 */ 0x4c, /* FC_EMBEDDED_COMPLEX */
/* 634 */ 0x0, /* 0 */
/* 636 */ NdrFcShort( 0xffffffffd8 ), /* Offset= -40 (584) */
/* 638 */ 0x36, /* FC_POINTER */
/* 640 */ 0x5b, /* FC_END */
/* 642 */ 0x12, 0x0, /* FC_UP */
/* 644 */ NdrFcShort( 0xffffffffe4 ), /* Offset= -28 (602) */
/* 646 */ 0x1b, /*
FC_CARRAY */
/* 648 */ 0x3, /* 3 */
/* 650 */ NdrFcShort( 0x4 ), /* 4 */
/* 652 */ 0x19, /* Corr desc: field pointer,
FC_ULONG */
/* 654 */ 0x0, /*
FC_ULONG */
/* 656 */ NdrFcShort( 0x0 ), /* 0 */
/* 658 */ 0x4b, /* FC_PP */
/* 660 */ 0x5c, /* FC_PAD */
/* 662 */ 0x48, /*
FC_VARIABLE_REPEAT */
/* 664 */ 0x49, /*
FC_FIXED_OFFSET */
/* 666 */ NdrFcShort( 0x4 ), /* 4 */
/* 668 */ NdrFcShort( 0x0 ), /* 0 */
/* 670 */ NdrFcShort( 0x1 ), /* 1 */
/* 672 */ NdrFcShort( 0x0 ), /* 0 */
/* 674 */ NdrFcShort( 0x0 ), /* 0 */
/* 676 */ 0x12, 0x0, /* FC_UP */
/* 678 */ NdrFcShort( 0xffffffffd4 ), /* Offset= -44 (612) */
/* 680 */
/* 682 */
/* 684 */
/* 686 */
/* 688 */
/* 690 */
/* 692 */
/* 694 */
/* 696 */
/* 698 */
/* 700 */
/* 702 */
/* 704 */
/* 706 */
/* 708 */
/* 710 */
/* 712 */
/* 714 */
/* 716 */
/* 718 */
/* 720 */
/* 722 */
/* 724 */
/* 726 */
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/* 730 */
/* 732 */
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/* 748 */
/* 750 */
/* 752 */
/* 754 */
/* 756 */
/* 758 */
/* 760 */
/* 762 */
/* 764 */
/* 766 */
/* 768 */
/* 770 */
/* 772 */
/* 774 */
/* 776 */
/* 778 */
/* 780 */
/* 782 */
/* 784 */
/* 786 */
/* 788 */
/* 790 */
/* 792 */
/* 794 */
/* 796 */
/* 798 */
/* 800 */
/* 802 */
/* 804 */
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/* 808 */
/* 810 */
/* 812 */
/* 814 */
/* 816 */
/* 818 */
/* 820 */
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/* 832 */
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/* 848 */
/* 850 */
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/* 862 */
/* 864 */
/* 866 */
/* 868 */
/* 870 */
/* 872 */
/* 874 */
/* 876 */
/* 878 */
/* 880 */
/* 882 */
/* 884 */
/* 886 */
/* 888 */
/* 890 */
/* 892 */
/* 894 */
/* 896 */
/* 898 */
/* 900 */
/* 902 */
/* 904 */
/* 906 */
/* 908 */
/* 910 */
/* 912 */
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/* 934 */
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/* 954 */
/* 956 */
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/* 962 */
/* 964 */
/* 966 */
/* 968 */
/* 970 */
/* 972 */
/* 974 */
/* 976 */
/* 978 */
/* 980 */
/* 982 */
/* 984 */
/* 986 */
/* 988 */
/* 990 */
/* 992 */
/* 994 */
/* 996 */
/* 998 */
/* 1000 */

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|                                    |                              |              |                                    |                              |              |
|------------------------------------|------------------------------|--------------|------------------------------------|------------------------------|--------------|
|                                    | 0x5b,                        | /* FC_END */ |                                    | 0x0,                         | /* */        |
|                                    | 0x8,                         | /* FC_LONG   | /* 722 */ NdrFcShort( 0x0 ),       | /* 0 */                      |              |
| */                                 |                              |              | /* 724 */ 0x1,                     | /* FC_BYTE */                |              |
| /* 660 */ 0x5c,                    | /* FC_PAD */                 |              | /* 726 */                          | 0x5b,                        | /* FC_END */ |
| /* 662 */                          | 0x5b,                        | /* FC_END */ |                                    | 0x16,                        | /*           |
| FC_BOGUS_STRUCT */                 | 0x1a,                        | /*           | FC_PSTRUCT */                      | 0x3,                         | /* 3 */      |
|                                    | 0x3,                         | /* 3 */      | /* 728 */ NdrFcShort( 0x8 ),       | /* 8 */                      |              |
| /* 664 */ NdrFcShort( 0x8 ),       | /* 8 */                      |              | /* 730 */                          | 0x4b,                        | /* FC_PP */  |
| /* 666 */ NdrFcShort( 0x0 ),       | /* 0 */                      |              |                                    | 0x5c,                        | /* FC_PAD */ |
| /* 668 */ NdrFcShort( 0x6 ),       | /* Offset= 6 (674) */        |              | /* 732 */                          |                              |              |
| /* 670 */ 0x8,                     | /* FC_LONG */                |              |                                    | 0x46,                        | /*           |
| FC_POINTER */                      | 0x36,                        | /*           | FC_NO_REPEAT */                    | 0x5c,                        | /* FC_PAD */ |
| /* 672 */ 0x5c,                    | /* FC_PAD */                 |              | /* 734 */ NdrFcShort( 0x4 ),       | /* 4 */                      |              |
| /* 674 */                          | 0x5b,                        | /* FC_END */ | /* 736 */ NdrFcShort( 0x4 ),       | /* 4 */                      |              |
|                                    | 0x11, 0x0, /* FC_RP */       |              | /* 738 */ 0x12, 0x0, /* FC_UP */   |                              |              |
| /* 676 */ NdrFcShort( 0xfffffd4 ), | /* Offset= -44 (632) */      |              | /* 740 */ NdrFcShort( 0xfffffe8 ), | /* Offset= -24 (716) */      |              |
| /* 678 */                          |                              |              | /* 742 */                          | 0x5b,                        | /* FC_END */ |
| FC_SMFARRAY */                     | 0x1d,                        | /*           |                                    | 0x8,                         | /* FC_LONG   |
|                                    | 0x0,                         | /* 0 */      | */                                 |                              |              |
| /* 680 */ NdrFcShort( 0x8 ),       | /* 8 */                      |              | /* 744 */ 0x8,                     | /* FC_LONG */                |              |
| /* 682 */ 0x2,                     | /* FC_CHAR */                |              | /* 746 */                          | 0x5b,                        | /* FC_END */ |
| /* 684 */                          | 0x5b,                        | /* FC_END */ |                                    | 0x1b,                        | /*           |
| FC_STRUCT */                       | 0x15,                        | /*           | FC_CARRAY */                       | 0x1,                         | /* 1 */      |
|                                    | 0x3,                         | /* 3 */      | /* 748 */ NdrFcShort( 0x2 ),       | /* 2 */                      |              |
| /* 686 */ NdrFcShort( 0x10 ),      | /* 16 */                     |              | /* 750 */ 0x19,                    | /* Corr desc: field pointer, |              |
| /* 688 */ 0x8,                     | /* FC_LONG */                |              | FC_ULONG */                        |                              |              |
| */                                 | 0x6,                         | /* FC_SHORT  | /* 752 */ NdrFcShort( 0x0 ),       | /* 0 */                      | /* */        |
| /* 690 */ 0x6,                     | /* FC_SHORT */               |              | /* 754 */ 0x6,                     | /* FC_SHORT */               |              |
| FC_EMBEDDED_COMPLEX */             | 0x4c,                        | /*           | /* 756 */                          | 0x5b,                        | /* FC_END */ |
| /* 692 */ 0x0,                     | /* 0 */                      |              |                                    | 0x16,                        | /*           |
| Offset= -15 (678) */               | NdrFcShort( 0xfffff1 ),      | /*           | FC_PSTRUCT */                      | 0x3,                         | /* 3 */      |
| /* 696 */                          | 0x5b,                        | /* FC_END */ | /* 758 */ NdrFcShort( 0x8 ),       | /* 8 */                      |              |
| FC_BOGUS_STRUCT */                 | 0x1a,                        | /*           | /* 760 */                          | 0x4b,                        | /* FC_PP */  |
|                                    | 0x3,                         | /* 3 */      | /* 762 */                          | 0x5c,                        | /* FC_PAD */ |
| /* 698 */ NdrFcShort( 0x18 ),      | /* 24 */                     |              |                                    | 0x46,                        | /*           |
| /* 700 */ NdrFcShort( 0x0 ),       | /* 0 */                      |              | FC_NO_REPEAT */                    | 0x5c,                        | /* FC_PAD */ |
| /* 702 */ NdrFcShort( 0xa ),       | /* Offset= 10 (712) */       |              | /* 764 */ NdrFcShort( 0x4 ),       | /* 4 */                      |              |
| /* 704 */ 0x8,                     | /* FC_LONG */                |              | /* 766 */ NdrFcShort( 0x4 ),       | /* 4 */                      |              |
| FC_POINTER */                      | 0x36,                        | /*           | /* 768 */ 0x12, 0x0, /* FC_UP */   |                              |              |
| /* 706 */ 0x4c,                    | /* FC_EMBEDDED_COMPLEX */    |              | /* 770 */ NdrFcShort( 0xfffffe8 ), | /* Offset= -24 (746) */      |              |
|                                    | 0x0,                         | /* 0 */      | /* 772 */                          | 0x5b,                        | /* FC_END */ |
| /* 708 */ NdrFcShort( 0xfffffe8 ), | /* Offset= -24 (684) */      |              |                                    | 0x8,                         | /* FC_LONG   |
| /* 710 */ 0x5c,                    | /* FC_PAD */                 |              | */                                 |                              |              |
| /* 712 */                          | 0x5b,                        | /* FC_END */ | /* 774 */ 0x8,                     | /* FC_LONG */                |              |
|                                    | 0x11, 0x0, /* FC_RP */       |              | /* 776 */                          | 0x5b,                        | /* FC_END */ |
| /* 714 */ NdrFcShort( 0xfffff0c ), | /* Offset= -244 (470) */     |              |                                    | 0x1b,                        | /*           |
| /* 716 */                          |                              |              | FC_CARRAY */                       | 0x3,                         | /* 3 */      |
| FC_CARRAY */                       | 0x0,                         | /* 0 */      | /* 778 */ NdrFcShort( 0x4 ),       | /* 4 */                      |              |
| /* 718 */ NdrFcShort( 0x1 ),       | /* 1 */                      |              | /* 780 */ 0x19,                    | /* Corr desc: field pointer, |              |
| /* 720 */ 0x19,                    | /* Corr desc: field pointer, |              | FC_ULONG */                        |                              |              |
| FC_ULONG */                        |                              |              |                                    |                              |              |

|                                    |                              |              |                                     |                            |              |
|------------------------------------|------------------------------|--------------|-------------------------------------|----------------------------|--------------|
| /* 782 */ NdrFcShort( 0x0 ),       | 0x0,                         | /* */        | /*                                  | 0x8,                       | /* FC_LONG   |
| /* 784 */ 0x8,                     | /* FC_LONG */                |              | /* 842 */ 0x5c,                     | /* FC_PAD */               |              |
| /* 786 */                          | 0x5b,                        | /* FC_END */ | /* 844 */                           | 0x5b,                      | /* FC_END */ |
| FC_PSTRUCT */                      | 0x16,                        | /*           | FC_CARRAY */                        | 0x1b,                      | /*           |
| /* 788 */ NdrFcShort( 0x8 ),       | 0x3,                         | /* 3 */      | /* 846 */ NdrFcShort( 0x8 ),        | 0x3,                       | /* 3 */      |
| /* 790 */                          | /* 8 */                      |              | /* 848 */ 0x7,                      | /* 8 */                    |              |
|                                    | 0x4b,                        | /* FC_PP */  | /* 850 */ NdrFcShort( 0xffd8 ),     | /* Corr desc: FC_USHORT */ |              |
| /* 792 */                          | 0x5c,                        | /* FC_PAD */ | /* 852 */ 0x4c,                     | 0x0,                       | /* */        |
| FC_NO_REPEAT */                    | 0x46,                        | /*           | /* 854 */ NdrFcShort( 0xfffffee ),  | /* FC_EMBEDDED_COMPLEX */  |              |
| /* 794 */ NdrFcShort( 0x4 ),       | 0x5c,                        | /* FC_PAD */ | /* 856 */ 0x5c,                     | 0x0,                       | /* 0 */      |
| /* 796 */ NdrFcShort( 0x4 ),       | /* 4 */                      |              | /* 858 */                           | /* Offset= -18 (836) */    |              |
| /* 798 */ 0x12, 0x0, /* FC_UP */   | /* 4 */                      |              | FC_BOGUS_STRUCT */                  | 0x5b,                      | /* FC_END */ |
| /* 800 */ NdrFcShort( 0xfffffe8 ), | /* Offset= -24 (776) */      |              | 0x1a,                               | /*                         |              |
| /* 802 */                          |                              |              | 0x3,                                | /* 3 */                    |              |
|                                    | 0x5b,                        | /* FC_END */ | /* 860 */ NdrFcShort( 0x28 ),       | /* 40 */                   |              |
|                                    | 0x8,                         | /* FC_LONG   | /* 862 */ NdrFcShort( 0xfffffee ),  | /* Offset= -18 (844) */    |              |
| /*                                 | /* FC_LONG */                |              | /* 864 */ NdrFcShort( 0x0 ),        | /* Offset= 0 (864) */      |              |
| /* 804 */ 0x8,                     | 0x5b,                        | /* FC_END */ | /* 866 */ 0x6,                      | /* FC_SHORT */             |              |
| /* 806 */                          | /* FC_LONG */                |              | /*                                  | 0x6,                       | /* FC_SHORT  |
|                                    | 0x1b,                        | /*           | /* 868 */ 0x38,                     | /* FC_ALIGNM4 */           |              |
| FC_CARRAY */                       | 0x7,                         | /* 7 */      | /* 870 */ 0x8,                      | 0x8,                       | /* FC_LONG   |
| /* 808 */ NdrFcShort( 0x8 ),       | /* 8 */                      |              | /* FC_LONG */                       | 0x4c,                      | /*           |
| /* 810 */ 0x19,                    | /* Corr desc: field pointer, |              | FC_EMBEDDED_COMPLEX */              | /* 0 */                    |              |
| FC_ULONG */                        | 0x0,                         | /* */        | /* 872 */ 0x0,                      | NdrFcShort( 0xfffffd7 ),   | /*           |
| /* 812 */ NdrFcShort( 0x0 ),       | /* 0 */                      |              | Offset= -521 (352) */               |                            |              |
| /* 814 */ 0xb,                     | /* FC_HYPER */               |              | /* 876 */                           | 0x5b,                      | /* FC_END */ |
| /* 816 */                          | 0x5b,                        | /* FC_END */ | /* 878 */ NdrFcShort( 0xfffffef6 ), | /* Offset= -266 (612) */   |              |
| FC_PSTRUCT */                      | 0x16,                        | /*           | /* 880 */                           | 0x12, 0x8, /* FC_UP        |              |
| /* 818 */ NdrFcShort( 0x8 ),       | 0x3,                         | /* 3 */      | [simple_pointer] */                 |                            |              |
| /* 820 */                          | /* 8 */                      |              | /* 882 */ 0x1,                      | /* FC_BYTE */              |              |
|                                    | 0x4b,                        | /* FC_PP */  | /* 884 */                           | 0x5c,                      | /* FC_PAD */ |
| /* 822 */                          | 0x5c,                        | /* FC_PAD */ |                                     | 0x12, 0x8, /* FC_UP        |              |
| FC_NO_REPEAT */                    | 0x46,                        | /*           | [simple_pointer] */                 |                            |              |
| /* 824 */ NdrFcShort( 0x4 ),       | 0x5c,                        | /* FC_PAD */ | /* 886 */ 0x6,                      | /* FC_SHORT */             |              |
| /* 826 */ NdrFcShort( 0x4 ),       | /* 4 */                      |              | /* 888 */                           | 0x5c,                      | /* FC_PAD */ |
| /* 828 */ 0x12, 0x0, /* FC_UP */   | /* 4 */                      |              | 0x12, 0x8, /* FC_UP                 |                            |              |
| /* 830 */ NdrFcShort( 0xfffffe8 ), | /* Offset= -24 (806) */      |              | [simple_pointer] */                 |                            |              |
| /* 832 */                          |                              |              | /* 890 */ 0x8,                      | /* FC_LONG */              |              |
|                                    | 0x5b,                        | /* FC_END */ | /* 892 */                           | 0x5c,                      | /* FC_PAD */ |
|                                    | 0x8,                         | /* FC_LONG   | [simple_pointer] */                 |                            |              |
| /*                                 | /* FC_LONG */                |              | /* 894 */ 0xa,                      | /* FC_FLOAT */             |              |
| /* 834 */ 0x8,                     | 0x5b,                        | /* FC_END */ | /* 896 */                           | 0x5c,                      | /* FC_PAD */ |
| /* 836 */                          | /* FC_LONG */                |              | 0x12, 0x8, /* FC_UP                 |                            |              |
| FC_STRUCT */                       | 0x15,                        | /*           | [simple_pointer] */                 |                            |              |
| /* 838 */ NdrFcShort( 0x8 ),       | 0x3,                         | /* 3 */      | /* 898 */ 0xc,                      | /* FC_DOUBLE */            |              |
| /* 840 */ 0x8,                     | /* 8 */                      |              | /* 900 */                           | 0x5c,                      | /* FC_PAD */ |
|                                    | /* FC_LONG */                |              | 0x12, 0x0, /* FC_UP */              |                            |              |
|                                    |                              |              | /* 902 */ NdrFcShort( 0xfffffd90 ), | /* Offset= -624 (278) */   |              |

```

/* 904 */
                                0x12, 0x10, /* FC_UP */
/* 906 */ NdrFcShort( 0xffffd92 ), /* Offset= -622 (284) */
/* 908 */
                                0x12, 0x10, /* FC_UP */
/* 910 */ NdrFcShort( 0xffffda6 ), /* Offset= -602 (308) */
/* 912 */
                                0x12, 0x10, /* FC_UP */
/* 914 */ NdrFcShort( 0xffffdb4 ), /* Offset= -588 (326) */
/* 916 */
                                0x12, 0x10, /* FC_UP */
/* 918 */ NdrFcShort( 0xffffdc2 ), /* Offset= -574 (344) */
/* 920 */
                                0x12, 0x10, /* FC_UP */
/* 922 */ NdrFcShort( 0x2 ), /* Offset= 2 (924) */
/* 924 */
                                0x12, 0x0, /* FC_UP */
/* 926 */ NdrFcShort( 0xffffc62 ), /* Offset= -926 (0) */
/* 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( 0xfffff2 ), /* 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( 0xffffc42 ), /* 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( 0xffffc32 ), /* Offset= -974 (2) */
/* 978 */
                                0x11, 0x4, /* FC_RP */
[allocated_on_stack] */
/* 980 */ NdrFcShort( 0x6 ), /* Offset= 6 (986) */
/* 982 */
                                0x13, 0x0, /* FC_OP */
/* 984 */ NdrFcShort( 0xfffff4c ), /* Offset= -36 (948) */
/* 986 */ 0xb4, /* FC_USER_MARSHAL */
                                0x83, /* 131 */
/* 988 */ NdrFcShort( 0x0 ), /* 0 */
/* 990 */ NdrFcShort( 0x10 ), /* 16 */
/* 992 */ NdrFcShort( 0x0 ), /* 0 */
/* 994 */ NdrFcShort( 0xfffff4 ), /* Offset= -12 (982) */
                                0x0
                                }
                                };
const CInterfaceProxyVtbl* _tpcc_com_remote_ps_ProxyVtblList[] =
{
( CInterfaceProxyVtbl* ) &_ITPCCremProxyVtbl,
0
};
const CInterfaceStubVtbl* _tpcc_com_remote_ps_StubVtblList[] =
{
( CInterfaceStubVtbl* ) &_ITPCCremStubVtbl,
0
};
PCInterfaceName const _tpcc_com_remote_ps_InterfaceNamesList[] =
{
"ITPCCrem",
0
};
#define _tpcc_com_remote_ps_CHECK_IID(n)
IID_GENERIC_CHECK_IID(_tpcc_com_remote_ps, pIID, n)
int __stdcall _tpcc_com_remote_ps_IID_Lookup( const IID* pIID, int
*pIndex )
{
if(!_tpcc_com_remote_ps_CHECK_IID(0))
{
*pIndex = 0;
return 1;
}
return 0;
}
const ExtendedProxyFileInfo tpcc_com_remote_ps_ProxyFileInfo =
{
(PCInterfaceProxyVtblList*) &
_tpcc_com_remote_ps_ProxyVtblList,
(PCInterfaceStubVtblList*) & _tpcc_com_remote_ps_StubVtblList,
(const PCInterfaceName*) &
_tpcc_com_remote_ps_InterfaceNamesList,
0, // no delegation
& _tpcc_com_remote_ps_IID_Lookup,
1,
2,
0, /* table of [async_uuid] interfaces */
}

```

```

0, /* Filler1 */
0, /* Filler2 */
0 /* Filler3 */
};

```

## ***tpcc\_com\_remote\_resource.h***

```

///<{NO_DEPENDENCIES}
// Microsoft Developer Studio generated include file.
// Used by tpcc_com_remote.rc
//
#define IDS_PROJNAME            100
#define IDR_TPCCrem             101

// Next default values for new objects
//
#ifdef 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      102
#endif
#endif

```

## ***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
    }
}
}

```

## ***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:
* 4.30.000 - changes for w_id > 32767 and
* multinode options.
* 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 <sqllex.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";
#define ErrTrace 1
#ifdef ErrTrace
FILE *errFile;
#endif
static SQLHENV henv = SQL_NULL_HENV;
// ODBC environment handle
BOOL APIENTRY 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;
#ifdef ErrTrace
        errFile =
fopen("c:\\odbcerrfile.txt","a");
#endif
        break;
        case DLL_PROCESS_DETACH:
        if (henv != NULL)
            SQLFreeEnv(henv);
        break;
        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,
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
    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
)
{
    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,
&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), &iOutStrLen, SQL_DRIVER_NOPROMPT);

        if (rc != SQL_SUCCESS && rc !=
SQL_SUCCESS_WITH_INFO)
            ThrowError(CODBCERR::eConnect);
    }
}

```

```

        if (SQLAllocHandle(SQL_HANDLE_STMT,m_hdbc,
&m_hstmt) != SQL_SUCCESS)
            ThrowError(CODBCERR::eAllocHandle);

        {

            // set some options affecting connection behavior
            char            buffer[128];

            // set some options affecting connection behavior
            strcpy(buffer, "set nocount on ");
            strcat(buffer, "set XACT_ABORT ON ");

            // for coyote
            strcat(buffer, "set ansi_warnings on ");
            strcat(buffer, "set ansi_nulls on ");
            rc = SQLExecDirect(m_hstmt, (unsigned char
*)buffer, SQL_NTS);
            if (rc != SQL_SUCCESS && 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);
            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 &&
            pODBCErr->m_NativeError =
INativeError;

        // quit if there isn't enough room to concatenate
error text
        if ( ( strlen(szMsg) + 2) > (sizeof(szTmp) -
strlen(szTmp)) )
        {
#ifdef ErrTrace
            fprintf(errFile, "%s\n",szMsg);
            fflush(errFile);

            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 );
#ifdef ErrTrace
            fprintf(errFile,"%s\n",szTmp);
            fflush(errFile);
#endif
        }

        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_SLONG,SQL_INTEGER,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_TRAN
S, 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_SLONG,SQL_INTEGER,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
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT,SQL_C_UTINYINT,SQL_TINYINT,0,0,
&m_txn.NewOrder.o_ol_cnt,0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT,SQL_C_UTINYINT,SQL_TINYINT,0,0,
&m_txn.NewOrder.o_all_local,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_SLONG, SQL_INTEGER, 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);
        }
#ifdef new_order_strstr
        // 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);
#else
        // prototype to eliminate patindex in server; shift work to
client
        i = 0;
        if ( SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_ol_i_name, sizeof(m_ol_i_name), NULL) != SQL_SUCCESS
            || SQLBindCol(m_hstmt, ++i,
SQL_C_SSHORT, &m_ol_stock, 0, NULL) != SQL_SUCCESS
            || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_i_data, sizeof(m_i_data), NULL) != SQL_SUCCESS
            || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_s_data, sizeof(m_s_data), NULL) != SQL_SUCCESS
            || SQLBindCol(m_hstmt, ++i,
SQL_C_DOUBLE, &m_ol_i_price, 0, NULL) != SQL_SUCCESS
            || SQLBindCol(m_hstmt, ++i,
SQL_C_DOUBLE, &m_ol_amount, 0, NULL) != SQL_SUCCESS
        )
            ThrowError(CODBCERR::eBindCol);
#endif

        // 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
            || 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(BOOL fLocalFlag)
{
    int i;
    RETCODE rc;
    int 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)
        {
#ifdef ErrTrace
            fprintf(errFile,"NewOrder
Error\nw_id: %d\nd_id: %d\nc_id: %d\nError:\n\n",
m_txn.NewOrder.w_id,
m_txn.NewOrder.d_id,
m_txn.NewOrder.c_id);
            fflush(errFile);
#endif

            ThrowError(CODBCERR::eExecDirect);
        }
        // Get order line results
        m_txn.NewOrder.total_amount = 0;
        for (i = 0;
i < m_txn.NewOrder.o_ol_cnt; i++)
        {
#ifdef new_order_strstr
            // set the bind offset
            value...
            m_BindOffset = i *
sizeof(m_txn.NewOrder.OL[0]);

            if ( SQLFetch(m_hstmt)
== SQL_ERROR)
                ThrowError(CODBCERR::eFetch);
#else
            if ( SQLFetch(m_hstmt)
== SQL_ERROR)
                ThrowError(CODBCERR::eFetch);

            strcpy(
m_txn.NewOrder.OL[i].ol_i_name, m_ol_i_name );

            if ( strstr(m_i_data,
"ORIGINAL") != NULL && strstr(m_s_data, "ORIGINAL") != NULL
)
                m_txn.NewOrder.OL[i].ol_brand_generic[0] = 'B';
            else
                m_txn.NewOrder.OL[i].ol_brand_generic[0] = 'G';
            m_txn.NewOrder.OL[i].ol_brand_generic[1] = 0;
        }
    }
}

m_txn.NewOrder.OL[i].ol_stock = m_ol_stock;
m_txn.NewOrder.OL[i].ol_i_price =
m_ol_i_price;
m_txn.NewOrder.OL[i].ol_amount =
m_ol_amount;
#endif

// 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_SLONG,SQL_INTEGER,0,0,
&m_txn.Payment.w_id,0,NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT,SQL_C_SLONG,SQL_INTEGER,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(BOOL fLocalFlag)
{
    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*)"L"{call tpcc_payment(?,?,?,?,?)}", SQL_NTS);
                if (rc != SQL_SUCCESS && rc !=
SQL_SUCCESS_WITH_INFO)
                {
#ifdef ErrTrace
                    fprintf(errFile,"Payment
Error\n w_id: %d\nc_w_id: %d\nc_id: %d\nc_last: %s\nd_id:
%d\nc_d_id: %d\nError:\n",

m_txn.Payment.w_id,

m_txn.Payment.c_w_id,

m_txn.Payment.c_id,

m_txn.Payment.c_last,

m_txn.Payment.d_id,

m_txn.Payment.c_d_id);

                    fflush(errFile);

#endif

                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_TRAN
S, 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_SLONG,SQL_INTEGER,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_SLONG,
&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*)" {call tpcc_orderstatus(?,?,?)}", SQL_NTS);
            if ( ((rc ==
SQL_SUCCESS_WITH_INFO) && (m_RowsFetched != 0)) || (rc ==
SQL_ERROR) )
                {
#ifdef ErrTrace

```

```

                fprintf(errFile, "Order
Status\n w_id: %d\nc_id: %d\nc_last: %s\nd_id: %d\nError:\n",
m_txn.OrderStatus.w_id,
m_txn.OrderStatus.c_id,
m_txn.OrderStatus.c_last,
m_txn.OrderStatus.d_id);

                fflush(errFile);
            #endif

            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_TRAN
S, 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_SLONG,SQL_INTEGER,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_TRAN
S, 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.
#ifdef DllDecl
#define DllDecl __declspec( dllimport )
#endif

class CODBCERR : public CBaseErr
{
public:

```

```

enum ACTION
{
    eNone,
    eUnknown,
    eAllocConn,
// error from SQLAllocConnect
    eAllocHandle,
error from SQLAllocHandle
    eConnOption,
error from SQLSetConnectOption
    eConnect,
error from SQLConnect
    eAllocStmt,
// error from SQLAllocStmt
    eExecDirect,
error from SQLExecDirect
    eBindParam,
// error from SQLBindParameter
    eBindCol,
error from SQLBindCol
    eFetch,
// error from SQLFetch
    eFetchScroll,
error from SQLFetchScroll
    eMoreResults,
error from SQLMoreResults
    ePrepare,
error from SQLPrepare
    eExecute,
error from SQLExecute
    eSetEnvAttr,
error from SQLSetEnvAttr
    eSetStmtAttr,
error from 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,
// "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."
    };

    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;
#ifdef new_order_strstr
// for new-order txn;
// output params
    char
m_ol_i_name[I_NAME_LEN+1];
    double m_ol_i_price;
    double m_ol_amount;
    short m_ol_stock;
// used locally, but not returned to caller
    char m_i_data[I_DATA_LEN];
    char
m_s_data[S_DATA_LEN];
};

```

```

#endif
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 PORORDER_STATUS_DATA
BuffAddr_OrderStatus() { return &m_txn.OrderStatus; };

    void NewOrder (BOOL
fLocalFlag);
    void Payment (BOOL
fLocalFlag);
    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.
4.30.002

```

```

* 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:
* 4.30.002 - changed w_id from short to long to
support warehouses above 32,767
* 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 dblib, 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 /*
SQLSMALLINT*/ 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
    long
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
    long
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
    long
w_id;
    short
d_id;
    long
c_id;
    short
c_d_id;
    long
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;
    long
ol_supply_w_id;
    short
ol_quantity;
    double
ol_amount;
    TIMESTAMP_STRUCT
ol_delivery_d;
} OL_ORDER_STATUS_DATA;

typedef struct
{
    // input params
    long
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
    long        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
    long        w_id;
//delivery warehouse
    short       o_carrier_id;    //carrier id
} DELIVERY_TRANSACTION;

typedef struct
{
    // input params
    long        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
*
*      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.
#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
//
// virtual void NewOrder
(BOOL fLocal) = 0;
// virtual void Payment
// virtual void Payment
//
// virtual void Delivery
// virtual void StockLevel
//
// virtual void OrderStatus
};

```

### txnlog.h

```

/*      FILE:          TXNLOG.H
*
*      Microsoft TPC-C Kit Ver.
4.10.000
*
*      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
//
#define TXN_REC_TYPE_TPCC 2 // replaces TRANSACTION_TYPE_TPCC
#define TXN_REC_TYPE_TPCC_DELIV_DEF 3

typedef struct _TXN_RECORD_HEADER
{
    JULIAN_TIME TxnStartT0;
// start of txn
    BYTE TxnType; //
    BYTE TxnSubType;
// depends on TxnType
} TXN_RECORD_HEADER,
*PTXN_RECORD_HEADER;

typedef struct _TXN_RECORD_CONTROL
{
    // common header; must exactly match
    TXN_RECORD_HEADER
    JULIAN_TIME TxnStartT0;
// start of txn
    BYTE TxnType; // =
    TXN_REC_TYPE_CONTROL
    BYTE TxnSubType;
// depends on TxnType
// end of common header

    DWORD Len;
// number of bytes after this field
} 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;
// start of txn
    BYTE TxnType; // =
    TXN_REC_TYPE_TPCC
    BYTE TxnSubType;
// depends on TxnType
// end of common header

    int DeltaT1; // menu time
    (ms)
    int DeltaT2; // keying time
    (ms)
    int DeltaT3; // think time
    (ms)
    int DeltaT4; // response
    time (ms)
    int RTDelay; // response
    time delay (ms)
    int TxnError; //
    error code providing more detail for TxnStatus
    int w_id;
// warehouse ID
    BYTE d_id; //
    assigned district ID for this thread
    BYTE d_id_ThisTxn; // district ID
    chosen for this particular
    BYTE TxnStatus; // completion
    status for txn to indicate errors
    BYTE reserved; // for word
    alignment

    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;
// start of txn
    BYTE TxnType; // =
    TXN_REC_TYPE_TPCC_DELIV_DEF
    BYTE TxnSubType;
// = 0
// end of common header

```

```

int DeltaT4; // response
time (ms)
int DeltaTxnExec; //
execution time (ms)
int w_id;
// warehouse ID
BYTE TxnStatus; // completion
status for txn to indicate errors
BYTE reserved; // for word
alignment
short o_carrier_id; // 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.
//
//
// JULIAN_TIME TS;
// timestamp of record
// int
iPos; // byte position in file
//
}
RecMap[RecMapSize];
// #define RecMapSize 200
} TXN_LOG_HEADER, *PTXN_LOG_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

        int Write(BYTE *ptr, DWORD Size);
static void LogFileIO(CTXNLog*);

public:
        CTXNLog::CTXNLog(LPCTSTR szFileName,
DWORD dwOpts);
~CTXNLog(void);

        int WriteToLog(PTXN_RECORD_TPCC
pTxnRcrd);
        int
WriteToLog(PTXN_RECORD_TPCC_DELIV_DEFpTxnRcrd);
        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(int index);

        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);
};
};

```

## Stored Procedures

### *delivery.sql*

```

-- File: DELIVERY.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.10
-- Copyright Microsoft, 1999
-- Purpose: Creates delivery transaction stored procedure

set ANSI_DEFAULTS on
set IMPLICIT_TRANSACTIONS off
go

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,
        @time datetime

begin tran d

        select @d_id = 0,
               @time = getdate()

        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,
                                @c_id =
o_c_id
                                where 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 =
@time,
                                @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

neword.sql

-- File: NEWORD.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.30.000
-- Copyright Microsoft, 1999
-- Purpose: Creates new order transaction stored procedure
--
-- Interface Level: 4.10.000

set ANSI_DEFAULTS on
set IMPLICIT_TRANSACTIONS off
go

```

```

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, @ol_qty1 smallint = 0,
    @i_id2 int = 0, @ol_qty2 smallint = 0,
    @i_id3 int = 0, @ol_qty3 smallint = 0,
    @i_id4 int = 0, @ol_qty4 smallint = 0,
    @i_id5 int = 0, @ol_qty5 smallint = 0,
    @i_id6 int = 0, @ol_qty6 smallint = 0,
    @i_id7 int = 0, @ol_qty7 smallint = 0,
    @i_id8 int = 0, @ol_qty8 smallint = 0,
    @i_id9 int = 0, @ol_qty9 smallint = 0,
    @i_id10 int = 0, @ol_qty10 smallint = 0,
    @i_id11 int = 0, @ol_qty11 smallint = 0,
    @i_id12 int = 0, @ol_qty12 smallint = 0,
    @i_id13 int = 0, @ol_qty13 smallint = 0,
    @i_id14 int = 0, @ol_qty14 smallint = 0,
    @i_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,
        @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,

-- 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 +
@s_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
when 1 then
s_dist_01
when 2 then
s_dist_02
when 3 then
s_dist_03
when 4 then
s_dist_04
when 5 then
s_dist_05
when 6 then
s_dist_06
when 7 then
s_dist_07
when 8 then
s_dist_08
when 9 then
s_dist_09
when 10 then
s_dist_10
end
where
    s_i_id = @li_id and
    s_w_id = @li_s_w_id

-- if there actually is a stock (and item) with these ids, go to work
if (@@rowcount > 0)
begin
-- insert order_line data (using data from item and stock)
insert into order_line values(@o_id,
@d_id,
@w_id,
@li_no,
@li_id,
@li_s_w_id,
'dec 31, 1899',
@li_qty,
@i_price * @li_qty,
@s_dist)

-- send line-item data to client
select
    @i_name,
    @s_quantity,
    case when (
(patindex('%ORIGINAL%',@i_data) > 0) and
(patindex('%ORIGINAL%',@s_data) > 0))
then 'B' else 'G' end,
    @i_price,
    @i_price * @li_qty
end
else
begin
-- no item (or stock) found - triggers rollback condition
select ",0",0,0
select @commit_flag = 0
end
end

-- get customer last name, discount, and credit rating
select
    @c_last = c_last,

```

```

        @c_discount = c_discount,
        @c_credit = c_credit,
        @c_id_local = c_id,
        @o_entry_d = getdate()
from customer (repeatableread)
where c_id = @c_id and
       c_w_id = @w_id and
       c_d_id = @d_id

-- insert fresh row into orders table

insert into orders values ( @o_id,
                           @d_id,
                           @w_id,
                           @c_id_local,
                           @o_entry_d,
                           0,
                           @o_ol_cnt,
                           @o_all_local)

-- insert corresponding row into new-order table

insert into new_order values ( @o_id,
                               @d_id,
                               @w_id)

-- select warehouse tax

select @w_tax = w_tax
from warehouse (repeatableread)
where w_id = @w_id

if (@commit_flag = 1)
    commit transaction n
else

-- all that work for nuthin!!!

rollback transaction n

-- return order data to client

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

end

go

```

### **ordstat.sql**

```

-- File: ORDSTAT.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.10
-- Copyright Microsoft, 1999
-- Purpose: Creates order status transaction stored procedure

set ANSI_DEFAULTS on
set IMPLICIT_TRANSACTIONS off
go

```

```

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

```

## **payment.sql**

```

-- File:  PAYMENT.SQL
--       Microsoft TPC-C Benchmark Kit Ver. 4.10
--       Copyright Microsoft, 1999
-- Purpose:  Creates payment transaction stored procedure
set ANSI_DEFAULTS on
set IMPLICIT_TRANSACTIONS off
go

```

```

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 top 1 @c_id = c_id
from (
    select top 50 percent c_id, c_first
    from customer (repeatable read)
    where c_last = @c_last and
          c_w_id = @c_w_id
    and
          c_d_id = @c_d_id
    order by c_first
) top_fifty
order by c_first desc
end

-- get customer info and update balances

update customer
set @c_balance = c_balance -
@c_h_amount,
    c_payment_cnt = c_payment_cnt + 1,
    c_ytd_payment = c_ytd_payment +
@c_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
```

## **stocklev.sql**

```
-- File: STOCKLEV.SQL  
-- Microsoft TPC-C Benchmark Kit Ver. 4.10  
-- Copyright Microsoft, 1999  
-- Purpose: Creates stock level transaction stored procedure
```

```
set ANSI_DEFAULTS on  
set IMPLICIT_TRANSACTIONS off  
go
```

```
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
```

```
option (order group)
```

```
go
```

# Appendix B: Database Design

## Database Build

### 8x2800

|   |          |      |       |
|---|----------|------|-------|
| 1 | sgnode01 | 1    | 2800  |
| 2 | sgnode02 | 2801 | 5600  |
| 3 | sgnode03 | 5601 | 8400  |
| 4 | sgnode04 | 8401 | 11200 |

### add\_constraints\_t1.sql

```
--file 1_to_2800\add_constraints_t.sql

set ansi_warnings on
set ansi_nulls on
go

use tpcc
go

-- Drop any existing partitioning constraints
--

alter table t_warehouse drop constraint cnst_w_id
go

alter table t_district drop constraint cnst_d_w_id
go

alter table t_customer drop constraint cnst_c_w_id
go

alter table t_history drop constraint cnst_h_w_id
go

alter table t_stock drop constraint cnst_s_w_id
go

alter table t_orders drop constraint cnst_o_w_id
go

alter table t_order_line drop constraint cnst_ol_w_id
go

alter table t_new_order drop constraint cnst_no_w_id
go

-- Add partitioning constraints between 1 and 2800
--

alter table t_warehouse add constraint cnst_w_id check (w_id <=
convert(int,2800))
go

alter table t_district add constraint cnst_d_w_id check (d_w_id <=
convert(int,2800))
go

alter table t_customer add constraint cnst_c_w_id check (c_w_id <=
convert(int,2800))
go
```

```
alter table t_history add constraint cnst_h_w_id check (h_w_id <=
convert(int,2800))
go

alter table t_stock add constraint cnst_s_w_id check (s_w_id <=
convert(int,2800))
go

alter table t_orders add constraint cnst_o_w_id check (o_w_id <=
convert(int,2800))
go

alter table t_order_line add constraint cnst_ol_w_id check (ol_w_id <=
convert(int,2800))
go

alter table t_new_order add constraint cnst_no_w_id check (no_w_id
<= convert(int,2800))
go
```

### add\_constraints\_t2.sql

```
--file 2801_to_5600\add_constraints_t.sql

set ansi_warnings on
set ansi_nulls on
go

use tpcc
go

-- Drop any existing partitioning constraints
--

alter table t_warehouse drop constraint cnst_w_id
go

alter table t_district drop constraint cnst_d_w_id
go

alter table t_customer drop constraint cnst_c_w_id
go

alter table t_history drop constraint cnst_h_w_id
go

alter table t_stock drop constraint cnst_s_w_id
go

alter table t_orders drop constraint cnst_o_w_id
go

alter table t_order_line drop constraint cnst_ol_w_id
go

alter table t_new_order drop constraint cnst_no_w_id
go

-- Add partitioning constraints between 2801 and 5600
--

alter table t_warehouse add constraint cnst_w_id check (w_id between
convert(int,2801) and convert(int,5600))
go
```

```

alter table t_district add constraint cnst_d_w_id check (d_w_id
between convert(int,2801) and convert(int,5600))
go

alter table t_customer add constraint cnst_c_w_id check (c_w_id
between convert(int,2801) and convert(int,5600))
go

alter table t_history add constraint cnst_h_w_id check (h_w_id
between convert(int,2801) and convert(int,5600))
go

alter table t_stock add constraint cnst_s_w_id check (s_w_id between
convert(int,2801) and convert(int,5600))
go

alter table t_orders add constraint cnst_o_w_id check (o_w_id between
convert(int,2801) and convert(int,5600))
go

alter table t_order_line add constraint cnst_ol_w_id check (ol_w_id
between convert(int,2801) and convert(int,5600))
go

alter table t_new_order add constraint cnst_no_w_id check (no_w_id
between convert(int,2801) and convert(int,5600))
go

```

### ***add\_constraints\_t3.sql***

```

--file 5601_to_8400\add_constraints_t.sql

set ansi_warnings on
set ansi_nulls on
go

use tpcc
go

-- Drop any existing partitioning constraints
--

alter table t_warehouse drop constraint cnst_w_id
go

alter table t_district drop constraint cnst_d_w_id
go

alter table t_customer drop constraint cnst_c_w_id
go

alter table t_history drop constraint cnst_h_w_id
go

alter table t_stock drop constraint cnst_s_w_id
go

alter table t_orders drop constraint cnst_o_w_id
go

alter table t_order_line drop constraint cnst_ol_w_id
go

alter table t_new_order drop constraint cnst_no_w_id
go

```

```

-- Add partitioning constraints between 5601 and 8400
--

alter table t_warehouse add constraint cnst_w_id check (w_id between
convert(int,5601) and convert(int,8400))
go

alter table t_district add constraint cnst_d_w_id check (d_w_id
between convert(int,5601) and convert(int,8400))
go

alter table t_customer add constraint cnst_c_w_id check (c_w_id
between convert(int,5601) and convert(int,8400))
go

alter table t_history add constraint cnst_h_w_id check (h_w_id
between convert(int,5601) and convert(int,8400))
go

alter table t_stock add constraint cnst_s_w_id check (s_w_id between
convert(int,5601) and convert(int,8400))
go

alter table t_orders add constraint cnst_o_w_id check (o_w_id between
convert(int,5601) and convert(int,8400))
go

alter table t_order_line add constraint cnst_ol_w_id check (ol_w_id
between convert(int,5601) and convert(int,8400))
go

alter table t_new_order add constraint cnst_no_w_id check (no_w_id
between convert(int,5601) and convert(int,8400))
go

```

### ***add\_constraints\_t4.sql***

```

--file 8401_to_11200\add_constraints_t.sql

set ansi_warnings on
set ansi_nulls on
go

use tpcc
go

-- Drop any existing partitioning constraints
--

alter table t_warehouse drop constraint cnst_w_id
go

alter table t_district drop constraint cnst_d_w_id
go

alter table t_customer drop constraint cnst_c_w_id
go

alter table t_history drop constraint cnst_h_w_id
go

alter table t_stock drop constraint cnst_s_w_id
go

alter table t_orders drop constraint cnst_o_w_id
go

```

```

alter table t_order_line drop constraint cnst_ol_w_id
go

alter table t_new_order drop constraint cnst_no_w_id
go

-- Add partitioning constraints between 8401 and 11200
--

alter table t_warehouse add constraint cnst_w_id check (w_id >=
convert(int,8401))
go

alter table t_district add constraint cnst_d_w_id check (d_w_id >=
convert(int,8401))
go

alter table t_customer add constraint cnst_c_w_id check (c_w_id >=
convert(int,8401))
go

alter table t_history add constraint cnst_h_w_id check (h_w_id >=
convert(int,8401))
go

alter table t_stock add constraint cnst_s_w_id check (s_w_id >=
convert(int,8401))
go

alter table t_orders add constraint cnst_o_w_id check (o_w_id >=
convert(int,8401))
go

alter table t_order_line add constraint cnst_ol_w_id check (ol_w_id >=
convert(int,8401))
go

alter table t_new_order add constraint cnst_no_w_id check (no_w_id
>= convert(int,8401))
go

```

## **add\_views1.sql**

```

-- file 1_to_2800\add_views.sql

set ansi_warnings on
set ansi_nulls on
go

use tpcc
go

-- drop any existing views
if object_id('warehouse') is not null drop view warehouse
if object_id('district') is not null drop view district
if object_id('customer') is not null drop view customer
if object_id('history') is not null drop view history
if object_id('stock') is not null drop view stock
if object_id('orders') is not null drop view orders
if object_id('order_line') is not null drop view order_line
if object_id('new_order') is not null drop view new_order
if object_id('item') is not null drop view item
go

--add views for partition 1

```

```

create view warehouse as
select * from /*rmt1.tpc.c.dbo.*/t_warehouse
union all
select * from rmt2.tpc.c.dbo.t_warehouse
union all
select * from rmt3.tpc.c.dbo.t_warehouse
union all
select * from rmt4.tpc.c.dbo.t_warehouse
go

create view district as
select * from /*rmt1.tpc.c.dbo.*/t_district
union all
select * from rmt2.tpc.c.dbo.t_district
union all
select * from rmt3.tpc.c.dbo.t_district
union all
select * from rmt4.tpc.c.dbo.t_district
go

create view customer as
select * from /*rmt1.tpc.c.dbo.*/t_customer
union all
select * from rmt2.tpc.c.dbo.t_customer
union all
select * from rmt3.tpc.c.dbo.t_customer
union all
select * from rmt4.tpc.c.dbo.t_customer
go

create view history as
select * from /*rmt1.tpc.c.dbo.*/t_history
union all
select * from rmt2.tpc.c.dbo.t_history
union all
select * from rmt3.tpc.c.dbo.t_history
union all
select * from rmt4.tpc.c.dbo.t_history
go

create view stock as
select * from /*rmt1.tpc.c.dbo.*/t_stock
union all
select * from rmt2.tpc.c.dbo.t_stock
union all
select * from rmt3.tpc.c.dbo.t_stock
union all
select * from rmt4.tpc.c.dbo.t_stock
go

create view orders as
select * from /*rmt1.tpc.c.dbo.*/t_orders
union all
select * from rmt2.tpc.c.dbo.t_orders
union all
select * from rmt3.tpc.c.dbo.t_orders
union all
select * from rmt4.tpc.c.dbo.t_orders
go

create view order_line as
select * from /*rmt1.tpc.c.dbo.*/t_order_line
union all
select * from rmt2.tpc.c.dbo.t_order_line
union all
select * from rmt3.tpc.c.dbo.t_order_line
union all
select * from rmt4.tpc.c.dbo.t_order_line

```

```

go

create view new_order as
select * from /*rmt1.tpc.dbo.*/t_new_order
union all
select * from rmt2.tpc.dbo.t_new_order
union all
select * from rmt3.tpc.dbo.t_new_order
union all
select * from rmt4.tpc.dbo.t_new_order
go

create view item as
select * from t_item
go

```

## **add\_views2.sql**

```

-- file 2801_to_5600\add_views.sql

set ansi_warnings on
set ansi_nulls on
go

use tpcc
go

-- drop any existing views
if object_id('warehouse') is not null drop view warehouse
if object_id('district') is not null drop view district
if object_id('customer') is not null drop view customer
if object_id('history') is not null drop view history
if object_id('stock') is not null drop view stock
if object_id('orders') is not null drop view orders
if object_id('order_line') is not null drop view order_line
if object_id('new_order') is not null drop view new_order
if object_id('item') is not null drop view item
go

--add views for partition 2
create view warehouse as
select * from /*rmt2.tpc.dbo.*/t_warehouse
union all
select * from rmt1.tpc.dbo.t_warehouse
union all
select * from rmt3.tpc.dbo.t_warehouse
union all
select * from rmt4.tpc.dbo.t_warehouse
go

create view district as
select * from /*rmt2.tpc.dbo.*/t_district
union all
select * from rmt1.tpc.dbo.t_district
union all
select * from rmt3.tpc.dbo.t_district
union all
select * from rmt4.tpc.dbo.t_district
go

create view customer as
select * from /*rmt2.tpc.dbo.*/t_customer
union all
select * from rmt1.tpc.dbo.t_customer
union all
select * from rmt3.tpc.dbo.t_customer

```

```

union all
select * from rmt4.tpc.dbo.t_customer
go

create view history as
select * from /*rmt2.tpc.dbo.*/t_history
union all
select * from rmt1.tpc.dbo.t_history
union all
select * from rmt3.tpc.dbo.t_history
union all
select * from rmt4.tpc.dbo.t_history
go

create view stock as
select * from /*rmt2.tpc.dbo.*/t_stock
union all
select * from rmt1.tpc.dbo.t_stock
union all
select * from rmt3.tpc.dbo.t_stock
union all
select * from rmt4.tpc.dbo.t_stock
go

create view orders as
select * from /*rmt2.tpc.dbo.*/t_orders
union all
select * from rmt1.tpc.dbo.t_orders
union all
select * from rmt3.tpc.dbo.t_orders
union all
select * from rmt4.tpc.dbo.t_orders
go

create view order_line as
select * from /*rmt2.tpc.dbo.*/t_order_line
union all
select * from rmt1.tpc.dbo.t_order_line
union all
select * from rmt3.tpc.dbo.t_order_line
union all
select * from rmt4.tpc.dbo.t_order_line
go

create view new_order as
select * from /*rmt2.tpc.dbo.*/t_new_order
union all
select * from rmt1.tpc.dbo.t_new_order
union all
select * from rmt3.tpc.dbo.t_new_order
union all
select * from rmt4.tpc.dbo.t_new_order
go

create view item as
select * from t_item
go

add_views3.sql

-- file 5601_to_8400\add_views.sql

set ansi_warnings on
set ansi_nulls on
go

use tpcc

```

```

go

-- drop any existing views
if object_id('warehouse') is not null drop view warehouse
if object_id('district') is not null drop view district
if object_id('customer') is not null drop view customer
if object_id('history') is not null drop view history
if object_id('stock') is not null drop view stock
if object_id('orders') is not null drop view orders
if object_id('order_line') is not null drop view order_line
if object_id('new_order') is not null drop view new_order
if object_id('item') is not null drop view item
go

--add views for partition 3
create view warehouse as
select * from /*rmt3.tpcc.dbo.*/t_warehouse
union all
select * from rmt1.tpcc.dbo.t_warehouse
union all
select * from rmt2.tpcc.dbo.t_warehouse
union all
select * from rmt4.tpcc.dbo.t_warehouse
go

create view district as
select * from /*rmt3.tpcc.dbo.*/t_district
union all
select * from rmt1.tpcc.dbo.t_district
union all
select * from rmt2.tpcc.dbo.t_district
union all
select * from rmt4.tpcc.dbo.t_district
go

create view customer as
select * from /*rmt3.tpcc.dbo.*/t_customer
union all
select * from rmt1.tpcc.dbo.t_customer
union all
select * from rmt2.tpcc.dbo.t_customer
union all
select * from rmt4.tpcc.dbo.t_customer
go

create view history as
select * from /*rmt3.tpcc.dbo.*/t_history
union all
select * from rmt1.tpcc.dbo.t_history
union all
select * from rmt2.tpcc.dbo.t_history
union all
select * from rmt4.tpcc.dbo.t_history
go

create view stock as
select * from /*rmt3.tpcc.dbo.*/t_stock
union all
select * from rmt1.tpcc.dbo.t_stock
union all
select * from rmt2.tpcc.dbo.t_stock
union all
select * from rmt4.tpcc.dbo.t_stock
go

create view orders as
select * from /*rmt3.tpcc.dbo.*/t_orders
union all

```

```

select * from rmt1.tpcc.dbo.t_orders
union all
select * from rmt2.tpcc.dbo.t_orders
union all
select * from rmt4.tpcc.dbo.t_orders
go

create view order_line as
select * from /*rmt3.tpcc.dbo.*/t_order_line
union all
select * from rmt1.tpcc.dbo.t_order_line
union all
select * from rmt2.tpcc.dbo.t_order_line
union all
select * from rmt4.tpcc.dbo.t_order_line
go

create view new_order as
select * from /*rmt3.tpcc.dbo.*/t_new_order
union all
select * from rmt1.tpcc.dbo.t_new_order
union all
select * from rmt2.tpcc.dbo.t_new_order
union all
select * from rmt4.tpcc.dbo.t_new_order
go

create view item as
select * from t_item
go

```

### ***add\_views4.sql***

```

-- file 8401_to_11200\add_views.sql

set ansi_warnings on
set ansi_nulls on
go

use tpcc
go

-- drop any existing views
if object_id('warehouse') is not null drop view warehouse
if object_id('district') is not null drop view district
if object_id('customer') is not null drop view customer
if object_id('history') is not null drop view history
if object_id('stock') is not null drop view stock
if object_id('orders') is not null drop view orders
if object_id('order_line') is not null drop view order_line
if object_id('new_order') is not null drop view new_order
if object_id('item') is not null drop view item
go

--add views for partition 4
create view warehouse as
select * from /*rmt4.tpcc.dbo.*/t_warehouse
union all
select * from rmt1.tpcc.dbo.t_warehouse
union all
select * from rmt2.tpcc.dbo.t_warehouse
union all
select * from rmt3.tpcc.dbo.t_warehouse
go

create view district as

```



```

select * from /*rmt4.tpcc.dbo.*/t_district
union all
select * from rmt1.tpcc.dbo.t_district
union all
select * from rmt2.tpcc.dbo.t_district
union all
select * from rmt3.tpcc.dbo.t_district
go

create view customer as
select * from /*rmt4.tpcc.dbo.*/t_customer
union all
select * from rmt1.tpcc.dbo.t_customer
union all
select * from rmt2.tpcc.dbo.t_customer
union all
select * from rmt3.tpcc.dbo.t_customer
go

create view history as
select * from /*rmt4.tpcc.dbo.*/t_history
union all
select * from rmt1.tpcc.dbo.t_history
union all
select * from rmt2.tpcc.dbo.t_history
union all
select * from rmt3.tpcc.dbo.t_history
go

create view stock as
select * from /*rmt4.tpcc.dbo.*/t_stock
union all
select * from rmt1.tpcc.dbo.t_stock
union all
select * from rmt2.tpcc.dbo.t_stock
union all
select * from rmt3.tpcc.dbo.t_stock
go

create view orders as
select * from /*rmt4.tpcc.dbo.*/t_orders
union all
select * from rmt1.tpcc.dbo.t_orders
union all
select * from rmt2.tpcc.dbo.t_orders
union all
select * from rmt3.tpcc.dbo.t_orders
go

create view order_line as
select * from /*rmt4.tpcc.dbo.*/t_order_line
union all
select * from rmt1.tpcc.dbo.t_order_line
union all
select * from rmt2.tpcc.dbo.t_order_line
union all
select * from rmt3.tpcc.dbo.t_order_line
go

create view new_order as
select * from /*rmt4.tpcc.dbo.*/t_new_order
union all
select * from rmt1.tpcc.dbo.t_new_order
union all
select * from rmt2.tpcc.dbo.t_new_order
union all
select * from rmt3.tpcc.dbo.t_new_order
go

```

```

create view item as
select * from t_item
go

```

### **item\_iot1.sql**

```

-- file 1_to_2800\item_iot.sql
--add item instead-of-trigger for partition 1

set ANSI_DEFAULTS on
set IMPLICIT_TRANSACTIONS off
go

use tpcc
go

drop trigger iot_item
go

create trigger iot_item on item instead of update, insert, delete as
begin
--
-- local node (partition 1)
DELETE A FROM t_item A, DELETED D WHERE A.i_id = D.i_id
INSERT t_item SELECT * FROM INSERTED
--
-- remote node, partition 2
DELETE A FROM rmt2.tpcc.dbo.t_item A, DELETED D WHERE
A.i_id = D.i_id
INSERT rmt2.tpcc.dbo.t_item SELECT * FROM INSERTED
--
-- remote node, partition 3
DELETE A FROM rmt3.tpcc.dbo.t_item A, DELETED D WHERE
A.i_id = D.i_id
INSERT rmt3.tpcc.dbo.t_item SELECT * FROM INSERTED
--
-- remote node, partition 4
DELETE A FROM rmt4.tpcc.dbo.t_item A, DELETED D WHERE
A.i_id = D.i_id
INSERT rmt4.tpcc.dbo.t_item SELECT * FROM INSERTED
end

```

### **item\_iot2.sql**

```

-- file 2801_to_5600\item_iot.sql
--add item instead-of-trigger for partition 2

set ANSI_DEFAULTS on
set IMPLICIT_TRANSACTIONS off
go

use tpcc
go

drop trigger iot_item
go

```

```

create trigger iot_item on item instead of update, insert, delete as
begin

--
-- remote node, partition 1
DELETE A FROM rmt1.tpc.dbo.t_item A, DELETED D WHERE
A.i_id = D.i_id
INSERT rmt1.tpc.dbo.t_item SELECT * FROM INSERTED

--
-- local node (partition 2)
DELETE A FROM t_item A, DELETED D WHERE A.i_id = D.i_id
INSERT t_item SELECT * FROM INSERTED

--
-- remote node, partition 3
DELETE A FROM rmt3.tpc.dbo.t_item A, DELETED D WHERE
A.i_id = D.i_id
INSERT rmt3.tpc.dbo.t_item SELECT * FROM INSERTED

--
-- remote node, partition 4
DELETE A FROM rmt4.tpc.dbo.t_item A, DELETED D WHERE
A.i_id = D.i_id
INSERT rmt4.tpc.dbo.t_item SELECT * FROM INSERTED

end

```

### **item\_iot3.sql**

```

-- file 5601_to_8400\item_iot.sql

--add item instead-of-trigger for partition 3

set ANSI_DEFAULTS on
set IMPLICIT_TRANSACTIONSOFF
go

use tpcc
go

drop trigger iot_item
go

create trigger iot_item on item instead of update, insert, delete as
begin

--
-- remote node, partition 1
DELETE A FROM rmt1.tpc.dbo.t_item A, DELETED D WHERE
A.i_id = D.i_id
INSERT rmt1.tpc.dbo.t_item SELECT * FROM INSERTED

--
-- remote node, partition 2
DELETE A FROM rmt2.tpc.dbo.t_item A, DELETED D WHERE
A.i_id = D.i_id
INSERT rmt2.tpc.dbo.t_item SELECT * FROM INSERTED

--
-- local node (partition 3)
DELETE A FROM t_item A, DELETED D WHERE A.i_id = D.i_id
INSERT t_item SELECT * FROM INSERTED

--
-- remote node, partition 4

```

```

DELETE A FROM rmt4.tpc.dbo.t_item A, DELETED D WHERE
A.i_id = D.i_id
INSERT rmt4.tpc.dbo.t_item SELECT * FROM INSERTED

```

end

### **item\_iot4.sql**

```

-- file 8401_to_11200\item_iot.sql

--add item instead-of-trigger for partition 4

set ANSI_DEFAULTS on
set IMPLICIT_TRANSACTIONSOFF
go

use tpcc
go

drop trigger iot_item
go

create trigger iot_item on item instead of update, insert, delete as
begin

--
-- remote node, partition 1
DELETE A FROM rmt1.tpc.dbo.t_item A, DELETED D WHERE
A.i_id = D.i_id
INSERT rmt1.tpc.dbo.t_item SELECT * FROM INSERTED

--
-- remote node, partition 2
DELETE A FROM rmt2.tpc.dbo.t_item A, DELETED D WHERE
A.i_id = D.i_id
INSERT rmt2.tpc.dbo.t_item SELECT * FROM INSERTED

--
-- remote node, partition 3
DELETE A FROM rmt3.tpc.dbo.t_item A, DELETED D WHERE
A.i_id = D.i_id
INSERT rmt3.tpc.dbo.t_item SELECT * FROM INSERTED

--
-- local node (partition 4)
DELETE A FROM t_item A, DELETED D WHERE A.i_id = D.i_id
INSERT t_item SELECT * FROM INSERTED

end

```

### **backup.sql**

```

-- File: BACKUP.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.30
-- Copyright Microsoft, 2000
-- Purpose: Creates backup of tpcc database

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select 'Start date:', convert(varchar(30),@startdate,9)

dump database tpcc to tpccback1, tpccback2, tpccback3, tpccback4
with init, stats = 1, blocksize = 4096

```

```

select @enddate = getdate()
select 'End date: ', convert(varchar(30),@enddate,9)
select 'Elapsed time (in seconds): ', datediff(second, @startdate,
@enddate)

```

```
go
```

### **backupdev.sql**

```

-- File:   BACKUPDEVB.SQL
--       Microsoft TPC-C Benchmark Kit Ver. 4.30
--       Copyright Microsoft, 2000
-- Purpose: Creates tpcc database Backup Devices

```

```

use master
go

```

```
-- create backup devices
```

```

exec sp_addumpdevice 'disk','tpccback1','s:\tpccback1.dmp'
exec sp_addumpdevice 'disk','tpccback2','s:\tpccback2.dmp'
exec sp_addumpdevice 'disk','tpccback3','t:\tpccback3.dmp'
exec sp_addumpdevice 'disk','tpccback4','t:\tpccback4.dmp'
go

```

### **createdb.sql**

```

-- File:   CREATEDB.SQL
--       Microsoft TPC-C Benchmark Kit Ver. 4.30
--       Copyright Microsoft, 2000
-- Purpose: Creates tpcc database and backup files for 10 warehouses

```

```

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          = MSSQL80_tpcc_root,
    FILENAME      = "C:\MSSQL80_tpcc_root.mdf",
    SIZE          = 8MB,

```

```

    FILEGROWTH    = 0),
FILEGROUP misc_fg
(
    NAME          = MSSQL80_tpcc_misc_1,
    FILENAME      = "H:",
    SIZE          = 13500MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL80_tpcc_misc_2,
    FILENAME      = "J:",
    SIZE          = 13500MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL80_tpcc_misc_3,
    FILENAME      = "L:",
    SIZE          = 13500MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL80_tpcc_misc_4,
    FILENAME      = "N:",
    SIZE          = 13500MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL80_tpcc_misc_5,
    FILENAME      = "P:",
    SIZE          = 13500MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL80_tpcc_misc_6,
    FILENAME      = "R:",
    SIZE          = 13500MB,
    FILEGROWTH    = 0),

```

```

FILEGROUP big_fg
(
    NAME          = MSSQL80_tpcc_big_1,
    FILENAME      = "G:",
    SIZE          = 26700MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL80_tpcc_big_2,
    FILENAME      = "I:",
    SIZE          = 26700MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL80_tpcc_big_3,
    FILENAME      = "K:",
    SIZE          = 26700MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL80_tpcc_big_4,
    FILENAME      = "M:",
    SIZE          = 26700MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL80_tpcc_big_5,
    FILENAME      = "O:",
    SIZE          = 26700MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL80_tpcc_big_6,
    FILENAME      = "Q:",
    SIZE          = 26700MB,
    FILEGROWTH    = 0)

```

```

LOG ON
(
    NAME          = MSSQL80_tpcc_log,
    FILENAME      = "F:",
    SIZE          = 80000MB,
    FILEGROWTH    = 0)

```

```
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

```

## dbopt1.sql

```

-- File:  DBOPT1.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.30
--      Copyright Microsoft, 2000
-- 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_SHILOH.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.30
--      Copyright Microsoft, 2000
-- Purpose: Resets database options after data load

```

```

use master
go

```

```

sp_dboption tpcc,'select ',false
go

```

```

sp_dboption tpcc,'trunc. ',false
go

```

```

use tpcc
go

```

```

checkpoint
go

```

```

sp_configure allow,1
go

```

```

reconfigure with override
go

```

```

/*          */
/* Set option values for user-defined indexes */
/*          */

```

```

sp_indexoption 't_customer', 'DisallowPageLocks', TRUE
go
sp_indexoption 't_district', 'DisallowPageLocks',TRUE
go

```

```

sp_indexoption 't_warehouse', 'DisallowPageLocks',
TRUE

```

```

go
sp_indexoption 't_stock', 'DisallowPageLocks',TRUE
go

```

```

sp_indexoption 't_order_line', 'DisallowRowLocks',
TRUE

```

```

go
sp_indexoption 't_orders', 'DisallowRowLocks',TRUE
go

```

```

sp_indexoption 't_new_order', 'DisallowRowLocks',
TRUE

```

```

go
sp_indexoption 't_item', 'DisallowRowLocks',TRUE
go

```

```

sp_indexoption 't_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("t_warehouse") = id or
      object_id("t_district") = id or
      object_id("t_customer") = id or = id or
      object_id("t_stock") = id or
      object_id("t_orders") = id or
      object_id("t_order_line") = id or
      object_id("t_history") = id or
      object_id("t_new_order") = id or
      object_id("t_item") = id
order by lockflags asc

```

```

go
sp_configure allow,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 "t_district", "pintable",true
exec sp_tableoption "t_warehouse", "pintable",true
exec sp_tableoption "t_new_order", "pintable",true
exec sp_tableoption "t_item", "pintable",true
go

```

## idxcuscl.sql

```

-- File:  IDXCUSCL.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.30
--      Copyright Microsoft, 2000
-- Purpose: Creates clustered index on customer table

```

```

set ANSI_DEFAULTS on

```

```

set IMPLICIT_TRANSACTIONSOFF
set QUOTED_IDENTIFIER OFF
GO

USE TPCC
GO

DECLARE @startdate DATETIME
DECLARE @enddate DATETIME
SELECT @startdate = GETDATE()
SELECT "Start date:", CONVERT(VARCHAR(30),@startdate,9)

IF EXISTS (SELECT O.NAME FROM SYSCONSTRAINTS C, SYSOBJECTS O
WHERE C.ID = OBJECT_ID('t_customer') AND C.CONSTID = O.ID AND O.NAME =
'customer_c1PK')
    ALTER TABLE t_customer DROP CONSTRAINT customer_c1PK

ALTER TABLE t_customer ADD CONSTRAINT customer_c1PK PRIMARY KEY
CLUSTERED (c_w_id, c_d_id, c_id)
ON BIG_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. 4.30
--      Copyright Microsoft, 2000
-- Purpose:  Creates non-clustered index on customer table

set ANSI_DEFAULTS ON
set IMPLICIT_TRANSACTIONSOFF
set QUOTED_IDENTIFIER OFF
GO

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 t_customer.customer_nc1

CREATE UNIQUE NONCLUSTERED INDEX customer_nc1 ON t_customer(c_w_id,
c_d_id, c_last, c_first, c_id)
ON BIG_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. 4.20
--      Copyright Microsoft, 2000
-- Purpose:  Creates clustered index on district table

set ANSI_DEFAULTS ON
set IMPLICIT_TRANSACTIONSOFF
set QUOTED_IDENTIFIER OFF
GO

USE TPCC
GO

DECLARE @startdate DATETIME
DECLARE @enddate DATETIME
SELECT @startdate = GETDATE()
SELECT "Start date:", CONVERT(VARCHAR(30),@startdate,9)

IF EXISTS (SELECT O.NAME FROM SYSCONSTRAINTS C, SYSOBJECTS O
WHERE C.ID = OBJECT_ID('t_district') AND C.CONSTID = O.ID AND O.NAME =
'district_c1PK')
    ALTER TABLE t_district DROP CONSTRAINT district_c1PK

ALTER TABLE t_district ADD CONSTRAINT district_c1PK PRIMARY KEY CLUSTERED
(d_w_id, d_id)
WITH FILLFACTOR=100
ON 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. 4.30
--      Copyright Microsoft, 2000
-- Purpose:  Creates clustered index on item table

set ANSI_DEFAULTS ON
set IMPLICIT_TRANSACTIONSOFF
set QUOTED_IDENTIFIER OFF
GO

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 t_item.item_c1

CREATE UNIQUE CLUSTERED INDEX item_c1 ON t_item(i_id)
ON 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. 4.30
--      Copyright Microsoft, 2000
-- Purpose:  Creates clustered index on new_order table

set ANSI_DEFAULTS on
set IMPLICIT_TRANSACTIONSOFF
set QUOTED_IDENTIFIER off
go

use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists (select o.name from sysconstraints c, sysobjects o
where c.id = object_id('t_new_order') and c.constid = o.id and o.name = 't_new_order_c1PK')
    alter table t_new_order drop constraint new_order_c1PK

alter table t_new_order add constraint new_order_c1PK primary key
clustered (no_w_id, no_d_id, no_o_id)
on 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. 4.30
--      Copyright Microsoft, 2000
-- Purpose:  Creates clustered index on order_line table

set ANSI_DEFAULTS on
set IMPLICIT_TRANSACTIONSOFF
set QUOTED_IDENTIFIER off
go

use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists (select o.name from sysconstraints c, sysobjects o
where c.id = object_id('t_order_line') and c.constid = o.id and o.name = 'order_line_c1PK')
    alter table t_order_line drop constraint order_line_c1PK

alter table t_order_line add constraint order_line_c1PK primary key
clustered (ol_w_id, ol_d_id, ol_o_id, ol_number)
on 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. 4.30
--      Copyright Microsoft, 2000
-- Purpose:  Creates clustered index on orders table

set ANSI_DEFAULTS on
set IMPLICIT_TRANSACTIONSOFF
set QUOTED_IDENTIFIER off
go

use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists (select o.name from sysconstraints c, sysobjects o
where c.id = object_id('t_orders') and c.constid = o.id and o.name = 'orders_c1PK')
    alter table t_orders drop constraint orders_c1PK

alter table t_orders add constraint orders_c1PK primary key clustered
(o_w_id, o_d_id, o_id)
on misc_fg

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate,
@enddate)
```

go

## ***idxordnc.sql***

```
-- File:  IDXORDNC.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.30
--      Copyright Microsoft, 2000
-- Purpose:  Creates non-clustered index on orders table

set ANSI_DEFAULTS on
set IMPLICIT_TRANSACTIONSOFF
set QUOTED_IDENTIFIER off
go

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_nc1' )
    drop index t_orders.orders_nc1

create index orders_nc1 on t_orders(o_w_id, o_d_id, o_c_id, o_id)
```

```

        on 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. 4.30
--      Copyright Microsoft, 2000
-- Purpose:  Creates clustered index on stock table

set ANSI_DEFAULTS on
set IMPLICIT_TRANSACTIONSOFF
set QUOTED_IDENTIFIER off
go

use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists (select o.name from sysconstraints c, sysobjects o
where c.id = object_id('t_stock') and c.constid = o.id and o.name =
'stock_c1PK' )
    alter table t_stock drop constraint stock_c1PK

alter table t_stock add constraint stock_c1PK primary key clustered
(s_i_id, s_w_id)
    on big_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. 4.30
--      Copyright Microsoft, 2000
-- Purpose:  Creates clustered index on warehouse table

set ANSI_DEFAULTS on
set IMPLICIT_TRANSACTIONSOFF
set QUOTED_IDENTIFIER off
go

use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists (select o.name from sysconstraints c, sysobjects o

```

```

where c.id = object_id('t_warehouse') and c.constid = o.id and o.name
= 'warehouse_c1PK' )
    alter table t_warehouse drop constraint warehouse_c1PK

```

```

alter table t_warehouse add constraint warehouse_c1PK primary key
clustered (w_id)
    with fillfactor=100
    on misc_fg

```

```

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate,
@enddate)

```

go

### ***tables.sql***

```

-- File:  TABLES.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.30
--      Copyright Microsoft, 2000
-- Purpose:  Creates TPC-C tables

```

```

set ANSI_DEFAULTS on
set IMPLICIT_TRANSACTIONSOFF
set QUOTED_IDENTIFIER off
SET ANSI_NULL_DFLT_ON off

```

go

```

use tpcc
go

```

```

--
-- Remove all existing TPC-C tables, views, etc.
--

```

```

if objectproperty(object_id('warehouse'), 'IsView') is not null
    drop view warehouse

```

go

```

if objectproperty(object_id('district'), 'IsView') is not null
    drop view district

```

go

```

if objectproperty(object_id('customer'), 'IsView') is not null
    drop view customer

```

go

```

if objectproperty(object_id('history'), 'IsView') is not null
    drop view history

```

go

```

if objectproperty(object_id('stock'), 'IsView') is not null
    drop view stock

```

```

go
if objectproperty(object_id('orders'), 'IsView') is not null
    drop view orders
go
if objectproperty(object_id('order_line'), 'IsView') is not null
    drop view order_line
go
if objectproperty(object_id('new_order'), 'IsView') is not null
    drop view new_order
go
if objectproperty(object_id('item'), 'IsView') is not null
    drop view item
go

if objectproperty(object_id('t_warehouse'), 'IsTable') is not null
    drop table t_warehouse
go
if objectproperty(object_id('t_district'), 'IsTable') is not null
    drop table t_district
go
if objectproperty(object_id('t_customer'), 'IsTable') is not null
    drop table t_customer
go
if objectproperty(object_id('t_history'), 'IsTable') is not null
    drop table t_history
go
if objectproperty(object_id('t_new_order'), 'IsTable') is not null
    drop table t_new_order
go
if objectproperty(object_id('t_orders'), 'IsTable') is not null
    drop table t_orders
go
if objectproperty(object_id('t_order_line'), 'IsTable') is not null
    drop table t_order_line
go
if objectproperty(object_id('t_item'), 'IsTable') is not null
    drop table t_item
go
if objectproperty(object_id('t_stock'), 'IsTable') is not null
    drop table t_stock
go

```

```

--
-- Create new tables
--

create table t_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 misc_fg
go

create table t_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 misc_fg
go

create table t_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 big_fg
go

create table t_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),
  constraint history_c1PK primary key clustered (h_w_id,
h_d_id, h_c_id, h_date)
) on misc_fg
go

create table t_new_order
(
  no_o_id         int,
  no_d_id         tinyint,
  no_w_id         int
) on misc_fg
go

create table t_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 misc_fg
go

create table t_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 misc_fg
go

create table t_item
(
  i_id           int,
  i_im_id        int,
  i_name         char(24),
  i_price        numeric(5,2),
  i_data         char(50)
) on misc_fg
go

create table t_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 big_fg
go

```

## restore.sql

```

-- File:  RESTORE.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.30
--      Copyright Microsoft, 2000
-- Purpose: Loads database backup from backup files

```

```

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select 'Start date:', convert(varchar(30),@startdate,9)

load database tpcc from tpccback1, tpccback2, tpccback3, tpccback4
with stats = 1, replace

select @enddate = getdate()
select 'End date: ', convert(varchar(30),@enddate,9)
select 'Elapsed time (in seconds): ', datediff(second, @startdate,
@enddate)

go

```

## removedb.sql

```

-- File:  REMOVEDB.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.30
--      Copyright Microsoft, 2000
-- Purpose: Removes tpcc database and backup files

```

```

use master
go

-- remove any existing database and backup files

exec sp_dbremove tpcc, dropdev
go

exec sp_dropdevice 'tpccback1'
exec sp_dropdevice 'tpccback2'
exec sp_dropdevice 'tpccback3'
exec sp_dropdevice 'tpccback4'
go

```

## version.sql

```

-- File:  VERSION.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.10
--      Copyright Microsoft, 1999
-- 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.

