

TPC Benchmark™ C
Full Disclosure Report
for
IBM® @server® xSeries® 445
using
Microsoft® SQL Server 2000 Enterprise Edition
and
Microsoft Windows® Server 2003 Enterprise Edition

TPC-C Version 5.1

Submitted for Review
October 17, 2003



First Edition - October 2003

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Notes

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

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

Abstract

IBM Corporation conducted the TPC Benchmark™ C on the IBM® @server® xSeries® 445 configured as a client/server system. This report documents the full disclosure information required by the TPC Benchmark C Standard Specification, Revision 5.1, including the methodology used to achieve the reported results. All testing fully complied with this revision level.

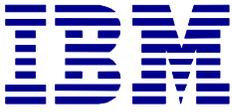
The software used on the xSeries 445 system includes Microsoft® Windows® Server 2003 Enterprise Edition operating system and Microsoft SQL Server 2000 Enterprise Edition database.

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

The benchmark results are summarized in the following table.

Hardware	Software	Total System Cost	tpmC	\$/tpmC	Total Solution Availability Date
IBM @server xSeries 445	Microsoft SQL Server 2000 Enterprise Edition Microsoft Windows Server 2003 Enterprise Edition	\$357,969	90,271.76	\$3.97	Dec. 31, 2003

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



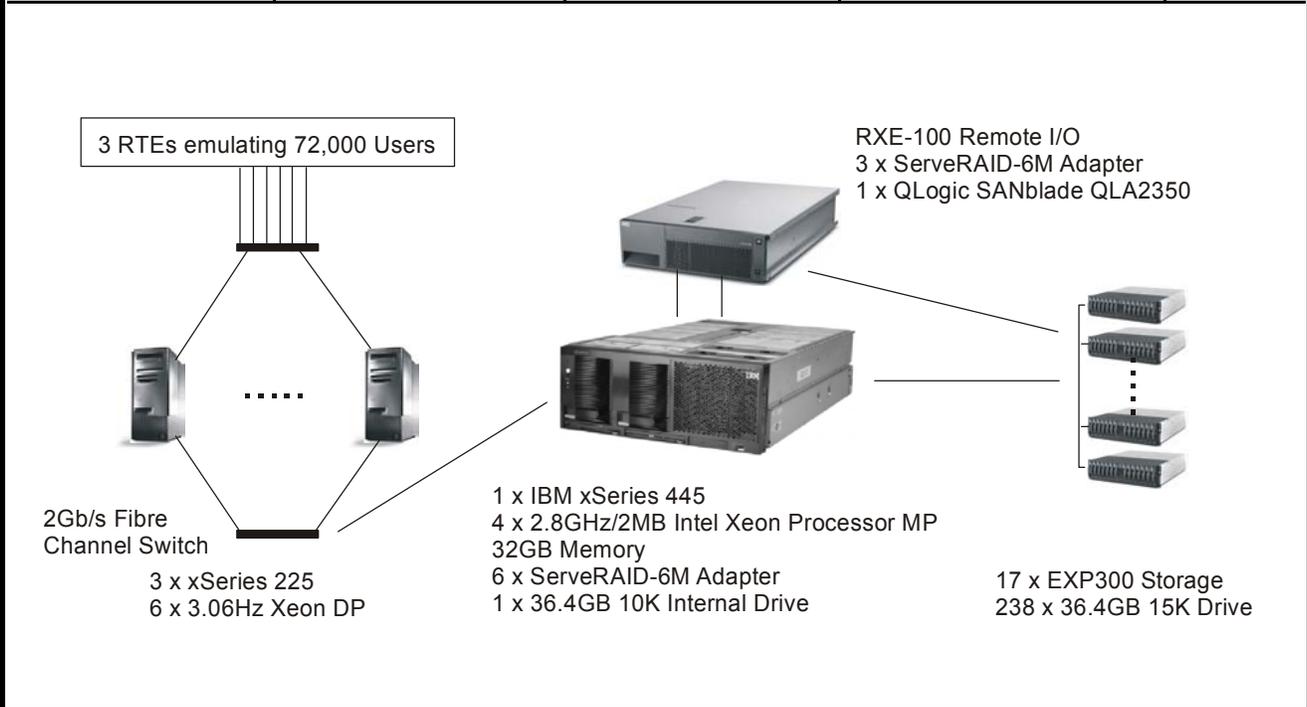
IBM®@server®xSeries® 445 c/s
with
Microsoft® SQL Server 2000

TPC-C Rev. 5.1

Report Date: Oct. 17, 2003

Total System Cost	TPC-C Throughput	Price/Performance	Availability Date
\$357,969	90,271.76 tpmC	\$3.97 / tpmC	Dec. 31, 2003

Database Server	Database Manager	Operating System	Other Software	Number of Users
Processors/Cores/Threads: 4/4/8 Intel Xeon Processor MP 2.8GHz	Microsoft SQL Server 2000 Enterprise Edition SP3 with QFE	Microsoft Windows® Server 2003 Enterprise Edition	Microsoft Visual C++ 6.0 Microsoft COM+	72,000



System Component	Qty	Server:	Qty	Each of Three Clients:
Processors/Cores/Threads	4/4/8	2.8GHz Xeon Processor	2/2/4	3.06GHz Xeon DP
Cache		MP w/2MB L3 Cache		w/512KB L2 Cache
Memory	16	2GB ECC RDIMM	4	512MB
Disk Controllers	9	ServeRAID-6M Adapter	1	Ultra320 SCSI Interface
Disk Drives	1	36.4GB (10000 rpm)	1	36.4GB Hard Disk
Total Storage	238	36.4GB (15000 rpm)		
Tape Drive	1	8102.43GB		
		20/40GB SCSI Tape Drive		

IBM Corporation	IBM @server xSeries 445 c/s with Microsoft SQL Server 2000				TPC-C Revision 5.1				
	Report Date: October 17, 2003								
Description	Part Number	Brand	Third Party	Pricing	Unit Price	Quantity	Extended Price	3-Yr. Maint. Price	
Server Hardware									
xSeries 445 with:	8870-4AX	IBM			1	26,379	1	26,379	3,390
2 x 2.8GHz/2MB Xeon Processor									
2.8GHz/2MB Xeon Processor Upgrade	02R2064	IBM			1	6,599	2	13,198	0
2GB PC2100 DDR ECC SDRAM RDIMM	33L5040	IBM			1	2,899	16	46,384	0
36.4GB 10K Ultra320 SCSI Hot-Swap Drive	32P0726	IBM			1	299	1	299	0
IBM Preferred Pro Full-Size Keyboard PS/2	31P7415	IBM			1	29	1	29	0
IBM Sleek 2-Button Mouse	28L3673	IBM			1	15	1	15	0
IBM ServeRAID-6M Ultra320 SCSI Adapter	32P0033	IBM			1	999	9	8,991	0
QLLogic SANBlade QLA2350 FC-VI Adapter (2 spares)	QLA2350-BK	QLLogic			1	1,995	3	5,985	0
E54 15" (13.8" Viewable) Color Monitor	633147N	IBM			1	119	1	119	90
							Subtotal	101,399	3,480
Server Storage									
IBM RXE-100 Remote Expansion Enclosure	8684-1RX	IBM			1	4,569	1	4,569	1,330
IBM EXP300 Rack Storage Exp. Enclosure	35311RU	IBM			1	3,179	17	54,043	3,400
36.4GB 15K Ultra160 SCSI Hot-Swap Drive	06P5768	IBM			1	495	238	117,810	0
Netfinity 4.2M Ultra2 SCSI Cable	03K9311	IBM			1	105	18	1,890	0
NetBAY42S Standard Rack	9306421	IBM			1	1,439	2	2,878	336
IBM UPS 500	34L3477	IBM			1	99	1	99	0
IBM NetBAY Tape Enclosure	0034BOX	IBM			1	849	1	849	120
20/40GB DDS/4 Tape AutoLoader	00N7991	IBM			1	699	1	699	0
							Subtotal	182,837	5,186
Server Software									
Microsoft SQL Server 2000 Enterprise Edition	810-00846	Microsoft			2	16,541	4	66,164	0
Database Software Support Package (Includes OS)	PRO-PRORS-16U-01	Microsoft			2	1,950	3		5,850
Microsoft Windows Server 2003 Enterprise Edition	P7200264	IBM			1	2,399	1	2,399	0
							Subtotal	68,563	5,850
Client Hardware									
x225 w/3.06GHz/512KB Xeon DP, one 36GB Drive	8647-62X	IBM			1	1,775	3	5,325	2,094
3.06GHz/512KB Xeon DP Processor Upgrade	24P8122	IBM			1	999	3	2,997	0
512MB PC2100 ECC SDRAM RDIMM	33L5038	IBM			1	305	12	3,660	0
QLLogic SANblade QLA 2350 FC-VI Adapter	QLA2350-BK	QLLogic			1	1,995	3	5,985	0
NetXtreme 1000T Dual-Port Ethernet Adapter	31P6401	NetXtreme			1	269	6	1,614	0
Adaptec Quartet64 4-Port Adapter	ANA64044	Adaptec			1	550	3	1,650	0
E54 15" (13.8" Viewable) Color Monitor	633147N	IBM			1	119	3	357	270
							Subtotal	21,588	2,364
Client Software									
Microsoft Windows 2000 Server with COM+	C11-00821	Microsoft			2	738	3	2,214	0
Microsoft Visual C++ Professional 6.0	254-00170	Microsoft			2	109	1	109	0
							Subtotal	2,323	0
Network Components									
SAN Fibre Channel 8-Port Switch	3534F08	IBM			1	6,000	1	6,000	2,300
IBM 5M LC-LC Fibre Channel Cable	19K1248	IBM			1	129	4	516	0
							Subtotal	6,516	2,300
							Total	383,226	19,180
Compsat Technology discount of 13.64%.							Discount	44,437	
1 - Compsat Technology; 2 - Microsoft					Three-Year Cost of Ownership:			\$357,969	
Audited by Brad Askins, InfoSizing, Inc.					tpmC:			90,271.76	
					\$/tpmC:			\$3.97	
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 specifications. If you find that stated prices are not available according to these terms, please inform the TPC at pricing@tpc.org.									

Numerical Quantities Summary

MQTh, Computed Maximum Qualified Throughput: **90,271.76 tpmC**

Response Times (in seconds)	90th Percentile	Average	Maximum
New-Order	0.48	0.31	5.80
Payment	0.42	0.26	4.56
Delivery	0.27	0.16	1.08
Stock Level	1.06	0.79	2.15
Order Status	0.44	0.28	8.01
Delivery (Deferred)	0.18	0.13	0.78
Menu	0.28	0.16	1.63
Response Time Delay Added for Emulated Components: 0.1 Seconds			
Transaction Mix (in percent of total transactions)			Percent
New-Order			44.94
Payment			43.03
Delivery			4.01
Stock-Level			4.01
Order Status			4.01
Keying/Think Times (in seconds)	Minimum	Average	Maximum
New Order	18.00 / 0.00	18.01 / 12.05	18.04 / 120.52
Payment	3.00 / 0.00	3.02 / 12.05	3.04 / 120.51
Delivery	2.00 / 0.00	2.01 / 5.05	2.04 / 50.51
Stock Level	2.00 / 0.00	2.01 / 5.05	2.04 / 50.51
Order Status	2.00 / 0.00	2.01 / 10.05	2.04 / 100.51
Test Duration			
Ramp-up time			51 minutes 30 seconds
Measurement interval			120 minutes
Number of checkpoints			4
Checkpoint interval			30 minutes
Number of transactions (all types) completed in measurement interval			25,071,690

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Preface

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

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

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

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

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

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

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

General Items

Benchmark Sponsor

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

This benchmark was sponsored by International Business Machines Corporation.

Application Code Disclosure and Definition Statements

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

Appendix A contains all source code implemented in this benchmark.

Parameter Settings

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

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

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

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

Configuration Diagrams

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

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

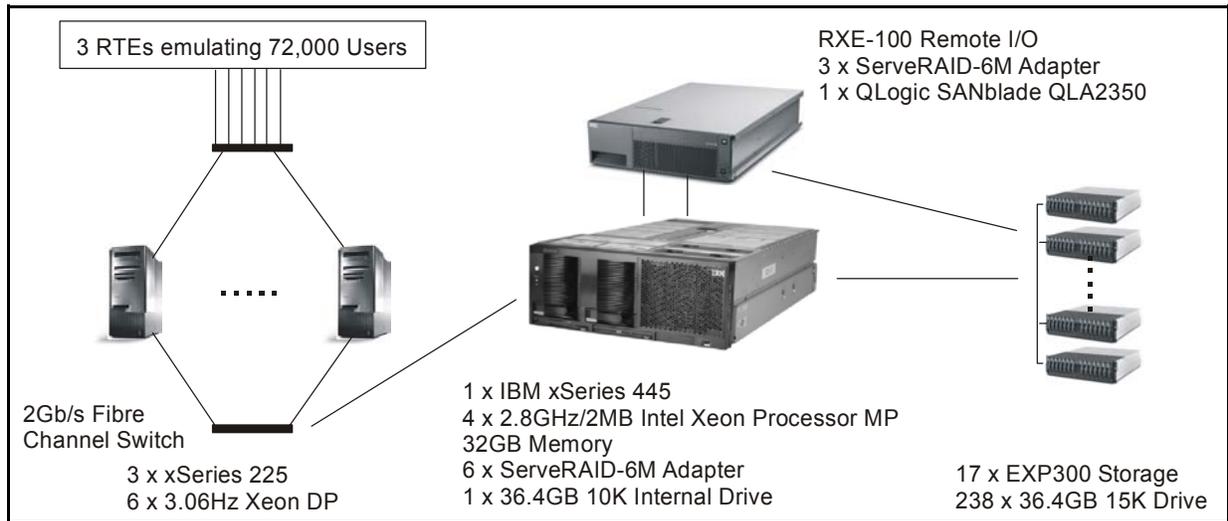
The Remote Terminal Emulator (RTE) used for these TPC Benchmark C tests is the Microsoft BenchCraft RTE. Under Version 5.0, the components of the configuration being emulated by the RTE are the workstations . Appendix C contains a listing of the RTE scripts and inputs used in the benchmark testing.

The measured configuration used three IBM xSeries 225 systems, each configured with two 3.06GHz Xeon DP processors, as clients, which executed the terminal I/O and submitted transactions to COM+ servers, which were also running on the clients. These COM+ servers forwarded the transaction requests to the server, and returned the results to the RTE. Microsoft SQL Server 2000 Enterprise Edition was the DBMS executing on the server.

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

Controller	PCI Slot Location
ServeRAID-6M	Server Slot 1
ServeRAID-6M	Server Slot 2
ServeRAID-6M	Server Slot 3
ServeRAID-6M	Server Slot 4
ServeRAID-6M	Server Slot 5
ServeRAID-6M	Server Slot 6
QLogic 2350 FC -VI Adapter	RXE-100 Slot 1
ServeRAID-6M	RXE-100 Slot 2
ServeRAID-6M	RXE-100 Slot 4
ServeRAID-6M	RXE-100 Slot 6

Measured Configuration



The measured and priced configurations were identical. See the Executive Summary for the priced configuration.

Clause 1: Logical Database Design Related Items

Table Definitions

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

Physical Organization of the Database

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

Insert and Delete Operations

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

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

Horizontal or Vertical Partitioning

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

Replication

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

Table Attributes

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

Clause 2: Transaction and Terminal Profiles Related Items

Random Number Generation

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

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

Screen Layout

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

All screen layouts followed the TPC Benchmark C Standard Specification.

Terminal Verification

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

The auditor verified terminal features by direct experimentation. The benchmarked configuration uses Microsoft Internet Explorer 6.0 SP1 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 225 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 445 database server.

Transaction Profiles

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

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

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

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

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

Table 2-1. Transaction Statistics

New Order	Value (%)
Home warehouse order lines	99.00
Remote warehouse order lines	1.00
Rolled back transactions	1.00
Average number of items per order	10.00
Payment	
Home warehouse payment transactions	0.85
Remote warehouse payment transactions	0.15
Non-Primary Key Access	
Payment transactions using C_LAST	60.02
Order-Status transactions using C_LAST	60.06
Delivery	
Delivery transactions skipped	0
Transaction Mix	
New-Order	44.94
Payment	43.03
Delivery	4.01
Stock Level	4.01
Order Status	4.01

Deferred Delivery Mechanism

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

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

The source code is listed in Appendix A.

Clause 3: Transaction and System Properties Related Items

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

Atomicity Requirements

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

All ACID tests were conducted according to specification.

Completed Transactions

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

1. The balance was retrieved from the CUSTOMER table for a random Customer, District and Warehouse, giving BALANCE_1.
2. The Payment transaction was executed for the Customer, District and Warehouse used in step 1.
3. The balance was retrieved again for the Customer used in step 1 and step 2, giving BALANCE_2. It was verified that BALANCE_1 was greater than BALANCE_2 by AMT.

Aborted Transactions

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

1. The Payment application code was changed to execute a rollback of the transaction instead of performing the commit.
2. Using the balance, BALANCE_2, from the CUSTOMER table retrieved for the completed transaction, the Payment transaction was executed for the Customer, District and Warehouse used in step 1 of section 3.1.1. The transaction rolled back due to the change in the application code from step 1.
3. The balance was retrieved again for the Customer used for step 2, giving BALANCE_3. It was verified that BALANCE_2 was equal to BALANCE_3.

Consistency Requirements

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

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

Isolation Requirements

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

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

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

Case A was followed for Isolation test seven.

Durability Requirements

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

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

Loss of Data Test

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

1. The contents of the database were backed up to several database dump devices during the initial database load. There were no dump devices on the disk array from which a drive was removed as part of this test.
2. The current count of the total number of orders was determined by the sum of D_NEXT_O_ID for all rows in the district table giving SUM1.
3. A test was started with 7,200 users submitting transactions.
4. A disk containing a portion of each of the tables in the tpcc database was removed causing SQL Server to report errors accessing that device.
5. The run was aborted and SQL Server was restarted. Upon restart, the database tpcc reported numerous errors relating to the failed database device.
6. The transaction log was dumped to disk and the failed disk was replaced with a spare disk and was recovered.
7. The database was recovered and restored from the backup dump devices. Afterwards, the transaction log was applied to the database.
8. Step 2 was repeated to obtain the current count of the total number of orders giving SUM2.
9. It was verified that the sum of D_NEXT_O_ID after the database is recovered is greater than or equal to the sum of D_NEXT_O_ID before the run, plus all new order transactions completed during the run minus any rollback transactions.
10. Consistency Condition 3 was verified.

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

1. The current count of the total number of orders was determined by the sum of D_NEXT_O_ID for all rows in the district table giving SUM1.
2. This test was executed on a full scale benchmark run with 91.67% users.
3. The test continued and the system continued to run for another 6 minutes 12 seconds after all users were connected to the server.

4. One disk from the log array was removed. Since the disk was RAID-1 mirrored, SQL Server continued to process transactions without interruption.
5. The test continued to run for another 9 minutes 33 seconds.
6. The server under test was powered off, which removed power from the system and the memory.
7. The server was powered on again.
8. SQL Server was started to initiate automatic recovery from its log.
9. Step 1 was repeated to obtain the current count of the total number of orders giving SUM2.
10. It was verified that the sum of D_NEXT_O_ID after the database recovered was greater than or equal to the sum of D_NEXT_O_ID before the run, plus all new order transactions completed during the run minus any rollback transactions.

Clause 4: Scaling and Database Population Related Items

Cardinality of Tables

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

The database was built with 7,520 warehouses and the audited run used 7,200 warehouses. The warehouses over 7,200 were deleted each time the database was restored from backups. The script delwh.sql was used to delete the warehouses. See Appendix B for the code.

Table 4-1. Initial Cardinality of Tables

Table Name	Rows
Warehouse	7,520
District	75,200
Item	100,000
New Order	67,679,993
History	225,600,005
Orders	225,600,013
Customer	225,600,000
Order Line	2,255,993,025
Stock	752,000,000
Inactive Warehouses	320

Distribution of Tables and Logs

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

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

Figure 4-2. Data Distribution for the Benchmarked Configuration

Disk #	Drives	Partition	Size	Use
1	14 - 36.4GB	E: F:	201.66GB 35.16GB (NTFS)	Logfile MDF File
2	14 - 36.4GB	C:\mp\c1 c:\mp\m1 G:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
3	14 - 36.4GB	C:\mp\c2 c:\mp\m2 H:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
4	14 - 36.4GB	C:\mp\c3 c:\mp\m3 I:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
5	14 - 36.4GB	C:\mp\c4 c:\mp\m4 J:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
6	14 - 36.4GB	C:\mp\c5 c:\mp\m5 K:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
7	14 - 36.4GB	C:\mp\c6 c:\mp\m6 L:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
8	14 - 36.4GB	C:\mp\c7 c:\mp\m7 M:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
9	14 - 36.4GB	C:\mp\c8 c:\mp\m8 N:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
10	14 - 36.4GB	C:\mp\c9 c:\mp\m9 O:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
11	14 - 36.4GB	C:\mp\c10 c:\mp\m10 P:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
12	14 - 36.4GB	C:\mp\c11 c:\mp\m11 Q:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
13	14 - 36.4GB	C:\mp\c12 c:\mp\m12 R:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
14	14 - 36.4GB	C:\mp\c13 c:\mp\m13 S:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
15	14 - 36.4GB	C:\mp\c14 c:\mp\m14 T:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
16	14 - 36.4GB	C:\mp\c15 c:\mp\m15 U:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
17	14 - 36.4GB	C:\mp\c16 c:\mp\m16 V:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files

Database Model Implemented

A statement must be provided that describes:

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

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

Partitions/Replications Mapping

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

The database was neither partitioned nor replicated.

60-Day Space Requirement

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

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

Clause 5: Performance Metrics and Response Time Related Items

Measured tpmC

Measured tpmC must be reported.