```

```

set ANSI_DEFAULTS on
set IMPLICIT_TRANSACTIONSOFF
go

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

```

## saved\_partition\_input

|   |          |      |       |
|---|----------|------|-------|
| 1 | sgnode01 | 1    | 2800  |
| 2 | sgnode02 | 2801 | 5600  |
| 3 | sgnode03 | 5601 | 8400  |
| 4 | sgnode04 | 8401 | 11200 |

## Load Source Code

### getargs.c

```

//      File:                GETARGS.C
//                          Microsoft TPC-C Kit Ver.
//      4.30
//                          Copyright Microsoft,
//      1996, 1997, 1998, 1999, 2000
//      Purpose:  Source file for command line processing

// Includes
#include "tpcc.h"

//=====
//=====
//
// Function name: GetArgsLoader

```

```

//
//=====
//=====

void GetArgsLoader(int argc, char **argv, TPCCLDR_ARGS *pargs)
{
    int          i;
    char        *ptr;

#ifdef DEBUG
    printf("[%d]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->pack_size       = DEFPLDPACKSIZE;
    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 'h': /* Fall through */
            case 'H':
                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;

            case 'b':
                pargs->batch =
                atol(ptr+2);
                break;

            case 'W':
                pargs->num_warehouses
                = atol(ptr+2);
                break;

            case 's':
                pargs->starting_warehouse = atol(ptr+2);
                break;

            case 't':
                {
                    if
                    (strcmp(ptr+2,"item") == 0)
                    else if
                    (strcmp(ptr+2,"warehouse") == 0)
                    else if
                    (strcmp(ptr+2,"customer") == 0)
                    else if
                    (strcmp(ptr+2,"orders") == 0)
                    else
                    {
                        printf("\nUnrecognized command");
                        GetArgsLoaderUsage();
                        exit(1);
                    }
                    break;
                }

            case 'f':
                pargs->loader_res_file =
                ptr+2;
                break;

            case 'p':
                pargs->pack_size =
                atol(ptr+2);
                break;

            case 'i':

```

```

        pargs->build_index =
atol(ptr+2);
        break;
        case 'o':
        pargs->index_order =
atol(ptr+2);
        break;
        case 'c':
        pargs->scale_down =
atol(ptr+2);
        break;
        case 'd':
        pargs->index_script_path
= ptr+2;
        break;
        default:
        GetArgsLoaderUsage();
        exit(-1);
        break;
    }
}

/* check for required args */
if (pargs->num_warehouses == UNDEF)
{
    printf("Number of Warehouses is required\n");
    exit(-2);
}

return;
}

```

```

//=====
//
// Function name: GetArgsLoaderUsage
//
//=====
void GetArgsLoaderUsage()
{
#ifdef DEBUG
    printf("[%ld]DBG: Entering GetArgsLoaderUsage()\n", (int)
GetCurrentThreadId());
#endif

    printf("TPCCLDR:\n\n");
    printf("Parameter                                Default\n");

    printf("-----\n");
    printf("-W Number of Warehouses to Load                Required\n");
    printf("-S Server                                %s\n", SERVER);
    printf("-U Username                                %s\n", USER);
    printf("-P Password                                %s\n",
PASSWORD);
    printf("-D Database                                %s\n", DATABASE);
    printf("-b Batch Size                                %ld\n",
(long) BATCH);

```

```

        printf("-p TDS packet size                    %ld\n",
(long) DEF_LDPACKSIZE);
        printf("-f Loader Results Output Filename
%s\n", LOADER_RES_FILE);
        printf("-s Starting Warehouse                    %ld\n",
(long) DEF_STARTING_WAREHOUSE);
        printf("-i Build Option (data = 0, data and index = 1)
%ld\n", (long) BUILD_INDEX);
        printf("-o Cluster Index Build Order (before = 1, after = 0)
%ld\n", (long) INDEX_ORDER);
        printf("-c Build Scaled Database (normal = 0, tiny = 1)
%ld\n", (long) SCALE_DOWN);
        printf("-d Index Script Path                    %s\n",
INDEX_SCRIPT_PATH);
        printf("-t Table to Load                                all tables
\n");
        printf(" [item|warehouse|customer|orders]\n");
        printf(" Notes: \n");
        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.
//                      4.30
//                      Copyright Microsoft,
//                      1996, 1997, 1998, 1999, 2000
// 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
//
//      4.30
//
//      Copyright Microsoft,
//      1996, 1997, 1998, 1999, 2000
//      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[z] = 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
//
//      4.30            Microsoft TPC-C Kit Ver.
//
//                        Copyright Microsoft,
//      1996, 1997, 1998, 1999,2000
//      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
//
//      4.30            Microsoft TPC-C Kit Ver.
//
//                        Copyright Microsoft,
//      1996, 1997, 1998, 1999, 2000
//      Purpose:    Header file for TPC-C database loader

```

```

// Build number of TPC Benchmark Kit
#define TPCKIT_VER        "4.30"

// 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    "logs\\load.out"
#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
*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.
4.30
// Copyright Microsoft,
1996, 1997, 1998, 1999, 2000
// 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 CheckSQL();
void CheckDataBase();

long NURand();
void LoadItem();
void LoadWarehouse();

23 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;
    long      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;
    long      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;
    long      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;

TPCCLDR_ARGS  *aptr, args;

```

```

// support for log directory determined by environment
#define LOGBASE_MAXLEN
128
int UseAltLogDir = 0;
char LogBase[LOGBASE_MAXLEN];
char LogFile[2*LOGBASE_MAXLEN];
#define LOGFILE_CREATE(name)
\ strcpy(LogFile, LogBase);
\ strcat(LogFile, name);

//=====
//
// 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* TPC-C BENCHMARK KIT: Database loader
");
    printf("\n* Version %s ",
TPCKIT_VER);
    printf("\n* ");

    printf("\n*****
\n\n");

    // process command line arguments

    aptr = &argv;
    GetArgsLoader(argc, argv, aptr);

    // process environment variables
    if ( GetEnvironmentVariable("LOGBASE", LogBase,
LOGBASE_MAXLEN)
    {
        UseAltLogDir = 1;
        strcat(LogBase, "\\logs");
        printf("Will use %s for log files\n", LogBase);
    }
    else
        strcpy(LogBase, "logs");

    // 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          bcp hint[128];

    // 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, "t_item");

    LOGFILE_CREATE("\\item.err")
    rc = bcp_init(i_hdbc1, name, NULL, LogFile, DB_IN);

    if (rc != SUCCEEDED)
        HandleErrorDBC(i_hdbc1);

    if ((aptr->build_index == 1) && (aptr->index_order == 1))
    {
        sprintf(bcp hint, "tablock, order (i_id),
ROWS_PER_BATCH = 100000, CHECK_CONSTRAINTS");
        rc = bcp_control(i_hdbc1, BCPHINTS, (void*)
bcp hint);
        if (rc != SUCCEEDED)
            HandleErrorDBC(i_hdbc1);
    }

    rc = bcp_bind(i_hdbc1, (BYTE *) &i_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 1);
    if (rc != SUCCEEDED)
        HandleErrorDBC(i_hdbc1);

    rc = bcp_bind(i_hdbc1, (BYTE *) &i_im_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 2);
    if (rc != SUCCEEDED)
        HandleErrorDBC(i_hdbc1);

    rc = bcp_bind(i_hdbc1, (BYTE *) i_name, 0,
I_NAME_LEN, NULL, 0, 0, 3);
    if (rc != SUCCEEDED)
        HandleErrorDBC(i_hdbc1);

    rc = bcp_bind(i_hdbc1, (BYTE *) &i_price, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 4);
    if (rc != SUCCEEDED)
        HandleErrorDBC(i_hdbc1);

    rc = bcp_bind(i_hdbc1, (BYTE *) i_data, 0, I_DATA_LEN,
NULL, 0, 0, 5);
    if (rc != SUCCEEDED)
        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 != SUCCEEDED)
            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()
{
    long          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   bcp hint[128];

// Seed with unique number
seed(aptr->starting_warehouse + 1);

printf("Loading warehouse table...\n");

// if build index before load...
if ((aptr->build_index == 1) && (aptr->index_order == 1))
    BuildIndex("idxwarcl");

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, "t_warehouse");

LOGFILE_CREATE("\\whouse.err")
rc = bcp_init(w_hdbc1, name, NULL, LogFile, DB_IN);

if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

if ((aptr->build_index == 1) && (aptr->index_order == 1))
{
    sprintf(bcp hint, "tablock, order (w_id),
ROWS_PER_BATCH = %d, CHECK_CONSTRAINTS",
aptr->num_warehouses);
    rc = bcp_control(w_hdbc1, BCPHINTS, (void*)
bcp hint);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);
}

rc = bcp_bind(w_hdbc1, (BYTE *) &w_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 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 = (long)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("idxwarcl");

stock_rows_loaded = 0;
district_rows_loaded = 0;

District();
Stock();
}

//=====
//
// Function : District
//
//=====
void District()

```

```

{
short  d_id;
long   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   bcpint[128];

// Seed with unique number
seed(aptr->starting_warehouse + 2);

printf("Loading district table...\n");

// build index before load
if ((aptr->build_index == 1) && (aptr->index_order == 1))
    BuildIndex("idxdisc1");

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, "t_district");

LOGFILE_CREATE("\\district.err")
rc = bcp_init(w_hdbc1, name, NULL, LogFile, DB_IN);

if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

if ((aptr->build_index == 1) && (aptr->index_order == 1))
{
    sprintf(bcpint, "tablock, order (d_w_id, d_id),
ROWS_PER_BATCH = %u, CHECK_CONSTRAINTS",
(aptr->num_warehouses * 10));
    rc = bcp_control(w_hdbc1, BCPHINTS, (void*)
bcpint);
    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, SQLINT4, 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;
    long    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];

    // Seed with unique number
    seed(aptr->starting_warehouse + 3);

    // if build index before load...
    if ((aptr->build_index == 1) && (aptr->index_order == 1))
        BuildIndex("idxstkcl");

    sprintf(name, "%s.%s", aptr->database, "t_stock");

    LOGFILE_CREATE("\\stock.err")
    rc = bcp_init(w_hdbc1, name, NULL, LogFile, 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, CHECK_CONSTRAINTS",
(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, SQLINT4, 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 != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) &s_ytd, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 14);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) &s_order_cnt, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 15);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) &s_remote_cnt, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 16);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) s_data, 0,
S_DATA_LEN, NULL, 0, 0, 17);
        if (rc != SUCCEEDED)
            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++)
        {

            for (s_w_id = (long)aptr->starting_warehouse;
s_w_id <= aptr->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 != SUCCEEDED)

```

```

HandleErrorDBC(w_hdbc1);

                stock_rows_loaded++;
                CheckForCommit(w_hdbc1,
w_hstmt1, stock_rows_loaded, "stock", &time_start);

            }

        }

        rcint = bcp_done(w_hdbc1);
        if (rcint < 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->build_index == 1) && (aptr->index_order == 0))
            BuildIndex("idxstkcl");

        return;
    }

//=====
//
// Function : LoadCustomer
//
//=====

void LoadCustomer()
{
    LOADER_TIME_STRUCT customer_time_start;
    LOADER_TIME_STRUCT history_time_start;
    long w_id;

    short d_id;

    DWORD
dwThreadID[MAX_CUSTOMER_THREADS];
    HANDLE
hThread[MAX_CUSTOMER_THREADS];
    char name[20];
    RETCODE

rc;
    DBINT

rcint;
    char

bcphint[128];
    char

cmd[256];
    // SQLRETURN

rc_1;
    // SQLSMALLINT

recnum, MsgLen;
    // SQLCHAR

SqlState[6], Msg[SQL_MAX_MESSAGE_LENGTH];
    // SQLINTEGER

NativeError;

    // Seed with unique number
    seed(aptr->starting_warehouse + 4);

    printf("Loading customer and history tables...\n");

```

```

// if build index before load...
if ((aptr->build_index == 1) && (aptr->index_order == 1))
    BuildIndex("idxcuscl");

// Initialize bulk copy
sprintf(name, "%s.%s", aptr->database, "t_customer");

LOGFILE_CREATE("\\customer.err")
rc = bcp_init(c_hdbc1, name, NULL, LogFile, DB_IN);
if (rc != SUCCEED)
    HandleErrorDBC(c_hdbc1);

if ((aptr->build_index == 1) && (aptr->index_order == 1))
{
    sprintf(bcphint, "tablock, order (c_w_id, c_d_id,
c_id), ROWS_PER_BATCH = %u, CHECK_CONSTRAINTS",
(aptr->num_warehouses * 30000));
    rc = bcp_control(c_hdbc1, BCPHINTS, (void*)
bcphint);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);
}

sprintf(name, "%s.%s", aptr->database, "t_history");

LOGFILE_CREATE("\\history.err")
rc = bcp_init(c_hdbc2, name, NULL, LogFile, DB_IN);
if (rc != SUCCEED)
    HandleErrorDBC(c_hdbc2);

    sprintf(bcphint, "tablock, order (h_w_id, h_d_id, h_c_id,
h_date), ROWS_PER_BATCH = %u, CHECK_CONSTRAINTS",
(aptr->num_warehouses * 30000));
    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 = (long)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");

// 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, "isql -S%s -U%s -P%s -d%s -e -Q\"update
t_customer set c_first = 'C_LOAD = %d' where c_id = 1 and c_w_id =
1 and c_d_id = 1\" > %s\\nurand_load.log",
        aptr->server,
        aptr->user,
        aptr->password,
        aptr->database,
        LOADER_NURAND_C,
        LogBase);

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
        // 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;
        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;
long 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 != SUCCEEDED)
    HandleErrorDBC(c_hdbc1);

rc = bcp_bind(c_hdbc1, (BYTE *) &c_d_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 2);
if (rc != SUCCEEDED)
    HandleErrorDBC(c_hdbc1);

rc = bcp_bind(c_hdbc1, (BYTE *) &c_w_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 3);
if (rc != SUCCEEDED)
    HandleErrorDBC(c_hdbc1);

rc = bcp_bind(c_hdbc1, (BYTE *) c_first, 0, FIRST_NAME_LEN,
NULL, 0, 0, 4);
if (rc != SUCCEEDED)
    HandleErrorDBC(c_hdbc1);

rc = bcp_bind(c_hdbc1, (BYTE *) c_middle, 0,
MIDDLE_NAME_LEN, NULL, 0, 0, 5);
if (rc != SUCCEEDED)
    HandleErrorDBC(c_hdbc1);

rc = bcp_bind(c_hdbc1, (BYTE *) c_last, 0, LAST_NAME_LEN,
NULL, 0, 0, 6);
if (rc != SUCCEEDED)
    HandleErrorDBC(c_hdbc1);

rc = bcp_bind(c_hdbc1, (BYTE *) c_street_1, 0, ADDRESS_LEN,
NULL, 0, 0, 7);
if (rc != SUCCEEDED)
    HandleErrorDBC(c_hdbc1);

rc = bcp_bind(c_hdbc1, (BYTE *) c_street_2, 0, ADDRESS_LEN,
NULL, 0, 0, 8);
if (rc != SUCCEEDED)
    HandleErrorDBC(c_hdbc1);

```

```

rc = bcp_bind(c_hdbc1, (BYTE *) c_city, 0, ADDRESS_LEN,
NULL, 0, 0, 9);
if (rc != SUCCEEDED)
    HandleErrorDBC(c_hdbc1);

rc = bcp_bind(c_hdbc1, (BYTE *) c_state, 0, STATE_LEN, NULL,
0, 0, 10);
if (rc != SUCCEEDED)
    HandleErrorDBC(c_hdbc1);

rc = bcp_bind(c_hdbc1, (BYTE *) c_zip, 0, ZIP_LEN, NULL, 0, 0,
11);
if (rc != SUCCEEDED)
    HandleErrorDBC(c_hdbc1);

rc = bcp_bind(c_hdbc1, (BYTE *) c_phone, 0, PHONE_LEN,
NULL, 0, 0, 12);
if (rc != SUCCEEDED)
    HandleErrorDBC(c_hdbc1);

rc = bcp_bind(c_hdbc1, (BYTE *) &c_since, 0,
C_SINCE_LEN, NULL, 0, SQLCHARACTER, 13);
if (rc != SUCCEEDED)
    HandleErrorDBC(c_hdbc1);

rc = bcp_bind(c_hdbc1, (BYTE *) c_credit, 0, CREDIT_LEN,
NULL, 0, 0, 14);
if (rc != SUCCEEDED)
    HandleErrorDBC(c_hdbc1);

rc = bcp_bind(c_hdbc1, (BYTE *) &c_credit_lim, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 15);
if (rc != SUCCEEDED)
    HandleErrorDBC(c_hdbc1);

rc = bcp_bind(c_hdbc1, (BYTE *) &c_discount, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 16);
if (rc != SUCCEEDED)
    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 != SUCCEEDED)
//     HandleErrorDBC(c_hdbc1);
rc = bcp_bind(c_hdbc1, (BYTE *) c_balance, 0, 5, NULL, 0,
SQLCHARACTER, 17);
if (rc != SUCCEEDED)
    HandleErrorDBC(c_hdbc1);

rc = bcp_bind(c_hdbc1, (BYTE *) &c_ytd_payment, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 18);
if (rc != SUCCEEDED)
    HandleErrorDBC(c_hdbc1);

rc = bcp_bind(c_hdbc1, (BYTE *) &c_payment_cnt, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 19);
if (rc != SUCCEEDED)
    HandleErrorDBC(c_hdbc1);

rc = bcp_bind(c_hdbc1, (BYTE *) &c_delivery_cnt, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 20);
if (rc != SUCCEEDED)
    HandleErrorDBC(c_hdbc1);

```

```

rc = bcp_bind(c_hdbc1, (BYTE *) c_data, 0, 500, NULL, 0, 0, 21);
if (rc != SUCCEEDED)
    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 != SUCCEEDED)
        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;
long    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, SQLINT4, 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, SQLINT4, 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_VARLEN_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;
    long w_id;

    short d_id;
    DWORD
dwThreadID[MAX_ORDER_THREADS];
HANDLE
hThread[MAX_ORDER_THREADS];
char name[20];
RETCODE rc;
char
bcphint[128];

// seed with unique number
seed(aptr->starting_warehouse + 5);

printf("Loading orders...\n");

// if build index before load...
if ((aptr->build_index == 1) && (aptr->index_order == 1))
{
    BuildIndex("idxordcl");
    BuildIndex("idxnodcl");
    BuildIndex("idxodcl");
}

// initialize bulk copy
sprintf(name, "%s..%s", aptr->database, "t_orders");

LOGFILE_CREATE("\\orders.err")
rc = bcp_init(o_hdbc1, name, NULL, LogFile, DB_IN);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc1);

if ((aptr->build_index == 1) && (aptr->index_order == 1))
{
    sprintf(bcphint, "tablock, order (o_w_id, o_d_id,
o_id), ROWS_PER_BATCH = %u, CHECK_CONSTRAINTS",
(aptr->num_warehouses * 30000));
    rc = bcp_control(o_hdbc1, BCPHINTS, (void*)
bcphint);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);
}

sprintf(name, "%s..%s", aptr->database, "t_new_order");

LOGFILE_CREATE("\\neword.err")
rc = bcp_init(o_hdbc2, name, NULL, LogFile, DB_IN);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc2);

if ((aptr->build_index == 1) && (aptr->index_order == 1))
{

```

```

        sprintf(bcphint, "tablock, order (no_w_id,
no_d_id, no_o_id), ROWS_PER_BATCH = %u,
CHECK_CONSTRAINTS", (aptr->num_warehouses * 9000));
        rc = bcp_control(o_hdbc2, BCPHINTS, (void*)
bcphint);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc2);
    }
    sprintf(name, "%s.%s", aptr->database, "t_order_line");

    LOGFILE_CREATE("\\ordline.err")
    rc = bcp_init(o_hdbc3, name, NULL, LogFile, DB_IN);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

    if ((aptr->build_index == 1) && (aptr->index_order == 1))
    {
        sprintf(bcphint, "tablock, order (ol_w_id,
ol_d_id, ol_o_id, ol_number), ROWS_PER_BATCH = %u,
CHECK_CONSTRAINTS", (aptr->num_warehouses * 300000));
        rc = bcp_control(o_hdbc3, BCPHINTS, (void*)
bcphint);
        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 = (long)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());
            }
        }
    }

```



```

FALSE)                if (CloseHandle(hThread[1]) ==
                        {
                            printf("Error, failed in
closing NewOrder thread handle with errno: %d\n", GetLastError());
                        }

FALSE)                if (CloseHandle(hThread[2]) ==
                        {
                            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;
    long 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 != SUCCEEDED)
    HandleErrorDBC(o_hdbc1);

rc = bcp_bind(o_hdbc1, (BYTE *) &o_d_id, 0,
SQL_VARLEN_DATA,NULL, 0, SQLINT2, 2);
if (rc != SUCCEEDED)
    HandleErrorDBC(o_hdbc1);

rc = bcp_bind(o_hdbc1, (BYTE *) &o_w_id, 0,
SQL_VARLEN_DATA,NULL, 0, SQLINT4, 3);
if (rc != SUCCEEDED)
    HandleErrorDBC(o_hdbc1);

rc = bcp_bind(o_hdbc1, (BYTE *) &o_c_id, 0,
SQL_VARLEN_DATA,NULL, 0, SQLINT4, 4);
if (rc != SUCCEEDED)
    HandleErrorDBC(o_hdbc1);

```

```

rc = bcp_bind(o_hdbc1, (BYTE *) &o_entry_d, 0,
O_ENTRY_D_LEN, NULL, 0, SQLCHARACTER, 5);
if (rc != SUCCEEDED)
    HandleErrorDBC(o_hdbc1);

rc = bcp_bind(o_hdbc1, (BYTE *) &o_carrier_id, 0,
SQL_VARLEN_DATA,NULL, 0, SQLINT2, 6);
if (rc != SUCCEEDED)
    HandleErrorDBC(o_hdbc1);

rc = bcp_bind(o_hdbc1, (BYTE *) &o_ol_cnt, 0,
SQL_VARLEN_DATA,NULL, 0, SQLINT2, 7);
if (rc != SUCCEEDED)
    HandleErrorDBC(o_hdbc1);

rc = bcp_bind(o_hdbc1, (BYTE *) &o_all_local, 0,
SQL_VARLEN_DATA,NULL, 0, SQLINT2, 8);
if (rc != SUCCEEDED)
    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 != SUCCEEDED)
    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("idxordc1");

// 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;
    long   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 != SUCCEEDED)
        HandleErrorDBC(o_hdbc2);

    rc = bcp_bind(o_hdbc2, (BYTE *) &o_d_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 2);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc2);

    rc = bcp_bind(o_hdbc2, (BYTE *) &o_w_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 3);
    if (rc != SUCCEEDED)
        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 != SUCCEEDED)
            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 == apr->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 ((apr->build_index == 1) &&
(apr->index_order == 0))
    BuildIndex("idxnodcl");
}

}

=====
//
// Function : LoadOrderLineTable
//
=====

void LoadOrderLineTable(LOADER_TIME_STRUCT
*order_line_time_start)
{
    int    i,j;
    long   o_id;
    short  o_d_id;
    long   o_w_id;
    long   ol;
    long   ol_i_id;
    long   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 != SUCCEEDED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &o_d_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 2);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &o_w_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 3);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &ol, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT4, 4);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &ol_i_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 5);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &ol_supply_w_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 6);
    if (rc != SUCCEEDED)
        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 == apr->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("idxodlc1");
    }
}

//=====
//
// 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,
                    long rows_loaded,
                    char
*table_name,
                    long *time_start)
{
    long time_end, time_diff;
    // DBINT rcint;

    if ( !(rows_loaded % apr->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 );

        SQLAllocHandle(SQL_HANDLE_DBC, henv , &i_hdbc1);
SQLAllocHandle(SQL_HANDLE_DBC, henv ,
&w_hdbc1);
        SQLAllocHandle(SQL_HANDLE_DBC, henv ,
&c_hdbc1);
        SQLAllocHandle(SQL_HANDLE_DBC, henv ,
&c_hdbc2);
        SQLAllocHandle(SQL_HANDLE_DBC, henv ,
&o_hdbc1);
        SQLAllocHandle(SQL_HANDLE_DBC, henv ,
&o_hdbc2);
        SQLAllocHandle(SQL_HANDLE_DBC, henv ,
&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->server,
aptr->user,
aptr->password,
aptr->database );

        rc = SQLSetConnectOption (i_hdbc1,
SQL_PACKET_SIZE, aptr->pack_size);
        if (rc != SUCCEED)
                HandleErrorDBC(i_hdbc1);

        rc = SQLDriverConnect ( i_hdbc1,
                                NULL,
(SQLCHAR*)&szDriverString[0],
SQL_NTS,
(SQLCHAR*)&szDriverStringOut[0],
sizeof(szDriverStringOut),
&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->server,
aptr->user,
aptr->password,
aptr->database );

        rc = SQLSetConnectOption (w_hdbc1,
SQL_PACKET_SIZE, aptr->pack_size);
        if (rc != SUCCEED)
                HandleErrorDBC(w_hdbc1);

        rc = SQLDriverConnect ( w_hdbc1,
                                NULL,
(SQLCHAR*)&szDriverString[0],
SQL_NTS,
(SQLCHAR*)&szDriverStringOut[0],
sizeof(szDriverStringOut),
                                NULL,
                                NULL,
                                NULL,
                                NULL);
}

```

```

&cbDriverStringOut,
SQL_DRIVER_NOPROMPT);
    if (rc != SUCCEEDED)
        HandleErrorDBC(w_hdbc1);

    // Connection 3
    sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s",
aptr->server,
aptr->user,
aptr->password,
aptr->database );

    rc = SQLSetConnectOption (c_hdbc1,
SQL_PACKET_SIZE, aptr->pack_size);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc1);

    rc = SQLDriverConnect ( c_hdbc1,
NULL,
(SQLCHAR*)&szDriverString[0],
SQL_NTS,
(SQLCHAR*)&szDriverStringOut[0],
sizeof(szDriverStringOut),
&cbDriverStringOut,
SQL_DRIVER_NOPROMPT);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc1);

    // Connection 4
    sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s",
aptr->server,
aptr->user,
aptr->password,
aptr->database );

    rc = SQLSetConnectOption (c_hdbc2,
SQL_PACKET_SIZE, aptr->pack_size);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc2);

    rc = SQLDriverConnect ( c_hdbc2,
NULL,
(SQLCHAR*)&szDriverString[0],
SQL_NTS,

```

```

(SQLCHAR*)&szDriverStringOut[0],
sizeof(szDriverStringOut),
&cbDriverStringOut,
SQL_DRIVER_NOPROMPT);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc2);

    // Connection 5
    sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s",
aptr->server,
aptr->user,
aptr->password,
aptr->database );

    rc = SQLSetConnectOption (o_hdbc1,
SQL_PACKET_SIZE, aptr->pack_size);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc1);

    rc = SQLDriverConnect ( o_hdbc1,
NULL,
(SQLCHAR*)&szDriverString[0],
SQL_NTS,
(SQLCHAR*)&szDriverStringOut[0],
sizeof(szDriverStringOut),
&cbDriverStringOut,
SQL_DRIVER_NOPROMPT);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc1);

    // Connection 6
    sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s",
aptr->server,
aptr->user,
aptr->password,
aptr->database );

    rc = SQLSetConnectOption (o_hdbc2,
SQL_PACKET_SIZE, aptr->pack_size);
    if (rc != SUCCEEDED)
        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->user,
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, "isql -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,
                                LogBase,
                                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];
    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);

        LOGFILE_CREATE("\\tpccldr.err")
        fp1 = fopen(LogFile,"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 HandleErrorSTMT (HSTMT hstmt1)
{
    SQLCHAR                SqlState[6],
    Msg[SQL_MAX_MESSAGE_LENGTH];
    SQLINTEGER NativeError;
    SQLSMALLINT i, MsgLen;
    SQLRETURN rc2;

```

```

char          timebuf[128];
char          datebuf[128];
FILE          *fp1;

i = 1;
while (( rc2 = SQLGetDiagRec(SQL_HANDLE_STMT,
hstmt1, 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);
    LOGFILE_CREATE("\\tpccldr.err")
    fp1 = fopen(LogFile,"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] =
{"000000000"};
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_UINTEGER);
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 %s\\ directory for database
creation errors.\n" , LogBase);

```



```

// 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)
    {
        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')

                    if (TabName[5] = '_')

                        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 <= 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')
            {
                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 %s\ directory for
database\n", LogBase);
    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);
}

// 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 "$(INTDIR)\tpcldr.obj"
-@erase "$(OUTDIR)\tpcldr.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)\tpcldr.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
odbc32.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 odbc32.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 odbc32.lib odbccp32.lib /nologo /subsystem:console
/pdb:none\
/machine:I386 /out:"$(OUTDIR)\tpcldr.exe"
LINK32_OBJS= \
  "$(INTDIR)\getargs.obj" \
  "$(INTDIR)\random.obj" \
  "$(INTDIR)\strings.obj" \
  "$(INTDIR)\time.obj" \
  "$(INTDIR)\tpcldr.obj"

 "$(OUTDIR)\tpcldr.exe": "$(OUTDIR)" $(DEF_FILE)
$(LINK32_OBJS)
 $(LINK32) @<<
 $(LINK32_FLAGS)$(LINK32_OBJS)
<<

!ELSEIF "$(CFG)" == "tpcldr - 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)\tpcldr.exe"

CLEAN :
  -@erase "$(INTDIR)\getargs.obj"
  -@erase "$(INTDIR)\random.obj"
  -@erase "$(INTDIR)\strings.obj"
  -@erase "$(INTDIR)\time.obj"
  -@erase "$(INTDIR)\tpcldr.obj"
  -@erase "$(INTDIR)\vc40.idb"
  -@erase "$(INTDIR)\vc40.pdb"
  -@erase "$(OUTDIR)\tpcldr.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"$(INTDIR)"/ /c
CPP_OBJS=.objects/
CPP_SBRS=.
# ADD BASE RSC /I 0x409 /d "_DEBUG"
# ADD RSC /I 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
BSC32_FLAGS=/nologo /o"$(OUTDIR)\tpcldr.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
odbc32.lib odbccp32.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:"$(OUTDIR)\tpcldr.exe"
LINK32_OBJS= \
  "$(INTDIR)\getargs.obj" \
  "$(INTDIR)\random.obj" \
  "$(INTDIR)\strings.obj" \
  "$(INTDIR)\time.obj" \
  "$(INTDIR)\tpcldr.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_RANDO=\
    ".\src\tpcc.h"
    "\mssql\dblib\include\sqldb.h"
    "\mssql\dblib\include\sqlfront.h"

"${INTDIR}\random.obj": $(SOURCE) $(DEP_CPP_RANDO)
"${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_TPCCL_=\
    ".\src\tpcc.h"
    "\mssql\dblib\include\sqldb.h"
    "\mssql\dblib\include\sqlfront.h"

"${INTDIR}\tpccldr.obj": $(SOURCE) $(DEP_CPP_TPCCL)
"${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
#####
#####

```

# Appendix C: Tunable Parameters

## Database Startup Parameters

Microsoft SQL Server 2000 Startup Parameters

```
c:\Program Files\Microsoft SQL Server\MSSQL\Binn\sqlservr.exe -c -x
-t3502 -g800
```

Where:

```
-c Start SQL Server independent of the Service Control Manager
-x Disable the keeping of CPU time and cache hit ratio statistics
-t3502 Writes a message to the SQL Server Errorlog showing the
beginning and ending time of each checkpoint
-g800 Specifies the amount of memory that is set aside for allocations
not from the buffer pool
```

## Database Information

```
1> 2> 3> 4> 5> 6> 7> 8> 9> 10> 11>
-- File:  VERSION.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.30
--      Copyright Microsoft, 2000
-- Purpose: Returns SQL Server version string
```

```
print ''
select convert(char(30), getdate(),21)
print ''
```

```
-----
2001-04-11 15:58:02.390
```

(1 row affected)

```
1> 2> 3> 4> 5> Server Name:
```

```
print 'Server Name:'
select @@servername
print ''
```

```
-----
SGNODE02
```

(1 row affected)

```
1> 2> 3> 4> 5> Server Version:
```

```
print 'Server Version:'
select @@version
print ''
```

```
-----
-----
Microsoft SQL Server 2000 - 8.00.208 (Intel X86)
Sep 27 2000 14:06:38
Cop
yright (c) 1988-2000 Microsoft Corporation
Enterprise Edition on Windo
ws NT 5.0 (Build 2195: Service Pack 1)
```

(1 row affected)

```
1> 2>
1> 2> 3> 4> 5> 6> 7> 8> 9> 10>
-- File:  CONFIG.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.30
--      Copyright Microsoft, 2000
-- Purpose: Collects SQL Server configuration parameters
```

```
print ''
select convert(char(30), getdate(),21)
print ''
```

```
-----
2001-04-11 15:58:02.873
```

(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                  | 0       | 2147483647 | 255          | 255        |
| 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          |
| 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)       | 0       | 2147483647 | 0            | 0          |
| lightweight pooling            | 0       | 1          | 0            | 0          |
| locks                          | 5000    | 2147483647 | 0            | 0          |
| max degree of parallelism      | 0       | 32         | 0            | 0          |
| max server memory (MB)         | 4       | 2147483647 | 2147483647   | 2147483647 |
| max text repl size (B)         | 0       | 2147483647 | 65536        | 65536      |
| max worker threads             | 32      | 32767      | 240          | 240        |
| media retention                | 0       | 365        | 0            | 0          |
| min memory per query (KB)      | 1024    | 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     56    56
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 proc   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>

## Software Update

Software Update

SQL Server QFE 208 was applied to all 4 server nodes and is available.  
Windows 2000 SP1 was applied to all 4 server nodes and is available.

## Microsoft Windows 2000 Datacenter Configuration

### boot.ini

```

[boot loader]
timeout=5
default=multi(0)disk(0)rdisk(0)partition(1)\WINNT
[operating systems]
multi(0)disk(0)rdisk(0)partition(1)\WINNT="Microsoft Windows
2000 Datacenter Server /PAE" /fastdetect /PAE
multi(0)disk(0)rdisk(0)partition(1)\WINNT="Microsoft Windows
2000 Datacenter Server" /fastdetect

```

## Enabling AWE

The following procedure was used on each node to enable SQL Server access to AWE memory:

- 1) Ran gpedit.msc to open the Group Policy Editor window.
- 2) Selected Computer Configuration -> Windows Settings -> Security Settings -> Local Policies -> User Rights Assignment.
- 3) Double-clicked on Lock Pages in Memory in the right hand pane of the editor.
- 4) Clicked Add.
- 5) Selected the Administrators group.
- 6) Click OK to set the local security policy setting.
- 7) Click OK to return to the Group Policy Editor.
- 8) Close the editor. Reboot the node.

## Enabling VIA

The following procedure was used on each node to enable VIA support for SQL Server:

- 1) Open the SQL Client Network Utility.
- 2) Enable VIA as a protocol.
- 3) Select the Alias page. Press the Add button.
- 4) Check the VIA radio button.
- 5) Create a server alias.
- 6) Close the SQL Client Network Utility.
- 7) Open the SQL Server Network Utility.
- 8) Add VIA to the list of enabled protocols.
- 9) Close the SQL Server Network Utility.

## System Information Report for Server Nodes

This system configuration inventory was obtained from 1 of 4 servers (xSeries 370).

All 4 servers are identically configured.

System Information report written at: 04/11/2001 03:39:47 PM

[System Information]

[ Following are sub-categories of this main category ]

[System Summary]

| Item                      | Value  |
|---------------------------|--|
| OS Name                   | Microsoft Windows 2000 Datacenter Server               |
| Version                   | 5.0.2195 Service Pack 1 Build 2195                     |
| OS Manufacturer           | Microsoft Corporation                                  |
| System Name               | SGNODE01   |
| System Manufacturer       | IBM  |
| System Model              | IBM Server -[8681]-                                    |
| System Type               | X86-based PC   |
| Processor                 | x86 Family 6 Model 10 Stepping 4 GenuineIntel ~900 Mhz |
| Processor                 | x86 Family 6 Model 10 Stepping 4 GenuineIntel ~900 Mhz |
| Processor                 | x86 Family 6 Model 10 Stepping 4 GenuineIntel ~900 Mhz |
| Processor                 | x86 Family 6 Model 10 Stepping 4 GenuineIntel ~900 Mhz |
| Processor                 | x86 Family 6 Model 10 Stepping 4 GenuineIntel ~900 Mhz |
| Processor                 | x86 Family 6 Model 10 Stepping 4 GenuineIntel ~900 Mhz |
| Processor                 | x86 Family 6 Model 10 Stepping 4 GenuineIntel ~900 Mhz |
| BIOS Version              | IBM BIOS Ver 6.0                                       |
| Windows Directory         | C:\WINNT   |
| System Directory          | C:\WINNT\System32                                      |
| Boot Device               | \Device\Harddisk0\Partition1                           |
| Locale                    | United States  |
| User Name                 | SGNODE01\Administrator                                 |
| Time Zone                 | Eastern Daylight Time                                  |
| Total Physical Memory     | 33,291,564 KB  |
| Available Physical Memory | 32,856,556 KB  |
| Total Virtual Memory      | 68,304,132 KB  |
| Available Virtual Memory  | 67,770,016 KB  |
| Page File Space           | 35,012,568 KB  |
| Page File                 | C:\pagefile.sys  |

[Hardware Resources]

[ Following are sub-categories of this main category ]

[Conflicts/Sharing]

| Resource | Device |
|----------|--------|
|----------|--------|

IRQ 51 Adaptec AIC-7896/AIC-7897 PCI Ultra2 SCSI Controller  
 IRQ 51 Adaptec AIC-7896/AIC-7897 PCI Ultra2 SCSI Controller

[DMA]

| Channel | Device                          | Status |
|---------|---------------------------------|--------|
| 2       | Standard floppy disk controller | OK     |
| 3       | ECP Printer Port (LPT1)         | OK     |
| 4       | Direct memory access 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     |
| 0x0D00-0x5FFF | PCI bus   | OK     |
| 0x2000-0x20FF | Other PCI Bridge Device                                 | OK     |
| 0x2180-0x218F | Other PCI Bridge Device                                 | OK     |
| 0x03B0-0x03BB | S3 Inc. Trio3D  | OK     |
| 0x03C0-0x03DF | S3 Inc. Trio3D  | OK     |
| 0x2200-0x22FF | IBM ServeRAID 4H Controller                             | OK     |
| 0x21C0-0x21FF | IBM 10/100 Ethernet Server Adapter                      | OK     |
| 0x2300-0x23FF | Adaptec AIC-7896/AIC-7897 PCI Ultra2 SCSI Controller    | OK     |
| 0x2400-0x24FF | Adaptec AIC-7896/AIC-7897 PCI Ultra2 SCSI Controller    | OK     |
| 0x0A79-0x0A79 | ISAPNP Read Data Port                                   | OK     |
| 0x0279-0x0279 | ISAPNP Read Data Port                                   | OK     |
| 0x02F4-0x02F7 | ISAPNP Read Data Port                                   | OK     |
| 0x002E-0x002F | Motherboard resources                                   | OK     |
| 0x0438-0x0439 | Motherboard resources                                   | OK     |
| 0x0430-0x0437 | Motherboard resources                                   | 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     |
| 0x03F0-0x03F5 | Standard floppy disk controller                         | OK     |
| 0x03F7-0x03F7 | Standard floppy disk controller                         | OK     |
| 0x0378-0x037F | ECP Printer Port (LPT1)                                 | OK     |
| 0x0778-0x077F | ECP Printer Port (LPT1)                                 | OK     |
| 0x03F8-0x03FF | Communications Port (COM1)                              | OK     |
| 0x02F8-0x02FF | Communications Port (COM2)                              | OK     |
| 0x0020-0x0021 | Advanced programmable interrupt controller              | OK     |
| 0x00A0-0x00A1 | Advanced programmable interrupt controller              | OK     |
| 0x0080-0x008F | 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     |
| 0x04D0-0x04D1 | Motherboard resources                                   | OK     |
| 0x00E8-0x00EF | Motherboard resources                                   | OK     |
| 0x5FF0-0x5FFF | Intel(r) 82371AB/EB PCI Bus Master IDE Controller       | OK     |
| 0x01F0-0x01F7 | Primary IDE Channel                                     | OK     |
| 0x03F6-0x03F6 | Primary IDE Channel                                     | OK     |
| 0x5FC0-0x5FDF | Intel 82371AB/EB PCI to USB Universal Host Controller   | OK     |
| 0x6000-0xAFFF | PCI bus   | OK     |
| 0x6000-0xAFFF | DEC 21154 PCI to PCI bridge                             | OK     |
| 0x7000-0x7FFF | DEC 21154 PCI to PCI bridge                             | OK     |

|               |  |    |
|---------------|--|----|
| 0x7100-0x717F | Mylex eXtremeRAID 2000 Disk Array Controller | OK |
| 0x6100-0x617F | Mylex eXtremeRAID 2000 Disk Array Controller | OK |
| 0xB000-0xCFFF | PCI bus                                      | OK |
| 0xB000-0xCFFF | DEC 21154 PCI to PCI bridge                  | OK |
| 0xC000-0xCFFF | DEC 21154 PCI to PCI bridge                  | OK |
| 0xC100-0xC17F | Mylex eXtremeRAID 2000 Disk Array Controller | OK |
| 0xB100-0xB17F | Mylex eXtremeRAID 2000 Disk Array Controller | OK |
| 0xD000-0xFFFF | PCI bus                                      | OK |
| 0xD000-0xFFFF | DEC 21154 PCI to PCI bridge                  | OK |
| 0xE000-0xEFFF | DEC 21154 PCI to PCI bridge                  | OK |
| 0xE100-0xE17F | Mylex eXtremeRAID 2000 Disk Array Controller | OK |
| 0xD100-0xD17F | Mylex eXtremeRAID 2000 Disk Array Controller | OK |

[IRQs]

| IRQ Number | Device  |
|------------|---|
| 9          | Microsoft ACPI-Compliant System                         |
| 5          | Other PCI Bridge Device                                 |
| 25         | IBM ServeRAID 4H Controller                             |
| 26         | cLAN Host Adapter                                       |
| 27         | IBM 10/100 Ethernet Server Adapter                      |
| 51         | Adaptec AIC-7896/AIC-7897 PCI Ultra2 SCSI Controller    |
| 51         | Adaptec AIC-7896/AIC-7897 PCI Ultra2 SCSI Controller    |
| 1          | Standard 101/102-Key or Microsoft Natural PS/2 Keyboard |
| 12         | PS/2 Compatible Mouse                                   |
| 6          | Standard floppy disk controller                         |
| 4          | Communications Port (COM1)                              |
| 3          | Communications Port (COM2)                              |
| 8          | System CMOS/real time clock                             |
| 13         | Numeric data processor                                  |
| 14         | Primary IDE Channel                                     |
| 49         | Intel 82371AB/EB PCI to USB Universal Host Controller   |
| 19         | Mylex eXtremeRAID 2000 Disk Array Controller            |
| 20         | Mylex eXtremeRAID 2000 Disk Array Controller            |
| 23         | Mylex eXtremeRAID 2000 Disk Array Controller            |
| 24         | Mylex eXtremeRAID 2000 Disk Array Controller            |
| 21         | Mylex eXtremeRAID 2000 Disk Array Controller            |
| 22         | Mylex eXtremeRAID 2000 Disk Array Controller            |

[Memory]

| Range                 | Device                                     | Status |
|-----------------------|--|--------|
| 0xA0000-0xBFFFF       | PCI bus                                    | OK     |
| 0xA0000-0xBFFFF       | S3 Inc. Trio3D                             | OK     |
| 0xC8000-0xDFFFF       | PCI bus                                    | OK     |
| 0xF0000000-0xF57FFFFF | PCI bus                                    | OK     |
| 0xF0000000-0xF57FFFFF | S3 Inc. Trio3D                             | OK     |
| 0xFEC00000-0xFFFFFFFF | PCI bus                                    | OK     |
| 0xFEC00000-0xFFFFFFFF | Advanced programmable interrupt controller | OK     |
| 0xF57FFC00-0xF57FFCFF | Other PCI Bridge Device                    | OK     |
| 0xF57E0000-0xF57EFFFF | Other PCI Bridge Device                    | OK     |
| 0xF5600000-0xF56FFFFF | IBM ServeRAID 4H Controller                | OK     |
| 0xF57C0000-0xF57DFFFF | cLAN Host Adapter                          | OK     |
| 0xF5400000-0xF55FFFFF | cLAN Host Adapter                          | OK     |
| 0xF4000000-0xF4FFFFF  | cLAN Host Adapter                          | OK     |
| 0xF57B0000-0xF57BFFFF | cLAN Host Adapter                          | OK     |
| 0xF57FE000-0xF57FEFFF | IBM 10/100 Ethernet Server Adapter         | OK     |
| 0xF5780000-0xF579FFFF | IBM 10/100 Ethernet Server Adapter         | OK     |

|   |  |                                 |                               |                             |                                |                               |                           |           |               |
|---|--|---------------------------------|-------------------------------|-----------------------------|--------------------------------|-------------------------------|---------------------------|-----------|---------------|
| 0xF57FD000-0xF57FDFFF<br>Ultra2 SCSI Controller   | Adaptec AIC-7896/AIC-7897 PCI<br>OK  | c:\winnt\system32\imaadp32.acm  | Microsoft Corporation         | OK                          | C:\WINNT\System32\IMAADP32.ACM | 5.00.2134.1                   | 16.27 KB (16,656 bytes)   | 7/27/2000 | 8:00:00 PM    |
| 0xF57FC000-0xF57FCFFF<br>Ultra2 SCSI Controller   | Adaptec AIC-7896/AIC-7897 PCI<br>OK  |                                 |                               |                             |                                |                               |                           |           |               |
| 0xF5800000-0xF87FFFFF<br>0xF5800000-0xF87FFFFF<br>0xF5800000-0xF87FFFFF<br>Array Controller | PCI bus OK<br>DEC 21154 PCI to PCI bridge OK<br>Mylex eXtremeRAID 2000 Disk        | c:\winnt\system32\iac25_32.ax   | Intel Corporation             | Indeo® audio<br>software OK | C:\WINNT\System32\IAC25_32.AX  | 2.05.53                       | 195.00 KB (199,680 bytes) | 7/27/2000 | 8:00:00 PM    |
| 0xF6800000-0xF70FFFFF<br>0xF6800000-0xF70FFFFF<br>Array Controller                          | DEC 21154 PCI to PCI bridge OK<br>Mylex eXtremeRAID 2000 Disk                      | c:\winnt\system32\tsssoft32.acm | DSP GROUP, INC.               | OK                          | C:\WINNT\System32\TSSOFT32.ACM | 1.01                          | 9.27 KB (9,488 bytes)     | 7/27/2000 | 8:00:00 PM    |
| 0xF7800000-0xF80FFFFF<br>0xF7800000-0xF80FFFFF<br>Array Controller                          | DEC 21154 PCI to PCI bridge OK<br>Mylex eXtremeRAID 2000 Disk                      | c:\winnt\system32\msg723.acm    | Microsoft Corporation         | OK                          | C:\WINNT\System32\MSG723.ACM   | 4.4.3385                      | 106.77 KB (109,328 bytes) | 2/8/2001  | 4:08:51 PM    |
| 0xF6000000-0xF67FFFFF<br>0xF6000000-0xF67FFFFF<br>Array Controller                          | DEC 21154 PCI to PCI bridge OK<br>Mylex eXtremeRAID 2000 Disk                      | [Video Codecs]                  |                               |                             |                                |                               |                           |           |               |
| 0xF8800000-0xFB7FFFFF<br>0xF8800000-0xFB7FFFFF<br>Array Controller                          | PCI bus OK<br>DEC 21154 PCI to PCI bridge OK<br>Mylex eXtremeRAID 2000 Disk        | Codec                           | Manufacturer                  | Description                 | Status                         | File                          | Version                   | Size      | Creation Date |
| 0xF8800000-0xFB7FFFFF<br>Array Controller   | DEC 21154 PCI to PCI bridge OK<br>Mylex eXtremeRAID 2000 Disk                      | c:\winnt\system32\ir50_32.dll   | Intel Corporation             | Indeo® video                | OK                             | C:\WINNT\System32\IR50_32.DLL | 5.10                      | OK        | 7/27/2000     |
| 0xF9800000-0xFA0FFFFF<br>0xF9800000-0xFA0FFFFF<br>Array Controller                          | DEC 21154 PCI to PCI bridge OK<br>Mylex eXtremeRAID 2000 Disk                      | R.5.10.15.2.55                  |                               | 737.50 KB (755,200 bytes)   |                                |                               |                           |           | 7/27/2000     |
| 0xFA800000-0xFB0FFFFF<br>0xFA800000-0xFB0FFFFF<br>Array Controller                          | DEC 21154 PCI to PCI bridge OK<br>Mylex eXtremeRAID 2000 Disk                      | c:\winnt\system32\msh261.drv    | Microsoft Corporation         | OK                          | C:\WINNT\System32\MSH261.DRV   | 4.4.3385                      | 163.77 KB (167,696 bytes) | 2/8/2001  | 4:08:52 PM    |
| 0xF9000000-0xF97FFFFF<br>0xF9000000-0xF97FFFFF<br>Array Controller                          | DEC 21154 PCI to PCI bridge OK<br>Mylex eXtremeRAID 2000 Disk                      | c:\winnt\system32\msh263.drv    | Microsoft Corporation         | OK                          | C:\WINNT\System32\MSH263.DRV   | 4.4.3385                      | 252.27 KB (258,320 bytes) | 2/8/2001  | 4:08:22 PM    |
| 0xFB800000-0xFE0FFFFF<br>0xFB800000-0xFE0FFFFF<br>Array Controller                          | PCI bus OK<br>DEC 21154 PCI to PCI bridge OK<br>Mylex eXtremeRAID 2000 Disk        | c:\winnt\system32\msrle32.dll   | Microsoft Corporation         | OK                          | C:\WINNT\System32\MSRLE32.DLL  | 5.00.2134.1                   | 10.77 KB (11,024 bytes)   | 7/27/2000 | 8:00:00 PM    |
| 0xFC800000-0xFD0FFFFF<br>0xFC800000-0xFD0FFFFF<br>Array Controller                          | DEC 21154 PCI to PCI bridge OK<br>Mylex eXtremeRAID 2000 Disk                      | c:\winnt\system32\ir32_32.dll   | Intel(R) Corporation          | OK                          | C:\WINNT\System32\IR32_32.DLL  | Not Available                 | 194.50 KB (199,168 bytes) | 7/27/2000 | 8:00:00 PM    |
| 0xFD800000-0xFE0FFFFF<br>0xFD800000-0xFE0FFFFF<br>Array Controller                          | DEC 21154 PCI to PCI bridge OK<br>Mylex eXtremeRAID 2000 Disk                      | c:\winnt\system32\msvidc32.dll  | Microsoft Corporation         | OK                          | C:\WINNT\System32\MSVIDC32.DLL | 5.00.2134.1                   | 27.27 KB (27,920 bytes)   | 7/27/2000 | 8:00:00 PM    |
| 0xFC000000-0xFC7FFFFF<br>0xFC000000-0xFC7FFFFF<br>Array Controller                          | DEC 21154 PCI to PCI bridge OK<br>Mylex eXtremeRAID 2000 Disk                      | c:\winnt\system32\iccvld.dll    | Radius Inc.                   | OK                          | C:\WINNT\System32\ICCVLD.DLL   | 1.10.0.6                      | 108.00 KB (110,592 bytes) | 7/27/2000 | 8:00:00 PM    |
| [Components]  |  |                                 |                               |                             |                                |                               |                           |           |               |
| [Following are sub-categories of this main category ]                                       |  |                                 |                               |                             |                                |                               |                           |           |               |
| [Multimedia]  |  |                                 |                               |                             |                                |                               |                           |           |               |
| [Following are sub-categories of this main category ]                                       |  |                                 |                               |                             |                                |                               |                           |           |               |
| [Audio Codecs]  |  |                                 |                               |                             |                                |                               |                           |           |               |
| Codec   | Manufacturer   | Description                     | Status                        | File                        | Version                        | Size                          | Creation Date             |           |               |
| c:\winnt\system32\msgsm32.acm   | Microsoft Corporation  | OK                              | C:\WINNT\System32\MSGSM32.ACM | 5.00.2134.1                 | 22.27 KB (22,800 bytes)        | 7/27/2000                     | 8:00:00 PM                |           |               |
| c:\winnt\system32\msg711.acm  | Microsoft Corporation  | OK                              | C:\WINNT\System32\MSG711.ACM  | 5.00.2134.1                 | 10.27 KB (10,512 bytes)        | 7/27/2000                     | 8:00:00 PM                |           |               |
| c:\winnt\system32\lhacm.acm   | Microsoft Corporation  | OK                              | C:\WINNT\System32\LHACM.ACM   | 4.4.3385                    | 33.27 KB (34,064 bytes)        | 2/8/2001                      | 4:08:52 PM                |           |               |
| c:\winnt\system32\msadp32.acm   | Microsoft Corporation  | OK                              | C:\WINNT\System32\MSADP32.ACM | 5.00.2134.1                 | 14.77 KB (15,120 bytes)        | 7/27/2000                     | 8:00:00 PM                |           |               |
| [CD-ROM]  |  |                                 |                               |                             |                                |                               |                           |           |               |
| Item  | Value  |                                 |                               |                             |                                |                               |                           |           |               |
| Drive   | D:   |                                 |                               |                             |                                |                               |                           |           |               |
| Description   | CD-ROM Drive   |                                 |                               |                             |                                |                               |                           |           |               |
| Media Loaded  | False  |                                 |                               |                             |                                |                               |                           |           |               |
| Media Type  | CD-ROM   |                                 |                               |                             |                                |                               |                           |           |               |
| Name  | LG CD-ROM CRD-8400B  |                                 |                               |                             |                                |                               |                           |           |               |
| Manufacturer  | (Standard CD-ROM drives)   |                                 |                               |                             |                                |                               |                           |           |               |
| Status  | OK   |                                 |                               |                             |                                |                               |                           |           |               |
| Transfer Rate   | Not Available  |                                 |                               |                             |                                |                               |                           |           |               |
| SCSI Target ID  | 0  |                                 |                               |                             |                                |                               |                           |           |               |
| PNP Device ID   | IDE\CDROMLG_CD-ROM_CRD-8400B_____1.08____\4249204D39393230383020202020202020202020 |                                 |                               |                             |                                |                               |                           |           |               |
| [Sound Device]  |  |                                 |                               |                             |                                |                               |                           |           |               |
| Item  | Value  |                                 |                               |                             |                                |                               |                           |           |               |
| No sound devices  |  |                                 |                               |                             |                                |                               |                           |           |               |
| [Display]   |  |                                 |                               |                             |                                |                               |                           |           |               |
| Item  | Value  |                                 |                               |                             |                                |                               |                           |           |               |
| Name  | S3 Inc. Trio3D   |                                 |                               |                             |                                |                               |                           |           |               |



PNP Device ID  
 PCI\VEN\_5333&DEV\_8904&SUBSYS\_00DB1014&REV\_01\3&267  
 A616A&0&20  
 Adapter Type S3 Trio3D, S3 compatible  
 Adapter Description S3 Inc. Trio3D  
 Adapter RAM 4.00 MB (4,194,304 bytes)  
 Installed Drivers s3mt3d.sys  
 Driver Version 5.01.526.0007  
 INF File s3trio3d.inf (S3Inc section)  
 Color Planes 1  
 Color Table Entries 65536  
 Resolution 800 x 600 x 60 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&43B47AD&0  
 NumberOfFunctionKeys 12

[Pointing Device]

Item Value  
 Hardware Type PS/2 Compatible Mouse  
 Number of Buttons 3  
 Status OK  
 PNP Device ID ACPI\PNP0F13\4&43B47AD&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 4/11/2001 7:28:01 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 4/11/2001 7:28:01 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 Rasl2tp  
 Driver c:\winnt\system32\drivers\rasl2tp.sys (50320, 5.00.2179.1)  
 Name [00000002] WAN Miniport (PPTP)  
 Adapter Type Wide Area Network (WAN)  
 Product Name WAN Miniport (PPTP)  
 Installed True  
 PNP Device ID ROOT\MS\_PPTPMINIPOINT\0000  
 Last Reset 4/11/2001 7:28:01 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 (47376, 5.00.2160.1)  
 Name [00000003] Direct Parallel  
 Adapter Type Not Available  
 Product Name Direct Parallel  
 Installed True  
 PNP Device ID ROOT\MS\_PTMINIPOINT\0000  
 Last Reset 4/11/2001 7:28:01 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\_NDISWANIP0000  
 Last Reset 4/11/2001 7:28:01 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 (89808, 5.00.2184.1)

Name [00000005] IBM 10/100 Ethernet Server Adapter  
 Adapter Type Ethernet 802.3  
 Product Name IBM 10/100 Ethernet Server Adapter  
 Installed True  
 PNP Device ID PCI\VEN\_8086&DEV\_1229&SUBSYS\_01F11014&REV\_0C\3&267A616A&0&60  
 Last Reset 4/11/2001 7:28:01 AM  
 Index 5  
 Service Name E100B  
 IP Address 192.168.125.201  
 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 00:03:47:0A:6A:CA  
 Service Name E100B  
 IRQ Number 27  
 I/O Port 0x21C0-0x21FF  
 Driver c:\winnt\system32\drivers\e100bnt5.sys (119056, 5.40.11.0000)

Name [00000006] cLAN Host Adapter  
 Adapter Type Ethernet 802.3  
 Product Name cLAN Host Adapter  
 Installed True  
 PNP Device ID PCI\VEN\_135B&DEV\_0001&SUBSYS\_00000000&REV\_00\3&267A616A&0&58  
 Last Reset 4/11/2001 7:28:01 AM  
 Index 6  
 Service Name GNINDIS  
 IP Address 192.168.120.1  
 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 00:90:FA:00:1B:18  
 Service Name GNINDIS  
 IRQ Number 26  
 Driver c:\winnt\system32\drivers\gnindis.sys (22598, 4.1.1)

[Protocol]

Item Value

Name MSAFD Tcip [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 Tcip [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

[\\Device\\NetBT\_Tcpip\_{D2A2954E-53B0-4242-8EBA-3AD3DDDA9E08}] SEQPACKE T 3  
 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\_{D2A2954E-53B0-4242-8EBA-3AD3DDDA9E08}] DATAGRAM 3  
 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\_{CBD78306-A3A1-4444-B08A-916C948A2B49}] SEQPACKE T 0  
 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\_{CBD78306-A3A1-4444-B08A-916C948A2B49}] 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\_{6F39C5C3-FA2B-4B96-8C5C-24070D7B7CB2}] SEQPACKE T 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\_{6F39C5C3-FA2B-4B96-8C5C-24070D7B7CB2}] 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\_{F409C2C7-7706-4373-94CC-4422E208FE86}] SEQPACKE T 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\_{F409C2C7-7706-4373-94CC-4422E208FE86}] 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 5.00.2195.1207  
 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 4  
 I/O Port 0x03F8-0x03FF  
 Driver c:\\winnt\\system32\\drivers\\serial.sys (62448, 5.00.2134.1)

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 (62448, 5.00.2134.1)

[Parallel]

Item Value  
 Name LPT1  
 PNP Device ID ACPI\PNP0401\5

[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 8.47 GB (9,097,424,896 bytes)  
 Free Space 4.87 GB (5,229,371,392 bytes)  
 Volume Name  
 Volume Serial Number C8DF6769  
 Partition Disk #6, Partition #0  
 Partition Size 8.47 GB (9,097,428,992 bytes)  
 Starting Offset 16384 bytes  
 Drive Description Disk drive  
 Drive Manufacturer (Standard disk drives)  
 Drive Model IBM ServeRAID Failover Virtual 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 3  
 Drive SCSI Target Id 0  
 Drive SectorsPerTrack 32  
 Drive Size 9099542528 bytes  
 Drive TotalCylinders 4339  
 Drive TotalSectors 17772544  
 Drive TotalTracks 555392  
 Drive TracksPerCylinder 128

Drive F:  
 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  
 Partition Disk #7, Partition #0  
 Partition Size 101.70 GB (109,196,607,488 bytes)  
 Starting Offset 2097152 bytes  
 Drive Description Disk drive

Drive Manufacturer (Standard disk drives)  
 Drive Model IBM ServeRAID Failover Virtual 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 3  
 Drive SCSI Target Id 1  
 Drive SectorsPerTrack 32  
 Drive Size 109200801792 bytes  
 Drive TotalCylinders 52071  
 Drive TotalSectors 213282816  
 Drive TotalTracks 6665088  
 Drive TracksPerCylinder 128

Drive G:  
 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  
 Partition Disk #0, Partition #0  
 Partition Size 474.03 GB (508,982,984,704 bytes)  
 Starting Offset 2097152 bytes  
 Drive Description \\.\PHYSICALDRIVE0  
 Drive Manufacturer Not Available  
 Drive Model Not Available  
 Drive BytesPerSector 512  
 Drive MediaLoaded True  
 Drive MediaType Fixed hard disk media  
 Drive Partitions 3  
 Drive SCSI Bus 4  
 Drive SCSI Logical Unit 0  
 Drive SCSI Port 4  
 Drive SCSI Target Id 0  
 Drive SectorsPerTrack 32  
 Drive Size 508987179008 bytes  
 Drive TotalCylinders 242704  
 Drive TotalSectors 994115584  
 Drive TotalTracks 31066112  
 Drive TracksPerCylinder 128

Drive H:  
 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  
 Partition Disk #0, Partition #0  
 Partition Size 474.03 GB (508,982,984,704 bytes)  
 Starting Offset 2097152 bytes  
 Drive Description \\.\PHYSICALDRIVE0  
 Drive Manufacturer Not Available  
 Drive Model Not Available  
 Drive BytesPerSector 512  
 Drive MediaLoaded True  
 Drive MediaType Fixed hard disk media  
 Drive Partitions 3  
 Drive SCSI Bus 4  
 Drive SCSI Logical Unit 0  
 Drive SCSI Port 4  
 Drive SCSI Target Id 0

Drive SectorsPerTrack 32  
 Drive Size 508987179008 bytes  
 Drive TotalCylinders 242704  
 Drive TotalSectors 994115584  
 Drive TotalTracks 31066112  
 Drive TracksPerCylinder 128

Drive I:  
 Description Local Fixed Disk  
 Compressed Not Available  
 File System Not Available  
 Size Not Available  
 Free SpaceNot Available  
 Volume Name Not Available  
 Volume Serial Number Not Available  
 Partition Disk #1, Partition #0  
 Partition Size 236.68 GB (254,128,250,880 bytes)  
 Starting Offset 8225280 bytes  
 Drive Description \\.\PHYSICALDRIVE1  
 Drive Manufacturer Not Available  
 Drive Model Not Available  
 Drive BytesPerSector 512  
 Drive MediaLoaded True  
 Drive MediaType Fixed hard disk media  
 Drive Partitions 2  
 Drive SCSIbus 4  
 Drive SCSILogicalUnit 0  
 Drive SCSIPort 5  
 Drive SCSTargetId 0  
 Drive SectorsPerTrack 63  
 Drive Size 254136476160 bytes  
 Drive TotalCylinders 30897  
 Drive TotalSectors 496360305  
 Drive TotalTracks 7878735  
 Drive TracksPerCylinder 255

Drive J:  
 Description Local Fixed Disk  
 Compressed Not Available  
 File System Not Available  
 Size Not Available  
 Free SpaceNot Available  
 Volume Name Not Available  
 Volume Serial Number Not Available  
 Partition Disk #1, Partition #0  
 Partition Size 236.68 GB (254,128,250,880 bytes)  
 Starting Offset 8225280 bytes  
 Drive Description \\.\PHYSICALDRIVE1  
 Drive Manufacturer Not Available  
 Drive Model Not Available  
 Drive BytesPerSector 512  
 Drive MediaLoaded True  
 Drive MediaType Fixed hard disk media  
 Drive Partitions 2  
 Drive SCSIbus 4  
 Drive SCSILogicalUnit 0  
 Drive SCSIPort 5  
 Drive SCSTargetId 0  
 Drive SectorsPerTrack 63  
 Drive Size 254136476160 bytes  
 Drive TotalCylinders 30897  
 Drive TotalSectors 496360305  
 Drive TotalTracks 7878735  
 Drive TracksPerCylinder 255

Drive K:  
 Description Local Fixed Disk  
 Compressed Not Available

File System Not Available  
 Size Not Available  
 Free SpaceNot Available  
 Volume Name Not Available  
 Volume Serial Number Not Available  
 Partition Disk #2, Partition #0  
 Partition Size 236.68 GB (254,128,250,880 bytes)  
 Starting Offset 8225280 bytes  
 Drive Description \\.\PHYSICALDRIVE2  
 Drive Manufacturer Not Available  
 Drive Model Not Available  
 Drive BytesPerSector 512  
 Drive MediaLoaded True  
 Drive MediaType Fixed hard disk media  
 Drive Partitions 3  
 Drive SCSIbus 4  
 Drive SCSILogicalUnit 0  
 Drive SCSIPort 6  
 Drive SCSTargetId 0  
 Drive SectorsPerTrack 63  
 Drive Size 254136476160 bytes  
 Drive TotalCylinders 30897  
 Drive TotalSectors 496360305  
 Drive TotalTracks 7878735  
 Drive TracksPerCylinder 255

Drive L:  
 Description Local Fixed Disk  
 Compressed Not Available  
 File System Not Available  
 Size Not Available  
 Free SpaceNot Available  
 Volume Name Not Available  
 Volume Serial Number Not Available  
 Partition Disk #2, Partition #0  
 Partition Size 236.68 GB (254,128,250,880 bytes)  
 Starting Offset 8225280 bytes  
 Drive Description \\.\PHYSICALDRIVE2  
 Drive Manufacturer Not Available  
 Drive Model Not Available  
 Drive BytesPerSector 512  
 Drive MediaLoaded True  
 Drive MediaType Fixed hard disk media  
 Drive Partitions 3  
 Drive SCSIbus 4  
 Drive SCSILogicalUnit 0  
 Drive SCSIPort 6  
 Drive SCSTargetId 0  
 Drive SectorsPerTrack 63  
 Drive Size 254136476160 bytes  
 Drive TotalCylinders 30897  
 Drive TotalSectors 496360305  
 Drive TotalTracks 7878735  
 Drive TracksPerCylinder 255

Drive M:  
 Description Local Fixed Disk  
 Compressed Not Available  
 File System Not Available  
 Size Not Available  
 Free SpaceNot Available  
 Volume Name Not Available  
 Volume Serial Number Not Available  
 Partition Disk #3, Partition #0  
 Partition Size 237.29 GB (254,782,996,480 bytes)  
 Starting Offset 2097152 bytes  
 Drive Description \\.\PHYSICALDRIVE3  
 Drive Manufacturer Not Available

Drive Model Not Available  
 Drive BytesPerSector 512  
 Drive MediaLoaded True  
 Drive MediaType Fixed hard disk media  
 Drive Partitions 3  
 Drive SCSIbus 4  
 Drive SCSILogicalUnit 0  
 Drive SCSIPort 7  
 Drive SCSTargetId 0  
 Drive SectorsPerTrack 63  
 Drive Size 254136476160 bytes  
 Drive TotalCylinders 30897  
 Drive TotalSectors 496360305  
 Drive TotalTracks 7878735  
 Drive TracksPerCylinder 255

Drive N:  
 Description Local Fixed Disk  
 Compressed Not Available  
 File System Not Available  
 Size Not Available  
 Free SpaceNot Available  
 Volume Name Not Available  
 Volume Serial Number Not Available  
 Partition Disk #3, Partition #0  
 Partition Size 237.29 GB (254,782,996,480 bytes)  
 Starting Offset 2097152 bytes  
 Drive Description \\.\PHYSICALDRIVE3  
 Drive Manufacturer Not Available  
 Drive Model Not Available  
 Drive BytesPerSector 512  
 Drive MediaLoaded True  
 Drive MediaType Fixed hard disk media  
 Drive Partitions 3  
 Drive SCSIbus 4  
 Drive SCSILogicalUnit 0  
 Drive SCSIPort 7  
 Drive SCSTargetId 0  
 Drive SectorsPerTrack 63  
 Drive Size 254136476160 bytes  
 Drive TotalCylinders 30897  
 Drive TotalSectors 496360305  
 Drive TotalTracks 7878735  
 Drive TracksPerCylinder 255

Drive O:  
 Description Local Fixed Disk  
 Compressed Not Available  
 File System Not Available  
 Size Not Available  
 Free SpaceNot Available  
 Volume Name Not Available  
 Volume Serial Number Not Available  
 Partition Disk #4, Partition #0  
 Partition Size 237.29 GB (254,782,996,480 bytes)  
 Starting Offset 2097152 bytes  
 Drive Description \\.\PHYSICALDRIVE4  
 Drive Manufacturer Not Available  
 Drive Model Not Available  
 Drive BytesPerSector 512  
 Drive MediaLoaded True  
 Drive MediaType Fixed hard disk media  
 Drive Partitions 3  
 Drive SCSIbus 4  
 Drive SCSILogicalUnit 0  
 Drive SCSIPort 8  
 Drive SCSTargetId 0  
 Drive SectorsPerTrack 63

Drive Size 254136476160 bytes  
 Drive TotalCylinders 30897  
 Drive TotalSectors 496360305  
 Drive TotalTracks 7878735  
 Drive TracksPerCylinder 255

Drive P:  
 Description Local Fixed Disk  
 Compressed Not Available  
 File System Not Available  
 Size Not Available  
 Free SpaceNot Available  
 Volume Name Not Available  
 Volume Serial Number Not Available  
 Partition Disk #4, Partition #0  
 Partition Size 237.29 GB (254,782,996,480 bytes)  
 Starting Offset 2097152 bytes  
 Drive Description \\.\PHYSICALDRIVE4  
 Drive Manufacturer Not Available  
 Drive Model Not Available  
 Drive BytesPerSector 512  
 Drive MediaLoaded True  
 Drive MediaType Fixed hard disk media  
 Drive Partitions 3  
 Drive SCSIbus 4  
 Drive SCSILogicalUnit 0  
 Drive SCSIPort 8  
 Drive SCSTargetId 0  
 Drive SectorsPerTrack 63  
 Drive Size 254136476160 bytes  
 Drive TotalCylinders 30897  
 Drive TotalSectors 496360305  
 Drive TotalTracks 7878735  
 Drive TracksPerCylinder 255

Drive Q:  
 Description Local Fixed Disk  
 Compressed Not Available  
 File System Not Available  
 Size Not Available  
 Free SpaceNot Available  
 Volume Name Not Available  
 Volume Serial Number Not Available  
 Partition Disk #5, Partition #0  
 Partition Size 237.29 GB (254,782,996,480 bytes)  
 Starting Offset 2097152 bytes  
 Drive Description \\.\PHYSICALDRIVE5  
 Drive Manufacturer Not Available  
 Drive Model Not Available  
 Drive BytesPerSector 512  
 Drive MediaLoaded True  
 Drive MediaType Fixed hard disk media  
 Drive Partitions 3  
 Drive SCSIbus 4  
 Drive SCSILogicalUnit 0  
 Drive SCSIPort 9  
 Drive SCSTargetId 0  
 Drive SectorsPerTrack 63  
 Drive Size 254136476160 bytes  
 Drive TotalCylinders 30897  
 Drive TotalSectors 496360305  
 Drive TotalTracks 7878735  
 Drive TracksPerCylinder 255

Drive R:  
 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  
 Partition Disk #5, Partition #0  
 Partition Size 237.29 GB (254,782,996,480 bytes)  
 Starting Offset 2097152 bytes  
 Drive Description \\.\PHYSICALDRIVE5  
 Drive Manufacturer Not Available  
 Drive Model Not Available  
 Drive BytesPerSector 512  
 Drive MediaLoaded True  
 Drive MediaType Fixed hard disk media  
 Drive Partitions 3  
 Drive SCSI Bus 4  
 Drive SCSI LogicalUnit 0  
 Drive SCSI Port 9  
 Drive SCSTargetId 0  
 Drive SectorsPerTrack 63  
 Drive Size 254136476160 bytes  
 Drive TotalCylinders 30897  
 Drive TotalSectors 496360305  
 Drive TotalTracks 7878735  
 Drive TracksPerCylinder 255

Drive S:  
 Description Local Fixed Disk  
 Compressed False  
 File System NTFS  
 Size 117.19 GB (125,830,299,648 bytes)  
 Free Space 11.90 GB (12,782,657,536 bytes)  
 Volume Name BACKUP1\_1&2  
 Volume Serial Number 484BEED4  
 Partition Disk #2, Partition #0  
 Partition Size 236.68 GB (254,128,250,880 bytes)  
 Starting Offset 8225280 bytes  
 Drive Description \\.\PHYSICALDRIVE2  
 Drive Manufacturer Not Available  
 Drive Model Not Available  
 Drive BytesPerSector 512  
 Drive MediaLoaded True  
 Drive MediaType Fixed hard disk media  
 Drive Partitions 3  
 Drive SCSI Bus 4  
 Drive SCSI LogicalUnit 0  
 Drive SCSI Port 6  
 Drive SCSTargetId 0  
 Drive SectorsPerTrack 63  
 Drive Size 254136476160 bytes  
 Drive TotalCylinders 30897  
 Drive TotalSectors 496360305  
 Drive TotalTracks 7878735  
 Drive TracksPerCylinder 255

Drive T:  
 Description Local Fixed Disk  
 Compressed False  
 File System NTFS  
 Size 117.19 GB (125,830,299,648 bytes)  
 Free Space 11.90 GB (12,782,788,608 bytes)  
 Volume Name BACKUP1\_3&4  
 Volume Serial Number E86556FC  
 Partition Disk #3, Partition #0  
 Partition Size 237.29 GB (254,782,996,480 bytes)  
 Starting Offset 2097152 bytes  
 Drive Description \\.\PHYSICALDRIVE3  
 Drive Manufacturer Not Available  
 Drive Model Not Available

Drive BytesPerSector 512  
 Drive MediaLoaded True  
 Drive MediaType Fixed hard disk media  
 Drive Partitions 3  
 Drive SCSI Bus 4  
 Drive SCSI LogicalUnit 0  
 Drive SCSI Port 7  
 Drive SCSTargetId 0  
 Drive SectorsPerTrack 63  
 Drive Size 254136476160 bytes  
 Drive TotalCylinders 30897  
 Drive TotalSectors 496360305  
 Drive TotalTracks 7878735  
 Drive TracksPerCylinder 255

Drive U:  
 Description Local Fixed Disk  
 Compressed False  
 File System NTFS  
 Size 117.19 GB (125,830,299,648 bytes)  
 Free Space 11.88 GB (12,757,585,920 bytes)  
 Volume Name BACKUP2\_1&2  
 Volume Serial Number AC7691BE  
 Partition Disk #4, Partition #0  
 Partition Size 237.29 GB (254,782,996,480 bytes)  
 Starting Offset 2097152 bytes  
 Drive Description \\.\PHYSICALDRIVE4  
 Drive Manufacturer Not Available  
 Drive Model Not Available  
 Drive BytesPerSector 512  
 Drive MediaLoaded True  
 Drive MediaType Fixed hard disk media  
 Drive Partitions 3  
 Drive SCSI Bus 4  
 Drive SCSI LogicalUnit 0  
 Drive SCSI Port 8  
 Drive SCSTargetId 0  
 Drive SectorsPerTrack 63  
 Drive Size 254136476160 bytes  
 Drive TotalCylinders 30897  
 Drive TotalSectors 496360305  
 Drive TotalTracks 7878735  
 Drive TracksPerCylinder 255

Drive V:  
 Description Local Fixed Disk  
 Compressed False  
 File System NTFS  
 Size 117.19 GB (125,830,299,648 bytes)  
 Free Space 11.91 GB (12,783,181,824 bytes)  
 Volume Name BACKUP2\_3&4  
 Volume Serial Number C081EE43  
 Partition Disk #5, Partition #0  
 Partition Size 237.29 GB (254,782,996,480 bytes)  
 Starting Offset 2097152 bytes  
 Drive Description \\.\PHYSICALDRIVE5  
 Drive Manufacturer Not Available  
 Drive Model Not Available  
 Drive BytesPerSector 512  
 Drive MediaLoaded True  
 Drive MediaType Fixed hard disk media  
 Drive Partitions 3  
 Drive SCSI Bus 4  
 Drive SCSI LogicalUnit 0  
 Drive SCSI Port 9  
 Drive SCSTargetId 0  
 Drive SectorsPerTrack 63  
 Drive Size 254136476160 bytes



Drive TotalCylinders 30897  
 Drive TotalSectors 496360305  
 Drive TotalTracks 7878735  
 Drive TracksPerCylinder 255  
  