Measured tpmC: 90,271.76 tpmC

Price per tpmC: \$3.97 per tpmC

Response Times

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

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

Table 5-1. Response Times in Seconds

Transaction Type	Average	Maximum	90 %-tile
New-Order	0.31	5.80	0.48
Payment	0.26	4.56	0.42
Delivery	0.16	1.08	0.27
Stock Level	0.79	2.15	1.06
Order Status	0.28	8.01	0.44
Delivery (Deferred)	0.13	0.78	0.18
Menu	0.16	1.63	0.28

Keying/Think Times

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

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

Table 5-2. Keying/Think Times

Transaction Type	Average	Minimum	Maximum
New-Order	18.01 / 12.05	18.00 / 0.00	18.04 / 120.52
Payment	3.02 / 12.05	3.00 / 0.00	3.04 / 120.51
Delivery	2.01 / 5.05	2.00 / 0.00	2.04 / 50.51
Stock Level	2.01 / 5.05	2.00 / 0.00	2.04 / 50.51
Order Status	2.01 / 10.05	2.00 / 0.00	2.04 / 100.51

Response Time Frequency Distribution Curves

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

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

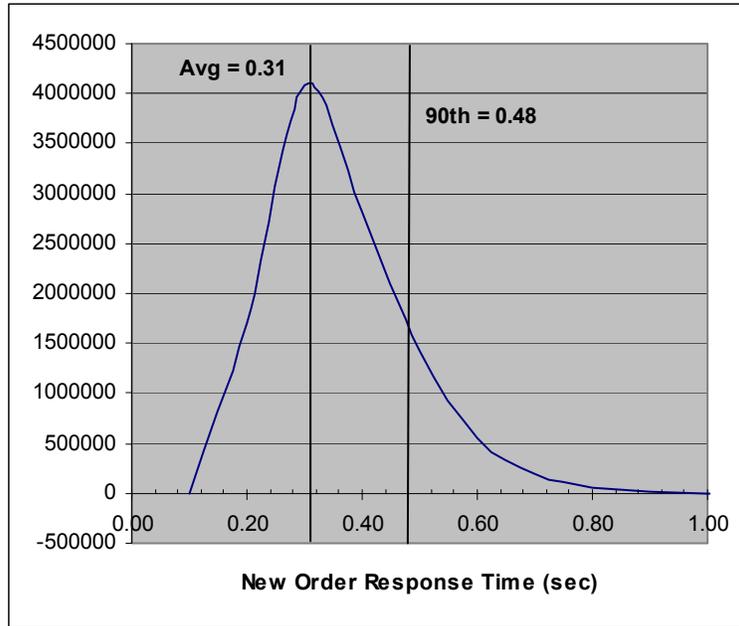


Figure 5-2. Payment Transaction - Response Time Frequency Distribution

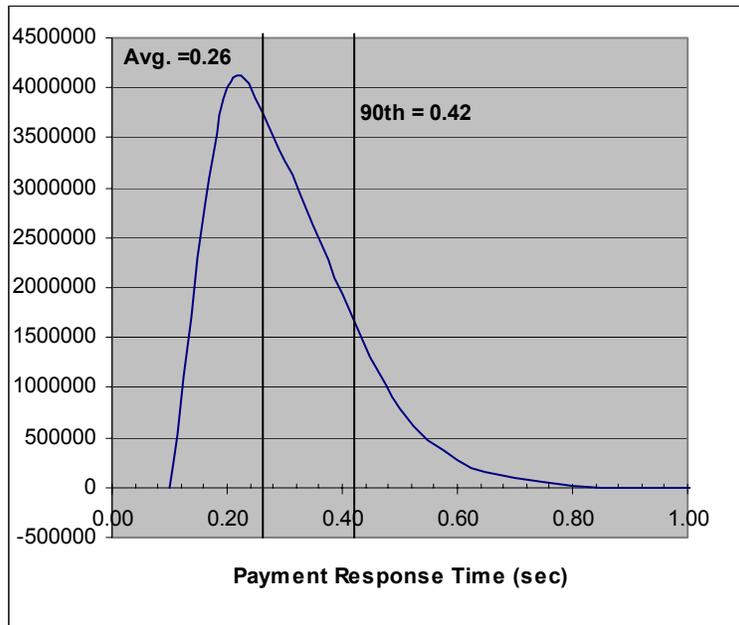


Figure 5-3. Order-Status Transaction - Response Time Frequency Distribution

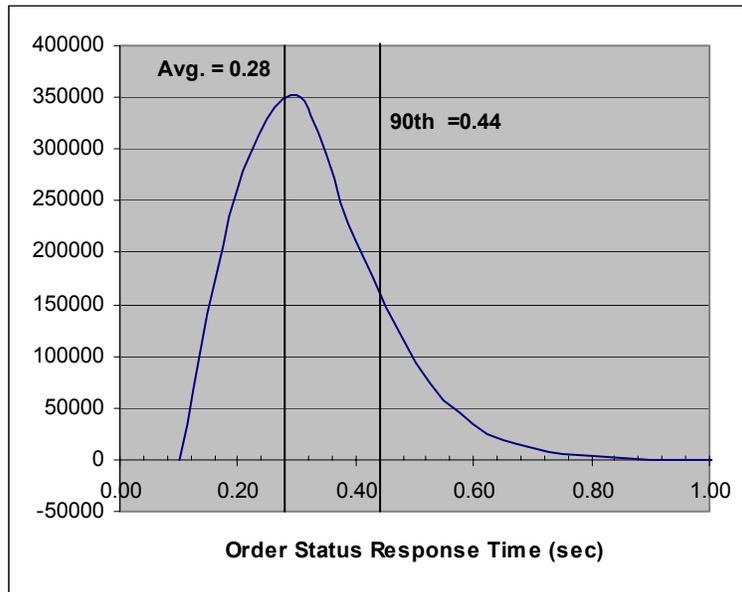


Figure 5-4. Delivery Transaction - Response Time Frequency Distribution

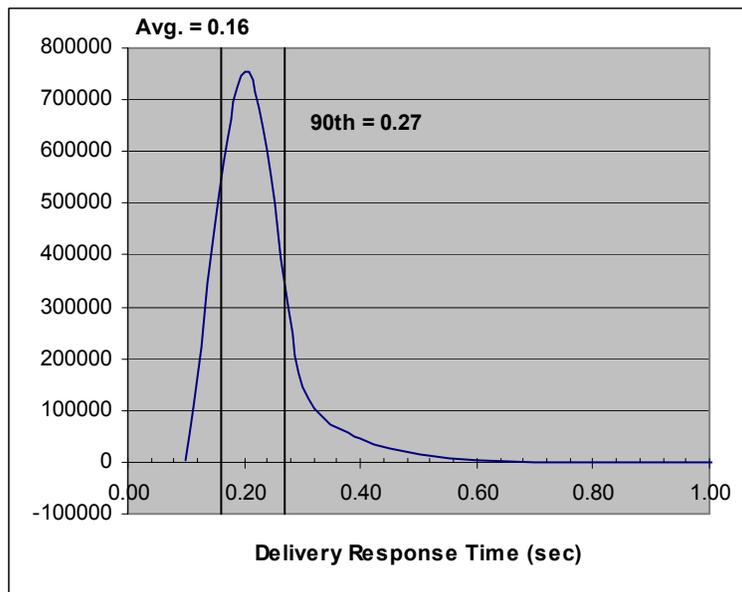
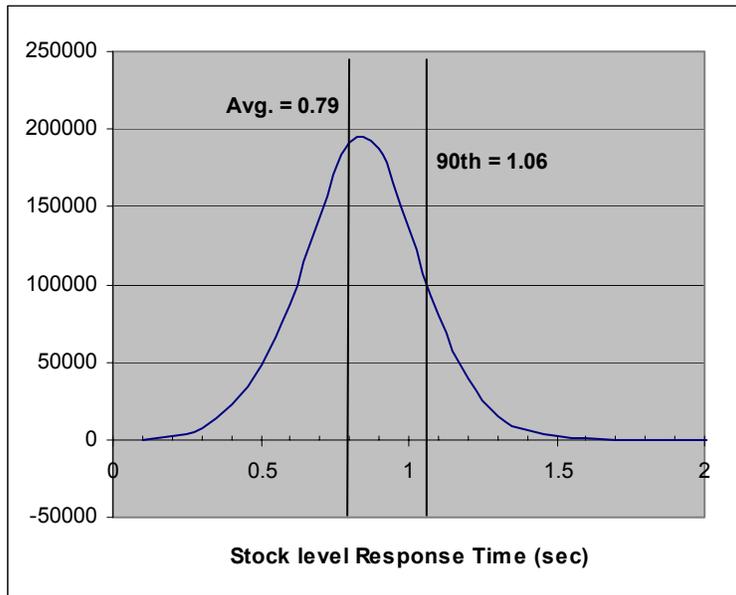


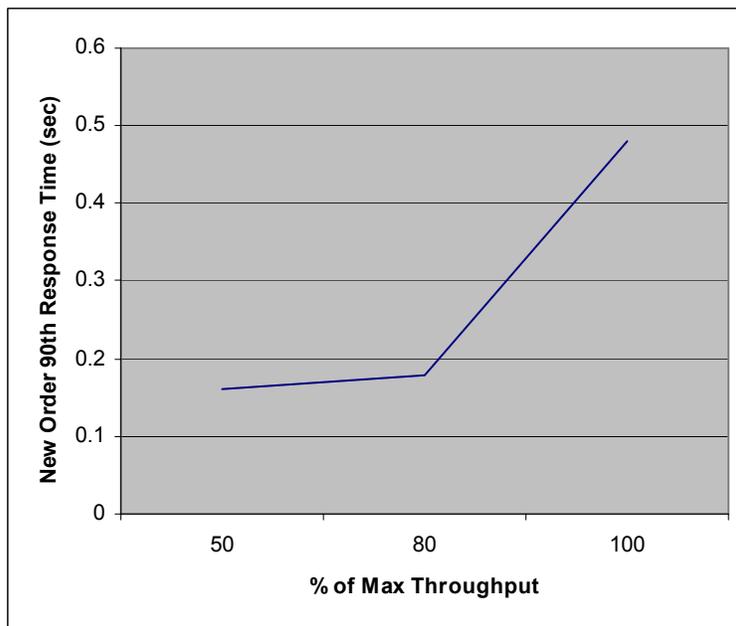
Figure 5-5. Stock-Level Transaction - Response Time Frequency Distribution



Performance Curve for Response Time vs. Throughput

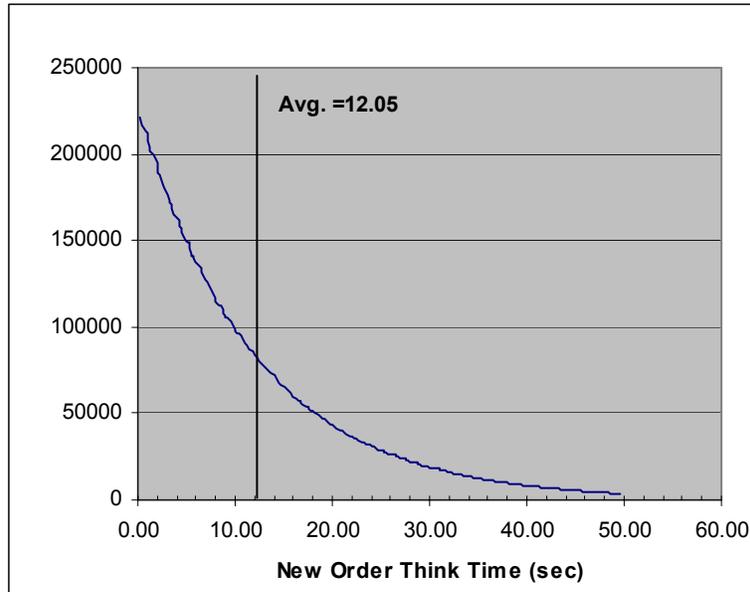
The performance curve for response time vs. throughput (see Clause 5.6.2) must be reported for the New-Order transaction.

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



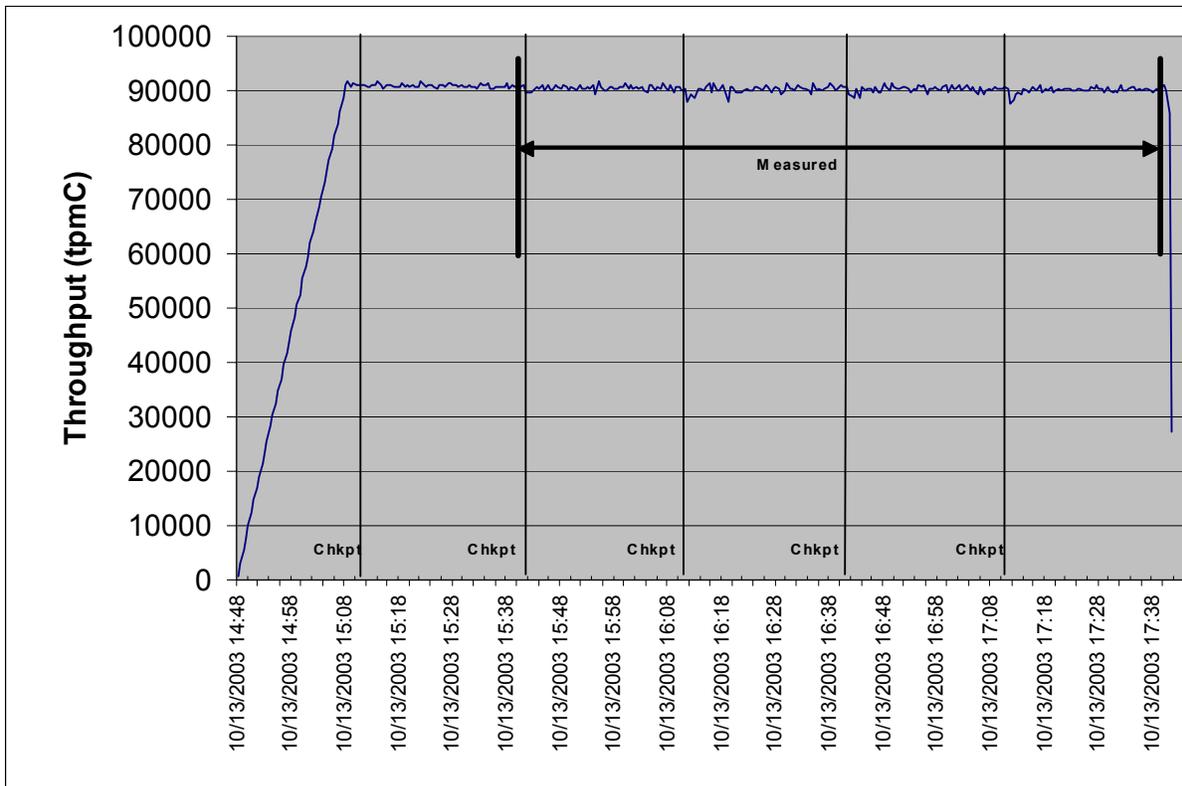
New Order Think Time Distribution

Figure 5-7. New-Order Think Time Distribution



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

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



Steady State Methodology

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

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

Work Performed during Steady State

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

Transaction Flow

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

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

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

Checkpoints

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

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

Measurement Interval

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

The measurement interval was 120 minutes.

Transaction Mix

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

See Table 5-3.

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

Percentage of Total Mix

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

See Table 5-3.

Table 5-3. Transaction Statistics and Transaction Mix

New Order	Value (%)
Home warehouse order lines	99.00
Remote warehouse order lines	1.00
Rolled back transactions	1.00
Average number of items per order	10.00
Payment	
Home warehouse payment transactions	0.85
Remote warehouse payment transactions	0.15
Non-Primary Key Access	
Payment transactions using C_LAST	60.02
Order-Status transactions using C_LAST	60.06
Delivery	
Delivery transactions skipped	0
Transaction Mix	
New-Order	44.94
Payment	43.03
Delivery	4.01
Stock Level	4.01
Order-Status	4.01

Number of Checkpoints

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

Checkpoints were performed during the ramp-up period and during each measured run interval. The first measurement interval checkpoint started 108 seconds after the start of the measurement interval. The four checkpoints in the measured interval are shown in Table 5-4.

Table 5-4. Checkpoint Start Time and Duration

Checkpoint	Start Time	Duration
1	03:41:28 p.m.	28 minutes
2	04:11:25 p.m.	28 minutes
3	04:41:22 p.m.	28 minutes
4	05:11:19 p.m.	28 minutes

The checkpoint interval was 30 minutes.

Clause 6: SUT, Driver and Communication Definition Related Items

Description of RTE

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

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

Emulated Components

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

No components were emulated.

Benchmarked and Targeted System Configuration Diagrams

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

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

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

Network Configuration

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

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

Network Bandwidth

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

The Ethernet used in the LAN connecting the clients and driver RTEs complies with the IEEE.802.3 standard. The Ethernet LAN had a bandwidth of 100Mbps. The LAN that connected the clients to the server was a Fibre Channel network whose bandwidth was 2Gb/s.

Operator Intervention

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

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

Clause 7: Pricing Related Items

Hardware and Software Components

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

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

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

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

Availability Date

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

The priced configuration will be available December 31, 2003.

Measured tpmC

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

- Maximum Qualified Throughput: 90,271.76 tpmC
- Price per tpmC: \$3.97 per tpmC
- Three-year cost of ownership: \$357,969

Country-Specific Pricing

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

The configuration is priced for the United States of America.

Usage Pricing

For any usage pricing, the sponsor must disclose:

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

The component pricing based on usage is shown below:

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

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

System Pricing

System pricing should include subtotals for the following components: Server Hardware, Server Software, Client Hardware, Client Software, and Network Components used for terminal connection (see Clause 7.2.2.3). System pricing must include line item indication where non-sponsoring companies' brands are used. System pricing must also include line item indication of third-party pricing.

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

Clause 9: Audit Related Items

Auditor

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

This implementation of the TPC-C benchmark was audited by 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 BenchmarkTMC," the Full Disclosure Report must have been submitted to the TPC Administrator as well as written permission obtained to distribute same.

The TPC Benchmark C Full Disclosure Report can be obtained from www.tpc.org.

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

October 15, 2003

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

Platform: **IBM @server xSeries 445 c/s**
 Operating system: **Microsoft Windows Server 2003 Enterprise Edition**
 Database Manager: **Microsoft SQL Server 2000 Enterprise Edition SP3 with QFE**
 Transaction Manager: **Microsoft COM+**

The results were:

CPU's Speed	Memory	Disks	NewOrder 90% Response Time	tpmC
Server: IBM @server xSeries 445				
4 x Xeon MP (2.8 GHz w/ 2MB L3 cache)	32 GB Main (512KB L2 Cache)	239 x 36.4 GB	0.48 Seconds	90,271.76
Clients: Three (3) IBM @server xSeries 225 (Specification for each)				
2 x Xeon DP (3.06 GHz)	2 GB Main (512 KB L2 Cache per processor)	1 x 36.4 GB	n/a	n/a

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

- The database records were the proper size
- The database was properly scaled and populated

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

Additional Audit Notes:

None.

Respectfully Yours,



François Raab, President



Bradley J. Askins, Auditor

Appendix A: Source Code

Web Client Source Code

db_odbc_dll.dsp

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

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

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

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

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

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

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

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

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

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

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

```

# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbccp32.lib /nologo /subsystem:windows /dll /debug /machine:I386
/out:".bin\tpcc_odbc.dll" /pdbtype:sept
# ADD LINK32 icap.lib kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbccp32.lib /nologo /subsystem:windows /dll /debug /machine:I386
/out:".bin\tpcc_odbc.dll" /pdbtype:sept

!ENDIF

# Begin Target

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

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

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

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

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

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

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

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

```

dlldata.c

```

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

DO NOT ALTER THIS FILE

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

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

*****/
#include <rpcproxy.h>

```

```

#ifdef _cplusplus
extern "C" {
#endif

EXTERN_PROXY_FILE( tpcc_com_ps )

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

DLLDATA_ROUTINES( aProxyFileList, GET_DLL_CLSID )

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

/* end of generated dlldata file */

error.h

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

#pragma once

#ifdef _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
#define ERR_BUF_OVERFLOW
25 //Buffer overflow during receive
// TPC-W error types
#define ERR_TYPE_TPCW_CONN
50 //Benchcraft connection class
#define ERR_TYPE_TPCW_HTML
51 //error from TpcwHtml dll
#define ERR_TYPE_TPCW_USER
52 //error from TPC-W user class
#define ERR_TYPE_TPCW_ENG_BASE
53
#define ERR_TYPE_TPCW_ENG_OS
54

```

```

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

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

class CBaseErr
{
public:
    CBaseErr(LPCTSTR szLoc = NULL)
    {
        m_idMsg = INV_ERROR_CODE;

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

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

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

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

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

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

```

```

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

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

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

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

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

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

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

    //short     m_errType;
};

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

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

```

```

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

Action    m_eAction;
char      *m_szErrorText;

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

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

    CSystemErr(Action eAction, LPCTSTR
szLocation);

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

    Action    m_eAction;

private:
    char m_szMsg[ERR_MSG_BUF_SIZE];
};

```

```

};

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

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

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

    int ErrorType() {return ERR_BUF_OVERFLOW;}

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

```

install.c

```

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

```

```

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

#include "resource.h"

#define WM_INITTEXT WM_USER+100

HICON hIcon;
HINSTANCE hInst;

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

// TPC-C registry settings
TPCCREGISTRYDATA Reg;

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

```

```

static int iAcceptExOutstanding;

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

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

BOOL install_com(char *szDllPath);

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

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

    hInst = hInstance;

    InitCommonControls();

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

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

    DestroyIcon(hIcon);
    return 0;
}

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

```

```

{
    HGLOBAL          hRes;
    HRSRC            hResInfo;
    BYTE             *pSrc, *pDst;
    DWORD            dwSize;
    static HFONT     hFont;

    switch(uMsg)
    {
        case WM_INITDIALOG:
            hFont = CreateFont(-12, 0, 0, 0, 400, 0, 0, 0,
0, 0, 0, 0, "Arial");
            SendMessage( GetDlgItem(hwnd,
IDR_LICENSE1), WM_SETFONT, (LPARAM)hFont, MAKELPARAM(0, 0)
);
            PostMessage(hwnd, WM_INITTEXT,
(WPARAM)0, (LPARAM)0);
            return TRUE;
        case WM_INITTEXT:
            hResInfo = FindResource(hInst,
MAKEINTRESOURCE(IDR_LICENSE1), "LICENSE");
            dwSize = SizeofResource(hInst, hResInfo);
            hRes = LoadResource(hInst, hResInfo);
            pSrc = (BYTE *)LockResource(hRes);
            pDst = (unsigned char *)malloc(dwSize+1);
            if ( pDst )
            {
                memcpy(pDst, pSrc, dwSize);
                pDst[dwSize] = 0;
                SetDlgItemText(hwnd,
IDC_LICENSE, (const char *)pDst);
            }
            else
                SetDlgItemText(hwnd,
IDC_LICENSE, (const char *)pSrc);
            return TRUE;
        case WM_DESTROY:
            DeleteObject(hFont);
            return TRUE;
        case WM_COMMAND:
            if ( wParam == IDOK )
                EndDialog(hwnd, TRUE);
            if ( wParam == IDCANCEL )
                EndDialog(hwnd, FALSE);
        default:
            break;
    }
    return FALSE;
}

BOOL CALLBACK UpdatedDlgProc(HWND hwnd, UINT uMsg, WPARAM
wParam, LPARAM lParam)
{
    switch(uMsg)
    {
        case WM_INITDIALOG:
            switch(lParam)
            {
                case 1:
                case 2:
                    SetDlgItemText(hwnd,
IDC_RESULTS, "TPC-C Web Client Installed");
                    break;
            }
            return TRUE;
        case WM_COMMAND:
            if ( wParam == IDOK )
                EndDialog(hwnd, TRUE);
            default:
                break;
    }
    return FALSE;
}

}

PAINTSTRUCT ps;
MEMORYSTATUS memoryStatus;
OSVERSIONINFO VI;
char szTmp[256];
static char szDllPath[256];
static char szExePath[256];

switch(uMsg)
{
    case WM_INITDIALOG:
        GlobalMemoryStatus(&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( &Reg, sizeof(Reg) );
        Reg.dwNumberOfDeliveryThreads = 4;
        Reg.dwMaxConnections = 100;
        Reg.dwMaxPendingDeliveries = 100;
        Reg.eDB_Protocol = DBLIB;
        Reg.eTxnMon = None;
        strcpy(Reg.szDbServer,
"" );
        strcpy(Reg.szDbName,
"tpcc");
        strcpy(Reg.szDbUser,
"sa");
        strcpy(Reg.szDbPassword,
"" );

        iPoolThreadLimit = iMaxPhysicalMemory *
2;

        iThreadTimeout = 86400;
        iListenBackLog = 15;
        iAcceptExOutstanding = 40;

        ReadTPCCRegistrySettings( &Reg );
        ReadRegistrySettings();

        GetModuleFileName(hInst, szExePath,
sizeof(szExePath));

        GetVersionInfo(szDllPath, szExePath);

        wsprintf(szTmp, "Version %d.%2d.%3d",
versionExeMS, versionExeMM, versionExeLS);
        SetDlgItemText(hwnd, IDC_VERSION,
szTmp);

        SetDlgItemText(hwnd, IDC_PATH,
szDllPath);
}
}

```

```

Reg.szDbServer);
SetDlgItemText(hwnd, ED_DB_SERVER,
Reg.szDbUser);
SetDlgItemText(hwnd, ED_DB_USER_ID,
ED_DB_PASSWORD, Reg.szDbPassword);
SetDlgItemText(hwnd, ED_DB_NAME,
Reg.szDbName);
SetDlgItemInt(hwnd, ED_THREADS,
Reg.dwNumberOfDeliveryThreads, FALSE);
SetDlgItemInt(hwnd,
ED_MAXCONNECTION, Reg.dwMaxConnections, FALSE);
SetDlgItemInt(hwnd,
ED_MAXDELIVERIES, Reg.dwMaxPendingDeliveries, FALSE);
SetDlgItemInt(hwnd,
ED_IIS_MAX_THREAD_POOL_LIMIT, iPoolThreadLimit, FALSE);
SetDlgItemInt(hwnd,
ED_IIS_THREAD_TIMEOUT, iThreadTimeout, FALSE);
SetDlgItemInt(hwnd,
ED_IIS_LISTEN_BACKLOG, iListenBackLog, FALSE);
SetDlgItemInt(hwnd,
ED_WEB_SERVICE_BACKLOG_QUEUE_SIZE, iAcceptExOutstanding,
FALSE);

CheckDlgButton(hwnd, IDC_DBLIB, 0);
CheckDlgButton(hwnd, IDC_ODBC, 0);
if ( Reg.eDB_Protocol == DBLIB )
    CheckDlgButton(hwnd,
IDC_DBLIB, 1);
else
    CheckDlgButton(hwnd,
IDC_ODBC, 1);

// check OS version level for COM. Must be
at least Windows 2000
VI.dwOSVersionInfoSize = sizeof(VI);
GetVersionEx( &VI );
if (VI.dwMajorVersion < 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, &ps);
        DrawIcon(ps.hdc, 0, 0, hIcon);
        EndPaint(hwnd, &ps);
        return TRUE;
    }
    break;
case WM_COMMAND:
    if ( HIWORD(wParam) == BN_CLICKED )
    {
        switch( LOWORD(wParam) )
        {
            case IDC_DBLIB:
                return
TRUE;
            case IDC_ODBC:
                return
TRUE;
            case IDOK:
                ProcessOK(hwnd, szDllPath);
                return
TRUE;
            case IDCANCEL:
                EndDialog(hwnd, FALSE);
                return
TRUE;
            default:
                return
FALSE;
        }
    }
    break;
}
default:
    break;
}
return FALSE;
}

static void ProcessOK(HWND hwnd, char *szDllPath)
{
    int d;
    HWND hDlg;
    int rc;

    char szFullName[256];
    char szErrMsg[128];

    // read settings from dialog
    Reg.dwNumberOfDeliveryThreads = GetDlgItemInt(hwnd,
ED_THREADS, &d, FALSE);
    Reg.dwMaxConnections = GetDlgItemInt(hwnd,
ED_MAXCONNECTION, &d, FALSE);
    Reg.dwMaxPendingDeliveries = GetDlgItemInt(hwnd,
ED_MAXDELIVERIES, &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) )
            Reg.eTxnMon = None;
        else if ( IsDlgButtonChecked(hwnd, IDC_TM_TUXEDO) )
            Reg.eTxnMon = TUXEDO;
        else if ( IsDlgButtonChecked(hwnd, IDC_TM_MTS) )
            Reg.eTxnMon = COM;
        else if ( IsDlgButtonChecked(hwnd, IDC_TM_ENCINA) )
            Reg.eTxnMon = ENCINA;

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

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

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

            EndDialog(hwnd, 0);
            return;
        }

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

        UpdateDialog(hDlg);
        WriteRegistrySettings(szDllPath);

        // register com proxy stub

```

```

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

    EndDialog(hwnd, 0);
    return;
}

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

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

        EndDialog(hwnd, 0);
        return;
    }

    Sleep(100);

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

    EndDialog(hwnd, rc);
    return;
}

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

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

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

```

```

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

        RegCloseKey(hKey);
    }

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

        RegCloseKey(hKey);
    }
}

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

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

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

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

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

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

```

```

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

        RegFlushKey(hKey);
        RegCloseKey(hKey);
    }

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

        RegFlushKey(hKey);
        RegCloseKey(hKey);
    }

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

        RegFlushKey(hKey);
        RegCloseKey(hKey);
    }

    return;
}

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

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

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

```

```

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

BOOL FileFromResource( char *szResourceName, int iResourceId, char
*szDllPath, char *szFileName )
{
    HGLOBAL          hDLL;
    HRSRC            hResInfo;
    HANDLE           hFile;
    DWORD            dwSize;
    BYTE             *pSrc;
    DWORD            d;
    char             szFullName[256];

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

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

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

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

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

    CloseHandle(hFile);

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

static int CopyFiles(HWND hDlg, char *szDllPath)
{
    BOOL            bSvcRunning;

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

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

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

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

```

```

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

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

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

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

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

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

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

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

```

```

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

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

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

return 1;
}

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

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

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

        RegCloseKey(hKey);
    }

    return bRc;
}

```

```

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

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

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

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

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

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

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

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

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

    CloseServiceHandle(schService);
    return TRUE;
}

```

```

ServiceNotRunning:
    CloseServiceHandle(schService);
    return FALSE;
}

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

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

    if (! StartService(schService, 0, NULL) )
        goto StartWWWebErr;
    //start Service pending, Check the status until the service is running.
    if (! QueryServiceStatus(schService, &ssStatus) )
        goto StartWWWebErr;
    while( ssStatus.dwCurrentState != SERVICE_RUNNING)
    {
        dwOldCheckPoint = ssStatus.dwCheckPoint;
        //Save the current checkpoint.
        Sleep(ssStatus.dwWaitHint);
        //Wait for the specified interval.
        if ( !QueryServiceStatus(schService, &ssStatus) )
            //Check the status again.
            break;
        if (dwOldCheckPoint >= ssStatus.dwCheckPoint)
            //Break if the checkpoint has not been incremented.
            break;
    }

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

    CloseServiceHandle(schService);
    return TRUE;
}

StartWWWebErr:
    CloseServiceHandle(schService);
    return FALSE;
}

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

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

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

```

```

    if ( !ControlService(schService, SERVICE_CONTROL_STOP,
    &ssStatus) )
        goto StopWWWebErr;
    //start Service pending, Check the status until the service is running.
    if (! QueryServiceStatus(schService, &ssStatus) )
        goto StopWWWebErr;
    while( ssStatus.dwCurrentState == SERVICE_RUNNING)
    {
        dwOldCheckPoint = ssStatus.dwCheckPoint;
        //Save the current checkpoint.
        Sleep(ssStatus.dwWaitHint);
        //Wait for the specified interval.
        if ( !QueryServiceStatus(schService, &ssStatus) )
            //Check the status again.
            break;
        if (dwOldCheckPoint >= ssStatus.dwCheckPoint)
            //Break if the checkpoint has not been incremented.
            break;
    }

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

    CloseServiceHandle(schService);
    return TRUE;
}

StopWWWebErr:
    CloseServiceHandle(schService);
    return FALSE;
}

static void UpdateDialog(HWND hDlg)
{
    MSG msg;

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

```

install.dsp

```

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

# TARGETTYPE "Win32 (x86) Application" 0x0101

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

```

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

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

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

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

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

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

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

```
!ENDIF
```

```
# Begin Target
```

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

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

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

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

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

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

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

```
SOURCE=\SRC\ICON1.ICO
# End Source File
# Begin Source File
```

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

```
SOURCE=\SRC\LICENSE.TXT
# End Source File
# Begin Source File
```

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

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

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

```

# Begin Source File

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

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

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

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

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

```

install.h

```

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

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

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

// Next default values for new objects
//

```

install.rc

```

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

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

//
// 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

//
// Dialog
//

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

```

```

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

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

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

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

```

```

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

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

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

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

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

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

////////////////////////////////////
//
// TPCDLL
//

IDR_TPCDLL      TPCDLL DISCARDABLE
"..\\..\\isapi_dll\\bin\\tpcc.dll"

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

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

```

```

VALUE "Translation", 0x409, 1200
END
END

#endif // !_MAC

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

IDR_LICENSE1      LICENSE DISCARDABLE  "license.txt"

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

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

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

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

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

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

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

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

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

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

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

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

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

```

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

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

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

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

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

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

install_com.cpp

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

```
#define WIN32_WINNT 0x0500
```

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

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

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

    ICatalogObject* pCatalogObjectApp = NULL;
```

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

```
    _bstr_t bstrTemp, bstrTemp2,
    bstrTemp3, bstrTemp4;
    _bstr_t bstrDllPath =
szDllPath;
    _variant_t vTmp, vKey;
    long lActProp, lCount,
    ICountCo, ICountItf, ICountMethod;
    bool bTmp;
```

```
CoInitializeEx(NULL, COINIT_MULTITHREADED);
```

```
HRESULT hr = CoCreateInstance(CLSID_COMAdminCatalog,
    NULL,
```

```
CLSCTX_INPROC_SERVER,
```

```
IID_ICOMAdminCatalog,
```

```
(void**) &pCOMAdminCat);
```

```
if (!SUCCEEDED(hr)) goto Error;
```

```
bstrTemp = "Applications";
```

```
// Attempt to connect to "Applications" in the Catalog
hr = pCOMAdminCat->GetCollection(bstrTemp,
```

```
(IDispatch**) &pCatalogCollectionApp);
if (!SUCCEEDED(hr)) goto Error;
```

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

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

```
(if any) // iterate through applications to delete existing "TPC-C" application
```

```
while (lCount > 0)
```

```
{
    hr = pCatalogCollectionApp->get_Item(lCount - 1,
    (IDispatch**) &pCatalogObjectApp);
    if (!SUCCEEDED(hr)) goto Error;
```

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

```
    if (wcsncmp(vTmp.bstrVal, L"TPC-C"))
```

```
    {
        lCount--;
        continue;
```

```
    }
    else
```

```
    {
        hr = pCatalogCollectionApp->Remove(lCount
```

```
- 1);
```

```
        if (!SUCCEEDED(hr)) goto Error;
        break;
```

```
    }
```

```
}
```

```

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

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

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

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

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

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

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

pCatalogObjectApp->Release();
pCatalogObjectApp = NULL;

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

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

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

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

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

```

```

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

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

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

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

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

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

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

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

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

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

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

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

```

```

collection                // save key to get the MethodsForInterface
                           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";
                               bTmp = TRUE;
                               vTmp = bTmp;
                               hr =
pCatalogObjectMethod->put_Value(bstrTemp, vTmp);
                               if (!SUCCEEDED(hr)) goto Error;

pCatalogObjectMethod->Release();
                               pCatalogObjectMethod = NULL;

                               lCountMethod--;
                           }

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

                           pCatalogObjectItf->Release();
                           pCatalogObjectItf = NULL;

                           lCountItf--;
                       }

                           pCatalogObjectCo->Release();
                           pCatalogObjectCo = NULL;

                           lCountCo--;
                       }

                           // 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 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 IDC_DBLIB          1021
#define IDC_LICENSE        1022
#define IDC_ODBC           1022
#define IDC_CONNECT_POOL   1023
#define ED_DB_SERVER       1023
#define ED_USER_CONNECT_DELAY_TIME 1024
#define ED_DB_USER_ID      1024
#define IDC_MTS            1025
#define IDC_TM_MTS         1025
#define IDC_TM_TUXEDO      1026
#define IDC_TM_NONE        1027
#define ED_DB_PASSWORD     1028
#define ED_DB_NAME         1029
#define IDC_TM_ENCINA      1030

// Next default values for new objects
//
#ifdef APSTUDIO_INVOKED
#ifndef APSTUDIO_READONLY_SYMBOLS
#define _APS_NEXT_RESOURCE_VALUE 130
#define _APS_NEXT_COMMAND_VALUE 40001
#define _APS_NEXT_CONTROL_VALUE 1031
#define _APS_NEXT_SYMED_VALUE 101
#endif
#endif

isapi_dll.dsp

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

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

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

```

```

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

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

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

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

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

```

```

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

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

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

!ENDIF

# Begin Target

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

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

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

```

```

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

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

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

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

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

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

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

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

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

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

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

isapi_dll_resource.h

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

// Next default values for new objects
//
#ifdef APSTUDIO_INVOKED
#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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methods.h

```

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

```

```

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

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

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

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

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

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

static void WriteMessageToEventLog(LPTSTR lpszMsg);

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

```

```

        CTPCC_Common();
        ~CTPCC_Common();

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

    HRESULT __stdcall CallSetComplete();

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

// IObjectConstruct
    STDMETHODIMP Construct(IDispatch * pUnk);

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

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

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

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

};

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

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

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

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

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

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

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

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

// ITPCC

```

```

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

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

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

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

```

Null-txns.sql

```

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

create proc tpcc_delivery      @w_id      int,
                             @o_carrier_id  smallint

```

```

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

declare @delaytime varchar(30)

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

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

GO

create proc tpcc_neworder
        @w_id      int,
        @d_id      tinyint,
        @c_id      int,
        @o_ol_cnt  tinyint,
        @o_all_local tinyint,
        @i_id1     int = 0,
        @i_id2     int = 0,
        @i_id3     int = 0,
        @i_id4     int = 0,
        @i_id5     int = 0,
        @i_id6     int = 0,
        @i_id7     int = 0,
        @i_id8     int = 0,
        @i_id9     int = 0,
        @i_id10    int = 0,
        @i_id11    int = 0,
        @i_id12    int = 0,
        @i_id13    int = 0,
        @i_id14    int = 0,
        @i_id15    int = 0,
        @s_w_id1  int = 0, @ol_qty1  smallint = 0,
        @s_w_id2  int = 0, @ol_qty2  smallint = 0,
        @s_w_id3  int = 0, @ol_qty3  smallint = 0,
        @s_w_id4  int = 0, @ol_qty4  smallint = 0,
        @s_w_id5  int = 0, @ol_qty5  smallint = 0,
        @s_w_id6  int = 0, @ol_qty6  smallint = 0,
        @s_w_id7  int = 0, @ol_qty7  smallint = 0,
        @s_w_id8  int = 0, @ol_qty8  smallint = 0,
        @s_w_id9  int = 0, @ol_qty9  smallint = 0,
        @s_w_id10 int = 0, @ol_qty10 smallint = 0,
        @s_w_id11 int = 0, @ol_qty11 smallint = 0,
        @s_w_id12 int = 0, @ol_qty12 smallint = 0,
        @s_w_id13 int = 0, @ol_qty13 smallint = 0,
        @s_w_id14 int = 0, @ol_qty14 smallint = 0,
        @s_w_id15 int = 0, @ol_qty15 smallint = 0

as

```

```

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

declare @delaytime varchar(30)

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

-- process orderlines

select @commit_flag = 1, @li_no = 0

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

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

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

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

end

end

-- return order data to client

select @w_tax = 0.1234,
        @d_tax = 0.0987,

```

```

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

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

end

GO

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

as

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

declare @delaytime varchar(30)

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

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

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

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

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

```

```

        @o_entry_d,
        @o_carrier_id,
        @c_balance,
        @o_id

GO

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

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

declare @delaytime varchar(30)

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

select @screen_data = ""

-- get customer info and update balances

select
        @d_street_1 = 'rqSHHakqyV',

```

```

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

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

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

select
        @c_id      = 123,
        @c_balance = -10000.00,
        @c_first   = 'KmR03Xureb',
        @c_middle  = 'OE',
        @c_last    = 'BAROUGHTBAR',
        @c_street_1 = 'QpGdOHjv8mR9vNI8V',
        @c_street_2 = 'dzKcCObBqbC3yu',
        @c_city     = 'zAKZXdC037FQxq',
        @c_state    = 'QA',
        @c_zip      = '700311111',
        @c_phone    = '2967264064528555',
        @c_credit   = 'GC',
        @c_credit_lim = 50000.00,
        @c_discount = 0.3069,
        @c_since    = getdate(),
        @datetime   = getdate()

-- return data to client

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

GO

create proc tpcc_stocklevel @w_id      int,

```

```

                                @d_id      tinyint,
                                @threshhold smallint
as
declare @delaytime varchar(30)

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

select 49

GO

create proc tpcc_version
as
declare @version char(8)

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

GO

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

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

GO

```

ReadRegistry.cpp

```

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

```

```

*      4.20.000 - first version
*/

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

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

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

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

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

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

```

```

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

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

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

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

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

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

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

    RegCloseKey(hKey);

    return FALSE;
}

```

ReadRegistry.h

```

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

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

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

```

```

//This structure defines the data necessary to keep distinct for each terminal or
client connection.
typedef struct _TPCCREGISTRYDATA
{
    enum DBPROTOCOL eDB_Protocol;
    enum TXNMON eTxnMon;
    BOOL bCOM_SinglePool;
    DWORD dwMaxConnections;
    DWORD dwMaxPendingDeliveries;
    DWORD dwNumberOfDeliveryThreads;
    char szPath[128];
    char szDbServer[32];
    char szDbName[32];
    char szDbUser[32];
    char szDbPassword[32];
} TPCCREGISTRYDATA, *PTPCCREGISTRYDATA;

BOOL ReadTPCCRegistrySettings( TPCCREGISTRYDATA *pReg );

```

restore.vbs

```

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

```

```

                If InStr(SQL_Line, "Msg") Then
'find out where the "Msg" indicator is in the line
LocMsg = InStr(SQL_Line, "Msg")
'find out where the comma is after the error code
LocComma = InStr(SQL_Line, ",")
'now isolate the error code
ErrorCode = Mid(SQL_Line, (LocMsg + 4), (LocComma -
(LocMsg + 4)))
                Select Case ErrorCode
                    Case "15069"
                        ErrorFlag = 1
                        wScript.Echo "One or more users are using the
database."
                        wScript.Echo "The requested operation cannot be
completed."
                    Case "3201"
                        ErrorFlag = 1
                        wScript.Echo "Cannot open backup device."
                        wScript.Echo "Device error or device off-line."
                        wScript.Echo "SQL Server Error 3201."
                        wScript.Echo "See the SQL Server error log for more
details."
                End Select
            End If
        End If
    Loop
        SQL_Out_File.Close
        CheckSQLOutput = ErrorFlag
    End Function
'-----
'--- end function
'-----
'--- open a file system object
'-----
Set fs = CreateObject("Scripting.FileSystemObject")
'-----
'--- grab the current directory value
'-----
SetupDirectory = WshShell.CurrentDirectory & "\\"
'-----
'--- now calculate the other directories
'-----
ScriptDirectory = SetupDirectory & "SCRIPTS\"
LogDirectory = SetupDirectory & "LOGS\"
'-----
'--- check to see if the user passed in the server name and sa password
'-----
Set objArgs = wScript.Arguments
Select Case objArgs.Length
    Case 0
        '-----
        '--- the user did not pass us anything
        '--- grab the Computer Name from Windows
        '-----
        ServerName =
WshShell.ExpandEnvironmentStrings("%COMPUTERNAME%")
        '-----
        '--- prompt the user to confirm the server name
        '-----
        ServerName = InputBox("Enter your server
name",Test_Name,ServerName)
        Do While ServerName = ""
            rc = MsgBox ("You must enter a valid server
name.",21)
            If rc = 2 Then
                wScript.Echo ""

```

```

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

```

runsqlcfg.vbs

```

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

```

```

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

```


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


```
wScript.Quit
End If
Flag = 0
```

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

```
End Select
Loop
Case "DatabaseType"
TempResponse = InputBox("Database Type"
& Chr(13) & "(normal or scale_down)", "TPC-C Setup", "normal")
'--- set flag
Flag = 0
Do While Flag = 0
```

```
Select Case TempResponse
Case
"normal", "Normal", "NORMAL"
```

```
TempResponse = "0"
Flag = 1
Case
```

```
"scale_down", "Scale_Down", "Scale_down", "SCALE_DOWN"
```

```
TempResponse = "1"
Flag = 1
Case Else
```

```
rc =
If rc = 2
Then
```

```
wScript.Echo ""
```

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

```
wScript.Quit
End If
Flag = 0
```

```
TempResponse = InputBox("Database Type" & Chr(13) & "(normal or
scale_down)",,"normal")
```

```
End Select
Loop
End Select
GetUserInput = TempResponse
End Function
```

```
'-----
'--- end function
'-----
```

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

```
Dim TableArray(8)
TableArray(0) = "warehouse"
TableArray(1) = "district"
TableArray(2) = "customer"
TableArray(3) = "history"
TableArray(4) = "new_order"
TableArray(5) = "orders"
TableArray(6) = "order_line"
TableArray(7) = "item"
TableArray(8) = "stock"
```

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

```
Dim LogFileArray(21)
```

```
LogFileArray(0) = "version.log"
LogFileArray(1) = "removedb.log"
LogFileArray(2) = "createdb.log"
LogFileArray(3) = "tables.log"
LogFileArray(4) = "dbopt1.log"
LogFileArray(5) = "idxordcl.log"
LogFileArray(6) = "idxitmcl.log"
LogFileArray(7) = "idxwarcl.log"
LogFileArray(8) = "idxcuscl.log"
LogFileArray(9) = "idxnodcl.log"
LogFileArray(10) = "idxdiscl.log"
LogFileArray(11) = "idxstkcl.log"
LogFileArray(12) = "idxodlcl.log"
LogFileArray(13) = "idxcusnc.log"
LogFileArray(14) = "idxhiscl.log"
LogFileArray(15) = "idxordnc.log"
LogFileArray(16) = "bulkload.log"
LogFileArray(17) = "dbopt2.log"
LogFileArray(18) = "nurand_load.log"
LogFileArray(19) = "backupdev.log"
LogFileArray(20) = "backupdev.log"
LogFileArray(21) = "verifyload.log"
'-----
'--- open a file system object
'-----
Set fs = CreateObject("Scripting.FileSystemObject")
'-----
'--- grab the current directory value
'-----
SetupDirectory = WshShell.CurrentDirectory & "\"
'SetupDirectory = "C:\MSTPCC.441\"
'-----
'--- now calculate the other directories
'-----
ACIDDirectory = LEFT(SetupDirectory,(LEN(SetupDirectory)-6))
ScriptDirectory = SetupDirectory & "SCRIPTS\"
LogDirectory = SetupDirectory & "LOGS\"
'-----
'--- now determine if the user passed us any parameters.
'--- the order should be ServerName, sa Password, Number of Warehouses,
'--- Build Option, and Database Type
'-----
Set objArgs = wScript.Arguments
Select Case objArgs.Length
Case 0
'-----
'--- get the server name
'-----
ServerName = GetUserInput("ServerName")
'-----
'--- get the sa password
'-----
saPassword = GetUserInput("saPassword")
'-----
'--- get the number of warehouses
'-----
NumberWarehouses =
GetUserInput("NumberWarehouses")
'-----
'--- get the build option
'-----
BuildOption = GetUserInput("BuildOption")
'-----
'--- get the database type
'-----
DatabaseType = GetUserInput("DatabaseType")
Case 1
'-----
```

```

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

```

```

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

```

```

ServerName = objArgs(0)
'-----
'--- store the sa password
'-----
saPassword = objArgs(1)
'-----
'--- store the number of warehouses
'-----
NumberWarehouses = objArgs(2)
'-----
'--- store the build option
'-----
BuildOption = objArgs(3)
'-----
'--- get the database type
'-----
DatabaseType = objArgs(4)
If DatabaseType = "scale_down" or DatabaseType =
"Scale_Down" or DatabaseType = "Scale_down" Then
    DatabaseType = 1
Else
    DatabaseType = 0
End If

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

```

```

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

```

```

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

```

```

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

```

```

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

```

spinlock.h

```

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

```

```

*/
#ifdef _INC_Spinlock

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

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

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

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

public:
    // Public functions.

    Spinlock( void );

    inline BOOL ClaimLock( BOOL Wait =
TRUE );

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

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

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

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