 Drive W:  
 Description Local Fixed Disk  
 Compressed False  
 File System NTFS  
 Size 999.98 MB (1,048,558,592 bytes)  
 Free Space 480.42 MB (503,751,680 bytes)  
 Volume Name MSDTC  
 Volume Serial Number 781FD387  
 Partition Disk #0, Partition #0  
 Partition Size 474.03 GB (508,982,984,704 bytes)  
 Starting Offset 2097152 bytes  
 Drive Description \\.\PHYSICALDRIVE0  
 Drive Manufacturer Not Available  
 Drive Model Not Available  
 Drive BytesPerSector 512  
 Drive MediaLoaded True  
 Drive MediaType Fixed hard disk media  
 Drive Partitions 3  
 Drive SCSIbus 4  
 Drive SCSILogicalUnit 0  
 Drive SCSIport 4  
 Drive SCsITargetId 0  
 Drive SectorsPerTrack 32  
 Drive Size 508987179008 bytes  
 Drive TotalCylinders 242704  
 Drive TotalSectors 994115584  
 Drive TotalTracks 31066112  
 Drive TracksPerCylinder 128

Drive E:  
 Description Network Connection  
 Provider Name \\192.168.125.251\c\$\shogun

[SCSI]

Item Value  
 Name IBM ServeRAID 4H Controller  
 Caption IBM ServeRAID 4H Controller  
 Driver ipsraidn  
 Status OK  
 PNP Device ID  
 PCI\VEN\_1014&DEV\_002E&SUBSYS\_022E1014&REV\_10\3&267  
 A616A&0&50  
 Device ID  
 PCI\VEN\_1014&DEV\_002E&SUBSYS\_022E1014&REV\_10\3&267  
 A616A&0&50  
 Device Map Not Available  
 Index Not Available  
 Max Number Controlled Not Available  
 IRQ Number 25  
 I/O Port 0x2200-0x22FF  
 Driver c:\winnt\system32\drivers\ipsraidn.sys (102807, 4.70.08)  
  
 Name Adaptec AIC-7896/AIC-7897 PCI Ultra2 SCSI Controller  
 Caption Adaptec AIC-7896/AIC-7897 PCI Ultra2 SCSI Controller  
 Driver aic78u2  
 Status OK  
 PNP Device ID  
 PCI\VEN\_9005&DEV\_005F&SUBSYS\_080F9005&REV\_00\3&267  
 A616A&0&70

Device ID  
 PCI\VEN\_9005&DEV\_005F&SUBSYS\_080F9005&REV\_00\3&267  
 A616A&0&70  
 Device Map Not Available  
 Index Not Available  
 Max Number Controlled Not Available  
 IRQ Number 51  
 I/O Port 0x2300-0x23FF  
 Driver c:\winnt\system32\drivers\aic78u2.sys (65168, v3.00a)  
  
 Name Adaptec AIC-7896/AIC-7897 PCI Ultra2 SCSI Controller  
 Caption Adaptec AIC-7896/AIC-7897 PCI Ultra2 SCSI Controller  
 Driver aic78u2  
 Status OK  
 PNP Device ID  
 PCI\VEN\_9005&DEV\_005F&SUBSYS\_080F9005&REV\_00\3&267  
 A616A&0&71  
 Device ID  
 PCI\VEN\_9005&DEV\_005F&SUBSYS\_080F9005&REV\_00\3&267  
 A616A&0&71  
 Device Map Not Available  
 Index Not Available  
 Max Number Controlled Not Available  
 IRQ Number 51  
 I/O Port 0x2400-0x24FF  
 Driver c:\winnt\system32\drivers\aic78u2.sys (65168, v3.00a)  
  
 Name Mylex eXtremeRAID 2000 Disk Array Controller  
 Caption Mylex eXtremeRAID 2000 Disk Array Controller  
 Driver dac2w2k  
 Status OK  
 PNP Device ID  
 PCI\VEN\_1069&DEV\_BA56&SUBSYS\_00401069&REV\_00\4&1B  
 30EF85&0&4020  
 Device ID  
 PCI\VEN\_1069&DEV\_BA56&SUBSYS\_00401069&REV\_00\4&1B  
 30EF85&0&4020  
 Device Map Not Available  
 Index Not Available  
 Max Number Controlled Not Available  
 IRQ Number 19  
 I/O Port 0x7100-0x717F  
 Driver c:\winnt\system32\drivers\dac2w2k.sys (185584, 9.00-04)  
  
 Name Mylex eXtremeRAID 2000 Disk Array Controller  
 Caption Mylex eXtremeRAID 2000 Disk Array Controller  
 Driver dac2w2k  
 Status OK  
 PNP Device ID  
 PCI\VEN\_1069&DEV\_BA56&SUBSYS\_00401069&REV\_00\4&367  
 0195&0&4028  
 Device ID  
 PCI\VEN\_1069&DEV\_BA56&SUBSYS\_00401069&REV\_00\4&367  
 0195&0&4028  
 Device Map Not Available  
 Index Not Available  
 Max Number Controlled Not Available  
 IRQ Number 20  
 I/O Port 0x6100-0x617F  
 Driver c:\winnt\system32\drivers\dac2w2k.sys (185584, 9.00-04)  
  
 Name Mylex eXtremeRAID 2000 Disk Array Controller  
 Caption Mylex eXtremeRAID 2000 Disk Array Controller  
 Driver dac2w2k  
 Status OK  
 PNP Device ID  
 PCI\VEN\_1069&DEV\_BA56&SUBSYS\_00401069&REV\_00\4&3E  
 EB7E&0&4040

Device ID  
PCI\VEN\_1069&DEV\_BA56&SUBSYS\_00401069&REV\_00\4&3E  
EB7E&0&4040  
Device Map Not Available  
Index Not Available  
Max Number Controlled Not Available  
IRQ Number 23  
I/O Port 0xC100-0xC17F  
Driver c:\winnt\system32\drivers\dac2w2k.sys (185584, 9.00-04)

Name Mylex eXtremeRAID 2000 Disk Array Controller  
Caption Mylex eXtremeRAID 2000 Disk Array Controller  
Driver dac2w2k  
Status OK  
PNP Device ID  
PCI\VEN\_1069&DEV\_BA56&SUBSYS\_00401069&REV\_00\4&2E  
D69C4F&0&4048  
Device ID  
PCI\VEN\_1069&DEV\_BA56&SUBSYS\_00401069&REV\_00\4&2E  
D69C4F&0&4048  
Device Map Not Available  
Index Not Available  
Max Number Controlled Not Available  
IRQ Number 24  
I/O Port 0xB100-0xB17F  
Driver c:\winnt\system32\drivers\dac2w2k.sys (185584, 9.00-04)

Name Mylex eXtremeRAID 2000 Disk Array Controller  
Caption Mylex eXtremeRAID 2000 Disk Array Controller  
Driver dac2w2k  
Status OK  
PNP Device ID  
PCI\VEN\_1069&DEV\_BA56&SUBSYS\_00401069&REV\_00\4&2D  
C8318F&0&4030  
Device ID  
PCI\VEN\_1069&DEV\_BA56&SUBSYS\_00401069&REV\_00\4&2D  
C8318F&0&4030  
Device Map Not Available  
Index Not Available  
Max Number Controlled Not Available  
IRQ Number 21  
I/O Port 0xE100-0xE17F  
Driver c:\winnt\system32\drivers\dac2w2k.sys (185584, 9.00-04)

Name Mylex eXtremeRAID 2000 Disk Array Controller  
Caption Mylex eXtremeRAID 2000 Disk Array Controller  
Driver dac2w2k  
Status OK  
PNP Device ID  
PCI\VEN\_1069&DEV\_BA56&SUBSYS\_00401069&REV\_00\4&2C  
6A8992&0&4038  
Device ID  
PCI\VEN\_1069&DEV\_BA56&SUBSYS\_00401069&REV\_00\4&2C  
6A8992&0&4038  
Device Map Not Available  
Index Not Available  
Max Number Controlled Not Available  
IRQ Number 22  
I/O Port 0xD100-0xD17F  
Driver c:\winnt\system32\drivers\dac2w2k.sys (185584, 9.00-04)

Name IBM ServeRAID Failover Virtual Adapter  
Caption IBM ServeRAID Failover Virtual Adapter  
Driver twintail  
Status OK  
PNP Device ID ROOT\TWINTAIL\0000  
Device ID ROOT\TWINTAIL\0000  
Device Map Not Available

Index Not Available  
Max Number Controlled Not Available  
Driver c:\winnt\system32\drivers\twintail.sys (26032, 4.70.06)

[Printing]

Name Port Name Server Name  
No printing information

[Problem Devices]

| Device   | PNP Device ID            | Error Code |
|--|--------------------------|------------|
| Other PCI Bridge Device  |                          |            |
| PCI\VEN_1014&DEV_00DC&SUBSYS_00DC1014&REV_02\3&26<br>7A616A&0&10 | 28                       |            |
| Not Available  | ACPI\IBM37D0\4&43B47AD&0 | 28         |

[USB]

| Device   | PNP Device ID            |
|--|--------------------------|
| Intel 82371AB/EB PCI to USB Universal Host Controller            |                          |
| PCI\VEN_8086&DEV_7112&SUBSYS_00000000&REV_01\3&267<br>A616A&0&7A |                          |
| USB Root Hub   | USB\ROOT_HUB\4&B5B4E1B&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                              | Disabled                           | Stopped                               | OK            | Ignore  |
| False                              |                                    |                                       |               | False   |
| acpi                               | Microsoft ACPI Driver              |                                       | Kernel Driver |         |
| c:\winnt\system32\drivers\acpi.sys |                                    |                                       | Kernel Driver |         |
| True                               | Boot                               | Running                               | OK            | Normal  |
| True                               |                                    |                                       |               | False   |
| acpiec                             | ACPIEC                             | c:\winnt\system32\drivers\acpiec.sys  | Kernel Driver |         |
| Kernel Driver                      | False                              | Disabled                              | Stopped       | OK      |
| Normal                             | False                              | False                                 |               |         |
| adpu160m                           | adpu160m                           | Not Available                         | Kernel Driver |         |
| False                              | Disabled                           | Stopped                               | OK            | Normal  |
| False                              |                                    |                                       |               | False   |
| afd                                | AFD Networking Support Environment |                                       | Kernel Driver |         |
| c:\winnt\system32\drivers\afd.sys  |                                    |                                       | Kernel Driver | True    |
| Auto                               | Running                            | OK                                    | Normal        | False   |
| True                               |                                    |                                       |               | True    |
| aic116x                            | aic116x                            | Not Available                         | Kernel Driver |         |
| False                              | Disabled                           | Stopped                               | OK            | Normal  |
| False                              |                                    |                                       |               | False   |
| aic78u2                            | aic78u2                            | c:\winnt\system32\drivers\aic78u2.sys | Kernel Driver |         |
| Kernel Driver                      | True                               | Boot                                  | Running       | OK      |
| Normal                             | False                              | True                                  |               |         |
| aic78xx                            | aic78xx                            | Not Available                         | Kernel Driver |         |
| False                              | Disabled                           | Stopped                               | OK            | Normal  |
| False                              |                                    |                                       |               | False   |
| ami0nt                             | ami0nt                             | Not Available                         | Kernel Driver |         |
| False                              | Disabled                           | Stopped                               | OK            | Normal  |
| False                              |                                    |                                       |               | False   |
| asc                                | asc                                | Not Available                         | Kernel Driver |         |
| False                              | Disabled                           | Stopped                               | OK            | Normal  |
| False                              |                                    |                                       |               | False   |

|  |   |  |               |        |        |
|--|---|--|---------------|--------|--------|
| asc3550                                | asc3550                                   | Not Available                          | Kernel Driver |        |        |
| False                                  | Disabled                                  | Stopped                                | OK            | Normal | False  |
| False                                  |   |  |               |        |        |
| asynmac                                | RAS Asynchronous Media Driver             |  |               |        |        |
| c:\winnt\system32\drivers\asynmac.sys  | Kernel Driver                             |  |               |        |        |
| False                                  | Manual                                    | Stopped                                | OK            | Normal | False  |
| False                                  |   |  |               |        |        |
| atapi                                  | Standard IDE/ESDI Hard Disk Controller    |  |               |        |        |
| c:\winnt\system32\drivers\atapi.sys    | Kernel Driver                             |  |               |        |        |
| True                                   | Boot                                      | Running                                | OK            | Normal | False  |
| True                                   |   |  |               |        |        |
| atdisk                                 | Atdisk                                    | Not Available                          | Kernel Driver |        |        |
| False                                  | Disabled                                  | Stopped                                | OK            | Ignore | False  |
| False                                  |   |  |               |        |        |
| atmarpc                                | ATM ARP Client Protocol                   |  |               |        |        |
| c:\winnt\system32\drivers\atmarpc.sys  | Kernel Driver                             |  |               |        |        |
| False                                  | Manual                                    | Stopped                                | OK            | Normal | False  |
| False                                  |   |  |               |        |        |
| audstub                                | Audio Stub Driver                         |  |               |        |        |
| c:\winnt\system32\drivers\audstub.sys  | Kernel Driver                             |  |               |        |        |
| True                                   | Manual                                    | Running                                | OK            | Normal | False  |
| True                                   |   |  |               |        |        |
| beep                                   | Beep                                      | c:\winnt\system32\drivers\beep.sys     |               |        |        |
| Kernel Driver                          | True                                      | System                                 | Running       | OK     |        |
| Normal                                 | False                                     | True                                   |               |        |        |
| cdaudio                                | Cdaudio                                   | c:\winnt\system32\drivers\cdaudio.sys  |               |        |        |
| Kernel Driver                          | False                                     | System                                 | Stopped       | OK     |        |
| Ignore                                 | False                                     | False                                  |               |        |        |
| cdfs                                   | Cdfs                                      | c:\winnt\system32\drivers\cdfs.sys     | File          |        |        |
| System Driver                          | True                                      | Disabled                               | Running       | OK     |        |
| Normal                                 | False                                     | True                                   |               |        |        |
| cdrom                                  | CD-ROM Driver                             | c:\winnt\system32\drivers\cdrom.sys    |               |        |        |
| Kernel Driver                          | True                                      | System                                 | Running       | OK     |        |
| Normal                                 | False                                     | True                                   |               |        |        |
| changer                                | Changer                                   | Not Available                          | Kernel Driver |        |        |
| False                                  | System                                    | Stopped                                | OK            | Ignore | False  |
| False                                  |   |  |               |        |        |
| cpqarray                               | Cpqarray                                  | Not Available                          | Kernel Driver |        |        |
| False                                  | Disabled                                  | Stopped                                | OK            | Normal | False  |
| False                                  |   |  |               |        |        |
| cpqarray2                              | cpqarray2                                 | Not Available                          | Kernel Driver |        |        |
| False                                  | Disabled                                  | Stopped                                | OK            | Normal | False  |
| False                                  |   |  |               |        |        |
| cpqfcalm                               | cpqfcalm                                  | Not Available                          | Kernel Driver |        |        |
| False                                  | Disabled                                  | Stopped                                | OK            | Normal | False  |
| False                                  |   |  |               |        |        |
| dac2w2k                                | dac2w2k                                   | c:\winnt\system32\drivers\dac2w2k.sys  |               |        |        |
| Kernel Driver                          | True                                      | Boot                                   | Running       | OK     |        |
| Normal                                 | False                                     | True                                   |               |        |        |
| dac960nt                               | dac960nt                                  | Not Available                          | Kernel Driver |        |        |
| False                                  | Disabled                                  | Stopped                                | OK            | Normal | False  |
| False                                  |   |  |               |        |        |
| deckzpsx                               | deckzpsx                                  | Not Available                          | Kernel Driver |        |        |
| False                                  | Disabled                                  | Stopped                                | OK            | Normal | False  |
| False                                  |   |  |               |        |        |
| dfsdriver                              | DfsDriver                                 | c:\winnt\system32\drivers\dfs.sys      | File System   |        |        |
| Driver                                 | True                                      | Boot                                   | Running       | OK     | Normal |
| False                                  | True                                      |  |               |        |        |
| disk                                   | Disk Driver                               | c:\winnt\system32\drivers\disk.sys     |               |        |        |
| Kernel Driver                          | True                                      | Boot                                   | Running       | OK     |        |
| Normal                                 | False                                     | True                                   |               |        |        |
| diskperf                               | Diskperf                                  | c:\winnt\system32\drivers\diskperf.sys |               |        |        |
| Kernel Driver                          | True                                      | Boot                                   | Running       | OK     |        |
| Normal                                 | False                                     | True                                   |               |        |        |
| dmbboot                                | dmbboot                                   | c:\winnt\system32\drivers\dmboot.sys   |               |        |        |
| Kernel Driver                          | False                                     | Disabled                               | Stopped       | OK     |        |
| Normal                                 | False                                     | False                                  |               |        |        |
| dmio                                   | Logical Disk Manager Driver               |  |               |        |        |
| c:\winnt\system32\drivers\dmio.sys     | Kernel Driver                             |  |               |        |        |
| True                                   | Boot                                      | Running                                | OK            | Normal | False  |
| True                                   |   |  |               |        |        |
| dmload                                 | dmload                                    | c:\winnt\system32\drivers\dmload.sys   |               |        |        |
| Kernel Driver                          | True                                      | Boot                                   | Running       | OK     |        |
| Normal                                 | False                                     | True                                   |               |        |        |
| e100b                                  | Intel(R) PRO Adapter Driver               |  |               |        |        |
| c:\winnt\system32\drivers\e100bnt5.sys | Kernel Driver                             |  |               |        |        |
| True                                   | Manual                                    | Running                                | OK            | Normal | False  |
| True                                   |   |  |               |        |        |
| efs                                    | EFS                                       | c:\winnt\system32\drivers\efs.sys      | File System   |        |        |
| Driver                                 | True                                      | Disabled                               | Running       | OK     | Normal |
| False                                  | True                                      |  |               |        |        |
| fastfat                                | Fastfat                                   | c:\winnt\system32\drivers\fastfat.sys  | File          |        |        |
| System Driver                          | True                                      | Disabled                               | Running       | OK     |        |
| Normal                                 | False                                     | True                                   |               |        |        |
| fdc                                    | Floppy Disk Controller Driver             |  |               |        |        |
| c:\winnt\system32\drivers\fdc.sys      | Kernel Driver                             |  |               |        |        |
| Manual                                 | Running                                   | OK                                     | Normal        | False  | True   |
| True                                   |   |  |               |        |        |
| fireport                               | fireport                                  | Not Available                          | Kernel Driver |        |        |
| False                                  | Disabled                                  | Stopped                                | OK            | Normal | False  |
| False                                  |   |  |               |        |        |
| flpydisk                               | Floppy Disk Driver                        |  |               |        |        |
| c:\winnt\system32\drivers\flpydisk.sys | Kernel Driver                             |  |               |        |        |
| True                                   | Manual                                    | Running                                | OK            | Normal | False  |
| True                                   |   |  |               |        |        |
| ftdisk                                 | Volume Manager Driver                     |  |               |        |        |
| c:\winnt\system32\drivers\ftdisk.sys   | Kernel Driver                             |  |               |        |        |
| True                                   | Boot                                      | Running                                | OK            | Normal | False  |
| True                                   |   |  |               |        |        |
| gamdrv                                 | gamdrv                                    | c:\winnt\system32\drivers\gamdrv.sys   |               |        |        |
| Kernel Driver                          | True                                      | Boot                                   | Running       | OK     |        |
| Normal                                 | False                                     | True                                   |               |        |        |
| gnindis                                | cLAN NDIS Driver                          | c:\winnt\system32\drivers\gnindis.sys  |               |        |        |
| Kernel Driver                          | True                                      | Auto                                   | Running       | OK     |        |
| Normal                                 | False                                     | True                                   |               |        |        |
| gnivia                                 | cLAN VIA Driver                           | c:\winnt\system32\drivers\gnivia.sys   |               |        |        |
| Kernel Driver                          | True                                      | Auto                                   | Running       | OK     |        |
| Normal                                 | False                                     | True                                   |               |        |        |
| gpc                                    | Generic Packet Classifier                 |  |               |        |        |
| c:\winnt\system32\drivers\msgpc.sys    | Kernel Driver                             |  |               |        |        |
| True                                   | Manual                                    | Running                                | OK            | Normal | False  |
| True                                   |   |  |               |        |        |
| i8042prt                               | i8042 Keyboard and PS/2 Mouse Port Driver |  |               |        |        |
| c:\winnt\system32\drivers\i8042prt.sys | Kernel Driver                             |  |               |        |        |
| True                                   | System                                    | Running                                | OK            | Normal | False  |
| True                                   |   |  |               |        |        |
| ini910u                                | ini910u                                   | Not Available                          | Kernel Driver |        |        |
| False                                  | Disabled                                  | Stopped                                | OK            | Normal | False  |
| False                                  |   |  |               |        |        |
| intelide                               | IntelIde                                  | c:\winnt\system32\drivers\intelide.sys |               |        |        |
| Kernel Driver                          | True                                      | Boot                                   | Running       | OK     |        |
| Normal                                 | False                                     | True                                   |               |        |        |
| 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                                   |               |        |        |

|   |   |   |         |               |       |  |
|---|---|---|---------|---------------|-------|--|
| ipsperf                                 | IBM ServeRAID Performance Driver          |   |         |               |       |  |
| c:\winnt\system32\drivers\ipsperf.sys   | Kernel Driver                             |   |         |               |       |  |
| True                                    | Boot                                      | Running                                 | OK      | Normal        | False |  |
| True                                    |   |   |         |               |       |  |
| ipsraidn                                | IBM ServeRAID Device Driver               |   |         |               |       |  |
| c:\winnt\system32\drivers\ipsraidn.sys  | Kernel Driver                             |   |         |               |       |  |
| True                                    | Boot                                      | Running                                 | OK      | Normal        | False |  |
| True                                    |   |   |         |               |       |  |
| 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                                    |   |   |         |               |       |  |
| ksecdd                                  | KSecDD                                    | c:\winnt\system32\drivers\ksecdd.sys    |         |               |       |  |
| Kernel Driver                           | True                                      | Boot                                    | Running | OK            |       |  |
| Normal                                  | False                                     | True                                    |         |               |       |  |
| lbrtfdc                                 | lbrtfdc                                   | Not Available                           |         | Kernel Driver |       |  |
| False                                   | System                                    | Stopped                                 | OK      | Ignore        | False |  |
| False                                   |   |   |         |               |       |  |
| lp6nds35                                | lp6nds35                                  | Not Available                           |         | Kernel Driver |       |  |
| False                                   | Disabled                                  | Stopped                                 | OK      | Normal        | False |  |
| False                                   |   |   |         |               |       |  |
| macdisk                                 | macdisk                                   | c:\winnt\system32\drivers\mac2w2k.sys   |         |               |       |  |
| Kernel Driver                           | True                                      | Boot                                    | Running | OK            |       |  |
| Normal                                  | False                                     | True                                    |         |               |       |  |
| mnmdd                                   | mnmdd                                     | c:\winnt\system32\drivers\mnmdd.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  |         |               |       |  |
| Kernel Driver                           | True                                      | Boot                                    | Running | OK            |       |  |
| Normal                                  | False                                     | True                                    |         |               |       |  |
| mraid35x                                | mraid35x                                  | Not Available                           |         | Kernel Driver |       |  |
| False                                   | Disabled                                  | Stopped                                 | OK      | Normal        | False |  |
| False                                   |   |   |         |               |       |  |
| mrxsmb                                  | MRXSMB                                    | c:\winnt\system32\drivers\mrxsmb.sys    | File    |               |       |  |
| System Driver                           | True                                      | System                                  | Running | OK            |       |  |
| Normal                                  | False                                     | True                                    |         |               |       |  |
| msfs                                    | Msfs                                      | c:\winnt\system32\drivers\msfs.sys      | File    |               |       |  |
| System Driver                           | True                                      | System                                  | Running | OK            |       |  |
| Normal                                  | False                                     | True                                    |         |               |       |  |
| mssksrv                                 | Microsoft Streaming Service Proxy         |   |         |               |       |  |
| c:\winnt\system32\drivers\mssksrv.sys   | Kernel Driver                             |   |         |               |       |  |
| False                                   | Manual                                    | Stopped                                 | OK      | Normal        | False |  |
| False                                   |   |   |         |               |       |  |
| msspclock                               | Microsoft Streaming Clock Proxy           |   |         |               |       |  |
| c:\winnt\system32\drivers\msspclock.sys | Kernel Driver                             |   |         |               |       |  |
| False                                   | Manual                                    | Stopped                                 | OK      | Normal        | False |  |
| False                                   |   |   |         |               |       |  |
| msspqm                                  | Microsoft Streaming Quality Manager Proxy |   |         |               |       |  |
| c:\winnt\system32\drivers\msspqm.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                                    |         |               |       |  |
| 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 Tcip                         | c:\winnt\system32\drivers\netbt.sys     |         |               |       |  |
| Kernel Driver                           | True                                      | System                                  | Running | OK            |       |  |
| Normal                                  | False                                     | True                                    |         |               |       |  |
| netdetect                               | NetDetect                                 | c:\winnt\system32\drivers\netdetect.sys |         |               |       |  |
| Kernel Driver                           | False                                     | Manual                                  | Stopped | OK            |       |  |
| Normal                                  | 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                                   |   |   |         |               |       |  |
| nwlk fwd                                | IPX Traffic Forwarder Driver              |   |         |               |       |  |
| c:\winnt\system32\drivers\nwlk fwd.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       |         |               |       |  |
| Kernel Driver                           | True                                      | Boot                                    | Running | OK            |       |  |
| Critical                                | False                                     | True                                    |         |               |       |  |
| pcidump                                 | PCIDump                                   | Not Available                           |         | Kernel Driver |       |  |
| False                                   | System                                    | Stopped                                 | OK      | Ignore        | False |  |
| False                                   |   |   |         |               |       |  |
| pciide                                  | PCIIde                                    | Not Available                           |         | Kernel Driver |       |  |
| False                                   | Disabled                                  | Stopped                                 | OK      | Normal        | False |  |
| False                                   |   |   |         |               |       |  |
| 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                                 | PDFFRAME                                  | Not Available                           |         | Kernel Driver |       |  |
| False                                   | Manual                                    | Stopped                                 | OK      | Ignore        | False |  |
| False                                   |   |   |         |               |       |  |

|                                       |  |                                       |               |  |  |                                       |               |
|---------------------------------------|--|---------------------------------------|---------------|--|--|---------------------------------------|---------------|
| pdreli                                | PDRELI   | Not Available                         | Kernel Driver | simbad                                 | Simbad   | Not Available                         | Kernel Driver |
| False                                 | Manual   | Stopped                               | Ignore        | False                                  | Disabled                                       | Stopped                               | Normal        |
| False                                 |  | OK                                    | False         | False                                  |  | OK                                    | False         |
| pdrframe                              | PDRFRAME                                       | Not Available                         | Kernel Driver | srv                                    | Srv  | c:\winnt\system32\drivers\srv.sys     | File System   |
| False                                 | Manual   | Stopped                               | Ignore        | Driver                                 | True   | Manual                                | Running       |
| False                                 |  | OK                                    | False         | False                                  | True   | Running                               | OK            |
| pptpminiport                          | WAN Miniport (PPTP)                            |                                       |               | swenum                                 | Software Bus Driver                            |                                       |               |
| c:\winnt\system32\drivers\rasppt.sys  |  |                                       | Kernel Driver | c:\winnt\system32\drivers\swenum.sys   |  |                                       | Kernel Driver |
| True                                  | Manual   | Running                               | Normal        | True                                   | Manual   | Running                               | Normal        |
| True                                  |  | OK                                    | False         | True                                   |  | OK                                    | False         |
| ptilink                               | Direct Parallel Link Driver                    |                                       |               | symc810                                | symc810  | Not Available                         | Kernel Driver |
| c:\winnt\system32\drivers\ptilink.sys |  |                                       | Kernel Driver | False                                  | Disabled                                       | Stopped                               | Normal        |
| True                                  | Manual   | Running                               | Normal        | False                                  |  | OK                                    | False         |
| True                                  |  | OK                                    | False         | symc8xx                                | symc8xx  | Not Available                         | Kernel Driver |
| ql1080                                | ql1080   | Not Available                         | Kernel Driver | False                                  | Disabled                                       | Stopped                               | Normal        |
| False                                 | Disabled                                       | Stopped                               | Normal        | False                                  |  | OK                                    | False         |
| False                                 |  | OK                                    | False         | sym_hi                                 | sym_hi   | Not Available                         | Kernel Driver |
| ql10wnt                               | Q110wnt  | Not Available                         | Kernel Driver | False                                  | Disabled                                       | Stopped                               | Normal        |
| False                                 | Disabled                                       | Stopped                               | Normal        | False                                  |  | OK                                    | False         |
| False                                 |  | OK                                    | False         | tcpip                                  | TCP/IP Protocol Driver                         |                                       |               |
| ql1240                                | ql1240   | Not Available                         | Kernel Driver | c:\winnt\system32\drivers\tcpip.sys    |  |                                       | Kernel Driver |
| False                                 | Disabled                                       | Stopped                               | Normal        | True                                   | System   | Running                               | Normal        |
| False                                 |  | OK                                    | False         | True                                   |  | OK                                    | False         |
| ql2100                                | ql2100   | Not Available                         | Kernel Driver | tdasync                                | TDASYNC  | c:\winnt\system32\drivers\tdasync.sys |               |
| False                                 | Disabled                                       | Stopped                               | Normal        | Kernel Driver                          | False  | Manual                                | Stopped       |
| False                                 |  | OK                                    | False         | Ignore                                 | False  | Stopped                               | OK            |
| rasacd                                | Remote Access Auto Connection Driver           |                                       |               | tdipx                                  | TDIPX  | c:\winnt\system32\drivers\tdipx.sys   |               |
| c:\winnt\system32\drivers\rasacd.sys  |  |                                       | Kernel Driver | Kernel Driver                          | False  | Manual                                | Stopped       |
| True                                  | System   | Running                               | Normal        | Ignore                                 | False  | Stopped                               | OK            |
| True                                  |  | OK                                    | False         | tdnetb                                 | TDNETB   | c:\winnt\system32\drivers\tdnetb.sys  |               |
| rasl2tp                               | WAN Miniport (L2TP)                            |                                       |               | Kernel Driver                          | False  | Manual                                | Stopped       |
| c:\winnt\system32\drivers\rasl2tp.sys |  |                                       | Kernel Driver | Ignore                                 | False  | Stopped                               | OK            |
| True                                  | Manual   | Running                               | Normal        | tdpipe                                 | TDPIPE   | c:\winnt\system32\drivers\tdpipe.sys  |               |
| True                                  |  | OK                                    | False         | Kernel Driver                          | False  | Manual                                | Stopped       |
| raspti                                | Direct Parallel                                | c:\winnt\system32\drivers\raspti.sys  |               | Ignore                                 | False  | Stopped                               | OK            |
| Kernel Driver                         | True   | Manual                                | Running       | tdspix                                 | TDSPX  | c:\winnt\system32\drivers\tdspix.sys  |               |
| Normal                                | False  | True                                  | OK            | Kernel Driver                          | False  | Manual                                | Stopped       |
| rca                                   | Microsoft Streaming Network Raw Channel Access |                                       |               | Ignore                                 | False  | Stopped                               | OK            |
| c:\winnt\system32\drivers\rca.sys     |  |                                       | Kernel Driver | tdtcp                                  | TDTCP  | c:\winnt\system32\drivers\tdtcp.sys   |               |
| Manual                                | Stopped  | OK                                    | False         | Kernel Driver                          | False  | Manual                                | Stopped       |
| rdbss                                 | Rdbss  | c:\winnt\system32\drivers\rdbss.sys   | File          | Ignore                                 | False  | Stopped                               | OK            |
| System Driver                         | True   | System                                | Running       | termdd                                 | Terminal Device Driver                         |                                       |               |
| Normal                                | False  | True                                  | OK            | c:\winnt\system32\drivers\termdd.sys   |  |                                       | Kernel Driver |
| rdpwd                                 | RDPWD  | c:\winnt\system32\drivers\rdpwd.sys   |               | False                                  | Disabled                                       | Stopped                               | Normal        |
| Kernel Driver                         | False  | Manual                                | Stopped       | False                                  |  | OK                                    | False         |
| Ignore                                | False  | False                                 | OK            | tga                                    | tga  | Not Available                         | Kernel Driver |
| redbook                               | Digital CD Audio Playback Filter Driver        |                                       |               | False                                  | System   | Stopped                               | Ignore        |
| c:\winnt\system32\drivers\redbook.sys |  |                                       | Kernel Driver | False                                  |  | OK                                    | False         |
| False                                 | System   | Stopped                               | Normal        | twintail                               | IBM ServeRAID Failover Driver                  |                                       |               |
| False                                 |  | OK                                    | False         | c:\winnt\system32\drivers\twintail.sys |  |                                       | Kernel Driver |
| s3inc                                 | S3Inc  | c:\winnt\system32\drivers\s3mt3d.sys  |               | True                                   | Boot   | Running                               | Normal        |
| Kernel Driver                         | True   | Manual                                | Running       | True                                   |  | OK                                    | False         |
| Ignore                                | False  | True                                  | OK            | udfs                                   | Udfs   | c:\winnt\system32\drivers\udfs.sys    | File          |
| serenum                               | Serenum Filter Driver                          |                                       |               | System Driver                          | False  | Disabled                              | Stopped       |
| c:\winnt\system32\drivers\serenum.sys |  |                                       | Kernel Driver | Normal                                 | False  | Stopped                               | OK            |
| True                                  | Manual   | Running                               | Normal        | uhcd                                   | Microsoft USB Universal Host Controller Driver |                                       |               |
| True                                  |  | OK                                    | False         | c:\winnt\system32\drivers\uhcd.sys     |  |                                       | Kernel Driver |
| serial                                | Serial port driver                             |                                       |               | True                                   | Manual   | Running                               | Normal        |
| Kernel Driver                         | True   | System                                | Running       | True                                   |  | OK                                    | False         |
| Ignore                                | False  | True                                  | OK            | update                                 | Microcode Update Driver                        |                                       |               |
| sfloppy                               | Sfloppy  | c:\winnt\system32\drivers\sfloppy.sys |               | c:\winnt\system32\drivers\update.sys   |  |                                       | Kernel Driver |
| Kernel Driver                         | False  | System                                | Stopped       | True                                   | Manual   | Running                               | Normal        |
| Ignore                                | False  | False                                 | OK            | True                                   |  | OK                                    | False         |
| sglfb                                 | sglfb  | Not Available                         | Kernel Driver | usbhub                                 | Microsoft USB Standard Hub Driver              |                                       |               |
| False                                 | System   | Stopped                               | Normal        | c:\winnt\system32\drivers\usbhub.sys   |  |                                       | Kernel Driver |
| False                                 |  | OK                                    | False         | True                                   | Manual   | Running                               | Normal        |
|                                       |  |                                       |               | True                                   |  | OK                                    | False         |

```

vgasave  VgaSave  c:\winnt\system32\drivers\vga.sys
Kernel Driver  True      System  Running  OK
Ignore  False  True
wanarp  Remote Access IP ARP Driver
c:\winnt\system32\drivers\wanarp.sys  Kernel Driver
True  Manual  Running  OK  Normal  False
True
wdica  WDICA  Not Available  Kernel Driver
False  Manual  Stopped  OK  Ignore  False
False

```

[Environment Variables]

```

Variable  Value  User Name
ComSpec  %SystemRoot%\system32\cmd.exe  <SYSTEM>
NUMBER_OF_PROCESSORS  8  <SYSTEM>
OS  Windows_NT  <SYSTEM>
Os2LibPath  %SystemRoot%\system32\os2\dll;
<SYSTEM>
Path
%SystemRoot%\system32;%SystemRoot%;%SystemRoot%\System32\
Wbem;C:\Program Files\Microsoft SQL
Server\MSSQL\BINN;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 6 Model 10 Stepping 4,
GenuineIntel  <SYSTEM>
PROCESSOR_LEVEL  6  <SYSTEM>
PROCESSOR_REVISION  0a04  <SYSTEM>
TEMP  %SystemRoot%\TEMP  <SYSTEM>
TMP  %SystemRoot%\TEMP  <SYSTEM>
windir  %SystemRoot%  <SYSTEM>
TEMP  %USERPROFILE%\Local Settings\Temp
SGNODE01\Administrator
TMP  %USERPROFILE%\Local Settings\Temp
SGNODE01\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
E:  \\192.168.125.251\e$\shogun  Disk  OK
SGNODE01\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  Unknown
Unknown  Unknown

```

```

system  Not Available  8  8  0
1413120  Not Available  Unknown  Unknown  Unknown
smss.exe  c:\winnt\system32\smss.exe  184  11
204800  1413120  4/11/2001 11:29:45 AM  5.00.2195.31
44.27 KB (45,328 bytes)  7/27/2000 8:00:00 PM
csrss.exe  Not Available  212  13  Not Available
Not Available  4/11/2001 11:29:49 AM  Unknown
Unknown  Unknown
winlogon.exe  c:\winnt\system32\winlogon.exe  232  13
204800  1413120  4/11/2001 11:29:51 AM
5.00.2195.1600  172.77 KB (176,912 bytes)  7/27/2000
8:00:00 PM
services.exe  c:\winnt\system32\services.exe  260  9
204800  1413120  4/11/2001 11:29:52 AM  5.00.2134.1
86.77 KB (88,848 bytes)  7/27/2000 8:00:00 PM
lsass.exe  c:\winnt\system32\lsass.exe  272  13
204800  1413120  4/11/2001 11:29:52 AM
5.00.2195.1620  32.77 KB (33,552 bytes)  7/27/2000
8:00:00 PM
gnconmgr.exe  c:\winnt\system32\gnconmgr.exe  408  8
204800  1413120  4/11/2001 11:29:54 AM  4.1.1
128.05 KB (131,119 bytes)  2/13/2001 9:01:54 AM
svchost.exe  c:\winnt\system32\svchost.exe  468  8
204800  1413120  4/11/2001 11:29:55 AM  5.00.2134.1
7.77 KB (7,952 bytes)  7/27/2000 8:00:00 PM
spoolsv.exe  c:\winnt\system32\spoolsv.exe  496  8
204800  1413120  4/11/2001 11:29:55 AM  5.00.2161.1
43.77 KB (44,816 bytes)  2/8/2001 10:57:40 AM
msdtc.exe  c:\winnt\system32\msdtc.exe  524  8
204800  1413120  4/11/2001 11:29:55 AM  1999.9.3421.3
6.77 KB (6,928 bytes)  2/8/2001 11:06:14 AM
svchost.exe  c:\winnt\system32\svchost.exe  768  8
204800  1413120  4/11/2001 11:29:56 AM  5.00.2134.1
7.77 KB (7,952 bytes)  7/27/2000 8:00:00 PM
gamscm.exe  c:\winnt\system32\gamscm.exe  780
8  204800  1413120  4/11/2001 11:29:56 AM  Not
Available  119.28 KB (122,144 bytes)  3/27/2001 3:20:16 PM
gamscm.exe  c:\winnt\system32\gamscm.exe  804
13  204800  1413120  4/11/2001 11:29:56 AM  Not
Available  128.20 KB (131,281 bytes)  3/27/2001 3:20:16 PM
llssrv.exe  c:\winnt\system32\llssrv.exe  812  9
204800  1413120  4/11/2001 11:29:56 AM  5.00.2167.1
114.27 KB (117,008 bytes)  7/27/2000 8:00:00 PM
gamevent.exe  c:\winnt\system32\gamevent.exe  820
13  204800  1413120  4/11/2001 11:29:56 AM  Not
Available  88.71 KB (90,834 bytes)  3/27/2001 3:20:15 PM
gamevlog.exe  c:\winnt\system32\gamevlog.exe  828
13  204800  1413120  4/11/2001 11:29:56 AM  Not
Available  187.35 KB (191,842 bytes)  3/27/2001 3:20:16 PM
proconsvcs.exe  c:\winnt\system32\proconsvcs.exe  888
8  204800  1413120  4/11/2001 11:29:56 AM  1, 0,
1, 23  72.27 KB (74,000 bytes)  2/8/2001 11:06:30 AM
regsvc.exe  c:\winnt\system32\regsvc.exe  940  8
204800  1413120  4/11/2001 11:29:57 AM  5.00.2195.31
65.27 KB (66,832 bytes)  7/27/2000 8:00:00 PM
rshsvc.exe  c:\winnt\system32\rshsvc.exe  980  8
204800  1413120  4/11/2001 11:29:57 AM  Not Available
53.50 KB (54,784 bytes)  2/15/2001 11:03:08 AM
proconcmd8.exe  c:\winnt\system32\proconcmd8.exe  988
8  204800  1413120  4/11/2001 11:29:57 AM  1, 0,
1, 23  24.27 KB (24,848 bytes)  2/8/2001 11:06:30 AM
mstask.exe  c:\winnt\system32\mstask.exe  1004  8
204800  1413120  4/11/2001 11:29:57 AM  4.71.2137.1
115.27 KB (118,032 bytes)  2/8/2001 4:08:40 PM
tcpvcs.exe  c:\winnt\system32\tcpvcs.exe  1044  8
204800  1413120  4/11/2001 11:29:57 AM  5.00.2134.1
24.77 KB (25,360 bytes)  7/27/2000 8:00:00 PM

```

```

winmgmt.exe c:\winnt\system32\wbem\winmgmt.exe
1120 8 204800 1413120 4/11/2001 11:29:57 AM
1.50.1085.0009 192.08 KB (196,685 bytes) 7/27/2000
8:00:00 PM
wins.exe c:\winnt\system32\wins.exe 1132 8
204800 1413120 4/11/2001 11:29:57 AM
5.00.2195.1600 147.77 KB (151,312 bytes) 2/8/2001
11:06:08 AM
dfssvc.exe c:\winnt\system32\dfssvc.exe 1276 8
204800 1413120 4/11/2001 11:30:05 AM
5.00.2195.1340 87.77 KB (89,872 bytes) 7/27/2000
8:00:00 PM
svchost.exe c:\winnt\system32\svchost.exe 1404 8
204800 1413120 4/11/2001 11:30:15 AM 5.00.2134.1
7.77 KB (7,952 bytes) 7/27/2000 8:00:00 PM
explorer.exe c:\winnt\explorer.exe 968 8
204800 1413120 4/11/2001 11:58:09 AM
5.00.3103.1000 237.27 KB (242,960 bytes) 7/27/2000
8:00:00 PM
cmd.exe c:\winnt\system32\cmd.exe 1084 8
204800 1413120 4/11/2001 12:13:56 PM
5.00.2195.1600 230.77 KB (236,304 bytes) 7/27/2000
8:00:00 PM
mmc.exe c:\winnt\system32\mmc.exe 376 8
204800 1413120 4/11/2001 12:14:18 PM 5.00.2153.1
589.27 KB (603,408 bytes) 7/27/2000 8:00:00 PM
cmd.exe c:\winnt\system32\cmd.exe 1904 8
204800 1413120 4/11/2001 1:29:24 PM
5.00.2195.1600 230.77 KB (236,304 bytes) 7/27/2000
8:00:00 PM
mmc.exe c:\winnt\system32\mmc.exe 2076 8
204800 1413120 4/11/2001 3:36:02 PM 5.00.2153.1
589.27 KB (603,408 bytes) 7/27/2000 8:00:00 PM
rsvp.exe c:\winnt\system32\rsvp.exe 1644 8
204800 1413120 4/11/2001 3:38:00 PM 5.00.2167.1
172.77 KB (176,912 bytes) 7/27/2000 8:00:00 PM

```

[Loaded Modules]

| Name         | Version        | Size                      | File Date            | Manufacturer          | Path                                |
|--------------|----------------|---------------------------|----------------------|-----------------------|-------------------------------------|
| traffic.dll  | 5.00.2139.1    | 30.77 KB (31,504 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation | c:\winnt\system32\traffic.dll       |
| rsvp.exe     | 5.00.2167.1    | 172.77 KB (176,912 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation | c:\winnt\system32\rsvp.exe          |
| wbemprox.dll | 1.50.1085.0015 | 40.08 KB (41,040 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation | c:\winnt\system32\wbem\wbemprox.dll |
| rassapi.dll  | 5.00.2188.1    | 14.27 KB (14,608 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation | c:\winnt\system32\rassapi.dll       |
| adsnt.dll    | 5.00.2195.1600 | 194.27 KB (198,928 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation | c:\winnt\system32\adsnt.dll         |
| dbghelp.dll  | 5.00.2195.1620 | 159.27 KB (163,088 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation | c:\winnt\system32\dbghelp.dll       |
| localsec.dll | 5.00.2195.1340 | 227.27 KB (232,720 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation | c:\winnt\system32\localsec.dll      |
| devmgr.dll   | 5.00.2166.1    | 215.77 KB (220,944 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation | c:\winnt\system32\devmgr.dll        |
| filemgmt.dll | 5.00.2134.1    | 287.27 KB (294,160 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation | c:\winnt\system32\filemgmt.dll      |

```

cabinet.dll 5.00.2147.1 54.77 KB (56,080 bytes)
7/27/2000 8:00:00 PM Microsoft Corporation
c:\winnt\system32\cabinet.dll
msinfo32.dll 5.00.2177.1 312.27 KB (319,760
bytes) 2/8/2001 4:08:48 PM Microsoft Corporation
c:\program files\common files\microsoft shared\msinfo\msinfo32.dll
riched20.dll 5.30.23.1203 421.27 KB (431,376
bytes) 7/27/2000 8:00:00 PM Microsoft Corporation
c:\winnt\system32\riched20.dll
riched32.dll 5.00.2134.1 3.77 KB (3,856 bytes)
7/27/2000 8:00:00 PM Microsoft Corporation
c:\winnt\system32\riched32.dll
els.dll 5.00.2175.1 151.27 KB (154,896 bytes)
7/27/2000 8:00:00 PM Microsoft Corporation
c:\winnt\system32\els.dll
ntmsmgr.dll 1,0,0,1 427.77 KB (438,032 bytes)
7/27/2000 8:00:00 PM Microsoft Corporation and
HighGround Systems, Inc. c:\winnt\system32\ntmsmgr.dll
mmfutil.dll 1.50.1085.0000 32.06 KB (32,829 bytes)
7/27/2000 8:00:00 PM Microsoft Corporation
c:\winnt\system32\mmfutil.dll
logdrive.dll 1.50.1085.0000 200.06 KB (204,863
bytes) 7/27/2000 8:00:00 PM Microsoft Corporation
c:\winnt\system32\logdrive.dll
dfgrges.dll 5.00.2150.1 27.50 KB (28,160 bytes)
7/27/2000 8:00:00 PM Executive Software International, Inc.
c:\winnt\system32\dfgrges.dll
dfgrsnap.dll 5.00.2195.31 41.77 KB (42,768 bytes)
7/27/2000 8:00:00 PM Executive Software International, Inc.
c:\winnt\system32\dfgrsnap.dll
dmdskres.dll 2195.1600.297.3 119.50 KB (122,368
bytes) 7/27/2000 8:00:00 PM Microsoft Corp.,
VERITAS Software c:\winnt\system32\dmdskres.dll
dmutil.dll 2195.23.297.2 42.27 KB (43,280 bytes)
7/27/2000 8:00:00 PM VERITAS Software Corp.
c:\winnt\system32\dmutil.dll
ntmsapi.dll 5.00.1948.1 50.27 KB (51,472 bytes)
7/27/2000 8:00:00 PM Microsoft Corporation
c:\winnt\system32\ntmsapi.dll
dmdskmgr.dll 2195.1600.297.3 160.27 KB (164,112
bytes) 7/27/2000 8:00:00 PM Microsoft Corp.,
VERITAS Software c:\winnt\system32\dmdskmgr.dll
mycomput.dll 5.00.2134.1 107.77 KB (110,352
bytes) 7/27/2000 8:00:00 PM Microsoft Corporation
c:\winnt\system32\mycomput.dll
winsrpc.dll 5.00.2134.1 13.27 KB (13,584 bytes)
7/27/2000 8:00:00 PM Microsoft Corporation
c:\winnt\system32\winsrpc.dll
winsctr.dll 5.00.2134.1 6.77 KB (6,928 bytes)
2/8/2001 11:06:08 AM Microsoft Corporation
c:\winnt\system32\winsctr.dll
perfctrs.dll 5.00.2134.1 40.77 KB (41,744 bytes)
7/27/2000 8:00:00 PM Microsoft Corporation
c:\winnt\system32\perfctrs.dll
tapiperf.dll 5.00.2195.1600 6.27 KB (6,416 bytes) 7/27/2000
8:00:00 PM Microsoft Corporation
c:\winnt\system32\tapiperf.dll
rsvpperf.dll 5.00.2167.1 10.77 KB (11,024 bytes)
7/27/2000 8:00:00 PM Microsoft Corporation
c:\winnt\system32\rsvpperf.dll
rasctr.dll 5.00.2188.1 12.27 KB (12,560 bytes)
7/27/2000 8:00:00 PM Microsoft Corporation
c:\winnt\system32\rasctr.dll
perfproc.dll 5.00.2155.1 27.27 KB (27,920 bytes)
7/27/2000 8:00:00 PM Microsoft Corporation
c:\winnt\system32\perfproc.dll

```

|                                |                      |                           |                      |
|--------------------------------|----------------------|---------------------------|----------------------|
| perfnct.dll                    | 5.00.2164.1          | 17.27 KB (17,680 bytes)   |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\perfnct.dll  |                      |                           |                      |
| perfdisk.dll                   | 5.00.2162.1          | 22.27 KB (22,800 bytes)   |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\perfdisk.dll |                      |                           |                      |
| msdtcui.dll                    | 1999.9.3421.3        | 141.27 KB (144,656 bytes) |                      |
|                                | 2/8/2001 11:06:15 AM | Microsoft Corporation     |                      |
| c:\winnt\system32\msdtcui.dll  |                      |                           |                      |
| loadperf.dll                   | 5.00.2195.1          | 60.77 KB (62,224 bytes)   |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\loadperf.dll |                      |                           |                      |
| snmpapi.dll                    | 5.00.2134.1          | 17.27 KB (17,680 bytes)   |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\snmpapi.dll  |                      |                           |                      |
| iasperf.dll                    | 5.00.2160.1          | 20.27 KB (20,752 bytes)   |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\iasperf.dll  |                      |                           |                      |
| gni_perf.dll                   | Not Available        | 48.00 KB (49,152 bytes)   |                      |
|                                | 8/11/2000 6:00:00 PM | Not Available             |                      |
| c:\winnt\system32\gni_perf.dll |                      |                           |                      |
| faxperf.dll                    | 5.00.2148.1          | 6.27 KB (6,416 bytes)     | 7/27/2000 8:00:00 PM |
|                                |                      | Microsoft Corporation     |                      |
| c:\winnt\system32\faxperf.dll  |                      |                           |                      |
| query.dll                      | 5.00.2195.1600       | 1.35 MB (1,411,344 bytes) |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\query.dll    |                      |                           |                      |
| smlogcfg.dll                   | 5.00.2163.1          | 273.27 KB (279,824 bytes) |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\smlogcfg.dll |                      |                           |                      |
| olepro32.dll                   | 5.0.4514             | 160.27 KB (164,112 bytes) |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\olepro32.dll |                      |                           |                      |
| pdh.dll                        | 5.00.2195.1600       | 143.27 KB (146,704 bytes) |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\pdh.dll      |                      |                           |                      |
| sysmon.ocx                     | 5.00.2163.1          | 167.77 KB (171,792 bytes) |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\sysmon.ocx   |                      |                           |                      |
| mlang.dll                      | 5.00.3103.1000       | 510.77 KB (523,024 bytes) |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\mlang.dll    |                      |                           |                      |
| mmcndmgr.dll                   | 5.00.2178.1          | 815.27 KB (834,832 bytes) |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\mmcndmgr.dll |                      |                           |                      |
| mmc.exe                        | 5.00.2153.1          | 589.27 KB (603,408 bytes) |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\mmc.exe      |                      |                           |                      |
| cmd.exe                        | 5.00.2195.1600       | 230.77 KB (236,304 bytes) |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\cmd.exe      |                      |                           |                      |
| wininet.dll                    | 5.00.3103.1000       | 456.77 KB (467,728 bytes) |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\wininet.dll  |                      |                           |                      |
| actxprxy.dll                   | 5.00.3103.800        | 70.27 KB (71,952 bytes)   |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\actxprxy.dll |                      |                           |                      |
| hhsetup.dll                    | 4.74.8702            | 66.27 KB (67,856 bytes)   | 7/27/2000 8:00:00 PM |
|                                |                      | Microsoft Corporation     |                      |
| c:\winnt\system32\hhsetup.dll  |                      |                           |                      |
| mmshext.dll                    | 5.00.2153.1          | 24.27 KB (24,848 bytes)   |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\mmshext.dll  |                      |                           |                      |
| urlmon.dll                     | 5.00.3103.1000       | 440.77 KB (451,344 bytes) |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\urlmon.dll   |                      |                           |                      |
| faxshell.dll                   | 5.00.2134.1          | 8.27 KB (8,464 bytes)     | 7/27/2000 8:00:00 PM |
|                                |                      | Microsoft Corporation     |                      |
| c:\winnt\system32\faxshell.dll |                      |                           |                      |
| msacm32.dll                    | 5.00.2134.1          | 65.27 KB (66,832 bytes)   |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\msacm32.dll  |                      |                           |                      |
| avifil32.dll                   | 5.00.2134.1          | 76.27 KB (78,096 bytes)   |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\avifil32.dll |                      |                           |                      |
| msvfw32.dll                    | 5.00.2134.1          | 113.77 KB (116,496 bytes) |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\msvfw32.dll  |                      |                           |                      |
| docprop2.dll                   | 5.00.2195.1387       | 308.77 KB (316,176 bytes) |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\docprop2.dll |                      |                           |                      |
| linkinfo.dll                   | 5.00.2195.1387       | 16.77 KB (17,168 bytes)   |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\linkinfo.dll |                      |                           |                      |
| powrprof.dll                   | 5.00.3103.1000       | 13.27 KB (13,584 bytes)   |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\powrprof.dll |                      |                           |                      |
| batmeter.dll                   | 5.00.2920.0000       | 20.27 KB (20,752 bytes)   |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\batmeter.dll |                      |                           |                      |
| stobject.dll                   | 5.00.2195.1387       | 79.27 KB (81,168 bytes)   |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\stobject.dll |                      |                           |                      |
| msi.dll                        | 1.11.1314.0          | 1.72 MB (1,798,928 bytes) |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\msi.dll      |                      |                           |                      |
| webcheck.dll                   | 5.00.3103.1000       | 251.77 KB (257,808 bytes) |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\webcheck.dll |                      |                           |                      |
| browsecl.dll                   | 5.00.3103.1000       | 34.50 KB (35,328 bytes)   |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\browsecl.dll |                      |                           |                      |
| ntshrui.dll                    | 5.00.2134.1          | 46.77 KB (47,888 bytes)   |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\ntshrui.dll  |                      |                           |                      |
| mydocs.dll                     | 5.00.3103.1000       | 57.77 KB (59,152 bytes)   |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\mydocs.dll   |                      |                           |                      |
| browseui.dll                   | 5.00.3103.1000       | 788.77 KB (807,696 bytes) |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\browseui.dll |                      |                           |                      |
| shdocvw.dll                    | 5.00.3103.1000       | 1.05 MB (1,104,144 bytes) |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\shdocvw.dll  |                      |                           |                      |
| explorer.exe                   | 5.00.3103.1000       | 237.27 KB (242,960 bytes) |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\explorer.exe          |                      |                           |                      |
| h323.tsp                       | 5.00.2195.1600       | 248.27 KB (254,224 bytes) |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\h323.tsp     |                      |                           |                      |
| ipconf.tsp                     | 5.00.2195.1600       | 10.77 KB (11,024 bytes)   |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\ipconf.tsp   |                      |                           |                      |
| ndptsp.tsp                     | 5.00.2195.1600       | 38.27 KB (39,184 bytes)   |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\ndptsp.tsp   |                      |                           |                      |
| kmddsp.tsp                     | 5.00.2195.1600       | 18.27 KB (18,704 bytes)   |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\kmddsp.tsp   |                      |                           |                      |
| uniplat.dll                    | 5.00.2151.1          | 13.77 KB (14,096 bytes)   |                      |
|                                | 7/27/2000 8:00:00 PM | Microsoft Corporation     |                      |
| c:\winnt\system32\uniplat.dll  |                      |                           |                      |



|                                     |                |                           |                      |                       |                                       |                |                           |                       |                                |
|-------------------------------------|----------------|---------------------------|----------------------|-----------------------|---------------------------------------|----------------|---------------------------|-----------------------|--------------------------------|
| unimdm.tsp                          | 5.00.2175.1    | 196.77 KB (201,488 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation | proconcmd8.exe                        | 1, 0, 1, 23    | 24.27 KB (24,848 bytes)   | 2/8/2001 11:06:30 AM  | Sequent Computer Systems, Inc. |
| c:\winnt\system32\unimdm.tsp        |                |                           |                      |                       | c:\winnt\system32\proconcmd8.exe      |                |                           |                       |                                |
| tapisrv.dll                         | 5.00.2195.1600 | 168.77 KB (172,816 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation | rshsvc.dll                            | Not Available  | 18.00 KB (18,432 bytes)   | 2/15/2001 11:03:08 AM | Not Available                  |
| c:\winnt\system32\tapisrv.dll       |                |                           |                      |                       | c:\winnt\system32\rshsvc.dll          |                |                           |                       |                                |
| dfssvc.exe                          | 5.00.2195.1340 | 87.77 KB (89,872 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation | rshsvc.exe                            | Not Available  | 53.50 KB (54,784 bytes)   | 2/15/2001 11:03:08 AM | Not Available                  |
| c:\winnt\system32\dfssvc.exe        |                |                           |                      |                       | c:\winnt\system32\rshsvc.exe          |                |                           |                       |                                |
| wins.exe                            | 5.00.2195.1600 | 147.77 KB (151,312 bytes) | 2/8/2001 11:06:08 AM | Microsoft Corporation | regsvc.exe                            | 5.00.2195.31   | 65.27 KB (66,832 bytes)   | 7/27/2000 8:00:00 PM  | Microsoft Corporation          |
| c:\winnt\system32\wins.exe          |                |                           |                      |                       | c:\winnt\system32\regsvc.exe          |                |                           |                       |                                |
| wshnetbs.dll                        | 5.00.2134.1    | 7.77 KB (7,952 bytes)     | 7/27/2000 8:00:00 PM | Microsoft Corporation | ntmarta.dll                           | 5.00.2158.1    | 98.77 KB (101,136 bytes)  | 7/27/2000 8:00:00 PM  | Microsoft Corporation          |
| c:\winnt\system32\wshnetbs.dll      |                |                           |                      |                       | c:\winnt\system32\ntmarta.dll         |                |                           |                       |                                |
| rapilib.dll                         | 5.00.2167.1    | 25.27 KB (25,872 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation | psapi.dll                             | 5.00.2134.1    | 28.27 KB (28,944 bytes)   | 7/27/2000 8:00:00 PM  | Microsoft Corporation          |
| c:\winnt\system32\rapilib.dll       |                |                           |                      |                       | c:\winnt\system32\psapi.dll           |                |                           |                       |                                |
| rsvsp.dll                           | 5.00.2167.1    | 74.77 KB (76,560 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation | proconsv.exe                          | 1, 0, 1, 23    | 72.27 KB (74,000 bytes)   | 2/8/2001 11:06:30 AM  | Sequent Computer Systems, Inc. |
| c:\winnt\system32\rsvsp.dll         |                |                           |                      |                       | c:\winnt\system32\proconsv.exe        |                |                           |                       |                                |
| provthrd.dll                        | 1.50.1085.0000 | 68.07 KB (69,708 bytes)   | 2/8/2001 4:08:39 PM  | Microsoft Corporation | gamevlog.exe                          | Not Available  | 187.35 KB (191,842 bytes) | 3/27/2001 3:20:16 PM  | Not Available                  |
| c:\winnt\system32\wbem\provthrd.dll |                |                           |                      |                       | c:\winnt\system32\gamevlog.exe        |                |                           |                       |                                |
| ntevt.dll                           | 1.50.1085.0000 | 192.06 KB (196,669 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation | gamevent.exe                          | Not Available  | 88.71 KB (90,834 bytes)   | 3/27/2001 3:20:15 PM  | Not Available                  |
| c:\winnt\system32\wbem\ntevt.dll    |                |                           |                      |                       | c:\winnt\system32\gamevent.exe        |                |                           |                       |                                |
| perfos.dll                          | 5.00.2155.1    | 21.27 KB (21,776 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation | llsrpc.dll                            | 5.00.2149.1    | 45.77 KB (46,864 bytes)   | 7/27/2000 8:00:00 PM  | Microsoft Corporation          |
| c:\winnt\system32\perfos.dll        |                |                           |                      |                       | c:\winnt\system32\llsrpc.dll          |                |                           |                       |                                |
| framedyn.dll                        | 1.50.1085.0000 | 164.05 KB (167,992 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation | llssrv.exe                            | 5.00.2167.1    | 114.27 KB (117,008 bytes) | 7/27/2000 8:00:00 PM  | Microsoft Corporation          |
| c:\winnt\system32\wbem\framedyn.dll |                |                           |                      |                       | c:\winnt\system32\llssrv.exe          |                |                           |                       |                                |
| cimwin32.dll                        | 1.50.1085.0016 | 1.02 MB (1,073,232 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation | gamserv.exe                           | Not Available  | 128.20 KB (131,281 bytes) | 3/27/2001 3:20:16 PM  | Not Available                  |
| c:\winnt\system32\wbem\cimwin32.dll |                |                           |                      |                       | c:\winnt\system32\gamserv\gamserv.exe |                |                           |                       |                                |
| wbemsv.dll                          | 1.50.1085.0007 | 40.07 KB (41,036 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation | gamscm.exe                            | Not Available  | 119.28 KB (122,144 bytes) | 3/27/2001 3:20:16 PM  | Not Available                  |
| c:\winnt\system32\wbem\wbemsv.dll   |                |                           |                      |                       | c:\winnt\system32\gamserv\gamscm.exe  |                |                           |                       |                                |
| wbemess.dll                         | 1.50.1085.0007 | 364.07 KB (372,804 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation | ipbootp.dll                           | 5.00.2195.1284 | 33.77 KB (34,576 bytes)   | 7/27/2000 8:00:00 PM  | Microsoft Corporation          |
| c:\winnt\system32\wbem\wbemess.dll  |                |                           |                      |                       | c:\winnt\system32\ipbootp.dll         |                |                           |                       |                                |
| fastprox.dll                        | 1.50.1085.0007 | 144.08 KB (147,536 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation | rastls.dll                            | 5.00.2188.1    | 47.77 KB (48,912 bytes)   | 7/27/2000 8:00:00 PM  | Microsoft Corporation          |
| c:\winnt\system32\wbem\fastprox.dll |                |                           |                      |                       | c:\winnt\system32\rastls.dll          |                |                           |                       |                                |
| wbemcore.dll                        | 1.50.1085.0008 | 628.07 KB (643,140 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation | raschap.dll                           | 5.00.2175.1    | 34.77 KB (35,600 bytes)   | 7/27/2000 8:00:00 PM  | Microsoft Corporation          |
| c:\winnt\system32\wbem\wbemcore.dll |                |                           |                      |                       | c:\winnt\system32\raschap.dll         |                |                           |                       |                                |
| wbemcomn.dll                        | 1.50.1085.0007 | 692.07 KB (708,675 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation | ntlsapi.dll                           | 5.00.2134.1    | 6.77 KB (6,928 bytes)     | 7/27/2000 8:00:00 PM  | Microsoft Corporation          |
| c:\winnt\system32\wbem\wbemcomn.dll |                |                           |                      |                       | c:\winnt\system32\ntlsapi.dll         |                |                           |                       |                                |
| winmgmt.exe                         | 1.50.1085.0009 | 192.08 KB (196,685 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation | rasppp.dll                            | 5.00.2195.1203 | 192.27 KB (196,880 bytes) | 7/27/2000 8:00:00 PM  | Microsoft Corporation          |
| c:\winnt\system32\wbem\winmgmt.exe  |                |                           |                      |                       | c:\winnt\system32\rasppp.dll          |                |                           |                       |                                |
| simptcp.dll                         | 5.00.2134.1    | 19.27 KB (19,728 bytes)   | 2/8/2001 11:06:09 AM | Microsoft Corporation | rastapi.dll                           | 5.00.2188.1    | 52.27 KB (53,520 bytes)   | 7/27/2000 8:00:00 PM  | Microsoft Corporation          |
| c:\winnt\system32\simptcp.dll       |                |                           |                      |                       | c:\winnt\system32\rastapi.dll         |                |                           |                       |                                |
| tcpvcs.exe                          | 5.00.2134.1    | 24.77 KB (25,360 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation | wmi.dll                               | 5.00.2195.1600 | 6.27 KB (6,416 bytes)     | 7/27/2000 8:00:00 PM  | Microsoft Corporation          |
| c:\winnt\system32\tcpvcs.exe        |                |                           |                      |                       | c:\winnt\system32\wmi.dll             |                |                           |                       |                                |
| msidle.dll                          | 5.00.3103.1000 | 6.27 KB (6,416 bytes)     | 7/27/2000 8:00:00 PM | Microsoft Corporation | netshell.dll                          | 5.00.2195.1600 | 456.77 KB (467,728 bytes) | 7/27/2000 8:00:00 PM  | Microsoft Corporation          |
| c:\winnt\system32\msidle.dll        |                |                           |                      |                       | c:\winnt\system32\netshell.dll        |                |                           |                       |                                |
| mstask.exe                          | 4.71.2137.1    | 115.27 KB (118,032 bytes) | 2/8/2001 4:08:40 PM  | Microsoft Corporation | netman.dll                            | 5.00.2195.1600 | 89.27 KB (91,408 bytes)   | 7/27/2000 8:00:00 PM  | Microsoft Corporation          |
| c:\winnt\system32\mstask.exe        |                |                           |                      |                       | c:\winnt\system32\netman.dll          |                |                           |                       |                                |

|              |                |                             |                       |                       |                                |
|--------------|----------------|-----------------------------|-----------------------|-----------------------|--------------------------------|
| ntmsdba.dll  | 5.00.2195.1600 | 167.77 KB (171,792 bytes)   | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\ntmsdba.dll  |
| rasdlg.dll   | 5.00.2194.1    | 514.27 KB (526,608 bytes)   | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\rasdlg.dll   |
| netcfgx.dll  | 5.00.2195.1618 | 533.77 KB (546,576 bytes)   | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\netcfgx.dll  |
| rasmans.dll  | 5.00.2195.27   | 146.77 KB (150,288 bytes)   | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\rasmans.dll  |
| sens.dll     | 5.00.2163.1    | 36.77 KB (37,648 bytes)     | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\sens.dll     |
| ntmssvc.dll  | 5.00.2187.1    | 390.77 KB (400,144 bytes)   | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\ntmssvc.dll  |
| es.dll       | 2000.2.3465.0  | 228.77 KB (234,256 bytes)   | 10/16/2000 2:51:22 PM | Microsoft Corporation | c:\winnt\system32\es.dll       |
| mtxoci.dll   | 2000.2.3465.0  | 101.77 KB (104,208 bytes)   | 10/16/2000 2:51:32 PM | Microsoft Corporation | c:\winnt\system32\mtxoci.dll   |
| resutils.dll | 5.00.2195.1613 | 39.77 KB (40,720 bytes)     | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\resutils.dll |
| clusapi.dll  | 5.00.2195.1613 | 54.27 KB (55,568 bytes)     | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\clusapi.dll  |
| msvcpx50.dll | 5.00.7051      | 552.50 KB (565,760 bytes)   | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\msvcpx50.dll |
| xolehlp.dll  | 1999.9.3421.3  | 17.27 KB (17,680 bytes)     | 2/8/2001 11:06:15 AM  | Microsoft Corporation | c:\winnt\system32\xolehlp.dll  |
| msdtclog.dll | 1999.9.3421.3  | 89.77 KB (91,920 bytes)     | 2/8/2001 11:06:14 AM  | Microsoft Corporation | c:\winnt\system32\msdtclog.dll |
| mtxclu.dll   | 2000.2.3465.0  | 51.27 KB (52,496 bytes)     | 10/16/2000 2:51:30 PM | Microsoft Corporation | c:\winnt\system32\mtxclu.dll   |
| msdtcprx.dll | 2000.2.3465.0  | 626.27 KB (641,296 bytes)   | 10/16/2000 2:51:24 PM | Microsoft Corporation | c:\winnt\system32\msdtcprx.dll |
| txfaux.dll   | 2000.2.3465.0  | 373.77 KB (382,736 bytes)   | 10/16/2000 2:51:32 PM | Microsoft Corporation | c:\winnt\system32\txfaux.dll   |
| msdtctm.dll  | 2000.2.3465.0  | 1.07 MB (1,120,528 bytes)   | 10/16/2000 2:51:28 PM | Microsoft Corporation | c:\winnt\system32\msdtctm.dll  |
| msdtc.exe    | 1999.9.3421.3  | 6.77 KB (6,928 bytes)       | 2/8/2001 11:06:14 AM  | Microsoft Corporation | c:\winnt\system32\msdtc.exe    |
| inetpp.dll   | 5.00.2195.25   | 65.27 KB (66,832 bytes)     | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\inetpp.dll   |
| win32spl.dll | 5.00.2195.1340 | 92.27 KB (94,480 bytes)     | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\win32spl.dll |
| usbmon.dll   | 5.00.2165.1    | 11.27 KB (11,536 bytes)     | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\usbmon.dll   |
| tcpmon.dll   | 5.00.2195.1225 | 40.77 KB (41,744 bytes)     | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\tcpmon.dll   |
| pjimon.dll   | 5.00.2165.1    | 12.77 KB (13,072 bytes)     | 6/9/2000 2:06:42 PM   | Microsoft Corporation | c:\winnt\system32\pjimon.dll   |
| cnbjmon.dll  | 5.00.2134.1    | 43.77 KB (44,816 bytes)     | 6/9/2000 2:05:56 PM   | Microsoft Corporation | c:\winnt\system32\cnbjmon.dll  |
| localspl.dll | 5.00.2195.1340 | 246.27 KB (252,176 bytes)   | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\localspl.dll |
| spoolss.dll  | 5.00.2161.1    | 61.77 KB (63,248 bytes)     | 2/8/2001 10:57:40 AM  | Microsoft Corporation | c:\winnt\system32\spoolss.dll  |
| spoolsv.exe  | 5.00.2161.1    | 43.77 KB (44,816 bytes)     | 2/8/2001 10:57:40 AM  | Microsoft Corporation | c:\winnt\system32\spoolsv.exe  |
| rpcss.dll    | 5.00.2195.2500 | 180.27 KB (184,592 bytes)   | 10/16/2000 3:52:26 PM | Microsoft Corporation | c:\winnt\system32\rpcss.dll    |
| svchost.exe  | 5.00.2134.1    | 7.77 KB (7,952 bytes)       | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\svchost.exe  |
| vipl.dll     | 4.1.1          | 80.00 KB (81,920 bytes)     | 9:01:54 AM            | Giganet Incorporated  | c:\winnt\system32\vipl.dll     |
| gnconmgr.exe | 4.1.1          | 128.05 KB (131,119 bytes)   | 2/13/2001 9:01:54 AM  | Giganet Incorporated  | c:\winnt\system32\gnconmgr.exe |
| dssbase.dll  | 5.00.2195.1391 | 141.27 KB (144,656 bytes)   | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\dssbase.dll  |
| oakley.dll   | 5.00.2195.1600 | 378.77 KB (387,856 bytes)   | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\oakley.dll   |
| mfc42u.dll   | 6.00.8665.0    | 972.05 KB (995,384 bytes)   | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\mfc42u.dll   |
| polagent.dll | 5.00.2195.1600 | 93.27 KB (95,504 bytes)     | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\polagent.dll |
| scecli.dll   | 5.00.2191.1    | 105.27 KB (107,792 bytes)   | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\scecli.dll   |
| atl.dll      | 3.00.8449      | 57.56 KB (58,938 bytes)     | 8:00:00 PM            | Microsoft Corporation | c:\winnt\system32\atl.dll      |
| certcli.dll  | 5.00.2175.1    | 132.27 KB (135,440 bytes)   | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\certcli.dll  |
| esent.dll    | 6.0.3940.4     | 1.08 MB (1,135,888 bytes)   | 8:00:00 PM            | Microsoft Corporation | c:\winnt\system32\esent.dll    |
| ntdsatq.dll  | 5.00.2195.1284 | 31.27 KB (32,016 bytes)     | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\ntdsatq.dll  |
| ntdsa.dll    | 5.00.2195.1600 | 987.27 KB (1,010,960 bytes) | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\ntdsa.dll    |
| kdcsvc.dll   | 5.00.2195.1284 | 133.77 KB (136,976 bytes)   | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\kdcsvc.dll   |
| sfmapi.dll   | 5.00.2134.1    | 38.77 KB (39,696 bytes)     | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\sfmapi.dll   |
| rassfm.dll   | 5.00.2195.1179 | 21.27 KB (21,776 bytes)     | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\rassfm.dll   |
| schannel.dll | 5.00.2195.1163 | 137.27 KB (140,560 bytes)   | 7/27/2000 8:00:00 PM  | Microsoft Corporation | c:\winnt\system32\schannel.dll |