```

```

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

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

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

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

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

#define _INC_Spinlock

#endif

tm_com_dll.dsp

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

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

CFG=tm_com_dll - Win32 Debug
!MESSAGE This is not a valid makefile. To build this project using NMAKE,
!MESSAGE use the Export Makefile command and run

```

```

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

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

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

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

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

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

```

```

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

!ENDIF

# Begin Target

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

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

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

```

tpcc.cpp

```

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

#include <windows.h>
#include <process.h>
#include <char.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 definations of structures specific to TPC-C
#include "..\..\common\src\error.h"
#include "..\..\common\src\txn_base.h"
#include "..\..\common\src\ReadRegistry.h"

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

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

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

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

#define LEN_ERR_STRING 256

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

char
szMyComputerName[MAX_COMPUTERNAME_LENGTH+1];

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

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

static CRITICAL_SECTION TermCriticalSection;

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

```

```

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

// For deferred Delivery txns:

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

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

// configuration settings from registry
TPCCREGISTRYDATA    Reg;

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

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

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

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

```

```

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

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

        DisableThreadLibraryCalls((HMODULE)hModule);

        InitializeCriticalSection(&TermCriticalSection);

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

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

        TermInit();

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

            // get function pointer
            to wrapper for class constructor

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

```

```

        hLibInstanceTm =
LoadLibrary( szDllName );
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");
LoadLibrary( szDllName );
NULL)
        throw new
CWEBCLNT_ERR( ERR_LOADDLL_FAILED, szDllName, GetLastError() );
// get function pointer
to wrapper for class constructor
        pCTPCC_COM_new =
(TYPE_CTPCC_COM*)
GetProcAddress(hLibInstanceTm,"CTPCC_COM_new");
        if
(pCTPCC_COM_new == NULL)
        throw new
CWEBCLNT_ERR( ERR_GETPROCADDR_FAILED, szDllName,
GetLastError() );
        }
// load DLL for database
connection
(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
                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-yymmdd-hhmm.log
                SYSTEMTIME Time;
                GetLocalTime( &Time
);
                wsprintf( szLogFile,
"%sdelivery-%2.2d%2.2d-%2.2d-%2.2d.log",
Reg.szPath, Time.wYear % 100, Time.wMonth, Time.wDay, Time.wHour,
Time.wMinute );
                txnDelilog = new
CTxnLog(szLogFile, TXN_LOG_WRITE);
                //write event into txn
                log for START

```

```

txnDelilog->WriteCtrlRecToLog(TXN_EVENT_START,
szMyComputerName, sizeof(szMyComputerName));

// allocate structures for
delivery buffers and thread mgmt
HANDLE[dwNumDeliveryThreads];
pDeliHandles = new
DELIVERY_TRANSACTION[dwDelBuffSize];
pDelBuff = new
// launch
DeliveryWorkerThread to perform actual delivery txns
for(i=0;
i<dwNumDeliveryThreads; i++)
{
pDeliHandles[i] = (HANDLE) _beginthread( DeliveryWorkerThread, 0, NULL
);
if
(pDeliHandles[i] == INVALID_HANDLE_VALUE)
throw new CWEBCLNT_ERR( ERR_DELIVERY_THREAD_FAILED );
}
break;
case DLL_PROCESS_DETACH:
if (dwNumDeliveryThreads)
{
if (txnDelilog !=
NULL)
{
//write event
into txn log for STOP
txnDelilog->WriteCtrlRecToLog(TXN_EVENT_STOP, szMyComputerName,
sizeof(szMyComputerName));
// This will
CTxnLog
*txnDelilogLocal = txnDelilog;
txnDelilog=
NULL;
delete
txnDelilogLocal;
}
delete [] pDeliHandles;
delete [] pDelBuff;
CloseHandle(
hWorkerSemaphore );
CloseHandle(
hDoneEvent );
DeleteCriticalSection(&DelBuffCriticalSection);
}
DeleteCriticalSection(&TermCriticalSection);
if (hLibInstanceTm != NULL)
FreeLibrary(
hLibInstanceTm );
hLibInstanceTm = NULL;

```

```

if (hLibInstanceDb != NULL)
FreeLibrary(
hLibInstanceDb = NULL;
Sleep(500);
break;
default:
/* nothing */;
}
}
catch (CBaseErr *e)
{
WriteMessageToEventLog( e->ErrorText() );
delete e;
TerminateExtension(0);
return FALSE;
}
catch (...)
{
WriteMessageToEventLog(TEXT("Unhandled
exception. DLL could not load."));
TerminateExtension(0);
return FALSE;
}
return TRUE;
}
/* FUNCTION: GetExtensionVersion
*
* PURPOSE: This function is called by the inet service when the DLL
is first loaded.
*
* ARGUMENTS: HSE_VERSION_INFO *pVer passed in
structure in which to place expected version number.
*
* RETURNS: TRUE inet service expected return value.
*/
BOOL WINAPI GetExtensionVersion(HSE_VERSION_INFO *pVer)
{
pVer->dwExtensionVersion =
MAKELONG(HSE_VERSION_MINOR, HSE_VERSION_MAJOR);
lstrcpy(pVer->lpszExtensionDesc, "TPC-C Server.",
HSE_MAX_EXT_DLL_NAME_LEN);
// TODO: why do we need this here instead of in the DLL attach?
if (Reg.eTxnMon == ENCINA)
pCTPCC_ENCINA_post_init();
return TRUE;
}
/* FUNCTION: TerminateExtension
*
* PURPOSE: This function is called by the inet service when the DLL
is about to be unloaded.
*
* 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];
                sprintf( szTmp, "Invalid term ID;
TermId = %d", TermId );
                WriteMessageToEventLog( szTmp
);
            }
        }
    }
}

```

```

                throw new CWEBCLNT_ERR(
ERR_INVALID_TERMID );
            }

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

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

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

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

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

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

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

```

```

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

#ifdef ICECAP
    StopCAP();
#endif

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

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

    //finish up and keep connection

```

```

        pECB->dwHttpStatusCode = 200;
        return HSE_STATUS_SUCCESS_AND_KEEP_CONN;
    }

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

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

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

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

        (VOID) DeregisterEventSource(hEventSource);
    }
}

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

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

    DELIVERY_TRANSACTION delivery;
    PDELIVERY_DATA
pDeliveryData;
    TXN_RECORD_TPCC_DELIV_DEF txnDeliRec;

    DWORD index;
    HANDLE handles[2];

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

```

```

assert(txnDelilog != NULL);

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

while (TRUE)
{
    try
    {
        //while delivery thread running, i.e. user has
        not requested termination
        while (TRUE)
        {
            // need to wait for multiple objects:
            handles[0] = hDoneEvent;
            handles[1] = hWorkerSemaphore;
            index = WaitForMultipleObjects(
2, &handles[0], FALSE, INFINITE );
            if (index == WAIT_OBJECT_0)
                goto ErrorExit;

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

            // make a local copy of current
            entry from delivery buffer and increment buffer index
            EnterCriticalSection(&DelBuffCriticalSection);
            delivery =
*(pDelBuff+dwDelBuffBusyIndex);
            dwDelBuffFreeCount++;
            dwDelBuffBusyIndex++;
            if (dwDelBuffBusyIndex ==
dwDelBuffSize) // wrap-around if at end of buffer
                dwDelBuffBusyIndex =
0;

```

```

LeaveCriticalSection(&DelBuffCriticalSection);

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

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

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

//log txn
txnDeliRec.TxnStatus =
ERR_SUCCESS;
for (int i=0; i<10; i++)
    txnDeliRec.o_id[i] =
pDeliveryData->o_id[i];
txnDeliRec.DeltaT4 =
(int)(Get64BitTime(&trans_end) - txnDeliRec.TxnStartT0);
txnDeliRec.DeltaTxnExec =
(int)(Get64BitTime(&trans_end) - Get64BitTime(&trans_start));

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

    // log the error txn
    txnDeliRec.TxnStatus = e->ErrorType();
    if (txnDelilog != NULL)
        txnDelilog->WriteToLog(&txnDeliRec);
    delete e;
}
catch (...)
{
    // unhandled exception; shouldn't happen; not
    much we can do...
    WriteMessageToEventLog(TEXT("Unhandled exception caught in
DeliveryWorkerThread.));
}
}
ErrorExit:
    delete pTxn;
    _endthread();
}
/* FUNCTION: PostDeliveryInfo
*
```

```

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

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

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

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

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

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

    return bError;
}

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

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

```

```

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

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

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

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

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

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

/* FUNCTION: void WelcomeForm
*
*/

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

    //welcome to tpc-c html form buffer, this is first form client sees.
strcpy( szBuffer, "<HTML><HEAD><TITLE>TPC-C Web
Client</TITLE></HEAD><BODY>"
"<B><BIG>Microsoft TPC-C Web Client (ver 4.20)</BIG></B> <BR> <BR>"
" " <font
face="Courier New"><PRE>"
"Compiled:"
" __DATE__ " " __TIME__ " <BR>"
"Source:"
" __FILE__ (" " __TIMESTAMP__ ") <BR>"
"</PRE></font>"
" <FORM
ACTION="tpcc.dll" METHOD="GET">"
" <INPUT
TYPE="hidden" NAME="STATUSID" VALUE="0">"

```



```

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

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

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

    iNewTerm = TermAdd();

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

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

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

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

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

```

```

EnterCriticalSection(&TermCriticalSection);

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

LeaveCriticalSection(&TermCriticalSection);

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

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

```

```

"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
*
* pKey         char
key value to look for
*
* pValue       char
character array into which to place key's value
*
* iMax         int
maximum length of key value array.
*
* err          WEBERROR
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
*
* pKey         char
key value to look for
*
* NoKeyErr     WEBERROR
error value to throw if key not found
*
* NotIntErr    WEBERROR
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=\"TERMINID\"
VALUE=\"%d\">"
        "<INPUT TYPE=\"hidden\" NAME=\"SYNCID\"
VALUE=\"%d\">"
        "<BOLD>An Error Occured</BOLD><BR><BR>"
        "%s"
        "<BR><BR><HR>"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..NewOrder..\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Order-Status..\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Stock-Level..\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Exit..\">"
        "</FORM></BODY></HTML>"
        , iType, iErrorNum, MAIN_MENU_FORM, iTermId,
iSyncId, szErrorText );
}

/* FUNCTION: MakeMainMenuForm
*/

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

```



```

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

```

```

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

```

```

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 blnput, char *szForm)
{
int c;

c = sprintf(szForm,
"<HTML><HEAD><TITLE>TPC-C
Payment</TITLE></HEAD><BODY>"
"<FORM ACTION=\"tpcc.dll\" METHOD=\"GET\">"
"<INPUT TYPE=\"hidden\" NAME=\"STATUSID\"
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 ( !blnput )
{
c += sprintf(szForm+c, "%2.2d-%2.2d-%4.4d
%2.2d:%2.2d:%2.2d",
pPaymentData->h_date.day,
pPaymentData->h_date.month,
pPaymentData->h_date.year,
pPaymentData->h_date.hour,
pPaymentData->h_date.minute,
pPaymentData->h_date.second);
}

if ( blnput )
{
c += sprintf(szForm+c,
"<BR> <BR>Warehouse: %4.4d"
" District: <INPUT
NAME=\"DID*\" SIZE=1><BR> <BR> <BR> <BR> <BR>"
"Customer: <INPUT NAME=\"CID*\"
SIZE=4>"
" Cust-Warehouse: <INPUT NAME=\"CWI*\"
SIZE=4> "
" Cust-District: <INPUT NAME=\"CDI*\"
SIZE=1><BR>"
"Name: <INPUT
NAME=\"CLT*\" SIZE=16>
Since:<BR>"
" Credit:<BR>"
" Disc:<BR>"
" Phone:<BR>
<BR>"
"Amount Paid: $<INPUT
NAME=\"HAM*\" SIZE=7> New Cust-Balance:<BR>"
"Credit Limit:<BR> <BR>Cust-Data: <BR>
<BR> <BR> <BR> <BR></font></PRE><HR>"
"<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Process\"><INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Menu\">"
"</BODY></FORM></HTML>"
, Term.pClientData[iTermId].w_id);
}
else
{
c += sprintf(szForm+c,
"<BR> <BR>Warehouse: %4.4d
District: %2.2d<BR>"
"%0-20s %0-20s<BR>"
"%0-20s %0-20s<BR>"
"%0-20s %0-2s %5.5s-%4.4s %0-20s %0-2s
%5.5s-%4.4s<BR> <BR>"
"Customer: %4.4d Cust-Warehouse: %4.4d
Cust-District: %2.2d<BR>"
"Name: %0-16s %0-2s %0-16s Since:
%2.2d-%2.2d-%4.4d<BR>"
" %0-20s Credit: %0-2s<BR>"
, Term.pClientData[iTermId].w_id,
pPaymentData->d_id,
pPaymentData->w_street_1,
pPaymentData->d_street_1,
pPaymentData->w_street_2,
pPaymentData->d_street_2,
pPaymentData->w_city,
pPaymentData->w_state, pPaymentData->w_zip, pPaymentData->w_zip+5,
pPaymentData->d_city,
pPaymentData->d_state, pPaymentData->d_zip, pPaymentData->d_zip+5

```

```

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

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

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

    c += sprintf(szForm+c,
        "Amount Paid:    %7.2f    New
Cust-Balance: %14.2f<BR>"
        "Credit Limit: %13.2f<BR> <BR>"
        , pPaymentData->h_amount,
pPaymentData->c_balance
        , pPaymentData->c_credit_lim
    );

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

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

    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=\"TERMDID\"
VALUE=\"%d\">"
        "<INPUT TYPE=\"hidden\" NAME=\"SYNCID\"
VALUE=\"%d\">"
        "<PRE><font face=\"Courier\">
Order-Status<BR>"
        "Warehouse: %4.4d    ",
        ORDER_STATUS_FORM, iTermId,
Term.pClientData[iTermId].iSyncId, Term.pClientData[iTermId].w_id);

    if ( bInput )
    {
        strcpy(szForm+c,
            "District: <INPUT NAME=\"DID*\"
SIZE=1><BR>"
            "Customer: <INPUT NAME=\"CID*\"
SIZE=4> Name:    <INPUT NAME=\"CLT*\" SIZE=23><BR>"
            "Cust-Balance:<BR> <BR>"
            "Order-Number:    Entry-Date:
Carrier-Number:<BR>"
            "Supply-W Item-Id Qty Amount
Delivery-Date<BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR>
" <BR> <BR> <BR> <BR> <BR></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, " %4.4d %6.6d
%2.2d %$8.2f %2.2d-%2.2d-%4.4d<BR>",
                pOrderStatusData->OL[i].ol_supply_w_id,
                pOrderStatusData->OL[i].ol_i_id,
                pOrderStatusData->OL[i].ol_quantity,
                pOrderStatusData->OL[i].ol_amount,
                pOrderStatusData->OL[i].ol_delivery_d.day,
                pOrderStatusData->OL[i].ol_delivery_d.month,
                pOrderStatusData->OL[i].ol_delivery_d.year);
        }

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

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

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

void MakeDeliveryForm(int iTermId, DELIVERY_DATA *pDeliveryData,
BOOL bInput, char *szForm)
{
        int c;

        c = sprintf(szForm,
                "<HTML><HEAD><TITLE>TPC-C
Delivery</TITLE></HEAD><BODY>"

```

```

                "<FORM ACTION=\"tpcc.dll\" METHOD=\"GET\">"
                "<INPUT TYPE=\"hidden\" NAME=\"STATUSID\"
VALUE=\"%d\">"
                "<INPUT TYPE=\"hidden\" NAME=\"ERROR\"
VALUE=\"0\">"
                "<INPUT TYPE=\"hidden\" NAME=\"FORMID\"
VALUE=\"%d\">"
                "<INPUT TYPE=\"hidden\" NAME=\"TERMINID\"
VALUE=\"%d\">"
                "<INPUT TYPE=\"hidden\" NAME=\"SYNCID\"
VALUE=\"%d\">"
                "<PRE><font face=\"Courier\">
Delivery<BR>"
                "Warehouse: %4.4d<BR> <BR>",
                (!bInput && (pDeliveryData->exec_status_code !=
eOK)) ? ERR_TYPE_DELIVERY_POST : 0,
                DELIVERY_FORM, iTermId,
                Term.pClientData[iTermId].iSynclId, Term.pClientData[iTermId].w_id);

        if ( bInput )
        {
                strcpy( szForm+c,
                "Carrier Number: <INPUT NAME=\"OCD\"*
SIZE=1><BR> <BR>"
                "Execution Status: <BR> <BR> <BR> <BR>
<BR> <BR> <BR> <BR>"
                " <BR> <BR> <BR> <BR> <BR> <BR>
<BR> <BR> </font></PRE><HR>"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Process\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Menu\">"
                "</BODY></FORM></HTML>");
        }
        else
        {
                sprintf( szForm+c,
                "Carrier Number: %2.2d<BR> <BR>"
                "Execution Status: %s <BR> <BR> <BR>
<BR> <BR> <BR> <BR> <BR> <BR>
<BR> <BR> </font></PRE>"
                "<HR><INPUT TYPE=\"submit\"
NAME=\"CMD\" VALUE=\"..NewOrder..\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Order-Status..\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Stock-Level..\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Exit..\">"
                "</BODY></FORM></HTML>"
                , pDeliveryData->o_carrier_id,
                (pDeliveryData->exec_status_code == eOK) ?
"Delivery has been queued." : "Delivery Post Failed "
                );
        }
}

/* FUNCTION: ProcessNewOrderForm
*
* PURPOSE: This function gets and validates the input data from the
new order form

```

```

*           filling in the required input variables. It then
calls the SQLNewOrder
*           transaction, constructs the output form and
writes it back to client
*           browser.
*/

```

```

void ProcessNewOrderForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, char *szBuffer)

```

```

{
    PNEW_ORDER_DATA          pNewOrder;

    pNewOrder =
Term.pClientData[iTermId].pTxn->BuffAddr_NewOrder();

    ZeroMemory(pNewOrder, sizeof(NEW_ORDER_DATA));
    pNewOrder->w_id = Term.pClientData[iTermId].w_id;
    GetNewOrderData(pECB->lpszQueryString, pNewOrder);

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

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

```

```

/* FUNCTION: void ProcessPaymentForm

```

```

*
* PURPOSE:      This function gets and validates the input data from the
payment form

```

```

*           filling in the required input variables. It then
calls the SQLPayment
*           transaction, constructs the output form and
writes it back to client
*           browser.

```

```

* ARGUMENTS:   EXTENSION_CONTROL_BLOCK      *pECB
passed in structure pointer from inetsrv.

```

```

*           int
*           iTermId  client browser terminal id

```

```

*/

```

```

void ProcessPaymentForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, char *szBuffer)

```

```

{
    PPAYMENT_DATA pPayment;

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

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

    pPayment =
Term.pClientData[iTermId].pTxn->BuffAddr_Payment();
    MakePaymentForm(iTermId, pPayment, OUTPUT_FORM,
szBuffer);
}

```

```

/* FUNCTION: ProcessOrderStatusForm

```

```

*
* PURPOSE:      This function gets and validates the input data from the
Order Status

```

```

*           form filling in the required input variables. It
then calls the
*           SQLOrderStatus transaction, constructs the
output form and writes it
*           back to client browser.

```

```

* ARGUMENTS:   EXTENSION_CONTROL_BLOCK      *pECB
passed in structure pointer from inetsrv.

```

```

*           int
*           iTermId  client browser terminal id

```

```

*/

```

```

void ProcessOrderStatusForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, char *szBuffer)

```

```

{
    PORDER_STATUS_DATA      pOrderStatus;

    pOrderStatus =
Term.pClientData[iTermId].pTxn->BuffAddr_OrderStatus();
    ZeroMemory(pOrderStatus, sizeof(ORDER_STATUS_DATA));
    pOrderStatus->w_id = Term.pClientData[iTermId].w_id;
    GetOrderStatusData(pECB->lpszQueryString, pOrderStatus);

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

```

```

    pOrderStatus =
Term.pClientData[iTermId].pTxn->BuffAddr_OrderStatus();
    MakeOrderStatusForm(iTermId, pOrderStatus, OUTPUT_FORM,
szBuffer);
}

```

```

/* FUNCTION: ProcessDeliveryForm

```

```

*
* PURPOSE:      This function gets and validates the input data from the
delivery form

```

```

*           filling in the required input variables. It then
calls the PostDeliveryInfo
*           Api, The client is then informed that the
transaction has been posted.

```

```

* ARGUMENTS:   EXTENSION_CONTROL_BLOCK      *pECB
passed in structure pointer from inetsrv.

```

```

*           int
*           iTermId  client browser terminal id

```

```

*/

```

```

void ProcessDeliveryForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, char *szBuffer)

```

```

{
    char      *ptr = pECB->lpszQueryString;

    PDELIVERY_DATA pDelivery;

    pDelivery =
Term.pClientData[iTermId].pTxn->BuffAddr_Delivery();
    ZeroMemory(pDelivery, sizeof(DELIVERY_DATA));
    pDelivery->w_id = Term.pClientData[iTermId].w_id;

    pDelivery->o_carrier_id = GetIntKeyValue(&ptr, "OCD*",
ERR_DELIVERY_MISSING_OCD_KEY,
ERR_DELIVERY_CARRIER_INVALID);
    if ( pDelivery->o_carrier_id > 10 || pDelivery->o_carrier_id < 1 )
        throw new CWEBCLNT_ERR(
ERR_DELIVERY_CARRIER_ID_RANGE );

    if (dwNumDeliveryThreads)

```

```

    {
        //post delivery info
        if ( PostDeliveryInfo(pDelivery->w_id,
pDelivery->o_carrier_id)
                pDelivery->exec_status_code =
eDeliveryFailed;
                else
                pDelivery->exec_status_code = eOK;
        }
    else // delivery is done synchronously if no delivery threads
configured
        Term.pClientData[iTermId].pTxn->Delivery();

        pDelivery =
Term.pClientData[iTermId].pTxn->BuffAddr_Delivery();
        MakeDeliveryForm(iTermId, pDelivery, OUTPUT_FORM,
szBuffer);
    }

```

/* FUNCTION: ProcessStockLevelForm

* PURPOSE: This function gets and validates the input data from the Stock Level form filling in the required input variables. It then calls the SQLStockLevel transaction, constructs the output form and writes it back to client browser.

* ARGUMENTS: EXTENSION_CONTROL_BLOCK *pECB
passed in structure pointer from inetsrv.

* int
iTermId client browser terminal id
*/

void ProcessStockLevelForm(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, char *szBuffer)

```

{
    char *ptr = pECB->lpszQueryString;

    PSTOCK_LEVEL_DATA pStockLevel;

    pStockLevel =
Term.pClientData[iTermId].pTxn->BuffAddr_StockLevel();
    ZeroMemory( pStockLevel, sizeof(STOCK_LEVEL_DATA) );

    pStockLevel->w_id = Term.pClientData[iTermId].w_id;
    pStockLevel->d_id = Term.pClientData[iTermId].d_id;

    pStockLevel->threshold = GetIntKeyValue(&ptr, "TT*",
ERR_STOCKLEVEL_MISSING_THRESHOLD_KEY,
ERR_STOCKLEVEL_THRESHOLD_INVALID);
    if ( pStockLevel->threshold >= 100 || pStockLevel->threshold < 0 )
        throw new CWEBCLNT_ERR(
ERR_STOCKLEVEL_THRESHOLD_RANGE );

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

    pStockLevel =
Term.pClientData[iTermId].pTxn->BuffAddr_StockLevel();
    MakeStockLevelForm(iTermId, pStockLevel, OUTPUT_FORM,
szBuffer);
}

```

/* FUNCTION: GetNewOrderData

*

* PURPOSE: This function extracts and validates the new order form data from an http command string.