|                                |                |                           |                      |                       |                                 |                |                           |                      |                        |
|--------------------------------|----------------|---------------------------|----------------------|-----------------------|---------------------------------|----------------|---------------------------|----------------------|------------------------|
| netlogon.dll                   | 5.00.2195.1600 | 348.27 KB (356,624 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation | cryptdll.dll                    | 5.00.2135.1    | 43.27 KB (44,304 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation  |
| c:\winnt\system32\netlogon.dll |                |                           |                      |                       | c:\winnt\system32\cryptdll.dll  |                |                           |                      |                        |
| msv1_0.dll                     | 5.00.2195.1620 | 92.77 KB (94,992 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation | wkssvc.dll                      | 5.00.2195.1175 | 95.27 KB (97,552 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation  |
| c:\winnt\system32\msv1_0.dll   |                |                           |                      |                       | c:\winnt\system32\wkssvc.dll    |                |                           |                      |                        |
| kerberos.dll                   | 5.00.2195.1378 | 197.77 KB (202,512 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation | srvsvc.dll                      | 5.00.2178.1    | 79.27 KB (81,168 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation  |
| c:\winnt\system32\kerberos.dll |                |                           |                      |                       | c:\winnt\system32\srvsvc.dll    |                |                           |                      |                        |
| msprivs.dll                    | 5.00.2195.1600 | 41.50 KB (42,496 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation | cfgmgr32.dll                    | 5.00.2195.1608 | 16.77 KB (17,168 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation  |
| c:\winnt\system32\msprivs.dll  |                |                           |                      |                       | c:\winnt\system32\cfgmgr32.dll  |                |                           |                      |                        |
| samsrv.dll                     | 5.00.2195.1609 | 343.27 KB (351,504 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation | dmserver.dll                    | 2195.23.297.2  | 11.77 KB (12,048 bytes)   | 7/27/2000 8:00:00 PM | VERITAS Software Corp. |
| c:\winnt\system32\samsrv.dll   |                |                           |                      |                       | c:\winnt\system32\dmserver.dll  |                |                           |                      |                        |
| lsasrv.dll                     | 5.00.2195.1620 | 475.27 KB (486,672 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation | winsta.dll                      | 5.00.2195.32   | 36.27 KB (37,136 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation  |
| c:\winnt\system32\lsasrv.dll   |                |                           |                      |                       | c:\winnt\system32\winsta.dll    |                |                           |                      |                        |
| lsass.exe                      | 5.00.2195.1620 | 32.77 KB (33,552 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation | lmhsvc.dll                      | 5.00.2134.1    | 9.27 KB (9,488 bytes)     | 7/27/2000 8:00:00 PM | Microsoft Corporation  |
| c:\winnt\system32\lsass.exe    |                |                           |                      |                       | c:\winnt\system32\lmhsvc.dll    |                |                           |                      |                        |
| xactsrv.dll                    | 5.00.2134.1    | 90.27 KB (92,432 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation | dnssrslvr.dll                   | 5.00.2195.1600 | 88.77 KB (90,896 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation  |
| c:\winnt\system32\xactsrv.dll  |                |                           |                      |                       | c:\winnt\system32\dnssrslvr.dll |                |                           |                      |                        |
| wmicore.dll                    | 5.00.2178.1    | 70.77 KB (72,464 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation | tapi32.dll                      | 5.00.2195.1600 | 124.27 KB (127,248 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation  |
| c:\winnt\system32\wmicore.dll  |                |                           |                      |                       | c:\winnt\system32\tapi32.dll    |                |                           |                      |                        |
| rasadhlp.dll                   | 5.00.2168.1    | 7.27 KB (7,440 bytes)     | 7/27/2000 8:00:00 PM | Microsoft Corporation | rasman.dll                      | 5.00.2188.1    | 54.77 KB (56,080 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation  |
| c:\winnt\system32\rasadhlp.dll |                |                           |                      |                       | c:\winnt\system32\rasman.dll    |                |                           |                      |                        |
| winrnr.dll                     | 5.00.2195.1175 | 19.27 KB (19,728 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation | rasapi32.dll                    | 5.00.2188.1    | 187.77 KB (192,272 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation  |
| c:\winnt\system32\winrnr.dll   |                |                           |                      |                       | c:\winnt\system32\rasapi32.dll  |                |                           |                      |                        |
| rnr20.dll                      | 5.00.2195.1207 | 35.77 KB (36,624 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation | rtutils.dll                     | 5.00.2168.1    | 43.77 KB (44,816 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation  |
| c:\winnt\system32\rnr20.dll    |                |                           |                      |                       | c:\winnt\system32\rtutils.dll   |                |                           |                      |                        |
| wshtcpip.dll                   | 5.00.2134.1    | 17.27 KB (17,680 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation | adslrpc.dll                     | 5.00.2195.1600 | 125.77 KB (128,784 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation  |
| c:\winnt\system32\wshtcpip.dll |                |                           |                      |                       | c:\winnt\system32\adslrpc.dll   |                |                           |                      |                        |
| msafd.dll                      | 5.00.2195.1614 | 102.77 KB (105,232 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation | activeds.dll                    | 5.00.2172.1    | 172.77 KB (176,912 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation  |
| c:\winnt\system32\msafd.dll    |                |                           |                      |                       | c:\winnt\system32\activeds.dll  |                |                           |                      |                        |
| mswsock.dll                    | 5.00.2195.1207 | 62.77 KB (64,272 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation | mprapi.dll                      | 5.00.2181.1    | 79.27 KB (81,168 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation  |
| c:\winnt\system32\mswsock.dll  |                |                           |                      |                       | c:\winnt\system32\mprapi.dll    |                |                           |                      |                        |
| msgsvc.dll                     | 5.00.2181.1    | 33.77 KB (34,576 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation | iphlpapi.dll                    | 5.00.2173.2    | 67.77 KB (69,392 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation  |
| c:\winnt\system32\msgsvc.dll   |                |                           |                      |                       | c:\winnt\system32\iphlpapi.dll  |                |                           |                      |                        |
| browser.dll                    | 5.00.2142.1    | 48.27 KB (49,424 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation | icmp.dll                        | 5.00.2134.1    | 7.27 KB (7,440 bytes)     | 7/27/2000 8:00:00 PM | Microsoft Corporation  |
| c:\winnt\system32\browser.dll  |                |                           |                      |                       | c:\winnt\system32\icmp.dll      |                |                           |                      |                        |
| alrsvc.dll                     | 5.00.2134.1    | 17.77 KB (18,192 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation | dhcpcsvc.dll                    | 5.00.2195.1600 | 85.27 KB (87,312 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation  |
| c:\winnt\system32\alrsvc.dll   |                |                           |                      |                       | c:\winnt\system32\dhcpcsvc.dll  |                |                           |                      |                        |
| trkwks.dll                     | 5.00.2166.1    | 88.77 KB (90,896 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation | eventlog.dll                    | 5.00.2178.1    | 43.77 KB (44,816 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation  |
| c:\winnt\system32\trkwks.dll   |                |                           |                      |                       | c:\winnt\system32\eventlog.dll  |                |                           |                      |                        |
| seclogon.dll                   | 5.00.2135.1    | 15.77 KB (16,144 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation | ntdsapi.dll                     | 5.00.2195.1175 | 56.27 KB (57,616 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation  |
| c:\winnt\system32\seclogon.dll |                |                           |                      |                       | c:\winnt\system32\ntdsapi.dll   |                |                           |                      |                        |
| psbase.dll                     | 5.00.2195.1600 | 111.77 KB (114,448 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation | scesrv.dll                      | 5.00.2188.1    | 225.77 KB (231,184 bytes) | 7/27/2000 8:00:00 PM | Microsoft Corporation  |
| c:\winnt\system32\psbase.dll   |                |                           |                      |                       | c:\winnt\system32\scesrv.dll    |                |                           |                      |                        |
| cryptsvc.dll                   | 5.00.2181.1    | 61.77 KB (63,248 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation | umpnpmgr.dll                    | 5.00.2182.1    | 86.27 KB (88,336 bytes)   | 7/27/2000 8:00:00 PM | Microsoft Corporation  |
| c:\winnt\system32\cryptsvc.dll |                |                           |                      |                       | c:\winnt\system32\umpnpmgr.dll  |                |                           |                      |                        |

|                                |                       |                           |                                |                       |                           |
|--------------------------------|-----------------------|---------------------------|--------------------------------|-----------------------|---------------------------|
| services.exe                   | 5.00.2134.1           | 86.77 KB (88,848 bytes)   | msasn1.dll                     | 5.00.2134.1           | 51.27 KB (52,496 bytes)   |
| 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           | 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           |
| c:\winnt\system32\services.exe |                       |                           | c:\winnt\system32\msasn1.dll   |                       |                           |
| clbcatq.dll                    | 2000.2.3465.0         | 496.27 KB (508,176 bytes) | crypt32.dll                    | 5.131.2195.1340       | 464.77 KB (475,920 bytes) |
| 10/16/2000 2:51:16 PM          | Microsoft Corporation |                           | 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           |
| c:\winnt\system32\clbcatq.dll  |                       |                           | c:\winnt\system32\crypt32.dll  |                       |                           |
| oleaut32.dll                   | 2.40.4514             | 600.27 KB (614,672 bytes) | wintrust.dll                   | 5.131.2143.1          | 162.27 KB (166,160 bytes) |
| 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           | 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           |
| c:\winnt\system32\oleaut32.dll |                       |                           | c:\winnt\system32\wintrust.dll |                       |                           |
| netmsg.dll                     | 5.00.2137.1           | 152.50 KB (156,160 bytes) | setupapi.dll                   | 5.00.2195.1608        | 552.77 KB (566,032 bytes) |
| 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           | 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           |
| c:\winnt\system32\netmsg.dll   |                       |                           | c:\winnt\system32\setupapi.dll |                       |                           |
| comdlg32.dll                   | 5.00.3103.1000        | 236.77 KB (242,448 bytes) | winmm.dll                      | 5.00.2161.1           | 184.77 KB (189,200 bytes) |
| 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           | 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           |
| c:\winnt\system32\comdlg32.dll |                       |                           | c:\winnt\system32\winmm.dll    |                       |                           |
| netui2.dll                     | 5.00.2134.1           | 280.27 KB (286,992 bytes) | comctl32.dll                   | 5.81                  | 537.77 KB (550,672 bytes) |
| 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           | 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           |
| c:\winnt\system32\netui2.dll   |                       |                           | c:\winnt\system32\comctl32.dll |                       |                           |
| mprui.dll                      | 5.00.2134.1           | 54.77 KB (56,080 bytes)   | shlwapi.dll                    | 5.00.3103.1000        | 282.27 KB (289,040 bytes) |
| 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           | 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           |
| c:\winnt\system32\mprui.dll    |                       |                           | c:\winnt\system32\shlwapi.dll  |                       |                           |
| netui1.dll                     | 5.00.2134.1           | 210.27 KB (215,312 bytes) | shell32.dll                    | 5.00.3103.1000        | 2.25 MB (2,358,032 bytes) |
| 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           | 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           |
| c:\winnt\system32\netui1.dll   |                       |                           | c:\winnt\system32\shell32.dll  |                       |                           |
| netui0.dll                     | 5.00.2134.1           | 70.27 KB (71,952 bytes)   | msgina.dll                     | 5.00.2195.1600        | 323.27 KB (331,024 bytes) |
| 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           | 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           |
| c:\winnt\system32\netui0.dll   |                       |                           | c:\winnt\system32\msgina.dll   |                       |                           |
| ntlanman.dll                   | 5.00.2157.1           | 35.27 KB (36,112 bytes)   | wsock32.dll                    | 5.00.2195.1207        | 21.27 KB (21,776 bytes)   |
| 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           | 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           |
| c:\winnt\system32\ntlanman.dll |                       |                           | c:\winnt\system32\wsock32.dll  |                       |                           |
| mpr.dll                        | 5.00.2195.1340        | 53.27 KB (54,544 bytes)   | dnsapi.dll                     | 5.00.2195.1600        | 127.77 KB (130,832 bytes) |
| 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           | 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           |
| c:\winnt\system32\mpr.dll      |                       |                           | c:\winnt\system32\dnsapi.dll   |                       |                           |
| cscui.dll                      | 5.00.2195.1387        | 227.27 KB (232,720 bytes) | wldap32.dll                    | 5.00.2195.1175        | 155.27 KB (158,992 bytes) |
| 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           | 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           |
| c:\winnt\system32\cscui.dll    |                       |                           | c:\winnt\system32\wldap32.dll  |                       |                           |
| winspool.drv                   | 5.00.2195.1340        | 109.77 KB (112,400 bytes) | ws2help.dll                    | 5.00.2134.1           | 17.77 KB (18,192 bytes)   |
| 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           | 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           |
| c:\winnt\system32\winspool.drv |                       |                           | c:\winnt\system32\ws2help.dll  |                       |                           |
| winscard.dll                   | 5.00.2134.1           | 77.27 KB (79,120 bytes)   | ws2_32.dll                     | 5.00.2195.1340        | 68.77 KB (70,416 bytes)   |
| 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           | 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           |
| c:\winnt\system32\winscard.dll |                       |                           | c:\winnt\system32\ws2_32.dll   |                       |                           |
| wlnotify.dll                   | 5.00.2195.1163        | 53.27 KB (54,544 bytes)   | samlib.dll                     | 5.00.2195.1175        | 46.27 KB (47,376 bytes)   |
| 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           | 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           |
| c:\winnt\system32\wlnotify.dll |                       |                           | c:\winnt\system32\samlib.dll   |                       |                           |
| csd.dll                        | 5.00.2195.1600        | 98.27 KB (100,624 bytes)  | netrap.dll                     | 5.00.2134.1           | 11.27 KB (11,536 bytes)   |
| 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           | 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           |
| c:\winnt\system32\csd.dll      |                       |                           | c:\winnt\system32\netrap.dll   |                       |                           |
| lz32.dll                       | 5.00.2134.1           | 9.77 KB (10,000 bytes)    | netapi32.dll                   | 5.00.2195.1600        | 303.27 KB (310,544 bytes) |
| 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           | 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           |
| c:\winnt\system32\lz32.dll     |                       |                           | c:\winnt\system32\netapi32.dll |                       |                           |
| version.dll                    | 5.00.2134.1           | 15.77 KB (16,144 bytes)   | profmap.dll                    | 5.00.2181.1           | 29.27 KB (29,968 bytes)   |
| 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           | 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           |
| c:\winnt\system32\version.dll  |                       |                           | c:\winnt\system32\profmap.dll  |                       |                           |
| rsabase.dll                    | 5.00.2195.1391        | 129.27 KB (132,368 bytes) | secur32.dll                    | 5.00.2195.1600        | 47.27 KB (48,400 bytes)   |
| 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           | 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           |
| c:\winnt\system32\rsabase.dll  |                       |                           | c:\winnt\system32\secur32.dll  |                       |                           |
| mscat32.dll                    | 5.131.2134.1          | 7.77 KB (7,952 bytes)     | sfc.dll                        | 5.00.2195.1618        | 85.27 KB (87,312 bytes)   |
| 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           | 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           |
| c:\winnt\system32\mscat32.dll  |                       |                           | c:\winnt\system32\sfc.dll      |                       |                           |
| ole32.dll                      | 5.00.2195.2500        | 916.77 KB (938,768 bytes) | nddeapi.dll                    | 5.00.2137.1           | 15.27 KB (15,632 bytes)   |
| 10/16/2000 3:52:52 PM          | Microsoft Corporation |                           | 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           |
| c:\winnt\system32\ole32.dll    |                       |                           | c:\winnt\system32\nddeapi.dll  |                       |                           |
| imagehlp.dll                   | 5.00.2195.1620        | 120.77 KB (123,664 bytes) | userenv.dll                    | 5.00.2195.1600        | 359.27 KB (367,888 bytes) |
| 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           | 7/27/2000 8:00:00 PM           | Microsoft Corporation |                           |
| c:\winnt\system32\imagehlp.dll |                       |                           | c:\winnt\system32\userenv.dll  |                       |                           |

```

user32.dll 5.00.2195.1600 392.77 KB (402,192 bytes)
7/27/2000 8:00:00 PM Microsoft Corporation
c:\winnt\system32\user32.dll
gdi32.dll 5.00.2195.1340 228.77 KB (234,256 bytes)
7/27/2000 8:00:00 PM Microsoft Corporation
c:\winnt\system32\gdi32.dll
rpcrt4.dll 5.00.2195.1615 436.27 KB (446,736 bytes)
7/27/2000 8:00:00 PM Microsoft Corporation
c:\winnt\system32\rpcrt4.dll
advapi32.dll 5.00.2195.1600 349.27 KB (357,648
bytes) 7/27/2000 8:00:00 PM Microsoft Corporation
c:\winnt\system32\advapi32.dll
kernel32.dll 5.00.2195.1600 713.27 KB (730,384
bytes) 7/27/2000 8:00:00 PM Microsoft Corporation
c:\winnt\system32\kernel32.dll
msvcrt.dll 6.10.8637.0 288.09 KB (295,000 bytes)
7/27/2000 8:00:00 PM Microsoft Corporation
c:\winnt\system32\msvcrt.dll
winlogon.exe 5.00.2195.1600 172.77 KB (176,912
bytes) 7/27/2000 8:00:00 PM Microsoft Corporation
c:\winnt\system32\winlogon.exe
sfccfiles.dll 5.00.2195.1620 885.27 KB (906,512 bytes)
7/27/2000 8:00:00 PM Microsoft Corporation
c:\winnt\system32\sfccfiles.dll
ntdll.dll 5.00.2195.1600 475.27 KB (486,672 bytes)
7/27/2000 8:00:00 PM Microsoft Corporation
c:\winnt\system32\ntdll.dll
smss.exe 5.00.2195.31 44.27 KB (45,328 bytes)
7/27/2000 8:00:00 PM Microsoft Corporation
c:\winnt\system32\smss.exe

```

[Services]

| Display Name                                | Name                           | State         | Start Mode  | Start Name    |
|---|--------------------------------|---------------|-------------|---------------|
| Service Type                                | Path                           | Error Control | Start Name  | Tag ID        |
| Alerter                                     | Alerter                        | Running       | Auto        | Share Process |
| c:\winnt\system32\services.exe              |                                | Normal        | LocalSystem | 0             |
| Application Management                      | AppMgmt                        | Stopped       | Manual      |               |
| Share Process                               | c:\winnt\system32\services.exe | Normal        | LocalSystem | 0             |
| Computer Browser                            | Browser                        | Running       | Auto        | Share Process |
| c:\winnt\system32\services.exe              |                                | Normal        | LocalSystem | 0             |
| Indexing Service                            | cisvc                          | Stopped       | Manual      | Share Process |
| c:\winnt\system32\cisvc.exe                 |                                | Normal        | LocalSystem | 0             |
| ClipBook                                    | ClipSrv                        | Stopped       | Manual      | Own Process   |
| c:\winnt\system32\clipsrv.exe               |                                | Normal        | LocalSystem | 0             |
| Distributed File System                     | Dfs                            | Running       | Auto        | Own Process   |
| c:\winnt\system32\dfssvc.exe                |                                | Normal        | LocalSystem | 0             |
| DHCP Client                                 | Dhcp                           | Running       | Auto        | Share Process |
| c:\winnt\system32\services.exe              |                                | Normal        | LocalSystem | 0             |
| Logical Disk Manager Administrative Service | dmadmin                        | Stopped       | Manual      | Share Process |
| c:\winnt\system32\dmadmin.exe               | /com                           | Normal        | LocalSystem | 0             |
| Logical Disk Manager                        | dmserver                       | Running       | Auto        | Share Process |
| c:\winnt\system32\services.exe              |                                | Normal        | LocalSystem | 0             |
| DNS Client                                  | Dnscache                       | Running       | Auto        | Share Process |
| c:\winnt\system32\services.exe              |                                | Normal        | LocalSystem | 0             |
| Event Log                                   | Eventlog                       | Running       | Auto        | Share Process |
| c:\winnt\system32\services.exe              |                                | Normal        | LocalSystem | 0             |
| COM+ Event System                           | EventSystem                    | Running       | Manual      | Share Process |
| c:\winnt\system32\svchost.exe               | -k netsvcs                     | Normal        | LocalSystem | 0             |
| Fax Service                                 | Fax                            | Stopped       | Manual      | Own Process   |
| c:\winnt\system32\faxsvc.exe                |                                | Normal        | LocalSystem | 0             |

```

Mylex Global Array Manager Server gamscm Running
Auto Own Process
c:\winnt\system32\gamscm\gamscm.exe Normal LocalSystem
0
cLAN Connection Manager GniConMgr Running
Auto Own Process c:\winnt\system32\gncnconmgr.exe
Normal LocalSystem 0
Intersite Messaging IsmServ Stopped Disabled Own Process
c:\winnt\system32\ismserv.exe Normal LocalSystem 0
Kerberos Key Distribution Center kdc Stopped
Disabled Share Process c:\winnt\system32\lsass.exe
Normal LocalSystem 0
Server lanmanserver Running Auto Share Process
c:\winnt\system32\services.exe Normal LocalSystem 0
Workstation lanmanworkstation Running Auto
Share Process c:\winnt\system32\services.exe Normal
LocalSystem 0
License Logging Service LicenseService Running
Auto Own Process c:\winnt\system32\llssrv.exe
Normal LocalSystem 0
TCP/IP NetBIOS Helper Service LmHosts Running Auto
Share Process c:\winnt\system32\services.exe Normal
LocalSystem 0
Messenger Messenger Running Auto Share Process
c:\winnt\system32\services.exe Normal LocalSystem 0
NetMeeting Remote Desktop Sharing mnmsrvc Stopped
Manual Own Process c:\winnt\system32\mnmsrvc.exe
Normal LocalSystem 0
Distributed Transaction Coordinator MSDTC Running
Auto Own Process c:\winnt\system32\msdtc.exe
Normal LocalSystem 0
Windows Installer MSIServer Stopped Manual Share Process
c:\winnt\system32\msiexec.exe /v Normal LocalSystem
0
MSSQLSERVER MSSQLSERVER Stopped Manual
Own Process c:\program files\microsoft sql server\
bin\sqlservr.exe Normal LocalSystem 0
MSSQLServerADHelper MSSQLServerADHelper
Stopped Manual Own Process c:\program files\microsof
t sql server\80\tools\bin\sqladhlp.exe Normal LocalSystem
0
Network DDE NetDDE Stopped Manual Share Process
c:\winnt\system32\netdde.exe Normal LocalSystem 0
Network DDE DSDMNetDDE dsdm Stopped Manual
Share Process c:\winnt\system32\netdde.exe Normal
LocalSystem 0
Net Logon Netlogon Stopped Manual Share Process
c:\winnt\system32\lsass.exe Normal LocalSystem 0
Network Connections Netman Running Manual Share Process
c:\winnt\system32\svchost.exe -k netsvcs Normal LocalSystem
0
File Replication NtFrs Stopped Manual Own Process
c:\winnt\system32\ntfrs.exe Ignore LocalSystem 0
NT LM Security Support Provider NtLmSsp Running
Manual Share Process c:\winnt\system32\lsass.exe
Normal LocalSystem 0
Removable Storage NtmsSvc Running Auto Share Process
c:\winnt\system32\svchost.exe -k netsvcs Normal LocalSystem
0
Plug and Play PlugPlay Running Auto Share Process
c:\winnt\system32\services.exe Normal LocalSystem 0
IPSEC Policy Agent PolicyAgent Running Auto
Share Process c:\winnt\system32\lsass.exe Normal
LocalSystem 0
Process Control Service ProcCon Running Auto
Own Process c:\winnt\system32\proconsvcs.exe
Normal LocalSystem 0

```

```

Protected Storage ProtectedStorage Running Auto
Share Process c:\winnt\system32\services.exe Normal
LocalSystem 0
Remote Access Auto Connection Manager RasAuto Stopped
Manual Share Process c:\winnt\system32\svchost.exe -k
netsvcs Normal LocalSystem 0
Remote Access Connection Manager RasMan Running
Manual Share Process c:\winnt\system32\svchost.exe -k
netsvcs Normal LocalSystem 0
Routing and Remote Access RemoteAccess Stopped
Disabled Share Process c:\winnt\system32\svchost.exe -k
netsvcs Normal LocalSystem 0
Remote Registry Service RemoteRegistry Running
Auto Own Process c:\winnt\system32\regsvc.exe
Normal LocalSystem 0
Remote Procedure Call (RPC) Locator RpcLocator
Stopped Manual Own Process
c:\winnt\system32\locator.exe Normal LocalSystem 0
Remote Procedure Call (RPC) RpcSs Running Auto
Share Process c:\winnt\system32\svchost -k rpsvc
Normal LocalSystem 0
Remote Shell Service RshSvc Running Auto Own Process
c:\winnt\system32\rshsvc.exe Normal LocalSystem 0
QoS RSVP RSVP Running Manual Own Process
c:\winnt\system32\rsvp.exe -s Normal LocalSystem 0
Security Accounts Manager SamSs Running Auto
Share Process c:\winnt\system32\lsass.exe Normal
LocalSystem 0
Smart Card Helper SCardDrv Stopped Manual Share Process
c:\winnt\system32\scardsvr.exe Ignore LocalSystem 0
Smart Card SCardSvr Stopped Manual Share Process
c:\winnt\system32\scardsvr.exe Ignore LocalSystem 0
Task Scheduler Schedule Running Auto Share Process
c:\winnt\system32\mstask.exe Normal LocalSystem 0
RunAs Service seclogon Running Auto Share Process
c:\winnt\system32\services.exe Ignore LocalSystem 0
SYSTEM Event Notification SENS Running Auto
Share Process c:\winnt\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
ServeRAID Manager Agent ServeRAIDManagerAgent
Stopped Manual Own Process c:\program
files\raidman\raidsvr.exe Normal LocalSystem 0
Internet Connection Sharing SharedAccess Stopped
Manual Share Process c:\winnt\system32\svchost.exe -k
netsvcs Normal LocalSystem 0
Simple TCP/IP Services SimpTcp Running Auto
Share Process c:\winnt\system32\tcpvcs.exe Normal
LocalSystem 0
Print Spooler Spooler Running Auto Own Process
c:\winnt\system32\spoolsv.exe Normal LocalSystem 0
SQLSERVERAGENT SQLSERVERAGENT
Stopped Manual Own Process
c:\progra~1\microso~2\mssql\bin\sqlagent.exe Normal
LocalSystem 0
Performance Logs and Alerts SysmonLog Stopped
Manual Own Process c:\winnt\system32\smlogsvc.exe
Normal LocalSystem 0
Telephony TapiSrv Running Manual Share Process
c:\winnt\system32\svchost.exe -k tapisrv Normal LocalSystem
0
Terminal Services TermService Stopped Disabled
Own Process c:\winnt\system32\termsrv.exe Normal
LocalSystem 0
Telnet TlntSvr Stopped Manual Own Process
c:\winnt\system32\tlntsvr.exe Normal LocalSystem 0
Distributed Link Tracking ServerTrkSvr Stopped Manual
Share Process c:\winnt\system32\services.exe Normal
LocalSystem 0

```

```

Distributed Link Tracking Client TrkWks Running Auto
Share Process c:\winnt\system32\services.exe Normal
LocalSystem 0
Uninterruptible Power Supply UPS Stopped Manual
Own Process c:\winnt\system32\ups.exe Normal
LocalSystem 0
Utility Manager UtilMan Stopped Manual Own Process
c:\winnt\system32\utilman.exe Normal LocalSystem 0
Windows Time W32Time Stopped Manual Share Process
c:\winnt\system32\services.exe Normal LocalSystem 0
Windows Management Instrumentation WinMgmt Running
Auto Own Process
c:\winnt\system32\wbem\winmgmt.exe Ignore LocalSystem
0
Windows Internet Name Service (WINS) WINS Running
Auto Own Process c:\winnt\system32\wins.exe
Normal LocalSystem 0
Windows Management Instrumentation Driver Extensions
Wmi Running Manual Share Process
c:\winnt\system32\services.exe Normal 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
Accessories\System Tools Default User:Accessories\System
Tools 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\Games All Users:Accessories\Games 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
ServeRAID Manager All Users:ServeRAID Manager All Users
Startup All Users:Startup All Users
Accessories SGNODE01\Administrator:Accessories
SGNODE01\Administrator
Accessories\Accessibility
SGNODE01\Administrator:Accessories\Accessibility
SGNODE01\Administrator
Accessories\Entertainment
SGNODE01\Administrator:Accessories\Entertainment
SGNODE01\Administrator
Accessories\System Tools
SGNODE01\Administrator:Accessories\System Tools
SGNODE01\Administrator
Administrative Tools SGNODE01\Administrator:Administrative Tools
SGNODE01\Administrator
Startup SGNODE01\Administrator:Startup
SGNODE01\Administrator

```

[Startup Programs]

```

Program Command User Name Location
synctime synctime.cmd SGNODE01\Administrator
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   |               |
| Image Document                            | "C:\Program Files\Windows NT\Accessories\ImageVue\KodakImg.exe" |               |
| WordPad Document                          | "%ProgramFiles%\Windows NT\Accessories\WORDPAD.EXE"             |               |
| Windows Media Services DRM Storage object |   | Not Available |
| Bitmap Image                              | mspaint.exe   |               |

[Internet Explorer 5]

[ Following are sub-categories of this main category ]

[Summary]

|                  |                                    |
|------------------|------------------------------------|
| Item             | Value                              |
| Version          | 5.00.3103.1000                     |
| Build            | 53103.1000                         |
| Product ID       | 51891-000-0000007-05809            |
| Application Path | C:\Program Files\Internet Explorer |
| Language         | English (United States)            |
| Active Printer   | Not Available                      |
| Cipher Strength  | 56-bit                             |
| Content Advisor  | Disabled                           |
| IEAK Install     | No                                 |

[File Versions]

| File          | Version         | Size          | Date                 | Path                               | Company               |
|---------------|-----------------|---------------|----------------------|------------------------------------|-----------------------|
| advapi32.dll  | 5.0.2195.1600   | 349 KB        | 7/27/2000            | C:\WINNT\system32                  | Microsoft Corporation |
| 8:00:00 PM    |                 |               |                      |                                    |                       |
| advpack.dll   | 5.0.3103.1000   | 87 KB         | 7/27/2000            | C:\WINNT\system32                  | Microsoft Corporation |
| 8:00:00 PM    |                 |               |                      |                                    |                       |
| browselc.dll  | 5.0.3103.1000   | 35 KB         | 7/27/2000            | C:\WINNT\system32                  | Microsoft Corporation |
| 8:00:00 PM    |                 |               |                      |                                    |                       |
| browseui.dll  | 5.0.3103.1000   | 789 KB        | 7/27/2000            | C:\WINNT\system32                  | Microsoft Corporation |
| 8:00:00 PM    |                 |               |                      |                                    |                       |
| ckcnv.exe     | 5.0.2195.1600   | 9 KB          | 7/27/2000 8:00:00 PM | C:\WINNT\system32                  | Microsoft Corporation |
| comctl32.dll  | 5.81.3103.1000  | 538 KB        | 7/27/2000            | C:\WINNT\system32                  | Microsoft Corporation |
| 8:00:00 PM    |                 |               |                      |                                    |                       |
| crypt32.dll   | 5.131.2195.1340 | 465 KB        | 7/27/2000 8:00:00 PM | C:\WINNT\system32                  | Microsoft Corporation |
| enhsg.dll     | <File Missing>  | Not Available | Not Available        | Not Available                      | Not Available         |
| iemigrat.dll  | <File Missing>  | Not Available | Not Available        | Not Available                      | Not Available         |
| iesetup.dll   | 5.0.3103.1000   | 57 KB         | 7/27/2000 8:00:00 PM | C:\WINNT\system32                  | Microsoft Corporation |
| 8:00:00 PM    |                 |               |                      |                                    |                       |
| ieexplore.exe | 5.0.3103.1000   | 59 KB         | 7/27/2000            | C:\Program Files\Internet Explorer | Microsoft Corporation |
| 8:00:00 PM    |                 |               |                      |                                    |                       |
| imagehlp.dll  | 5.0.2195.1620   | 121 KB        | 7/27/2000            | C:\WINNT\system32                  | Microsoft Corporation |
| 8:00:00 PM    |                 |               |                      |                                    |                       |
| imghelp.dll   | <File Missing>  | Not Available | Not Available        | Not Available                      | Not Available         |
| inseng.dll    | 5.0.3103.1000   | 72 KB         | 7/27/2000 8:00:00 PM | C:\WINNT\system32                  | Microsoft Corporation |
| 8:00:00 PM    |                 |               |                      |                                    |                       |
| jobexec.dll   | 5.0.0.1         | 47 KB         | 7/27/2000 8:00:00 PM | C:\WINNT\system32                  | Microsoft Corporation |

|              |                |               |                       |                   |                       |
|--------------|----------------|---------------|-----------------------|-------------------|-----------------------|
| jscrip.dll   | 5.1.0.5010     | 476 KB        | 7/27/2000 8:00:00 PM  | C:\WINNT\system32 | Microsoft Corporation |
| jsproxy.dll  | 5.0.3103.1000  | 13 KB         | 7/27/2000 8:00:00 PM  | C:\WINNT\system32 | Microsoft Corporation |
| msahtml.dll  | <File Missing> | Not Available | Not Available         | Not Available     | Not Available         |
| mshhtml.dll  | 5.0.3103.1000  | 2292 KB       | 7/27/2000 8:00:00 PM  | C:\WINNT\system32 | Microsoft Corporation |
| 8:00:00 PM   |                |               |                       |                   |                       |
| msjava.dll   | 5.0.3310.0     | 922 KB        | 7/27/2000 8:00:00 PM  | C:\WINNT\system32 | Microsoft Corporation |
| 8:00:00 PM   |                |               |                       |                   |                       |
| msoss.dll    | <File Missing> | Not Available | Not Available         | Not Available     | Not Available         |
| msxml.dll    | 8.0.5226.0     | 506 KB        | 7/27/2000 8:00:00 PM  | C:\WINNT\system32 | Microsoft Corporation |
| 8:00:00 PM   |                |               |                       |                   |                       |
| occache.dll  | 5.0.3103.1000  | 86 KB         | 7/27/2000             | C:\WINNT\system32 | Microsoft Corporation |
| 8:00:00 PM   |                |               |                       |                   |                       |
| ole32.dll    | 5.0.2195.2500  | 917 KB        | 10/16/2000 3:52:52 PM | C:\WINNT\system32 | Microsoft Corporation |
| 8:00:00 PM   |                |               |                       |                   |                       |
| oleaut32.dll | 2.40.4514.1    | 600 KB        | 7/27/2000             | C:\WINNT\system32 | Microsoft Corporation |
| 8:00:00 PM   |                |               |                       |                   |                       |
| olepro32.dll | 5.0.4514.1     | 160 KB        | 7/27/2000 8:00:00 PM  | C:\WINNT\system32 | Microsoft Corporation |
| 8:00:00 PM   |                |               |                       |                   |                       |
| rsabase.dll  | 5.0.2195.1391  | 129 KB        | 7/27/2000 8:00:00 PM  | C:\WINNT\system32 | Microsoft Corporation |
| 8:00:00 PM   |                |               |                       |                   |                       |
| rsaenh.dll   | <File Missing> | Not Available | Not Available         | Not Available     | Not Available         |
| rsapi32.dll  | <File Missing> | Not Available | Not Available         | Not Available     | Not Available         |
| rsasig.dll   | <File Missing> | Not Available | Not Available         | Not Available     | Not Available         |
| schannel.dll | 5.0.2195.0     | 137 KB        | 7/27/2000 8:00:00 PM  | C:\WINNT\system32 | Microsoft Corporation |
| 8:00:00 PM   |                |               |                       |                   |                       |
| shdoc401.dll | <File Missing> | Not Available | Not Available         | Not Available     | Not Available         |
| shdocvw.dll  | 5.0.3103.1000  | 1078 KB       | 7/27/2000             | C:\WINNT\system32 | Microsoft Corporation |
| 8:00:00 PM   |                |               |                       |                   |                       |
| shell32.dll  | 5.0.3103.1000  | 2303 KB       | 7/27/2000 8:00:00 PM  | C:\WINNT\system32 | Microsoft Corporation |
| 8:00:00 PM   |                |               |                       |                   |                       |
| shlwapi.dll  | 5.0.3103.1000  | 282 KB        | 7/27/2000 8:00:00 PM  | C:\WINNT\system32 | Microsoft Corporation |
| 8:00:00 PM   |                |               |                       |                   |                       |
| url.dll      | 5.0.3103.1000  | 82 KB         | 7/27/2000 8:00:00 PM  | C:\WINNT\system32 | Microsoft Corporation |
| 8:00:00 PM   |                |               |                       |                   |                       |
| urlmon.dll   | 5.0.3103.1000  | 441 KB        | 7/27/2000 8:00:00 PM  | C:\WINNT\system32 | Microsoft Corporation |
| 8:00:00 PM   |                |               |                       |                   |                       |
| vbscript.dll | 5.1.0.5010     | 428 KB        | 7/27/2000 8:00:00 PM  | C:\WINNT\system32 | Microsoft Corporation |
| 8:00:00 PM   |                |               |                       |                   |                       |
| webcheck.dll | 5.0.3103.1000  | 252 KB        | 7/27/2000             | C:\WINNT\system32 | Microsoft Corporation |
| 8:00:00 PM   |                |               |                       |                   |                       |
| win.com      | 5.0.2134.1     | 24 KB         | 7/27/2000 8:00:00 PM  | C:\WINNT\system32 | Microsoft Corporation |
| 8:00:00 PM   |                |               |                       |                   |                       |
| wininet.dll  | 5.0.3103.1000  | 457 KB        | 7/27/2000 8:00:00 PM  | C:\WINNT\system32 | Microsoft Corporation |
| 8:00:00 PM   |                |               |                       |                   |                       |
| winsock.dll  | 3.10.0.103     | 3 KB          | 7/27/2000 8:00:00 PM  | C:\WINNT\system32 | Microsoft Corporation |
| 8:00:00 PM   |                |               |                       |                   |                       |
| wintrust.dll | 5.131.2143.1   | 162 KB        | 7/27/2000             | C:\WINNT\system32 | Microsoft Corporation |
| 8:00:00 PM   |                |               |                       |                   |                       |
| wsock.vxd    | <File Missing> | Not Available | Not Available         | Not Available     | Not Available         |
| 8:00:00 PM   |                |               |                       |                   |                       |
| wsock32.dll  | 5.0.2195.1207  | 21 KB         | 7/27/2000             | C:\WINNT\system32 | Microsoft Corporation |
| 8:00:00 PM   |                |               |                       |                   |                       |
| wsock32n.dll | <File Missing> | Not Available | 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 Enabled
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 8675 MB
Available Disk Space 4987 MB
Maximum Cache Size 271 MB
Available Cache Size 271 MB

[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
Administrator Administrator 2/8/2001 to 1/15/2101
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 Medium-low
Trusted sites Low
Internet Medium
Restricted sites High

Client Configuration

Transaction Monitor: COM+ Settings on Clients

SYTPTUNE.TXT

Transaction Monitor: COM+ Settings on Clients

TPCC COM+ Component settings

TPCC.AllRemoteTxns.1
Activation
Enable Object pooling
Minimum pool size 9
Maximum pool size 9
Creation timeout (ms) 300000
Enable object construction
Object construction
Constructor string 'dummy string (do not remove)'
Enable Just In Time Activation
Disable Component supports events and statistics
Disable Must be activated in caller's context

TPCC.AllTxns.1
Activation
Enable Object pooling
Minimum pool size 48
Maximum pool size 48
Creation timeout (ms) 300000
Enable object construction
Object construction
Constructor string 'dummy string (do not remove)'
Enable Just In Time Activation
Disable Component supports events and statistics
Disable Must be activated in caller's context

Windows Registry Editor Version 5.00

Windows Registry Editor Version 5.00

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\In
etInfo]

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\In
etInfo\Parameters]
"ListenBackLog"=dword:00000096
"DispatchEntries"=hex(7):4c,00,44,00,41,00,50,00,53,00,56,00,43,00,
00,00,53,00,\
4d,00,54,00,50,00,53,00,56,00,43,00,00,00,00,00
"PoolThreadLimit"=dword:000000be
"ThreadTimeout"=dword:00015180

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\In
etInfo\Performance]

"Library"="infectrs.dll"
"Open"="OpenINFOPerformanceData"
"Close"="CloseINFOPerformanceData"
"Collect"="CollectINFOPerformanceData"
"Last Counter"=dword:00000bcc
"Last Help"=dword:00000bcd
"First Counter"=dword:00000b8c
"First Help"=dword:00000b8d
"Library Validation
Code"=hex:c2,f1,19,d5,83,58,c0,01,10,25,00,00,00,00,00,00
"WbemAdapFileTime"=hex:00,20,2b,88,67,40,bf,01
"WbemAdapFileSize"=dword:00002510



"WbemAdapStatus"=dword:00000000

Windows Registry Editor Version 5.00

[HKEY\_LOCAL\_MACHINE\SOFTWARE\Microsoft\TPCC]

"Path"="c:\inetpub\wwwroot\  
"NumberOfDeliveryThreads"=dword:00000008  
"MaxConnections"=dword:00002710  
"MaxPendingDeliveries"=dword:000003e8  
"DB\_Protocol"="ODBC"  
"TxnMonitor"="COM"  
"DbServer"="serv1"  
"DbName"="tpcc"  
"DbUser"="sa"  
"DbPassword"=""  
"COM\_SinglePool"="YES"

Windows Registry Editor Version 5.00

[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,  
4,00,73,  
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."

[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:00000028

[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\iissamples,1"  
/MSADC"="c:\program files\common files\system\msadc,1"  
/\_vti\_bin"="C:\Program 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"  
"Last Counter"=dword:00000c70  
"Last Help"=dword:00000c71  
"First Counter"=dword:00000bce  
"First Help"=dword:00000bcf  
"Library Validation Code"=hex:b0,e3,f5,d7,83,58,c0,01,10,3d,00,00,00,00,00,00  
"WbemAdapFileTime"=hex:00,20,2b,88,67,40,bf,01  
"WbemAdapFileSize"=dword:00003d10  
"WbemAdapStatus"=dword:00000000

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Security]

"Security"=hex:01,00,14,80,a0,00,00,00,ac,00,00,00,14,00,00,00,30,00,00,02,  
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,  
00,00,02,00,70,00,04,00,00,00,00,00,18,00,fd,01,02,00,01,01,00,00,00,00,  
00,00,  
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,  
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,  
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,  
00,00,  
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

## System Report for DTC Server

System Information report written at: 04/11/2001 04:01:42 PM  
[System Information]

[ Following are sub-categories of this main category ]

[System Summary]

| Item    | Value                                  |
|---------|--|
| OS Name | Microsoft Windows 2000 Advanced Server |
| Version | 5.0.2195 Build 2195                    |

OS Manufacturer Microsoft Corporation  
 System Name DTCSERVER  
 System Manufacturer IBM  
 System Model Netfinity 6000R -[8682]-  
 System Type X86-based PC  
 Processor x86 Family 6 Model 10 Stepping 1 GenuineIntel ~702 Mhz  
 Processor x86 Family 6 Model 10 Stepping 1 GenuineIntel ~702 Mhz  
 Processor x86 Family 6 Model 10 Stepping 1 GenuineIntel ~702 Mhz  
 Processor x86 Family 6 Model 10 Stepping 1 GenuineIntel ~702 Mhz  
 BIOS Version IBM BIOS Ver 5.0  
 Windows Directory C:\WINNT  
 System Directory C:\WINNT\System32  
 Boot Device \Device\Harddisk0\Partition1  
 Locale United States  
 User Name DTCSERVER\Administrator  
 Time Zone Eastern Daylight Time  
 Total Physical Memory 523,784 KB  
 Available Physical Memory 422,772 KB  
 Total Virtual Memory 3,111,080 KB  
 Available Virtual Memory 2,932,104 KB  
 Page File Space 2,587,296 KB  
 Page File C:\pagefile.sys

[Hardware Resources]

[ Following are sub-categories of this main category ]

[Conflicts/Sharing]

Resource Device  
 IRQ 18 S3 Inc. Savage4  
 IRQ 18 Adaptec AIC-7899 Ultra160/m PCI SCSI Card

[DMA]

| Channel | Device                          | Status |
|---------|---------------------------------|--------|
| 2       | Standard floppy disk controller | OK     |
| 4       | Direct memory access controller | OK     |

[Forced Hardware]

Device PNP Device ID  
 No Forced Hardware

[I/O]

| Address Range | Device  | Status |
|---------------|---|--------|
| 0x0000-0x3FFF | PCI bus   | OK     |
| 0x0000-0x3FFF | Direct memory access controller                         | OK     |
| 0x2200-0x221F | IBM Netfinity Fault Tolerance PCI Adapter               | OK     |
| 0x03B0-0x03BB | S3 Inc. Savage4   | OK     |
| 0x03C0-0x03DF | S3 Inc. Savage4   | OK     |
| 0x0A79-0x0A79 | ISAPNP Read Data Port                                   | OK     |
| 0x0279-0x0279 | ISAPNP Read Data Port                                   | OK     |
| 0x02F4-0x02F7 | ISAPNP Read Data Port                                   | OK     |
| 0x002E-0x002F | Motherboard resources                                   | OK     |
| 0x0438-0x0439 | Motherboard resources                                   | OK     |
| 0x0430-0x0437 | Motherboard resources                                   | 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     |
| 0x03F0-0x03F5 | Standard floppy disk controller                         | OK     |
| 0x03F7-0x03F7 | Standard floppy disk controller                         | OK     |
| 0x0378-0x037F | Printer Port (LPT1)                                     | OK     |
| 0x03F8-0x03FF | Communications Port (COM1)                              | OK     |
| 0x02F8-0x02FF | Communications Port (COM2)                              | OK     |
| 0x00E8-0x00E9 | Not Available   | OK     |

|               |  |    |
|---------------|--|----|
| 0x0020-0x0021 | Advanced programmable interrupt controller | OK |
| 0x00A0-0x00A1 | Advanced programmable interrupt controller | OK |
| 0x0080-0x008F | 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 |
| 0x0600-0x0600 | Motherboard resources                      | OK |
| 0x0900-0x090F | Motherboard resources                      | OK |
| 0x0374-0x0375 | Motherboard resources                      | OK |
| 0x0377-0x0377 | Motherboard resources                      | OK |
| 0x0F50-0x0F58 | Motherboard resources                      | OK |
| 0x0700-0x070F | Standard Dual Channel PCI IDE Controller   | 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 |
| 0x4000-0x6FFF | PCI bus                                    | OK |
| 0x4000-0x6FFF | Adaptec AIC-7899 Ultra160/m PCI SCSI Card  | OK |
| 0x4100-0x41FF | Adaptec AIC-7899 Ultra160/m PCI SCSI Card  | OK |
| 0x7000-0xFFFF | PCI bus                                    | OK |
| 0x7000-0xFFFF | IBM ServeRAID 4H Controller                | OK |

[IRQs]

| IRQ Number | Device  |
|------------|---|
| 9          | Microsoft ACPI-Compliant System                         |
| 16         | IBM Netfinity Fault Tolerance PCI Adapter               |
| 18         | S3 Inc. Savage4   |
| 18         | Adaptec AIC-7899 Ultra160/m PCI SCSI Card               |
| 1          | Standard 101/102-Key or Microsoft Natural PS/2 Keyboard |
| 12         | PS/2 Compatible Mouse                                   |
| 6          | Standard floppy disk controller                         |
| 4          | Communications Port (COM1)                              |
| 3          | Communications Port (COM2)                              |
| 5          | Not Available   |
| 8          | System CMOS/real time clock                             |
| 13         | Numeric data processor                                  |
| 14         | Primary IDE Channel                                     |
| 19         | Standard OpenHCD USB Host Controller                    |
| 17         | Adaptec AIC-7899 Ultra160/m PCI SCSI Card               |
| 24         | cLAN Host Adapter                                       |
| 21         | IBM ServeRAID 4H Controller                             |

[Memory]

| Range                 | Device                                    | Status |
|-----------------------|---|--------|
| 0xA0000-0xBFFFF       | PCI bus                                   | OK     |
| 0xA0000-0xBFFFF       | S3 Inc. Savage4                           | OK     |
| 0xEFC00000-0xF85FFFFF | PCI bus                                   | OK     |
| 0xF8600000-0xFFFFFFFF | PCI bus                                   | OK     |
| 0xFEBFFC00-0xFEBFFC1F | IBM Netfinity Fault Tolerance PCI Adapter | OK     |
| 0xFEB00000-0xFEB7FFFF | S3 Inc. Savage4                           | OK     |
| 0xF0000000-0xF7FFFFFF | S3 Inc. Savage4                           | OK     |
| 0xFEBFE000-0xFEBFEFFF | Standard OpenHCD USB Host Controller      | OK     |
| 0xEC000000-0xEC7FFFFF | PCI bus                                   | OK     |
| 0xEC800000-0xEFBFFFFF | PCI bus                                   | OK     |
| 0xEFBFF000-0xEFBFFFFF | Adaptec AIC-7899 Ultra160/m PCI SCSI Card | OK     |
| 0xEFBFE000-0xEFBFEFFF | Adaptec AIC-7899 Ultra160/m PCI SCSI Card | OK     |

0xEFBC0000-0xEFBDFFFF cLAN Host Adapter OK  
 0xEF800000-0xEF9FFFFF cLAN Host Adapter OK  
 0xEE000000-0xEEFFFFFF cLAN Host Adapter OK  
 0xEFBE0000-0xEFBEFFFF cLAN Host Adapter OK  
 0xE9400000-0xEB3FFFFF PCI bus OK  
 0xEB400000-0xEBFFFFF PCI bus OK  
 0xEB300000-0xEB3FFFFF IBM ServeRAID 4H Controller OK

[Components]

[ Following are sub-categories of this main category ]

[Multimedia]

[ Following are sub-categories of this main category ]

[Audio Codecs]

| Codec Version                  | Manufacturer Size         | Description Creation Date | Status | File                           |
|--------------------------------|---------------------------|---------------------------|--------|--------------------------------|
| c:\winnt\system32\msg723.acm   | Microsoft Corporation     | 4.4.3385                  | OK     | C:\WINNT\System32\MSG723.ACM   |
| 106.77 KB                      | (109,328 bytes)           | 4/4/2001 1:47:18 PM       |        |                                |
| c:\winnt\system32\imaadp32.acm | Microsoft Corporation     | 5.00.2134.1               | OK     | C:\WINNT\System32\IMAADP32.ACM |
| 16.27 KB                       | (16,656 bytes)            | 12/6/1999 7:00:00 PM      |        |                                |
| c:\winnt\system32\msgsm32.acm  | Microsoft Corporation     | 5.00.2134.1               | OK     | C:\WINNT\System32\MSGSM32.ACM  |
| 22.27 KB                       | (22,800 bytes)            | 12/6/1999 7:00:00 PM      |        |                                |
| c:\winnt\system32\lhacm.acm    | Microsoft Corporation     | 4.4.3385                  | OK     | C:\WINNT\System32\LHACM.ACM    |
| 33.27 KB                       | (34,064 bytes)            | 4/4/2001 1:47:19 PM       |        |                                |
| c:\winnt\system32\iac25_32.ax  | Intel Corporation         | Indeo® audio software     | OK     | C:\WINNT\System32\IAC25_32.AX  |
| 2.05.53                        | 195.00 KB (199,680 bytes) | 12/6/1999 7:00:00 PM      |        |                                |
| c:\winnt\system32\msadp32.acm  | Microsoft Corporation     | 5.00.2134.1               | OK     | C:\WINNT\System32\MSADP32.ACM  |
| 14.77 KB                       | (15,120 bytes)            | 12/6/1999 7:00:00 PM      |        |                                |
| c:\winnt\system32\tssoft32.acm | DSP GROUP, INC.           | 1.01                      | OK     | C:\WINNT\System32\TSOFT32.ACM  |
| 9.27 KB                        | (9,488 bytes)             | 12/6/1999 7:00:00 PM      |        |                                |
| c:\winnt\system32\msg711.acm   | Microsoft Corporation     | 5.00.2134.1               | OK     | C:\WINNT\System32\MSG711.ACM   |
| 10.27 KB                       | (10,512 bytes)            | 12/6/1999 7:00:00 PM      |        |                                |

[Video Codecs]

| Codec Version                  | Manufacturer Size         | Description Creation Date | Status | File                           |
|--------------------------------|---------------------------|---------------------------|--------|--------------------------------|
| c:\winnt\system32\ir50_32.dll  | Intel Corporation         | Indeo® video              | OK     | C:\WINNT\System32\IR50_32.DLL  |
| 5.10                           | 737.50 KB (755,200 bytes) | 12/6/1999 7:00:00 PM      |        |                                |
| c:\winnt\system32\msh261.drv   | Microsoft Corporation     | 4.4.3385                  | OK     | C:\WINNT\System32\MSH261.DRV   |
| 163.77 KB                      | (167,696 bytes)           | 4/4/2001 1:47:18 PM       |        |                                |
| c:\winnt\system32\msh263.drv   | Microsoft Corporation     | 4.4.3385                  | OK     | C:\WINNT\System32\MSH263.DRV   |
| 252.27 KB                      | (258,320 bytes)           | 4/4/2001 1:46:45 PM       |        |                                |
| c:\winnt\system32\msvidc32.dll | Microsoft Corporation     | 5.00.2134.1               | OK     | C:\WINNT\System32\MSVIDC32.DLL |
| 27.27 KB                       | (27,920 bytes)            | 12/6/1999 7:00:00 PM      |        |                                |
| c:\winnt\system32\msrle32.dll  | Microsoft Corporation     | 5.00.2134.1               | OK     | C:\WINNT\System32\MSRLE32.DLL  |
| 10.77 KB                       | (11,024 bytes)            | 12/6/1999 7:00:00 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) 12/6/1999 7:00:00 PM  
 c:\winnt\system32\iccvid.dll Radius Inc. OK  
 C:\WINNT\System32\ICCVID.DLL 1.10.0.6 108.00 KB  
 (110,592 bytes) 12/6/1999 7:00:00 PM

[CD-ROM]

| Item                          | Value                    |
|-------------------------------|--------------------------|
| Drive D:                      |                          |
| Description                   | CD-ROM Drive             |
| Media Loaded                  | False                    |
| Media Type                    | CD-ROM                   |
| Name                          | LITEON CD-ROM LTN403     |
| Manufacturer                  | (Standard CD-ROM drives) |
| Status                        | OK                       |
| Transfer Rate                 | Not Available            |
| SCSI Target ID                | 0                        |
| PNP Device ID                 |                          |
| IDE\CDROMLITEON_CD-ROM_LTN403 | _____D                   |
| U26_____5&326853DD&0&0.0.0    |                          |

[Sound Device]

| Item             | Value |
|------------------|-------|
| No sound devices |       |

[Display]

| Item   | Value                      |
|--|----------------------------|
| Name   | S3 Inc. Savage4            |
| PNP Device ID  |                            |
| PCI\VEN_5333&DEV_8A22&SUBSYS_01C51014&REV_04\3&267A616A&0&30 |                            |
| Adapter Type   | S3 Savage4, S3 compatible  |
| Adapter Description  | S3 Inc. Savage4            |
| Adapter RAM  | 8.00 MB (8,388,608 bytes)  |
| Installed Drivers  | s3sav4.dll                 |
| Driver Version   | 5.01.840.0001              |
| INF File   | s3sav4.inf (S3Inc section) |
| Color Planes   | 1                          |
| Color Table Entries  | 65536                      |
| Resolution   | 800 x 600 x 60 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&F0B8F99&0                                |
| NumberOfFunctionKeys | 12  |

[Pointing Device]

Item Value  
 Hardware Type PS/2 Compatible Mouse  
 Number of Buttons 3  
 Status OK  
 PNP Device ID ACPI\PNP0F13\4&F0B8F99&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] IBM Netfinity Fault Tolerance PCI Adapter  
 Adapter Type Ethernet 802.3  
 Product Name IBM Netfinity Fault Tolerance PCI Adapter  
 Installed True  
 PNP Device ID PCI\VEN\_1022&DEV\_2000&SUBSYS\_20001014&REV\_43\3&267A616A&0&28  
 Last Reset 4/10/2001 10:00:16 AM  
 Index 0  
 Service Name PCNet5  
 IP Address  
 IP Subnet  
 Default IP Gateway Not Available  
 DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address 00:06:29:F6:02:BD  
 Service Name PCnet  
 IRQ Number 16  
 I/O Port 0x2200-0x221F  
 Driver c:\winnt\system32\drivers\pcntn5m.sys (29968, 4.09.00)

Name [00000001] RAS Async Adapter  
 Adapter Type Not Available  
 Product Name RAS Async Adapter  
 Installed True  
 PNP Device ID Not Available  
 Last Reset 4/10/2001 10:00:16 AM  
 Index 1  
 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 [00000002] WAN Miniport (L2TP)  
 Adapter Type Not Available  
 Product Name WAN Miniport (L2TP)

Installed True  
 PNP Device ID ROOT\MS\_L2TPMINIPOINT\0000  
 Last Reset 4/10/2001 10:00:16 AM  
 Index 2  
 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 Rasl2tp  
 Driver c:\winnt\system32\drivers\rasl2tp.sys (50800, 5.00.2179.1)

Name [00000003] WAN Miniport (PPTP)  
 Adapter Type Wide Area Network (WAN)  
 Product Name WAN Miniport (PPTP)  
 Installed True  
 PNP Device ID ROOT\MS\_PPTPMINIPOINT\0000  
 Last Reset 4/10/2001 10:00:16 AM  
 Index 3  
 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\raspppt.sys (47856, 5.00.2160.1)

Name [00000004] Direct Parallel  
 Adapter Type Not Available  
 Product Name Direct Parallel  
 Installed True  
 PNP Device ID ROOT\MS\_PTMINIPOINT\0000  
 Last Reset 4/10/2001 10:00:16 AM  
 Index 4  
 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 [00000005] WAN Miniport (IP)  
 Adapter Type Not Available  
 Product Name WAN Miniport (IP)  
 Installed True  
 PNP Device ID ROOT\MS\_NDISWANIP\0000  
 Last Reset 4/10/2001 10:00:16 AM  
 Index 5  
 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 (90768, 5.00.2184.1)

Name [00000006] cLAN Host Adapter  
 Adapter Type Ethernet 802.3  
 Product Name cLAN Host Adapter  
 Installed True  
 PNP Device ID  
 PCI\VEN\_135B&DEV\_0001&SUBSYS\_00000000&REV\_00\3&1070020&0&28  
 Last Reset 4/10/2001 10:00:16 AM  
 Index 6  
 Service Name GNINDIS  
 IP Address 192.168.120.9  
 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 00:90:FA:00:1B:A9  
 Service Name GNINDIS  
 IRQ Number 24  
 Driver c:\winnt\system32\drivers\gnindis.sys (22598, 4.1.1)

[Protocol]

Item Value  
 Name MSAFD Tcpi [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 Tcpi [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  
 [\\Device\NetBT\_Tcpi\_{0516DB75-2F67-4AD6-AA8D-F272DCB7E8AF}] SEQUENCEPACKET 3  
 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\_Tcpi\_{0516DB75-2F67-4AD6-AA8D-F272DCB7E8AF}] DATAGRAM 3  
 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\_{FB5BEC2B-88D5-4BE4-9605-90EDCB08920B}] SEQPACKET 0  
 ConnectionlessService False  
 GuaranteesDelivery True  
 GuaranteesSequencing True  
 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\_{FB5BEC2B-88D5-4BE4-9605-90EDCB08920B}] 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\_{A47B2F67-CB79-4EC5-B087-E12C9887447E}] SEQPACKET 1  
 ConnectionlessService False  
 GuaranteesDelivery True  
 GuaranteesSequencing True  
 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\_{A47B2F67-CB79-4EC5-B087-E12C9887447E}] 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\_{863A53DB-9100-4667-970C-C1A73D48BDFC}] 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\_{863A53DB-9100-4667-970C-C1A73D48BDFC}] 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 | 5.00.2152.1                   |
| 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       | 0   |
| 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                  | 4   |
| I/O Port                    | 0x03F8-0x03FF   |
| Driver                      | c:\winnt\system32\drivers\serial.sys (62448, 5.00.2134.1) |

|                           |                |
|---------------------------|----------------|
| 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       | 0   |
| 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 (62448, 5.00.2134.1) |

[Parallel]

|               |                |
|---------------|----------------|
| Item          | Value          |
| Name          | LPT1           |
| PNP Device ID | ACPI\PNP0400\1 |

[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                 | 8.46 GB (9,086,029,824 bytes) |
| Free Space           | 5.74 GB (6,162,468,864 bytes) |
| Volume Name          |                               |
| Volume Serial Number | 14F35CCC                      |
| Partition            | Disk #0, Partition #0         |
| Partition Size       | 8.46 GB (9,086,031,360 bytes) |

Starting Offset 32256 bytes  
 Drive Description Disk drive  
 Drive Manufacturer (Standard disk drives)  
 Drive Model IBM ServeRAID Failover Virtual 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 SCSI TargetId 0  
 Drive SectorsPerTrack 63  
 Drive Size 9094256640 bytes  
 Drive TotalCylinders 1110  
 Drive TotalSectors 17762220  
 Drive TotalTracks 281940  
 Drive TracksPerCylinder 254

Drive E:  
 Description Local Fixed Disk  
 Compressed False  
 File System NTFS  
 Size 1000.09 MB (1,048,674,304 bytes)  
 Free Space 480.51 MB (503,849,984 bytes)  
 Volume Name MSDTC  
 Volume Serial Number 44D5628E  
 Partition Disk #1, Partition #0  
 Partition Size 21.17 GB (22,735,641,600 bytes)  
 Starting Offset 8193024 bytes  
 Drive Description Disk drive  
 Drive Manufacturer (Standard disk drives)  
 Drive Model IBM ServeRAID Failover Virtual 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 SCSI TargetId 1  
 Drive SectorsPerTrack 63  
 Drive Size 22743834624 bytes  
 Drive TotalCylinders 2776  
 Drive TotalSectors 44421552  
 Drive TotalTracks 705104  
 Drive TracksPerCylinder 254

[SCSI]

|                       |   |
|-----------------------|---|
| Item                  | Value   |
| Name                  | Adaptec AIC-7899 Ultra160/m PCI SCSI Card                   |
| Caption               | Adaptec AIC-7899 Ultra160/m PCI SCSI Card                   |
| Driver                | adpu160m  |
| Status                | OK  |
| PNP Device ID         | PCI\VEN_9005&DEV_00CF&SUBSYS_00CF9005&REV_01\3&1070020&0&08 |
| Device ID             | PCI\VEN_9005&DEV_00CF&SUBSYS_00CF9005&REV_01\3&1070020&0&08 |
| Device Map            | Not Available   |
| Index                 | Not Available   |
| Max Number Controlled | Not Available   |
| IRQ Number            | 17  |
| I/O Port              | 0x4000-0x6FFF   |
| Driver                | c:\winnt\system32\drivers\adpu160m.sys (64432, v3.10a)      |

|                       |   |
|-----------------------|---|
| Name                  | Adaptec AIC-7899 Ultra160/m PCI SCSI Card                   |
| Caption               | Adaptec AIC-7899 Ultra160/m PCI SCSI Card                   |
| Driver                | adpu160m  |
| Status                | OK  |
| PNP Device ID         | PCI\VEN_9005&DEV_00CF&SUBSYS_00CF9005&REV_01\3&1070020&0&09 |
| Device ID             | PCI\VEN_9005&DEV_00CF&SUBSYS_00CF9005&REV_01\3&1070020&0&09 |
| Device Map            | Not Available   |
| Index                 | Not Available   |
| Max Number Controlled | Not Available   |
| IRQ Number            | 18  |
| I/O Port              | 0x4100-0x41FF   |
| Driver                | c:\winnt\system32\drivers\adpu160m.sys (64432, v3.10a)      |

|                       |   |
|-----------------------|---|
| Name                  | IBM ServeRAID 4H Controller                                 |
| Caption               | IBM ServeRAID 4H Controller                                 |
| Driver                | ipsraidn  |
| Status                | OK  |
| PNP Device ID         | PCI\VEN_1014&DEV_002E&SUBSYS_022E1014&REV_10\3&474B838&0&10 |
| Device ID             | PCI\VEN_1014&DEV_002E&SUBSYS_022E1014&REV_10\3&474B838&0&10 |
| Device Map            | Not Available   |
| Index                 | Not Available   |
| Max Number Controlled | Not Available   |
| IRQ Number            | 21  |
| I/O Port              | 0x7000-0xFFFF   |
| Driver                | c:\winnt\system32\drivers\ipsraidn.sys (102807, 4.70.08)    |

|                       |   |
|-----------------------|---|
| Name                  | IBM ServeRAID Failover Virtual Adapter                  |
| Caption               | IBM ServeRAID Failover Virtual Adapter                  |
| Driver                | twintail  |
| Status                | OK  |
| PNP Device ID         | ROOT\TWINTAIL\0000                                      |
| Device ID             | ROOT\TWINTAIL\0000                                      |
| Device Map            | Not Available   |
| Index                 | Not Available   |
| Max Number Controlled | Not Available   |
| Driver                | c:\winnt\system32\drivers\twintail.sys (26032, 4.70.06) |

[Printing]

|                         |           |             |
|-------------------------|-----------|-------------|
| Name                    | Port Name | Server Name |
| No printing information |           |             |

[Problem Devices]

|               |                             |            |
|---------------|-----------------------------|------------|
| Device        | PNP Device ID               | Error Code |
| Not Available | ACPI\IBM37D0\4&F0B8F99&0 28 |            |
| Not Available | ACPI\IBM37C0\4&F0B8F99&0 28 |            |

[USB]

|  |                           |
|--|---------------------------|
| Device   | PNP Device ID             |
| Standard OpenHCD USB Host Controller                         |                           |
| PCI\VEN_1166&DEV_0220&SUBSYS_02201166&REV_04\3&267A616A&0&7A |                           |
| USB Root Hub   | USB\ROOT_HUB\4&372644EA&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                                 | Disabled                               | Stopped                                | Ignore        | False   |
| False                                 |  |  |               |         |
| abp480n5                              | abp480n5                               | Not Available                          | Kernel Driver |         |
| False                                 | Disabled                               | Stopped                                | Normal        | False   |
| False                                 |  |  |               |         |
| acpi                                  | Microsoft ACPI Driver                  |  | Kernel Driver |         |
| c:\winnt\system32\drivers\acpi.sys    |  |  |               |         |
| True                                  | Boot                                   | Running                                | Normal        | False   |
| True                                  |  |  |               |         |
| acpiec                                | ACPIEC                                 | c:\winnt\system32\drivers\acpiec.sys   | Kernel Driver |         |
| Kernel Driver                         | False                                  | Disabled                               | Stopped       | OK      |
| Normal                                | False                                  | False                                  |               |         |
| adpu160m                              | adpu160m                               | c:\winnt\system32\drivers\adpu160m.sys | Kernel Driver |         |
| Kernel Driver                         | True                                   | Boot                                   | Running       | OK      |
| Normal                                | False                                  | True                                   |               |         |
| afd                                   | AFD Networking Support Environment     |  | Kernel Driver |         |
| c:\winnt\system32\drivers\afd.sys     |  |  |               |         |
| Auto                                  | Running                                | OK                                     | Normal        | False   |
| True                                  |  |  |               | True    |
| aha154x                               | Aha154x                                | Not Available                          | Kernel Driver |         |
| False                                 | Disabled                               | Stopped                                | Normal        | False   |
| False                                 |  |  |               |         |
| aic116x                               | aic116x                                | Not Available                          | Kernel Driver |         |
| False                                 | Disabled                               | Stopped                                | Normal        | False   |
| False                                 |  |  |               |         |
| aic78u2                               | aic78u2                                | Not Available                          | Kernel Driver |         |
| False                                 | Disabled                               | Stopped                                | Normal        | False   |
| False                                 |  |  |               |         |
| aic78xx                               | aic78xx                                | Not Available                          | Kernel Driver |         |
| False                                 | Disabled                               | Stopped                                | Normal        | False   |
| False                                 |  |  |               |         |
| ami0nt                                | ami0nt                                 | Not Available                          | Kernel Driver |         |
| False                                 | Disabled                               | Stopped                                | Normal        | False   |
| False                                 |  |  |               |         |
| amsint                                | amsint                                 | Not Available                          | Kernel Driver |         |
| False                                 | Disabled                               | Stopped                                | Normal        | False   |
| False                                 |  |  |               |         |
| asc                                   | asc                                    | Not Available                          | Kernel Driver |         |
| False                                 | Disabled                               | Stopped                                | Normal        | False   |
| False                                 |  |  |               |         |
| asc3350p                              | asc3350p                               | Not Available                          | Kernel Driver |         |
| False                                 | Disabled                               | Stopped                                | Normal        | False   |
| False                                 |  |  |               |         |
| asc3550                               | asc3550                                | Not Available                          | Kernel Driver |         |
| False                                 | Disabled                               | Stopped                                | Normal        | False   |
| False                                 |  |  |               |         |
| asynmac                               | RAS Asynchronous Media Driver          |  | Kernel Driver |         |
| c:\winnt\system32\drivers\asynmac.sys |  |  |               |         |
| False                                 | Manual                                 | Stopped                                | Normal        | False   |
| False                                 |  |  |               |         |
| atapi                                 | Standard IDE/ESDI Hard Disk Controller |  | Kernel Driver |         |
| c:\winnt\system32\drivers\atapi.sys   |  |  |               |         |
| True                                  | Boot                                   | Running                                | Normal        | False   |
| True                                  |  |  |               |         |
| atdisk                                | Atdisk                                 | Not Available                          | Kernel Driver |         |
| False                                 | Disabled                               | Stopped                                | Ignore        | False   |
| False                                 |  |  |               |         |
| atmarpc                               | ATM ARP Client Protocol                |  | Kernel Driver |         |
| c:\winnt\system32\drivers\atmarpc.sys |  |  |               |         |
| False                                 | Manual                                 | Stopped                                | Normal        | False   |
| False                                 |  |  |               |         |

|                                       |                             |  |               |        |
|---------------------------------------|-----------------------------|--|---------------|--------|
| audstub                               | Audio Stub Driver           |  | Kernel Driver |        |
| c:\winnt\system32\drivers\audstub.sys |                             |  |               |        |
| True                                  | Manual                      | Running                                | OK            | Normal |
| True                                  |                             |  |               | False  |
| beep                                  | Beep                        | c:\winnt\system32\drivers\beep.sys     | Kernel Driver |        |
| Kernel Driver                         | True                        | System                                 | Running       | OK     |
| Normal                                | False                       | True                                   |               |        |
| buslogic                              | BusLogic                    | Not Available                          | Kernel Driver |        |
| False                                 | Disabled                    | Stopped                                | OK            | Normal |
| False                                 |                             |  |               | False  |
| cd20xrnt                              | cd20xrnt                    | Not Available                          | Kernel Driver |        |
| False                                 | Disabled                    | Stopped                                | OK            | Normal |
| False                                 |                             |  |               | False  |
| cdaudio                               | Cdaudio                     | c:\winnt\system32\drivers\cdaudio.sys  | Kernel Driver |        |
| Kernel Driver                         | False                       | System                                 | Stopped       | OK     |
| Ignore                                | False                       | False                                  |               |        |
| cdfs                                  | Cdfs                        | c:\winnt\system32\drivers\cdfs.sys     | Kernel Driver |        |
| System Driver                         | True                        | Disabled                               | Running       | OK     |
| Normal                                | False                       | True                                   |               |        |
| cdrom                                 | CD-ROM Driver               | c:\winnt\system32\drivers\cdrom.sys    | Kernel Driver |        |
| Kernel Driver                         | True                        | System                                 | Running       | OK     |
| Normal                                | False                       | True                                   |               |        |
| changer                               | Changer                     | Not Available                          | Kernel Driver |        |
| False                                 | System                      | Stopped                                | OK            | Ignore |
| False                                 |                             |  |               | False  |
| cpqarray                              | Cpqarray                    | Not Available                          | Kernel Driver |        |
| False                                 | Disabled                    | Stopped                                | OK            | Normal |
| False                                 |                             |  |               | False  |
| cpqarray2                             | cpqarray2                   | Not Available                          | Kernel Driver |        |
| False                                 | Disabled                    | Stopped                                | OK            | Normal |
| False                                 |                             |  |               | False  |
| cpqcalm                               | cpqcalm                     | Not Available                          | Kernel Driver |        |
| False                                 | Disabled                    | Stopped                                | OK            | Normal |
| False                                 |                             |  |               | False  |
| cpqfws2e                              | cpqfws2e                    | Not Available                          | Kernel Driver |        |
| False                                 | Disabled                    | Stopped                                | OK            | Normal |
| False                                 |                             |  |               | False  |
| dac960nt                              | dac960nt                    | Not Available                          | Kernel Driver |        |
| False                                 | Disabled                    | Stopped                                | OK            | Normal |
| False                                 |                             |  |               | False  |
| deckzpsx                              | deckzpsx                    | Not Available                          | Kernel Driver |        |
| False                                 | Disabled                    | Stopped                                | OK            | Normal |
| False                                 |                             |  |               | False  |
| dfsdriver                             | DfsDriver                   | c:\winnt\system32\drivers\dfs.sys      | File System   |        |
| Driver                                | True                        | Boot                                   | Running       | OK     |
| False                                 | True                        |  |               | Normal |
| disk                                  | Disk Driver                 | c:\winnt\system32\drivers\disk.sys     | Kernel Driver |        |
| Kernel Driver                         | True                        | Boot                                   | Running       | OK     |
| Normal                                | False                       | True                                   |               |        |
| diskperf                              | Diskperf                    | c:\winnt\system32\drivers\diskperf.sys | Kernel Driver |        |
| Kernel Driver                         | True                        | Boot                                   | Running       | OK     |
| Normal                                | False                       | True                                   |               |        |
| dmboot                                | dmboot                      | c:\winnt\system32\drivers\dmboot.sys   | Kernel Driver |        |
| Kernel Driver                         | False                       | Disabled                               | Stopped       | OK     |
| Normal                                | False                       | False                                  |               |        |
| dmio                                  | Logical Disk Manager Driver |  | Kernel Driver |        |
| c:\winnt\system32\drivers\dmio.sys    |                             |  |               |        |
| True                                  | Boot                        | Running                                | OK            | Normal |
| True                                  |                             |  |               | False  |
| dmload                                | dmload                      | c:\winnt\system32\drivers\dmload.sys   | Kernel Driver |        |
| Kernel Driver                         | True                        | Boot                                   | Running       | OK     |
| Normal                                | False                       | True                                   |               |        |
| efs                                   | EFS                         | c:\winnt\system32\drivers\efs.sys      | File System   |        |
| Driver                                | True                        | Disabled                               | Running       | OK     |
| False                                 | True                        |  |               | Normal |
| fastfat                               | Fastfat                     | c:\winnt\system32\drivers\fastfat.sys  | System Driver |        |
| System Driver                         | True                        | Disabled                               | Running       | OK     |
| Normal                                | False                       | True                                   |               |        |

|  |   |                                       |               |          |          |         |    |        |       |
|--|---|---------------------------------------|---------------|----------|----------|---------|----|--------|-------|
| fd16_700                               | Fd16_700                                  | Not Available                         | Kernel Driver | True     | System   | Running | OK | Normal | False |
| False                                  | Disabled                                  | Stopped                               | Normal        | False    |          |         |    |        |       |
| False                                  |   |                                       |               |          |          |         |    |        |       |
| fdc                                    | Floppy Disk Controller Driver             |                                       |               |          |          |         |    |        |       |
| c:\winnt\system32\drivers\fdc.sys      | Kernel Driver                             |                                       | True          |          |          |         |    |        |       |
| Manual                                 | Running                                   | OK                                    | Normal        | False    | True     |         |    |        |       |
| fireport                               | fireport                                  | Not Available                         | Kernel Driver | False    | System   | Stopped | OK | Ignore | False |
| False                                  | Disabled                                  | Stopped                               | Normal        | False    |          |         |    |        |       |
| False                                  |   |                                       |               |          |          |         |    |        |       |
| flashpnt                               | flashpnt                                  | Not Available                         | Kernel Driver | False    | Disabled | Stopped | OK | Normal | False |
| False                                  | Disabled                                  | Stopped                               | Normal        | False    |          |         |    |        |       |
| False                                  |   |                                       |               |          |          |         |    |        |       |
| flpydisk                               | Floppy Disk Driver                        |                                       |               |          |          |         |    |        |       |
| c:\winnt\system32\drivers\flpydisk.sys | Kernel Driver                             |                                       | True          |          |          |         |    |        |       |
| True                                   | Manual                                    | Running                               | OK            | Normal   | False    |         |    |        |       |
| True                                   |   |                                       |               |          |          |         |    |        |       |
| ftdisk                                 | Volume Manager Driver                     |                                       |               |          |          |         |    |        |       |
| c:\winnt\system32\drivers\ftdisk.sys   | Kernel Driver                             |                                       | True          |          |          |         |    |        |       |
| True                                   | Boot                                      | Running                               | OK            | Normal   | False    |         |    |        |       |
| True                                   |   |                                       |               |          |          |         |    |        |       |
| gnindis                                | cLAN NDIS Driver                          | c:\winnt\system32\drivers\gnindis.sys | Kernel Driver | True     | Auto     | Running | OK | Normal | False |
| Normal                                 | False                                     | True                                  | Normal        | False    |          |         |    |        |       |
| gnivia                                 | cLAN VIA Driver                           | c:\winnt\system32\drivers\gnivia.sys  | Kernel Driver | True     | Auto     | Running | OK | Normal | False |
| Normal                                 | False                                     | True                                  | Normal        | False    |          |         |    |        |       |
| gpc                                    | Generic Packet Classifier                 |                                       |               |          |          |         |    |        |       |
| c:\winnt\system32\drivers\msgpc.sys    | Kernel Driver                             |                                       | True          |          |          |         |    |        |       |
| True                                   | Manual                                    | Running                               | OK            | Normal   | False    |         |    |        |       |
| True                                   |   |                                       |               |          |          |         |    |        |       |
| i8042prt                               | i8042 Keyboard and PS/2 Mouse Port Driver |                                       |               |          |          |         |    |        |       |
| c:\winnt\system32\drivers\i8042prt.sys | Kernel Driver                             |                                       | True          |          |          |         |    |        |       |
| True                                   | System                                    | Running                               | OK            | Normal   | False    |         |    |        |       |
| True                                   |   |                                       |               |          |          |         |    |        |       |
| ini910u                                | ini910u                                   | Not Available                         | Kernel Driver | False    | Disabled | Stopped | OK | Normal | False |
| False                                  | Disabled                                  | Stopped                               | Normal        | False    |          |         |    |        |       |
| False                                  |   |                                       |               |          |          |         |    |        |       |
| intelide                               | IntelIde                                  | Not Available                         | Kernel Driver | False    | Disabled | Stopped | OK | Normal | False |
| False                                  | Disabled                                  | Stopped                               | Normal        | False    |          |         |    |        |       |
| False                                  |   |                                       |               |          |          |         |    |        |       |
| ipfilterdriver                         | IP Traffic Filter Driver                  |                                       |               |          |          |         |    |        |       |
| c:\winnt\system32\drivers\ipfltdrv.sys | Kernel Driver                             |                                       | False         |          |          |         |    |        |       |
| 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 |
| Normal                                 | False                                     | False                                 | Normal        | False    |          |         |    |        |       |
| ipnat                                  | IP Network Address Translator             |                                       |               |          |          |         |    |        |       |
| c:\winnt\system32\drivers\ipnat.sys    | Kernel Driver                             |                                       | False         |          |          |         |    |        |       |
| False                                  | Manual                                    | Stopped                               | OK            | Normal   | False    |         |    |        |       |
| False                                  |   |                                       |               |          |          |         |    |        |       |
| ipsecc                                 | IPSEC driver                              | c:\winnt\system32\drivers\ipsecc.sys  | Kernel Driver | True     | Manual   | Running | OK | Normal | False |
| Normal                                 | False                                     | True                                  | Normal        | False    |          |         |    |        |       |
| ipsperf                                | IBM ServeRAID Performance Driver          |                                       |               |          |          |         |    |        |       |
| c:\winnt\system32\drivers\ipsperf.sys  | Kernel Driver                             |                                       | True          |          |          |         |    |        |       |
| True                                   | Boot                                      | Running                               | OK            | Normal   | False    |         |    |        |       |
| True                                   |   |                                       |               |          |          |         |    |        |       |
| ipsraidn                               | IBM ServeRAID Device Driver               |                                       |               |          |          |         |    |        |       |
| c:\winnt\system32\drivers\ipsraidn.sys | Kernel Driver                             |                                       | True          |          |          |         |    |        |       |
| True                                   | Boot                                      | Running                               | OK            | Normal   | False    |         |    |        |       |
| True                                   |   |                                       |               |          |          |         |    |        |       |
| isapnp                                 | PnP ISA/EISA Bus Driver                   |                                       |               |          |          |         |    |        |       |
| c:\winnt\system32\drivers\isapnp.sys   | Kernel Driver                             |                                       | True          |          |          |         |    |        |       |
| True                                   | Boot                                      | Running                               | OK            | Critical | False    |         |    |        |       |
| True                                   |   |                                       |               |          |          |         |    |        |       |
| kbdclass                               | Keyboard Class Driver                     |                                       |               |          |          |         |    |        |       |
| c:\winnt\system32\drivers\kbdclass.sys | Kernel Driver                             |                                       | True          |          |          |         |    |        |       |

|  |   |  |               |        |                                       |  |                                       |               |
|--|---|--|---------------|--------|---------------------------------------|--|---------------------------------------|---------------|
| netbios                                | NetBIOS Interface                         | c:\winnt\system32\drivers\netbios.sys  | Kernel Driver | File   | pdiframe                              | PDRFRAME                                       | Not Available                         | Kernel Driver |
| File System Driver                     | True                                      | System                                 | Running       | OK     | False                                 | Manual   | Stopped                               | OK            |
| Normal                                 | False                                     | True                                   |               |        | False                                 |  |                                       | Ignore        |
| netbt                                  | NetBios over Tcpip                        | c:\winnt\system32\drivers\netbt.sys    | Kernel Driver | File   | pptpminiport                          | WAN Miniport (PPTP)                            |                                       |               |
| Kernel Driver                          | True                                      | System                                 | Running       | OK     | c:\winnt\system32\drivers\raspppt.sys |  | Kernel Driver                         |               |
| Normal                                 | False                                     | True                                   |               |        | True                                  | Manual   | Running                               | OK            |
| netdetect                              | NetDetect                                 | c:\winnt\system32\drivers\netdect.sys  | Kernel Driver |        | True                                  |  |                                       | Normal        |
| Kernel Driver                          | False                                     | Manual                                 | Stopped       | OK     | ptilink                               | Direct Parallel Link Driver                    |                                       |               |
| Normal                                 | False                                     | False                                  |               |        | c:\winnt\system32\drivers\ptilink.sys |  | Kernel Driver                         |               |
| npfs                                   | Npfs                                      | c:\winnt\system32\drivers\npfs.sys     | System Driver | File   | True                                  | Manual   | Running                               | OK            |
| System Driver                          | True                                      | System                                 | Running       | OK     | True                                  |  |                                       | Normal        |
| Normal                                 | False                                     | True                                   |               |        | ql1080                                | ql1080   | Not Available                         | Kernel Driver |
| ntfs                                   | Ntfs                                      | c:\winnt\system32\drivers\ntfs.sys     | System Driver | File   | False                                 | Disabled                                       | Stopped                               | OK            |
| System Driver                          | True                                      | Disabled                               | Running       | OK     | False                                 |  |                                       | Normal        |
| Normal                                 | False                                     | True                                   |               |        | ql10wnt                               | Q110wnt  | Not Available                         | Kernel Driver |
| null                                   | Null                                      | c:\winnt\system32\drivers\null.sys     | Kernel Driver |        | False                                 | Disabled                                       | Stopped                               | OK            |
| Kernel Driver                          | True                                      | System                                 | Running       | OK     | False                                 |  |                                       | Normal        |
| Normal                                 | False                                     | True                                   |               |        | ql1240                                | ql1240   | Not Available                         | Kernel Driver |
| nwlnkflt                               | IPX Traffic Filter Driver                 |  | Kernel Driver |        | False                                 | Disabled                                       | Stopped                               | OK            |
| c:\winnt\system32\drivers\nwlnkflt.sys |   |  | Kernel Driver |        | False                                 |  |                                       | Normal        |
| False                                  | Manual                                    | Stopped                                | OK            | Normal | False                                 |  |                                       | False         |
| False                                  |   |  |               |        | ql2100                                | ql2100   | Not Available                         | Kernel Driver |
| nwlnkfld                               | IPX Traffic Forwarder Driver              |  | Kernel Driver |        | False                                 | Disabled                                       | Stopped                               | OK            |
| c:\winnt\system32\drivers\nwlnkfld.sys |   |  | Kernel Driver |        | False                                 |  |                                       | Normal        |
| False                                  | Manual                                    | Stopped                                | OK            | Normal | False                                 |  |                                       | False         |
| False                                  |   |  |               |        | rasacd                                | Remote Access Auto Connection Driver           |                                       |               |
| openhci                                | Microsoft USB Open Host Controller Driver |  | Kernel Driver |        | c:\winnt\system32\drivers\rasacd.sys  |  | Kernel Driver                         |               |
| c:\winnt\system32\drivers\openhci.sys  |   |  | Kernel Driver |        | True                                  | System   | Running                               | OK            |
| True                                   | Manual                                    | Running                                | OK            | Normal | True                                  |  |                                       | Normal        |
| True                                   |   |  |               |        | True                                  |  |                                       | False         |
| parallel                               | Parallel class driver                     | c:\winnt\system32\drivers\parallel.sys | Kernel Driver |        | rasl2tp                               | WAN Miniport (L2TP)                            |                                       |               |
| Kernel Driver                          | True                                      | Manual                                 | Running       | OK     | c:\winnt\system32\drivers\rasl2tp.sys |  | Kernel Driver                         |               |
| Normal                                 | False                                     | True                                   |               |        | True                                  | Manual   | Running                               | OK            |
| parport                                | Parallel port driver                      | c:\winnt\system32\drivers\parport.sys  | Kernel Driver |        | True                                  |  |                                       | Normal        |
| Kernel Driver                          | True                                      | System                                 | Running       | OK     | True                                  |  |                                       | False         |
| Ignore                                 | False                                     | True                                   |               |        | raspti                                | Direct Parallel                                | c:\winnt\system32\drivers\raspti.sys  |               |
| partmgr                                | PartMgr                                   | c:\winnt\system32\drivers\partmgr.sys  | Kernel Driver |        | Kernel Driver                         | True   | Manual                                | Running       |
| Kernel Driver                          | True                                      | Boot                                   | Running       | OK     | Normal                                | False  | True                                  | OK            |
| Normal                                 | False                                     | True                                   |               |        | rca                                   | Microsoft Streaming Network Raw Channel Access |                                       |               |
| parvdm                                 | ParVdm                                    | c:\winnt\system32\drivers\parvdm.sys   | Kernel Driver |        | c:\winnt\system32\drivers\rca.sys     | Kernel Driver                                  |                                       | False         |
| Kernel Driver                          | True                                      | Auto                                   | Running       | OK     | Manual                                | Stopped  | OK                                    | Normal        |
| Ignore                                 | False                                     | True                                   |               |        | rdcss                                 | Rdcss  | c:\winnt\system32\drivers\rdcss.sys   | File          |
| pci                                    | PCI Bus Driver                            | c:\winnt\system32\drivers\pci.sys      | Kernel Driver |        | System Driver                         | True   | System                                | Running       |
| Kernel Driver                          | True                                      | Boot                                   | Running       | OK     | Normal                                | False  | True                                  | OK            |
| Critical                               | False                                     | True                                   |               |        | rdpwd                                 | RDPWD  | c:\winnt\system32\drivers\rdpwd.sys   |               |
| pcidump                                | PCIDump                                   |  | Kernel Driver |        | Kernel Driver                         | False  | Manual                                | Stopped       |
| False                                  | System                                    | Stopped                                | OK            | Ignore | False                                 | False  |                                       | OK            |
| False                                  |   |  |               |        | redbook                               | Digital CD Audio Playback Filter Driver        |                                       |               |
| pciide                                 | PCIide                                    | c:\winnt\system32\drivers\pciide.sys   | Kernel Driver |        | c:\winnt\system32\drivers\redbook.sys |  | Kernel Driver                         |               |
| Kernel Driver                          | True                                      | Boot                                   | Running       | OK     | False                                 | System   | Stopped                               | OK            |
| Normal                                 | False                                     | True                                   |               |        | False                                 |  |                                       | Normal        |
| pcmcia                                 | Pcmcia                                    | c:\winnt\system32\drivers\pcmcia.sys   | Kernel Driver |        | s3inc                                 | S3Inc  | c:\winnt\system32\drivers\s3sav4m.sys |               |
| Kernel Driver                          | False                                     | Disabled                               | Stopped       | OK     | Kernel Driver                         | True   | Manual                                | Running       |
| Normal                                 | False                                     | False                                  |               |        | Ignore                                | False  | True                                  | OK            |
| pcnet                                  | AMD PCNET Compatable Adapter Driver       |  | Kernel Driver |        | serenum                               | Serenum Filter Driver                          |                                       |               |
| c:\winnt\system32\drivers\pcntn5m.sys  |   |  | Kernel Driver |        | c:\winnt\system32\drivers\serenum.sys |  | Kernel Driver                         |               |
| True                                   | Manual                                    | Running                                | OK            | Normal | True                                  | Manual   | Running                               | OK            |
| True                                   |   |  |               |        | True                                  |  |                                       | Normal        |
| pdcomp                                 | PDCOMP                                    | Not Available                          | Kernel Driver |        | serial                                | Serial port driver                             | c:\winnt\system32\drivers\serial.sys  |               |
| False                                  | Manual                                    | Stopped                                | OK            | Ignore | Kernel Driver                         | True   | System                                | Running       |
| False                                  |   |  |               |        | Ignore                                | False  | True                                  | OK            |
| pdframe                                | PDRFRAME                                  | Not Available                          | Kernel Driver |        | sfloppy                               | Sfloppy  | c:\winnt\system32\drivers\sfloppy.sys |               |
| False                                  | Manual                                    | Stopped                                | OK            | Ignore | Kernel Driver                         | False  | System                                | Stopped       |
| False                                  |   |  |               |        | Ignore                                | False  |                                       | OK            |
| pdreli                                 | PDRELI                                    | Not Available                          | Kernel Driver |        | sglfb                                 | sglfb  | Not Available                         | Kernel Driver |
| False                                  | Manual                                    | Stopped                                | OK            | Ignore | False                                 | System   | Stopped                               | OK            |
| False                                  |   |  |               |        | False                                 |  |                                       | Normal        |
| False                                  |   |  |               |        | simbad                                | Simbad   | Not Available                         | Kernel Driver |
|  |   |  |               |        | False                                 | Disabled                                       | Stopped                               | OK            |
|  |   |  |               |        | False                                 |  |                                       | Normal        |
|  |   |  |               |        | False                                 |  |                                       | False         |