* ARGUMENTS: LPSTR lpszQueryString
client browser http command string
* NEW_ORDER_DATA
* pNewOrderData pointer to new order data structure
*/

void GetNewOrderData(LPSTR lpszQueryString, NEW_ORDER_DATA *pNewOrderData)

```

{
    char szTmp[26];
    int i;
    short items;
    int ol_i_id, ol_quantity;
    char *ptr = lpszQueryString;

    static char szSP[MAX_OL_NEW_ORDER_ITEMS][6] =
    { "SP00*", "SP01*", "SP02*", "SP03*", "SP04*",
      "SP05*", "SP06*", "SP07*", "SP08*", "SP09*",
      "SP10*", "SP11*", "SP12*", "SP13*", "SP14*" };
    static char szIID[MAX_OL_NEW_ORDER_ITEMS][7] =
    { "IID00*", "IID01*", "IID02*", "IID03*", "IID04*",
      "IID05*", "IID06*", "IID07*", "IID08*", "IID09*",
      "IID10*", "IID11*", "IID12*", "IID13*", "IID14*" };
    static char szQty[MAX_OL_NEW_ORDER_ITEMS][7] =
    { "Qty00*", "Qty01*", "Qty02*", "Qty03*", "Qty04*",
      "Qty05*", "Qty06*", "Qty07*", "Qty08*", "Qty09*",
      "Qty10*", "Qty11*", "Qty12*", "Qty13*", "Qty14*" };

```

```

        pNewOrderData->d_id = GetIntKeyValue(&ptr, "DID*",
ERR_NEWORDER_FORM_MISSING_DID,
ERR_NEWORDER_DISTRICT_INVALID);
        pNewOrderData->c_id = GetIntKeyValue(&ptr, "CID*",
ERR_NEWORDER_CUSTOMER_KEY,
ERR_NEWORDER_CUSTOMER_INVALID);

        for(i=0, items=0; i<MAX_OL_NEW_ORDER_ITEMS; i++)
        {
            GetKeyValue(&ptr, szSP[i], szTmp, sizeof(szTmp),
ERR_NEWORDER_MISSING_SUPPW_KEY);
            if ( szTmp[0] )
            {
                if ( !IsNumeric(szTmp) )
                    throw new CWEBCLNT_ERR(
ERR_NEWORDER_SUPPW_INVALID );
                pNewOrderData->OL[items].ol_supply_w_id
= (short)atoi(szTmp);

                ol_i_id = pNewOrderData->OL[items].ol_i_id
=
                    GetIntKeyValue(&ptr, szIID[i],
ERR_NEWORDER_MISSING_IID_KEY,
ERR_NEWORDER_ITEMID_INVALID);
                if ( ol_i_id > 999999 || ol_i_id < 1 )
                    throw new CWEBCLNT_ERR(
ERR_NEWORDER_ITEMID_RANGE );

                ol_quantity =
pNewOrderData->OL[items].ol_quantity =
                    GetIntKeyValue(&ptr, szQty[i],
ERR_NEWORDER_MISSING_QTY_KEY,
ERR_NEWORDER_QTY_INVALID);
                if ( ol_quantity > 99 || ol_quantity < 1 )
                    throw new CWEBCLNT_ERR(
ERR_NEWORDER_QTY_RANGE );

```

```

                items++;
            }
            else
            {
                // nothing entered for supply warehouse, so
                item id and qty must also be blank
                GetKeyValue(&ptr, szIID[i], szTmp,
                sizeof(szTmp), ERR_NEWORDER_MISSING_IID_KEY);
                if ( szTmp[0] )
                    throw new CWEBCLNT_ERR(
                    ERR_NEWORDER_ITEMID_WITHOUT_SUPPW );

                GetKeyValue(&ptr, szQty[i], szTmp,
                sizeof(szTmp), ERR_NEWORDER_MISSING_QTY_KEY);
                if ( szTmp[0] )
                    throw new CWEBCLNT_ERR(
                    ERR_NEWORDER_QTY_WITHOUT_SUPPW );
            }
        }
        if ( items == 0 )
            throw new CWEBCLNT_ERR(
            ERR_NEWORDER_NOITEMS_ENTERED );

        pNewOrderData->o_ol_cnt = items;
    }

/* FUNCTION: GetPaymentData
*
* PURPOSE:      This function extracts and validates the payment form
data from an http command string.
*
* ARGUMENTS:   LPSTR                lpszQueryString
client browser http command string
*
* PAYMENT_DATA
*
* pPaymentData pointer to payment data structure
*/

void GetPaymentData(LPSTR lpszQueryString, PAYMENT_DATA
*pPaymentData)
{
    char    szTmp[26];
    char    *ptr = lpszQueryString;
    BOOL    bCustIdBlank;

    pPaymentData->d_id = GetIntKeyValue(&ptr, "DID*",
ERR_PAYMENT_MISSING_DID_KEY,
ERR_PAYMENT_DISTRICT_INVALID);

    GetKeyValue(&ptr, "CID*", szTmp, sizeof(szTmp),
ERR_PAYMENT_MISSING_CID_KEY);
    if ( szTmp[0] == 0 )
    {
        bCustIdBlank = TRUE;
        pPaymentData->c_id = 0;
    }
    else
    {
        // parse customer id and verify that last name was NOT
entered
        bCustIdBlank = FALSE;
        if ( !IsNumeric(szTmp) )
            throw new CWEBCLNT_ERR(
            ERR_PAYMENT_CUSTOMER_INVALID );
        pPaymentData->c_id = atoi(szTmp);
    }

    pPaymentData->c_w_id = GetIntKeyValue(&ptr, "CWI*",
ERR_PAYMENT_MISSING_CWI_KEY,
ERR_PAYMENT_CWI_INVALID);

```

```

        pPaymentData->c_d_id = GetIntKeyValue(&ptr, "CDI*",
ERR_PAYMENT_MISSING_CDI_KEY, ERR_PAYMENT_CDI_INVALID);

        if ( bCustIdBlank )
        {
            // customer id is blank, so last name must be entered
            GetKeyValue(&ptr, "CLT*", szTmp, sizeof(szTmp),
ERR_PAYMENT_MISSING_CLT_KEY);
            if ( szTmp[0] == 0 )
                throw new CWEBCLNT_ERR(
                ERR_PAYMENT_MISSING_CID_CLT );

            _strupr( szTmp );
            if ( strlen(pPaymentData->c_last) > LAST_NAME_LEN
)
                throw new CWEBCLNT_ERR(
                ERR_PAYMENT_LAST_NAME_TO_LONG );
            strcpy(pPaymentData->c_last, szTmp);
        }
        else
        {
            // parse customer id and verify that last name was NOT
entered
            GetKeyValue(&ptr, "CLT*", szTmp, sizeof(szTmp),
ERR_PAYMENT_MISSING_CLT_KEY);
            if ( szTmp[0] != 0 )
                throw new CWEBCLNT_ERR(
                ERR_PAYMENT_CID_AND_CLT );
        }

        GetKeyValue(&ptr, "HAM*", szTmp, sizeof(szTmp),
ERR_PAYMENT_MISSING_HAM_KEY);
        if ( !IsDecimal(szTmp) )
            throw new CWEBCLNT_ERR(
            ERR_PAYMENT_HAM_INVALID );
        pPaymentData->h_amount = atof(szTmp);
        if ( pPaymentData->h_amount >= 10000.00 ||
pPaymentData->h_amount < 0 )
            throw new CWEBCLNT_ERR(
            ERR_PAYMENT_HAM_RANGE );
    }

/* FUNCTION: GetOrderStatusData
*
* PURPOSE:      This function extracts and validates the payment form
data from an http command string.
*
*/
void GetOrderStatusData(LPSTR lpszQueryString, ORDER_STATUS_DATA
*pOrderStatusData)
{
    char    szTmp[26];
    char    *ptr = lpszQueryString;

    pOrderStatusData->d_id = GetIntKeyValue(&ptr, "DID*",
ERR_ORDERSTATUS_MISSING_DID_KEY,
ERR_ORDERSTATUS_DID_INVALID);

    GetKeyValue(&ptr, "CID*", szTmp, sizeof(szTmp),
ERR_ORDERSTATUS_MISSING_CID_KEY);
    if ( szTmp[0] == 0 )
    {
        // customer id is blank, so last name must be entered
        pOrderStatusData->c_id = 0;
        GetKeyValue(&ptr, "CLT*", szTmp, sizeof(szTmp),
ERR_ORDERSTATUS_MISSING_CLT_KEY);
        if ( szTmp[0] == 0 )
            throw new CWEBCLNT_ERR(
            ERR_ORDERSTATUS_MISSING_CID_CLT );

        _strupr( szTmp );
    }

```

```

        if ( strlen(pOrderStatusData->c_last) >
LAST_NAME_LEN )
            throw new CWEBCLNT_ERR(
ERR_ORDERSTATUS_CLT_RANGE );
            strcpy(pOrderStatusData->c_last, szTmp);
        }
        else
        {
            // parse customer id and verify that last name was NOT
entered
            if ( !IsNumeric(szTmp) )
                throw new CWEBCLNT_ERR(
ERR_ORDERSTATUS_CID_INVALID );
            pOrderStatusData->c_id = atoi(szTmp);
            GetKeyValue(&ptr, "CLT*", szTmp, sizeof(szTmp),
ERR_ORDERSTATUS_MISSING_CLT_KEY);
            if ( szTmp[0] != 0 )
                throw new CWEBCLNT_ERR(
ERR_ORDERSTATUS_CID_AND_CLT );
        }
    }
}

```

```

/* FUNCTION: BOOL IsNumeric(char *ptr)
*
* PURPOSE:      This function determines if a string is numeric. It fails if
any characters other
*               than numeric and null terminator are present.
*
* ARGUMENTS:   char          *ptr      pointer to
string to check.
*
* RETURNS:     BOOL   FALSE   if string is not all
numeric
*               TRUE    if
string contains only numeric characters i.e. '0' - '9'
*/

```

```

BOOL IsNumeric(char *ptr)
{
    if ( *ptr == 0 )
        return FALSE;

    while( *ptr && isdigit(*ptr) )
        ptr++;
    return ( !*ptr );
}

```

```

/* FUNCTION: BOOL IsDecimal(char *ptr)
*
* PURPOSE:      This function determines if a string is a non-negative
decimal value.
*               It fails if any characters other than a series of numbers followed by
*               a decimal point, another series of numbers,
and a null terminator are present.
*
* ARGUMENTS:   char          *ptr      pointer to
string to check.
*
* RETURNS:     BOOL   FALSE   if string is not a valid
non-negative decimal value
*               TRUE    if
string is OK
*/

```

```

BOOL IsDecimal(char *ptr)
{
    char *dotptr;
    BOOL bValid;

```

```

    if ( *ptr == 0 )
        return FALSE;

    // find decimal point
    dotptr = strchr( ptr, '.' );
    if (dotptr == NULL)
        // no decimal point, so just check for numeric
        return IsNumeric(ptr);
    *dotptr = 0; // temporarily replace decimal with a terminator

    if ( *ptr != 0 )
        bValid = IsNumeric(ptr);
    // string starts with decimal point
    else if ( *(dotptr+1) == 0 )
        return FALSE; // nothing but a decimal point is bad
    else
        bValid = TRUE;

    if ( *(dotptr+1) != 0 )
        // check text after decimal point
        bValid &= IsNumeric(dotptr+1);

    *dotptr = '.'; // replace decimal point
    return bValid;
}

```

tpcc.cpp

```

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

```

```

#include <windows.h>
#include <process.h>
#include <tchar.h>
#include <stdio.h>
#include <stdarg.h>
#include <malloc.h>
#include <stdlib.h>
#include <string.h>
#include <time.h>
#include <sys\timeb.h>
#include <io.h>
#include <assert.h>

```

```

#include <sqltypes.h>

```

```

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

```

```

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

```

```

#include "..\..\common\src\txn_base.h"
#include "..\..\common\src\ReadRegistry.h"

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

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

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

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

#define LEN_ERR_STRING 256

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

char
szMyComputerName[MAX_COMPUTERNAME_LENGTH+1];

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

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

static CRITICAL_SECTION TermCriticalSection;

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

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

// For deferred Delivery txns:

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

HANDLE hWorkerSemaphore =
INVALID_HANDLE_VALUE;

HANDLE hDoneEvent
= INVALID_HANDLE_VALUE;

HANDLE *pDeliHandles
= NULL;

// configuration settings from registry
TPCCREGISTRYDATA Reg;

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

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

/* FUNCTION: 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 occured in initialization
* TRUE
DLL successfully initialized
*/

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

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

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

```

```

    }
DisableThreadLibraryCalls((HMODULE)hModule);
InitializeCriticalSection(&TermCriticalSection);

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

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

    TermInit();

    // load DLL for txn monitor
    if (Reg.eTxnMon == TUXEDO)
    {
        strcpy( szDllName,
Reg.szPath );
        strcat( szDllName,
"tpcc_tuxedo.dll");
        LoadLibrary( szDllName );
        if (hLibInstanceTm ==
NULL)
            throw new
CWEBCLNTErr( 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
CWEBCLNTErr( ERR_GETPROCADDR_FAILED, szDllName,
GetLastError() );
    }
    else if (Reg.eTxnMon ==
ENCINA)
    {
        strcpy( szDllName,
Reg.szPath );
        strcat( szDllName,
"tpcc_encina.dll");
        LoadLibrary( szDllName );
        if (hLibInstanceTm ==
NULL)
            throw new
CWEBCLNTErr( 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
CWEBCLNTErr( ERR_GETPROCADDR_FAILED, szDllName,
GetLastError() );
    }
    else if (Reg.eTxnMon == COM)
    {
        strcpy( szDllName,
Reg.szPath );
        strcat( szDllName,
"tpcc_com.dll");
        LoadLibrary( szDllName );
        if (hLibInstanceTm ==
NULL)
            throw new
CWEBCLNTErr( 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
CWEBCLNTErr( ERR_GETPROCADDR_FAILED, szDllName,
GetLastError() );
    }
    // 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 CWEBCLNTErr( 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 CWEBCLNTErr( ERR_GETPROCADDR_FAILED, szDllName,
GetLastError() );
        }
        else if
(Reg.eDB_Protocol == ODBC)
        {
            strcpy(
szDllName, Reg.szPath );
            strcat(
szDllName, "tpcc_odbc.dll");

```



```

        delete e;
        TerminateExtension(0);
        return FALSE;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("Unhandled
exception. DLL could not load.));
        TerminateExtension(0);
        return FALSE;
    }

    return TRUE;
}

/* FUNCTION: GetExtensionVersion
*
* PURPOSE:      This function is called by the inet service when the DLL
is first loaded.
*
* ARGUMENTS:   HSE_VERSION_INFO      *pVer      passed in
structure in which to place expected version number.
*
* RETURNS:     TRUE      inet service expected return value.
*/

BOOL WINAPI GetExtensionVersion(HSE_VERSION_INFO *pVer)
{
    pVer->dwExtensionVersion =
    MAKELONG(HSE_VERSION_MINOR, HSE_VERSION_MAJOR);
    lstrcpy(pVer->lpszExtensionDesc, "TPC-C Server.",
HSE_MAX_EXT_DLL_NAME_LEN);

    // TODO: why do we need this here instead of in the DLL attach?
    if (Reg.eTxnMon == ENCINA)
        pCTPCC_ENCINA_post_init();

    return TRUE;
}

/* FUNCTION: TerminateExtension
*
* PURPOSE:      This function is called by the inet service when the DLL
is about to be unloaded.
*
* ARGUMENTS:   Release all resources in anticipation of being
unloaded.
*
* RETURNS:     TRUE      inet service expected return value.
*/

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

    TermDeleteAll();
    return TRUE;
}

/* FUNCTION: HttpExtensionProc
*

```

```

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

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

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

#ifdef ICECAP
    StartCAP();
#endif

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

        if (TermId != 0)
        {
            if ( TermId < 0 || TermId >=
Term.iNumEntries || Term.pClientData[TermId].iNextFree != -1 )
            {
                // debugging...
                char szTmp[128];
                wsprintf( szTmp, "Invalid term ID;
TermId = %d", TermId );
                WriteMessageToEventLog( szTmp
);
                throw new CWEBCLNT_ERR(
ERR_INVALID_TERMID );
            }
            //must have a valid syncid here since termid is
valid
            if (iSyncId !=
Term.pClientData[TermId].iSyncId)
                throw new CWEBCLNT_ERR(
ERR_INVALID_SYNC_CONNECTION );

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

```

```

    }

    switch(iCmd)
    {
    case 0:
        WelcomeForm(pECB, szBuffer);
        break;
    case 1:
        switch( FormId )
        {
            case WELCOME_FORM:
            case MAIN_MENU_FORM:
                break;
            case NEW_ORDER_FORM:
                ProcessNewOrderForm(pECB, TermId, szBuffer);
                break;
            case PAYMENT_FORM:
                ProcessPaymentForm(pECB, TermId, szBuffer);
                break;
            case DELIVERY_FORM:
                ProcessDeliveryForm(pECB, TermId, szBuffer);
                break;
            case ORDER_STATUS_FORM:
                ProcessOrderStatusForm(pECB, TermId, szBuffer);
                break;
            case STOCK_LEVEL_FORM:
                ProcessStockLevelForm(pECB, TermId, szBuffer);
                break;
        }
        break;
    case 2:
        // new-order selected from menu; display
        new-order input form
        INPUT_FORM, szBuffer);
        MakeNewOrderForm(TermId, NULL,
        break;
    case 3:
        // payment selected from menu; display
        payment input form
        INPUT_FORM, szBuffer);
        MakePaymentForm(TermId, NULL,
        break;
    case 4:
        // delivery selected from menu; display
        delivery input form
        INPUT_FORM, szBuffer);
        MakeDeliveryForm(TermId, NULL,
        break;
    case 5:
        // order-status selected from menu; display
        order-status input form
        INPUT_FORM, szBuffer);
        MakeOrderStatusForm(TermId, NULL,
        break;
    case 6:
        // stock-level selected from menu; display
        stock-level input form
        INPUT_FORM, szBuffer);
        MakeStockLevelForm(TermId, NULL,
        break;
    case 7:
        // ExitCmd
        TermDelete(TermId);
        WelcomeForm(pECB, szBuffer);
        break;
    case 8:
        SubmitCmd(pECB, szBuffer);
        break;
    case 9:
        // menu
        MakeMainMenuForm(TermId,
        Term.pClientData[TermId].iSyncId, szBuffer);
        break;
    case 10:
        // CMD=Clear
        // resets all connections; should only be used
        when no other connections are active
        TermDeleteAll();
        TermInit();
        WelcomeForm(pECB, szBuffer);
        break;
    case 11:
        // CMD=Stats
        StatsCmd(pECB, szBuffer);
        break;
    }
    }
    catch (CBaseErr *e)
    {
        ErrorForm( pECB, e->ErrorType(), e->ErrorNum(),
        TermId, iSyncId, e->ErrorText(), szBuffer );
        delete e;
    }
    catch (...)
    {
        ErrorForm( pECB, ERR_TYPE_WEBDLL, 0, TermId,
        iSyncId, "Error: Unhandled exception in Web Client.", szBuffer );
    }
}

#ifdef ICECAP
    StopCAP();
#endif

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

```

```

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

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

        (VOID) DeregisterEventSource(hEventSource);
    }
}

```

```

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

```

```

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

    DELIVERY_TRANSACTION delivery;
    PDELIVERY_DATA
pDeliveryData;
    TXN_RECORD_TPCC_DELIV_DEF txnDeliRec;

    DWORD index;
    HANDLE handles[2];

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

    assert(txnDeliLog != NULL);

    try
    {
        if (Reg.eDB_Protocol == ODBC)
            pTxn = pCTPCC_ODBC_new(
                Reg.szDbServer, Reg.szDbUser, Reg.szDbPassword, szMyComputerName,
                Reg.szDbName);
        else if (Reg.eDB_Protocol == DBLIB)
            pTxn = pCTPCC_DBLIB_new(
                Reg.szDbServer, Reg.szDbUser, Reg.szDbPassword, szMyComputerName,
                Reg.szDbName);
        pDeliveryData = pTxn->BuffAddr_Delivery();
    }
    catch (CBaseErr *e)

```

```

    {
        char szTmp[1024];
        wsprintf( szTmp, "Error in Delivery Txn thread. Could
not connect to database. "
                "%s. Server=%s, User=%s,
                Password=%s, Database=%s",
                e->ErrorText(), Reg.szDbServer,
                Reg.szDbUser, Reg.szDbPassword, Reg.szDbName );
        WriteMessageToEventLog( szTmp );
        delete e;
        goto ErrorExit;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("Unhandled exception
caught in DeliveryWorkerThread. "));
        goto ErrorExit;
    }

    while (TRUE)
    {
        try
        {
            //while delivery thread running, i.e. user has
not requested termination
            while (TRUE)
            {
                // need to wait for multiple objects:
                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];
        sprintf( szTmp, "Error in Delivery Txn
thread. %s", e->ErrorText() );
        WriteMessageToEventLog( szTmp );

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

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

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

    ErrorExit:
        delete pTxn;
        _endthread();
}

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

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

    EnterCriticalSection(&DelBuffCriticalSection);
    if (dwDelBuffFreeCount > 0)

```

```

    {
        bError = FALSE;
        (pDelBuff+dwDelBuffFreeIndex)->w_id
= w_id;
        (pDelBuff+dwDelBuffFreeIndex)->o_carrier_id
=
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 *pSynclId)
{
    char *ptr = pECB->lpszQueryString;
    char szBuffer[25];
    int i;

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

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

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

```

```

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

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

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

/* FUNCTION: void WelcomeForm
*
*/

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

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

"<B><BIG>Microsoft TPC-C Web Client (ver 4.20)</BIG></B> <BR> <BR>"
" <font
face=\"Courier New\" color=\"blue\"><PRE>"
" __DATE__ ", "__TIME__ " <BR>"
"Source:
" __FILE__ " (" __TIMESTAMP__ ) <BR>"
"</PRE></font>"
" <FORM
" <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=\"TERMID\" VALUE=\"0\">"
" <INPUT
TYPE=\"hidden\" NAME=\"SYNCID\" VALUE=\"0\">"
" <INPUT
TYPE=\"hidden\" NAME=\"VERSION\" VALUE=\"\"
WEBCIENT_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>"
"DB Server
= <B>%s</B><BR>"
"DB User
ID = <B>%s</B><BR>"
"DB
Password = <B>%s</B><BR>"
"DB Name
= <B>%s</B><BR>"
"</PRE></font>"
, Reg.szDbServer, Reg.szDbUser,
Reg.szDbPassword, Reg.szDbName );
strcat( szBuffer, szTmp);

```

```

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

    EnterCriticalSection(&TermCriticalSection);

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

    LeaveCriticalSection(&TermCriticalSection);

    wsprintf( szBuffer,

```

```

"Client Stats</TITLE></HEAD>"
"Connections: %d </BIG></B><BR></BODY></HTML>"
, iTot);
}

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)
    wsprintf( 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
*
* pKey         char                key value to look for
*
* pValue       char                character array into which to place key's value
*
* iMax         int                maximum length of key value array.
*
* err          WEBERROR           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
 *
 * pKey          char
key value to look for
 *
 * NoKeyErr      WEBERROR
error value to throw if key not found
 *
 * NotIntErr     WEBERROR
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=value0. This DLL formats
 *
 *               TPC-C input fields in such a
manner that the keys can be extracted in the
 *
 *               above manner.
 */

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

```

```

char *ptr;

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

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

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

*pQueryString = ptr;
return atoi(ptr0);

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

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

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

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

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

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

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

```

```

        LeaveCriticalSection(&TermCriticalSection);
    }

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

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

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

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

    LeaveCriticalSection(&TermCriticalSection);
}

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

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

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

    EnterCriticalSection(&TermCriticalSection);
    if (Term.iFreeList != 0)
    {
        // position is available
        iNewTerm = Term.iFreeList;
        Term.iFreeList =
Term.pClientData[iNewTerm].iNextFree;
        Term.pClientData[iNewTerm].iNextFree = -1; //
indicates this position is in use
    }
    else
    {
        // no open slots, so find the slot that hasn't been used in
the longest time and reuse it
        for(iNewTerm=1, i=1, iTickCount=0x7FFFFFFF;
i<Reg.dwMaxConnections; i++)

```

```

        {
            if (iTickCount >
Term.pClientData[i].iTickCount)
            {
                iTickCount =
Term.pClientData[i].iTickCount;
                iNewTerm = i;
            }
            // if oldest term is less than one minute old, it probably
means that more connections
            // are being attempted than were specified as "Max
Connections" at install. In this case,
            // do not bump existing connection; instead, return error
to requestor.
            if ((GetTickCount() - iTickCount) < 60000)
            {
                LeaveCriticalSection(&TermCriticalSection);
                throw new CWEBCLNT_ERR(
ERR_MAX_CONNECTIONS_EXCEEDED );
            }

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

            LeaveCriticalSection(&TermCriticalSection);
            return iNewTerm;
        }
    }

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

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

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

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

        LeaveCriticalSection(&TermCriticalSection);
    }
}

/* FUNCTION: MakeErrorForm
 */

void ErrorForm(EXTENSION_CONTROL_BLOCK *pECB, int iType, int
iErrorNum, int iTermId, int iSyncId, char *szErrorText, char *szBuffer )
{
    wsprintf(szBuffer,
"<HTML><HEAD><TITLE>TPC-C
Error</TITLE></HEAD><BODY>"
"<FORM ACTION='tpcc.dll' METHOD='GET'>"

```

```

VALUE="%d\ ">"<INPUT TYPE="hidden" NAME="STATUSID\
VALUE="%d\ ">"<INPUT TYPE="hidden" NAME="ERROR\
VALUE="%d\ ">"<INPUT TYPE="hidden" NAME="FORMID\
VALUE="%d\ ">"<INPUT TYPE="hidden" NAME="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-C Main
Menu</TITLE></HEAD><BODY>"
"Select Desired Transaction.<BR><HR>"
"<FORM ACTION="tpcc.dll" METHOD="GET">"
"<INPUT TYPE="hidden" NAME="STATUSID\
VALUE="0\ ">"
"<INPUT TYPE="hidden" NAME="ERROR\
VALUE="0\ ">"
"<INPUT TYPE="hidden" NAME="FORMID\
VALUE="%d\ ">"
"<INPUT TYPE="hidden" NAME="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="TERMID\
VALUE="%d\ ">"
"<INPUT TYPE="hidden" NAME="SYNCID\
VALUE="%d\ ">"
"<PRE><font face="Courier">
Stock-Level<BR>"
"Warehouse: %4.4d District: %2.2d<BR> <BR>",
STOCK_LEVEL_FORM, iTermId,
Term.pClientData[iTermId].iSyncId,
Term.pClientData[iTermId].w_id,
Term.pClientData[iTermId].d_id);

    if ( bInput )
    {
        strcpy(szForm+c,
"Stock Level Threshold: <INPUT
NAME="TT*" SIZE=2><BR> <BR>"
"low stock: </font><BR> <BR> <BR>
<BR> <BR> <BR> <BR> <BR> <BR> <BR>"
"<BR> <BR> <BR> <BR> <BR> <BR> <BR>"
"<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>"
"<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..\ ">"

```



```

pNewOrderData->o_entry_d.minute,
pNewOrderData->o_entry_d.second);
    }

    c += sprintf(szForm+c, "<BR>Customer: %4.4d
Name: %-16s Credit: %2s ",
                pNewOrderData->c_id,
pNewOrderData->c_last, pNewOrderData->c_credit);

    if ( bValid )
    {
        c += sprintf(szForm+c,
                    "%5.2f <BR>"
                    "Order
Number: %8.8d Number of Lines: %2.2d W_tax: %5.2f D_tax: %5.2f
<BR> <BR>"
                    " Supp_W
Item_Id Item Name Qty Stock B/G Price Amount<BR>",
                    100.0*pNewOrderData->c_discount,
                    pNewOrderData->o_id,
                    pNewOrderData->o_ol_cnt,
                    100.0 * pNewOrderData->w_tax,
                    100.0 * pNewOrderData->d_tax);

        for(i=0; i<pNewOrderData->o_ol_cnt; i++)
        {
            c += sprintf(szForm+c, " %4.4d
%6.6d %-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 )

```

```

Transaction committed.
        c += sprintf(szForm+c, "Execution Status:
Total: %8.2f ",
                    pNewOrderData->total_amount);
    else
        c += sprintf(szForm+c, "Execution Status:
Total:");

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

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

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

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

```

```

        pPaymentData->h_date.second);
    }
    if ( bInput )
    {
        c += sprintf(szForm+c,
            "<BR> <BR>Warehouse: %4.4d"
            "          District: <INPUT
NAME=\"DID*\" SIZE=1><BR> <BR> <BR> <BR> <BR>"
            "Customer: <INPUT NAME=\"CID*\"
SIZE=4>"
            "Cust-Warehouse: <INPUT NAME=\"CWI*\"
SIZE=4> "
            "Cust-District: <INPUT NAME=\"CDI*\"
SIZE=1><BR>"
            "Name:          <INPUT
NAME=\"CLT*\" SIZE=16> Since:<BR>"
            "          Credit:<BR>"
            "          Disc:<BR>"
            "          Phone:<BR>
<BR>"
            "Amount Paid:    $<INPUT
NAME=\"HAM*\" SIZE=7> New Cust-Balance:<BR>"
            "Credit Limit:<BR> <BR>Cust-Data: <BR>
<BR> <BR> <BR> <BR></font></PRE><HR>"
            " <INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Process\"><INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Menu\">"
            "</BODY></FORM></HTML>"
            , Term.pClientData[iTermId].w_id);
    }
    else
    {
        c += sprintf(szForm+c,
            "<BR> <BR>Warehouse: %4.4d
District: %2.2d<BR>"
            "%-20s          %-20s<BR>"
            "%-20s          %-20s<BR>"
            "%-20s %-2s %-5.5s-%4.4s    %-20s %-2s
%-5.5s-%4.4s<BR> <BR>"
            "Customer: %4.4d Cust-Warehouse: %4.4d
Cust-District: %2.2d<BR>"
            "Name:  %-16s %-2s %-16s  Since:
%-2.2d-%2.2d-%4.4d<BR>"
            "          %-20s          Credit: %-2s<BR>"
            , Term.pClientData[iTermId].w_id,
            pPaymentData->d_id,
            pPaymentData->w_street_1,
            pPaymentData->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
                strcpy(szForm+c, "Cust-Data: <BR> <BR>
<BR> <BR>");
        strcat(szForm,
            " <BR></font></PRE><HR>"
            " <INPUT
TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..NewOrder..\">"
            " <INPUT
TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Payment..\">"
            " <INPUT
TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Delivery..\">"
            " <INPUT
TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Order-Status..\">"
            " <INPUT
TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Stock-Level..\">"
            " <INPUT
TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Exit..\">"
            "</BODY></FORM></HTML>");
    }
}
/* FUNCTION: MakeOrderStatusForm
*
* COMMENTS:   The internal client buffer is created when the terminal id
is assigned and should not
*             be freed except when the client
terminal id is no longer needed.
*/
void MakeOrderStatusForm(int iTermId, ORDER_STATUS_DATA
*pOrderStatusData, BOOL bInput, char *szForm)
{
    int          i, c;

```



```

VALUE="%">"
Delivery<BR>"
    "Warehouse: %4.4d<BR> <BR>",
    (!bInput && (pDeliveryData->exec_status_code !=
eOK)) ? ERR_TYPE_DELIVERY_POST : 0,
    DELIVERY_FORM, iTermId,
Term.pClientData[iTermId].iSyncId, Term.pClientData[iTermId].w_id);

    if ( bInput )
    {
        strcpy( szForm+c,
                "Carrier Number: <INPUT NAME=\"OCD*"
SIZE=1><BR> <BR>"
                "Execution Status: <BR> <BR> <BR> <BR>
<BR> <BR> <BR> <BR>"
                " <BR> <BR> <BR> <BR> <BR> <BR> <BR>
<BR> <BR> </font></PRE><HR>"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Process\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Menu\">"
                "</BODY></FORM></HTML>");
    }
    else
    {
        sprintf( szForm+c,
                "Carrier Number: %2.2d<BR> <BR>"
                "Execution Status: %s <BR> <BR> <BR>
<BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR>
<BR> <BR> </font></PRE>"
                "<HR><INPUT TYPE=\"submit\"
NAME=\"CMD\" VALUE=\"..NewOrder..\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Order-Status..\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Stock-Level..\">"
                "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Exit..\">"
                "</BODY></FORM></HTML>"
                , pDeliveryData->o_carrier_id,
                (pDeliveryData->exec_status_code == eOK) ?
"Delivery has been queued." : "Delivery Post Failed "
                );
    }
}

/* FUNCTION: ProcessNewOrderForm
*
* PURPOSE:      This function gets and validates the input data from the
new order form
*
*               filling in the required input variables. it then
calls the SQLNewOrder
*               transaction, constructs the output form and
writes it back to client
*               browser.
*/

void ProcessNewOrderForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, char *szBuffer)
{

```

```

PNEW_ORDER_DATA          pNewOrder;

    pNewOrder =
Term.pClientData[iTermId].pTxn->BuffAddr_NewOrder();

    ZeroMemory(pNewOrder, sizeof(NEW_ORDER_DATA));
    pNewOrder->w_id = Term.pClientData[iTermId].w_id;
    GetNewOrderData(pECB->lpszQueryString, pNewOrder);

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

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

/* FUNCTION: void ProcessPaymentForm
*
* PURPOSE:      This function gets and validates the input data from the
payment form
*               filling in the required input variables. It then
calls the SQLPayment
*               transaction, constructs the output form and
writes it back to client
*               browser.
*
* ARGUMENTS:   EXTENSION_CONTROL_BLOCK      *pECB
passed in structure pointer from inetsrv.
*               int
*               iTermId      client browser terminal id
*/

void ProcessPaymentForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, char *szBuffer)
{
    PPAYMENT_DATA pPayment;

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

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

    pPayment =
Term.pClientData[iTermId].pTxn->BuffAddr_Payment();
    MakePaymentForm(iTermId, pPayment, OUTPUT_FORM,
szBuffer);
}

/* FUNCTION: ProcessOrderStatusForm
*
* PURPOSE:      This function gets and validates the input data from the
Order Status
*               form filling in the required input variables. It
then calls the
*               SQLOrderStatus transaction, constructs the
output form and writes it
*               back to client browser.
*
* ARGUMENTS:   EXTENSION_CONTROL_BLOCK      *pECB
passed in structure pointer from inetsrv.
*               int
*               iTermId      client browser terminal id
*/

```

```

*/
void ProcessOrderStatusForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, char *szBuffer)
{
    PORDER_STATUS_DATA    pOrderStatus;

    pOrderStatus =
Term.pClientData[iTermId].pTxn->BuffAddr_OrderStatus();
ZeroMemory(pOrderStatus, sizeof(ORDER_STATUS_DATA));
pOrderStatus->w_id = Term.pClientData[iTermId].w_id;
GetOrderStatusData(pECB->lpszQueryString, pOrderStatus);

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

    pOrderStatus =
Term.pClientData[iTermId].pTxn->BuffAddr_OrderStatus();
MakeOrderStatusForm(iTermId, pOrderStatus, OUTPUT_FORM,
szBuffer);
}

/* FUNCTION: ProcessDeliveryForm
*
* PURPOSE:      This function gets and validates the input data from the
delivery form
*
*               filling in the required input variables. It then
calls the PostDeliveryInfo
*
*               Api, The client is then informed that the
transaction has been posted.
*
* ARGUMENTS:   EXTENSION_CONTROL_BLOCK    *pECB
passed in structure pointer from inetsrv.
*
*               int
iTermId    client browser terminal id
*/

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

    PDELIVERY_DATA pDelivery;

    pDelivery =
Term.pClientData[iTermId].pTxn->BuffAddr_Delivery();
ZeroMemory(pDelivery, sizeof(DELIVERY_DATA));
pDelivery->w_id = Term.pClientData[iTermId].w_id;

    pDelivery->o_carrier_id    = GetIntKeyValue(&ptr, "OCD*",
ERR_DELIVERY_MISSING_OCD_KEY,
ERR_DELIVERY_CARRIER_INVALID);
    if ( pDelivery->o_carrier_id > 10 || pDelivery->o_carrier_id < 1 )
        throw new CWEBCLNT_ERR(
ERR_DELIVERY_CARRIER_ID_RANGE );

    if (dwNumDeliveryThreads)
    {
        //post delivery info
        if ( PostDeliveryInfo(pDelivery->w_id,
pDelivery->o_carrier_id )
            pDelivery->exec_status_code =
eDeliveryFailed;
        else
            pDelivery->exec_status_code = eOK;
    }
    else // delivery is done synchronously if no delivery threads
configured

```

```

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

    pDelivery =
Term.pClientData[iTermId].pTxn->BuffAddr_Delivery();
MakeDeliveryForm(iTermId, pDelivery, OUTPUT_FORM,
szBuffer);
}

/* FUNCTION: ProcessStockLevelForm
*
* PURPOSE:      This function gets and validates the input data from the
Stock Level
*
*               form filling in the required input variables. It
then calls the
*
*               SQLStockLevel transaction, constructs the
output form and writes it
*
*               back to client browser.
*
* ARGUMENTS:   EXTENSION_CONTROL_BLOCK    *pECB
passed in structure pointer from inetsrv.
*
*               int
iTermId    client browser terminal id
*/

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

    PSTOCK_LEVEL_DATA    pStockLevel;

    pStockLevel =
Term.pClientData[iTermId].pTxn->BuffAddr_StockLevel();
ZeroMemory( pStockLevel, sizeof(STOCK_LEVEL_DATA) );

    pStockLevel->w_id = Term.pClientData[iTermId].w_id;
pStockLevel->d_id = Term.pClientData[iTermId].d_id;

    pStockLevel->threshold = GetIntKeyValue(&ptr, "TT*",
ERR_STOCKLEVEL_MISSING_THRESHOLD_KEY,
ERR_STOCKLEVEL_THRESHOLD_INVALID);
    if ( pStockLevel->threshold >= 100 || pStockLevel->threshold < 0 )
        throw new CWEBCLNT_ERR(
ERR_STOCKLEVEL_THRESHOLD_RANGE );

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

    pStockLevel =
Term.pClientData[iTermId].pTxn->BuffAddr_StockLevel();
MakeStockLevelForm(iTermId, pStockLevel, OUTPUT_FORM,
szBuffer);
}

/* FUNCTION: GetNewOrderData
*
* PURPOSE:      This function extracts and validates the new order form
data from an http command string.
*
* ARGUMENTS:   LPSTR                                lpszQueryString
client browser http command string
*
*               NEW_ORDER_DATA
*pNewOrderData    pointer to new order data structure
*
*/

void GetNewOrderData(LPSTR lpszQueryString, NEW_ORDER_DATA
*pNewOrderData)

```

```

{
    char    szTmp[26];
    int     i;
    short   items;
    int     ol_i_id, ol_quantity;
    char    *ptr = lpszQueryString;

    static char szSP[MAX_OL_NEW_ORDER_ITEMS][6] =
        { "SP00*", "SP01*", "SP02*", "SP03*", "SP04*",
          "SP05*", "SP06*", "SP07*", "SP08*", "SP09*",
          "SP10*", "SP11*", "SP12*", "SP13*", "SP14*" };
    static char szIID[MAX_OL_NEW_ORDER_ITEMS][7] =
        { "IID00*", "IID01*", "IID02*", "IID03*", "IID04*",
          "IID05*", "IID06*", "IID07*", "IID08*", "IID09*",
          "IID10*", "IID11*", "IID12*", "IID13*", "IID14*" };
    static char szQty[MAX_OL_NEW_ORDER_ITEMS][7] =
        { "Qty00*", "Qty01*", "Qty02*", "Qty03*", "Qty04*",
          "Qty05*", "Qty06*", "Qty07*", "Qty08*", "Qty09*",
          "Qty10*", "Qty11*", "Qty12*", "Qty13*", "Qty14*" };

    pNewOrderData->d_id = GetIntKeyValue(&ptr, "DID*",
ERR_NEWORDER_FORM_MISSING_DID,
ERR_NEWORDER_DISTRICT_INVALID);
    pNewOrderData->c_id = GetIntKeyValue(&ptr, "CID*",
ERR_NEWORDER_CUSTOMER_KEY,
ERR_NEWORDER_CUSTOMER_INVALID);

    for(i=0, items=0; i<MAX_OL_NEW_ORDER_ITEMS; i++)
    {
        GetKeyValue(&ptr, szSP[i], szTmp, sizeof(szTmp),
ERR_NEWORDER_MISSING_SUPPW_KEY);
        if ( szTmp[0] )
        {
            if ( !IsNumeric(szTmp) )
                throw new CWEBCLNT_ERR(
ERR_NEWORDER_SUPPW_INVALID );
            pNewOrderData->OL[items].ol_supply_w_id
= (short)atoi(szTmp);

            ol_i_id = pNewOrderData->OL[items].ol_i_id
=
                GetIntKeyValue(&ptr, szIID[i],
ERR_NEWORDER_MISSING_IID_KEY,
ERR_NEWORDER_ITEMID_INVALID);
            if ( ol_i_id > 999999 || ol_i_id < 1 )
                throw new CWEBCLNT_ERR(
ERR_NEWORDER_ITEMID_RANGE );

            ol_quantity =
pNewOrderData->OL[items].ol_quantity =
                GetIntKeyValue(&ptr, szQty[i],
ERR_NEWORDER_MISSING_QTY_KEY,
ERR_NEWORDER_QTY_INVALID);
            if ( ol_quantity > 99 || ol_quantity < 1 )
                throw new CWEBCLNT_ERR(
ERR_NEWORDER_QTY_RANGE );

            items++;
        }
        else
        {
            // nothing entered for supply warehouse, so
            item id and qty must also be blank
            GetKeyValue(&ptr, szIID[i], szTmp,
sizeof(szTmp), ERR_NEWORDER_MISSING_IID_KEY);
            if ( szTmp[0] )
                throw new CWEBCLNT_ERR(
ERR_NEWORDER_ITEMID_WITHOUT_SUPPW );

```

```

                GetKeyValue(&ptr, szQty[i], szTmp,
sizeof(szTmp), ERR_NEWORDER_MISSING_QTY_KEY);
                if ( szTmp[0] )
                    throw new CWEBCLNT_ERR(
ERR_NEWORDER_QTY_WITHOUT_SUPPW );
            }
        }
        if ( items == 0 )
            throw new CWEBCLNT_ERR(
ERR_NEWORDER_NOITEMS_ENTERED );

        pNewOrderData->o_ol_cnt = items;
    }

/* FUNCTION: GetPaymentData
*
* PURPOSE:      This function extracts and validates the payment form
data from an http command string.
*
* ARGUMENTS:   LPSTR                lpszQueryString
client browser http command string
                PAYMENT_DATA
*pPaymentData  pointer to payment data structure
*/

void GetPaymentData(LPSTR lpszQueryString, PAYMENT_DATA
*pPaymentData)
{
    char    szTmp[26];
    char    *ptr = lpszQueryString;
    BOOL    bCustIdBlank;

    pPaymentData->d_id = GetIntKeyValue(&ptr, "DID*",
ERR_PAYMENT_MISSING_DID_KEY,
ERR_PAYMENT_DISTRICT_INVALID);

    GetKeyValue(&ptr, "CID*", szTmp, sizeof(szTmp),
ERR_PAYMENT_MISSING_CID_KEY);
    if ( szTmp[0] == 0 )
    {
        bCustIdBlank = TRUE;
        pPaymentData->c_id = 0;
    }
    else
    {
        // parse customer id and verify that last name was NOT
entered
        bCustIdBlank = FALSE;
        if ( !IsNumeric(szTmp) )
            throw new CWEBCLNT_ERR(
ERR_PAYMENT_CUSTOMER_INVALID );
        pPaymentData->c_id = atoi(szTmp);
    }

    pPaymentData->c_w_id = GetIntKeyValue(&ptr, "CWI*",
ERR_PAYMENT_MISSING_CWI_KEY,
ERR_PAYMENT_CWI_INVALID);
    pPaymentData->c_d_id = GetIntKeyValue(&ptr, "CDI*",
ERR_PAYMENT_MISSING_CDI_KEY, ERR_PAYMENT_CDI_INVALID);

    if ( bCustIdBlank )
    {
        // customer id is blank, so last name must be entered
        GetKeyValue(&ptr, "CLT*", szTmp, sizeof(szTmp),
ERR_PAYMENT_MISSING_CLT_KEY);
        if ( szTmp[0] == 0 )
            throw new CWEBCLNT_ERR(
ERR_PAYMENT_MISSING_CID_CLT );

        _strupr( szTmp );

```

```

        if ( strlen(pPaymentData->c_last) > LAST_NAME_LEN
)
        throw new CWEBCLNT_ERR(
ERR_PAYMENT_LAST_NAME_TO_LONG );
        strcpy(pPaymentData->c_last, szTmp);
    }
    else
    {
        // parse customer id and verify that last name was NOT
entered
        GetKeyValue(&ptr, "CLT*", szTmp, sizeof(szTmp),
ERR_PAYMENT_MISSING_CLT_KEY);
        if ( szTmp[0] != 0 )
            throw new CWEBCLNT_ERR(
ERR_PAYMENT_CID_AND_CLT );
    }

    GetKeyValue(&ptr, "HAM*", szTmp, sizeof(szTmp),
ERR_PAYMENT_MISSING_HAM_KEY);
    if (!IsDecimal(szTmp))
        throw new CWEBCLNT_ERR(
ERR_PAYMENT_HAM_INVALID );
    pPaymentData->h_amount = atof(szTmp);
    if ( pPaymentData->h_amount >= 10000.00 ||
pPaymentData->h_amount < 0 )
        throw new CWEBCLNT_ERR(
ERR_PAYMENT_HAM_RANGE );
}

/* FUNCTION: GetOrderStatusData
*
* PURPOSE:      This function extracts and validates the payment form
data from an http command string.
*
*/
void GetOrderStatusData(LPSTR lpszQueryString, ORDER_STATUS_DATA
*pOrderStatusData)
{
    char    szTmp[26];
    char    *ptr = lpszQueryString;

    pOrderStatusData->d_id = GetIntKeyValue(&ptr, "DID*",
ERR_ORDERSTATUS_MISSING_DID_KEY,
ERR_ORDERSTATUS_DID_INVALID);

    GetKeyValue(&ptr, "CID*", szTmp, sizeof(szTmp),
ERR_ORDERSTATUS_MISSING_CID_KEY);
    if ( szTmp[0] == 0 )
    {
        // customer id is blank, so last name must be entered
pOrderStatusData->c_id = 0;
        GetKeyValue(&ptr, "CLT*", szTmp, sizeof(szTmp),
ERR_ORDERSTATUS_MISSING_CLT_KEY);
        if ( szTmp[0] == 0 )
            throw new CWEBCLNT_ERR(
ERR_ORDERSTATUS_MISSING_CID_CLT );

        _strupr( szTmp );
        if ( strlen(pOrderStatusData->c_last) >
LAST_NAME_LEN )
            throw new CWEBCLNT_ERR(
ERR_ORDERSTATUS_CLT_RANGE );
        strcpy(pOrderStatusData->c_last, szTmp);
    }
    else
    {
        // parse customer id and verify that last name was NOT
entered

        if ( !IsNumeric(szTmp) )
            throw new CWEBCLNT_ERR(
ERR_ORDERSTATUS_CID_INVALID );