```

sparrow Sparrow Not Available Kernel Driver
False Disabled Stopped OK Normal False
False
spud Special Purpose Utility Driver
c:\winnt\system32\drivers\spud.sys Kernel Driver
True Manual Running OK Normal False
True
srv Srv c:\winnt\system32\drivers\srv.sys File System
Driver True Manual Running OK Normal
False True
swenum Software Bus Driver
c:\winnt\system32\drivers\swenum.sys Kernel Driver
True Manual Running OK Normal False
True
symc810 symc810 Not Available Kernel Driver
False Disabled Stopped OK Normal False
False
symc8xx symc8xx Not Available Kernel Driver
False Disabled Stopped OK Normal False
False
sym_hi sym_hi Not Available Kernel Driver
False Disabled Stopped OK Normal False
False
tcpip TCP/IP Protocol Driver
c:\winnt\system32\drivers\tcpip.sys Kernel Driver
True System Running OK Normal False
True
tdasync TDASYNC c:\winnt\system32\drivers\tdasync.sys
Kernel Driver False Manual Stopped OK
Ignore False False
tdipx TDIPX c:\winnt\system32\drivers\tdipx.sys
Kernel Driver False Manual Stopped OK
Ignore False False
tdnetb TDNETB c:\winnt\system32\drivers\tdnetb.sys
Kernel Driver False Manual Stopped OK
Ignore False False
tdpipe TDPIPE c:\winnt\system32\drivers\tdpipe.sys
Kernel Driver False Manual Stopped OK
Ignore False False
tdspx TDSPX c:\winnt\system32\drivers\tdspx.sys
Kernel Driver False Manual Stopped OK
Ignore False False
tdtcp TDTCP c:\winnt\system32\drivers\tdtcp.sys
Kernel Driver False Manual Stopped OK
Ignore False False
termdd Terminal Device Driver
c:\winnt\system32\drivers\termdd.sys Kernel Driver
False Disabled Stopped OK Normal False
False
tga tga Not Available Kernel Driver
False System Stopped OK Ignore False
False
twintail IBM ServeRAID Failover Driver
c:\winnt\system32\drivers\twintail.sys Kernel Driver
True Boot Running OK Normal False
True
udfs Udfs c:\winnt\system32\drivers\udfs.sys File
System Driver False Disabled Stopped OK
Normal False False
ultra66 ultra66 Not Available Kernel Driver
False Disabled Stopped OK Normal False
False
update Microcode Update Driver
c:\winnt\system32\drivers\update.sys Kernel Driver
True Manual Running OK Normal False
True
usbhub Microsoft USB Standard Hub Driver
c:\winnt\system32\drivers\usbhub.sys Kernel Driver

```

```

True Manual Running OK Normal False
True
vgasave VgaSave c:\winnt\system32\drivers\vga.sys
Kernel Driver True System Running OK
Ignore False True
wanarp Remote Access IP ARP Driver
c:\winnt\system32\drivers\wanarp.sys Kernel Driver
True Manual Running OK Normal False
True
wdica WDICA Not Available Kernel Driver
False Manual Stopped OK Ignore False
False

[Environment Variables]

Variable Value User Name
ComSpec %SystemRoot%\system32\cmd.exe <SYSTEM>
Os2LibPath %SystemRoot%\system32\os2\dll;
<SYSTEM>
Path
%SystemRoot%\system32;%SystemRoot%;%SystemRoot%\System32\
Wbem <SYSTEM>
windir %SystemRoot% <SYSTEM>
OS Windows_NT <SYSTEM>
PROCESSOR_ARCHITECTURE x86 <SYSTEM>
PROCESSOR_LEVEL 6 <SYSTEM>
PROCESSOR_IDENTIFIER x86 Family 6 Model 10 Stepping 1,
GenuineIntel <SYSTEM>
PROCESSOR_REVISION 0a01 <SYSTEM>
NUMBER_OF_PROCESSORS 4 <SYSTEM>
PATHEXT
.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH
<SYSTEM>
TEMP %SystemRoot%\TEMP <SYSTEM>
TMP %SystemRoot%\TEMP <SYSTEM>
TEMP %USERPROFILE%\Local Settings\Temp
DTCSERVER\Administrator
TMP %USERPROFILE%\Local Settings\Temp
DTCSERVER\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]

File 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 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            | 172                       | 11      |                      |
| 204800                    | 1413120                               | 4/10/2001 2:00:44 PM      |         | 5.00.2170.1          |
| 44.27 KB (45,328 bytes)   |                                       | 12/6/1999 7:00:00 PM      |         |                      |
| csrss.exe                 | Not Available                         | 196                       | 13      | Not Available        |
| Not Available             | 4/10/2001 2:00:48 PM                  |                           |         | Unknown              |
| Unknown                   | Unknown                               |                           |         |                      |
| winlogon.exe              | c:\winnt\system32\winlogon.exe        | 192                       | 13      |                      |
| 204800                    | 1413120                               | 4/10/2001 2:00:50 PM      |         | 5.00.2182.1          |
| 173.27 KB (177,424 bytes) |                                       | 12/6/1999 7:00:00 PM      |         |                      |
| services.exe              | c:\winnt\system32\services.exe        | 244                       | 9       |                      |
| 204800                    | 1413120                               | 4/10/2001 2:00:51 PM      |         | 5.00.2134.1          |
| 86.77 KB (88,848 bytes)   |                                       | 12/6/1999 7:00:00 PM      |         |                      |
| lsass.exe                 | c:\winnt\system32\lsass.exe           | 256                       | 13      |                      |
| 204800                    | 1413120                               | 4/10/2001 2:00:51 PM      |         | 5.00.2184.1          |
| 32.77 KB (33,552 bytes)   |                                       | 12/6/1999 7:00:00 PM      |         |                      |
| gnconmgr.exe              | c:\winnt\system32\gnconmgr.exe        | 388                       | 8       |                      |
| 204800                    | 1413120                               | 4/10/2001 2:00:54 PM      |         | 4.1.1                |
| 128.05 KB (131,119 bytes) |                                       | 4/4/2001 2:26:00 PM       |         |                      |
| svchost.exe               | c:\winnt\system32\svchost.exe         | 444                       | 8       |                      |
| 204800                    | 1413120                               | 4/10/2001 2:00:55 PM      |         | 5.00.2134.1          |
| 7.77 KB (7,952 bytes)     |                                       | 12/6/1999 7:00:00 PM      |         |                      |
| spoolsv.exe               | c:\winnt\system32\spoolsv.exe         | 472                       | 8       |                      |
| 204800                    | 1413120                               | 4/10/2001 2:00:55 PM      |         | 5.00.2161.1          |
| 43.77 KB (44,816 bytes)   |                                       | 4/4/2001 9:24:00 AM       |         |                      |
| msdtc.exe                 | c:\winnt\system32\msdtc.exe           | 500                       | 8       |                      |
| 204800                    | 1413120                               | 4/10/2001 2:00:55 PM      |         | 1999.9.3421.3        |
| 6.77 KB (6,928 bytes)     |                                       | 4/4/2001 9:43:05 AM       |         |                      |
| explorer.exe              | c:\winnt\explorer.exe                 | 656                       | 8       |                      |
| 204800                    | 1413120                               | 4/10/2001 2:01:11 PM      |         |                      |
| 5.00.2920.0000            |                                       | 232.77 KB (238,352 bytes) |         | 12/6/1999            |
| 7:00:00 PM                |                                       |                           |         |                      |
| svchost.exe               | c:\winnt\system32\svchost.exe         | 788                       | 8       |                      |
| 204800                    | 1413120                               | 4/10/2001 2:01:23 PM      |         | 5.00.2134.1          |
| 7.77 KB (7,952 bytes)     |                                       | 12/6/1999 7:00:00 PM      |         |                      |
| llssrv.exe                | c:\winnt\system32\llssrv.exe          | 816                       | 9       |                      |
| 204800                    | 1413120                               | 4/10/2001 2:01:23 PM      |         | 5.00.2167.1          |
| 114.27 KB (117,008 bytes) |                                       | 12/6/1999 7:00:00 PM      |         |                      |
| regsvcs.exe               | c:\winnt\system32\regsvcs.exe         | 880                       | 8       |                      |
| 204800                    | 1413120                               | 4/10/2001 2:01:23 PM      |         | 5.00.2155.1          |
| 65.27 KB (66,832 bytes)   |                                       | 12/6/1999 7:00:00 PM      |         |                      |
| mstask.exec               | c:\winnt\system32\mstask.exe          | 948                       | 8       |                      |
| 204800                    | 1413120                               | 4/10/2001 2:01:24 PM      |         | 4.71.2137.1          |
| 115.27 KB (118,032 bytes) |                                       | 4/4/2001 1:47:04 PM       |         |                      |
| raidserv.exe              | c:\program files\raidman\raidserv.exe |                           |         |                      |
| 1036                      | 8                                     | 204800                    | 1413120 | 4/10/2001 2:01:28 PM |
| Not Available             |                                       | 40.50 KB (41,472 bytes)   |         | 4/4/2001             |
| 6:31:42 PM                |                                       |                           |         |                      |
| tcpsvcs.exe               | c:\winnt\system32\tcpsvcs.exe         | 1072                      | 8       |                      |
| 204800                    | 1413120                               | 4/10/2001 2:01:28 PM      |         | 5.00.2134.1          |
| 24.77 KB (25,360 bytes)   |                                       | 12/6/1999 7:00:00 PM      |         |                      |
| winmgmt.exe               | c:\winnt\system32\wbem\winmgmt.exe    |                           |         |                      |
| 1096                      | 8                                     | 204800                    | 1413120 | 4/10/2001 2:01:28 PM |
| 1.50.1085.0001            |                                       | 188.05 KB (192,567 bytes) |         | 12/6/1999            |
| 7:00:00 PM                |                                       |                           |         |                      |
| inetinfo.exe              | c:\winnt\system32\inetinfo.exe        |                           |         |                      |
| 1112                      | 8                                     | 204800                    | 1413120 | 4/10/2001 2:01:28 PM |
| 5.00.0984                 |                                       | 14.27 KB (14,608 bytes)   |         | 4/4/2001 9:43:51 AM  |
| dfssvc.exe                | c:\winnt\system32\dfssvc.exe          | 1160                      | 8       |                      |
| 204800                    | 1413120                               | 4/10/2001 2:01:29 PM      |         | 5.00.2191.1          |
| 85.27 KB (87,312 bytes)   |                                       | 12/6/1999 7:00:00 PM      |         |                      |
| svchost.exe               | c:\winnt\system32\svchost.exe         | 1524                      | 8       |                      |
| 204800                    | 1413120                               | 4/10/2001 2:01:59 PM      |         | 5.00.2134.1          |
| 7.77 KB (7,952 bytes)     |                                       | 12/6/1999 7:00:00 PM      |         |                      |
| mmc.exe                   | c:\winnt\system32\mmc.exe             | 824                       | 8       |                      |
| 204800                    | 1413120                               | 4/11/2001 3:59:59 PM      |         | 5.00.2153.1          |
| 589.27 KB (603,408 bytes) |                                       | 12/6/1999 7:00:00 PM      |         |                      |

|                           |                            |                      |   |             |
|---------------------------|----------------------------|----------------------|---|-------------|
| rsvp.exe                  | c:\winnt\system32\rsvp.exe | 344                  | 8 |             |
| 204800                    | 1413120                    | 4/11/2001 4:01:13 PM |   | 5.00.2167.1 |
| 172.77 KB (176,912 bytes) |                            | 12/6/1999 7:00:00 PM |   |             |

[Loaded Modules]

| Name   | Version        | Size | File Date                 | Manufacturer                                       | Path |
|--|----------------|------|---------------------------|--|------|
| traffic.dll  | 5.00.2139.1    |      | 30.77 KB (31,504 bytes)   |  |      |
| 12/6/1999 7:00:00 PM   |                |      |                           | Microsoft Corporation                              |      |
| c:\winnt\system32\traffic.dll                                      |                |      |                           |  |      |
| rsvp.exe   | 5.00.2167.1    |      | 172.77 KB (176,912 bytes) |  |      |
| 12/6/1999 7:00:00 PM   |                |      |                           | Microsoft Corporation                              |      |
| c:\winnt\system32\rsvp.exe   |                |      |                           |  |      |
| wbemprox.dll   | 1.50.1085.0001 |      | 40.05 KB (41,016 bytes)   |  |      |
| 12/6/1999 7:00:00 PM   |                |      |                           | Microsoft Corporation                              |      |
| c:\winnt\system32\wbem\wbemprox.dll                                |                |      |                           |  |      |
| mlang.dll  | 5.00.2920.0000 |      | 510.77 KB (523,024 bytes) |  |      |
| 12/6/1999 7:00:00 PM   |                |      |                           | Microsoft Corporation                              |      |
| c:\winnt\system32\mlang.dll  |                |      |                           |  |      |
| rassapi.dll  | 5.00.2188.1    |      | 14.27 KB (14,608 bytes)   |  |      |
| 12/6/1999 7:00:00 PM   |                |      |                           | Microsoft Corporation                              |      |
| c:\winnt\system32\rassapi.dll                                      |                |      |                           |  |      |
| adsnt.dll  | 5.00.2191.1    |      | 194.27 KB (198,928 bytes) |  |      |
| 12/6/1999 7:00:00 PM   |                |      |                           | Microsoft Corporation                              |      |
| c:\winnt\system32\adsnt.dll  |                |      |                           |  |      |
| dbghelp.dll  | 5.00.2195.1    |      | 159.27 KB (163,088 bytes) |  |      |
| 12/6/1999 7:00:00 PM   |                |      |                           | Microsoft Corporation                              |      |
| c:\winnt\system32\dbghelp.dll                                      |                |      |                           |  |      |
| localsec.dll   | 5.00.2134.1    |      | 227.27 KB (232,720 bytes) |  |      |
| 12/6/1999 7:00:00 PM   |                |      |                           | Microsoft Corporation                              |      |
| c:\winnt\system32\localsec.dll                                     |                |      |                           |  |      |
| devmgr.dll   | 5.00.2166.1    |      | 215.77 KB (220,944 bytes) |  |      |
| 12/6/1999 7:00:00 PM   |                |      |                           | Microsoft Corporation                              |      |
| c:\winnt\system32\devmgr.dll                                       |                |      |                           |  |      |
| filemgmt.dll   | 5.00.2134.1    |      | 287.27 KB (294,160 bytes) |  |      |
| 12/6/1999 7:00:00 PM   |                |      |                           | Microsoft Corporation                              |      |
| c:\winnt\system32\filemgmt.dll                                     |                |      |                           |  |      |
| pdh.dll  | 5.00.2174.1    |      | 143.27 KB (146,704 bytes) |  |      |
| 12/6/1999 7:00:00 PM   |                |      |                           | Microsoft Corporation                              |      |
| c:\winnt\system32\pdh.dll  |                |      |                           |  |      |
| smlogcfg.dll   | 5.00.2163.1    |      | 273.27 KB (279,824 bytes) |  |      |
| 12/6/1999 7:00:00 PM   |                |      |                           | Microsoft Corporation                              |      |
| c:\winnt\system32\smlogcfg.dll                                     |                |      |                           |  |      |
| cabinet.dll  | 5.00.2147.1    |      | 54.77 KB (56,080 bytes)   |  |      |
| 12/6/1999 7:00:00 PM   |                |      |                           | Microsoft Corporation                              |      |
| c:\winnt\system32\cabinet.dll                                      |                |      |                           |  |      |
| msinfo32.dll   | 5.00.2177.1    |      | 312.27 KB (319,760 bytes) |  |      |
| 4/4/2001 1:47:13 PM  |                |      |                           | Microsoft Corporation                              |      |
| c:\program files\common files\microsoft shared\msinfo\msinfo32.dll |                |      |                           |  |      |
| riched20.dll   | 5.30.23.1200   |      | 421.27 KB (431,376 bytes) |  |      |
| 12/6/1999 7:00:00 PM   |                |      |                           | Microsoft Corporation                              |      |
| c:\winnt\system32\riched20.dll                                     |                |      |                           |  |      |
| riched32.dll   | 5.00.2134.1    |      | 3.77 KB (3,856 bytes)     |  |      |
| 12/6/1999 7:00:00 PM   |                |      |                           | Microsoft Corporation                              |      |
| c:\winnt\system32\riched32.dll                                     |                |      |                           |  |      |
| els.dll  | 5.00.2175.1    |      | 151.27 KB (154,896 bytes) |  |      |
| 12/6/1999 7:00:00 PM   |                |      |                           | Microsoft Corporation                              |      |
| c:\winnt\system32\els.dll  |                |      |                           |  |      |
| ntmsmgr.dll  | 1,0,0,1        |      | 427.77 KB (438,032 bytes) |  |      |
| 12/6/1999 7:00:00 PM   |                |      |                           | Microsoft Corporation and HighGround Systems, Inc. |      |
| c:\winnt\system32\ntmsmgr.dll                                      |                |      |                           |  |      |
| mmfutil.dll  | 1.50.1085.0000 |      | 32.06 KB (32,829 bytes)   |  |      |
| 12/6/1999 7:00:00 PM   |                |      |                           | Microsoft Corporation                              |      |
| c:\winnt\system32\mmfutil.dll                                      |                |      |                           |  |      |
| logdrive.dll   | 1.50.1085.0000 |      | 200.06 KB (204,863 bytes) |  |      |
| 12/6/1999 7:00:00 PM   |                |      |                           | Microsoft Corporation                              |      |
| c:\winnt\system32\logdrive.dll                                     |                |      |                           |  |      |

|  |                |                           |           |
|--|----------------|---------------------------|-----------|
| dfrgres.dll  | 5.00.2150.1    | 27.50 KB (28,160 bytes)   |           |
| 12/6/1999 7:00:00 PM Executive Software International, Inc.                              |                |                           |           |
| c:\winnt\system32\dfrgres.dll  |                |                           |           |
| dfrgsnap.dll   | 5.00.2150.1    | 41.77 KB (42,768 bytes)   |           |
| 12/6/1999 7:00:00 PM Executive Software International, Inc.                              |                |                           |           |
| c:\winnt\system32\dfrgsnap.dll   |                |                           |           |
| dmskres.dll  | 2191.1.296.2   | 119.00 KB (121,856 bytes) |           |
| 12/6/1999 7:00:00 PM Microsoft Corp.,  |                |                           |           |
| VERITAS Software c:\winnt\system32\dmskres.dll   |                |                           |           |
| dmutil.dll   | 2191.1.296.2   | 41.77 KB (42,768 bytes)   |           |
| 12/6/1999 7:00:00 PM VERITAS Software Corp.  |                |                           |           |
| c:\winnt\system32\dmutil.dll   |                |                           |           |
| ntmsapi.dll  | 5.00.1948.1    | 50.27 KB (51,472 bytes)   |           |
| 12/6/1999 7:00:00 PM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\ntmsapi.dll  |                |                           |           |
| dmskmgm.dll  | 2191.1.296.2   | 158.77 KB (162,576 bytes) |           |
| 12/6/1999 7:00:00 PM Microsoft Corp.,  |                |                           |           |
| VERITAS Software c:\winnt\system32\dmskmgm.dll   |                |                           |           |
| mycomput.dll   | 5.00.2134.1    | 107.77 KB (110,352 bytes) |           |
| 12/6/1999 7:00:00 PM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\mycomput.dll   |                |                           |           |
| comdlg32.dll   | 5.00.2920.0000 | 236.77 KB (242,448 bytes) |           |
| 12/6/1999 7:00:00 PM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\comdlg32.dll   |                |                           |           |
| mmcndmgr.dll   | 5.00.2178.1    | 815.27 KB (834,832 bytes) |           |
| 12/6/1999 7:00:00 PM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\mmcndmgr.dll   |                |                           |           |
| mmc.exe  | 5.00.2153.1    | 589.27 KB (603,408 bytes) |           |
| 12/6/1999 7:00:00 PM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\mmc.exe  |                |                           |           |
| tapisrv.dll  | 5.00.2186.1    | 168.77 KB (172,816 bytes) |           |
| 12/6/1999 7:00:00 PM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\tapisrv.dll  |                |                           |           |
| dfssvc.exe   | 5.00.2191.1    | 85.27 KB (87,312 bytes)   |           |
| 12/6/1999 7:00:00 PM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\dfssvc.exe   |                |                           |           |
| ntfsdrv.dll  | 5.00.0984      | 36.77 KB (37,648 bytes)   | 4/4/2001  |
| 9:45:44 AM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\inetsrv\ntfsdrv.dll  |                |                           |           |
| iislog.dll   | 5.00.0984      | 76.27 KB (78,096 bytes)   | 4/4/2001  |
| 9:43:51 AM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\inetsrv\iislog.dll   |                |                           |           |
| ntlsapi.dll  | 5.00.2134.1    | 6.77 KB (6,928 bytes)     | 12/6/1999 |
| 7:00:00 PM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\ntlsapi.dll  |                |                           |           |
| aqueue.dll   | 5.00.0984      | 260.27 KB (266,512 bytes) | 4/4/2001  |
| 9:45:42 AM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\inetsrv\aqueue.dll   |                |                           |           |
| httpext.dll  | 0.9.3939.9     | 418.27 KB (428,304 bytes) | 4/4/2001  |
| 9:43:50 AM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\inetsrv\httpext.dll  |                |                           |           |
| rpcproxy.dll   | 5.00.2176.1    | 16.27 KB (16,656 bytes)   |           |
| 4/4/2001 9:42:58 AM Microsoft Corporation  |                |                           |           |
| c:\winnt\system32\rpcproxy\rpcproxy.dll  |                |                           |           |
| fpexedll.dll   | 4.0.2.3406     | 20.06 KB (20,541 bytes)   |           |
| 4/4/2001 9:45:51 AM Microsoft Corporation  |                |                           |           |
| c:\program files\common files\microsoft shared\web server extensions\40\bin\fpexedll.dll |                |                           |           |
| md5filt.dll  | 5.00.0984      | 32.77 KB (33,552 bytes)   | 4/4/2001  |
| 9:43:57 AM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\inetsrv\md5filt.dll  |                |                           |           |
| seo.dll  | 5.00.0984      | 230.77 KB (236,304 bytes) | 4/4/2001  |
| 9:45:44 AM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\inetsrv\seo.dll  |                |                           |           |
| gzip.dll   | 5.00.0984      | 30.27 KB (30,992 bytes)   | 4/4/2001  |
| 9:43:57 AM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\inetsrv\gzip.dll   |                |                           |           |
| compfilt.dll   | 5.00.0984      | 22.27 KB (22,800 bytes)   |           |
| 4/4/2001 9:43:56 AM Microsoft Corporation  |                |                           |           |
| c:\winnt\system32\inetsrv\compfilt.dll   |                |                           |           |
| sspifilt.dll   | 5.00.0984      | 43.27 KB (44,304 bytes)   | 4/4/2001  |
| 9:43:58 AM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\inetsrv\sspifilt.dll   |                |                           |           |
| iscomlog.dll   | 5.00.0984      | 24.77 KB (25,360 bytes)   |           |
| 4/4/2001 9:43:51 AM Microsoft Corporation  |                |                           |           |
| c:\winnt\system32\inetsrv\iscomlog.dll   |                |                           |           |
| lonsint.dll  | 5.00.0984      | 11.77 KB (12,048 bytes)   | 4/4/2001  |
| 9:43:51 AM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\inetsrv\lonsint.dll  |                |                           |           |
| inetsloc.dll   | 5.00.0984      | 20.27 KB (20,752 bytes)   | 4/4/2001  |
| 9:43:53 AM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\inetsloc.dll   |                |                           |           |
| w3svc.dll  | 5.00.0984      | 347.27 KB (355,600 bytes) | 4/4/2001  |
| 9:43:59 AM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\inetsrv\w3svc.dll  |                |                           |           |
| staxmem.dll  | 5.00.0984      | 8.27 KB (8,464 bytes)     | 4/4/2001  |
| 9:43:50 AM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\staxmem.dll  |                |                           |           |
| exstrace.dll   | 5.00.0984      | 13.77 KB (14,096 bytes)   |           |
| 4/4/2001 9:43:52 AM Microsoft Corporation  |                |                           |           |
| c:\winnt\system32\exstrace.dll   |                |                           |           |
| rwnh.dll   | 5.00.0984      | 10.77 KB (11,024 bytes)   | 4/4/2001  |
| 9:45:44 AM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\rwnh.dll   |                |                           |           |
| fcachdll.dll   | 5.00.0984      | 43.77 KB (44,816 bytes)   |           |
| 4/4/2001 9:45:43 AM Microsoft Corporation  |                |                           |           |
| c:\winnt\system32\fcachdll.dll   |                |                           |           |
| iisfecnv.dll   | 5.00.0984      | 7.27 KB (7,440 bytes)     | 4/4/2001  |
| 9:43:51 AM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\inetsrv\iisfecnv.dll   |                |                           |           |
| isatq.dll  | 5.00.0984      | 61.27 KB (62,736 bytes)   | 4/4/2001  |
| 9:43:53 AM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\inetsrv\isatq.dll  |                |                           |           |
| infocomm.dll   | 5.00.0984      | 234.27 KB (239,888 bytes) |           |
| 4/4/2001 9:43:51 AM Microsoft Corporation  |                |                           |           |
| c:\winnt\system32\inetsrv\infocomm.dll   |                |                           |           |
| smtpsvc.dll  | 5.00.0984      | 406.27 KB (416,016 bytes) |           |
| 4/4/2001 9:45:46 AM Microsoft Corporation  |                |                           |           |
| c:\winnt\system32\inetsrv\smtpsvc.dll  |                |                           |           |
| security.dll   | 5.00.2154.1    | 5.77 KB (5,904 bytes)     | 12/6/1999 |
| 7:00:00 PM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\security.dll   |                |                           |           |
| svcxext.dll  | 5.00.0984      | 39.77 KB (40,720 bytes)   | 4/4/2001  |
| 9:43:52 AM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\inetsrv\svcxext.dll  |                |                           |           |
| admexs.dll   | 5.00.0984      | 27.77 KB (28,432 bytes)   | 4/4/2001  |
| 9:43:50 AM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\inetsrv\admexs.dll   |                |                           |           |
| wamreg.dll   | 5.00.0984      | 46.27 KB (47,376 bytes)   |           |
| 4/4/2001 9:43:59 AM Microsoft Corporation  |                |                           |           |
| c:\winnt\system32\inetsrv\wamreg.dll   |                |                           |           |
| metadata.dll   | 5.00.0984      | 70.77 KB (72,464 bytes)   |           |
| 4/4/2001 9:43:51 AM Microsoft Corporation  |                |                           |           |
| c:\winnt\system32\inetsrv\metadata.dll   |                |                           |           |
| iismap.dll   | 5.00.0984      | 56.27 KB (57,616 bytes)   | 4/4/2001  |
| 9:43:53 AM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\iismap.dll   |                |                           |           |
| nsepm.dll  | 5.00.0984      | 43.27 KB (44,304 bytes)   | 4/4/2001  |
| 9:43:51 AM Microsoft Corporation   |                |                           |           |
| c:\winnt\system32\inetsrv\nsepm.dll  |                |                           |           |
| admwprox.dll   | 5.00.0984      | 31.77 KB (32,528 bytes)   |           |
| 4/4/2001 9:43:52 AM Microsoft Corporation  |                |                           |           |
| c:\winnt\system32\admwprox.dll   |                |                           |           |
| coadmin.dll  | 5.00.0984      | 39.77 KB (40,720 bytes)   |           |
| 4/4/2001 9:43:53 AM Microsoft Corporation  |                |                           |           |
| c:\winnt\system32\inetsrv\coadmin.dll  |                |                           |           |

|                                       |                       |                           |                                 |                       |                           |
|---------------------------------------|-----------------------|---------------------------|---------------------------------|-----------------------|---------------------------|
| iisadmin.dll                          | 5.00.0984             | 14.77 KB (15,120 bytes)   | nfstj.dll                       | Not Available         | 237.50 KB (243,200 bytes) |
| 4/4/2001 9:43:51 AM                   | Microsoft Corporation |                           | 4/4/2001 6:31:24 PM             | Not Available         | c:\program                |
| c:\winnt\system32\inetrv\iisadmin.dll |                       |                           | files\raidman\nfstj.dll         |                       |                           |
| rpref.dll                             | 5.00.0984             | 4.27 KB (4,368 bytes)     | 4/4/2001 6:31:38 PM             | Not Available         | 22.50 KB (23,040 bytes)   |
| Microsoft Corporation                 |                       |                           | c:\program                      |                       |                           |
| c:\winnt\system32\inetrv\rpref.dll    |                       |                           | files\raidman\jre\bin\net.dll   |                       |                           |
| iisrtl.dll                            | 5.00.0984             | 120.77 KB (123,664 bytes) | 4/4/2001 6:31:38 PM             | Not Available         | 40.00 KB (40,960 bytes)   |
| 9:43:52 AM                            | Microsoft Corporation |                           | c:\program                      |                       |                           |
| c:\winnt\system32\iisrtl.dll          |                       |                           | files\raidman\jre\bin\zip.dll   |                       |                           |
| inetinfo.exe                          | 5.00.0984             | 14.27 KB (14,608 bytes)   | 4/4/2001 6:31:37 PM             | Not Available         | 513.50 KB (525,824 bytes) |
| 4/4/2001 9:43:51 AM                   | Microsoft Corporation |                           | c:\program                      |                       |                           |
| c:\winnt\system32\inetrv\inetinfo.exe |                       |                           | files\raidman\jre\bin\javai.dll |                       |                           |
| wshnetbs.dll                          | 5.00.2134.1           | 7.77 KB (7,952 bytes)     | 4/4/2001 6:31:42 PM             | Not Available         | 40.50 KB (41,472 bytes)   |
| 12/6/1999 7:00:00 PM                  | Microsoft Corporation |                           | c:\program                      |                       |                           |
| c:\winnt\system32\wshnetbs.dll        |                       |                           | files\raidman\raidserv.exe      |                       |                           |
| rapilib.dll                           | 5.00.2167.1           | 25.27 KB (25,872 bytes)   | 4/4/2001 6:31:42 PM             | Not Available         | 6.27 KB (6,416 bytes)     |
| 12/6/1999 7:00:00 PM                  | Microsoft Corporation |                           | 12/6/1999                       |                       |                           |
| c:\winnt\system32\rapilib.dll         |                       |                           | 7:00:00 PM                      | Microsoft Corporation |                           |
| rsvsp.dll                             | 5.00.2167.1           | 74.77 KB (76,560 bytes)   | c:\winnt\system32\msidle.dll    |                       |                           |
| 12/6/1999 7:00:00 PM                  | Microsoft Corporation |                           | mstask.exe                      | 4.71.2137.1           | 115.27 KB (118,032 bytes) |
| c:\winnt\system32\rsvsp.dll           |                       |                           | 4/4/2001 1:47:04 PM             | Microsoft Corporation |                           |
| ntmarta.dll                           | 5.00.2158.1           | 98.77 KB (101,136 bytes)  | c:\winnt\system32\mstask.exe    |                       |                           |
| 12/6/1999 7:00:00 PM                  | Microsoft Corporation |                           | regsvc.exe                      | 5.00.2155.1           | 65.27 KB (66,832 bytes)   |
| c:\winnt\system32\ntmarta.dll         |                       |                           | 12/6/1999 7:00:00 PM            | Microsoft Corporation |                           |
| provthrd.dll                          | 1.50.1085.0000        | 68.07 KB (69,708 bytes)   | c:\winnt\system32\regsvc.exe    |                       |                           |
| 4/4/2001 1:47:03 PM                   | Microsoft Corporation |                           | llsrpc.dll                      | 5.00.2149.1           | 45.77 KB (46,864 bytes)   |
| c:\winnt\system32\wbem\provthrd.dll   |                       |                           | 12/6/1999 7:00:00 PM            | Microsoft Corporation |                           |
| ntevt.dll                             | 1.50.1085.0000        | 192.06 KB (196,669 bytes) | c:\winnt\system32\llsrpc.dll    |                       |                           |
| 12/6/1999 7:00:00 PM                  | Microsoft Corporation |                           | llsrv.exe                       | 5.00.2167.1           | 114.27 KB (117,008 bytes) |
| c:\winnt\system32\wbem\ntevt.dll      |                       |                           | 12/6/1999 7:00:00 PM            | Microsoft Corporation |                           |
| perfos.dll                            | 5.00.2155.1           | 21.27 KB (21,776 bytes)   | c:\winnt\system32\llsrv.exe     |                       |                           |
| 12/6/1999 7:00:00 PM                  | Microsoft Corporation |                           | ntmsdba.dll                     | 5.00.2187.1           | 167.77 KB (171,792 bytes) |
| c:\winnt\system32\perfos.dll          |                       |                           | 12/6/1999 7:00:00 PM            | Microsoft Corporation |                           |
| psapi.dll                             | 5.00.2134.1           | 28.27 KB (28,944 bytes)   | c:\winnt\system32\ntmsdba.dll   |                       |                           |
| 12/6/1999 7:00:00 PM                  | Microsoft Corporation |                           | rasdlg.dll                      | 5.00.2194.1           | 514.27 KB (526,608 bytes) |
| c:\winnt\system32\psapi.dll           |                       |                           | 12/6/1999 7:00:00 PM            | Microsoft Corporation |                           |
| framedyn.dll                          | 1.50.1085.0000        | 164.05 KB (167,992 bytes) | c:\winnt\system32\rasdlg.dll    |                       |                           |
| 12/6/1999 7:00:00 PM                  | Microsoft Corporation |                           | netcfgx.dll                     | 5.00.2175.1           | 533.77 KB (546,576 bytes) |
| c:\winnt\system32\wbem\framedyn.dll   |                       |                           | 12/6/1999 7:00:00 PM            | Microsoft Corporation |                           |
| cimwin32.dll                          | 1.50.1085.0000        | 1.03 MB (1,077,306 bytes) | c:\winnt\system32\netcfgx.dll   |                       |                           |
| 12/6/1999 7:00:00 PM                  | Microsoft Corporation |                           | rasmans.dll                     | 5.00.2188.1           | 146.77 KB (150,288 bytes) |
| c:\winnt\system32\wbem\cimwin32.dll   |                       |                           | 12/6/1999 7:00:00 PM            | Microsoft Corporation |                           |
| wbemsvcs.dll                          | 1.50.1085.0000        | 140.07 KB (143,430 bytes) | c:\winnt\system32\rasmans.dll   |                       |                           |
| 12/6/1999 7:00:00 PM                  | Microsoft Corporation |                           | wmi.dll                         | 5.00.2191.1           | 6.27 KB (6,416 bytes)     |
| c:\winnt\system32\wbem\wbemsvcs.dll   |                       |                           | 7:00:00 PM                      | Microsoft Corporation |                           |
| wbemess.dll                           | 1.50.1085.0001        | 352.05 KB (360,503 bytes) | c:\winnt\system32\wmi.dll       |                       |                           |
| 12/6/1999 7:00:00 PM                  | Microsoft Corporation |                           | netman.dll                      | 5.00.2175.1           | 88.77 KB (90,896 bytes)   |
| c:\winnt\system32\wbem\wbemess.dll    |                       |                           | 12/6/1999 7:00:00 PM            | Microsoft Corporation |                           |
| fastprox.dll                          | 1.50.1085.0001        | 144.08 KB (147,534 bytes) | c:\winnt\system32\netman.dll    |                       |                           |
| 12/6/1999 7:00:00 PM                  | Microsoft Corporation |                           | sens.dll                        | 5.00.2163.1           | 36.77 KB (37,648 bytes)   |
| c:\winnt\system32\wbem\fastprox.dll   |                       |                           | 12/6/1999 7:00:00 PM            | Microsoft Corporation |                           |
| wbemcore.dll                          | 1.50.1085.0001        | 632.05 KB (647,224 bytes) | c:\winnt\system32\sens.dll      |                       |                           |
| 12/6/1999 7:00:00 PM                  | Microsoft Corporation |                           | iashlpr.dll                     | 5.00.2184.1           | 33.27 KB (34,064 bytes)   |
| c:\winnt\system32\wbem\wbemcore.dll   |                       |                           | 12/6/1999 7:00:00 PM            | Microsoft Corporation |                           |
| wbemcomn.dll                          | 1.50.1085.0001        | 684.05 KB (700,472 bytes) | c:\winnt\system32\iashlpr.dll   |                       |                           |
| 12/6/1999 7:00:00 PM                  | Microsoft Corporation |                           | iasacct.dll                     | 5.00.2134.1           | 28.27 KB (28,944 bytes)   |
| c:\winnt\system32\wbem\wbemcomn.dll   |                       |                           | 12/6/1999 7:00:00 PM            | Microsoft Corporation |                           |
| winmgmt.exe                           | 1.50.1085.0001        | 188.05 KB (192,567 bytes) | c:\winnt\system32\iasacct.dll   |                       |                           |
| 12/6/1999 7:00:00 PM                  | Microsoft Corporation |                           | iasuser.dll                     | 5.00.2134.1           | 25.77 KB (26,384 bytes)   |
| c:\winnt\system32\wbem\winmgmt.exe    |                       |                           | 12/6/1999 7:00:00 PM            | Microsoft Corporation |                           |
| simptcp.dll                           | 5.00.2134.1           | 19.27 KB (19,728 bytes)   | c:\winnt\system32\iasuser.dll   |                       |                           |
| 4/4/2001 9:42:58 AM                   | Microsoft Corporation |                           | iasnap.dll                      | 5.00.2134.1           | 58.77 KB (60,176 bytes)   |
| c:\winnt\system32\simptcp.dll         |                       |                           | 12/6/1999 7:00:00 PM            | Microsoft Corporation |                           |
| tcpvcs.exe                            | 5.00.2134.1           | 24.77 KB (25,360 bytes)   | c:\winnt\system32\iasnap.dll    |                       |                           |
| 12/6/1999 7:00:00 PM                  | Microsoft Corporation |                           | iaspipe.dll                     | 5.00.2134.1           | 41.77 KB (42,768 bytes)   |
| c:\winnt\system32\tcpvcs.exe          |                       |                           | 12/6/1999 7:00:00 PM            | Microsoft Corporation |                           |
| nfstcpr.dll                           | Not Available         | 104.00 KB (106,496 bytes) | c:\winnt\system32\iaspipe.dll   |                       |                           |
| 4/4/2001 6:31:24 PM                   | Not Available         | c:\program                |                                 |                       |                           |
| files\raidman\nfstcpr.dll             |                       |                           |                                 |                       |                           |

|  |                |                           |                      |                       |                                |                |                           |                      |                       |
|--|----------------|---------------------------|----------------------|-----------------------|--------------------------------|----------------|---------------------------|----------------------|-----------------------|
| expsrv.dll   | 6.0.8540       | 370.27 KB (379,152 bytes) | 12/6/1999 7:00:00 PM | Microsoft Corporation | msi.dll                        | 1.10.1029.0    | 1.71 MB (1,794,320 bytes) | 12/6/1999 7:00:00 PM | Microsoft Corporation |
| c:\winnt\system32\expsrv.dll                             |                |                           |                      |                       | c:\winnt\system32\msi.dll      |                |                           |                      |                       |
| vbajet32.dll   | 6.1.8268       | 30.27 KB (30,992 bytes)   | 12/6/1999 7:00:00 PM | Microsoft Corporation | linkinfo.dll                   | 5.00.2134.1    | 15.77 KB (16,144 bytes)   | 12/6/1999 7:00:00 PM | Microsoft Corporation |
| c:\winnt\system32\vbajet32.dll                           |                |                           |                      |                       | c:\winnt\system32\linkinfo.dll |                |                           |                      |                       |
| msjtes40.dll   | 4.00.2927.8    | 232.27 KB (237,840 bytes) | 12/6/1999 7:00:00 PM | Microsoft Corporation | powrprof.dll                   | 5.00.2920.0000 | 13.27 KB (13,584 bytes)   | 12/6/1999 7:00:00 PM | Microsoft Corporation |
| c:\winnt\system32\msjtes40.dll                           |                |                           |                      |                       | c:\winnt\system32\powrprof.dll |                |                           |                      |                       |
| oledb32r.dll   | 2.50.4403.2    | 64.27 KB (65,808 bytes)   | 4/4/2001 1:46:54 PM  | Microsoft Corporation | batmeter.dll                   | 5.00.2920.0000 | 20.27 KB (20,752 bytes)   | 12/6/1999 7:00:00 PM | Microsoft Corporation |
| c:\program files\common files\system\ole db\oledb32r.dll |                |                           |                      |                       | c:\winnt\system32\batmeter.dll |                |                           |                      |                       |
| msdart32.dll   | 2.50.4403.0    | 24.27 KB (24,848 bytes)   | 12/6/1999 7:00:00 PM | Microsoft Corporation | stobject.dll                   | 5.00.2144.1    | 81.77 KB (83,728 bytes)   | 12/6/1999 7:00:00 PM | Microsoft Corporation |
| c:\winnt\system32\msdart32.dll                           |                |                           |                      |                       | c:\winnt\system32\stobject.dll |                |                           |                      |                       |
| oledb32.dll  | 2.50.4403.8    | 472.27 KB (483,600 bytes) | 4/4/2001 1:46:54 PM  | Microsoft Corporation | webcheck.dll                   | 5.00.2920.0000 | 251.77 KB (257,808 bytes) | 12/6/1999 7:00:00 PM | Microsoft Corporation |
| c:\program files\common files\system\ole db\oledb32.dll  |                |                           |                      |                       | c:\winnt\system32\webcheck.dll |                |                           |                      |                       |
| msjint40.dll   | 4.00.2927.2    | 148.27 KB (151,824 bytes) | 12/6/1999 7:00:00 PM | Microsoft Corporation | netshell.dll                   | 5.00.2176.1    | 456.77 KB (467,728 bytes) | 12/6/1999 7:00:00 PM | Microsoft Corporation |
| c:\winnt\system32\msjint40.dll                           |                |                           |                      |                       | c:\winnt\system32\netshell.dll |                |                           |                      |                       |
| msjter40.dll   | 4.00.2927.2    | 52.27 KB (53,520 bytes)   | 12/6/1999 7:00:00 PM | Microsoft Corporation | netui1.dll                     | 5.00.2134.1    | 210.27 KB (215,312 bytes) | 12/6/1999 7:00:00 PM | Microsoft Corporation |
| c:\winnt\system32\msjter40.dll                           |                |                           |                      |                       | c:\winnt\system32\netui1.dll   |                |                           |                      |                       |
| mswstr10.dll   | 4.00.2927.10   | 600.27 KB (614,672 bytes) | 12/6/1999 7:00:00 PM | Microsoft Corporation | netui0.dll                     | 5.00.2134.1    | 70.27 KB (71,952 bytes)   | 12/6/1999 7:00:00 PM | Microsoft Corporation |
| c:\winnt\system32\mswstr10.dll                           |                |                           |                      |                       | c:\winnt\system32\netui0.dll   |                |                           |                      |                       |
| msjet40.dll  | 4.00.2927.4    | 1.43 MB (1,495,312 bytes) | 12/6/1999 7:00:00 PM | Microsoft Corporation | ntlanman.dll                   | 5.00.2157.1    | 35.27 KB (36,112 bytes)   | 12/6/1999 7:00:00 PM | Microsoft Corporation |
| c:\winnt\system32\msjet40.dll                            |                |                           |                      |                       | c:\winnt\system32\ntlanman.dll |                |                           |                      |                       |
| msjetoledb40.dll   | 4.00.2927.2    | 340.27 KB (348,432 bytes) | 12/6/1999 7:00:00 PM | Microsoft Corporation | ntshrui.dll                    | 5.00.2134.1    | 46.77 KB (47,888 bytes)   | 12/6/1999 7:00:00 PM | Microsoft Corporation |
| c:\winnt\system32\msjetoledb40.dll                       |                |                           |                      |                       | c:\winnt\system32\ntshrui.dll  |                |                           |                      |                       |
| iasrad.dll   | 5.00.2139.1    | 94.27 KB (96,528 bytes)   | 12/6/1999 7:00:00 PM | Microsoft Corporation | mydocs.dll                     | 5.00.2920.0000 | 55.77 KB (57,104 bytes)   | 12/6/1999 7:00:00 PM | Microsoft Corporation |
| c:\winnt\system32\iasrad.dll                             |                |                           |                      |                       | c:\winnt\system32\mydocs.dll   |                |                           |                      |                       |
| iasam.dll  | 5.00.2160.1    | 96.27 KB (98,576 bytes)   | 12/6/1999 7:00:00 PM | Microsoft Corporation | browseui.dll                   | 5.00.2920.0000 | 793.27 KB (812,304 bytes) | 12/6/1999 7:00:00 PM | Microsoft Corporation |
| c:\winnt\system32\iasam.dll                              |                |                           |                      |                       | c:\winnt\system32\browseui.dll |                |                           |                      |                       |
| iasads.dll   | 5.00.2134.1    | 73.77 KB (75,536 bytes)   | 12/6/1999 7:00:00 PM | Microsoft Corporation | shdocvw.dll                    | 5.00.2920.0000 | 1.05 MB (1,104,144 bytes) | 12/6/1999 7:00:00 PM | Microsoft Corporation |
| c:\winnt\system32\iasads.dll                             |                |                           |                      |                       | c:\winnt\system32\shdocvw.dll  |                |                           |                      |                       |
| ntmssvc.dll  | 5.00.2187.1    | 390.77 KB (400,144 bytes) | 12/6/1999 7:00:00 PM | Microsoft Corporation | explorer.exe                   | 5.00.2920.0000 | 232.77 KB (238,352 bytes) | 12/6/1999 7:00:00 PM | Microsoft Corporation |
| c:\winnt\system32\ntmssvc.dll                            |                |                           |                      |                       | c:\winnt\explorer.exe          |                |                           |                      |                       |
| iaspolcy.dll   | 5.00.2134.1    | 25.27 KB (25,872 bytes)   | 12/6/1999 7:00:00 PM | Microsoft Corporation | mtxoci.dll                     | 1999.9.3421.3  | 109.27 KB (111,888 bytes) | 4/4/2001 9:43:07 AM  | Microsoft Corporation |
| c:\winnt\system32\iaspolcy.dll                           |                |                           |                      |                       | c:\winnt\system32\mtxoci.dll   |                |                           |                      |                       |
| iasvcs.dll   | 5.00.2160.1    | 58.77 KB (60,176 bytes)   | 12/6/1999 7:00:00 PM | Microsoft Corporation | resutils.dll                   | 5.00.2191.1    | 39.77 KB (40,720 bytes)   | 12/6/1999 7:00:00 PM | Microsoft Corporation |
| c:\winnt\system32\iasvcs.dll                             |                |                           |                      |                       | c:\winnt\system32\resutils.dll |                |                           |                      |                       |
| iasdo.dll  | 5.00.2157.1    | 262.27 KB (268,560 bytes) | 12/6/1999 7:00:00 PM | Microsoft Corporation | clusapi.dll                    | 5.00.2179.1    | 50.27 KB (51,472 bytes)   | 12/6/1999 7:00:00 PM | Microsoft Corporation |
| c:\winnt\system32\iasdo.dll                              |                |                           |                      |                       | c:\winnt\system32\clusapi.dll  |                |                           |                      |                       |
| ias.dll  | 5.00.2134.1    | 7.27 KB (7,440 bytes)     | 12/6/1999 7:00:00 PM | Microsoft Corporation | msvcp50.dll                    | 5.00.7051      | 552.50 KB (565,760 bytes) | 12/6/1999 7:00:00 PM | Microsoft Corporation |
| c:\winnt\system32\ias.dll                                |                |                           |                      |                       | c:\winnt\system32\msvcp50.dll  |                |                           |                      |                       |
| es.dll   | 1999.9.3422.21 | 231.77 KB (237,328 bytes) | 12/6/1999 7:00:00 PM | Microsoft Corporation | xolehlp.dll                    | 1999.9.3421.3  | 17.27 KB (17,680 bytes)   | 4/4/2001 9:43:06 AM  | Microsoft Corporation |
| c:\winnt\system32\es.dll                                 |                |                           |                      |                       | c:\winnt\system32\xolehlp.dll  |                |                           |                      |                       |
| shdoclc.dll  | 5.00.2920.0000 | 324.50 KB (332,288 bytes) | 12/6/1999 7:00:00 PM | Microsoft Corporation | msdtclog.dll                   | 1999.9.3421.3  | 89.77 KB (91,920 bytes)   | 4/4/2001 9:43:05 AM  | Microsoft Corporation |
| c:\winnt\system32\shdoclc.dll                            |                |                           |                      |                       | c:\winnt\system32\msdtclog.dll |                |                           |                      |                       |
| wininet.dll  | 5.00.2920.0000 | 456.77 KB (467,728 bytes) | 12/6/1999 7:00:00 PM | Microsoft Corporation | mtxclu.dll                     | 1999.9.3421.3  | 50.27 KB (51,472 bytes)   | 12/6/1999 7:00:00 PM | Microsoft Corporation |
| c:\winnt\system32\wininet.dll                            |                |                           |                      |                       | c:\winnt\system32\mtxclu.dll   |                |                           |                      |                       |



|              |                |                             |                       |                       |                                |
|--------------|----------------|-----------------------------|-----------------------|-----------------------|--------------------------------|
| msdtcprx.dll | 1999.9.3422.10 | 619.27 KB (634,128 bytes)   | 4/4/2001 9:43:06 AM   | Microsoft Corporation | c:\winnt\system32\msdtcprx.dll |
| txfaux.dll   | 1999.9.3422.24 | 341.27 KB (349,456 bytes)   | 4/4/2001 9:43:06 AM   | Microsoft Corporation | c:\winnt\system32\txfaux.dll   |
| msdtctm.dll  | 1999.9.3422.12 | 1.02 MB (1,070,864 bytes)   | 4/4/2001 9:43:06 AM   | Microsoft Corporation | c:\winnt\system32\msdtctm.dll  |
| msdtc.exe    | 1999.9.3421.3  | 6.77 KB (6,928 bytes)       | 4/4/2001 9:43:05 AM   | Microsoft Corporation | c:\winnt\system32\msdtc.exe    |
| inetpp.dll   | 5.00.2161.1    | 63.27 KB (64,784 bytes)     | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\inetpp.dll   |
| win32spl.dll | 5.00.2162.1    | 92.27 KB (94,480 bytes)     | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\win32spl.dll |
| usbmon.dll   | 5.00.2165.1    | 11.27 KB (11,536 bytes)     | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\usbmon.dll   |
| tcpmon.dll   | 5.00.2165.1    | 40.77 KB (41,744 bytes)     | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\tcpmon.dll   |
| pjlmon.dll   | 5.00.2165.1    | 12.77 KB (13,072 bytes)     | 11/30/1999 6:39:36 PM | Microsoft Corporation | c:\winnt\system32\pjlmon.dll   |
| cnbjmon.dll  | 5.00.2134.1    | 43.77 KB (44,816 bytes)     | 11/30/1999 6:38:48 PM | Microsoft Corporation | c:\winnt\system32\cnbjmon.dll  |
| localspl.dll | 5.00.2191.1    | 244.77 KB (250,640 bytes)   | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\localspl.dll |
| spoolss.dll  | 5.00.2161.1    | 61.77 KB (63,248 bytes)     | 4/4/2001 9:24:00 AM   | Microsoft Corporation | c:\winnt\system32\spoolss.dll  |
| spoolsv.exe  | 5.00.2161.1    | 43.77 KB (44,816 bytes)     | 4/4/2001 9:24:00 AM   | Microsoft Corporation | c:\winnt\system32\spoolsv.exe  |
| rpss.dll     | 5.00.2181.1    | 229.27 KB (234,768 bytes)   | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\rpss.dll     |
| svchost.exe  | 5.00.2134.1    | 7.77 KB (7,952 bytes)       | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\svchost.exe  |
| vipl.dll     | 4.1.1          | 80.00 KB (81,920 bytes)     | 2:26:00 PM            | Giganet Incorporated  | c:\winnt\system32\vipl.dll     |
| gnconmgr.exe | 4.1.1          | 128.05 KB (131,119 bytes)   | 4/4/2001 2:26:00 PM   | Giganet Incorporated  | c:\winnt\system32\gnconmgr.exe |
| dssbase.dll  | 5.00.2150.1    | 140.77 KB (144,144 bytes)   | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\dssbase.dll  |
| oakley.dll   | 5.00.2174.1    | 420.27 KB (430,352 bytes)   | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\oakley.dll   |
| mfc42u.dll   | 6.00.8665.0    | 972.05 KB (995,384 bytes)   | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\mfc42u.dll   |
| polagent.dll | 5.00.2183.1    | 108.27 KB (110,864 bytes)   | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\polagent.dll |
| scecli.dll   | 5.00.2191.1    | 105.27 KB (107,792 bytes)   | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\scecli.dll   |
| atl.dll      | 3.00.8449      | 57.56 KB (58,938 bytes)     | 7:00:00 PM            | Microsoft Corporation | c:\winnt\system32\atl.dll      |
| certcli.dll  | 5.00.2175.1    | 132.27 KB (135,440 bytes)   | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\certcli.dll  |
| esent.dll    | 6.0.3939.6     | 1.07 MB (1,120,016 bytes)   | 7:00:00 PM            | Microsoft Corporation | c:\winnt\system32\esent.dll    |
| ntdsatq.dll  | 5.00.2181.1    | 31.27 KB (32,016 bytes)     | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\ntdsatq.dll  |
| ntdsa.dll    | 5.00.2195.1    | 993.27 KB (1,017,104 bytes) | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\ntdsa.dll    |
| kdcsvc.dll   | 5.00.2181.1    | 133.77 KB (136,976 bytes)   | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\kdcsvc.dll   |
| sfmapi.dll   | 5.00.2134.1    | 38.77 KB (39,696 bytes)     | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\sfmapi.dll   |
| rassfm.dll   | 5.00.2168.1    | 21.27 KB (21,776 bytes)     | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\rassfm.dll   |
| mpr.dll      | 5.00.2146.1    | 53.27 KB (54,544 bytes)     | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\mpr.dll      |
| schannel.dll | 5.00.2170.1    | 139.77 KB (143,120 bytes)   | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\schannel.dll |
| netlogon.dll | 5.00.2182.1    | 347.77 KB (356,112 bytes)   | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\netlogon.dll |
| msv1_0.dll   | 5.00.2164.1    | 94.77 KB (97,040 bytes)     | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\msv1_0.dll   |
| kerberos.dll | 5.00.2181.1    | 196.77 KB (201,488 bytes)   | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\kerberos.dll |
| msprivs.dll  | 5.00.2154.1    | 41.50 KB (42,496 bytes)     | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\msprivs.dll  |
| samsrv.dll   | 5.00.2192.1    | 357.77 KB (366,352 bytes)   | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\samsrv.dll   |
| lsasrv.dll   | 5.00.2184.1    | 487.77 KB (499,472 bytes)   | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\lsasrv.dll   |
| lsass.exe    | 5.00.2184.1    | 32.77 KB (33,552 bytes)     | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\lsass.exe    |
| xactsrv.dll  | 5.00.2134.1    | 90.27 KB (92,432 bytes)     | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\xactsrv.dll  |
| wmicore.dll  | 5.00.2178.1    | 70.77 KB (72,464 bytes)     | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\wmicore.dll  |
| rasadhlp.dll | 5.00.2168.1    | 7.27 KB (7,440 bytes)       | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\rasadhlp.dll |
| winrnr.dll   | 5.00.2160.1    | 18.77 KB (19,216 bytes)     | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\winrnr.dll   |
| mr20.dll     | 5.00.2152.1    | 35.77 KB (36,624 bytes)     | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\mr20.dll     |
| wshtcpip.dll | 5.00.2134.1    | 17.27 KB (17,680 bytes)     | 12/6/1999 7:00:00 PM  | Microsoft Corporation | c:\winnt\system32\wshtcpip.dll |

|                                |              |                           |                        |                                |                |                           |                       |
|--------------------------------|--------------|---------------------------|------------------------|--------------------------------|----------------|---------------------------|-----------------------|
| msafd.dll                      | 5.00.2153.1  | 54.27 KB (55,568 bytes)   | Microsoft Corporation  | activeds.dll                   | 5.00.2172.1    | 172.77 KB (176,912 bytes) | Microsoft Corporation |
| c:\winnt\system32\msafd.dll    |              |                           |                        | c:\winnt\system32\activeds.dll |                |                           |                       |
| msocket.dll                    | 5.00.2152.1  | 62.27 KB (63,760 bytes)   | Microsoft Corporation  | mprapi.dll                     | 5.00.2181.1    | 79.27 KB (81,168 bytes)   | Microsoft Corporation |
| c:\winnt\system32\msocket.dll  |              |                           |                        | c:\winnt\system32\mprapi.dll   |                |                           |                       |
| msgsvc.dll                     | 5.00.2181.1  | 33.77 KB (34,576 bytes)   | Microsoft Corporation  | iphlpapi.dll                   | 5.00.2173.2    | 67.77 KB (69,392 bytes)   | Microsoft Corporation |
| c:\winnt\system32\msgsvc.dll   |              |                           |                        | c:\winnt\system32\iphlpapi.dll |                |                           |                       |
| browser.dll                    | 5.00.2142.1  | 48.27 KB (49,424 bytes)   | Microsoft Corporation  | icmp.dll                       | 5.00.2134.1    | 7.27 KB (7,440 bytes)     | Microsoft Corporation |
| c:\winnt\system32\browser.dll  |              |                           |                        | c:\winnt\system32\icmp.dll     |                |                           |                       |
| alrsvc.dll                     | 5.00.2134.1  | 17.77 KB (18,192 bytes)   | Microsoft Corporation  | dhcpcsvc.dll                   | 5.00.2153.1    | 88.77 KB (90,896 bytes)   | Microsoft Corporation |
| c:\winnt\system32\alrsvc.dll   |              |                           |                        | c:\winnt\system32\dhcpcsvc.dll |                |                           |                       |
| trkws.dll                      | 5.00.2166.1  | 88.77 KB (90,896 bytes)   | Microsoft Corporation  | eventlog.dll                   | 5.00.2178.1    | 43.77 KB (44,816 bytes)   | Microsoft Corporation |
| c:\winnt\system32\trkws.dll    |              |                           |                        | c:\winnt\system32\eventlog.dll |                |                           |                       |
| seclogon.dll                   | 5.00.2135.1  | 15.77 KB (16,144 bytes)   | Microsoft Corporation  | ntdsapi.dll                    | 5.00.2160.1    | 56.27 KB (57,616 bytes)   | Microsoft Corporation |
| c:\winnt\system32\seclogon.dll |              |                           |                        | c:\winnt\system32\ntdsapi.dll  |                |                           |                       |
| psbase.dll                     | 5.00.2146.1  | 111.77 KB (114,448 bytes) | Microsoft Corporation  | scesrv.dll                     | 5.00.2188.1    | 225.77 KB (231,184 bytes) | Microsoft Corporation |
| c:\winnt\system32\psbase.dll   |              |                           |                        | c:\winnt\system32\scesrv.dll   |                |                           |                       |
| cryptsvc.dll                   | 5.00.2181.1  | 61.77 KB (63,248 bytes)   | Microsoft Corporation  | umpnpmgr.dll                   | 5.00.2182.1    | 86.27 KB (88,336 bytes)   | Microsoft Corporation |
| c:\winnt\system32\cryptsvc.dll |              |                           |                        | c:\winnt\system32\umpnpmgr.dll |                |                           |                       |
| cryptdll.dll                   | 5.00.2135.1  | 41.27 KB (42,256 bytes)   | Microsoft Corporation  | services.exe                   | 5.00.2134.1    | 86.77 KB (88,848 bytes)   | Microsoft Corporation |
| c:\winnt\system32\cryptdll.dll |              |                           |                        | c:\winnt\system32\services.exe |                |                           |                       |
| wkssvc.dll                     | 5.00.2181.1  | 95.27 KB (97,552 bytes)   | Microsoft Corporation  | clbcatq.dll                    | 1999.9.3422.14 | 479.27 KB (490,768 bytes) | Microsoft Corporation |
| c:\winnt\system32\wkssvc.dll   |              |                           |                        | c:\winnt\system32\clbcatq.dll  |                |                           |                       |
| srsvcs.dll                     | 5.00.2178.1  | 79.27 KB (81,168 bytes)   | Microsoft Corporation  | oleaut32.dll                   | 2.40.4512      | 600.27 KB (614,672 bytes) | Microsoft Corporation |
| c:\winnt\system32\srsvcs.dll   |              |                           |                        | c:\winnt\system32\oleaut32.dll |                |                           |                       |
| cfgmgr32.dll                   | 5.00.2134.1  | 16.77 KB (17,168 bytes)   | Microsoft Corporation  | csoui.dll                      | 5.00.2172.1    | 227.27 KB (232,720 bytes) | Microsoft Corporation |
| c:\winnt\system32\cfgmgr32.dll |              |                           |                        | c:\winnt\system32\csoui.dll    |                |                           |                       |
| dmserver.dll                   | 2191.1.296.2 | 11.77 KB (12,048 bytes)   | VERITAS Software Corp. | winspool.drv                   | 5.00.2167.1    | 109.77 KB (112,400 bytes) | Microsoft Corporation |
| c:\winnt\system32\dmserver.dll |              |                           |                        | c:\winnt\system32\winspool.drv |                |                           |                       |
| winsta.dll                     | 5.00.2134.1  | 36.27 KB (37,136 bytes)   | Microsoft Corporation  | winscard.dll                   | 5.00.2134.1    | 77.27 KB (79,120 bytes)   | Microsoft Corporation |
| c:\winnt\system32\winsta.dll   |              |                           |                        | c:\winnt\system32\winscard.dll |                |                           |                       |
| lmhsvc.dll                     | 5.00.2134.1  | 9.27 KB (9,488 bytes)     | Microsoft Corporation  | wlnotify.dll                   | 5.00.2164.1    | 53.27 KB (54,544 bytes)   | Microsoft Corporation |
| c:\winnt\system32\lmhsvc.dll   |              |                           |                        | c:\winnt\system32\wlnotify.dll |                |                           |                       |
| dnssrslr.dll                   | 5.00.2181.1  | 88.27 KB (90,384 bytes)   | Microsoft Corporation  | cscdll.dll                     | 5.00.2189.1    | 98.27 KB (100,624 bytes)  | Microsoft Corporation |
| c:\winnt\system32\dnssrslr.dll |              |                           |                        | c:\winnt\system32\cscdll.dll   |                |                           |                       |
| tapi32.dll                     | 5.00.2182.1  | 123.27 KB (126,224 bytes) | Microsoft Corporation  | lz32.dll                       | 5.00.2134.1    | 9.77 KB (10,000 bytes)    | Microsoft Corporation |
| c:\winnt\system32\tapi32.dll   |              |                           |                        | c:\winnt\system32\lz32.dll     |                |                           |                       |
| rasman.dll                     | 5.00.2188.1  | 54.77 KB (56,080 bytes)   | Microsoft Corporation  | version.dll                    | 5.00.2134.1    | 15.77 KB (16,144 bytes)   | Microsoft Corporation |
| c:\winnt\system32\rasman.dll   |              |                           |                        | c:\winnt\system32\version.dll  |                |                           |                       |
| rasapi32.dll                   | 5.00.2188.1  | 189.77 KB (194,320 bytes) | Microsoft Corporation  | rsabase.dll                    | 5.00.2150.1    | 128.77 KB (131,856 bytes) | Microsoft Corporation |
| c:\winnt\system32\rasapi32.dll |              |                           |                        | c:\winnt\system32\rsabase.dll  |                |                           |                       |
| rtutils.dll                    | 5.00.2168.1  | 43.77 KB (44,816 bytes)   | Microsoft Corporation  | mecat32.dll                    | 5.131.2134.1   | 7.77 KB (7,952 bytes)     | Microsoft Corporation |
| c:\winnt\system32\rtutils.dll  |              |                           |                        | c:\winnt\system32\mecat32.dll  |                |                           |                       |
| adslrpc.dll                    | 5.00.2172.1  | 127.77 KB (130,832 bytes) | Microsoft Corporation  | ole32.dll                      | 5.00.2181.1    | 966.27 KB (989,456 bytes) | Microsoft Corporation |
| c:\winnt\system32\adslrpc.dll  |              |                           |                        | c:\winnt\system32\ole32.dll    |                |                           |                       |

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imagehlp.dll      5.00.2195.1      125.27 KB (128,272
bytes)      12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\imagehlp.dll
msasn1.dll 5.00.2134.1      51.27 KB (52,496 bytes)
12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\msasn1.dll
crypt32.dll 5.131.2173.1      465.77 KB (476,944 bytes)
12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\crypt32.dll
wintrust.dll      5.131.2143.1      162.27 KB (166,160
bytes)      12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\wintrust.dll
setupapi.dll      5.00.2183.1      554.27 KB (567,568
bytes)      12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\setupapi.dll
winmm.dll 5.00.2161.1      184.77 KB (189,200 bytes)
12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\winmm.dll
comctl32.dll      5.81      540.27 KB (553,232 bytes)
12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\comctl32.dll
shlwapi.dll 5.00.2920.0000      282.77 KB (289,552 bytes)
12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\shlwapi.dll
shell32.dll 5.00.2920.0000      2.24 MB (2,352,400 bytes)
12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\shell32.dll
msgina.dll 5.00.2191.1      309.77 KB (317,200 bytes)
12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\msgina.dll
wsock32.dll      5.00.2152.1      21.27 KB (21,776 bytes)
12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\wsock32.dll
dnsapi.dll 5.00.2181.1      129.77 KB (132,880 bytes)
12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\dnsapi.dll
ldap32.dll      5.00.2168.1      155.77 KB (159,504
bytes)      12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\ldap32.dll
ws2help.dll      5.00.2134.1      17.77 KB (18,192 bytes)
12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\ws2help.dll
ws2_32.dll 5.00.2134.1      69.77 KB (71,440 bytes)
12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\ws2_32.dll
samlib.dll 5.00.2160.1      46.27 KB (47,376 bytes)
12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\samlib.dll
netrap.dll 5.00.2134.1      11.27 KB (11,536 bytes)
12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\netrap.dll
netapi32.dll      5.00.2194.1      302.77 KB (310,032
bytes)      12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\netapi32.dll
profmap.dll      5.00.2181.1      29.27 KB (29,968 bytes)
12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\profmap.dll
secur32.dll 5.00.2154.1      46.77 KB (47,888 bytes)
12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\secur32.dll
sfc.dll 5.00.2164.1      84.27 KB (86,288 bytes)
12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\sfc.dll
nddeapi.dll      5.00.2137.1      15.27 KB (15,632 bytes)
12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\nddeapi.dll

```

```

userenv.dll 5.00.2185.1      361.27 KB (369,936 bytes)
12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\userenv.dll
user32.dll 5.00.2180.1      393.27 KB (402,704 bytes)
12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\user32.dll
gdi32.dll 5.00.2180.1      228.77 KB (234,256 bytes)
12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\gdi32.dll
rpert4.dll 5.00.2193.1      434.27 KB (444,688 bytes)
12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\rpert4.dll
advapi32.dll      5.00.2191.1      349.27 KB (357,648
bytes)      12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\advapi32.dll
kernel32.dll      5.00.2191.1      715.27 KB (732,432
bytes)      12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\kernel32.dll
msvrt.dll 6.10.8637.0      288.09 KB (295,000 bytes)
12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\msvrt.dll
winlogon.exe      5.00.2182.1      173.27 KB (177,424
bytes)      12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\winlogon.exe
sfcfiles.dll 5.00.2195.1      973.27 KB (996,624 bytes)
12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\sfcfiles.dll
ntdll.dll 5.00.2163.1      469.77 KB (481,040 bytes)
12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\ntdll.dll
smss.exe 5.00.2170.1      44.27 KB (45,328 bytes)
12/6/1999 7:00:00 PM      Microsoft Corporation
c:\winnt\system32\smss.exe

```

[Services]

| Display Name                   | Name                           | State         | Start Mode  | Start Name    |
|--------------------------------|--------------------------------|---------------|-------------|---------------|
| Service Type                   | Path                           | Error Control | Start Name  | Tag ID        |
| Alerter                        | Alerter                        | Running       | Auto        | Share Process |
| c:\winnt\system32\services.exe |                                | Normal        | LocalSystem | 0             |
| Application Management         |                                | AppMgmt       | Stopped     | Manual        |
| Share Process                  | c:\winnt\system32\services.exe | Normal        | LocalSystem | 0             |
| Computer Browser               | Browser                        | Running       | Auto        | Share Process |
| c:\winnt\system32\services.exe |                                | Normal        | LocalSystem | 0             |
| Indexing Service               | cisvc                          | Stopped       | Manual      | Share Process |
| c:\winnt\system32\cisvc.exe    |                                | Normal        | LocalSystem | 0             |
| ClipBook                       | ClipSrv                        | Stopped       | Manual      | Own Process   |
| c:\winnt\system32\clipsrv.exe  |                                | Normal        | LocalSystem | 0             |
| Distributed File System        |                                | Dfs           | Running     | Auto          |
| Own Process                    | c:\winnt\system32\dfssvc.exe   |               | Normal      | LocalSystem   |
| DHCP Client                    | Dhcp                           | Running       | Auto        | Share Process |
| c:\winnt\system32\services.exe |                                | Normal        | LocalSystem | 0             |
| Logical Disk Manager           | Administrative Service         |               |             | dmadmin       |
| Stopped                        | Manual                         | Share Process |             |               |
| c:\winnt\system32\dmadmin.exe  | /com                           | Normal        | LocalSystem | 0             |
| Logical Disk Manager           |                                | dmserver      | Running     | Auto          |
| Share Process                  | c:\winnt\system32\services.exe |               | Normal      | LocalSystem   |
| DNS Client                     | Dnscache                       | Running       | Auto        | Share Process |
| c:\winnt\system32\services.exe |                                | Normal        | LocalSystem | 0             |
| Event Log                      | Eventlog                       | Running       | Auto        | Share Process |
| c:\winnt\system32\services.exe |                                | Normal        | LocalSystem | 0             |

COM+ Event System EventSystem Running Manual  
 Share Process c:\winnt\system32\svchost.exe -k netsvcs  
 Normal LocalSystem 0  
 Fax Service Fax Stopped Manual Own Process  
 c:\winnt\system32\faxsvc.exe Normal LocalSystem 0  
 cLAN Connection Manager GniConMgr Running  
 Auto Own Process c:\winnt\system32\gnconmgr.exe  
 Normal LocalSystem 0  
 Internet Authentication Service IAS Running Auto  
 Share Process c:\winnt\system32\svchost.exe -k netsvcs  
 Normal LocalSystem 0  
 IIS Admin Service IISADMINRunning Auto Share Process  
 c:\winnt\system32\inetrv\inetinfo.exe Normal LocalSystem  
 0  
 Intersite Messaging IsmServ Stopped Disabled Own Process  
 c:\winnt\system32\ismserv.exe Normal LocalSystem 0  
 Kerberos Key Distribution Center kdc Stopped  
 Disabled Share Process c:\winnt\system32\lsass.exe  
 Normal LocalSystem 0  
 Server lanmanserver Running Auto Share Process  
 c:\winnt\system32\services.exe Normal LocalSystem 0  
 Workstation lanmanworkstation Running Auto  
 Share Process c:\winnt\system32\services.exe Normal  
 LocalSystem 0  
 License Logging Service LicenseService Running  
 Auto Own Process c:\winnt\system32\llsrv.exe  
 Normal LocalSystem 0  
 TCP/IP NetBIOS Helper Service LmHosts Running Auto  
 Share Process c:\winnt\system32\services.exe Normal  
 LocalSystem 0  
 Messenger MessengerRunning Auto Share Process  
 c:\winnt\system32\services.exe Normal LocalSystem 0  
 NetMeeting Remote Desktop Sharing mnmsrvc Stopped  
 Manual Own Process c:\winnt\system32\mnmsrvc.exe  
 Normal LocalSystem 0  
 Distributed Transaction Coordinator MSDTC Running  
 Auto Own Process c:\winnt\system32\msdtc.exe  
 Normal LocalSystem 0  
 Windows Installer MSIServerStopped Manual Share Process  
 c:\winnt\system32\msiexec.exe /v Normal LocalSystem  
 0  
 Network DDE NetDDE Stopped Manual Share Process  
 c:\winnt\system32\netdde.exe Normal LocalSystem 0  
 Network DDE DSDMNetDDEdsdm Stopped Manual  
 Share Process c:\winnt\system32\netdde.exe Normal  
 LocalSystem 0  
 Net Logon Netlogon Stopped Manual Share Process  
 c:\winnt\system32\lsass.exe Normal LocalSystem 0  
 Network Connections Netman Running Manual Share Process  
 c:\winnt\system32\svchost.exe -k netsvcs Normal LocalSystem  
 0  
 File Replication NtFrs Stopped Manual Own Process  
 c:\winnt\system32\ntfrs.exe Ignore LocalSystem 0  
 NT LM Security Support Provider NtLmSsp Stopped  
 Manual Share Process c:\winnt\system32\lsass.exe  
 Normal LocalSystem 0  
 Removable Storage NtmsSvc Running Auto Share Process  
 c:\winnt\system32\svchost.exe -k netsvcs Normal LocalSystem  
 0  
 Plug and Play PlugPlay Running Auto Share Process  
 c:\winnt\system32\services.exe Normal LocalSystem 0  
 IPSEC Policy Agent PolicyAgent Running Auto  
 Share Process c:\winnt\system32\lsass.exe Normal  
 LocalSystem 0  
 Protected Storage ProtectedStorage Running Auto  
 Share Process c:\winnt\system32\services.exe Normal  
 LocalSystem 0

Remote Access Auto Connection Manager RasAuto Stopped  
 Manual Share Process c:\winnt\system32\svchost.exe -k  
 netsvcs Normal LocalSystem 0  
 Remote Access Connection Manager RasMan Stopped  
 Manual Share Process c:\winnt\system32\svchost.exe -k  
 netsvcs Normal LocalSystem 0  
 Routing and Remote Access RemoteAccess Stopped  
 Disabled Share Process c:\winnt\system32\svchost.exe -k  
 netsvcs Normal LocalSystem 0  
 Remote Registry Service RemoteRegistry Running  
 Auto Own Process c:\winnt\system32\regsvc.exe  
 Normal LocalSystem 0  
 Remote Procedure Call (RPC) Locator RpcLocator  
 Stopped Manual Own Process  
 c:\winnt\system32\locator.exe Normal LocalSystem 0  
 Remote Procedure Call (RPC) RpcSs Running Auto  
 Share Process c:\winnt\system32\svchost -k rpss  
 Normal LocalSystem 0  
 QoS Admission Control (RSVP) RSVP Running Auto  
 Own Process c:\winnt\system32\rsvp.exe -s Normal  
 LocalSystem 0  
 Security Accounts Manager SamSs Running Auto  
 Share Process c:\winnt\system32\lsass.exe Normal  
 LocalSystem 0  
 Smart Card Helper SCardDrv Stopped Manual Share Process  
 c:\winnt\system32\scardsvr.exe Ignore LocalSystem 0  
 Smart Card SCardSvr Stopped Manual Share Process  
 c:\winnt\system32\scardsvr.exe Ignore LocalSystem 0  
 Task Scheduler Schedule Running Auto Share Process  
 c:\winnt\system32\mstask.exe Normal LocalSystem 0  
 RunAs Service seclogon Running Auto Share Process  
 c:\winnt\system32\services.exe Ignore LocalSystem 0  
 System Event Notification SENS Running Auto  
 Share Process c:\winnt\system32\svchost.exe -k netsvcs  
 Normal LocalSystem 0  
 ServeRAID Manager Agent ServeRAIDManagerAgent  
 Running Auto Own Process c:\program  
 files\raidman\raidsrv.exe Normal LocalSystem 0  
 Internet Connection Sharing SharedAccess Stopped  
 Manual Share Process c:\winnt\system32\svchost.exe -k  
 netsvcs Normal LocalSystem 0  
 Simple TCP/IP Services SimpTcp Running Auto  
 Share Process c:\winnt\system32\tcpvcs.exe Normal  
 LocalSystem 0  
 Simple Mail Transport Protocol (SMTP) SMTPSVC  
 Running Auto Share Process  
 c:\winnt\system32\inetrv\inetinfo.exe Normal LocalSystem  
 0  
 Print Spooler Spooler Running Auto Own Process  
 c:\winnt\system32\spoolsv.exe Normal LocalSystem 0  
 Performance Logs and Alerts SysmonLog Stopped  
 Manual Own Process c:\winnt\system32\smlogsvc.exe  
 Normal LocalSystem 0  
 Telephony TapiSrv Running Manual Share Process  
 c:\winnt\system32\svchost.exe -k tapisrv Normal LocalSystem  
 0  
 Terminal Services TermService Stopped Disabled  
 Own Process c:\winnt\system32\termsrv.exe Normal  
 LocalSystem 0  
 Telnet TlntSvr Stopped Manual Own Process  
 c:\winnt\system32\tlntsvr.exe Normal LocalSystem 0  
 Distributed Link Tracking ServerTrkSvr Stopped Manual  
 Share Process c:\winnt\system32\services.exe Normal  
 LocalSystem 0  
 Distributed Link Tracking Client TrkWks Running Auto  
 Share Process c:\winnt\system32\services.exe Normal  
 LocalSystem 0

```

Uninterruptible Power Supply  UPS      Stopped  Manual
Own Process                   c:\winnt\system32\ups.exe  Normal
LocalSystem                   0
Utility Manager               UtilMan  Stopped  Manual  Own Process
c:\winnt\system32\utilman.exe Normal  LocalSystem  0
Windows Time                  W32Time Stopped  Manual  Share Process
c:\winnt\system32\services.exe Normal  LocalSystem  0
World Wide Web Publishing Service W3SVC  Running
Auto Share Process
c:\winnt\system32\inetrv\inetinfo.exe Normal  LocalSystem
0
Windows Management Instrumentation WinMgmt Running
Auto Own Process
c:\winnt\system32\wbem\winmgmt.exe Ignore  LocalSystem
0
Windows Management Instrumentation Driver Extensions
Wmi Running Manual Share Process
c:\winnt\system32\services.exe Normal  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
Accessories\System Tools    Default User:Accessories\System
Tools      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\Games  All Users:Accessories\Games  All Users
Accessories\Microsoft Script Debugger  All
Users:Accessories\Microsoft Script Debugger  All Users
Accessories\System Tools  All Users:Accessories\System Tools
All Users
Administrative Tools  All Users:Administrative Tools  All Users
ServeRAID Manager  All Users:ServeRAID Manager  All Users
Startup  All Users:Startup  All Users
Accessories  DTCSERVER\Administrator:Accessories
DTCSERVER\Administrator
Accessories\Accessibility
DTCSERVER\Administrator:Accessories\Accessibility
DTCSERVER\Administrator
Accessories\Entertainment
DTCSERVER\Administrator:Accessories\Entertainment
DTCSERVER\Administrator
Accessories\System Tools
DTCSERVER\Administrator:Accessories\System Tools
DTCSERVER\Administrator
Administrative Tools  DTCSERVER\Administrator:Administrative
Tools  DTCSERVER\Administrator
Startup  DTCSERVER\Administrator:Startup
DTCSERVER\Administrator

```

[Startup Programs]

```

Program  Command  User Name      Location
No startup program information

```

[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
Image Document  "C:\Program Files\Windows
NT\Accessories\ImageVue\KodakImg.exe"
WordPad Document  "%ProgramFiles%\Windows
NT\Accessories\WORDPAD.EXE"
Windows Media Services DRM Storage object  Not Available
Bitmap Image  mspaint.exe

```

[Internet Explorer 5]

[ Following are sub-categories of this main category ]

[Summary]

```

Item      Value
Version   5.00.2920.0000
Build     52920
Product ID 51879-005-0249992-05587
Application Path  C:\Program Files\Internet Explorer
Language  English (United States)
Active Printer  Not Available

Cipher Strength  56-bit
Content Advisor  Disabled
IEAK Install     No

```

[File Versions]

| File         | Version        | Size   | Date                 | Path                               | Company               |
|--------------|----------------|--------|----------------------|------------------------------------|-----------------------|
| advapi32.dll | 5.0.2191.1     | 349 KB | 12/6/1999 8:00:00 PM | C:\WINNT\system32                  | Microsoft Corporation |
| advpack.dll  | 5.0.2920.0     | 87 KB  | 12/6/1999 8:00:00 PM | C:\WINNT\system32                  | Microsoft Corporation |
| browsecl.dll | 5.0.2920.0     | 35 KB  | 12/6/1999 8:00:00 PM | C:\WINNT\system32                  | Microsoft Corporation |
| browseui.dll | 5.0.2920.0     | 793 KB | 12/6/1999 8:00:00 PM | C:\WINNT\system32                  | Microsoft Corporation |
| ckcnv.exe    | 5.0.2189.1     | 9 KB   | 12/6/1999 8:00:00 PM | C:\WINNT\system32                  | Microsoft Corporation |
| comctl32.dll | 5.81.2920.0    | 540 KB | 12/6/1999 8:00:00 PM | C:\WINNT\system32                  | Microsoft Corporation |
| crypt32.dll  | 5.0.2195.1     | 466 KB | 12/6/1999 8:00:00 PM | C:\WINNT\system32                  | Microsoft Corporation |
| ehnsig.dll   | <File Missing> |        | Not Available        |                                    | Not Available         |
| iemigrat.dll | <File Missing> |        | Not Available        |                                    | Not Available         |
| iesetup.dll  | 5.0.2920.0     | 57 KB  | 12/6/1999 8:00:00 PM | C:\WINNT\system32                  | Microsoft Corporation |
| iexplore.exe | 5.0.2920.0     | 59 KB  | 12/6/1999 8:00:00 PM | C:\Program Files\Internet Explorer | Microsoft Corporation |
| imagehlp.dll | 5.0.2195.1     | 125 KB | 12/6/1999 8:00:00 PM | C:\WINNT\system32                  | Microsoft Corporation |
| imghelp.dll  | <File Missing> |        | Not Available        |                                    | Not Available         |
| inseng.dll   | 5.0.2920.0     | 72 KB  | 12/6/1999 8:00:00 PM | C:\WINNT\system32                  | Microsoft Corporation |
| jobexec.dll  | 5.0.0.1        | 47 KB  | 12/6/1999 8:00:00 PM | C:\WINNT\system32                  | Microsoft Corporation |
| jscript.dll  | 5.1.0.4615     | 476 KB | 12/6/1999 8:00:00 PM | C:\WINNT\system32                  | Microsoft Corporation |

```

jsproxy.dll 5.0.2920.0 13 KB 12/6/1999 8:00:00 PM
C:\WINNT\system32 Microsoft Corporation
msahtml.dll <File Missing> Not Available Not
Available Not Available Not Available
mshtml.dll 5.0.2920.0 2302 KB 12/6/1999 8:00:00 PM
C:\WINNT\system32 Microsoft Corporation
msjava.dll 5.0.3234.0 918 KB 12/6/1999 8:00:00 PM
C:\WINNT\system32 Microsoft Corporation
msoss.dll <File Missing> Not Available Not Available
Not Available Not Available
msxml.dll 5.0.2920.0 521 KB 12/6/1999 8:00:00 PM
C:\WINNT\system32 Microsoft Corporation
occache.dll 5.0.2920.0 86 KB 12/6/1999 8:00:00 PM
C:\WINNT\system32 Microsoft Corporation
ole32.dll 5.0.2181.1 966 KB 12/6/1999 8:00:00 PM
C:\WINNT\system32 Microsoft Corporation
oleaut32.dll 2.40.4512.1 600 KB 12/6/1999
8:00:00 PM C:\WINNT\system32 Microsoft Corporation
olepro32.dll 5.0.4512.1 160 KB 12/6/1999 8:00:00 PM
C:\WINNT\system32 Microsoft Corporation
rsabase.dll 5.0.2150.1 129 KB 12/6/1999 8:00:00 PM
C:\WINNT\system32 Microsoft Corporation
rsaenh.dll <File Missing> Not Available Not Available
Not Available Not Available
rsapi32.dll <File Missing> Not Available Not Available
Not Available Not Available
rsasig.dll <File Missing> Not Available Not Available
Not Available Not Available
schannel.dll 5.0.2170.0 140 KB 12/6/1999 8:00:00 PM
C:\WINNT\system32 Microsoft Corporation
shdoc401.dll <File Missing> Not Available Not
Available Not Available Not Available
shdocvw.dll 5.0.2920.0 1078 KB 12/6/1999 8:00:00 PM
C:\WINNT\system32 Microsoft Corporation
shell32.dll 5.0.2920.0 2297 KB 12/6/1999 8:00:00 PM
C:\WINNT\system32 Microsoft Corporation
shlwapi.dll 5.0.2920.0 283 KB 12/6/1999 8:00:00 PM
C:\WINNT\system32 Microsoft Corporation
url.dll 5.0.2920.0 82 KB 12/6/1999 8:00:00 PM
C:\WINNT\system32 Microsoft Corporation
urlmon.dll 5.0.2920.0 427 KB 12/6/1999 8:00:00 PM
C:\WINNT\system32 Microsoft Corporation
vbscript.dll 5.1.0.4615 428 KB 12/6/1999 8:00:00 PM
C:\WINNT\system32 Microsoft Corporation
webcheck.dll 5.0.2920.0 252 KB 12/6/1999 8:00:00 PM
C:\WINNT\system32 Microsoft Corporation
win.com 5.0.2134.1 24 KB 12/6/1999 8:00:00 PM
C:\WINNT\system32 Microsoft Corporation
wininet.dll 5.0.2920.0 457 KB 12/6/1999 8:00:00 PM
C:\WINNT\system32 Microsoft Corporation
winsock.dll 3.10.0.103 3 KB 12/6/1999 8:00:00 PM
C:\WINNT\system32 Microsoft Corporation
wintrust.dll 5.131.2143.1 162 KB 12/6/1999
8:00:00 PM C:\WINNT\system32 Microsoft Corporation
wsock.vxd <File Missing> Not Available Not Available
Not Available Not Available
wsock32.dll 5.0.2152.1 21 KB 12/6/1999 8:00:00 PM
C:\WINNT\system32 Microsoft Corporation
wsock32n.dll <File Missing> 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 Enabled
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 8665 MB
Available Disk Space 5876 MB
Maximum Cache Size 270 MB
Available Cache Size 271 MB

```

[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
Administrator Administrator 4/4/2001 to 3/11/2101
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 Medium-low
Trusted sites Low
Internet Medium
Restricted sites High

```

## System Information Report for Clients

This system configuration inventory was obtained from 1 of 8 clients (xSeries 220).

All 8 clients are identically configured.  
 System Information report written at: 04/11/2001 03:36:37 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 Build 2195                                   |
| OS Manufacturer           | Microsoft Corporation                                 |
| System Name               | CLIENT10  |
| System Manufacturer       | IBM   |
| System Model              | IBM eserver xSeries 220 -[8645]-                      |
| System Type               | X86-based PC  |
| Processor                 | x86 Family 6 Model 8 Stepping 6 GenuineIntel ~933 Mhz |
| Processor                 | x86 Family 6 Model 8 Stepping 6 GenuineIntel ~933 Mhz |
| BIOS Version              | IBM BIOS Ver 3.0                                      |
| Windows Directory         | C:\WINNT  |
| System Directory          | C:\WINNT\System32                                     |
| Boot Device               | \Device\Harddisk0\Partition1                          |
| Locale                    | United States   |
| User Name                 | CLIENT10\Administrator                                |
| Time Zone                 | Eastern Daylight Time                                 |
| Total Physical Memory     | 654,808 KB  |
| Available Physical Memory | 573,316 KB  |
| Total Virtual Memory      | 2,865,768 KB  |
| Available Virtual Memory  | 2,714,664 KB  |
| Page File Space           | 2,210,960 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 |
| 2       | Standard floppy disk controller | OK     |
| 4       | Direct memory access controller | OK     |

[Forced Hardware]

Device PNP Device ID  
 No Forced Hardware

[I/O]

|               |   |        |
|---------------|---|--------|
| Address Range | Device  | Status |
| 0x0000-0x303F | PCI bus                                       | OK     |
| 0x0000-0x303F | Direct memory access controller               | OK     |
| 0x03B0-0x03BB | S3 Inc. Savage4                               | OK     |
| 0x03C0-0x03DF | S3 Inc. Savage4                               | OK     |
| 0x3000-0x303F | IBM Netfinity 10/100 Ethernet Adapter         | OK     |
| 0x2000-0x2FFF | DEC 21152 PCI to PCI bridge                   | OK     |
| 0x2000-0x2FFF | Intel(R) PRO/100+ Dual Port Server Adapter #5 | OK     |
| 0x0A79-0x0A79 | ISAPNP Read Data Port                         | OK     |
| 0x0279-0x0279 | ISAPNP Read Data Port                         | OK     |
| 0x02F4-0x02F7 | ISAPNP Read Data Port                         | OK     |
| 0x002E-0x002F | Motherboard resources                         | OK     |
| 0x0438-0x0439 | Motherboard resources                         | OK     |
| 0x0430-0x0437 | Motherboard resources                         | OK     |

|               |   |    |
|---------------|---|----|
| 0x0430-0x0437 | Not Available                                 | OK |
| 0x0060-0x0060 | Standard 101/102-Key or Microsoft Natural     | OK |
| PS/2 Keyboard |   | OK |
| 0x0064-0x0064 | Standard 101/102-Key or Microsoft Natural     | OK |
| PS/2 Keyboard |   | OK |
| 0x03F0-0x03F5 | Standard floppy disk controller               | OK |
| 0x03F7-0x03F7 | Standard floppy disk controller               | OK |
| 0x0378-0x037F | Printer Port (LPT1)                           | OK |
| 0x03F8-0x03FF | Communications Port (COM1)                    | OK |
| 0x02F8-0x02FF | Communications Port (COM2)                    | OK |
| 0x0020-0x0021 | Advanced programmable interrupt controller    | OK |
| 0x00A0-0x00A1 | Advanced programmable interrupt controller    | OK |
| 0x0080-0x008F | 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 |
| 0x0600-0x0600 | Motherboard resources                         | OK |
| 0x0374-0x0375 | Motherboard resources                         | OK |
| 0x0377-0x0377 | Motherboard resources                         | OK |
| 0x0F50-0x0F58 | Motherboard resources                         | OK |
| 0x0700-0x070F | Standard Dual Channel PCI IDE Controller      | 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 |
| 0x3040-0xFFFF | PCI bus                                       | OK |
| 0x3100-0x31FF | Adaptec AIC-7892 Ultra160/m PCI SCSI Card     | OK |
| 0x4000-0x4FFF | DEC 21152 PCI to PCI bridge                   | OK |
| 0x4000-0x4FFF | Intel(R) PRO/100+ Dual Port Server Adapter    | OK |
| 0x4020-0x403F | Intel(R) PRO/100+ Dual Port Server Adapter #2 | OK |

[IRQs]

|            |   |
|------------|---|
| IRQ Number | Device  |
| 30         | Microsoft ACPI-Compliant System                         |
| 31         | S3 Inc. Savage4   |
| 27         | IBM Netfinity 10/100 Ethernet Adapter                   |
| 16         | Intel(R) PRO/100+ Dual Port Server Adapter #5           |
| 1          | Standard 101/102-Key or Microsoft Natural PS/2 Keyboard |
| 12         | PS/2 Compatible Mouse                                   |
| 6          | Standard floppy disk controller                         |
| 4          | Communications Port (COM1)                              |
| 3          | Communications Port (COM2)                              |
| 8          | System CMOS/real time clock                             |
| 13         | Numeric data processor                                  |
| 14         | Primary IDE Channel                                     |
| 10         | Standard OpenHCD USB Host Controller                    |
| 28         | Adaptec AIC-7892 Ultra160/m PCI SCSI Card               |
| 24         | Intel(R) PRO/100+ Dual Port Server Adapter              |
| 25         | Intel(R) PRO/100+ Dual Port Server Adapter #2           |

[Memory]

|                        |                 |        |
|------------------------|-----------------|--------|
| Range                  | Device          | Status |
| 0xA0000-0xBFFFF        | PCI bus         | OK     |
| 0xA0000-0xBFFFF        | S3 Inc. Savage4 | OK     |
| 0xF0000000-0xFBFFFFFF  | PCI bus         | OK     |
| 0xF0000000-0xFBFFFFFF  | S3 Inc. Savage4 | OK     |
| 0xFC000000-0xFFFFFFFF  | PCI bus         | OK     |
| 0xFEB80000-0xFEBFFFFFF | S3 Inc. Savage4 | OK     |

| Code                  | Manufacturer                                  | Description | Status | File |
|-----------------------|---|-------------|--------|------|
| 0xFEB7F000-0xFEB7FFFF | IBM Netfinity 10/100 Ethernet Adapter         | OK          |        |      |
| 0xFEAF0000-0xFEAFFFFF | IBM Netfinity 10/100 Ethernet Adapter         | OK          |        |      |
| 0xFD000000-0xFE1FFFFF | DEC 21152 PCI to PCI bridge                   | OK          |        |      |
| 0xFBFB0000-0xFBFBFFFF | DEC 21152 PCI to PCI bridge                   | OK          |        |      |
| 0xFBFB0000-0xFBFBFFFF | Intel(R) PRO/100+ Dual Port Server Adapter #5 | OK          |        |      |
| 0xFE000000-0xFE0FFFFF | Intel(R) PRO/100+ Dual Port Server Adapter #5 | OK          |        |      |
| 0xFEB7E000-0xFEB7EFFF | Standard OpenHCD USB Host Controller          | OK          |        |      |
| 0x28000000-0xECFFFFFF | PCI bus                                       | OK          |        |      |
| 0xED000000-0xEFFFFFFF | PCI bus                                       | OK          |        |      |
| 0xEFFFF000-0xEFFFFFFF | Adaptec AIC-7892 Ultra160/m SCSI Card         | OK          |        |      |
| 0xEE000000-0xEF1FFFFF | DEC 21152 PCI to PCI bridge                   | OK          |        |      |
| 0xECF00000-0xECFFFFFF | DEC 21152 PCI to PCI bridge                   | OK          |        |      |
| 0xECF00000-0xECFFFFFF | Intel(R) PRO/100+ Dual Port Server Adapter    | OK          |        |      |
| 0xEF000000-0xEF0FFFFF | Intel(R) PRO/100+ Dual Port Server Adapter    | OK          |        |      |
| 0xECF01000-0xECF01FFF | Intel(R) PRO/100+ Dual Port Server Adapter #2 | OK          |        |      |
| 0xEF100000-0xEF1FFFFF | Intel(R) PRO/100+ Dual Port Server Adapter #2 | OK          |        |      |

[Components]

[ Following are sub-categories of this main category ]

[Multimedia]

[ Following are sub-categories of this main category ]

[Audio Codecs]

| Code                           | Manufacturer              | Description           | Status | File                           |
|--------------------------------|---------------------------|-----------------------|--------|--------------------------------|
| c:\winnt\system32\iac25_32.ax  | Intel Corporation         | Indeo® audio software | OK     | C:\WINNT\System32\IAC25_32.AX  |
| 2.05.53                        | 195.00 KB (199,680 bytes) |                       |        | 12/7/1999 7:00:00 AM           |
| c:\winnt\system32\msg723.acm   | Microsoft Corporation     |                       | OK     | C:\WINNT\System32\MSG723.ACM   |
| 106.77 KB (109,328 bytes)      |                           |                       |        | 2/5/2001 3:49:25 PM            |
| c:\winnt\system32\lhacm.acm    | Microsoft Corporation     |                       | OK     | C:\WINNT\System32\LHACM.ACM    |
| 33.27 KB (34,064 bytes)        |                           |                       |        | 2/5/2001 3:49:25 PM            |
| c:\winnt\system32\tssoft32.acm | DSP GROUP, INC.           |                       | OK     | C:\WINNT\System32\TSOFT32.ACM  |
| 1.01                           | 9.27 KB (9,488 bytes)     |                       |        | 12/7/1999 7:00:00 AM           |
| c:\winnt\system32\msgsm32.acm  | Microsoft Corporation     |                       | OK     | C:\WINNT\System32\MSGSM32.ACM  |
| 22.27 KB (22,800 bytes)        |                           |                       |        | 12/7/1999 7:00:00 AM           |
| c:\winnt\system32\msadp32.acm  | Microsoft Corporation     |                       | OK     | C:\WINNT\System32\MSADP32.ACM  |
| 14.77 KB (15,120 bytes)        |                           |                       |        | 12/7/1999 7:00:00 AM           |
| c:\winnt\system32\msg711.acm   | Microsoft Corporation     |                       | OK     | C:\WINNT\System32\MSG711.ACM   |
| 10.27 KB (10,512 bytes)        |                           |                       |        | 12/7/1999 7:00:00 AM           |
| c:\winnt\system32\imaadp32.acm | Microsoft Corporation     |                       | OK     | C:\WINNT\System32\IMAADP32.ACM |
| 5.00.2134.1                    | 16.27 KB (16,656 bytes)   |                       |        | 12/7/1999 7:00:00 AM           |

[Video Codecs]

| Code                           | Manufacturer              | Description  | Status | File                           |
|--------------------------------|---------------------------|--------------|--------|--------------------------------|
| c:\winnt\system32\ir50_32.dll  | Intel Corporation         | Indeo® video |        |                                |
| 5.10                           | OK                        |              |        | C:\WINNT\System32\IR50_32.DLL  |
| R.5.10.15.2.55                 | 737.50 KB (755,200 bytes) |              |        | 12/7/1999 7:00:00 AM           |
| c:\winnt\system32\msh263.drv   | Microsoft Corporation     |              | OK     | C:\WINNT\System32\MSH263.DRV   |
| 252.27 KB (258,320 bytes)      |                           |              |        | 2/5/2001 3:49:00 PM            |
| c:\winnt\system32\msh261.drv   | Microsoft Corporation     |              | OK     | C:\WINNT\System32\MSH261.DRV   |
| 163.77 KB (167,696 bytes)      |                           |              |        | 2/5/2001 3:49:25 PM            |
| c:\winnt\system32\ir32_32.dll  | Intel(R) Corporation      |              | OK     | C:\WINNT\System32\IR32_32.DLL  |
| 194.50 KB (199,168 bytes)      |                           |              |        | 12/7/1999 7:00:00 AM           |
| c:\winnt\system32\msrle32.dll  | Microsoft Corporation     |              | OK     | C:\WINNT\System32\MSRLE32.DLL  |
| 10.77 KB (11,024 bytes)        |                           |              |        | 12/7/1999 7:00:00 AM           |
| c:\winnt\system32\msvidc32.dll | Microsoft Corporation     |              | OK     | C:\WINNT\System32\MSVIDC32.DLL |
| 27.27 KB (27,920 bytes)        |                           |              |        | 12/7/1999 7:00:00 AM           |
| c:\winnt\system32\iccvld.dll   | Radius Inc.               |              | OK     | C:\WINNT\System32\ICCVLD.DLL   |
| (110,592 bytes)                |                           |              |        | 12/7/1999 7:00:00 AM           |

[CD-ROM]

| Item           | Value                                |
|----------------|--------------------------------------|
| Drive          | D:                                   |
| Description    | CD-ROM Drive                         |
| Media Loaded   | False                                |
| Media Type     | CD-ROM                               |
| Name           | LITEON CD-ROM LTN485S                |
| Manufacturer   | (Standard CD-ROM drives)             |
| Status         | OK                                   |
| Transfer Rate  | Not Available                        |
| SCSI Target ID | 0                                    |
| PNP Device ID  | IDE\CDROMLITEON_CD-ROM_LTN485S_____J |
|                | U04____\5&326853DD&0&0.0.0           |

[Sound Device]

| Item             | Value |
|------------------|-------|
| No sound devices |       |

[Display]

| Item                | Value  |
|---------------------|--|
| Name                | S3 Inc. Savage4  |
| PNP Device ID       | PCI\VEN_5333&DEV_8A22&SUBSYS_01C51014&REV_04\3&267A616A&0&08 |
| Adapter Type        | S3 Savage4, S3 compatible                                    |
| Adapter Description | S3 Inc. Savage4  |
| Adapter RAM         | 8.00 MB (8,388,608 bytes)                                    |
| Installed Drivers   | s3sav4.dll   |
| Driver Version      | 5.01.840.0001  |
| INF File            | s3sav4.inf (S3Inc section)                                   |
| Color Planes        | 1  |
| Color Table Entries | 65536  |
| Resolution          | 800 x 600 x 60 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&23FD4C84&0  
NumberOfFunctionKeys 12

[Pointing Device]

Item Value  
Hardware Type PS/2 Compatible Mouse  
Number of Buttons 3  
Status OK  
PNP Device ID ACPI\PNP0F13\4&23FD4C84&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] IBM Netfinity 10/100 Ethernet Adapter  
Adapter Type Ethernet 802.3  
Product Name IBM Netfinity 10/100 Ethernet Adapter  
Installed True  
PNP Device ID  
PCI\VEN\_8086&DEV\_1229&SUBSYS\_105C1014&REV\_08\3&267  
A616A&0&10  
Last Reset 4/11/2001 9:32:41 AM  
Index 0  
Service Name E100B  
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 00:02:55:D4:77:D1  
Service Name E100B  
IRQ Number 27  
I/O Port 0x3000-0x303F  
Driver c:\winnt\system32\drivers\e100bnt5.sys (104720,  
5.00.67.0000)

Name [00000001] Intel(R) PRO/100+ Dual Port Server Adapter  
Adapter Type Ethernet 802.3

Product Name Intel(R) PRO/100+ Dual Port Server Adapter  
Installed True  
PNP Device ID  
PCI\VEN\_8086&DEV\_1229&SUBSYS\_10F08086&REV\_05\4&27A  
BF15E&0&2038  
Last Reset 4/11/2001 9:32:41 AM  
Index 1  
Service Name E100B  
IP Address 192.168.11.99  
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 00:03:47:0D:AD:B8  
Service Name E100B  
IRQ Number 24  
I/O Port 0x4000-0x4FFF  
Driver c:\winnt\system32\drivers\e100bnt5.sys (104720,  
5.00.67.0000)

Name [00000002] Intel(R) PRO/100+ Dual Port Server Adapter  
Adapter Type Ethernet 802.3  
Product Name Intel(R) PRO/100+ Dual Port Server Adapter  
Installed True  
PNP Device ID  
PCI\VEN\_8086&DEV\_1229&SUBSYS\_10F08086&REV\_05\4&27A  
BF15E&0&2838  
Last Reset 4/11/2001 9:32:41 AM  
Index 2  
Service Name E100B  
IP Address 192.168.10.99  
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 00:03:47:0D:AD:B9  
Service Name E100B  
IRQ Number 25  
I/O Port 0x4020-0x403F  
Driver c:\winnt\system32\drivers\e100bnt5.sys (104720,  
5.00.67.0000)

Name [00000003] RAS Async Adapter  
Adapter Type Not Available  
Product Name RAS Async Adapter  
Installed True  
PNP Device ID Not Available  
Last Reset 4/11/2001 9:32:41 AM  
Index 3  
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 [00000004] WAN Miniport (L2TP)  
Adapter Type Not Available  
Product Name WAN Miniport (L2TP)  
Installed True

PNP Device ID ROOT\MS\_L2TPMINIPOINT\0000  
 Last Reset 4/11/2001 9:32:41 AM  
 Index 4  
 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 Rasl2tp  
 Driver c:\winnt\system32\drivers\rasl2tp.sys (50800, 5.00.2179.1)

Name [00000005] WAN Miniport (PPTP)  
 Adapter Type Wide Area Network (WAN)  
 Product Name WAN Miniport (PPTP)  
 Installed True  
 PNP Device ID ROOT\MS\_PPTPMINIPOINT\0000  
 Last Reset 4/11/2001 9:32:41 AM  
 Index 5  
 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 (47856, 5.00.2160.1)

Name [00000006] Direct Parallel  
 Adapter Type Not Available  
 Product Name Direct Parallel  
 Installed True  
 PNP Device ID ROOT\MS\_PTIMINIPOINT\0000  
 Last Reset 4/11/2001 9:32:41 AM  
 Index 6  
 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 [00000007] WAN Miniport (IP)  
 Adapter Type Not Available  
 Product Name WAN Miniport (IP)  
 Installed True  
 PNP Device ID ROOT\MS\_NDISWANIP\0000  
 Last Reset 4/11/2001 9:32:41 AM  
 Index 7  
 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 (90768, 5.00.2184.1)

Name [00000008] Intel(R) PRO/100+ Dual Port Server Adapter  
 Adapter Type Not Available  
 Product Name Intel(R) PRO/100+ Dual Port Server Adapter  
 Installed True  
 PNP Device ID Not Available  
 Last Reset 4/11/2001 9:32:41 AM  
 Index 8  
 Service Name E100B  
 IP Address 192.168.11.99  
 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 00:03:47:0D:AD:B8  
 Service Name Not Available

Name [00000009] Intel(R) PRO/100+ Dual Port Server Adapter  
 Adapter Type Not Available  
 Product Name Intel(R) PRO/100+ Dual Port Server Adapter  
 Installed True  
 PNP Device ID Not Available  
 Last Reset 4/11/2001 9:32:41 AM  
 Index 9  
 Service Name E100B  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled True  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Service Name Not Available

Name [00000010] Intel(R) PRO/100+ Dual Port Server Adapter  
 Adapter Type Ethernet 802.3  
 Product Name Intel(R) PRO/100+ Dual Port Server Adapter  
 Installed True  
 PNP Device ID PCI\VEN\_8086&DEV\_1229&SUBSYS\_10F08086&REV\_05\4&273796BB&0&2048  
 Last Reset 4/11/2001 9:32:41 AM  
 Index 10  
 Service Name E100B  
 IP Address 192.168.15.99  
 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 00:90:27:E8:6B:7C  
 Service Name E100B  
 IRQ Number 16  
 I/O Port 0x2000-0x2FFF  
 Driver c:\winnt\system32\drivers\e100bnt5.sys (104720, 5.00.67.0000)

Name [00000011] Intel(R) PRO/100+ Dual Port Server Adapter  
 Adapter Type Not Available  
 Product Name Intel(R) PRO/100+ Dual Port Server Adapter

Installed True  
 PNP Device ID  
 PCI\VEN\_8086&DEV\_1229&SUBSYS\_10F08086&REV\_05\4&273  
 796BB&0&2848  
 Last Reset 4/11/2001 9:32:41 AM  
 Index 11  
 Service Name E100B  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled True  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Service Name E100B  
 Driver c:\winnt\system32\drivers\e100bnt5.sys (104720,  
 5.00.67.0000)

[Protocol]

Item Value  
 Name MSAFD Tcpi [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 Tcpi [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  
 [\Device\NetBT\_Tcpi\_{979D4457-D388-4601-80B5-A16899D791E  
 1}] SECPACKET 8  
 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\_Tcpi\_{979D4457-D388-4601-80B5-A16899D791E  
 1}] DATAGRAM 8  
 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\_{949B5C72-3DD4-4846-A2D4-4E6333C49D13}] SEQPACKE T 7

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\_{949B5C72-3DD4-4846-A2D4-4E6333C49D13}] DATAGRAM 7

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\_{C91C0CB5-B4E1-4EA6-B7CB-3907BC6D72D2}] SEQPACKE T 6

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\_{C91C0CB5-B4E1-4EA6-B7CB-3907BC6D72D2}] DATAGRAM 6

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\_{4EE22FC7-83B6-45AD-AE3C-869D662F6E7D}] SEQPACKE T 5

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\_{4EE22FC7-83B6-45AD-AE3C-869D662F6E7D}] DATAGRAM 5

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\_{F7D98B12-E5E5-4D36-AF7B-4F430C2D56C2}] SEQPACKE T 0

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\_{F7D98B12-E5E5-4D36-AF7B-4F430C2D56C2}] 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\_{57687CD0-D67F-47D8-BEC5-EFD99AB56155}] 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\_{57687CD0-D67F-47D8-BEC5-EFD99AB56155}] 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\_{EF97AFD3-EF48-4232-A0DE-483DD8621609}] 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\_{EF97AFD3-EF48-4232-A0DE-483DD8621609}] 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

Name MSAFD NetBIOS

[\Device\NetBT\_Tcpip\_{9134BD2A-03E6-42E3-8007-99206B0A4909}] SEQPACKET 3

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\_{9134BD2A-03E6-42E3-8007-99206B0A4909}] DATAGRAM 3

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\_{A91C1FCE-AC2F-4F7F-8795-A7830CB6AE37}] SEQPACKET 4

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\_{A91C1FCE-AC2F-4F7F-8795-A7830CB6AE37}] DATAGRAM 4

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  | 5.00.2152.1   |
| 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   | 4   |
| I/O Port   | 0x03F8-0x03FF   |
| Driver   | c:\winnt\system32\drivers\serial.sys (62448, 5.00.2134.1) |
| 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 (62448, 5.00.2134.1)

```

[Parallel]

```

Item Value
Name LPT1
PNP Device ID ACPI\PNP0400\1

```

[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 (18,186,059,776 bytes)
Free Space 14.52 GB (15,590,379,520 bytes)
Volume Name
Volume Serial Number A8E078EC
Partition Disk #0, Partition #0
Partition Size 16.94 GB (18,186,061,824 bytes)
Starting Offset 32256 bytes
Drive Description Disk drive
Drive Manufacturer (Standard disk drives)

```

```

Drive Model IBM-PSG ST318436LW !# SCSI Disk Device
Drive BytesPerSector 512
Drive MediaLoaded True
Drive MediaType Fixed hard disk media
Drive Partitions 1
Drive SCSSIBus 0
Drive SCSSILogicalUnit 0
Drive SCSIPort 2
Drive SCSSITargetId 0
Drive SectorsPerTrack 63
Drive Size 18194319360 bytes
Drive TotalCylinders 2212
Drive TotalSectors 35535780
Drive TotalTracks 564060
Drive TracksPerCylinder 255

```

[SCSI]

```

Item Value
Name Adaptec AIC-7892 Ultra160/m PCI SCSI Card
Caption Adaptec AIC-7892 Ultra160/m PCI SCSI Card
Driver adpu160m
Status OK
PNP Device ID
PCI\VEN_9005&DEV_008F&SUBSYS_008F9005&REV_02\3&13C0B0C5&0&18
Device ID
PCI\VEN_9005&DEV_008F&SUBSYS_008F9005&REV_02\3&13C0B0C5&0&18
Device Map Not Available
Index Not Available
Max Number Controlled Not Available
IRQ Number 28
I/O Port 0x3100-0x31FF
Driver c:\winnt\system32\drivers\adpu160m.sys (64432, v3.10a)

```

[Printing]

```

Name Port Name Server Name
No printing information

```

[Problem Devices]

```

Device PNP Device ID Error Code
Intel(R) PRO/100+ Dual Port Server Adapter #6
PCI\VEN_8086&DEV_1229&SUBSYS_10F08086&REV_05\4&273796BB&0&2848 22
Not Available ACPI\IBM37D1\4&23FD4C84&0 28

```

[USB]

```

Device PNP Device ID
Standard OpenHCD USB Host Controller
PCI\VEN_1166&DEV_0220&SUBSYS_02201166&REV_04\3&267A616A&0&7A
USB Root Hub USB\ROOT_HUB\4&372644EA&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 | buslogic                               | BusLogic                    | Not Available                          | Kernel Driver                       |
| False                                  | Disabled                               | Stopped                                | Ignore        | False                                  | Disabled                    | Stopped                                | Normal                              |
| False                                  |  | OK                                     | False         | False                                  |                             | OK                                     | False                               |
| abp480n5                               | abp480n5                               | Not Available                          | Kernel Driver | cd20xrnt                               | cd20xrnt                    | Not Available                          | Kernel Driver                       |
| False                                  | Disabled                               | Stopped                                | Normal        | False                                  | Disabled                    | Stopped                                | Normal                              |
| False                                  |  | OK                                     | False         | False                                  |                             | OK                                     | False                               |
| acpi                                   | Microsoft ACPI Driver                  |  | Kernel Driver | cdaudio                                | Cdaudio                     | c:\winnt\system32\drivers\cdaudio.sys  |                                     |
| c:\winnt\system32\drivers\acpi.sys     |  |  | Normal        | Kernel Driver                          | False                       | System                                 | Stopped                             |
| True                                   | Boot                                   | Running                                | False         | Ignore                                 | False                       | False                                  | OK                                  |
| True                                   |  | OK                                     |               | cdfs                                   | Cdfs                        | c:\winnt\system32\drivers\cdfs.sys     | File                                |
| acpiec                                 | ACPIEC                                 | c:\winnt\system32\drivers\acpiec.sys   |               | System Driver                          | True                        | Disabled                               | Running                             |
| Kernel Driver                          | False                                  | Disabled                               | Stopped       | Normal                                 | False                       | True                                   | OK                                  |
| Normal                                 | False                                  | False                                  | OK            | cdrom                                  | CD-ROM                      | Driver                                 | c:\winnt\system32\drivers\cdrom.sys |
| adpu160m                               | adpu160m                               | c:\winnt\system32\drivers\adpu160m.sys |               | Kernel Driver                          | True                        | System                                 | Running                             |
| Kernel Driver                          | True                                   | Boot                                   | Running       | Normal                                 | False                       | True                                   | OK                                  |
| Normal                                 | False                                  | True                                   | OK            | changer                                | Changer                     | Not Available                          | Kernel Driver                       |
| afd                                    | AFD Networking Support Environment     |  |               | False                                  | System                      | Stopped                                | Ignore                              |
| c:\winnt\system32\drivers\afd.sys      | Kernel Driver                          | True                                   |               | False                                  |                             | OK                                     | False                               |
| Auto                                   | Running                                | OK                                     | Normal        | cpqarray                               | Cpqarray                    | Not Available                          | Kernel Driver                       |
| aha154x                                | Aha154x                                | Not Available                          | Kernel Driver | False                                  | Disabled                    | Stopped                                | Normal                              |
| False                                  | Disabled                               | Stopped                                | Normal        | False                                  |                             | OK                                     | False                               |
| False                                  |  | OK                                     | False         | cpqarry2                               | cpqarry2                    | Not Available                          | Kernel Driver                       |
| aic116x                                | aic116x                                | Not Available                          | Kernel Driver | False                                  | Disabled                    | Stopped                                | Normal                              |
| False                                  | Disabled                               | Stopped                                | Normal        | False                                  |                             | OK                                     | False                               |
| False                                  |  | OK                                     | False         | cpqfcalm                               | cpqfcalm                    | Not Available                          | Kernel Driver                       |
| aic78u2                                | aic78u2                                | Not Available                          | Kernel Driver | False                                  | Disabled                    | Stopped                                | Normal                              |
| False                                  | Disabled                               | Stopped                                | Normal        | False                                  |                             | OK                                     | False                               |
| False                                  |  | OK                                     | False         | cpqfws2e                               | cpqfws2e                    | Not Available                          | Kernel Driver                       |
| aic78xx                                | aic78xx                                | Not Available                          | Kernel Driver | False                                  | Disabled                    | Stopped                                | Normal                              |
| False                                  | Disabled                               | Stopped                                | Normal        | False                                  |                             | OK                                     | False                               |
| False                                  |  | OK                                     | False         | dac960nt                               | dac960nt                    | Not Available                          | Kernel Driver                       |
| ami0nt                                 | ami0nt                                 | Not Available                          | Kernel Driver | False                                  | Disabled                    | Stopped                                | Normal                              |
| False                                  | Disabled                               | Stopped                                | Normal        | False                                  |                             | OK                                     | False                               |
| False                                  |  | OK                                     | False         | deckzpsx                               | deckzpsx                    | Not Available                          | Kernel Driver                       |
| amsint                                 | amsint                                 | Not Available                          | Kernel Driver | False                                  | Disabled                    | Stopped                                | Normal                              |
| False                                  | Disabled                               | Stopped                                | Normal        | False                                  |                             | OK                                     | False                               |
| False                                  |  | OK                                     | False         | dfsdriver                              | DfsDriver                   | c:\winnt\system32\drivers\dfs.sys      | File System                         |
| asc                                    | asc                                    | Not Available                          | Kernel Driver | Driver                                 | True                        | Boot                                   | Running                             |
| False                                  | Disabled                               | Stopped                                | Normal        | False                                  | True                        | OK                                     | Normal                              |
| False                                  |  | OK                                     | False         | disk                                   | Disk Driver                 | c:\winnt\system32\drivers\disk.sys     |                                     |
| asc3350p                               | asc3350p                               | Not Available                          | Kernel Driver | Kernel Driver                          | True                        | Boot                                   | Running                             |
| False                                  | Disabled                               | Stopped                                | Normal        | Normal                                 | False                       | True                                   | OK                                  |
| False                                  |  | OK                                     | False         | diskperf                               | Diskperf                    | c:\winnt\system32\drivers\diskperf.sys |                                     |
| asc3550                                | asc3550                                | Not Available                          | Kernel Driver | Kernel Driver                          | True                        | Boot                                   | Running                             |
| False                                  | Disabled                               | Stopped                                | Normal        | Normal                                 | False                       | True                                   | OK                                  |
| False                                  |  | OK                                     | False         | dmboot                                 | dmboot                      | c:\winnt\system32\drivers\dmboot.sys   |                                     |
| asynctac                               | RAS Asynchronous Media Driver          |  | Kernel Driver | Kernel Driver                          | False                       | Disabled                               | Stopped                             |
| c:\winnt\system32\drivers\asynctac.sys |  |  | Normal        | Normal                                 | False                       | False                                  | OK                                  |
| False                                  | Manual                                 | Stopped                                | False         | dmio                                   | Logical Disk Manager Driver |  |                                     |
| False                                  |  | OK                                     | False         | c:\winnt\system32\drivers\dmio.sys     |                             |  | Kernel Driver                       |
| atapi                                  | Standard IDE/ESDI Hard Disk Controller |  | Kernel Driver | True                                   | Boot                        | Running                                | OK                                  |
| c:\winnt\system32\drivers\atapi.sys    |  |  | Normal        | True                                   |                             |  | False                               |
| True                                   | Boot                                   | Running                                | False         | dmload                                 | dmload                      | c:\winnt\system32\drivers\dmload.sys   |                                     |
| True                                   |  | OK                                     | False         | Kernel Driver                          | True                        | Boot                                   | Running                             |
| atdisk                                 | Atdisk                                 | Not Available                          | Kernel Driver | Normal                                 | False                       | True                                   | OK                                  |
| False                                  | Disabled                               | Stopped                                | Ignore        | False                                  |                             |  | False                               |
| False                                  |  | OK                                     | False         | e100b                                  | Intel(R) PRO Adapter Driver |  |                                     |
| atmarpc                                | ATM ARP Client Protocol                |  | Kernel Driver | c:\winnt\system32\drivers\e100bnt5.sys |                             |  | Kernel Driver                       |
| c:\winnt\system32\drivers\atmarpc.sys  |  |  | Normal        | True                                   | Manual                      | Running                                | OK                                  |
| False                                  | Manual                                 | Stopped                                | False         | True                                   |                             |  | Normal                              |
| False                                  |  | OK                                     | False         | efs                                    | EFS                         | c:\winnt\system32\drivers\efs.sys      | File System                         |
| audstub                                | Audio Stub Driver                      |  | Kernel Driver | Driver                                 | True                        | Disabled                               | Running                             |
| c:\winnt\system32\drivers\audstub.sys  |  |  | Normal        | False                                  | True                        | OK                                     | Normal                              |
| True                                   | Manual                                 | Running                                | False         | fastfat                                | Fastfat                     | c:\winnt\system32\drivers\fastfat.sys  | File                                |
| True                                   |  | OK                                     | False         | System Driver                          | True                        | Disabled                               | Running                             |
| beep                                   | Beep                                   | c:\winnt\system32\drivers\beep.sys     |               | Normal                                 | False                       | True                                   | OK                                  |
| Kernel Driver                          | True                                   | System                                 | Running       | False                                  |                             |  | False                               |
| Normal                                 | False                                  | True                                   | OK            | fd16_700                               | Fd16_700                    | Not Available                          | Kernel Driver                       |
|  |  |  |               | False                                  | Disabled                    | Stopped                                | Normal                              |
|  |  |  |               | False                                  |                             | OK                                     | False                               |



|  |   |         |         |          |  |   |  |         |               |
|--|---|---------|---------|----------|--|---|--|---------|---------------|
| fdc                                    | Floppy Disk Controller Driver             |         |         |          | lp6nds35                               | lp6nds35                                  | Not Available                          |         | Kernel Driver |
| c:\winnt\system32\drivers\fdc.sys      | Kernel Driver                             | True    |         |          | False                                  | Disabled                                  | Stopped                                | OK      | Normal        |
| Manual                                 | Running                                   | OK      | Normal  | False    | True                                   |   |  |         | False         |
| fireport                               | fireport Not Available                    |         |         |          | mmdd                                   | mmdd                                      | c:\winnt\system32\drivers\mmdd.sys     |         | Kernel Driver |
| False                                  | Disabled                                  | Stopped | OK      | Normal   | False                                  |   |  |         | True          |
| False                                  |   |         |         |          | Kernel Driver                          | True                                      | System                                 | Running | OK            |
| flashpnt                               | flashpnt Not Available                    |         |         |          | Ignore                                 | False                                     | True                                   |         | Kernel Driver |
| False                                  | Disabled                                  | Stopped | OK      | Normal   | False                                  |   |  |         | Normal        |
| False                                  |   |         |         |          | Kernel Driver                          | True                                      | Manual                                 | Stopped | OK            |
| flpydisk                               | Floppy Disk Driver                        |         |         |          | modem                                  | Modem                                     | c:\winnt\system32\drivers\modem.sys    |         | Kernel Driver |
| c:\winnt\system32\drivers\flpydisk.sys | Kernel Driver                             | True    |         |          | Kernel Driver                          | False                                     | Manual                                 | Stopped | OK            |
| True                                   | Manual                                    | Running | OK      | Normal   | False                                  |   |  |         | Ignore        |
| True                                   |   |         |         |          | Mouse Class Driver                     | False                                     | False                                  |         | False         |
| ftdisk                                 | Volume Manager Driver                     |         |         |          | mouclass                               | Mouse Class Driver                        |  |         |               |
| c:\winnt\system32\drivers\ftdisk.sys   | Kernel Driver                             | True    |         |          | c:\winnt\system32\drivers\mouclass.sys | Kernel Driver                             | True                                   |         | Kernel Driver |
| True                                   | Boot                                      | Running | OK      | Normal   | False                                  | True                                      | System                                 | Running | OK            |
| True                                   |   |         |         |          | True                                   | System                                    | Running                                | OK      | Normal        |
| gpc                                    | Generic Packet Classifier                 |         |         |          | mountmgr                               | MountMgr                                  | c:\winnt\system32\drivers\mountmgr.sys |         | Kernel Driver |
| c:\winnt\system32\drivers\msgpc.sys    | Kernel Driver                             | True    |         |          | Kernel Driver                          | True                                      | Boot                                   | Running | OK            |
| True                                   | Manual                                    | Running | OK      | Normal   | False                                  |   |  |         | Normal        |
| True                                   |   |         |         |          | True                                   |   |  |         | False         |
| i8042prt                               | i8042 Keyboard and PS/2 Mouse Port Driver |         |         |          | mraid35x                               | mraid35x                                  | Not Available                          |         | Kernel Driver |
| c:\winnt\system32\drivers\i8042prt.sys | Kernel Driver                             | True    |         |          | False                                  | Disabled                                  | Stopped                                | OK      | Normal        |
| True                                   | System                                    | Running | OK      | Normal   | False                                  |   |  |         | False         |
| True                                   |   |         |         |          | Kernel Driver                          | True                                      |  |         | False         |
| ibmfe                                  | IBM 10/100 Ethernet PCI Adapter NT Driver |         |         |          | mrxsmb                                 | MRXSMB                                    | c:\winnt\system32\drivers\mrxsmb.sys   |         | File          |
| c:\winnt\system32\drivers\ibmfent5.sys | Kernel Driver                             | True    |         |          | System Driver                          | True                                      | System                                 | Running | OK            |
| False                                  | Manual                                    | Stopped | OK      | Normal   | False                                  |   |  |         | Normal        |
| False                                  |   |         |         |          | True                                   |   |  |         | False         |
| ini910u                                | ini910u Not Available                     |         |         |          | msfs                                   | Msfs                                      | c:\winnt\system32\drivers\msfs.sys     |         | File          |
| False                                  | Disabled                                  | Stopped | OK      | Normal   | False                                  |   |  |         | System Driver |
| False                                  |   |         |         |          | True                                   | System                                    | Running                                | OK      | Normal        |
| False                                  |   |         |         |          | True                                   |   |  |         | False         |
| intellide                              | IntelIde Not Available                    |         |         |          | mkserv                                 | Microsoft Streaming Service Proxy         |  |         |               |
| False                                  | Disabled                                  | Stopped | OK      | Normal   | False                                  |   |  |         | Kernel Driver |
| False                                  |   |         |         |          | c:\winnt\system32\drivers\mkserv.sys   | Kernel Driver                             | False                                  | Manual  | Stopped       |
| False                                  |   |         |         |          | True                                   | Manual                                    | Stopped                                | OK      | Normal        |
| False                                  |   |         |         |          | False                                  |   |  |         | False         |
| ipfilterdriver                         | IP Traffic Filter Driver                  |         |         |          | mspclock                               | Microsoft Streaming Clock Proxy           |  |         |               |
| c:\winnt\system32\drivers\ipfltdrv.sys | Kernel Driver                             | True    |         |          | c:\winnt\system32\drivers\mspclock.sys | Kernel Driver                             | False                                  | Manual  | Stopped       |
| False                                  | Manual                                    | Stopped | OK      | Normal   | False                                  |   |  |         | Normal        |
| False                                  |   |         |         |          | True                                   |   |  |         | False         |
| ipinip                                 | IP in IP Tunnel Driver                    |         |         |          | mspqm                                  | Microsoft Streaming Quality Manager Proxy |  |         |               |
| c:\winnt\system32\drivers\ipinip.sys   | Kernel Driver                             | True    |         |          | c:\winnt\system32\drivers\mspqm.sys    | Kernel Driver                             | False                                  | Manual  | Stopped       |
| Kernel Driver                          | False                                     | Manual  | Stopped | OK       | Normal                                 | False                                     |  |         | Normal        |
| Normal                                 | False                                     | False   |         |          | True                                   |   |  |         | False         |
| ipnat                                  | IP Network Address Translator             |         |         |          | mup                                    | Mup                                       | c:\winnt\system32\drivers\mup.sys      |         | File          |
| c:\winnt\system32\drivers\ipnat.sys    | Kernel Driver                             | True    |         |          | System Driver                          | True                                      | Boot                                   | Running | OK            |
| False                                  | Manual                                    | Stopped | OK      | Normal   | False                                  |   |  |         | Normal        |
| False                                  |   |         |         |          | True                                   |   |  |         | False         |
| ipsecc                                 | IPSEC driver                              |         |         |          | ncrc710                                | Nrc710                                    | Not Available                          |         | Kernel Driver |
| c:\winnt\system32\drivers\ipsecc.sys   | Kernel Driver                             | True    | Manual  | Running  | OK                                     | False                                     | Disabled                               | Stopped | OK            |
| Normal                                 | False                                     | True    |         |          | False                                  |   |  |         | Normal        |
| ipsecc                                 | False                                     | True    |         |          | Kernel Driver                          | True                                      |  |         | False         |
| ipsraidn                               | ipsraidn Not Available                    |         |         |          | ndis                                   | NDIS System Driver                        |  |         |               |
| False                                  | Disabled                                  | Stopped | OK      | Normal   | False                                  |   |  |         | Kernel Driver |
| False                                  |   |         |         |          | True                                   | Boot                                      | Running                                | OK      | Normal        |
| False                                  |   |         |         |          | True                                   |   |  |         | False         |
| isapnp                                 | PnP ISA/EISA Bus Driver                   |         |         |          | ndistapi                               | Remote Access NDIS TAPI Driver            |  |         |               |
| c:\winnt\system32\drivers\isapnp.sys   | Kernel Driver                             | True    |         |          | c:\winnt\system32\drivers\ndistapi.sys | Kernel Driver                             | True                                   | Manual  | Running       |
| True                                   | Boot                                      | Running | OK      | Critical | False                                  |   |  |         | Normal        |
| True                                   |   |         |         |          | True                                   | Manual                                    | Running                                | OK      | False         |
| kbdcass                                | Keyboard Class Driver                     |         |         |          | ndiswan                                | Remote Access NDIS WAN Driver             |  |         |               |
| c:\winnt\system32\drivers\kbdcass.sys  | Kernel Driver                             | True    |         |          | c:\winnt\system32\drivers\ndiswan.sys  | Kernel Driver                             | True                                   | Manual  | Running       |
| True                                   | System                                    | Running | OK      | Normal   | False                                  |   |  |         | Normal        |
| True                                   |   |         |         |          | True                                   |   |  |         | False         |
| ksecdd                                 | KSecDD                                    |         |         |          | ndproxy                                | NDIS Proxy                                |  |         |               |
| c:\winnt\system32\drivers\ksecdd.sys   | Kernel Driver                             | True    | Boot    | Running  | OK                                     | Kernel Driver                             | True                                   | Manual  | Running       |
| Normal                                 | False                                     | True    |         |          | True                                   | Normal                                    | False                                  |         | True          |
| Normal                                 | False                                     | True    |         |          | True                                   | System                                    | Running                                | OK      | Normal        |
| lbrtdc                                 | lbrtdc Not Available                      |         |         |          | netbios                                | NetBIOS Interface                         |  |         |               |
| False                                  | System                                    | Stopped | OK      | Ignore   | False                                  |   |  |         | Kernel Driver |
| False                                  |   |         |         |          | File System Driver                     | True                                      | System                                 | Running | OK            |
| False                                  |   |         |         |          | Normal                                 | False                                     | True                                   |         | Normal        |
| False                                  |   |         |         |          | Kernel Driver                          | True                                      | System                                 | Running | OK            |
| False                                  |   |         |         |          | Normal                                 | False                                     | True                                   |         | Normal        |
| False                                  |   |         |         |          | Kernel Driver                          | True                                      | System                                 | Running | OK            |
| False                                  |   |         |         |          | Normal                                 | False                                     | True                                   |         | Normal        |
| False                                  |   |         |         |          | Kernel Driver                          | False                                     | Manual                                 | Stopped | OK            |
| False                                  |   |         |         |          | Normal                                 | False                                     | False                                  |         | False         |

|  |   |  |               |               |          |                                   |               |               |       |
|--|---|--|---------------|---------------|----------|-----------------------------------|---------------|---------------|-------|
| npfs                                   | Npfs                                      | c:\winnt\system32\drivers\npfs.sys     | File          | True          | Manual   | Running                           | OK            | Normal        | False |
| System Driver                          | True                                      | System                                 | Running       | OK            | True     |                                   |               |               |       |
| Normal                                 | False                                     | True                                   |               |               | ql1080   | ql1080                            | Not Available | Kernel Driver |       |
| ntfs                                   | Ntfs                                      | c:\winnt\system32\drivers\ntfs.sys     | File          | False         | Disabled | Stopped                           | OK            | Normal        | False |
| System Driver                          | True                                      | Disabled                               | Running       | OK            | False    |                                   |               |               |       |
| Normal                                 | False                                     | True                                   |               |               | ql10wnt  | Ql10wnt                           | Not Available | Kernel Driver |       |
| null                                   | Null                                      | c:\winnt\system32\drivers\null.sys     |               | False         | Disabled | Stopped                           | OK            | Normal        | False |
| Kernel Driver                          | True                                      | System                                 | Running       | OK            | False    |                                   |               |               |       |
| Normal                                 | False                                     | True                                   |               |               | ql1240   | ql1240                            | Not Available | Kernel Driver |       |
| nwlnkflt                               | IPX Traffic Filter Driver                 |  |               | False         | Disabled | Stopped                           | OK            | Normal        | False |
| c:\winnt\system32\drivers\nwlnkflt.sys |   | Kernel Driver                          |               | False         |          |                                   |               |               |       |
| False                                  | Manual                                    | Stopped                                | OK            | Normal        | False    |                                   |               |               |       |
| nwlnkfld                               | IPX Traffic Forwarder Driver              |  |               | False         |          |                                   |               |               |       |
| c:\winnt\system32\drivers\nwlnkfld.sys |   | Kernel Driver                          |               | False         |          |                                   |               |               |       |
| False                                  | Manual                                    | Stopped                                | OK            | Normal        | False    |                                   |               |               |       |
| False                                  |   |  |               |               |          |                                   |               |               |       |
| openhci                                | Microsoft USB Open Host Controller Driver |  |               | True          |          |                                   |               |               |       |
| c:\winnt\system32\drivers\openhci.sys  |   | Kernel Driver                          |               | True          |          |                                   |               |               |       |
| True                                   | Manual                                    | Running                                | OK            | Normal        | False    |                                   |               |               |       |
| True                                   |   |  |               |               |          |                                   |               |               |       |
| parallel                               | Parallel class driver                     | c:\winnt\system32\drivers\parallel.sys |               | True          |          |                                   |               |               |       |
| Kernel Driver                          | True                                      | Manual                                 | Running       | OK            |          |                                   |               |               |       |
| Normal                                 | False                                     | True                                   |               |               |          |                                   |               |               |       |
| parport                                | Parallel port driver                      | c:\winnt\system32\drivers\parport.sys  |               | Normal        | False    | True                              |               |               |       |
| Kernel Driver                          | True                                      | System                                 | Running       | OK            |          |                                   |               |               |       |
| Ignore                                 | False                                     | True                                   |               |               |          |                                   |               |               |       |
| partmgr                                | PartMgr                                   | c:\winnt\system32\drivers\partmgr.sys  |               | Manual        | Stopped  | OK                                | Normal        | False         | False |
| Kernel Driver                          | True                                      | Boot                                   | Running       | OK            |          |                                   |               |               |       |
| Normal                                 | False                                     | True                                   |               |               |          |                                   |               |               |       |
| parvdm                                 | ParVdm                                    | c:\winnt\system32\drivers\parvdm.sys   |               | System Driver | True     | System                            | Running       | OK            | File  |
| Kernel Driver                          | True                                      | Auto                                   | Running       | OK            |          |                                   |               |               |       |
| Ignore                                 | False                                     | True                                   |               |               |          |                                   |               |               |       |
| pci                                    | PCI Bus Driver                            | c:\winnt\system32\drivers\pci.sys      |               | Normal        | False    | True                              |               |               |       |
| Kernel Driver                          | True                                      | Boot                                   | Running       | OK            |          |                                   |               |               |       |
| Critical                               | False                                     | True                                   |               |               |          |                                   |               |               |       |
| pcidump                                | PCIDump                                   | Not Available                          | Kernel Driver |               |          |                                   |               |               |       |
| False                                  | System                                    | Stopped                                | OK            | Ignore        | False    |                                   |               |               |       |
| False                                  |   |  |               |               |          |                                   |               |               |       |
| pciide                                 | PCIIde                                    | c:\winnt\system32\drivers\pciide.sys   |               | Kernel Driver | True     | Manual                            | Running       | OK            |       |
| Kernel Driver                          | True                                      | Boot                                   | Running       | OK            |          |                                   |               |               |       |
| Normal                                 | False                                     | True                                   |               |               |          |                                   |               |               |       |
| pcmcia                                 | Pcmcia                                    | c:\winnt\system32\drivers\pcmcia.sys   |               | Ignore        | False    | True                              |               |               |       |
| Kernel Driver                          | False                                     | Disabled                               | Stopped       | OK            |          |                                   |               |               |       |
| Normal                                 | False                                     | False                                  |               |               |          |                                   |               |               |       |
| pcnet                                  | PCNET Adapter Driver                      |  |               | True          |          |                                   |               |               |       |
| c:\winnt\system32\drivers\pcntn5m.sys  |   | Kernel Driver                          |               | True          |          |                                   |               |               |       |
| False                                  | Manual                                    | 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                                  | Manual                                    | Stopped                                | OK            | Ignore        | False    |                                   |               |               |       |
| False                                  |   |  |               |               |          |                                   |               |               |       |
| pdframe                                | PDRFRAME                                  | Not Available                          | Kernel Driver |               |          |                                   |               |               |       |
| False                                  | Manual                                    | Stopped                                | OK            | Ignore        | False    |                                   |               |               |       |
| False                                  |   |  |               |               |          |                                   |               |               |       |
| pptpminiport                           | WAN Miniport (PPTP)                       |  |               | True          |          |                                   |               |               |       |
| c:\winnt\system32\drivers\rasptp.sys   |   | Kernel Driver                          |               | True          |          |                                   |               |               |       |
| True                                   | Manual                                    | Running                                | OK            | Normal        | False    |                                   |               |               |       |
| True                                   |   |  |               |               |          |                                   |               |               |       |
| ptilink                                | Direct Parallel Link Driver               |  |               | True          |          |                                   |               |               |       |
| c:\winnt\system32\drivers\ptilink.sys  |   | Kernel Driver                          |               | False         | True     |                                   |               |               |       |
|  |   |  |               | True          | Srv      | c:\winnt\system32\drivers\srv.sys | File System   | Normal        |       |
|  |   |  |               | False         | True     |                                   |               |               |       |

```

swenum Software Bus Driver
c:\winnt\system32\drivers\swenum.sys Kernel Driver
True Manual Running OK Normal False
True
symc810 symc810 Not Available Kernel Driver
False Disabled Stopped OK Normal False
False
symc8xx symc8xx Not Available Kernel Driver
False Disabled Stopped OK Normal False
False
sym_hi sym_hi Not Available Kernel Driver
False Disabled Stopped OK Normal False
False
tcpip TCP/IP Protocol Driver
c:\winnt\system32\drivers\tcpip.sys Kernel Driver
True System Running OK Normal False
True
tdasync TDASYNC c:\winnt\system32\drivers\tdasync.sys
Kernel Driver False Manual Stopped OK
Ignore False False
tdipx TDIPX c:\winnt\system32\drivers\tdipx.sys
Kernel Driver False Manual Stopped OK
Ignore False False
tdnetb TDNETB c:\winnt\system32\drivers\tdnetb.sys
Kernel Driver False Manual Stopped OK
Ignore False False
tdpipe TDPIPE c:\winnt\system32\drivers\tdpipe.sys
Kernel Driver False Manual Stopped OK
Ignore False False
tdspx TDSPIX c:\winnt\system32\drivers\tdspx.sys
Kernel Driver False Manual Stopped OK
Ignore False False
tdtcp TDTCP c:\winnt\system32\drivers\tdtcp.sys
Kernel Driver False Manual Stopped OK
Ignore False False
termdd Terminal Device Driver
c:\winnt\system32\drivers\termdd.sys Kernel Driver
False Disabled Stopped OK Normal False
False
tga tga Not Available Kernel Driver
False System Stopped OK Ignore False
False
udfs Udfs c:\winnt\system32\drivers\udfs.sys
System Driver False Disabled Stopped OK
Normal False False
ultra66 ultra66 Not Available Kernel Driver
False Disabled Stopped OK Normal False
False
update Microcode Update Driver
c:\winnt\system32\drivers\update.sys Kernel Driver
True Manual Running OK Normal False
True
usbhub Microsoft USB Standard Hub Driver
c:\winnt\system32\drivers\usbhub.sys Kernel Driver
True Manual Running OK Normal False
True
vgasave VgaSave c:\winnt\system32\drivers\vga.sys
Kernel Driver True System Running OK
Ignore False True
wanarp Remote Access IP ARP Driver
c:\winnt\system32\drivers\wanarp.sys Kernel Driver
True Manual Running OK Normal False
True
wdica WDICA Not Available Kernel Driver
False Manual Stopped OK Ignore False
False

```

[Environment Variables]

```

Variable Value User Name
ComSpec %SystemRoot%\system32\cmd.exe <SYSTEM>
Os2LibPath %SystemRoot%\system32\os2\dll;
<SYSTEM>
Path
%SystemRoot%\system32;%SystemRoot%;%SystemRoot%\System32\
Wbem;C:\Program Files\Microsoft SQL Server\80\Tools\BINN
<SYSTEM>
windir %SystemRoot% <SYSTEM>
OS Windows_NT <SYSTEM>
PROCESSOR_ARCHITECTURE x86 <SYSTEM>
PROCESSOR_LEVEL 6 <SYSTEM>
PROCESSOR_IDENTIFIER x86 Family 6 Model 8 Stepping 6,
GenuineIntel <SYSTEM>
PROCESSOR_REVISION 0806 <SYSTEM>
NUMBER_OF_PROCESSORS 2 <SYSTEM>
PATHEXT
.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH
<SYSTEM>
TEMP %SystemRoot%\TEMP <SYSTEM>
TMP %SystemRoot%\TEMP <SYSTEM>
TEMP %USERPROFILE%\Local Settings\Temp
CLIENT10\Administrator
TMP %USERPROFILE%\Local Settings\Temp
CLIENT10\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]

File
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 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 164 11
204800 1413120 4/11/2001 1:32:58 PM 5.00.2170.1
44.27 KB (45,328 bytes) 12/7/1999 7:00:00 AM
csrss.exe Not Available 188 13 Not Available
Not Available 4/11/2001 1:33:03 PM Unknown
Unknown Unknown
winlogon.exe c:\winnt\system32\winlogon.exe 184 13
204800 1413120 4/11/2001 1:33:04 PM 5.00.2182.1
173.27 KB (177,424 bytes) 12/7/1999 7:00:00 AM
services.exe c:\winnt\system32\services.exe 236 9
204800 1413120 4/11/2001 1:33:06 PM 5.00.2134.1
86.77 KB (88,848 bytes) 12/7/1999 7:00:00 AM