```

```

        pOrderStatusData->c_id = atoi(szTmp);
        GetKeyValue(&ptr, "CLT*", szTmp, sizeof(szTmp),
ERR_ORDERSTATUS_MISSING_CLT_KEY);
        if ( szTmp[0] != 0 )
            throw new CWEBCLNT_ERR(
ERR_ORDERSTATUS_CID_AND_CLT );
    }
}

/* FUNCTION: BOOL IsNumeric(char *ptr)
*
* PURPOSE:      This function determines if a string is numeric. It fails if
any characters other
*
*               than numeric and null terminator are present.
*
* ARGUMENTS:   char                *ptr    pointer to
string to check.
*
* RETURNS:     BOOL    FALSE    if string is not all
numeric
*               TRUE    if
string contains only numeric characters i.e. '0' - '9'
*/

BOOL IsNumeric(char *ptr)
{
    if ( *ptr == 0 )
        return FALSE;

    while( *ptr && isdigit(*ptr) )
        ptr++;
    return ( !*ptr );
}

/* FUNCTION: BOOL IsDecimal(char *ptr)
*
* PURPOSE:      This function determines if a string is a non-negative
decimal value.
*
*               It fails if any characters other than a series of numbers followed by
*
*               a decimal point, another series of numbers,
and a null terminator are present.
*
* ARGUMENTS:   char                *ptr    pointer to
string to check.
*
* RETURNS:     BOOL    FALSE    if string is not a valid
non-negative decimal value
*               TRUE    if
string is OK
*/

BOOL IsDecimal(char *ptr)
{
    char *dotptr;
    BOOL bValid;

    if ( *ptr == 0 )
        return FALSE;

    // find decimal point
    dotptr = strchr( ptr, '.' );
    if (dotptr == NULL)
        // no decimal point, so just check for numeric
        return IsNumeric(ptr);
    *dotptr = 0; // temporarily replace decimal with a terminator

    if ( *ptr != 0 )

```

```

        bValid = IsNumeric(ptr);
// string starts with decimal point
else if (*(dotptr+1) == 0)
    return FALSE; // nothing but a decimal point is bad
else
    bValid = TRUE;

if (*(dotptr+1) != 0)
    // check text after decimal point
    bValid &= IsNumeric(dotptr+1);

*dotptr = '!'; // replace decimal point
return bValid;
}

```

tpcc.def

LIBRARY TPCC.DLL

EXPORTS

```

GetExtensionVersion @1
HttpExtensionProc @2
TerminateExtension @3

```

tpcc.h

```

// File: TPCC.H
// Microsoft TPC-C Kit Ver. 4.41
// Copyright Microsoft, 1996, 1997,
1998, 1999, 2000, 2001
// Purpose: Header file for TPC-C database loader

```

```

// Build number of TPC Benchmark Kit
#define TPCKIT_VER "4.41"

```

```

// General headers
#include <windows.h>
#include <winbase.h>
#include <stdlib.h>
#include <stdio.h>
#include <process.h>
#include <stddef.h>
#include <stdarg.h>
#include <string.h>
#include <time.h>
#include <sys\timeb.h>
#include <sys\types.h>

```

```

// ODBC headers
#include <sql.h>
#include <sqlext.h>
#include <odbcss.h>

```

```

// General constants
#define MILLI 1000
#define FALSE 0
#define TRUE 1
#define UNDEF -1
#define MINPRINTASCII 32
#define MAXPRINTASCII 126

```

```

// Default environment constants
#define SERVER ""
#define DATABASE "tpcc"

```

```

#define USER "sa"
#define PASSWORD ""

// Default loader arguments
#define BATCH 10000
#define DEFLDPACKSIZE 32768
#define LOADER_RES_FILE "C:\\MSTPCC.440\\SETUP\\logs\\load.out"
#define LOG_PATH "C:\\MSTPCC.440\\SETUP\\LOGS\\";
#define LOADER_NURAND_C 123
#define DEF_STARTING_WAREHOUSE 1
#define BUILD_INDEX 1
// build both data and indexes
#define INDEX_ORDER 1
// build indexes before load
#define SCALE_DOWN 0
// build a normal scale database
#define INDEX_SCRIPT_PATH "scripts"

typedef struct
{
    char *server;
    char *database;
    char *user;
    char *password;
    BOOL tables_all;
// set if loading all tables
    BOOL table_item;
// set if loading ITEM table specifically
    BOOL table_warehouse; //
set if loading WAREHOUSE, DISTRICT, and STOCK
    BOOL table_customer;
// set if loading CUSTOMER and HISTORY
    BOOL table_orders;
// set if loading NEW-ORDER, ORDERS, ORDER-LINE
    long num_warehouses;
    long batch;
    long verbose;
    long pack_size;
    char *loader_res_file;
    char *log_path;
    char *synch_servername;
    long case_sensitivity;
    long starting_warehouse;
    long build_index;
    long index_order;
    long scale_down;
    char *index_script_path;
} TPCC_LDR_ARGS;

// String length constants
#define SERVER_NAME_LEN 20
#define DATABASE_NAME_LEN 20
#define USER_NAME_LEN 20
#define PASSWORD_LEN 20
#define TABLE_NAME_LEN 20
#define I_DATA_LEN 50
#define I_NAME_LEN 24
#define BRAND_LEN 1
#define LAST_NAME_LEN 16
#define W_NAME_LEN 10
#define ADDRESS_LEN 20
#define STATE_LEN 2
#define ZIP_LEN 9
#define S_DIST_LEN 24
#define S_DATA_LEN 50
#define D_NAME_LEN 10
#define FIRST_NAME_LEN 16

```

```

#define MIDDLE_NAME_LEN      2
#define PHONE_LEN            16
#define CREDIT_LEN           2
#define C_DATA_LEN           500
#define H_DATA_LEN           24
#define DIST_INFO_LEN        24
#define MAX_OL_NEW_ORDER_ITEMS 15
#define MAX_OL_ORDER_STATUS_ITEMS 15
#define STATUS_LEN           25
#define OL_DIST_INFO_LEN     24
#define C_SINCE_LEN

23 #define H_DATE_LEN

23 #define OL_DELIVERY_D_LEN      23
#define O_ENTRY_D_LEN           23

```

// Functions in random.c

```

void seed();
long irand();
double drand();
void WUCreate();
short WURand();
long RandomNumber(long lower, long upper);

```

// Functions in getargs.c;

```

void GetArgsLoader();
void GetArgsLoaderUsage();

```

// Functions in time.c

```

long TimeNow();

```

// Functions in strings.c

```

void MakeAddress();
void LastName();
int MakeAlphaString();
int MakeOriginalAlphaString();
int MakeNumberString();
int MakeZipNumberString();
void InitString();
void InitAddress();
void PaddString();

```

tpcc.rc

//Microsoft Developer Studio generated resource script.

```

//
#include "resource.h"

```

```

#define APSTUDIO_READONLY_SYMBOLS
//

```

// Generated from the TEXTINCLUDE 2 resource.

```

//
#include "afxres.h"

```

```

//
//
#undef APSTUDIO_READONLY_SYMBOLS

```

```

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

```

```

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

```

```

#endif // _WIN32

```

```

#ifndef _MAC
//
// Version
//

```

```

VS_VERSION_INFO VERSIONINFO
FILEVERSION 0,4,0,0
PRODUCTVERSION 0,4,0,0
FILEFLAGSMASK 0x3fL
#ifdef _DEBUG
FILEFLAGS 0x1L
#else
FILEFLAGS 0x0L
#endif
FILEOS 0x40004L
FILETYPE 0x2L
FILESUBTYPE 0x0L
BEGIN
BLOCK "StringFileInfo"
BEGIN
BLOCK "040904b0"
BEGIN
VALUE "Comments", "TPC-C HTML DLL Server (DBLIB)0"
VALUE "CompanyName", "Microsoft0"
VALUE "FileDescription", "TPC-C HTML DLL Server (DBLIB)0"
VALUE "FileVersion", "0, 4, 0, 0\0"
VALUE "InternalName", "tpcc0"
VALUE "LegalCopyright", "Copyright © 19970"
VALUE "OriginalFilename", "tpcc.dll0"
VALUE "ProductName", "Microsoft tpcc0"
VALUE "ProductVersion", "0, 4, 0, 0\0"
END
END
BLOCK "VarFileInfo"
BEGIN
VALUE "Translation", 0x409, 1200
END
END

```

```

#endif // !_MAC

```

```

#ifdef APSTUDIO_INVOKED
//
// TEXTINCLUDE
//

```

```

1 TEXTINCLUDE DISCARDABLE
BEGIN
"resource.h0"
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

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

#ifdef APSTUDIO_INVOKED
////////////////////////////////////
//
// Generated from the TEXTINCLUDE 3 resource.
//

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

tpcc_com.cpp

/*      FILE:          TPCC_COM.CPP
 *
 *      Microsoft TPC-C Kit Ver.
 *
 *      Copyright Microsoft, 1999
 *
 *      All Rights Reserved
 *
 *      not yet audited
 *
 *      PURPOSE:      Source file for TPC-C COM+ class
 *      implementation.
 *      Contact:      Charles Levine (clevine@microsoft.com)
 *
 *      Change history:

```

```

 *
 *      4.20.000 - first version
 */

// needed for CoInitializeEx
#define _WIN32_WINNT 0x0400

#include <windows.h>

// need to declare functions for export
#define DllDecl __declspec( dllexport )

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

#include "..\..\tpcc_com_ps\src\tpcc_com_ps_i.c"
#include "..\..\tpcc_com_all\src\tpcc_com_all_i.c"

// wrapper routine for class constructor
DllDecl __declspec( dllexport ) CTPCC_COM* CTPCC_COM_new(BOOL
bSinglePool)
{
    return new CTPCC_COM(bSinglePool);
}

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

    m_pTxn = NULL;
    m_pNewOrder = NULL;
    m_pPayment = NULL;
    m_pStockLevel = NULL;
    m_pOrderStatus = NULL;

    m_bSinglePool = bSinglePool;

    ulTmpSize = (ULONG) sizeof(COM_DATA);
    VariantInit(&m_vTxn);
    m_vTxn.vt = VT_SAFEARRAY;

    m_vTxn.parray = SafeArrayCreateVector(VT_UI1, ulTmpSize,
ulTmpSize);
    if (!m_vTxn.parray)
        throw new CCOMERR( E_FAIL );

    memset((void*)m_vTxn.parray->pvData,0,ulTmpSize);
    m_pTxn = (COM_DATA*)m_vTxn.parray->pvData;

    hr = CoInitializeEx(NULL, COINIT_MULTITHREADED);
    if (FAILED(hr))
    {
        throw new CCOMERR( hr );
    }

    // create components
    if (m_bSinglePool)
    {
        hr = CoCreateInstance(CLSID_TPCC, NULL,
CLSCTX_SERVER, IID_ITPCC, (void **)&m_pNewOrder);
        if (FAILED(hr))
            throw new CCOMERR(hr);

        // all txns will use same component

```

```

        m_pPayment = m_pNewOrder;
        m_pStockLevel = m_pNewOrder;
        m_pOrderStatus = m_pNewOrder;
    }
    else
    {
        // use different components for each txn

        hr = CoCreateInstance(CLSID_NewOrder, NULL,
            CLSCTX_SERVER, IID_ITPCC, (void **)&m_pNewOrder);
        if (FAILED(hr))
            throw new CCOMERR(hr);

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

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

        hr = CoCreateInstance(CLSID_OrderStatus, NULL,
            CLSCTX_SERVER, IID_ITPCC, (void **)&m_pOrderStatus);
        if (FAILED(hr))
            throw new CCOMERR(hr);
    }

    // call setcomplete to release each component back into pool
    hr = m_pNewOrder->CallSetComplete();
    if (FAILED(hr))
        throw new CCOMERR(hr);

    if (!m_bSinglePool)
    {
        hr = m_pPayment->CallSetComplete();
        if (FAILED(hr))
            throw new CCOMERR(hr);

        hr = m_pStockLevel->CallSetComplete();
        if (FAILED(hr))
            throw new CCOMERR(hr);

        hr = m_pOrderStatus->CallSetComplete();
        if (FAILED(hr))
            throw new CCOMERR(hr);
    }
}

CTPCC_COM::~CTPCC_COM()
{
    if (m_pTxn)
        SafeArrayDestroy(m_vTxn.parray);

    ReleaseInterface(m_pNewOrder);
    if (!m_bSinglePool)
    {
        ReleaseInterface(m_pPayment);
        ReleaseInterface(m_pStockLevel);
        ReleaseInterface(m_pOrderStatus);
    }
    CoUninitialize();
}

void CTPCC_COM::NewOrder()
{
    VARIANT vTxn_out;

```

```

        HRESULT hr = m_pNewOrder->NewOrder(m_vTxn, &vTxn_out);
        if (FAILED(hr))
            throw new CCOMERR( hr );
        memcpy(m_pTxn, (void
            *)vTxn_out.parray->pvData, vTxn_out.parray->rgsabound[0].cElements);
        SafeArrayDestroy(vTxn_out.parray);

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

void CTPCC_COM::Payment()
{
    VARIANT vTxn_out;

    HRESULT hr = m_pPayment->Payment(m_vTxn, &vTxn_out);
    if (FAILED(hr))
        throw new CCOMERR( hr );
    memcpy(m_pTxn, (void
        *)vTxn_out.parray->pvData, vTxn_out.parray->rgsabound[0].cElements);
    SafeArrayDestroy(vTxn_out.parray);

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

void CTPCC_COM::StockLevel()
{
    VARIANT vTxn_out;

    HRESULT hr = m_pStockLevel->StockLevel(m_vTxn,
        &vTxn_out);
    if (FAILED(hr))
        throw new CCOMERR( hr );
    memcpy(m_pTxn, (void
        *)vTxn_out.parray->pvData, vTxn_out.parray->rgsabound[0].cElements);
    SafeArrayDestroy(vTxn_out.parray);

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

void CTPCC_COM::OrderStatus()
{
    VARIANT vTxn_out;

    HRESULT hr = m_pOrderStatus->OrderStatus(m_vTxn,
        &vTxn_out);
    if (FAILED(hr))
        throw new CCOMERR( hr );
    memcpy(m_pTxn, (void
        *)vTxn_out.parray->pvData, vTxn_out.parray->rgsabound[0].cElements);
    SafeArrayDestroy(vTxn_out.parray);

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

tpcc_com.h

/* FILE: TPCC_COM.H

```

```

*
*          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"

// need to declare functions for import, unless define has already been created
// by the DLL's .cpp module for export.
#ifndef DllDecl
#define DllDecl __declspec( dllimport )
#endif

class CCOMERR : public CBaseErr
{
private:
    char m_szErrorText[64];

public:
    // use this interface for genuine COM errors
    CCOMERR( HRESULT hr )
    {
        m_hr = hr;
        m_iErrorType = 0;
        m_iError = 0;
    }

    // use this interface to impersonate a non-COM error type
    CCOMERR( int iErrorType, int iError )
    {
        m_iErrorType = iErrorType;
        m_iError = iError;
        m_hr = S_OK;
    }

    int m_hr;
    int m_iErrorType;
    int m_iError;

    // A CCOMERR class can impersonate another class,
    // which happens if the error
    // was not actually a COM Services error, but was simply
    // transmitted back via COM.
    int ErrorType()
    {
        if (m_iErrorType == 0)
            return ERR_TYPE_COM;
        else
            return m_iErrorType;
    }

    int ErrorNum() {return m_hr;}

    char *ErrorText()
    {
        if (m_hr == S_OK)

```

```

        sprintf( m_szErrorText, "Error:
Class %d, error # %d", m_iErrorType, m_iError );
        else
            sprintf( m_szErrorText, "Error:
COM HRESULT %x", m_hr );
        return m_szErrorText;
    }
};

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

    // COM Interface pointers
    ITPCC* m_pNewOrder;
    ITPCC* m_pPayment;
    ITPCC* m_pStockLevel;
    ITPCC* m_pOrderStatus;

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

    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);

```

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 <atimpl.cpp>
#include <comsvcs.h>

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

#include "tpcc_com_ps.h"
#include "..\..\common\src\trans.h"
//tpckit transaction header contains 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");
                hLibInstanceDb = LoadLibrary(
szDllName );
                if (hLibInstanceDb == NULL)
                    throw new
CCOMPONENT_ERR( ERR_LOADDLL_FAILED, szDllName,
GetLastError() );

                // get function pointer to wrapper
                pCTPCC_DBLIB_new =
(TYPE_CTPCC_DBLIB*)
GetProcAddress(hLibInstanceDb,"CTPCC_DBLIB_new");
            }
        }
    }
}

```

```

        if (pCTPCC_DBLIB_new ==
NULL)
        throw new
CCOMPONENT_ERR( ERR_GETPROCADDR_FAILED, szDllName,
GetLastError());
    }
    else if (Reg.eDB_Protocol == ODBC)
    {
        strcpy( szDllName, Reg.szPath );
        strcat( szDllName,
"tpcc_odbc.dll");
        hLibInstanceDb = LoadLibrary(
szDllName );
        if (hLibInstanceDb == NULL)
            throw new
CCOMPONENT_ERR( ERR_LOADDLL_FAILED, szDllName,
GetLastError());

        // get function pointer to wrapper
for class constructor
        pCTPCC_ODBC_new =
(TYPE_CTPCC_ODBC*)
GetProcAddress(hLibInstanceDb,"CTPCC_ODBC_new");
        if (pCTPCC_ODBC_new ==
NULL)
            throw new
CCOMPONENT_ERR( ERR_GETPROCADDR_FAILED, szDllName,
GetLastError());
    }
    else
        throw new CCOMPONENT_ERR(
ERR_UNKNOWN_DB_PROTOCOL );
    }
    else if (dwReason == DLL_PROCESS_DETACH)
        _Module.Term();
}
catch (CBaseErr *e)
{
    WriteMessageToEventLog(e->ErrorText());
    delete e;
    return FALSE;
}
catch (...)
{
    WriteMessageToEventLog(TEXT("Unhandled exception
in object DllMain"));
    return FALSE;
}

return TRUE; // OK
}

////////////////////////////////////
// Used to determine whether the DLL can be unloaded by OLE

STDAPI DllCanUnloadNow(void)
{
    return (_Module.GetLockCount()==0) ? S_OK : S_FALSE;
}

////////////////////////////////////
// Returns a class factory to create an object of the requested type

STDAPI DllGetClassObject(REFCLSID rclsid, REFIID riid, LPVOID* ppv)
{
    return _Module.GetClassObject(rclsid, riid, ppv);
}

```

```

////////////////////////////////////
// DllRegisterServer - Adds entries to the system registry
STDAPI DllRegisterServer(void)
{
    // registers object, typelib and all interfaces in typelib
    return _Module.RegisterServer(TRUE);
}

////////////////////////////////////
// DllUnregisterServer - Removes entries from the system registry
STDAPI DllUnregisterServer(void)
{
    _Module.UnregisterServer();
    return S_OK;
}

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

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

    _sprintf(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)
    vsprintf( szTmp+strlen(szTmp), " Error=%d",
m_SystemErr );

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

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

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

HRESULT CTPCC_Common::CallSetComplete()
{
    IObjectContext* pObjContext = NULL;

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

//
// called by the ctor activator
//
//
//
// 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));

        m_pTxn->NewOrder(); // do the
actual txn

        VariantInit(txn_out);
        txn_out->vt = VT_SAFEARRAY;
        txn_out->parray = SafeArrayCreateVector(VT_UI1,
txn_in.parray->rgsabound->cElements,
txn_in.parray->rgsabound->cElements);
        pData = (COM_DATA*) txn_out->parray->pvData;

        memcpy( &pData->u.NewOrder, pNewOrder,
sizeof(NEW_ORDER_DATA));

        pData->retval = ERR_SUCCESS;
    }
}

```

```

        pData->error = 0;
        return S_OK;
    }
    catch (CBaseErr *e)
    {
        // check for lost database connection; if yes, component is
toast
        if ( ((e->ErrorType() == ERR_TYPE_DBLIB) &&
(e->ErrorNum() == 10005)) ||
        ((e->ErrorType() == ERR_TYPE_ODBC)
&& (e->ErrorNum() == 10054)) )
            m_bCanBePooled = FALSE;

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

HRESULT CTPCC_Common::Payment(VARIANT txn_in, VARIANT*
txn_out)
{
    PPAYMENT_DATA pPayment;
    COM_DATA      *pData;
    try
    {
        pData = (COM_DATA*)txn_in.parray->pvData;
        pPayment = m_pTxn->BuffAddr_Payment();

        memcpy(pPayment, &pData->u.Payment,
sizeof(PAYMENT_DATA));

        m_pTxn->Payment();          // do the actual txn

        VariantInit(txn_out);
        txn_out->vt = VT_SAFEARRAY;
        txn_out->parray = SafeArrayCreateVector( VT_UI1,
txn_in.parray->rgsabound->cElements,
txn_in.parray->rgsabound->cElements);
        pData = (COM_DATA*) txn_out->parray->pvData;

        memcpy( &pData->u.Payment, pPayment,
sizeof(PAYMENT_DATA));

        pData->retval = ERR_SUCCESS;
        pData->error = 0;
        return S_OK;
    }
    catch (CBaseErr *e)
    {
        // check for lost database connection; if yes, component is
toast
        if ( ((e->ErrorType() == ERR_TYPE_DBLIB) &&
(e->ErrorNum() == 10005)) ||
        ((e->ErrorType() == ERR_TYPE_ODBC)
&& (e->ErrorNum() == 10054)) )
            m_bCanBePooled = FALSE;

        pData->retval = e->ErrorType();
        pData->error = e->ErrorNum();
        delete e;
        return E_FAIL;
    }
    catch (...)
    {
}
}

        m_bCanBePooled = FALSE;

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

HRESULT CTPCC_Common::StockLevel(VARIANT txn_in, VARIANT*
txn_out)
{
    PSTOCK_LEVEL_DATA    pStockLevel;
    COM_DATA              *pData;

    try
    {
        pData = (COM_DATA*)txn_in.parray->pvData;
        pStockLevel = m_pTxn->BuffAddr_StockLevel();

        memcpy(pStockLevel, &pData->u.StockLevel,
sizeof(STOCK_LEVEL_DATA));

        m_pTxn->StockLevel();

        VariantInit(txn_out);
        txn_out->vt = VT_SAFEARRAY;
        txn_out->parray = SafeArrayCreateVector( VT_UI1,
txn_in.parray->rgsabound->cElements,
txn_in.parray->rgsabound->cElements);
        pData = (COM_DATA*) txn_out->parray->pvData;

        memcpy( &pData->u.StockLevel, pStockLevel,
sizeof(STOCK_LEVEL_DATA));

        pData->retval = ERR_SUCCESS;
        pData->error = 0;
        return S_OK;
    }
    catch (CBaseErr *e)
    {
        // check for lost database connection; if yes, component is
toast
        if ( ((e->ErrorType() == ERR_TYPE_DBLIB) &&
(e->ErrorNum() == 10005)) ||
        ((e->ErrorType() == ERR_TYPE_ODBC)
&& (e->ErrorNum() == 10054)) )
            m_bCanBePooled = FALSE;

        pData->retval = e->ErrorType();
        pData->error = e->ErrorNum();
        delete e;
        return E_FAIL;
    }
    catch (...)
    {
}
}

```

```

        WriteMessageToEventLog(TEXT("Unhandled
exception.));
    pData->retval = ERR_TYPE_LOGIC;
    pData->error = 0;
    m_bCanBePooled = FALSE;
    return E_FAIL;
}
}
HRESULT CTPCC_Common::OrderStatus(VARIANT txn_in, VARIANT*
txn_out)
{
    PORDER_STATUS_DATA    pOrderStatus;
    COM_DATA                *pData;
    try
    {
        pData = (COM_DATA*)txn_in.parray->pvData;
        pOrderStatus = m_pTxn->BuffAddr_OrderStatus();

        memcpy(pOrderStatus, &pData->u.OrderStatus,
sizeof(ORDER_STATUS_DATA));

        m_pTxn->OrderStatus();

        VariantInit(txn_out);
        txn_out->vt = VT_SAFEARRAY;
        txn_out->parray = SafeArrayCreateVector( VT_UI1,

txn_in.parray->rgsabound->cElements,

txn_in.parray->rgsabound->cElements);
        pData = (COM_DATA*)txn_out->parray->pvData;

        memcpy(&pData->u.OrderStatus, pOrderStatus,
sizeof(ORDER_STATUS_DATA));

        pData->retval = ERR_SUCCESS;
        pData->error = 0;
        return S_OK;
    }
    catch (CBaseErr *e)
    {
        // check for lost database connection; if yes, component is
toast
        if ( ((e->ErrorType() == ERR_TYPE_DBLIB) &&
(e->ErrorNum() == 10005)) ||
                ((e->ErrorType() == ERR_TYPE_ODBC)
&& (e->ErrorNum() == 10054)) )
            m_bCanBePooled = FALSE;

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

```

Tpcc_com_all.def

```

; tpcc_com_all.def : Declares the module parameters.