```

|                                     |                                       |                           |                      |              |      |  |                |  |
|-------------------------------------|---------------------------------------|---------------------------|----------------------|--------------|------|--|----------------|--|
| Isass.exe                           | c:\winnt\system32\Isass.exe           | 248                       | 13                   |              |      | mlang.dll  | 5.00.2920.0000 | 510.77 KB (523,024 bytes)                          |
| 204800                              | 1413120                               | 4/11/2001 1:33:06 PM      | 5.00.2184.1          |              |      | 12/7/1999 7:00:00 AM   |                | Microsoft Corporation                              |
| 32.77 KB (33,552 bytes)             |                                       | 12/7/1999 7:00:00 AM      |                      |              |      | c:\winnt\system32\mlang.dll  |                |  |
| svchost.exe                         | c:\winnt\system32\svchost.exe         | 400                       | 8                    |              |      | rassapi.dll  | 5.00.2188.1    | 14.27 KB (14,608 bytes)                            |
| 204800                              | 1413120                               | 4/11/2001 1:33:09 PM      | 5.00.2134.1          |              |      | 12/7/1999 7:00:00 AM   |                | Microsoft Corporation                              |
| 7.77 KB (7,952 bytes)               |                                       | 12/7/1999 7:00:00 AM      |                      |              |      | c:\winnt\system32\rassapi.dll                                      |                |  |
| spoolsv.exe                         | c:\winnt\system32\spoolsv.exe         | 428                       | 8                    |              |      | adsnt.dll  | 5.00.2191.1    | 194.27 KB (198,928 bytes)                          |
| 204800                              | 1413120                               | 4/11/2001 1:33:10 PM      | 5.00.2161.1          |              |      | 12/7/1999 7:00:00 AM   |                | Microsoft Corporation                              |
| 43.77 KB (44,816 bytes)             |                                       | 2/5/2001 9:57:15 AM       |                      |              |      | c:\winnt\system32\adsnt.dll  |                |  |
| msdtc.exe                           | c:\winnt\system32\msdtc.exe           | 456                       | 8                    |              |      | dbghelp.dll  | 5.00.2195.1    | 159.27 KB (163,088 bytes)                          |
| 204800                              | 1413120                               | 4/11/2001 1:33:10 PM      | 1999.9.3421.3        |              |      | 12/7/1999 7:00:00 AM   |                | Microsoft Corporation                              |
| 6.77 KB (6,928 bytes)               |                                       | 2/5/2001 10:44:17 AM      |                      |              |      | c:\winnt\system32\dbghelp.dll                                      |                |  |
| svchost.exe                         | c:\winnt\system32\svchost.exe         | 588                       | 8                    |              |      | localec.dll  | 5.00.2134.1    | 227.27 KB (232,720 bytes)                          |
| 204800                              | 1413120                               | 4/11/2001 1:33:12 PM      | 5.00.2134.1          |              |      | 12/7/1999 7:00:00 AM   |                | Microsoft Corporation                              |
| 7.77 KB (7,952 bytes)               |                                       | 12/7/1999 7:00:00 AM      |                      |              |      | c:\winnt\system32\localec.dll                                      |                |  |
| llssrv.exe                          | c:\winnt\system32\llssrv.exe          | 612                       | 9                    |              |      | devmgr.dll   | 5.00.2166.1    | 215.77 KB (220,944 bytes)                          |
| 204800                              | 1413120                               | 4/11/2001 1:33:12 PM      | 5.00.2167.1          |              |      | 12/7/1999 7:00:00 AM   |                | Microsoft Corporation                              |
| 114.27 KB (117,008 bytes)           |                                       | 12/7/1999 7:00:00 AM      |                      |              |      | c:\winnt\system32\devmgr.dll                                       |                |  |
| regsvcs.exe                         | c:\winnt\system32\regsvcs.exe         | 656                       | 8                    |              |      | filemgmt.dll   | 5.00.2134.1    | 287.27 KB (294,160 bytes)                          |
| 204800                              | 1413120                               | 4/11/2001 1:33:13 PM      | 5.00.2155.1          |              |      | 12/7/1999 7:00:00 AM   |                | Microsoft Corporation                              |
| 65.27 KB (66,832 bytes)             |                                       | 12/7/1999 7:00:00 AM      |                      |              |      | c:\winnt\system32\filemgmt.dll                                     |                |  |
| mstask.exe                          | c:\winnt\system32\mstask.exe          | 732                       | 8                    |              |      | pdh.dll  | 5.00.2174.1    | 143.27 KB (146,704 bytes)                          |
| 204800                              | 1413120                               | 4/11/2001 1:33:15 PM      | 4.71.2137.1          |              |      | 12/7/1999 7:00:00 AM   |                | Microsoft Corporation                              |
| 115.27 KB (118,032 bytes)           |                                       | 2/5/2001 3:49:15 PM       |                      |              |      | c:\winnt\system32\pdh.dll  |                |  |
| tcpvcs.exe                          | c:\winnt\system32\tcpvcs.exe          | 768                       | 8                    |              |      | smlogcfg.dll   | 5.00.2163.1    | 273.27 KB (279,824 bytes)                          |
| 204800                              | 1413120                               | 4/11/2001 1:33:15 PM      | 5.00.2134.1          |              |      | 12/7/1999 7:00:00 AM   |                | Microsoft Corporation                              |
| 24.77 KB (25,360 bytes)             |                                       | 12/7/1999 7:00:00 AM      |                      |              |      | c:\winnt\system32\smlogcfg.dll                                     |                |  |
| winmgmt.exe                         | c:\winnt\system32\wbem\winmgmt.exe    |                           | 904                  |              |      | cabinet.dll  | 5.00.2147.1    | 54.77 KB (56,080 bytes)                            |
| 8                                   | 204800                                | 1413120                   | 4/11/2001 1:33:21 PM |              |      | 12/7/1999 7:00:00 AM   |                | Microsoft Corporation                              |
| 1.50.1085.0001                      |                                       | 188.05 KB (192,567 bytes) |                      |              |      | c:\winnt\system32\cabinet.dll                                      |                |  |
| 7:00:00 AM                          |                                       |                           | 12/7/1999            |              |      | msinfo32.dll   | 5.00.2177.1    | 312.27 KB (319,760 bytes)                          |
| inetinfo.exe                        | c:\winnt\system32\inetrv\inetinfo.exe |                           | 928                  |              |      | 2/5/2001 3:49:22 PM  |                | Microsoft Corporation                              |
| 8                                   | 204800                                | 1413120                   | 4/11/2001 1:33:21 PM |              |      | c:\program files\common files\microsoft shared\msinfo\msinfo32.dll |                |  |
| 5.00.0984                           |                                       | 14.27 KB (14,608 bytes)   |                      |              |      | riched20.dll   | 5.30.23.1200   | 421.27 KB (431,376 bytes)                          |
| dfssvc.exe                          | c:\winnt\system32\dfssvc.exe          | 992                       | 8                    |              |      | 12/7/1999 7:00:00 AM   |                | Microsoft Corporation                              |
| 204800                              | 1413120                               | 4/11/2001 1:33:28 PM      | 5.00.2191.1          |              |      | c:\winnt\system32\riched20.dll                                     |                |  |
| 85.27 KB (87,312 bytes)             |                                       | 12/7/1999 7:00:00 AM      |                      |              |      | riched32.dll   | 5.00.2134.1    | 3.77 KB (3,856 bytes)                              |
| svchost.exe                         | c:\winnt\system32\svchost.exe         | 1112                      | 8                    |              |      | 12/7/1999 7:00:00 AM   |                | Microsoft Corporation                              |
| 204800                              | 1413120                               | 4/11/2001 1:35:08 PM      | 5.00.2134.1          |              |      | c:\winnt\system32\riched32.dll                                     |                |  |
| 7.77 KB (7,952 bytes)               |                                       | 12/7/1999 7:00:00 AM      |                      |              |      | els.dll  | 5.00.2175.1    | 151.27 KB (154,896 bytes)                          |
| explorer.exe                        | c:\winnt\explorer.exe                 | 1104                      | 8                    |              |      | 12/7/1999 7:00:00 AM   |                | Microsoft Corporation                              |
| 204800                              | 1413120                               | 4/11/2001 1:36:43 PM      |                      |              |      | c:\winnt\system32\els.dll  |                |  |
| 5.00.2920.0000                      |                                       | 232.77 KB (238,352 bytes) |                      |              |      | ntmsgmgr.dll   | 1,0,0,1        | 427.77 KB (438,032 bytes)                          |
| 7:00:00 AM                          |                                       |                           | 12/7/1999            |              |      | 12/7/1999 7:00:00 AM   |                | Microsoft Corporation and HighGround Systems, Inc. |
| promon.exe                          | c:\winnt\system32\promon.exe          | 1040                      | 8                    |              |      | c:\winnt\system32\ntmsgmgr.dll                                     |                |  |
| 204800                              | 1413120                               | 4/11/2001 1:36:44 PM      | 1.11                 |              |      | mmfutil.dll  | 1.50.1085.0000 | 32.06 KB (32,829 bytes)                            |
| 28.50 KB (29,184 bytes)             |                                       | 2/8/2001 12:31:42 PM      |                      |              |      | 12/7/1999 7:00:00 AM   |                | Microsoft Corporation                              |
| mmc.exe                             | c:\winnt\system32\mmc.exe             | 1180                      | 8                    |              |      | c:\winnt\system32\mmfutil.dll                                      |                |  |
| 204800                              | 1413120                               | 4/11/2001 3:34:21 PM      | 5.00.2153.1          |              |      | logdrive.dll   | 1.50.1085.0000 | 200.06 KB (204,863 bytes)                          |
| 589.27 KB (603,408 bytes)           |                                       | 12/7/1999 7:00:00 AM      |                      |              |      | 12/7/1999 7:00:00 AM   |                | Microsoft Corporation                              |
| rsvp.exe                            | c:\winnt\system32\rsvp.exe            | 1156                      | 8                    |              |      | c:\winnt\system32\logdrive.dll                                     |                |  |
| 204800                              | 1413120                               | 4/11/2001 3:35:08 PM      | 5.00.2167.1          |              |      | dfrgres.dll  | 5.00.2150.1    | 27.50 KB (28,160 bytes)                            |
| 172.77 KB (176,912 bytes)           |                                       | 12/7/1999 7:00:00 AM      |                      |              |      | 12/7/1999 7:00:00 AM   |                | Executive Software International, Inc.             |
|                                     |                                       |                           |                      |              |      | c:\winnt\system32\dfrgres.dll                                      |                |  |
| [Loaded Modules]                    |                                       |                           |                      |              |      | dfrgsnap.dll   | 5.00.2150.1    | 41.77 KB (42,768 bytes)                            |
|                                     |                                       |                           |                      |              |      | 12/7/1999 7:00:00 AM   |                | Executive Software International, Inc.             |
| Name                                | Version                               | Size                      | File Date            | Manufacturer | Path | c:\winnt\system32\dfrgsnap.dll                                     |                |  |
| traffic.dll                         | 5.00.2139.1                           | 30.77 KB (31,504 bytes)   |                      |              |      | dmdskres.dll   | 2191.1.296.2   | 119.00 KB (121,856 bytes)                          |
| 12/7/1999 7:00:00 AM                |                                       |                           |                      |              |      | 12/7/1999 7:00:00 AM   |                | Microsoft Corp., VERITAS Software                  |
| c:\winnt\system32\traffic.dll       |                                       |                           |                      |              |      | c:\winnt\system32\dmdskres.dll                                     |                |  |
| rsvp.exe                            | 5.00.2167.1                           | 172.77 KB (176,912 bytes) |                      |              |      | dmutil.dll   | 2191.1.296.2   | 41.77 KB (42,768 bytes)                            |
| 12/7/1999 7:00:00 AM                |                                       |                           |                      |              |      | 12/7/1999 7:00:00 AM   |                | VERITAS Software Corp.                             |
| c:\winnt\system32\rsvp.exe          |                                       |                           |                      |              |      | c:\winnt\system32\dmutil.dll                                       |                |  |
| wbemprox.dll                        | 1.50.1085.0001                        | 40.05 KB (41,016 bytes)   |                      |              |      | ntmsapi.dll  | 5.00.1948.1    | 50.27 KB (51,472 bytes)                            |
| 12/7/1999 7:00:00 AM                |                                       |                           |                      |              |      | 12/7/1999 7:00:00 AM   |                | Microsoft Corporation                              |
| c:\winnt\system32\wbem\wbemprox.dll |                                       |                           |                      |              |      | c:\winnt\system32\ntmsapi.dll                                      |                |  |

|                                       |                               |                           |                      |                       |  |
|---------------------------------------|-------------------------------|---------------------------|----------------------|-----------------------|--|
| dmskmgr.dll                           | 2191.1.296.2                  | 158.77 KB (162,576 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corp.,      | c:\program files\common files\microsoft shared\web server extensions\40\bin\fpexedll.dll |
| VERITAS Software                      | c:\winnt\system32\dmskmgr.dll |                           |                      |                       | md5filt.dll 5.00.0984 32.77 KB (33,552 bytes)  |
| mycomput.dll                          | 5.00.2134.1                   | 107.77 KB (110,352 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | 10:44:59 AM Microsoft Corporation  |
| c:\winnt\system32\mycomput.dll        |                               |                           |                      |                       | c:\winnt\system32\inetsrv\md5filt.dll  |
| mmcndmgr.dll                          | 5.00.2178.1                   | 815.27 KB (834,832 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | gzip.dll 5.00.0984 30.27 KB (30,992 bytes)   |
| c:\winnt\system32\mmcndmgr.dll        |                               |                           |                      |                       | 10:44:58 AM Microsoft Corporation  |
| mmc.exe                               | 5.00.2153.1                   | 589.27 KB (603,408 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\inetsrv\gzip.dll   |
| c:\winnt\system32\mmc.exe             |                               |                           |                      |                       | compfilt.dll 5.00.0984 22.27 KB (22,800 bytes)   |
| promon.exe                            | 1.11                          | 28.50 KB (29,184 bytes)   | 2/8/2001 12:31:42 PM | Intel Corporation     | 2/5/2001 10:44:58 AM Microsoft Corporation   |
| c:\winnt\system32\promon.exe          |                               |                           |                      |                       | c:\winnt\system32\inetsrv\compfilt.dll   |
| wininet.dll                           | 5.00.2920.0000                | 456.77 KB (467,728 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | sspifilt.dll 5.00.0984 43.27 KB (44,304 bytes)   |
| c:\winnt\system32\wininet.dll         |                               |                           |                      |                       | 10:44:59 AM Microsoft Corporation  |
| linkinfo.dll                          | 5.00.2134.1                   | 15.77 KB (16,144 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\inetsrv\sspifilt.dll   |
| c:\winnt\system32\linkinfo.dll        |                               |                           |                      |                       | iscomlog.dll 5.00.0984 24.77 KB (25,360 bytes)   |
| powrprof.dll                          | 5.00.2920.0000                | 13.27 KB (13,584 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | 2/5/2001 10:44:54 AM Microsoft Corporation   |
| c:\winnt\system32\powrprof.dll        |                               |                           |                      |                       | c:\winnt\system32\inetsrv\iscomlog.dll   |
| batmeter.dll                          | 5.00.2920.0000                | 20.27 KB (20,752 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | lonsint.dll 5.00.0984 11.77 KB (12,048 bytes)  |
| c:\winnt\system32\batmeter.dll        |                               |                           |                      |                       | 10:44:54 AM Microsoft Corporation  |
| stobject.dll                          | 5.00.2144.1                   | 81.77 KB (83,728 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\inetsrv\lonsint.dll  |
| c:\winnt\system32\stobject.dll        |                               |                           |                      |                       | inetsloc.dll 5.00.0984 20.27 KB (20,752 bytes)   |
| webcheck.dll                          | 5.00.2920.0000                | 251.77 KB (257,808 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | 2/5/2001 10:44:55 AM Microsoft Corporation   |
| c:\winnt\system32\webcheck.dll        |                               |                           |                      |                       | c:\winnt\system32\inetsrv\inetsloc.dll   |
| msi.dll                               | 1.10.1029.0                   | 1.71 MB (1,794,320 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | iisfecnv.dll 5.00.0984 7.27 KB (7,440 bytes)   |
| c:\winnt\system32\msi.dll             |                               |                           |                      |                       | 2/5/2001 10:44:54 AM Microsoft Corporation   |
| ntshrui.dll                           | 5.00.2134.1                   | 46.77 KB (47,888 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\inetsrv\iisfecnv.dll   |
| c:\winnt\system32\ntshrui.dll         |                               |                           |                      |                       | isatq.dll 5.00.0984 61.27 KB (62,736 bytes)  |
| mydocs.dll                            | 5.00.2920.0000                | 55.77 KB (57,104 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | 2/5/2001 10:44:56 AM Microsoft Corporation   |
| c:\winnt\system32\mydocs.dll          |                               |                           |                      |                       | c:\winnt\system32\inetsrv\isatq.dll  |
| browseui.dll                          | 5.00.2920.0000                | 793.27 KB (812,304 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | infocomm.dll 5.00.0984 234.27 KB (239,888 bytes)   |
| c:\winnt\system32\browseui.dll        |                               |                           |                      |                       | 2/5/2001 10:44:54 AM Microsoft Corporation   |
| shdocvw.dll                           | 5.00.2920.0000                | 1.05 MB (1,104,144 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\inetsrv\infocomm.dll   |
| c:\winnt\system32\shdocvw.dll         |                               |                           |                      |                       | w3svc.dll 5.00.0984 347.27 KB (355,600 bytes)  |
| explorer.exe                          | 5.00.2920.0000                | 232.77 KB (238,352 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | 10:45:00 AM Microsoft Corporation  |
| c:\winnt\explorer.exe                 |                               |                           |                      |                       | c:\winnt\system32\inetsrv\w3svc.dll  |
| tapisrv.dll                           | 5.00.2186.1                   | 168.77 KB (172,816 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | security.dll 5.00.2154.1 5.77 KB (5,904 bytes)   |
| c:\winnt\system32\tapisrv.dll         |                               |                           |                      |                       | 12/7/1999 7:00:00 AM Microsoft Corporation   |
| dfssvc.exe                            | 5.00.2191.1                   | 85.27 KB (87,312 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\security.dll   |
| c:\winnt\system32\dfssvc.exe          |                               |                           |                      |                       | svcxext.dll 5.00.0984 39.77 KB (40,720 bytes)  |
| iislog.dll                            | 5.00.0984                     | 76.27 KB (78,096 bytes)   | 10:44:54 AM          | Microsoft Corporation | 2/5/2001 10:44:55 AM Microsoft Corporation   |
| c:\winnt\system32\inetsrv\iislog.dll  |                               |                           |                      |                       | c:\winnt\system32\inetsrv\svcxext.dll  |
| httpext.dll                           | 0.9.3939.9                    | 418.27 KB (428,304 bytes) | 10:44:54 AM          | Microsoft Corporation | admexs.dll 5.00.0984 27.77 KB (28,432 bytes)   |
| c:\winnt\system32\inetsrv\httpext.dll |                               |                           |                      |                       | 2/5/2001 10:44:53 AM Microsoft Corporation   |
| rpcproxy.dll                          | 5.00.2176.1                   | 16.27 KB (16,656 bytes)   | 2/5/2001 10:44:12 AM | Microsoft Corporation | c:\winnt\system32\inetsrv\admexs.dll   |
| c:\winnt\system32\rpcproxy.dll        |                               |                           |                      |                       | wamreg.dll 5.00.0984 46.27 KB (47,376 bytes)   |
| fpexedll.dll                          | 4.0.2.3406                    | 20.06 KB (20,541 bytes)   | 2/5/2001 10:46:46 AM | Microsoft Corporation | 2/5/2001 10:45:00 AM Microsoft Corporation   |
|                                       |                               |                           |                      |                       | c:\winnt\system32\inetsrv\wamreg.dll   |
|                                       |                               |                           |                      |                       | metadata.dll 5.00.0984 70.77 KB (72,464 bytes)   |
|                                       |                               |                           |                      |                       | 2/5/2001 10:44:54 AM Microsoft Corporation   |
|                                       |                               |                           |                      |                       | c:\winnt\system32\inetsrv\metadata.dll   |
|                                       |                               |                           |                      |                       | iismap.dll 5.00.0984 56.27 KB (57,616 bytes)   |
|                                       |                               |                           |                      |                       | 2/5/2001 10:44:55 AM Microsoft Corporation   |
|                                       |                               |                           |                      |                       | c:\winnt\system32\inetsrv\iismap.dll   |
|                                       |                               |                           |                      |                       | nsepm.dll 5.00.0984 43.27 KB (44,304 bytes)  |
|                                       |                               |                           |                      |                       | 2/5/2001 10:44:54 AM Microsoft Corporation   |
|                                       |                               |                           |                      |                       | c:\winnt\system32\inetsrv\nsepm.dll  |
|                                       |                               |                           |                      |                       | admwprox.dll 5.00.0984 31.77 KB (32,528 bytes)   |
|                                       |                               |                           |                      |                       | 2/5/2001 10:44:55 AM Microsoft Corporation   |
|                                       |                               |                           |                      |                       | c:\winnt\system32\admwprox.dll   |
|                                       |                               |                           |                      |                       | coadmin.dll 5.00.0984 39.77 KB (40,720 bytes)  |
|                                       |                               |                           |                      |                       | 2/5/2001 10:44:56 AM Microsoft Corporation   |
|                                       |                               |                           |                      |                       | c:\winnt\system32\inetsrv\coadmin.dll  |
|                                       |                               |                           |                      |                       | iisadmin.dll 5.00.0984 14.77 KB (15,120 bytes)   |
|                                       |                               |                           |                      |                       | 2/5/2001 10:44:54 AM Microsoft Corporation   |
|                                       |                               |                           |                      |                       | c:\winnt\system32\inetsrv\iisadmin.dll   |
|                                       |                               |                           |                      |                       | rpcpref.dll 5.00.0984 4.27 KB (4,368 bytes)  |
|                                       |                               |                           |                      |                       | 2/5/2001 10:44:55 AM Microsoft Corporation   |
|                                       |                               |                           |                      |                       | c:\winnt\system32\inetsrv\rpcpref.dll  |

|              |                |                           |                      |                       |  |
|--------------|----------------|---------------------------|----------------------|-----------------------|--|
| iiisrtl.dll  | 5.00.0984      | 120.77 KB (123,664 bytes) | 2/5/2001 10:44:55 AM | Microsoft Corporation | c:\winnt\system32\iiisrtl.dll                            |
| inetinfo.exe | 5.00.0984      | 14.27 KB (14,608 bytes)   | 2/5/2001 10:44:54 AM | Microsoft Corporation | c:\winnt\system32\inetinfo.exe                           |
| 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   | 5.00.2134.1    | 70.27 KB (71,952 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\netui0.dll                             |
| ntlanman.dll | 5.00.2157.1    | 35.27 KB (36,112 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\ntlanman.dll                           |
| wshnetbs.dll | 5.00.2134.1    | 7.77 KB (7,952 bytes)     | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\wshnetbs.dll                           |
| rapilib.dll  | 5.00.2167.1    | 25.27 KB (25,872 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\rapilib.dll                            |
| rsvsp.dll    | 5.00.2167.1    | 74.77 KB (76,560 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\rsvsp.dll                              |
| ntmarta.dll  | 5.00.2158.1    | 98.77 KB (101,136 bytes)  | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\ntmarta.dll                            |
| provthrd.dll | 1.50.1085.0000 | 68.07 KB (69,708 bytes)   | 2/5/2001 3:49:14 PM  | Microsoft Corporation | c:\winnt\system32\wbem\provthrd.dll                      |
| ntevt.dll    | 1.50.1085.0000 | 192.06 KB (196,669 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\wbem\ntevt.dll                         |
| perfos.dll   | 5.00.2155.1    | 21.27 KB (21,776 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\perfos.dll                             |
| psapi.dll    | 5.00.2134.1    | 28.27 KB (28,944 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\psapi.dll                              |
| framedyn.dll | 1.50.1085.0000 | 164.05 KB (167,992 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\wbem\framedyn.dll                      |
| cimwin32.dll | 1.50.1085.0000 | 1.03 MB (1,077,306 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\wbem\cimwin32.dll                      |
| wbemsvc.dll  | 1.50.1085.0000 | 140.07 KB (143,430 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\wbem\wbemsvc.dll                       |
| wbemess.dll  | 1.50.1085.0001 | 352.05 KB (360,503 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\wbem\wbemess.dll                       |
| fastprox.dll | 1.50.1085.0001 | 144.08 KB (147,534 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\wbem\fastprox.dll                      |
| wbemcore.dll | 1.50.1085.0001 | 632.05 KB (647,224 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\wbem\wbemcore.dll                      |
| wbemcomn.dll | 1.50.1085.0001 | 684.05 KB (700,472 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\wbem\wbemcomn.dll                      |
| winnmgmt.exe | 1.50.1085.0001 | 188.05 KB (192,567 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\wbem\winnmgmt.exe                      |
| simptcp.dll  | 5.00.2134.1    | 19.27 KB (19,728 bytes)   | 2/5/2001 10:44:12 AM | Microsoft Corporation | c:\winnt\system32\simptcp.dll                            |
| tcpsvcs.exe  | 5.00.2134.1    | 24.77 KB (25,360 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\tcpsvcs.exe                            |
| msidle.dll   | 5.00.2920.0000 | 6.27 KB (6,416 bytes)     | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\msidle.dll                             |
| mstask.exe   | 4.71.2137.1    | 115.27 KB (118,032 bytes) | 2/5/2001 3:49:15 PM  | Microsoft Corporation | c:\winnt\system32\mstask.exe                             |
| regsvc.exe   | 5.00.2155.1    | 65.27 KB (66,832 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\regsvc.exe                             |
| llsrpc.dll   | 5.00.2149.1    | 45.77 KB (46,864 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\llsrpc.dll                             |
| llssrv.exe   | 5.00.2167.1    | 114.27 KB (117,008 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\llssrv.exe                             |
| 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 | 5.00.2176.1    | 456.77 KB (467,728 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\netshell.dll                           |
| netman.dll   | 5.00.2175.1    | 88.77 KB (90,896 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\netman.dll                             |
| rasdlg.dll   | 5.00.2194.1    | 514.27 KB (526,608 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\rasdlg.dll                             |
| netcfgx.dll  | 5.00.2175.1    | 533.77 KB (546,576 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\netcfgx.dll                            |
| rasmans.dll  | 5.00.2188.1    | 146.77 KB (150,288 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\rasmans.dll                            |
| ntmsdba.dll  | 5.00.2187.1    | 167.77 KB (171,792 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\ntmsdba.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\iashlpr.dll                            |
| iasacct.dll  | 5.00.2134.1    | 28.27 KB (28,944 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\iasacct.dll                            |
| iasuser.dll  | 5.00.2134.1    | 25.77 KB (26,384 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\iasuser.dll                            |
| iasnap.dll   | 5.00.2134.1    | 58.77 KB (60,176 bytes)   | 12/7/1999 7:00:00 AM | 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   | 6.0.8540       | 370.27 KB (379,152 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\expsrv.dll                             |
| vbajet32.dll | 6.1.8268       | 30.27 KB (30,992 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\vbajet32.dll                           |
| msjtes40.dll | 4.00.2927.8    | 232.27 KB (237,840 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | c:\winnt\system32\msjtes40.dll                           |
| oledb32r.dll | 2.60.6526.0    | 68.27 KB (69,904 bytes)   | 2/5/2001 5:04:24 PM  | Microsoft Corporation | c:\program files\common files\system\ole db\oledb32r.dll |

|   |                |                           |                      |                       |                                |                |                           |                       |                       |
|---|----------------|---------------------------|----------------------|-----------------------|--------------------------------|----------------|---------------------------|-----------------------|-----------------------|
| comdlg32.dll  | 5.00.2920.0000 | 236.77 KB (242,448 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | xolehlp.dll                    | 1999.9.3421.3  | 17.27 KB (17,680 bytes)   | 2/5/2001 10:44:17 AM  | Microsoft Corporation |
| c:\winnt\system32\comdlg32.dll                          |                |                           |                      |                       | c:\winnt\system32\xolehlp.dll  |                |                           |                       |                       |
| msdart.dll  | 2.60.6526.0    | 144.27 KB (147,728 bytes) | 2/5/2001 5:04:22 PM  | Microsoft Corporation | msdtclog.dll                   | 1999.9.3421.3  | 89.77 KB (91,920 bytes)   | 2/5/2001 10:44:17 AM  | Microsoft Corporation |
| c:\winnt\system32\msdart.dll                            |                |                           |                      |                       | c:\winnt\system32\msdtclog.dll |                |                           |                       |                       |
| oledb32.dll   | 2.60.6526.0    | 448.27 KB (459,024 bytes) | 2/5/2001 5:04:24 PM  | Microsoft Corporation | mtxclu.dll                     | 1999.9.3421.3  | 50.27 KB (51,472 bytes)   | 12/7/1999 7:00:00 AM  | Microsoft Corporation |
| c:\program files\common files\system\ole db\oledb32.dll |                |                           |                      |                       | c:\winnt\system32\mtxclu.dll   |                |                           |                       |                       |
| msjint40.dll  | 4.00.2927.2    | 148.27 KB (151,824 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | msdtcprx.dll                   | 1999.9.3422.10 | 619.27 KB (634,128 bytes) | 2/5/2001 10:44:18 AM  | Microsoft Corporation |
| c:\winnt\system32\msjint40.dll                          |                |                           |                      |                       | c:\winnt\system32\msdtcprx.dll |                |                           |                       |                       |
| msjter40.dll  | 4.00.2927.2    | 52.27 KB (53,520 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | txfaux.dll                     | 1999.9.3422.24 | 341.27 KB (349,456 bytes) | 2/5/2001 10:44:17 AM  | Microsoft Corporation |
| c:\winnt\system32\msjter40.dll                          |                |                           |                      |                       | c:\winnt\system32\txfaux.dll   |                |                           |                       |                       |
| mswstr10.dll  | 4.00.2927.10   | 600.27 KB (614,672 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | msdtctm.dll                    | 1999.9.3422.12 | 1.02 MB (1,070,864 bytes) | 2/5/2001 10:44:18 AM  | Microsoft Corporation |
| c:\winnt\system32\mswstr10.dll                          |                |                           |                      |                       | c:\winnt\system32\msdtctm.dll  |                |                           |                       |                       |
| msjet40.dll   | 4.00.2927.4    | 1.43 MB (1,495,312 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | msdtc.exe                      | 1999.9.3421.3  | 6.77 KB (6,928 bytes)     | 2/5/2001 10:44:17 AM  | Microsoft Corporation |
| c:\winnt\system32\msjet40.dll                           |                |                           |                      |                       | c:\winnt\system32\msdtc.exe    |                |                           |                       |                       |
| msjetoledb40.dll  | 4.00.2927.2    | 340.27 KB (348,432 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | inetpp.dll                     | 5.00.2161.1    | 63.27 KB (64,784 bytes)   | 12/7/1999 7:00:00 AM  | Microsoft Corporation |
| c:\winnt\system32\msjetoledb40.dll                      |                |                           |                      |                       | c:\winnt\system32\inetpp.dll   |                |                           |                       |                       |
| iasrad.dll  | 5.00.2139.1    | 94.27 KB (96,528 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | win32spl.dll                   | 5.00.2162.1    | 92.27 KB (94,480 bytes)   | 12/7/1999 7:00:00 AM  | Microsoft Corporation |
| c:\winnt\system32\iasrad.dll                            |                |                           |                      |                       | c:\winnt\system32\win32spl.dll |                |                           |                       |                       |
| iassam.dll  | 5.00.2160.1    | 96.27 KB (98,576 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | usbmon.dll                     | 5.00.2165.1    | 11.27 KB (11,536 bytes)   | 12/7/1999 7:00:00 AM  | Microsoft Corporation |
| c:\winnt\system32\iassam.dll                            |                |                           |                      |                       | c:\winnt\system32\usbmon.dll   |                |                           |                       |                       |
| iasads.dll  | 5.00.2134.1    | 73.77 KB (75,536 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | tcpmon.dll                     | 5.00.2165.1    | 40.77 KB (41,744 bytes)   | 12/7/1999 7:00:00 AM  | Microsoft Corporation |
| c:\winnt\system32\iasads.dll                            |                |                           |                      |                       | c:\winnt\system32\tcpmon.dll   |                |                           |                       |                       |
| sens.dll  | 5.00.2163.1    | 36.77 KB (37,648 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | pjlmon.dll                     | 5.00.2165.1    | 12.77 KB (13,072 bytes)   | 11/30/1999 6:39:36 PM | Microsoft Corporation |
| c:\winnt\system32\sens.dll                              |                |                           |                      |                       | c:\winnt\system32\pjlmon.dll   |                |                           |                       |                       |
| iaspolicy.dll   | 5.00.2134.1    | 25.27 KB (25,872 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | cnbjmon.dll                    | 5.00.2134.1    | 43.77 KB (44,816 bytes)   | 11/30/1999 6:38:48 PM | Microsoft Corporation |
| c:\winnt\system32\iaspolicy.dll                         |                |                           |                      |                       | c:\winnt\system32\cnbjmon.dll  |                |                           |                       |                       |
| iassvcs.dll   | 5.00.2160.1    | 58.77 KB (60,176 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | localspl.dll                   | 5.00.2191.1    | 244.77 KB (250,640 bytes) | 12/7/1999 7:00:00 AM  | Microsoft Corporation |
| c:\winnt\system32\iassvcs.dll                           |                |                           |                      |                       | c:\winnt\system32\localspl.dll |                |                           |                       |                       |
| iassdo.dll  | 5.00.2157.1    | 262.27 KB (268,560 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | spoolss.dll                    | 5.00.2161.1    | 61.77 KB (63,248 bytes)   | 2/5/2001 9:57:16 AM   | Microsoft Corporation |
| c:\winnt\system32\iassdo.dll                            |                |                           |                      |                       | c:\winnt\system32\spoolss.dll  |                |                           |                       |                       |
| ntmssvc.dll   | 5.00.2187.1    | 390.77 KB (400,144 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | spoolsv.exe                    | 5.00.2161.1    | 43.77 KB (44,816 bytes)   | 2/5/2001 9:57:15 AM   | Microsoft Corporation |
| c:\winnt\system32\ntmssvc.dll                           |                |                           |                      |                       | c:\winnt\system32\spoolsv.exe  |                |                           |                       |                       |
| ias.dll   | 5.00.2134.1    | 7.27 KB (7,440 bytes)     | 12/7/1999 7:00:00 AM | Microsoft Corporation | rpccs.dll                      | 5.00.2181.1    | 229.27 KB (234,768 bytes) | 12/7/1999 7:00:00 AM  | Microsoft Corporation |
| c:\winnt\system32\ias.dll                               |                |                           |                      |                       | c:\winnt\system32\rpccs.dll    |                |                           |                       |                       |
| es.dll  | 1999.9.3422.21 | 231.77 KB (237,328 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | svchost.exe                    | 5.00.2134.1    | 7.77 KB (7,952 bytes)     | 12/7/1999 7:00:00 AM  | Microsoft Corporation |
| c:\winnt\system32\es.dll                                |                |                           |                      |                       | c:\winnt\system32\svchost.exe  |                |                           |                       |                       |
| mtxoci.dll  | 1999.9.3421.3  | 109.27 KB (111,888 bytes) | 2/5/2001 10:44:18 AM | Microsoft Corporation | dssbase.dll                    | 5.00.2150.1    | 140.77 KB (144,144 bytes) | 12/7/1999 7:00:00 AM  | Microsoft Corporation |
| c:\winnt\system32\mtxoci.dll                            |                |                           |                      |                       | c:\winnt\system32\dssbase.dll  |                |                           |                       |                       |
| resutils.dll  | 5.00.2191.1    | 39.77 KB (40,720 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | oakley.dll                     | 5.00.2174.1    | 420.27 KB (430,352 bytes) | 12/7/1999 7:00:00 AM  | Microsoft Corporation |
| c:\winnt\system32\resutils.dll                          |                |                           |                      |                       | c:\winnt\system32\oakley.dll   |                |                           |                       |                       |
| clusapi.dll   | 5.00.2179.1    | 50.27 KB (51,472 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation | mfc42u.dll                     | 6.00.8665.0    | 972.05 KB (995,384 bytes) | 12/7/1999 7:00:00 AM  | Microsoft Corporation |
| c:\winnt\system32\clusapi.dll                           |                |                           |                      |                       | c:\winnt\system32\mfc42u.dll   |                |                           |                       |                       |
| msvcp50.dll   | 5.00.7051      | 552.50 KB (565,760 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation | polagent.dll                   | 5.00.2183.1    | 108.27 KB (110,864 bytes) | 12/7/1999 7:00:00 AM  | Microsoft Corporation |
| c:\winnt\system32\msvcp50.dll                           |                |                           |                      |                       | c:\winnt\system32\polagent.dll |                |                           |                       |                       |

|                                |             |                             |           |                                 |              |                           |           |
|--------------------------------|-------------|-----------------------------|-----------|---------------------------------|--------------|---------------------------|-----------|
| scecli.dll                     | 5.00.2191.1 | 105.27 KB (107,792 bytes)   |           | winrnr.dll                      | 5.00.2160.1  | 18.77 KB (19,216 bytes)   |           |
| 12/7/1999 7:00:00 AM           |             | Microsoft Corporation       |           | 12/7/1999 7:00:00 AM            |              | Microsoft Corporation     |           |
| c:\winnt\system32\scecli.dll   |             |                             |           | c:\winnt\system32\winrnr.dll    |              |                           |           |
| atl.dll                        | 3.00.8449   | 57.56 KB (58,938 bytes)     | 12/7/1999 | mr20.dll                        | 5.00.2152.1  | 35.77 KB (36,624 bytes)   |           |
| 7:00:00 AM                     |             | Microsoft Corporation       |           | 12/7/1999 7:00:00 AM            |              | Microsoft Corporation     |           |
| c:\winnt\system32\atl.dll      |             |                             |           | c:\winnt\system32\mr20.dll      |              |                           |           |
| certcli.dll                    | 5.00.2175.1 | 132.27 KB (135,440 bytes)   |           | wshtcpip.dll                    | 5.00.2134.1  | 17.27 KB (17,680 bytes)   |           |
| 12/7/1999 7:00:00 AM           |             | Microsoft Corporation       |           | 12/7/1999 7:00:00 AM            |              | Microsoft Corporation     |           |
| c:\winnt\system32\certcli.dll  |             |                             |           | c:\winnt\system32\wshtcpip.dll  |              |                           |           |
| esent.dll                      | 6.0.3939.6  | 1.07 MB (1,120,016 bytes)   | 12/7/1999 | msafd.dll                       | 5.00.2153.1  | 54.27 KB (55,568 bytes)   |           |
| 7:00:00 AM                     |             | Microsoft Corporation       |           | 12/7/1999 7:00:00 AM            |              | Microsoft Corporation     |           |
| c:\winnt\system32\esent.dll    |             |                             |           | c:\winnt\system32\msafd.dll     |              |                           |           |
| ntdsatq.dll                    | 5.00.2181.1 | 31.27 KB (32,016 bytes)     |           | mwssock.dll                     | 5.00.2152.1  | 62.27 KB (63,760 bytes)   |           |
| 12/7/1999 7:00:00 AM           |             | Microsoft Corporation       |           | 12/7/1999 7:00:00 AM            |              | Microsoft Corporation     |           |
| c:\winnt\system32\ntdsatq.dll  |             |                             |           | c:\winnt\system32\mwssock.dll   |              |                           |           |
| ntdsa.dll                      | 5.00.2195.1 | 993.27 KB (1,017,104 bytes) |           | msgsvc.dll                      | 5.00.2181.1  | 33.77 KB (34,576 bytes)   |           |
| 12/7/1999 7:00:00 AM           |             | Microsoft Corporation       |           | 12/7/1999 7:00:00 AM            |              | Microsoft Corporation     |           |
| c:\winnt\system32\ntdsa.dll    |             |                             |           | c:\winnt\system32\msgsvc.dll    |              |                           |           |
| kdcsvc.dll                     | 5.00.2181.1 | 133.77 KB (136,976 bytes)   |           | browser.dll                     | 5.00.2142.1  | 48.27 KB (49,424 bytes)   |           |
| 12/7/1999 7:00:00 AM           |             | Microsoft Corporation       |           | 12/7/1999 7:00:00 AM            |              | Microsoft Corporation     |           |
| c:\winnt\system32\kdcsvc.dll   |             |                             |           | c:\winnt\system32\browser.dll   |              |                           |           |
| sfmapi.dll                     | 5.00.2134.1 | 38.77 KB (39,696 bytes)     |           | alrsvc.dll                      | 5.00.2134.1  | 17.77 KB (18,192 bytes)   |           |
| 12/7/1999 7:00:00 AM           |             | Microsoft Corporation       |           | 12/7/1999 7:00:00 AM            |              | Microsoft Corporation     |           |
| c:\winnt\system32\sfmapi.dll   |             |                             |           | c:\winnt\system32\alrsvc.dll    |              |                           |           |
| rassfm.dll                     | 5.00.2168.1 | 21.27 KB (21,776 bytes)     |           | trkwks.dll                      | 5.00.2166.1  | 88.77 KB (90,896 bytes)   |           |
| 12/7/1999 7:00:00 AM           |             | Microsoft Corporation       |           | 12/7/1999 7:00:00 AM            |              | Microsoft Corporation     |           |
| c:\winnt\system32\rassfm.dll   |             |                             |           | c:\winnt\system32\trkwks.dll    |              |                           |           |
| mpr.dll                        | 5.00.2146.1 | 53.27 KB (54,544 bytes)     |           | seclogon.dll                    | 5.00.2135.1  | 15.77 KB (16,144 bytes)   |           |
| 12/7/1999 7:00:00 AM           |             | Microsoft Corporation       |           | 12/7/1999 7:00:00 AM            |              | Microsoft Corporation     |           |
| c:\winnt\system32\mpr.dll      |             |                             |           | c:\winnt\system32\seclogon.dll  |              |                           |           |
| schannel.dll                   | 5.00.2170.1 | 139.77 KB (143,120 bytes)   |           | psbase.dll                      | 5.00.2146.1  | 111.77 KB (114,448 bytes) |           |
| 12/7/1999 7:00:00 AM           |             | Microsoft Corporation       |           | 12/7/1999 7:00:00 AM            |              | Microsoft Corporation     |           |
| c:\winnt\system32\schannel.dll |             |                             |           | c:\winnt\system32\psbase.dll    |              |                           |           |
| netlogon.dll                   | 5.00.2182.1 | 347.77 KB (356,112 bytes)   |           | cryptsvc.dll                    | 5.00.2181.1  | 61.77 KB (63,248 bytes)   |           |
| 12/7/1999 7:00:00 AM           |             | Microsoft Corporation       |           | 12/7/1999 7:00:00 AM            |              | Microsoft Corporation     |           |
| c:\winnt\system32\netlogon.dll |             |                             |           | c:\winnt\system32\cryptsvc.dll  |              |                           |           |
| msv1_0.dll                     | 5.00.2164.1 | 94.77 KB (97,040 bytes)     |           | cryptdll.dll                    | 5.00.2135.1  | 41.27 KB (42,256 bytes)   |           |
| 12/7/1999 7:00:00 AM           |             | Microsoft Corporation       |           | 12/7/1999 7:00:00 AM            |              | Microsoft Corporation     |           |
| c:\winnt\system32\msv1_0.dll   |             |                             |           | c:\winnt\system32\cryptdll.dll  |              |                           |           |
| kerberos.dll                   | 5.00.2181.1 | 196.77 KB (201,488 bytes)   |           | wkssvc.dll                      | 5.00.2181.1  | 95.27 KB (97,552 bytes)   |           |
| 12/7/1999 7:00:00 AM           |             | Microsoft Corporation       |           | 12/7/1999 7:00:00 AM            |              | Microsoft Corporation     |           |
| c:\winnt\system32\kerberos.dll |             |                             |           | c:\winnt\system32\wkssvc.dll    |              |                           |           |
| msprvs.dll                     | 5.00.2154.1 | 41.50 KB (42,496 bytes)     |           | srsvcs.dll                      | 5.00.2178.1  | 79.27 KB (81,168 bytes)   |           |
| 12/7/1999 7:00:00 AM           |             | Microsoft Corporation       |           | 12/7/1999 7:00:00 AM            |              | Microsoft Corporation     |           |
| c:\winnt\system32\msprvs.dll   |             |                             |           | c:\winnt\system32\srsvcs.dll    |              |                           |           |
| samsrv.dll                     | 5.00.2192.1 | 357.77 KB (366,352 bytes)   |           | cfgmgr32.dll                    | 5.00.2134.1  | 16.77 KB (17,168 bytes)   |           |
| 12/7/1999 7:00:00 AM           |             | Microsoft Corporation       |           | 12/7/1999 7:00:00 AM            |              | Microsoft Corporation     |           |
| c:\winnt\system32\samsrv.dll   |             |                             |           | c:\winnt\system32\cfgmgr32.dll  |              |                           |           |
| lsasrv.dll                     | 5.00.2184.1 | 487.77 KB (499,472 bytes)   |           | dmserver.dll                    | 2191.1.296.2 | 11.77 KB (12,048 bytes)   |           |
| 12/7/1999 7:00:00 AM           |             | Microsoft Corporation       |           | 12/7/1999 7:00:00 AM            |              | VERITAS Software Corp.    |           |
| c:\winnt\system32\lsasrv.dll   |             |                             |           | c:\winnt\system32\dmserver.dll  |              |                           |           |
| lsass.exe                      | 5.00.2184.1 | 32.77 KB (33,552 bytes)     |           | winsta.dll                      | 5.00.2134.1  | 36.27 KB (37,136 bytes)   |           |
| 12/7/1999 7:00:00 AM           |             | Microsoft Corporation       |           | 12/7/1999 7:00:00 AM            |              | Microsoft Corporation     |           |
| c:\winnt\system32\lsass.exe    |             |                             |           | c:\winnt\system32\winsta.dll    |              |                           |           |
| ntlsapi.dll                    | 5.00.2134.1 | 6.77 KB (6,928 bytes)       | 12/7/1999 | lmhsvc.dll                      | 5.00.2134.1  | 9.27 KB (9,488 bytes)     | 12/7/1999 |
| 7:00:00 AM                     |             | Microsoft Corporation       |           | 7:00:00 AM                      |              | Microsoft Corporation     |           |
| c:\winnt\system32\ntlsapi.dll  |             |                             |           | c:\winnt\system32\lmhsvc.dll    |              |                           |           |
| xactsrv.dll                    | 5.00.2134.1 | 90.27 KB (92,432 bytes)     |           | dnssrslvr.dll                   | 5.00.2181.1  | 88.27 KB (90,384 bytes)   |           |
| 12/7/1999 7:00:00 AM           |             | Microsoft Corporation       |           | 12/7/1999 7:00:00 AM            |              | Microsoft Corporation     |           |
| c:\winnt\system32\xactsrv.dll  |             |                             |           | c:\winnt\system32\dnssrslvr.dll |              |                           |           |
| wmicore.dll                    | 5.00.2178.1 | 70.77 KB (72,464 bytes)     |           | tapi32.dll                      | 5.00.2182.1  | 123.27 KB (126,224 bytes) |           |
| 12/7/1999 7:00:00 AM           |             | Microsoft Corporation       |           | 12/7/1999 7:00:00 AM            |              | Microsoft Corporation     |           |
| c:\winnt\system32\wmicore.dll  |             |                             |           | c:\winnt\system32\tapi32.dll    |              |                           |           |
| rasadhlp.dll                   | 5.00.2168.1 | 7.27 KB (7,440 bytes)       |           | rasman.dll                      | 5.00.2188.1  | 54.77 KB (56,080 bytes)   |           |
| 12/7/1999 7:00:00 AM           |             | Microsoft Corporation       |           | 12/7/1999 7:00:00 AM            |              | Microsoft Corporation     |           |
| c:\winnt\system32\rasadhlp.dll |             |                             |           | c:\winnt\system32\rasman.dll    |              |                           |           |



|                                |                |                           |                      |                       |
|--------------------------------|----------------|---------------------------|----------------------|-----------------------|
| rasapi32.dll                   | 5.00.2188.1    | 189.77 KB (194,320 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\rasapi32.dll |                |                           |                      |                       |
| rtutils.dll                    | 5.00.2168.1    | 43.77 KB (44,816 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\rtutils.dll  |                |                           |                      |                       |
| adslrpc.dll                    | 5.00.2172.1    | 127.77 KB (130,832 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\adslrpc.dll  |                |                           |                      |                       |
| activeds.dll                   | 5.00.2172.1    | 172.77 KB (176,912 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\activeds.dll |                |                           |                      |                       |
| mprapi.dll                     | 5.00.2181.1    | 79.27 KB (81,168 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\mprapi.dll   |                |                           |                      |                       |
| iphlpapi.dll                   | 5.00.2173.2    | 67.77 KB (69,392 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\iphlpapi.dll |                |                           |                      |                       |
| icmp.dll                       | 5.00.2134.1    | 7.27 KB (7,440 bytes)     | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\icmp.dll     |                |                           |                      |                       |
| dhcpcsvc.dll                   | 5.00.2153.1    | 88.77 KB (90,896 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\dhcpcsvc.dll |                |                           |                      |                       |
| eventlog.dll                   | 5.00.2178.1    | 43.77 KB (44,816 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\eventlog.dll |                |                           |                      |                       |
| ntdsapi.dll                    | 5.00.2160.1    | 56.27 KB (57,616 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\ntdsapi.dll  |                |                           |                      |                       |
| scesrv.dll                     | 5.00.2188.1    | 225.77 KB (231,184 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\scesrv.dll   |                |                           |                      |                       |
| umpnpgmr.dll                   | 5.00.2182.1    | 86.27 KB (88,336 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\umpnpgmr.dll |                |                           |                      |                       |
| services.exe                   | 5.00.2134.1    | 86.77 KB (88,848 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\services.exe |                |                           |                      |                       |
| clbcatq.dll                    | 1999.9.3422.14 | 479.27 KB (490,768 bytes) | 2/5/2001 10:44:12 AM | Microsoft Corporation |
| c:\winnt\system32\clbcatq.dll  |                |                           |                      |                       |
| oleaut32.dll                   | 2.40.4512      | 600.27 KB (614,672 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\oleaut32.dll |                |                           |                      |                       |
| csoui.dll                      | 5.00.2172.1    | 227.27 KB (232,720 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\csoui.dll    |                |                           |                      |                       |
| winspool.drv                   | 5.00.2167.1    | 109.77 KB (112,400 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| 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                   | 5.00.2164.1    | 53.27 KB (54,544 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\wlnotify.dll |                |                           |                      |                       |
| csdll.dll                      | 5.00.2189.1    | 98.27 KB (100,624 bytes)  | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\csdll.dll    |                |                           |                      |                       |
| 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  |                |                           |                      |                       |

|                                |                |                           |                      |                       |
|--------------------------------|----------------|---------------------------|----------------------|-----------------------|
| rsabase.dll                    | 5.00.2150.1    | 128.77 KB (131,856 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\rsabase.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                      | 5.00.2181.1    | 966.27 KB (989,456 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\ole32.dll    |                |                           |                      |                       |
| imagehlp.dll                   | 5.00.2195.1    | 125.27 KB (128,272 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\imagehlp.dll |                |                           |                      |                       |
| msasn1.dll                     | 5.00.2134.1    | 51.27 KB (52,496 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\msasn1.dll   |                |                           |                      |                       |
| crypt32.dll                    | 5.131.2173.1   | 465.77 KB (476,944 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\crypt32.dll  |                |                           |                      |                       |
| wintrust.dll                   | 5.131.2143.1   | 162.27 KB (166,160 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\wintrust.dll |                |                           |                      |                       |
| setupapi.dll                   | 5.00.2183.1    | 554.27 KB (567,568 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    |                |                           |                      |                       |
| comctl32.dll                   | 5.81           | 540.27 KB (553,232 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\comctl32.dll |                |                           |                      |                       |
| shlwapi.dll                    | 5.00.2920.0000 | 282.77 KB (289,552 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\shlwapi.dll  |                |                           |                      |                       |
| shell32.dll                    | 5.00.2920.0000 | 2.24 MB (2,352,400 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\shell32.dll  |                |                           |                      |                       |
| msgina.dll                     | 5.00.2191.1    | 309.77 KB (317,200 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\msgina.dll   |                |                           |                      |                       |
| wsock32.dll                    | 5.00.2152.1    | 21.27 KB (21,776 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\wsock32.dll  |                |                           |                      |                       |
| dnsapi.dll                     | 5.00.2181.1    | 129.77 KB (132,880 bytes) | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\dnsapi.dll   |                |                           |                      |                       |
| wldap32.dll                    | 5.00.2168.1    | 155.77 KB (159,504 bytes) | 12/7/1999 7:00:00 AM | 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                     | 5.00.2134.1    | 69.77 KB (71,440 bytes)   | 12/7/1999 7:00:00 AM | Microsoft Corporation |
| c:\winnt\system32\ws2_32.dll   |                |                           |                      |                       |
| samlib.dll                     | 5.00.2160.1    | 46.27 KB (47,376 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                   | 5.00.2194.1    | 302.77 KB (310,032 bytes) | 12/7/1999 7:00:00 AM | 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 5.00.2154.1 46.77 KB (47,888 bytes)  
 12/7/1999 7:00:00 AM Microsoft Corporation  
 c:\winnt\system32\secur32.dll  
 sfc.dll 5.00.2164.1 84.27 KB (86,288 bytes)  
 12/7/1999 7:00:00 AM Microsoft Corporation  
 c:\winnt\system32\sfc.dll  
 nddeapi.dll 5.00.2137.1 15.27 KB (15,632 bytes)  
 12/7/1999 7:00:00 AM Microsoft Corporation  
 c:\winnt\system32\nddeapi.dll  
 userenv.dll 5.00.2185.1 361.27 KB (369,936 bytes)  
 12/7/1999 7:00:00 AM Microsoft Corporation  
 c:\winnt\system32\userenv.dll  
 user32.dll 5.00.2180.1 393.27 KB (402,704 bytes)  
 12/7/1999 7:00:00 AM Microsoft Corporation  
 c:\winnt\system32\user32.dll  
 gdi32.dll 5.00.2180.1 228.77 KB (234,256 bytes)  
 12/7/1999 7:00:00 AM Microsoft Corporation  
 c:\winnt\system32\gdi32.dll  
 rpert4.dll 5.00.2193.1 434.27 KB (444,688 bytes)  
 12/7/1999 7:00:00 AM Microsoft Corporation  
 c:\winnt\system32\rpert4.dll  
 advapi32.dll 5.00.2191.1 349.27 KB (357,648 bytes)  
 12/7/1999 7:00:00 AM Microsoft Corporation  
 c:\winnt\system32\advapi32.dll  
 kernel32.dll 5.00.2191.1 715.27 KB (732,432 bytes)  
 12/7/1999 7:00:00 AM Microsoft Corporation  
 c:\winnt\system32\kernel32.dll  
 msvcr7.dll 6.10.8637.0 288.09 KB (295,000 bytes)  
 12/7/1999 7:00:00 AM Microsoft Corporation  
 c:\winnt\system32\msvcr7.dll  
 winlogon.exe 5.00.2182.1 173.27 KB (177,424 bytes)  
 12/7/1999 7:00:00 AM Microsoft Corporation  
 c:\winnt\system32\winlogon.exe  
 sfcfiles.dll 5.00.2195.1 973.27 KB (996,624 bytes)  
 12/7/1999 7:00:00 AM Microsoft Corporation  
 c:\winnt\system32\sfcfiles.dll  
 ntdll.dll 5.00.2163.1 469.77 KB (481,040 bytes)  
 12/7/1999 7:00:00 AM Microsoft Corporation  
 c:\winnt\system32\ntdll.dll  
 smss.exe 5.00.2170.1 44.27 KB (45,328 bytes)  
 12/7/1999 7:00:00 AM Microsoft Corporation  
 c:\winnt\system32\smss.exe

[Services]

| Display Name                   | Name                           | State         | Start Mode  | Start Name    |
|--------------------------------|--------------------------------|---------------|-------------|---------------|
| Service Type                   | Path                           | Error Control | Start Name  |               |
| Tag ID                         |                                |               |             |               |
| Alerter                        | Alerter                        | Running       | Auto        | Share Process |
| c:\winnt\system32\services.exe |                                | Normal        | LocalSystem | 0             |
| Application Management         | AppMgmt                        | Stopped       | Manual      |               |
| Share Process                  | c:\winnt\system32\services.exe | Normal        | LocalSystem | 0             |
| Computer Browser               | Browser                        | Running       | Auto        | Share Process |
| c:\winnt\system32\services.exe |                                | Normal        | LocalSystem | 0             |
| Indexing Service               | cisvc                          | Stopped       | Manual      | Share Process |
| c:\winnt\system32\cisvc.exe    |                                | Normal        | LocalSystem | 0             |
| ClipBook                       | ClipSrv                        | Stopped       | Manual      | Own Process   |
| c:\winnt\system32\clipsrv.exe  |                                | Normal        | LocalSystem | 0             |
| Distributed File System        | Dfs                            | Running       | Auto        |               |
| Own Process                    | c:\winnt\system32\dfssvc.exe   | Normal        | LocalSystem | 0             |
| DHCP Client                    | Dhcp                           | Running       | Auto        | Share Process |
| c:\winnt\system32\services.exe |                                | Normal        | LocalSystem | 0             |
| Logical Disk Manager           | Administrative Service         |               |             | dmdadmin      |
| Stopped                        | Manual                         | Share Process |             |               |
| c:\winnt\system32\dmdadmin.exe | /com                           | Normal        | LocalSystem | 0             |

|  |  |                               |             |               |
|--|--|-------------------------------|-------------|---------------|
| Logical Disk Manager                     | dmservice                                | Running                       | Auto        |               |
| Share Process                            | c:\winnt\system32\services.exe           | Normal                        | LocalSystem | 0             |
| DNS Client                               | Dnscache                                 | Running                       | Auto        | Share Process |
| c:\winnt\system32\services.exe           |  | Normal                        | LocalSystem | 0             |
| Event Log                                | Eventlog                                 | Running                       | Auto        | Share Process |
| c:\winnt\system32\services.exe           |  | Normal                        | LocalSystem | 0             |
| COM+ Event System                        | EventSystem                              | Running                       | Manual      |               |
| Share Process                            | c:\winnt\system32\svchost.exe -k netsvcs | Normal                        | LocalSystem | 0             |
| Fax Service                              | Fax                                      | Stopped                       | Manual      | Own Process   |
| c:\winnt\system32\faxsvc.exe             |  | Normal                        | LocalSystem | 0             |
| Internet Authentication Service          | IAS                                      | Running                       | Auto        |               |
| Share Process                            | c:\winnt\system32\svchost.exe -k netsvcs | Normal                        | LocalSystem | 0             |
| IIS Admin Service                        | IISADMIN                                 | Running                       | Auto        | Share Process |
| c:\winnt\system32\inetrv\inetinfo.exe    |  | Normal                        | LocalSystem | 0             |
| Intersite Messaging                      | IsmServ                                  | Stopped                       | Disabled    | Own Process   |
| c:\winnt\system32\ismserv.exe            |  | Normal                        | LocalSystem | 0             |
| Kerberos Key Distribution Center         | kdc                                      | Stopped                       |             |               |
| Disabled                                 | Share Process                            | c:\winnt\system32\lsass.exe   |             |               |
| Normal                                   | LocalSystem                              | 0                             |             |               |
| Server                                   | lanmanserver                             | Running                       | Auto        | Share Process |
| c:\winnt\system32\services.exe           |  | Normal                        | LocalSystem | 0             |
| Workstation                              | lanmanworkstation                        | Running                       | Auto        |               |
| Share Process                            | c:\winnt\system32\services.exe           | Normal                        | LocalSystem | 0             |
| License Logging Service                  | LicenseService                           | Running                       |             |               |
| Auto                                     | Own Process                              | c:\winnt\system32\llsdrv.exe  |             |               |
| Normal                                   | LocalSystem                              | 0                             |             |               |
| TCP/IP NetBIOS Helper Service            | LmHosts                                  | Running                       | Auto        |               |
| Share Process                            | c:\winnt\system32\services.exe           | Normal                        | LocalSystem | 0             |
| Messenger                                | Messenger                                | Running                       | Auto        | Share Process |
| c:\winnt\system32\services.exe           |  | Normal                        | LocalSystem | 0             |
| NetMeeting Remote Desktop Sharing        | mnmshrvc                                 | Stopped                       |             |               |
| Manual                                   | Own Process                              | c:\winnt\system32\mnmsrvc.exe |             |               |
| Normal                                   | LocalSystem                              | 0                             |             |               |
| Distributed Transaction Coordinator      | MSDTC                                    | Running                       |             |               |
| Auto                                     | Own Process                              | c:\winnt\system32\msdtc.exe   |             |               |
| Normal                                   | LocalSystem                              | 0                             |             |               |
| Windows Installer                        | MSIServer                                | Stopped                       | Manual      | Share Process |
| c:\winnt\system32\msiexec.exe /v         |  | Normal                        | LocalSystem | 0             |
| Network DDE                              | NetDDE                                   | Stopped                       | Manual      | Share Process |
| c:\winnt\system32\netdde.exe             |  | Normal                        | LocalSystem | 0             |
| Network DDE DSDM                         | NetDDEdsdm                               | Stopped                       | Manual      |               |
| Share Process                            | c:\winnt\system32\netdde.exe             | Normal                        | LocalSystem | 0             |
| Net Logon                                | Netlogon                                 | Stopped                       | Manual      | Share Process |
| c:\winnt\system32\lsass.exe              |  | Normal                        | LocalSystem | 0             |
| Network Connections                      | Netman                                   | Running                       | Manual      | Share Process |
| c:\winnt\system32\svchost.exe -k netsvcs |  | Normal                        | LocalSystem | 0             |
| File Replication                         | NtFrs                                    | Stopped                       | Manual      | Own Process   |
| c:\winnt\system32\ntfrs.exe              |  | Ignore                        | LocalSystem | 0             |
| NT LM Security Support Provider          | NtLmSsp                                  | Stopped                       |             |               |
| Manual                                   | Share Process                            | c:\winnt\system32\lsass.exe   |             |               |
| Normal                                   | LocalSystem                              | 0                             |             |               |
| Removable Storage                        | NtmsSvc                                  | Running                       | Auto        | Share Process |
| c:\winnt\system32\svchost.exe -k netsvcs |  | Normal                        | LocalSystem | 0             |
| Plug and Play                            | PlugPlay                                 | Running                       | Auto        | Share Process |
| c:\winnt\system32\services.exe           |  | Normal                        | LocalSystem | 0             |
| IPSEC Policy Agent                       | PolicyAgent                              | Running                       | Auto        |               |
| Share Process                            | c:\winnt\system32\lsass.exe              | Normal                        | LocalSystem | 0             |

```

Protected Storage ProtectedStorage Running Auto
Share Process c:\winnt\system32\services.exe Normal
LocalSystem 0
Remote Access Auto Connection Manager RasAuto Stopped
Manual Share Process c:\winnt\system32\svchost.exe -k
netsh Normal LocalSystem 0
Remote Access Connection Manager RasMan Stopped
Manual Share Process c:\winnt\system32\svchost.exe -k
netsh Normal LocalSystem 0
Routing and Remote Access RemoteAccess Stopped
Disabled Share Process c:\winnt\system32\svchost.exe -k
netsh Normal LocalSystem 0
Remote Registry Service RemoteRegistry Running
Auto Own Process c:\winnt\system32\regsvc.exe
Normal LocalSystem 0
Remote Procedure Call (RPC) Locator RpcLocator
Stopped Manual Own Process
c:\winnt\system32\locator.exe Normal LocalSystem 0
Remote Procedure Call (RPC) RpcSs Running Auto
Share Process c:\winnt\system32\svchost -k rps
Normal LocalSystem 0
QoS Admission Control (RSVP) RSVP Running Auto
Own Process c:\winnt\system32\rsvp.exe -s Normal
LocalSystem 0
Security Accounts Manager SamSs Running Auto
Share Process c:\winnt\system32\lsass.exe Normal
LocalSystem 0
Smart Card Helper SCardDrv Stopped Manual Share Process
c:\winnt\system32\scardsvr.exe Ignore LocalSystem 0
Smart Card SCardSvr Stopped Manual Share Process
c:\winnt\system32\scardsvr.exe Ignore LocalSystem 0
Task Scheduler Schedule Running Auto Share Process
c:\winnt\system32\mstask.exe Normal LocalSystem 0
RunAs Service seclogon Running Auto Share Process
c:\winnt\system32\services.exe Ignore LocalSystem 0
System Event Notification SENS Running Auto
Share Process c:\winnt\system32\svchost.exe -k netsh
Normal LocalSystem 0
Internet Connection Sharing SharedAccess Stopped
Manual Share Process c:\winnt\system32\svchost.exe -k
netsh Normal LocalSystem 0
Simple TCP/IP Services SimpTcp Running Auto
Share Process c:\winnt\system32\tcpshost.exe Normal
LocalSystem 0
Print Spooler Spooler Running Auto Own Process
c:\winnt\system32\spoolsv.exe Normal LocalSystem 0
Performance Logs and Alerts SysmonLog Stopped
Manual Own Process c:\winnt\system32\smlogsvc.exe
Normal LocalSystem 0
Telephony TapiSrv Running Manual Share Process
c:\winnt\system32\svchost.exe -k tapisrv Normal LocalSystem
0
Terminal Services TermService Stopped Disabled
Own Process c:\winnt\system32\termsrv.exe Normal
LocalSystem 0
Telnet TlntSvr Stopped Manual Own Process
c:\winnt\system32\tlntsvr.exe Normal LocalSystem 0
Distributed Link Tracking Server TrkSvr Stopped Manual
Share Process c:\winnt\system32\services.exe Normal
LocalSystem 0
Distributed Link Tracking Client TrkWks Running Auto
Share Process c:\winnt\system32\services.exe Normal
LocalSystem 0
Uninterruptible Power Supply UPS Stopped Manual
Own Process c:\winnt\system32\ups.exe Normal
LocalSystem 0
Utility Manager UtilMan Stopped Manual Own Process
c:\winnt\system32\utilman.exe Normal LocalSystem 0

```

```

Windows Time W32Time Stopped Manual Share Process
c:\winnt\system32\services.exe Normal LocalSystem 0
World Wide Web Publishing Service W3SVC Running
Auto Share Process
c:\winnt\system32\inetrv\inetinfo.exe Normal LocalSystem
0
Windows Management Instrumentation WinMgmt Running
Auto Own Process
c:\winnt\system32\wbem\winmgmt.exe Ignore LocalSystem
0
Windows Management Instrumentation Driver Extensions
Wmi Running Manual Share Process
c:\winnt\system32\services.exe Normal 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
Accessories\System Tools Default User:Accessories\System
Tools 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\Games All Users:Accessories\Games All Users
Accessories\Microsoft Script Debugger All
Users:Accessories\Microsoft Script Debugger 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 CLIENT10\Administrator:Accessories
CLIENT10\Administrator
Accessories\Accessibility
CLIENT10\Administrator:Accessories\Accessibility
CLIENT10\Administrator
Accessories\Entertainment
CLIENT10\Administrator:Accessories\Entertainment
CLIENT10\Administrator
Accessories\System Tools
CLIENT10\Administrator:Accessories\System Tools
CLIENT10\Administrator
Administrative Tools CLIENT10\Administrator:Administrative Tools
CLIENT10\Administrator
Startup CLIENT10\Administrator:Startup
CLIENT10\Administrator

```

[Startup Programs]

```

Program Command User Name Location
Promon.exe promon.exe All Users
HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Run

```

[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  
 Image Document "C:\Program Files\Windows NT\Accessories\ImageVue\KodakImg.exe"  
 WordPad Document "%ProgramFiles%\Windows NT\Accessories\WORDPAD.EXE"  
 Windows Media Services DRM Storage object Not Available  
 Bitmap Image mspaint.exe

[Internet Explorer 5]

[ Following are sub-categories of this main category ]

[Summary]

Item Value  
 Version 5.00.2920.0000  
 Build 52920  
 Product ID 51876-OEM-0000007-00000  
 Application Path C:\Program Files\Internet Explorer  
 Language English (United States)  
 Active Printer Not Available

Cipher Strength 56-bit  
 Content Advisor Disabled  
 IEAK Install No

[File Versions]

| File         | Version        | Size   | Date                 | Path                               | Company               |
|--------------|----------------|--------|----------------------|------------------------------------|-----------------------|
| advapi32.dll | 5.0.2191.1     | 349 KB | 12/7/1999 8:00:00 AM | C:\WINNT\system32                  | Microsoft Corporation |
| advpack.dll  | 5.0.2920.0     | 87 KB  | 12/7/1999 8:00:00 AM | C:\WINNT\system32                  | Microsoft Corporation |
| browsecl.dll | 5.0.2920.0     | 35 KB  | 12/7/1999 8:00:00 AM | C:\WINNT\system32                  | Microsoft Corporation |
| browseui.dll | 5.0.2920.0     | 793 KB | 12/7/1999 8:00:00 AM | C:\WINNT\system32                  | Microsoft Corporation |
| ckcnv.exe    | 5.0.2189.1     | 9 KB   | 12/7/1999 8:00:00 AM | C:\WINNT\system32                  | Microsoft Corporation |
| comctl32.dll | 5.81.2920.0    | 540 KB | 12/7/1999 8:00:00 AM | C:\WINNT\system32                  | Microsoft Corporation |
| crypt32.dll  | 5.131.2173.1   | 466 KB | 12/7/1999 8:00:00 AM | C:\WINNT\system32                  | Microsoft Corporation |
| enhsg.dll    | <File Missing> |        | Not Available        |                                    | Not Available         |
| iemigrat.dll | <File Missing> |        | Not Available        |                                    | Not Available         |
| iesetup.dll  | 5.0.2920.0     | 57 KB  | 12/7/1999 8:00:00 AM | C:\WINNT\system32                  | Microsoft Corporation |
| iexplore.exe | 5.0.2920.0     | 59 KB  | 12/7/1999 8:00:00 AM | C:\Program Files\Internet Explorer | Microsoft Corporation |
| imagehlp.dll | 5.0.2195.1     | 125 KB | 12/7/1999 8:00:00 AM | C:\WINNT\system32                  | Microsoft Corporation |
| imghelp.dll  | <File Missing> |        | Not Available        |                                    | Not Available         |
| inseng.dll   | 5.0.2920.0     | 72 KB  | 12/7/1999 8:00:00 AM | C:\WINNT\system32                  | Microsoft Corporation |
| jobexec.dll  | 5.0.0.1        | 47 KB  | 12/7/1999 8:00:00 AM | C:\WINNT\system32                  | Microsoft Corporation |
| jscrip.dll   | 5.1.0.4615     | 476 KB | 12/7/1999 8:00:00 AM | C:\WINNT\system32                  | Microsoft Corporation |
| jsproxy.dll  | 5.0.2920.0     | 13 KB  | 12/7/1999 8:00:00 AM | C:\WINNT\system32                  | Microsoft Corporation |
| msahtml.dll  | <File Missing> |        | Not Available        |                                    | Not Available         |

|              |                |         |                      |                   |                       |
|--------------|----------------|---------|----------------------|-------------------|-----------------------|
| mshhtml.dll  | 5.0.2920.0     | 2302 KB | 12/7/1999 8:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| msjava.dll   | 5.0.3234.0     | 918 KB  | 12/7/1999 8:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| msoss.dll    | <File Missing> |         | Not Available        |                   | Not Available         |
| msxml.dll    | 5.0.2920.0     | 521 KB  | 12/7/1999 8:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| occache.dll  | 5.0.2920.0     | 86 KB   | 12/7/1999 8:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| ole32.dll    | 5.0.2181.1     | 966 KB  | 12/7/1999 8:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| oleaut32.dll | 2.40.4512.1    | 600 KB  | 12/7/1999 8:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| olepro32.dll | 5.0.4512.1     | 160 KB  | 12/7/1999 8:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| rsabase.dll  | 5.0.2150.1     | 129 KB  | 12/7/1999 8:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| rsaenh.dll   | <File Missing> |         | Not Available        |                   | Not Available         |
| rsapi32.dll  | <File Missing> |         | Not Available        |                   | Not Available         |
| rsasig.dll   | <File Missing> |         | Not Available        |                   | Not Available         |
| schannel.dll | 5.0.2170.0     | 140 KB  | 12/7/1999 8:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| shdoc401.dll | <File Missing> |         | Not Available        |                   | Not Available         |
| shdocvw.dll  | 5.0.2920.0     | 1078 KB | 12/7/1999 8:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| shell32.dll  | 5.0.2920.0     | 2297 KB | 12/7/1999 8:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| shlwapi.dll  | 5.0.2920.0     | 283 KB  | 12/7/1999 8:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| url.dll      | 5.0.2920.0     | 82 KB   | 12/7/1999 8:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| urlmon.dll   | 5.0.2920.0     | 427 KB  | 12/7/1999 8:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| vbscript.dll | 5.1.0.4615     | 428 KB  | 12/7/1999 8:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| webcheck.dll | 5.0.2920.0     | 252 KB  | 12/7/1999 8:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| win.com      | 5.0.2134.1     | 24 KB   | 12/7/1999 8:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| wininet.dll  | 5.0.2920.0     | 457 KB  | 12/7/1999 8:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| winsoc.dll   | 3.10.0.103     | 3 KB    | 12/7/1999 8:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| wintrust.dll | 5.131.2143.1   | 162 KB  | 12/7/1999 8:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| wsock.vxd    | <File Missing> |         | Not Available        |                   | Not Available         |
| wsock32.dll  | 5.0.2152.1     | 21 KB   | 12/7/1999 8:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| wsock32n.dll | <File Missing> |         | Not Available        |                   | Not Available         |

[Connectivity]

| Item                  | Value      |
|-----------------------|------------|
| Connection Preference | Never dial |
| EnableHttp1.1         | 1          |
| ProxyHttp1.1          | 0          |

LAN Settings

|                     |             |
|---------------------|-------------|
| AutoConfigProxy     | wininet.dll |
| AutoProxyDetectMode | Enabled     |

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                | 17343 MB  |
| Available Disk Space            | 14868 MB  |
| Maximum Cache Size              | 541 MB  |
| Available Cache Size            | 542 MB  |

[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 |
|---------------|---------------|-----------------------|-----------|-----------|
| Administrator | Administrator | 2/5/2001 to 1/12/2101 | 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   | Medium-low     |
| Trusted sites    | Low            |
| Internet         | Medium         |
| Restricted sites | High           |

## RAID Controllers

### Mylex eXtremeRAID 2000 Adapter 0

Begin  
BeginGroup  
PhysicalDevice0 = Channel=0, Target=0, Size=17336mb,  
State=Online,

TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice1 = Channel=0, Target=1, Size=17336mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice2 = Channel=0, Target=2, Size=17336mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice3 = Channel=0, Target=3, Size=17336mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice4 = Channel=0, Target=4, Size=17336mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice5 = Channel=0, Target=5, Size=17336mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice6 = Channel=0, Target=6, Size=17336mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice7 = Channel=1, Target=8, Size=17336mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice8 = Channel=1, Target=9, Size=17336mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice9 = Channel=1, Target=10, Size=17336mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice10 = Channel=1, Target=11,  
Size=17336mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice11 = Channel=1, Target=12,  
Size=17336mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice12 = Channel=1, Target=13,  
Size=17336mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice13 = Channel=1, Target=14,  
Size=17336mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice14 = Channel=2, Target=0, Size=17336mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice15 = Channel=2, Target=1, Size=17336mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice16 = Channel=2, Target=2, Size=17336mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice17 = Channel=2, Target=3, Size=17336mb,  
State=Online,

|   |  |
|---|--|
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (PhysicalDevice11, StartAddress=0mb,             |
| MaxTag=16;  | Size=17336mb),                                   |
| PhysicalDevice18 = Channel=2, Target=4, Size=17336mb, | (PhysicalDevice12, StartAddress=0mb,             |
| State=Online,   | Size=17336mb),                                   |
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (PhysicalDevice13, StartAddress=0mb,             |
| MaxTag=16;  | Size=17336mb);                                   |
| PhysicalDevice19 = Channel=2, Target=5, Size=17336mb, | IntermediateDevice2 = StripeSize=64kb, Raid=0,   |
| State=Online,   | WriteThrough=1, Size=121352mb,                   |
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (PhysicalDevice14, StartAddress=0mb,             |
| MaxTag=16;  | Size=17336mb),                                   |
| PhysicalDevice20 = Channel=2, Target=6, Size=17336mb, | (PhysicalDevice15, StartAddress=0mb,             |
| State=Online,   | Size=17336mb),                                   |
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (PhysicalDevice16, StartAddress=0mb,             |
| MaxTag=16;  | Size=17336mb),                                   |
| PhysicalDevice21 = Channel=3, Target=8, Size=17336mb, | (PhysicalDevice17, StartAddress=0mb,             |
| State=Online,   | Size=17336mb),                                   |
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (PhysicalDevice18, StartAddress=0mb,             |
| MaxTag=16;  | Size=17336mb),                                   |
| PhysicalDevice22 = Channel=3, Target=9, Size=17336mb, | (PhysicalDevice19, StartAddress=0mb,             |
| State=Online,   | Size=17336mb),                                   |
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (PhysicalDevice20, StartAddress=0mb,             |
| MaxTag=16;  | Size=17336mb);                                   |
| PhysicalDevice23 = Channel=3, Target=10,              | IntermediateDevice3 = StripeSize=64kb, Raid=0,   |
| Size=17336mb, State=Online,                           | WriteThrough=1, Size=121352mb,                   |
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (PhysicalDevice21, StartAddress=0mb,             |
| MaxTag=16;  | Size=17336mb),                                   |
| PhysicalDevice24 = Channel=3, Target=11,              | (PhysicalDevice22, StartAddress=0mb,             |
| Size=17336mb, State=Online,                           | Size=17336mb),                                   |
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (PhysicalDevice23, StartAddress=0mb,             |
| MaxTag=16;  | Size=17336mb),                                   |
| PhysicalDevice25 = Channel=3, Target=12,              | (PhysicalDevice24, StartAddress=0mb,             |
| Size=17336mb, State=Online,                           | Size=17336mb),                                   |
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (PhysicalDevice25, StartAddress=0mb,             |
| MaxTag=16;  | Size=17336mb),                                   |
| PhysicalDevice26 = Channel=3, Target=13,              | (PhysicalDevice26, StartAddress=0mb,             |
| Size=17336mb, State=Online,                           | Size=17336mb),                                   |
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (PhysicalDevice27, StartAddress=0mb,             |
| MaxTag=16;  | Size=17336mb);                                   |
| PhysicalDevice27 = Channel=3, Target=14,              | LogicalDevice0 = StripeSize=64kb, Raid=12,       |
| Size=17336mb, State=Online,                           | WriteThrough=1, Size=485408mb, BIOSGeometry=2GB, |
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (IntermediateDevice0, StartAddress=0mb,          |
| MaxTag=16;  | Size=121352mb),                                  |
| IntermediateDevice0 = StripeSize=64kb, Raid=0,        | (IntermediateDevice1, StartAddress=0mb,          |
| WriteThrough=1, Size=121352mb,                        | Size=121352mb),                                  |
| (PhysicalDevice0, StartAddress=0mb,                   | (IntermediateDevice2, StartAddress=0mb,          |
| Size=17336mb),  | Size=121352mb),                                  |
| (PhysicalDevice1, StartAddress=0mb,                   | (IntermediateDevice3, StartAddress=0mb,          |
| Size=17336mb),  | Size=121352mb);                                  |
| (PhysicalDevice2, StartAddress=0mb,                   | EndGroup   |
| Size=17336mb),  | BeginControllerParameter                         |
| (PhysicalDevice3, StartAddress=0mb,                   | ControllerName = eXtremeRAID 2000;               |
| Size=17336mb),  | ControllerType = 28;                             |
| (PhysicalDevice4, StartAddress=0mb,                   | FirmwareVersion = 5.60;                          |
| Size=17336mb),  | CacheLineSize = 8KB;                             |
| (PhysicalDevice5, StartAddress=0mb,                   | BackgroundTaskRate = 50;                         |
| Size=17336mb),  | InitiatorID = 7;                                 |
| (PhysicalDevice6, StartAddress=0mb,                   | DiskStartupMode = AutoSpin;                      |
| Size=17336mb);  | DevicesPerSpin = 2;                              |
| IntermediateDevice1 = StripeSize=64kb, Raid=0,        | InitialDelay = 6S;                               |
| WriteThrough=1, Size=121352mb,                        | SequentialDelay = 0S;                            |
| (PhysicalDevice7, StartAddress=0mb,                   | EnableDriveSizing = 0;                           |
| Size=17336mb),  | EnableClustering = 0;                            |
| (PhysicalDevice8, StartAddress=0mb,                   | EnableBGInit = 1;                                |
| Size=17336mb),  | EnableReadAhead = 0;                             |
| (PhysicalDevice9, StartAddress=0mb,                   | EnableBiosLoadDelay = 0;                         |
| Size=17336mb),  | EnableForcedUnitAccess = 0;                      |
| (PhysicalDevice10, StartAddress=0mb,                  | DisableBios = 0;                                 |
| Size=17336mb),  | EnableCDROMBoot = 0;                             |

```

EnableStorageWorks = 0;
EnableSAFTE = 0;
EnableSES = 0;
EnableARM = 1;
EnableOFM = 1;
OEMCode = 0;
StartupOption = 0;
EndControllerParameter
End

```

## Mylex eXtremeRAID 2000 Adapter 1

```

Begin
BeginGroup
PhysicalDevice0 = Channel=0, Target=1, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice1 = Channel=0, Target=0, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice2 = Channel=0, Target=2, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice3 = Channel=0, Target=3, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice4 = Channel=0, Target=4, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice5 = Channel=0, Target=5, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice6 = Channel=0, Target=6, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice7 = Channel=1, Target=8, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice8 = Channel=1, Target=9, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice9 = Channel=1, Target=10, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice10 = Channel=1, Target=11, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice11 = Channel=1, Target=12, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice12 = Channel=1, Target=13, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;

```

```

PhysicalDevice13 = Channel=1, Target=14, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice14 = Channel=2, Target=0, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice15 = Channel=2, Target=1, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice16 = Channel=2, Target=2, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice17 = Channel=2, Target=3, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice18 = Channel=2, Target=4, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice19 = Channel=2, Target=5, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice20 = Channel=2, Target=6, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice21 = Channel=3, Target=8, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice22 = Channel=3, Target=9, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice23 = Channel=3, Target=10, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice24 = Channel=3, Target=11, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice25 = Channel=3, Target=12, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice26 = Channel=3, Target=13, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice27 = Channel=3, Target=14, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
IntermediateDevice0 = StripeSize=64kb, Raid=0,
WriteThrough=1, Size=60592mb,
(PhysicalDevice0, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice1, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice2, StartAddress=0mb,
Size=8656mb),

```

```

Size=8656mb),
(PhysicalDevice3, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice4, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice5, StartAddress=0mb,
Size=8656mb);
IntermediateDevice1 = StripeSize=64kb, Raid=0,
WriteThrough=1, Size=60592mb,
(PhysicalDevice7, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice8, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice9, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice10, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice11, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice12, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice13, StartAddress=0mb,
Size=8656mb);
IntermediateDevice2 = StripeSize=64kb, Raid=0,
WriteThrough=1, Size=60592mb,
(PhysicalDevice14, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice15, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice16, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice17, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice18, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice19, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice20, StartAddress=0mb,
Size=8656mb);
IntermediateDevice3 = StripeSize=64kb, Raid=0,
WriteThrough=1, Size=60592mb,
(PhysicalDevice21, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice22, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice23, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice24, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice25, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice26, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice27, StartAddress=0mb,
Size=8656mb);
LogicalDevice0 = StripeSize=64kb, Raid=12,
WriteThrough=1, Size=242368mb, BIOSGeometry=8GB,
(IntermediateDevice0, StartAddress=0mb,
Size=60592mb),
(IntermediateDevice1, StartAddress=0mb,
Size=60592mb),
(IntermediateDevice2, StartAddress=0mb,
Size=60592mb),
(IntermediateDevice3, StartAddress=0mb,
Size=60592mb);
EndGroup
BeginControllerParameter

```

```

ControllerName = eXtremeRAID 2000;
ControllerType = 28;
FirmwareVersion = 5.60;
CacheLineSize = 8KB;
BackgroundTaskRate = 50;
InitiatorID = 7;
DiskStartupMode = AutoSpin;
DevicesPerSpin = 2;
InitialDelay = 6S;
SequentialDelay = 0S;
EnableDriveSizing = 0;
EnableClustering = 0;
EnableBGInit = 1;
EnableReadAhead = 0;
EnableBiosLoadDelay = 0;
EnableForcedUnitAccess = 0;
DisableBios = 0;
EnableCDROMBoot = 0;
EnableStorageWorks = 0;
EnableSAFTE = 0;
EnableSES = 0;
EnableARM = 1;
EnableOFM = 1;
OEMCode = 0;
StartupOption = 0;
EndControllerParameter
End

```

## Mylex eXtremeRAID 2000 Adapter 2

```

Begin
BeginGroup
PhysicalDevice0 = Channel=0, Target=0, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice1 = Channel=0, Target=1, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice2 = Channel=0, Target=2, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice3 = Channel=0, Target=3, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice4 = Channel=0, Target=4, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice5 = Channel=0, Target=5, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice6 = Channel=0, Target=6, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice7 = Channel=1, Target=8, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice8 = Channel=1, Target=9, Size=8656mb,
State=Online,

```



TransferSpeed=80MHz, TransferWidth=16Bit,  
 MaxTag=16;  
 PhysicalDevice9 = Channel=1, Target=10, Size=8656mb,  
 State=Online,  
 TransferSpeed=80MHz, TransferWidth=16Bit,  
 MaxTag=16;  
 PhysicalDevice10 = Channel=1, Target=11, Size=8656mb,  
 State=Online,  
 TransferSpeed=80MHz, TransferWidth=16Bit,  
 MaxTag=16;  
 PhysicalDevice11 = Channel=1, Target=12, Size=8656mb,  
 State=Online,  
 TransferSpeed=80MHz, TransferWidth=16Bit,  
 MaxTag=16;  
 PhysicalDevice12 = Channel=1, Target=13, Size=8656mb,  
 State=Online,  
 TransferSpeed=80MHz, TransferWidth=16Bit,  
 MaxTag=16;  
 PhysicalDevice13 = Channel=1, Target=14, Size=8656mb,  
 State=Online,  
 TransferSpeed=80MHz, TransferWidth=16Bit,  
 MaxTag=16;  
 PhysicalDevice14 = Channel=2, Target=0, Size=8656mb,  
 State=Online,  
 TransferSpeed=80MHz, TransferWidth=16Bit,  
 MaxTag=16;  
 PhysicalDevice15 = Channel=2, Target=1, Size=8656mb,  
 State=Online,  
 TransferSpeed=80MHz, TransferWidth=16Bit,  
 MaxTag=16;  
 PhysicalDevice16 = Channel=2, Target=2, Size=8656mb,  
 State=Online,  
 TransferSpeed=80MHz, TransferWidth=16Bit,  
 MaxTag=16;  
 PhysicalDevice17 = Channel=2, Target=3, Size=8656mb,  
 State=Online,  
 TransferSpeed=80MHz, TransferWidth=16Bit,  
 MaxTag=16;  
 PhysicalDevice18 = Channel=2, Target=4, Size=8656mb,  
 State=Online,  
 TransferSpeed=80MHz, TransferWidth=16Bit,  
 MaxTag=16;  
 PhysicalDevice19 = Channel=2, Target=5, Size=8656mb,  
 State=Online,  
 TransferSpeed=80MHz, TransferWidth=16Bit,  
 MaxTag=16;  
 PhysicalDevice20 = Channel=2, Target=6, Size=8656mb,  
 State=Online,  
 TransferSpeed=80MHz, TransferWidth=16Bit,  
 MaxTag=16;  
 PhysicalDevice21 = Channel=3, Target=8, Size=8656mb,  
 State=Online,  
 TransferSpeed=80MHz, TransferWidth=16Bit,  
 MaxTag=16;  
 PhysicalDevice22 = Channel=3, Target=9, Size=8656mb,  
 State=Online,  
 TransferSpeed=80MHz, TransferWidth=16Bit,  
 MaxTag=16;  
 PhysicalDevice23 = Channel=3, Target=10, Size=8656mb,  
 State=Online,  
 TransferSpeed=80MHz, TransferWidth=16Bit,  
 MaxTag=16;  
 PhysicalDevice24 = Channel=3, Target=11, Size=8656mb,  
 State=Online,  
 TransferSpeed=80MHz, TransferWidth=16Bit,  
 MaxTag=16;  
 PhysicalDevice25 = Channel=3, Target=12, Size=8656mb,  
 State=Online,

TransferSpeed=80MHz, TransferWidth=16Bit,  
 MaxTag=16;  
 PhysicalDevice26 = Channel=3, Target=13, Size=8656mb,  
 State=Online,  
 TransferSpeed=80MHz, TransferWidth=16Bit,  
 MaxTag=16;  
 PhysicalDevice27 = Channel=3, Target=14, Size=8656mb,  
 State=Online,  
 TransferSpeed=80MHz, TransferWidth=16Bit,  
 MaxTag=16;  
 IntermediateDevice0 = StripeSize=64kb, Raid=0,  
 WriteThrough=1, Size=60592mb,  
 (PhysicalDevice0, StartAddress=0mb,  
 Size=8656mb),  
 (PhysicalDevice1, StartAddress=0mb,  
 Size=8656mb),  
 (PhysicalDevice2, StartAddress=0mb,  
 Size=8656mb),  
 (PhysicalDevice3, StartAddress=0mb,  
 Size=8656mb),  
 (PhysicalDevice4, StartAddress=0mb,  
 Size=8656mb),  
 (PhysicalDevice5, StartAddress=0mb,  
 Size=8656mb),  
 (PhysicalDevice6, StartAddress=0mb,  
 Size=8656mb);  
 IntermediateDevice1 = StripeSize=64kb, Raid=0,  
 WriteThrough=1, Size=60592mb,  
 (PhysicalDevice7, StartAddress=0mb,  
 Size=8656mb),  
 (PhysicalDevice8, StartAddress=0mb,  
 Size=8656mb),  
 (PhysicalDevice9, StartAddress=0mb,  
 Size=8656mb),  
 (PhysicalDevice10, StartAddress=0mb,  
 Size=8656mb),  
 (PhysicalDevice11, StartAddress=0mb,  
 Size=8656mb),  
 (PhysicalDevice12, StartAddress=0mb,  
 Size=8656mb),  
 (PhysicalDevice13, StartAddress=0mb,  
 Size=8656mb);  
 IntermediateDevice2 = StripeSize=64kb, Raid=0,  
 WriteThrough=1, Size=60592mb,  
 (PhysicalDevice14, StartAddress=0mb,  
 Size=8656mb),  
 (PhysicalDevice15, StartAddress=0mb,  
 Size=8656mb),  
 (PhysicalDevice16, StartAddress=0mb,  
 Size=8656mb),  
 (PhysicalDevice17, StartAddress=0mb,  
 Size=8656mb),  
 (PhysicalDevice18, StartAddress=0mb,  
 Size=8656mb),  
 (PhysicalDevice19, StartAddress=0mb,  
 Size=8656mb),  
 (PhysicalDevice20, StartAddress=0mb,  
 Size=8656mb);  
 IntermediateDevice3 = StripeSize=64kb, Raid=0,  
 WriteThrough=1, Size=60592mb,  
 (PhysicalDevice21, StartAddress=0mb,  
 Size=8656mb),  
 (PhysicalDevice22, StartAddress=0mb,  
 Size=8656mb),  
 (PhysicalDevice23, StartAddress=0mb,  
 Size=8656mb),  
 (PhysicalDevice24, StartAddress=0mb,  
 Size=8656mb),

```

Size=8656mb),
(PhysicalDevice25, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice26, StartAddress=0mb,
Size=8656mb);
(PhysicalDevice27, StartAddress=0mb,
LogicalDevice0 = StripeSize=64kb, Raid=12,
WriteThrough=1, Size=242368mb, BIOSGeometry=8GB,
(IntermediateDevice0, StartAddress=0mb,
Size=60592mb),
(IntermediateDevice1, StartAddress=0mb,
Size=60592mb),
(IntermediateDevice2, StartAddress=0mb,
Size=60592mb),
(IntermediateDevice3, StartAddress=0mb,
Size=60592mb);
EndGroup
BeginControllerParameter
ControllerName = eXtremeRAID 2000;
ControllerType = 28;
FirmwareVersion = 5.60;
CacheLineSize = 8KB;
BackgroundTaskRate = 50;
InitiatorID = 7;
DiskStartupMode = AutoSpin;
DevicesPerSpin = 2;
InitialDelay = 6S;
SequentialDelay = 0S;
EnableDriveSizing = 0;
EnableClustering = 0;
EnableBGInit = 1;
EnableReadAhead = 0;
EnableBiosLoadDelay = 0;
EnableForcedUnitAccess = 0;
DisableBios = 0;
EnableCDROMBoot = 0;
EnableStorageWorks = 0;
EnableSAFTE = 0;
EnableSES = 0;
EnableARM = 1;
EnableOFM = 1;
OEMCode = 0;
StartupOption = 0;
EndControllerParameter
End

```

### **Mylex eXtremeRAID 2000 Adapter 3**

```

Begin
BeginGroup
PhysicalDevice0 = Channel=0, Target=0, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice1 = Channel=0, Target=1, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice2 = Channel=0, Target=2, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice3 = Channel=0, Target=3, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice4 = Channel=0, Target=4, Size=8656mb,
State=Online,

```

```

TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice5 = Channel=0, Target=5, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice6 = Channel=0, Target=6, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice7 = Channel=1, Target=8, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice8 = Channel=1, Target=9, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice9 = Channel=1, Target=10, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice10 = Channel=1, Target=11, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice11 = Channel=1, Target=12, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice12 = Channel=1, Target=13, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice13 = Channel=1, Target=14, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice14 = Channel=2, Target=0, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice15 = Channel=2, Target=1, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice16 = Channel=2, Target=2, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice17 = Channel=2, Target=3, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice18 = Channel=2, Target=4, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice19 = Channel=2, Target=5, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice20 = Channel=2, Target=6, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice21 = Channel=3, Target=8, Size=8656mb,
State=Online,

```

```

TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice22 = Channel=3, Target=9, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice23 = Channel=3, Target=10, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice24 = Channel=3, Target=11, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice25 = Channel=3, Target=12, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice26 = Channel=3, Target=13, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice27 = Channel=3, Target=14, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
IntermediateDevice0 = StripeSize=64kb, Raid=0,
WriteThrough=1, Size=60592mb,
(PhysicalDevice0, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice1, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice2, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice3, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice4, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice5, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice6, StartAddress=0mb,
Size=8656mb);
IntermediateDevice1 = StripeSize=64kb, Raid=0,
WriteThrough=1, Size=60592mb,
(PhysicalDevice7, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice8, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice9, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice10, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice11, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice12, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice13, StartAddress=0mb,
Size=8656mb);
IntermediateDevice2 = StripeSize=64kb, Raid=0,
WriteThrough=1, Size=60592mb,
(PhysicalDevice14, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice15, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice16, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice17, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice18, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice19, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice20, StartAddress=0mb,
Size=8656mb);
IntermediateDevice3 = StripeSize=64kb, Raid=0,
WriteThrough=1, Size=60592mb,
(PhysicalDevice21, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice22, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice23, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice24, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice25, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice26, StartAddress=0mb,
Size=8656mb),
(PhysicalDevice27, StartAddress=0mb,
Size=8656mb);
LogicalDevice0 = StripeSize=64kb, Raid=12,
WriteThrough=1, Size=242368mb, BIOSGeometry=8GB,
(IntermediateDevice0, StartAddress=0mb,
Size=60592mb),
(IntermediateDevice1, StartAddress=0mb,
Size=60592mb),
(IntermediateDevice2, StartAddress=0mb,
Size=60592mb),
(IntermediateDevice3, StartAddress=0mb,
Size=60592mb);
EndGroup
BeginControllerParameter
ControllerName = eXtremeRAID 2000;
ControllerType = 28;
FirmwareVersion = 5.60;
CacheLineSize = 8KB;
BackgroundTaskRate = 50;
InitiatorID = 7;
DiskStartupMode = AutoSpin;
DevicesPerSpin = 2;
InitialDelay = 6S;
SequentialDelay = 0S;
EnableDriveSizing = 0;
EnableClustering = 0;
EnableBGInit = 1;
EnableReadAhead = 0;
EnableBiosLoadDelay = 0;
EnableForcedUnitAccess = 0;
DisableBios = 0;
EnableCDROMBoot = 0;
EnableStorageWorks = 0;
EnableSAFTE = 0;
EnableSES = 0;
EnableARM = 1;
EnableOFM = 1;
OEMCode = 0;
StartupOption = 0;
EndControllerParameter
End

Mylex eXtremeRAID 2000 Adapter 4

Begin
BeginGroup

```

PhysicalDevice0 = Channel=0, Target=0, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice1 = Channel=0, Target=1, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice2 = Channel=0, Target=2, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice3 = Channel=0, Target=3, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice4 = Channel=0, Target=4, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice5 = Channel=0, Target=5, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice6 = Channel=0, Target=6, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice7 = Channel=1, Target=8, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice8 = Channel=1, Target=9, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice9 = Channel=1, Target=10, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice10 = Channel=1, Target=11, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice11 = Channel=1, Target=12, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice12 = Channel=1, Target=13, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice13 = Channel=1, Target=14, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice14 = Channel=2, Target=0, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice15 = Channel=2, Target=1, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice16 = Channel=2, Target=2, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;

PhysicalDevice17 = Channel=2, Target=3, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice18 = Channel=2, Target=4, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice19 = Channel=2, Target=5, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice20 = Channel=2, Target=6, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice21 = Channel=3, Target=8, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice22 = Channel=3, Target=9, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice23 = Channel=3, Target=10, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice24 = Channel=3, Target=11, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice25 = Channel=3, Target=12, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice26 = Channel=3, Target=13, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
PhysicalDevice27 = Channel=3, Target=14, Size=8656mb,  
State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit,  
MaxTag=16;  
IntermediateDevice0 = StripeSize=64kb, Raid=0,  
WriteThrough=1, Size=60592mb,  
(PhysicalDevice0, StartAddress=0mb,  
Size=8656mb),  
(PhysicalDevice1, StartAddress=0mb,  
Size=8656mb),  
(PhysicalDevice2, StartAddress=0mb,  
Size=8656mb),  
(PhysicalDevice3, StartAddress=0mb,  
Size=8656mb),  
(PhysicalDevice4, StartAddress=0mb,  
Size=8656mb),  
(PhysicalDevice5, StartAddress=0mb,  
Size=8656mb),  
(PhysicalDevice6, StartAddress=0mb,  
Size=8656mb);  
IntermediateDevice1 = StripeSize=64kb, Raid=0,  
WriteThrough=1, Size=60592mb,  
(PhysicalDevice7, StartAddress=0mb,  
Size=8656mb),  
(PhysicalDevice8, StartAddress=0mb,  
Size=8656mb),  
(PhysicalDevice9, StartAddress=0mb,  
Size=8656mb),

```

Size=8656mb), (PhysicalDevice10, StartAddress=0mb,
Size=8656mb), (PhysicalDevice11, StartAddress=0mb,
Size=8656mb), (PhysicalDevice12, StartAddress=0mb,
Size=8656mb); (PhysicalDevice13, StartAddress=0mb,
IntermediateDevice2 = StripeSize=64kb, Raid=0,
WriteThrough=1, Size=60592mb,
Size=8656mb), (PhysicalDevice14, StartAddress=0mb,
Size=8656mb), (PhysicalDevice15, StartAddress=0mb,
Size=8656mb), (PhysicalDevice16, StartAddress=0mb,
Size=8656mb), (PhysicalDevice17, StartAddress=0mb,
Size=8656mb), (PhysicalDevice18, StartAddress=0mb,
Size=8656mb), (PhysicalDevice19, StartAddress=0mb,
Size=8656mb), (PhysicalDevice20, StartAddress=0mb,
Size=8656mb);
IntermediateDevice3 = StripeSize=64kb, Raid=0,
WriteThrough=1, Size=60592mb,
Size=8656mb), (PhysicalDevice21, StartAddress=0mb,
Size=8656mb), (PhysicalDevice22, StartAddress=0mb,
Size=8656mb), (PhysicalDevice23, StartAddress=0mb,
Size=8656mb), (PhysicalDevice24, StartAddress=0mb,
Size=8656mb), (PhysicalDevice25, StartAddress=0mb,
Size=8656mb), (PhysicalDevice26, StartAddress=0mb,
Size=8656mb), (PhysicalDevice27, StartAddress=0mb,
Size=8656mb);
LogicalDevice0 = StripeSize=64kb, Raid=12,
WriteThrough=1, Size=242368mb, BIOSGeometry=8GB,
(IntermediateDevice0, StartAddress=0mb,
Size=60592mb), (IntermediateDevice1, StartAddress=0mb,
Size=60592mb), (IntermediateDevice2, StartAddress=0mb,
Size=60592mb), (IntermediateDevice3, StartAddress=0mb,
Size=60592mb);
EndGroup
BeginControllerParameter
ControllerName = eXtremeRAID 2000;
ControllerType = 28;
FirmwareVersion = 5.60;
CacheLineSize = 8KB;
BackgroundTaskRate = 50;
InitiatorID = 7;
DiskStartupMode = AutoSpin;
DevicesPerSpin = 2;
InitialDelay = 6S;
SequentialDelay = 0S;
EnableDriveSizing = 0;
EnableClustering = 0;
EnableBGInit = 1;
EnableReadAhead = 0;
EnableBiosLoadDelay = 0;
EnableForcedUnitAccess = 0;

```

```

DisableBios = 0;
EnableCDROMBoot = 0;
EnableStorageWorks = 0;
EnableSAFTE = 0;
EnableSES = 0;
EnableARM = 1;
EnableOFM = 1;
OEMCode = 0;
StartupOption = 0;
EndControllerParameter
End

```

## Mylex eXtremeRAID 2000 Adapter 5

```

Begin
BeginGroup
PhysicalDevice0 = Channel=0, Target=0, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice1 = Channel=0, Target=1, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice2 = Channel=0, Target=2, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice3 = Channel=0, Target=3, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice4 = Channel=0, Target=4, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice5 = Channel=0, Target=5, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice6 = Channel=0, Target=6, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice7 = Channel=1, Target=8, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice8 = Channel=1, Target=9, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice9 = Channel=1, Target=10, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice10 = Channel=1, Target=11, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice11 = Channel=1, Target=12, Size=8656mb,
State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit,
MaxTag=16;
PhysicalDevice12 = Channel=1, Target=13, Size=8656mb,
State=Online,

```

|   |  |
|---|--|
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (PhysicalDevice2, StartAddress=0mb,              |
| MaxTag=16;  | Size=8656mb),                                    |
| PhysicalDevice13 = Channel=1, Target=14, Size=8656mb, | (PhysicalDevice3, StartAddress=0mb,              |
| State=Online,   | Size=8656mb),                                    |
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (PhysicalDevice4, StartAddress=0mb,              |
| MaxTag=16;  | Size=8656mb),                                    |
| PhysicalDevice14 = Channel=2, Target=0, Size=8656mb,  | (PhysicalDevice5, StartAddress=0mb,              |
| State=Online,   | Size=8656mb),                                    |
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (PhysicalDevice6, StartAddress=0mb,              |
| MaxTag=16;  | Size=8656mb);                                    |
| PhysicalDevice15 = Channel=2, Target=1, Size=8656mb,  | IntermediateDevice1 = StripeSize=64kb, Raid=0,   |
| State=Online,   | WriteThrough=1, Size=60592mb,                    |
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (PhysicalDevice7, StartAddress=0mb,              |
| MaxTag=16;  | Size=8656mb),                                    |
| PhysicalDevice16 = Channel=2, Target=2, Size=8656mb,  | (PhysicalDevice8, StartAddress=0mb,              |
| State=Online,   | Size=8656mb),                                    |
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (PhysicalDevice9, StartAddress=0mb,              |
| MaxTag=16;  | Size=8656mb),                                    |
| PhysicalDevice17 = Channel=2, Target=3, Size=8656mb,  | (PhysicalDevice10, StartAddress=0mb,             |
| State=Online,   | Size=8656mb),                                    |
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (PhysicalDevice11, StartAddress=0mb,             |
| MaxTag=16;  | Size=8656mb),                                    |
| PhysicalDevice18 = Channel=2, Target=4, Size=8656mb,  | (PhysicalDevice12, StartAddress=0mb,             |
| State=Online,   | Size=8656mb),                                    |
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (PhysicalDevice13, StartAddress=0mb,             |
| MaxTag=16;  | Size=8656mb);                                    |
| PhysicalDevice19 = Channel=2, Target=5, Size=8656mb,  | IntermediateDevice2 = StripeSize=64kb, Raid=0,   |
| State=Online,   | WriteThrough=1, Size=60592mb,                    |
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (PhysicalDevice14, StartAddress=0mb,             |
| MaxTag=16;  | Size=8656mb),                                    |
| PhysicalDevice20 = Channel=2, Target=6, Size=8656mb,  | (PhysicalDevice15, StartAddress=0mb,             |
| State=Online,   | Size=8656mb),                                    |
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (PhysicalDevice16, StartAddress=0mb,             |
| MaxTag=16;  | Size=8656mb),                                    |
| PhysicalDevice21 = Channel=3, Target=8, Size=8656mb,  | (PhysicalDevice17, StartAddress=0mb,             |
| State=Online,   | Size=8656mb),                                    |
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (PhysicalDevice18, StartAddress=0mb,             |
| MaxTag=16;  | Size=8656mb),                                    |
| PhysicalDevice22 = Channel=3, Target=9, Size=8656mb,  | (PhysicalDevice19, StartAddress=0mb,             |
| State=Online,   | Size=8656mb),                                    |
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (PhysicalDevice20, StartAddress=0mb,             |
| MaxTag=16;  | Size=8656mb);                                    |
| PhysicalDevice23 = Channel=3, Target=10, Size=8656mb, | IntermediateDevice3 = StripeSize=64kb, Raid=0,   |
| State=Online,   | WriteThrough=1, Size=60592mb,                    |
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (PhysicalDevice21, StartAddress=0mb,             |
| MaxTag=16;  | Size=8656mb),                                    |
| PhysicalDevice24 = Channel=3, Target=11, Size=8656mb, | (PhysicalDevice22, StartAddress=0mb,             |
| State=Online,   | Size=8656mb),                                    |
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (PhysicalDevice23, StartAddress=0mb,             |
| MaxTag=16;  | Size=8656mb),                                    |
| PhysicalDevice25 = Channel=3, Target=12, Size=8656mb, | (PhysicalDevice24, StartAddress=0mb,             |
| State=Online,   | Size=8656mb),                                    |
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (PhysicalDevice25, StartAddress=0mb,             |
| MaxTag=16;  | Size=8656mb),                                    |
| PhysicalDevice26 = Channel=3, Target=13, Size=8656mb, | (PhysicalDevice26, StartAddress=0mb,             |
| State=Online,   | Size=8656mb),                                    |
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (PhysicalDevice27, StartAddress=0mb,             |
| MaxTag=16;  | Size=8656mb);                                    |
| PhysicalDevice27 = Channel=3, Target=14, Size=8656mb, | LogicalDevice0 = StripeSize=64kb, Raid=12,       |
| State=Online,   | WriteThrough=1, Size=242368mb, BIOSGeometry=8GB, |
| TransferSpeed=80MHz, TransferWidth=16Bit,             | (IntermediateDevice0, StartAddress=0mb,          |
| MaxTag=16;  | Size=60592mb),                                   |
| IntermediateDevice0 = StripeSize=64kb, Raid=0,        | (IntermediateDevice1, StartAddress=0mb,          |
| WriteThrough=1, Size=60592mb,                         | Size=60592mb),                                   |
| (PhysicalDevice0, StartAddress=0mb,                   | (IntermediateDevice2, StartAddress=0mb,          |
| Size=8656mb),   | Size=60592mb),                                   |
| (PhysicalDevice1, StartAddress=0mb,                   | (IntermediateDevice3, StartAddress=0mb,          |
| Size=8656mb),   | Size=60592mb);                                   |

```
EndGroup
BeginControllerParameter
  ControllerName = eXtremeRAID 2000;
  ControllerType = 28;
  FirmwareVersion = 5.60;
  CacheLineSize = 8KB;
  BackgroundTaskRate = 50;
  InitiatorID = 7;
  DiskStartupMode = AutoSpin;
  DevicesPerSpin = 2;
  InitialDelay = 6S;
  SequentialDelay = 0S;
  EnableDriveSizing = 0;
  EnableClustering = 0;
  EnableBGInit = 1;
  EnableReadAhead = 0;
  EnableBiosLoadDelay = 0;
  EnableForcedUnitAccess = 0;
  DisableBios = 0;
  EnableCDROMBoot = 0;
  EnableStorageWorks = 0;
  EnableSAFTE = 0;
  EnableSES = 0;
  EnableARM = 1;
  EnableOFM = 1;
  OEMCode = 0;
  StartupOption = 0;
EndControllerParameter
End
```

## RTE Input Parameters

Profile: 11200wh  
File Path: C:\bf\_430\11200wh.PRO  
Version: 3

Number of Engines: 112

Name: RTE01A  
Description: rte11\_toclient  
Directory: c:\rtelogs\log01A.log  
Machine: RTE10  
Parameter Set: PARAM2  
Index: 0  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE01A26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE01B  
Description: rte12\_toclient  
Directory: c:\rtelogs\log01B.log  
Machine: RTE10  
Parameter Set: PARAM2  
Index: 3000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE01B26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE01C  
Description: rte13\_toclient  
Directory: c:\rtelogs\log01C.log  
Machine: RTE10  
Parameter Set: PARAM2  
Index: 6000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE01C26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE01D  
Description: rte14\_toclient  
Directory: c:\rtelogs\log01D.log  
Machine: RTE10  
Parameter Set: PARAM2  
Index: 9000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE01D26714404  
Connect Rate: 300  
Start Rate: 0

Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE01E  
Description: rte15\_toclient  
Directory: c:\rtelogs\log01E.log  
Machine: RTE10  
Parameter Set: PARAM2  
Index: 12000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE01E26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE01F  
Description: rte16\_toclient  
Directory: c:\rtelogs\log01F.log  
Machine: RTE10  
Parameter Set: PARAM2  
Index: 15000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE01F26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE01G  
Description: rte17\_toclient  
Directory: c:\rtelogs\log01G.log  
Machine: RTE10  
Parameter Set: PARAM2  
Index: 18000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE01G26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE01H  
Description: rte111\_toclient  
Directory: c:\rtelogs\log01H.log  
Machine: RTE10  
Parameter Set: PARAM2  
Index: 21000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE01H26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1



Name: RTE01I  
Description: rte112\_toclient  
Directory: c:\rtelogs\log01I.log  
Machine: RTE10  
Parameter Set: PARAM2  
Index: 24000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE01I26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE01J  
Description: rte113\_toclient  
Directory: c:\rtelogs\log01J.log  
Machine: RTE10  
Parameter Set: PARAM2  
Index: 27000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE01J26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE01K  
Description: rte114\_toclient  
Directory: c:\rtelogs\log01K.log  
Machine: RTE10  
Parameter Set: PARAM2  
Index: 30000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE01K26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE01L  
Description: rte115\_toclient  
Directory: c:\rtelogs\log01L.log  
Machine: RTE10  
Parameter Set: PARAM2  
Index: 33000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE01L26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE01M  
Description: rte116\_toclient  
Directory: c:\rtelogs\log01M.log

Machine: RTE10  
Parameter Set: PARAM2  
Index: 36000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE01M26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE01N  
Description: rte117\_toclient  
Directory: c:\rtelogs\log01N.log  
Machine: RTE10  
Parameter Set: PARAM2  
Index: 39000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE01N26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE02A  
Description: rte21\_toclient  
Directory: c:\rtelogs\log02A.log  
Machine: RTE20  
Parameter Set: PARAM2  
Index: 42000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE02A26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE02B  
Description: rte22\_toclient  
Directory: c:\rtelogs\log02B.log  
Machine: RTE20  
Parameter Set: PARAM2  
Index: 45000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE02B26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE02C  
Description: rte23\_toclient  
Directory: c:\rtelogs\log02C.log  
Machine: RTE20  
Parameter Set: PARAM2  
Index: 48000000  
Seed: 46329

Configured Users: 1000  
Pipe Name: RTE02C26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE02D  
Description: rte24\_toclient  
Directory: c:\rtelogs\log02D.log  
Machine: RTE20  
Parameter Set: PARAM2  
Index: 51000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE02D26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE02E  
Description: rte25\_toclient  
Directory: c:\rtelogs\log02E.log  
Machine: RTE20  
Parameter Set: PARAM2  
Index: 54000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE02E26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE02F  
Description: rte26\_toclient  
Directory: c:\rtelogs\log02F.log  
Machine: RTE20  
Parameter Set: PARAM2  
Index: 57000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE02F26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE02G  
Description: rte27\_toclient  
Directory: c:\rtelogs\log02G.log  
Machine: RTE20  
Parameter Set: PARAM2  
Index: 60000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE02G26714404  
Connect Rate: 300  
Start Rate: 0

Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE02H  
Description: rte211\_toclient  
Directory: c:\rtelogs\log02H.log  
Machine: RTE20  
Parameter Set: PARAM2  
Index: 63000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE02H26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE02I  
Description: rte212\_toclient  
Directory: c:\rtelogs\log02I.log  
Machine: RTE20  
Parameter Set: PARAM2  
Index: 66000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE02I26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE02J  
Description: rte213\_toclient  
Directory: c:\rtelogs\log02J.log  
Machine: RTE20  
Parameter Set: PARAM2  
Index: 69000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE02J26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE02K  
Description: rte214\_toclient  
Directory: c:\rtelogs\log02K.log  
Machine: RTE20  
Parameter Set: PARAM2  
Index: 72000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE02K26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE02L  
Description: rte215\_toclient  
Directory: c:\rtelogs\log02L.log  
Machine: RTE20  
Parameter Set: PARAM2  
Index: 75000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE02L26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE02M  
Description: rte216\_toclient  
Directory: c:\rtelogs\log02M.log  
Machine: RTE20  
Parameter Set: PARAM2  
Index: 78000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE02M26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE02N  
Description: rte217\_toclient  
Directory: c:\rtelogs\log02N.log  
Machine: RTE20  
Parameter Set: PARAM2  
Index: 81000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE02N26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE03A  
Description: rte31\_toclient  
Directory: c:\rtelogs\log03A.log  
Machine: RTE30  
Parameter Set: PARAM2  
Index: 84000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE03A26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE03B  
Description: rte32\_toclient  
Directory: c:\rtelogs\log03B.log

Machine: RTE30  
Parameter Set: PARAM2  
Index: 87000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE03B26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE03C  
Description: rte33\_toclient  
Directory: c:\rtelogs\log03C.log  
Machine: RTE30  
Parameter Set: PARAM2  
Index: 90000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE03C26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE03D  
Description: rte34\_toclient  
Directory: c:\rtelogs\log03D.log  
Machine: RTE30  
Parameter Set: PARAM2  
Index: 93000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE03D26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE03E  
Description: rte35\_toclient  
Directory: c:\rtelogs\log03E.log  
Machine: RTE30  
Parameter Set: PARAM2  
Index: 96000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE03E26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE03F  
Description: rte36\_toclient  
Directory: c:\rtelogs\log03F.log  
Machine: RTE30  
Parameter Set: PARAM2  
Index: 99000000  
Seed: 46329

Configured Users: 1000  
Pipe Name: RTE03F26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE03G  
Description: rte37\_toclient  
Directory: c:\rtelogs\log03G.log  
Machine: RTE30  
Parameter Set: PARAM2  
Index: 102000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE03G26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE03H  
Description: rte311\_toclient  
Directory: c:\rtelogs\log03H.log  
Machine: RTE30  
Parameter Set: PARAM2  
Index: 105000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE03H26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE03I  
Description: rte312\_toclient  
Directory: c:\rtelogs\log03I.log  
Machine: RTE30  
Parameter Set: PARAM2  
Index: 108000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE03I26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE03J  
Description: rte313\_toclient  
Directory: c:\rtelogs\log03J.log  
Machine: RTE30  
Parameter Set: PARAM2  
Index: 111000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE03J26714404  
Connect Rate: 300  
Start Rate: 0

Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE03K  
Description: rte314\_toclient  
Directory: c:\rtelogs\log03K.log  
Machine: RTE30  
Parameter Set: PARAM2  
Index: 114000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE03K26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE03L  
Description: rte315\_toclient  
Directory: c:\rtelogs\log03L.log  
Machine: RTE30  
Parameter Set: PARAM2  
Index: 117000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE03L26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE03M  
Description: rte316\_toclient  
Directory: c:\rtelogs\log03M.log  
Machine: RTE30  
Parameter Set: PARAM2  
Index: 120000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE03M26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE03N  
Description: rte317\_toclient  
Directory: c:\rtelogs\log03N.log  
Machine: RTE30  
Parameter Set: PARAM2  
Index: 123000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE03N26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE04A  
Description: rte41\_toclient  
Directory: c:\rtelogs\log04A.log  
Machine: RTE40  
Parameter Set: PARAM2  
Index: 126000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE04A26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE04B  
Description: rte42\_toclient  
Directory: c:\rtelogs\log04B.log  
Machine: RTE40  
Parameter Set: PARAM2  
Index: 129000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE04B26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE04C  
Description: rte43\_toclient  
Directory: c:\rtelogs\log04C.log  
Machine: RTE40  
Parameter Set: PARAM2  
Index: 132000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE04C26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE04D  
Description: rte44\_toclient  
Directory: c:\rtelogs\log04D.log  
Machine: RTE40  
Parameter Set: PARAM2  
Index: 135000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE04D26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE04E  
Description: rte45\_toclient  
Directory: c:\rtelogs\log04E.log

Machine: RTE40  
Parameter Set: PARAM2  
Index: 138000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE04E26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE04F  
Description: rte46\_toclient  
Directory: c:\rtelogs\log04F.log  
Machine: RTE40  
Parameter Set: PARAM2  
Index: 141000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE04F26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE04G  
Description: rte47\_toclient  
Directory: c:\rtelogs\log04G.log  
Machine: RTE40  
Parameter Set: PARAM2  
Index: 144000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE04G26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE04H  
Description: rte411\_toclient  
Directory: c:\rtelogs\log04H.log  
Machine: RTE40  
Parameter Set: PARAM2  
Index: 147000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE04H26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE04I  
Description: rte412\_toclient  
Directory: c:\rtelogs\log04I.log  
Machine: RTE40  
Parameter Set: PARAM2  
Index: 150000000  
Seed: 46329

Configured Users: 1000  
Pipe Name: RTE04I26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE04J  
Description: rte413\_toclient  
Directory: c:\rtelogs\log04J.log  
Machine: RTE40  
Parameter Set: PARAM2  
Index: 153000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE04J26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE04K  
Description: rte414\_toclient  
Directory: c:\rtelogs\log04K.log  
Machine: RTE40  
Parameter Set: PARAM2  
Index: 156000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE04K26714404  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE04L  
Description: rte415\_toclient  
Directory: c:\rtelogs\log04L.log  
Machine: RTE40  
Parameter Set: PARAM2  
Index: 159000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE04L26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE04M  
Description: rte416\_toclient  
Directory: c:\rtelogs\log04M.log  
Machine: RTE40  
Parameter Set: PARAM2  
Index: 162000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE04M26714412  
Connect Rate: 300  
Start Rate: 0

Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE04N  
Description: rte417\_toclient  
Directory: c:\rtelogs\log04N.log  
Machine: RTE40  
Parameter Set: PARAM2  
Index: 165000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE04N26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE05A  
Description: rte51\_toclient  
Directory: c:\rtelogs\log05A.log  
Machine: RTE50  
Parameter Set: PARAM2  
Index: 168000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE05A26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE05B  
Description: rte52\_toclient  
Directory: c:\rtelogs\log05B.log  
Machine: RTE50  
Parameter Set: PARAM2  
Index: 171000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE05B26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE05C  
Description: rte53\_toclient  
Directory: c:\rtelogs\log05C.log  
Machine: RTE50  
Parameter Set: PARAM2  
Index: 174000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE05C26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE05D  
Description: rte54\_toclient  
Directory: c:\rtelogs\log05D.log  
Machine: RTE50  
Parameter Set: PARAM2  
Index: 177000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE05D26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE05E  
Description: rte55\_toclient  
Directory: c:\rtelogs\log05E.log  
Machine: RTE50  
Parameter Set: PARAM2  
Index: 180000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE05E26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE05F  
Description: rte56\_toclient  
Directory: c:\rtelogs\log05F.log  
Machine: RTE50  
Parameter Set: PARAM2  
Index: 183000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE05F26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE05G  
Description: rte57\_toclient  
Directory: c:\rtelogs\log05G.log  
Machine: RTE50  
Parameter Set: PARAM2  
Index: 186000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE05G26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE05H  
Description: rte511\_toclient  
Directory: c:\rtelogs\log05H.log

Machine: RTE50  
Parameter Set: PARAM2  
Index: 189000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE05H26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE05I  
Description: rte512\_toclient  
Directory: c:\rtelogs\log05I.log  
Machine: RTE50  
Parameter Set: PARAM2  
Index: 192000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE05I26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE05J  
Description: rte513\_toclient  
Directory: c:\rtelogs\log05J.log  
Machine: RTE50  
Parameter Set: PARAM2  
Index: 195000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE05J26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE05K  
Description: rte514\_toclient  
Directory: c:\rtelogs\log05K.log  
Machine: RTE50  
Parameter Set: PARAM2  
Index: 198000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE05K26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE05L  
Description: rte515\_toclient  
Directory: c:\rtelogs\log05L.log  
Machine: RTE50  
Parameter Set: PARAM2  
Index: 201000000  
Seed: 46329

Configured Users: 1000  
Pipe Name: RTE05L26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE05M  
Description: rte516\_toclient  
Directory: c:\rtelogs\log05M.log  
Machine: RTE50  
Parameter Set: PARAM2  
Index: 204000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE05M26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE05N  
Description: rte517\_toclient  
Directory: c:\rtelogs\log05N.log  
Machine: RTE50  
Parameter Set: PARAM2  
Index: 207000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE05N26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE06A  
Description: rte61\_toclient  
Directory: c:\rtelogs\log06A.log  
Machine: RTE60  
Parameter Set: PARAM2  
Index: 210000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE06A26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE06B  
Description: rte62\_toclient  
Directory: c:\rtelogs\log06B.log  
Machine: RTE60  
Parameter Set: PARAM2  
Index: 213000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE06B26714412  
Connect Rate: 300  
Start Rate: 0

Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE06C  
Description: rte63\_toclient  
Directory: c:\rtelogs\log06C.log  
Machine: RTE60  
Parameter Set: PARAM2  
Index: 216000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE06C26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE06D  
Description: rte64\_toclient  
Directory: c:\rtelogs\log06D.log  
Machine: RTE60  
Parameter Set: PARAM2  
Index: 219000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE06D26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE06E  
Description: rte65\_toclient  
Directory: c:\rtelogs\log06E.log  
Machine: RTE60  
Parameter Set: PARAM2  
Index: 222000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE06E26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE06F  
Description: rte66\_toclient  
Directory: c:\rtelogs\log06F.log  
Machine: RTE60  
Parameter Set: PARAM2  
Index: 225000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE06F26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1



Name: RTE06G  
Description: rte67\_toclient  
Directory: c:\rtelogs\log06G.log  
Machine: RTE60  
Parameter Set: PARAM2  
Index: 228000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE06G26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE06H  
Description: rte611\_toclient  
Directory: c:\rtelogs\log06H.log  
Machine: RTE60  
Parameter Set: PARAM2  
Index: 231000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE06H26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE06I  
Description: rte612\_toclient  
Directory: c:\rtelogs\log06I.log  
Machine: RTE60  
Parameter Set: PARAM2  
Index: 234000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE06I26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE06J  
Description: rte613\_toclient  
Directory: c:\rtelogs\log06J.log  
Machine: RTE60  
Parameter Set: PARAM2  
Index: 237000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE06J26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE06K  
Description: rte614\_toclient  
Directory: c:\rtelogs\log06K.log

Machine: RTE60  
Parameter Set: PARAM2  
Index: 240000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE06K26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE06L  
Description: rte615\_toclient  
Directory: c:\rtelogs\log06L.log  
Machine: RTE60  
Parameter Set: PARAM2  
Index: 243000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE06L26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE06M  
Description: rte616\_toclient  
Directory: c:\rtelogs\log06M.log  
Machine: RTE60  
Parameter Set: PARAM2  
Index: 246000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE06M26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE06N  
Description: rte617\_toclient  
Directory: c:\rtelogs\log06N.log  
Machine: RTE60  
Parameter Set: PARAM2  
Index: 249000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE06N26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE07A  
Description: rte71\_toclient  
Directory: c:\rtelogs\log07A.log  
Machine: RTE70  
Parameter Set: PARAM2  
Index: 252000000  
Seed: 46329

Configured Users: 1000  
Pipe Name: RTE07A26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE07B  
Description: rte72\_toclient  
Directory: c:\rtelogs\log07B.log  
Machine: RTE70  
Parameter Set: PARAM2  
Index: 255000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE07B26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE07C  
Description: rte73\_toclient  
Directory: c:\rtelogs\log07C.log  
Machine: RTE70  
Parameter Set: PARAM2  
Index: 258000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE07C26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE07D  
Description: rte74\_toclient  
Directory: c:\rtelogs\log07D.log  
Machine: RTE70  
Parameter Set: PARAM2  
Index: 261000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE07D26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE07E  
Description: rte75\_toclient  
Directory: c:\rtelogs\log07E.log  
Machine: RTE70  
Parameter Set: PARAM2  
Index: 264000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE07E26714412  
Connect Rate: 300  
Start Rate: 0

Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE07F  
Description: rte76\_toclient  
Directory: c:\rtelogs\log07F.log  
Machine: RTE70  
Parameter Set: PARAM2  
Index: 267000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE07F26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE07G  
Description: rte77\_toclient  
Directory: c:\rtelogs\log07G.log  
Machine: RTE70  
Parameter Set: PARAM2  
Index: 270000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE07G26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE07H  
Description: rte711\_toclient  
Directory: c:\rtelogs\log07H.log  
Machine: RTE70  
Parameter Set: PARAM2  
Index: 273000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE07H26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE07I  
Description: rte712\_toclient  
Directory: c:\rtelogs\log07I.log  
Machine: RTE70  
Parameter Set: PARAM2  
Index: 276000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE07I26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE07J  
Description: rte713\_toclient  
Directory: c:\rtelogs\log07J.log  
Machine: RTE70  
Parameter Set: PARAM2  
Index: 279000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE07J26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE07K  
Description: rte714\_toclient  
Directory: c:\rtelogs\log07K.log  
Machine: RTE70  
Parameter Set: PARAM2  
Index: 282000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE07K26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE07L  
Description: rte715\_toclient  
Directory: c:\rtelogs\log07L.log  
Machine: RTE70  
Parameter Set: PARAM2  
Index: 285000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE07L26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE07M  
Description: rte716\_toclient  
Directory: c:\rtelogs\log07M.log  
Machine: RTE70  
Parameter Set: PARAM2  
Index: 288000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE07M26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE07N  
Description: rte717\_toclient  
Directory: c:\rtelogs\log07N.log

Machine: RTE70  
Parameter Set: PARAM2  
Index: 291000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE07N26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE08A  
Description: rte81\_toclient  
Directory: c:\rtelogs\log08A.log  
Machine: RTE80  
Parameter Set: PARAM2  
Index: 294000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE08A26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE08B  
Description: rte82\_toclient  
Directory: c:\rtelogs\log08B.log  
Machine: RTE80  
Parameter Set: PARAM2  
Index: 297000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE08B26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE08C  
Description: rte83\_toclient  
Directory: c:\rtelogs\log08C.log  
Machine: RTE80  
Parameter Set: PARAM2  
Index: 300000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE08C26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE08D  
Description: rte84\_toclient  
Directory: c:\rtelogs\log08D.log  
Machine: RTE80  
Parameter Set: PARAM2  
Index: 303000000  
Seed: 46329

Configured Users: 1000  
Pipe Name: RTE08D26714412  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE08E  
Description: rte85\_toclient  
Directory: c:\rtelogs\log08E.log  
Machine: RTE80  
Parameter Set: PARAM2  
Index: 306000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE08E26714414  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE08F  
Description: rte86\_toclient  
Directory: c:\rtelogs\log08F.log  
Machine: RTE80  
Parameter Set: PARAM2  
Index: 309000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE08F26714414  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE08G  
Description: rte87\_toclient  
Directory: c:\rtelogs\log08G.log  
Machine: RTE80  
Parameter Set: PARAM2  
Index: 312000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE08G26714414  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE08H  
Description: rte811\_toclient  
Directory: c:\rtelogs\log08H.log  
Machine: RTE80  
Parameter Set: PARAM2  
Index: 315000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE08H26714414  
Connect Rate: 300  
Start Rate: 0

Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE08I  
Description: rte812\_toclient  
Directory: c:\rtelogs\log08I.log  
Machine: RTE80  
Parameter Set: PARAM2  
Index: 318000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE08I26714414  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE08J  
Description: rte813\_toclient  
Directory: c:\rtelogs\log08J.log  
Machine: RTE80  
Parameter Set: PARAM2  
Index: 321000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE08J26714414  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE08K  
Description: rte814\_toclient  
Directory: c:\rtelogs\log08K.log  
Machine: RTE80  
Parameter Set: PARAM2  
Index: 324000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE08K26714414  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE08L  
Description: rte815\_toclient  
Directory: c:\rtelogs\log08L.log  
Machine: RTE80  
Parameter Set: PARAM2  
Index: 327000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE08L26714414  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Name: RTE08M  
Description: rte816\_toclient  
Directory: c:\rtelogs\log08M.log  
Machine: RTE80  
Parameter Set: PARAM2  
Index: 330000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE08M26714414  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 0

Name: RTE08N  
Description: rte817\_toclient  
Directory: c:\rtelogs\log08N.log  
Machine: RTE80  
Parameter Set: PARAM2  
Index: 333000000  
Seed: 46329  
Configured Users: 1000  
Pipe Name: RTE08N26714414  
Connect Rate: 300  
Start Rate: 0  
Max. Concurrency: 1000  
Concurrency Rate: 10  
CLIENT\_NURAND: 233  
CPU: 1

Number of User groups: 112

Driver Engine: RTE01A  
IIS Server: CLIENT10\_torte1  
SQL Server: serv1  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 1 - 100  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE01B  
IIS Server: CLIENT10\_torte1  
SQL Server: serv1  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 101 - 200  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE01C  
IIS Server: CLIENT10\_torte1  
SQL Server: serv1  
Database: tpcc  
User: sa

Protocol: HTML  
w\_id Range: 201 - 300  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE01D  
IIS Server: CLIENT10\_torte1  
SQL Server: serv1  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 301 - 400  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE01E  
IIS Server: CLIENT10\_torte1  
SQL Server: serv1  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 401 - 500  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE01F  
IIS Server: CLIENT10\_torte3  
SQL Server: serv1  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 501 - 600  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE01G  
IIS Server: CLIENT10\_torte3  
SQL Server: serv1  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 601 - 700  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE01H  
IIS Server: CLIENT10\_torte2  
SQL Server: serv1

Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 701 - 800  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE01H  
IIS Server: CLIENT10\_torte2  
SQL Server: serv1  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 801 - 900  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE01J  
IIS Server: CLIENT10\_torte2  
SQL Server: serv1  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 901 - 1000  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE01K  
IIS Server: CLIENT10\_torte2  
SQL Server: serv1  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 1001 - 1100  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE01L  
IIS Server: CLIENT10\_torte2  
SQL Server: serv1  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 1101 - 1200  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE01M

IIS Server: CLIENT10\_torte3  
SQL Server: serv1  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 1201 - 1300  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE01N  
IIS Server: CLIENT10\_torte3  
SQL Server: serv1  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 1301 - 1400  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE02A  
IIS Server: CLIENT20\_torte1  
SQL Server: serv1  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 1401 - 1500  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE02B  
IIS Server: CLIENT20\_torte1  
SQL Server: serv1  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 1501 - 1600  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE02C  
IIS Server: CLIENT20\_torte1  
SQL Server: serv1  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 1601 - 1700  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE02D  
IIS Server: CLIENT20\_torte1  
SQL Server: serv1  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 1701 - 1800  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE02E  
IIS Server: CLIENT20\_torte1  
SQL Server: serv1  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 1801 - 1900  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE02F  
IIS Server: CLIENT20\_torte3  
SQL Server: serv1  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 1901 - 2000  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE02G  
IIS Server: CLIENT20\_torte3  
SQL Server: serv1  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 2001 - 2100  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE02H  
IIS Server: CLIENT20\_torte2  
SQL Server: serv1  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 2101 - 2200  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000

District id: 1  
Scale Down: No

Driver Engine: RTE02I  
IIS Server: CLIENT20\_torte2  
SQL Server: serv1  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 2201 - 2300  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE02J  
IIS Server: CLIENT20\_torte2  
SQL Server: serv1  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 2301 - 2400  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE02K  
IIS Server: CLIENT20\_torte2  
SQL Server: serv1  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 2401 - 2500  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE02L  
IIS Server: CLIENT20\_torte2  
SQL Server: serv1  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 2501 - 2600  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE02M  
IIS Server: CLIENT20\_torte3  
SQL Server: serv1  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 2601 - 2700  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200

Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE02N  
IIS Server: CLIENT20\_torte3  
SQL Server: serv1  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 2701 - 2800  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE03A  
IIS Server: CLIENT30\_torte1  
SQL Server: serv2  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 2801 - 2900  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE03B  
IIS Server: CLIENT30\_torte1  
SQL Server: serv2  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 2901 - 3000  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE03C  
IIS Server: CLIENT30\_torte1  
SQL Server: serv2  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 3001 - 3100  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE03D  
IIS Server: CLIENT30\_torte1  
SQL Server: serv2  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 3101 - 3200

w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE03E  
IIS Server: CLIENT30\_torte1  
SQL Server: serv2  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 3201 - 3300  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE03F  
IIS Server: CLIENT30\_torte3  
SQL Server: serv2  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 3301 - 3400  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE03G  
IIS Server: CLIENT30\_torte3  
SQL Server: serv2  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 3401 - 3500  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE03H  
IIS Server: CLIENT30\_torte2  
SQL Server: serv2  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 3501 - 3600  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE03I  
IIS Server: CLIENT30\_torte2  
SQL Server: serv2  
Database: tpcc  
User: sa



Protocol: HTML  
w\_id Range: 3601 - 3700  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE03J  
IIS Server: CLIENT30\_torte2  
SQL Server: serv2  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 3701 - 3800  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE03K  
IIS Server: CLIENT30\_torte2  
SQL Server: serv2  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 3801 - 3900  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE03L  
IIS Server: CLIENT30\_torte2  
SQL Server: serv2  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 3901 - 4000  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE03M  
IIS Server: CLIENT30\_torte3  
SQL Server: serv2  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 4001 - 4100  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE03N  
IIS Server: CLIENT30\_torte3  
SQL Server: SGNODE01CL

Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 4101 - 4200  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE04A  
IIS Server: CLIENT40\_torte1  
SQL Server: serv2  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 4201 - 4300  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE04B  
IIS Server: CLIENT40\_torte1  
SQL Server: serv2  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 4301 - 4400  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE04C  
IIS Server: CLIENT40\_torte1  
SQL Server: serv2  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 4401 - 4500  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE04D  
IIS Server: CLIENT40\_torte1  
SQL Server: serv2  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 4501 - 4600  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE04E

IIS Server: CLIENT40\_torte1  
SQL Server: serv2  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 4601 - 4700  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE04F  
IIS Server: CLIENT40\_torte3  
SQL Server: serv2  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 4701 - 4800  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE04G  
IIS Server: CLIENT40\_torte3  
SQL Server: serv2  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 4801 - 4900  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE04H  
IIS Server: CLIENT40\_torte2  
SQL Server: serv2  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 4901 - 5000  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE04I  
IIS Server: CLIENT40\_torte2  
SQL Server: serv2  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 5001 - 5100  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE04J  
IIS Server: CLIENT40\_torte2  
SQL Server: serv2  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 5101 - 5200  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE04K  
IIS Server: CLIENT40\_torte2  
SQL Server: serv2  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 5201 - 5300  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE04L  
IIS Server: CLIENT40\_torte2  
SQL Server: serv2  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 5301 - 5400  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE04M  
IIS Server: CLIENT40\_torte3  
SQL Server: serv2  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 5401 - 5500  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE04N  
IIS Server: CLIENT40\_torte3  
SQL Server: serv2  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 5501 - 5600  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000

District id: 1  
Scale Down: No

Driver Engine: RTE05A  
IIS Server: CLIENT50\_torte1  
SQL Server: serv3  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 5601 - 5700  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE05B  
IIS Server: CLIENT50\_torte1  
SQL Server: serv3  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 5701 - 5800  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE05C  
IIS Server: CLIENT50\_torte1  
SQL Server: serv3  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 5801 - 5900  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE05D  
IIS Server: CLIENT50\_torte1  
SQL Server: serv3  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 5901 - 6000  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE05E  
IIS Server: CLIENT50\_torte1  
SQL Server: serv3  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 6001 - 6100  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200

Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE05F  
IIS Server: CLIENT50\_torte3  
SQL Server: serv3  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 6101 - 6200  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE05G  
IIS Server: CLIENT50\_torte3  
SQL Server: serv3  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 6201 - 6300  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE05H  
IIS Server: CLIENT50\_torte2  
SQL Server: serv3  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 6301 - 6400  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE05I  
IIS Server: CLIENT50\_torte2  
SQL Server: serv3  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 6401 - 6500  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE05J  
IIS Server: CLIENT50\_torte2  
SQL Server: serv3  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 6501 - 6600

w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE05K  
IIS Server: CLIENT50\_torte2  
SQL Server: serv3  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 6601 - 6700  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE05L  
IIS Server: CLIENT50\_torte2  
SQL Server: serv3  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 6701 - 6800  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE05M  
IIS Server: CLIENT50\_torte3  
SQL Server: serv3  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 6801 - 6900  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE05N  
IIS Server: CLIENT50\_torte3  
SQL Server: serv3  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 6901 - 7000  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE06A  
IIS Server: CLIENT60\_torte1  
SQL Server: serv3  
Database: tpcc  
User: sa

Protocol: HTML  
w\_id Range: 7001 - 7100  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE06B  
IIS Server: CLIENT60\_torte1  
SQL Server: serv3  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 7101 - 7200  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE06C  
IIS Server: CLIENT60\_torte1  
SQL Server: serv3  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 7201 - 7300  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE06D  
IIS Server: CLIENT60\_torte1  
SQL Server: serv3  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 7301 - 7400  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE06E  
IIS Server: CLIENT60\_torte1  
SQL Server: serv3  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 7401 - 7500  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE06F  
IIS Server: CLIENT60\_torte3  
SQL Server: serv3

Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 7501 - 7600  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE06G  
IIS Server: CLIENT60\_torte3  
SQL Server: serv3  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 7601 - 7700  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE06H  
IIS Server: CLIENT60\_torte2  
SQL Server: serv3  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 7701 - 7800  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE06I  
IIS Server: CLIENT60\_torte2  
SQL Server: serv3  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 7801 - 7900  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE06J  
IIS Server: CLIENT60\_torte2  
SQL Server: serv3  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 7901 - 8000  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE06K

IIS Server: CLIENT60\_torte2  
SQL Server: serv3  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 8001 - 8100  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE06L  
IIS Server: CLIENT60\_torte2  
SQL Server: serv3  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 8101 - 8200  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE06M  
IIS Server: CLIENT60\_torte3  
SQL Server: serv3  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 8201 - 8300  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE06N  
IIS Server: CLIENT60\_torte3  
SQL Server: serv3  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 8301 - 8400  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE07A  
IIS Server: CLIENT70\_torte1  
SQL Server: serv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 8401 - 8500  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE07B  
IIS Server: CLIENT70\_torte1  
SQL Server: serv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 8501 - 8600  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE07C  
IIS Server: CLIENT70\_torte1  
SQL Server: serv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 8601 - 8700  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE07D  
IIS Server: CLIENT70\_torte1  
SQL Server: serv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 8701 - 8800  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE07E  
IIS Server: CLIENT70\_torte1  
SQL Server: serv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 8801 - 8900  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE07F  
IIS Server: CLIENT70\_torte3  
SQL Server: serv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 8901 - 9000  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000

District id: 1  
Scale Down: No

Driver Engine: RTE07G  
IIS Server: CLIENT70\_torte3  
SQL Server: serv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 9001 - 9100  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE07H  
IIS Server: CLIENT70\_torte2  
SQL Server: serv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 9101 - 9200  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE07I  
IIS Server: CLIENT70\_torte2  
SQL Server: serv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 9201 - 9300  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE07J  
IIS Server: CLIENT70\_torte2  
SQL Server: serv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 9301 - 9400  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE07K  
IIS Server: CLIENT70\_torte2  
SQL Server: serv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 9401 - 9500  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200

Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE07L  
IIS Server: CLIENT70\_torte2  
SQL Server: serv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 9501 - 9600  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE07M  
IIS Server: CLIENT70\_torte3  
SQL Server: serv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 9601 - 9700  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE07N  
IIS Server: CLIENT70\_torte3  
SQL Server: serv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 9701 - 9800  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE08A  
IIS Server: CLIENT80\_torte1  
SQL Server: serv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 9801 - 9900  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE08B  
IIS Server: CLIENT80\_torte1  
SQL Server: serv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 9901 - 10000

w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE08C  
IIS Server: CLIENT80\_torte1  
SQL Server: serv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 10001 - 10100  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE08D  
IIS Server: CLIENT80\_torte1  
SQL Server: serv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 10101 - 10200  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE08E  
IIS Server: CLIENT80\_torte1  
SQL Server: serv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 10201 - 10300  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE08F  
IIS Server: CLIENT80\_torte3  
SQL Server: serv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 10301 - 10400  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE08G  
IIS Server: CLIENT80\_torte3  
SQL Server: serv4  
Database: tpcc  
User: sa

Protocol: HTML  
w\_id Range: 10401 - 10500  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE08H  
IIS Server: CLIENT80\_torte2  
SQL Server: serv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 10501 - 10600  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE08I  
IIS Server: CLIENT80\_torte2  
SQL Server: serv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 10601 - 10700  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE08J  
IIS Server: CLIENT80\_torte2  
SQL Server: serv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 10701 - 10800  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE08K  
IIS Server: CLIENT80\_torte2  
SQL Server: serv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 10801 - 10900  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE08L  
IIS Server: CLIENT80\_torte2  
SQL Server: serv4

Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 10901 - 11000  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE08M  
IIS Server: CLIENT80\_torte3  
SQL Server: serv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 11001 - 11100  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Driver Engine: RTE08N  
IIS Server: CLIENT80\_torte3  
SQL Server: serv4  
Database: tpcc  
User: sa  
Protocol: HTML  
w\_id Range: 11101 - 11200  
w\_id Min Warehouse: 1  
w\_id Max Warehouse: 11200  
Scale: Normal  
User Count: 1000  
District id: 1  
Scale Down: No

Number of Parameter Sets: 2

|       |       | ~Default                       |       |       |       |       |
|-------|-------|--------------------------------|-------|-------|-------|-------|
|       |       | Default Parameter Set          |       |       |       |       |
|       |       | Txn                            | Think | Key   | RT    | RT    |
| Menu  | Delay | Weight                         | Time  | Time  | Delay | Fence |
|       |       | New Order                      | 10.00 |       | 12.05 |       |
| 18.01 | 0.10  | 5.00                           | 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                         |       |       |       |       |
|       |       | Editable Default Parameter Set |       |       |       |       |
|       |       | Txn                            | Think | Key   | RT    | RT    |
| Menu  | Delay | Weight                         | Time  | Time  | Delay | Fence |
|       |       | New Order                      | 44.80 |       | 12.05 |       |
| 18.01 | 0.10  | 5.00                           | 0.10  |       |       |       |



|      |       |                      |       |       |      |
|------|-------|----------------------|-------|-------|------|
| 0.10 | 5.00  | Payment<br>0.10      | 43.05 | 12.05 | 3.01 |
| 0.10 | 5.00  | Delivery<br>0.10     | 4.05  | 5.05  | 2.01 |
| 0.10 | 20.00 | Stock Level<br>0.10  | 4.05  | 5.05  | 2.01 |
| 0.10 | 5.00  | Order Status<br>0.10 | 4.05  | 10.05 | 2.01 |

# Appendix D: 180-Day Space

| TPC-C 180-Day Space Requirements                        |                 |  |                    |                   |                   |                    |
|---|-----------------|--|--------------------|-------------------|-------------------|--------------------|
| Warehouses  | 11,200          | tpmC   | 136,766.67         | tpmC/W            | 12.21             |                    |
| Numbers are shown in Kbytes unless otherwise specified. |                 |  |                    |                   |                   |                    |
| Table   | Rows            | Data   | Index              | 5% Space          | 8H Space          | Total Space        |
| Warehouse   | 11,200          | 1,216  | 200                | 71                |                   | 1,487              |
| District  | 112,000         | 12,640   | 224                | 643               |                   | 13,507             |
| Item  | 100,000         | 38,112   | 288                | 1,920             |                   | 40,320             |
| New-Order   | 100,800,000     | 1,796,000  | 4,640              |                   | 896,000           | 2,696,640          |
| History   | 336,000,000     | 20,059,712   | 65,568             |                   | 3,932,096         | 24,057,376         |
| Orders  | 336,000,000     | 10,971,456   | 5,352,432          |                   | 3,189,377         | 19,513,265         |
| Customer  | 336,000,000     | 244,363,648  | 15,250,416         | 12,980,703        |                   | 272,594,767        |
| Order-Line  | 3,359,984,803   | 223,999,000  | 530,176            |                   | 43,868,725        | 268,397,901        |
| Stock   | 1,120,000,000   | 358,400,008  | 759,104            | 17,957,956        |                   | 377,117,068        |
| <b>Totals</b>   |                 | <b>859,641,792</b>   | <b>18,361,968</b>  | <b>30,941,293</b> | <b>51,886,199</b> | <b>964,432,331</b> |
| Segment   | LogDev Cnt.     | Segment Size   | Needed             | Overhead          |                   | Not Needed         |
| misc  | 24              | 331,776,000  | 314,720,497        | 3,147,205         |                   | 13,908,298         |
| big   | 24              | 656,179,200  | 649,711,835        | 6,497,118         |                   | (29,753)           |
| master, msdb,model                                      | 4               | 53,248   | 53,248             |                   |                   | 0                  |
| tpcc_root   | 4               | 32,768   | 32,768             |                   |                   | 0                  |
| tempdb  | 4               | 34,816   | 34,816             |                   |                   | 0                  |
| <b>Totals</b>   |                 | <b>988,076,032</b>   | <b>964,553,163</b> | <b>9,644,323</b>  |                   | <b>13,878,545</b>  |
| Dynamic Space   | 255,030,168     | Sum of Data for Order, Order-Line and History  |                    |                   |                   |                    |
| Static Space  | 667,160,288     | Data + Index + 5% Space + Overhead - Dynamic Space   |                    |                   |                   |                    |
| Free Space  | 52,007,031      | Total Segment Size - Dynamic Space - Static Space - Not needed                             |                    |                   |                   |                    |
| Daily Growth  | 49,828,038      | (Dynamic Space/Wc * 62.5)* tpmC  |                    |                   |                   |                    |
| Daily Spread  | (22,735,027)    | Free Space - 1.5 * Daily Growth (Zero If Negative)   |                    |                   |                   |                    |
| 180-Day Space (KB)                                      | 9,636,207,186   | Static Space + 180 (Daily Growth + Daily Spread)   |                    |                   |                   |                    |
| 180-Day Space (GB)                                      | 9,189.80        | 180-Day Space in GB (Excludes OS,Paging and RDBMS Logs)                                    |                    |                   |                   |                    |
| Available (GB)  | 9,492.0         | Total storage configured and available for database, minus logs, in a RAID-0 configuration |                    |                   |                   |                    |
| <b>Log File Storage Requirement:</b>                    |                 |  |                    |                   |                   |                    |
| Log Used (KB)   | 67,088,624      | Log File Used in a Measured Run  |                    |                   |                   |                    |
| Total N-O Txn   | 12,923,672      | Total Count of New-Order Transactions Completed during the 20-Minute Interval              |                    |                   |                   |                    |
| Log per N-O Txn   | 5.19            | KB of Log Storage Used per New-Order Transaction   |                    |                   |                   |                    |
| 8 Hour Log (GB)   | 325.00          | 8-Hours of Log Storage Required  |                    |                   |                   |                    |
| Log Configured (GB)                                     | 406.80          |  |                    |                   |                   |                    |
| Disk Capacity   | MB              | GB   |                    |                   |                   |                    |
| 9.1GB 10K rpm   | 8,678           | 8.48   |                    |                   |                   |                    |
| 18.2GB 10K rpm  | 17,356          | 16.95  |                    |                   |                   |                    |
| Space Usage   | GB Needed       | Disks Priced   |                    | GB Priced         | GB Usable         | TB Usable          |
| 180-Day (RAID-0)  | 9,189.80        | 224  | 9.1GB 15K rpm      | 1,898.40          | 1,898.40          |                    |
|   |                 | 448  | 18.2GB 15K rpm     | 7,593.60          | 7,593.60          |                    |
| Total DB  |                 | 672  |                    | 9,492.00          | 9,492.00          |                    |
| 8hr Log (RAID-1)  | 325.00          | 48   | 18.2GB 15K rpm     | 406.80            | 406.80            |                    |
| OS, SQL (RAID-1)  | 256.00          | 8  | 9.1GB 10K rpm      | 67.80             | 33.90             |                    |
| <b>Total Space</b>                                      | <b>9,770.80</b> | <b>728</b>   |                    | <b>9,966.60</b>   | <b>9,932.70</b>   | <b>9.73</b>        |

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# Appendix E: Third-Party Quotations

Microsoft Corporation  
 One Microsoft Way  
 Redmond, WA 98052-6399

Tel 425 882 8080  
 Fax 425 936 7329  
<http://www.microsoft.com/>

# Microsoft

April 10, 2001

IBM Corp.  
 Chris King  
 IBM Corporation  
 3039 Cornwallis Road  
 Research Triangle Park, NC 27709

Chris:

Here is the information you requested regarding pricing for several Microsoft products to be used in conjunction with your TPC-C V3.5 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</i><br><i>Discount schedule: Open Program Level C</i>    | \$ 16,541  | 32       | \$ 529,312 |
| C11-00821   | <b>Windows 2000 Server</b><br><i>Server license only - No CALs</i><br><i>Discount schedule: Open Program - No Level</i>          | \$ 738     | 1        | \$ 738     |
| C10-00475   | <b>Windows 2000 Advanced Server</b><br><i>Server license only - No CALs</i><br><i>Discount schedule: Open Program - No Level</i> | \$ 2,399   | 1        | \$ 2,399   |
| 048-00317   | <b>Visual C++ Professional 6.0 Win32</b>   | \$ 549     | 1        | \$ 549     |
|             | <b>5-year maintenance for above software</b>   | \$ 2,095   | 1        | \$ 41,900  |

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: Pbnhq0110049352

Please include this Reference ID in any correspondence regarding this price quote.

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## Mylex/IBM Extreme RAID 2000 Quotation

---

Ms. Chris King,  
IBM Netfinity Performance Group

April 1, 2001

Dear Ms. King,

Mylex is pleased to submit the following quotation for ExtremeRAID 2000 controller.

=====

| <b>Mylex P/N :</b> | <b>Description</b> |
|--------------------|--------------------|
|--------------------|--------------------|

E2000-4-32NB

(4 external +2 internal chnl, 32MB cache, no BBU)

**Suggested Retail Price: \$1,872.00 ea**

*Notes:* Above price is based on FOB, ex factory, Fremont, California and firm for 90 days.

Lead time: 45 Days ARO

Product is covered by 5 year warranty.

Failed product will be repaired or replaced within 7 days.

Regards,

Robert Kelly - Director, Strategic Sales

Cc: Steve Page - Director PCI Marketing

# Quote

**Giganet, Inc.**  
580 Main Street  
Bolton, MA 01740  
(978) 779-7200  
**(978) 7797-203 Fax**

**Quote No.:** 000000-00  
**Date:** April 1, 2001

**Ship to:** IBM Corp.  
**Bill to:** Chris King  
3039 Corwallis Road  
Dept. 23UA Bldg. 060/D133  
Research Triangle Park, NC 27709

|            |        |
|------------|--------|
| F.O.B.     | Terms  |
| Bolton, MA | Net 30 |

| Qty | Part Number/<br>Description            | Unit Price  | Ext. Price         |
|-----|--|-------------|--------------------|
| 6   | cLAN-1000<br>Giganet Host Adapter Card | \$795.00    | \$4,770.00         |
| 6   | cLAN-A1011<br>10 Meter Copper Cable    | \$135.00    | \$810.00           |
| 3   | cLAN5000<br>8 port Cluster Switch      | \$6,250.00  | \$18,750.00        |
|     | 5-Year Maintenance Price (7x24x4)      | \$15,000.00 | \$75,000.00        |
|     | 3-Year Maintenance Price (7x24x4)      | \$15,000.00 | \$45,000.00        |
|     | <b>Hardware TOTAL</b>                  |             | <b>\$24,330.00</b> |
|     | Actual shipping charges will be billed |             |                    |

Prices are valid for 90 days from the date of this quote.

If you have any questions regarding this quote, please contact the GigaNet Sales Department at (978) 779-7400.

Software House International  
2880 Zanker Blvd. #103  
San Jose, CA 95134  
Matthew Martin  
National Account Executive  
1-800-766-6357

| Description                                     | Part Number | Unit Price | Qty    | Extended Price |
|---|-------------|------------|--------|----------------|
| 8-Port 10/100Mbps Hub                           | DEH2924     | 23         | 15,400 | \$354,200      |
| 8-Port 10/100Mbps Hub Nway Fast Ethernet Switch | NX-DSS8     | 25         | 29     | \$725          |

Prices are valid for 90 days from April 1, 2001.