LIBRARY    "tpcc_com_all.dll"

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

Tpcc_com_all.dsp

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

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

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

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

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

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

```

```

# ADD RSC /I 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbccp32.lib
odbccp32.lib /nologo /subsystem:windows /dll /machine:I386
# ADD LINK32 ..\db_dblib_dll\bin\tpcc_dblib.lib
..\db_odbc_dll\bin\tpcc_odbc.lib kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbccp32.lib
odbccp32.lib /nologo /subsystem:windows /dll /machine:I386

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

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

!ENDIF

# Begin Target

# Name "tpcc_com_all - Win32 Release"
# Name "tpcc_com_all - Win32 Debug"
# Begin Group "Source"

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

SOURCE=.\src\tpcc_com_all.cpp
# SUBTRACT CPP /YX
# End Source File
# Begin Source File

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

```

```

SOURCE=.\src\tpcc_com_all.idl

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

# PROP Ignore_Default_Tool 1
# Begin Custom Build - Performing MIDL step
InputPath=.\src\tpcc_com_all.idl

BuildCmds= \
        midl /Oicf /h "tpcc_com_all.h" /iid "tpcc_com_all_i.c"
"\src\tpcc_com_all.idl" /out ".\src"

"\src\tpcc_com_all.tlb" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)

"\src\tpcc_com_all.h" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)

"\src\tpcc_com_all_i.c" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)
# End Custom Build

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

# PROP Ignore_Default_Tool 1
# Begin Custom Build - Performing MIDL step
InputPath=.\src\tpcc_com_all.idl

BuildCmds= \
        midl /Oicf /h "tpcc_com_all.h" /iid "tpcc_com_all_i.c"
"\src\tpcc_com_all.idl" /out ".\src"

"\src\tpcc_com_all.tlb" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)

"\src\tpcc_com_all.h" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)

"\src\tpcc_com_all_i.c" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)
# End Custom Build

!ENDIF

# End Source File
# End Group
# Begin Group "Header"

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

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

SOURCE=.\src\resource.h
# End Source File
# End Group
# Begin Source File

SOURCE=.\src\tpcc_com_all.rc
# End Source File
# End Target
# End Project

```

Tpcc_com_all.h

```

#pragma warning( disable: 4049 ) /* more than 64k source lines */

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

/* File created by MIDL compiler version 5.03.0280 */
/* at Thu Dec 13 23:13:14 2001
*/
/* Compiler settings for \src\tpcc_com_all.idl:
Oicf (OptLev=i2), W1, Zp8, env=Win32 (32b run), ms_ext, c_ext
error checks: allocation ref bounds_check enum stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany), __declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@@MIDL_FILE_HEADING( )

/* verify that the <rpcndr.h> version is high enough to compile this file*/
#ifndef __REQUIRED_RPCNDR_H_VERSION__
#define __REQUIRED_RPCNDR_H_VERSION__ 440
#endif

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

#ifndef __tpcc_com_all_h__
#define __tpcc_com_all_h__

/* Forward Declarations */

#ifndef __TPCC_FWD_DEFINED__
#define __TPCC_FWD_DEFINED__

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

#endif /* __TPCC_FWD_DEFINED__ */

#ifndef __NewOrder_FWD_DEFINED__
#define __NewOrder_FWD_DEFINED__

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

#endif /* __NewOrder_FWD_DEFINED__ */

#ifndef __OrderStatus_FWD_DEFINED__
#define __OrderStatus_FWD_DEFINED__

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

#endif /* __OrderStatus_FWD_DEFINED__ */

#endif /* __tpcc_com_all_h__ */

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

#endif /* __Payment_FWD_DEFINED__ */

#ifndef __StockLevel_FWD_DEFINED__
#define __StockLevel_FWD_DEFINED__

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

#endif /* __StockLevel_FWD_DEFINED__ */

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

#ifdef __cplusplus
extern "C" {
#endif

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

/* interface __MIDL_itf_tpcc_com_all_0000 */
/* [local] */

extern RPC_IF_HANDLE __MIDL_itf_tpcc_com_all_0000_v0_0_c_ifspec;
extern RPC_IF_HANDLE __MIDL_itf_tpcc_com_all_0000_v0_0_s_ifspec;

#ifndef __TPCCLib_LIBRARY_DEFINED__
#define __TPCCLib_LIBRARY_DEFINED__

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

EXTERN_C const IID LIBID_TPCCLib;

EXTERN_C const CLSID CLSID_TPCC;

#ifdef __cplusplus
class DECLSPEC_UUID("122A3128-2520-11D3-BA71-00C04FBFE08B")
TPCC;
#endif

EXTERN_C const CLSID CLSID_NewOrder;

#ifdef __cplusplus
class DECLSPEC_UUID("975BAABF-84A7-11D2-BA47-00C04FBFE08B")
NewOrder;
#endif

```

```

EXTERN_C const CLSID CLSID_OrderStatus;

#ifdef __cplusplus

class DECLSPEC_UUID("266836AD-A50D-11D2-BA4E-00C04FBFE08B")
OrderStatus;
#endif

EXTERN_C const CLSID CLSID_Payment;

#ifdef __cplusplus

class DECLSPEC_UUID("CD02F7EF-A4FA-11D2-BA4E-00C04FBFE08B")
Payment;
#endif

EXTERN_C const CLSID CLSID_StockLevel;

#ifdef __cplusplus

class DECLSPEC_UUID("2668369E-A50D-11D2-BA4E-00C04FBFE08B")
StockLevel;
#endif
#endif /* __TPCCLib_LIBRARY_DEFINED__ */

/* Additional Prototypes for ALL interfaces */

/* end of Additional Prototypes */

#ifdef __cplusplus
}
#endif
#endif

```

Tpcc_com_all.idl

```

/*      FILE:          TPCC.IDL
*
*      Microsoft TPC-C Kit Ver.
4.20.000
*      Copyright Microsoft, 1999
*      All Rights Reserved
*
*      not yet audited
*
*      PURPOSE:       IDL source for TPCC.dll. This file is
processed by the MIDL tool to
*      produce the type library
(TPCC.tlb) and marshalling code.
*
*      Change history:
*      4.20.000 - first version
*/

interface TPCC;
interface NewOrder;
interface OrderStatus;
interface Payment;
interface StockLevel;

import "oaidl.idl";
import "ocidl.idl";
import "..\tpcc_com_ps\src\tpcc_com_ps.idl";

```

```
[
```

```

        uuid(122A3117-2520-11D3-BA71-00C04FBFE08B),
        version(1.0),
        helpstring("TPC-C 1.0 Type Library")
    ]
}
library TPCCLib
{
    importlib("stdole32.tlb");
    importlib("stdole2.tlb");

    [
        uuid(122A3128-2520-11D3-BA71-00C04FBFE08B),
        helpstring("All Txns Class")
    ]
    coclass TPCC
    {
        [default] interface ITPCC;
    };

    [
        uuid(975BAABF-84A7-11D2-BA47-00C04FBFE08B),
        helpstring("NewOrder Class")
    ]
    coclass NewOrder
    {
        [default] interface ITPCC;
    };

    [
        uuid(266836AD-A50D-11D2-BA4E-00C04FBFE08B),
        helpstring("OrderStatus Class")
    ]
    coclass OrderStatus
    {
        [default] interface ITPCC;
    };

    [
        uuid(CD02F7EF-A4FA-11D2-BA4E-00C04FBFE08B),
        helpstring("Payment Class")
    ]
    coclass Payment
    {
        [default] interface ITPCC;
    };

    [
        uuid(2668369E-A50D-11D2-BA4E-00C04FBFE08B),
        helpstring("StockLevel Class")
    ]
    coclass StockLevel
    {
        [default] interface ITPCC;
    };
};

```

Tpcc_com_all.rc

```

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

#define APSTUDIO_READONLY_SYMBOLS

```

```

////////////////////////////////////
//
// Generated from the TEXTINCLUDE 2 resource.
//
#include "winres.h"

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

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

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

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

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

2 TEXTINCLUDE DISCARDABLE
BEGIN
    "#include ""winres.h""\r\n"
    "\0"
END

3 TEXTINCLUDE DISCARDABLE
BEGIN
    "1 TYPELIB ""tpcc_com_all.tlb""\r\n"
    "\0"
END

#endif // APSTUDIO_INVOKED

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

VS_VERSION_INFO VERSIONINFO
FILEVERSION 1,0,0,1
PRODUCTVERSION 1,0,0,1
FILEFLAGSMASK 0x3fL
#ifdef _DEBUG
FILEFLAGS 0x1L
#else
FILEFLAGS 0x0L
#endif
FILEOS 0x4L
FILETYPE 0x2L
FILESUBTYPE 0x0L
BEGIN
    BLOCK "StringFileInfo"
    BEGIN
        BLOCK "040904B0"
        BEGIN
            VALUE "CompanyName", "\0"

```

```

            VALUE "FileDescription", "tpcc_com_all Module\0"
            VALUE "FileVersion", "1, 0, 0, 1\0"
            VALUE "InternalName", "TPCCNEWORDER\0"
            VALUE "LegalCopyright", "Copyright 1997\0"
            VALUE "OriginalFilename", "tpcc_com_all.DLL\0"
            VALUE "ProductName", "tpcc_com_all Module\0"
            VALUE "ProductVersion", "1, 0, 0, 1\0"
            VALUE "OLESelfRegister", "\0"
        END
    END
    BLOCK "VarFileInfo"
    BEGIN
        VALUE "Translation", 0x409, 1200
    END
END

#endif // !_MAC

////////////////////////////////////
//
// REGISTRY
//

IDR_TPCC            REGISTRY DISCARDABLE "tpcc_com_all.rgs"
IDR_NEWORDER        REGISTRY DISCARDABLE "tpcc_com_no.rgs"
IDR_ORDERSTATUS     REGISTRY DISCARDABLE
"tpcc_com_os.rgs"
IDR_PAYMENT         REGISTRY DISCARDABLE "tpcc_com_pay.rgs"
IDR_STOCKLEVEL      REGISTRY DISCARDABLE "tpcc_com_sl.rgs"

////////////////////////////////////
//
// String Table
//

STRINGTABLE DISCARDABLE
BEGIN
    IDS_PROJNAME     "tpcc_com_all"
END

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

#ifdef APSTUDIO_INVOKED
////////////////////////////////////
//
// Generated from the TEXTINCLUDE 3 resource.
//
1 TYPELIB "tpcc_com_all.tlb"

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

Tpcc_com_all.rgs

HKCR
{
    TPCC.AllTxns.1 = s 'All Txns Class'
    {
        CLSID = s
        '{122A3128-2520-11D3-BA71-00C04FBFE08B}'
    }
    TPCC.AllTxns = s 'TPCC Class'
    {
        CurVer = s 'TPCC.AllTxns.1'
    }
    NoRemove CLSID

```

```

    {
        ForceRemove
    {122A3128-2520-11D3-BA71-00C04BFE08B} = s 'TPCC Class'
    {
        ProgID = s 'TPCC.AllTxns.1'
        VersionIndependentProgID = s
'TPCC.AllTxns'
        InprocServer32 = s '%MODULE%'
        {
            val ThreadingModel = s 'Both'
        }
    }
}

```

Tpcc_com_all_i.c

```

#pragma warning( disable: 4049 ) /* more than 64k source lines */

/* this ALWAYS GENERATED file contains the IIDs and CLSIDs */

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

/* File created by MIDL compiler version 5.03.0280 */
/* at Thu Dec 13 23:13:14 2001
*/
/* Compiler settings for \src\tpcc_com_all.idl:
Oicf (OptLev=i2), W1, Zp8, env=Win32 (32b run), ms_ext, c_ext
error checks: allocation ref bounds_check enum stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany), __declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
@@@MIDL_FILE_HEADING( )

#if !defined(_M_IA64) && !defined(_M_AXP64)

#ifdef __cplusplus
extern "C" {
#endif

#include <rpc.h>
#include <rpcndr.h>

#ifdef _MIDL_USE_GUIDDEF_

#ifndef INITGUID
#define INITGUID
#include <guiddef.h>
#undef INITGUID
#else
#include <guiddef.h>
#endif

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
    DEFINE_GUID(name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8)

#else // !_MIDL_USE_GUIDDEF_

#ifndef __IID_DEFINED__
#define __IID_DEFINED__

typedef struct _IID
{
    unsigned long x;
    unsigned short s1;

```

```

    unsigned short s2;
    unsigned char c[8];
} IID;

#endif // __IID_DEFINED__

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

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
    const type name = {l,w1,w2,{b1,b2,b3,b4,b5,b6,b7,b8}}

#endif // !_MIDL_USE_GUIDDEF_

MIDL_DEFINE_GUID(IID,
LIBID_TPCCLib,0x122A3117,0x2520,0x11D3,0xBA,0x71,0x00,0xC0,0x4F,0
xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_TPCC,0x122A3128,0x2520,0x11D3,0xBA,0x71,0x00,0xC0,0x4F,0xB
F,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_NewOrder,0x975BAABF,0x84A7,0x11D2,0xBA,0x47,0x00,0xC0,0x4
F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_OrderStatus,0x266836AD,0xA50D,0x11D2,0xBA,0x4E,0x00,0xC0,0x
4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_Payment,0xCD02F7EF,0xA4FA,0x11D2,0xBA,0x4E,0x00,0xC0,0x4F
,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_StockLevel,0x2668369E,0xA50D,0x11D2,0xBA,0x4E,0x00,0xC0,0x4
F,0xBF,0xE0,0x8B);

#undef MIDL_DEFINE_GUID

#ifdef __cplusplus
}
#endif

#endif /* !defined(_M_IA64) && !defined(_M_AXP64)*/

#pragma warning( disable: 4049 ) /* more than 64k source lines */

/* this ALWAYS GENERATED file contains the IIDs and CLSIDs */

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

/* File created by MIDL compiler version 5.03.0280 */
/* at Thu Dec 13 23:13:14 2001
*/
/* Compiler settings for \src\tpcc_com_all.idl:
Oicf (OptLev=i2), W1, Zp8, env=Win64 (32b run,appending), ms_ext, c_ext,
robust
error checks: allocation ref bounds_check enum stub_data
VC __declspec() decoration level:

```

```

    __declspec(uuid()), __declspec(selectany), __declspec(novtable)
    DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@MIDL_FILE_HEADING( )

#if defined(_M_IA64) || defined(_M_AXP64)

#ifdef __cplusplus
extern "C" {
#endif

#include <rpc.h>
#include <rpcndr.h>

#ifdef _MIDL_USE_GUIDDEF_

#ifndef INITGUID
#define INITGUID
#include <guiddef.h>
#undef INITGUID
#else
#include <guiddef.h>
#endif

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
    DEFINE_GUID(name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8)

#else /* !_MIDL_USE_GUIDDEF_

#ifndef __IID_DEFINED__
#define __IID_DEFINED__

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

#endif /* __IID_DEFINED__

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

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
    const type name = {l,w1,w2,{b1,b2,b3,b4,b5,b6,b7,b8}}

#endif /* !_MIDL_USE_GUIDDEF_

MIDL_DEFINE_GUID(IID,
LIBID_TPCClib,0x122A3117,0x2520,0x11D3,0xBA,0x71,0x00,0xC0,0x4F,0
xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_TPCC,0x122A3128,0x2520,0x11D3,0xBA,0x71,0x00,0xC0,0x4F,0xB
F,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_NewOrder,0x975BAABF,0x84A7,0x11D2,0xBA,0x47,0x00,0xC0,0x4
F,0xBF,0xE0,0x8B);

```

```

MIDL_DEFINE_GUID(CLSID,
CLSID_OrderStatus,0x266836AD,0xA50D,0x11D2,0xBA,0x4E,0x00,0xC0,0x
4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_Payment,0xCD02F7EF,0xA4FA,0x11D2,0xBA,0x4E,0x00,0xC0,0x4F
,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_StockLevel,0x2668369E,0xA50D,0x11D2,0xBA,0x4E,0x00,0xC0,0x4
F,0xBF,0xE0,0x8B);

#undef MIDL_DEFINE_GUID

#ifdef __cplusplus
}
#endif

#endif /* defined(_M_IA64) || defined(_M_AXP64)*/

```

Tpcc_com_all_resource.h

```

//{{NO_DEPENDENCIES}}
// Microsoft Developer Studio generated include file.
// Used by tpcc_com_all.rc
//
#define IDS_PROJNAME            100
#define IDR_TPCC                101
#define IDR_NEWORDER            102
#define IDR_ORDERSTATUS        103
#define IDR_PAYMENT             104
#define IDR_STOCKLEVEL          105

// Next default values for new objects
//
#ifdef APSTUDIO_INVOKED
#ifdef APSTUDIO_READONLY_SYMBOLS
#define _APS_NEXT_RESOURCE_VALUE        202
#define _APS_NEXT_COMMAND_VALUE        32768
#define _APS_NEXT_CONTROL_VALUE        201
#define _APS_NEXT_SYMED_VALUE          106
#endif
#endif

```

Tpcc_com_no.rgs

```

HKCR
{
    TPCC.NewOrder.1 = s 'NewOrder Class'
    {
        CLSID = s
        '{975BAABF-84A7-11D2-BA47-00C04FBFE08B}'
    }
    TPCC.NewOrder = s 'NewOrder Class'
    {
        CurVer = s 'TPCC.NewOrder.1'
    }
    NoRemove CLSID
    {
        ForceRemove
        '{975BAABF-84A7-11D2-BA47-00C04FBFE08B}' = s 'NewOrder Class'
    }
    ProgID = s 'TPCC.NewOrder.1'
}

```

```

        VersionIndependentProgID = s
'TPCC.NewOrder'
        InprocServer32 = s '%MODULE%'
        {
            val ThreadingModel = s 'Both'
        }
    }
}

```

TPCC_com_os.rgs

```

HKCR
{
    TPCC.OrderStatus.1 = s 'OrderStatus Class'
    {
        CLSID = s
        '{266836AD-A50D-11D2-BA4E-00C04FBFE08B}'
    }
    TPCC.OrderStatus = s 'OrderStatus Class'
    {
        CurVer = s 'TPCC.OrderStatus.1'
    }
    NoRemove CLSID
    {
        ForceRemove
        {266836AD-A50D-11D2-BA4E-00C04FBFE08B} = s 'OrderStatus Class'
        {
            ProgID = s 'TPCC.OrderStatus.1'
            VersionIndependentProgID = s
'TPCC.OrderStatus'
            InprocServer32 = s '%MODULE%'
            {
                val ThreadingModel = s 'Both'
            }
        }
    }
}

```

TPCC_com_pay.rgs

```

HKCR
{
    TPCC.Payment.1 = s 'Payment Class'
    {
        CLSID = s
        '{CD02F7EF-A4FA-11D2-BA4E-00C04FBFE08B}'
    }
    TPCC.Payment = s 'Payment Class'
    {
        CurVer = s 'TPCC.Payment.1'
    }
    NoRemove CLSID
    {
        ForceRemove
        {CD02F7EF-A4FA-11D2-BA4E-00C04FBFE08B} = s 'Payment Class'
        {
            ProgID = s 'TPCC.Payment.1'
            VersionIndependentProgID = s
'TPCC.Payment'
            InprocServer32 = s '%MODULE%'
            {
                val ThreadingModel = s 'Both'
            }
        }
    }
}

```

TPCC_com_ps.def

```

LIBRARY "tpcc_com_ps"

DESCRIPTION 'Proxy/Stub DLL'

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

```

TPCC_com_ps.dsp

```

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

# TARGETTYPE "Win32 (x86) Application" 0x0101

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

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

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "Release"
# PROP BASE Intermediate_Dir "Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""

```

```

# ADD BASE CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D
" _WINDOWS" /YX /FD /c
# ADD CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D
_WIN32_WINNT=0x0400 /D "REGISTER_PROXY_DLL" /FD /c
# SUBTRACT CPP /YX
# ADD BASE MTL /nologo /D "NDEBUG" /mktyplib203 /o "NUL" /win32
# ADD MTL /nologo /D "NDEBUG" /mktyplib203 /o "NUL" /win32
# ADD BASE RSC /I 0x409 /d "NDEBUG"
# ADD RSC /I 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbccp32.lib /nologo /subsystem:windows /machine:I386
# ADD LINK32 kernel32.lib rpcndr.lib rpcns4.lib rpert4.lib oleaut32.lib
uuid.lib /nologo /entry:"DllMain" /subsystem:windows /dll /pdb:none
/machine:I386 /def:"\src\tpcc_com_ps.def"
# Begin Custom Build - Copying tpcc_com_ps.h
InputPath=\bin\tpcc_com_ps.dll
SOURCE="$(InputPath)"

..\tpcc_com_all\src\tpcc_com_ps.h" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
copy ..\src\tpcc_com_ps.h ..\tpcc_com_all\src\

# End Custom Build

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "Debug"
# PROP BASE Intermediate_Dir "Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32" /D " _DEBUG"
/D " _WINDOWS" /YX /FD /c
# ADD CPP /nologo /ZI /Od /D "WIN32" /D " _DEBUG" /D
_WIN32_WINNT=0x0400 /D "REGISTER_PROXY_DLL" /FD /c
# ADD BASE MTL /nologo /D " _DEBUG" /mktyplib203 /o "NUL" /win32
# ADD MTL /nologo /D " _DEBUG" /mktyplib203 /o "NUL" /win32
# ADD BASE RSC /I 0x409 /d " _DEBUG"
# ADD RSC /I 0x409 /d " _DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbccp32.lib /nologo /subsystem:windows /debug /machine:I386 /pdbtype:sept
# ADD LINK32 kernel32.lib rpcndr.lib rpcns4.lib rpert4.lib oleaut32.lib
uuid.lib /nologo /entry:"DllMain" /dll /debug /machine:IX86
/def:"\src\tpcc_com_ps.def" /pdbtype:sept
# SUBTRACT LINK32 /pdb:none
# Begin Custom Build - Copying tpcc_com_ps.h
InputPath=\bin\tpcc_com_ps.dll
SOURCE="$(InputPath)"

..\tpcc_com_all\src\tpcc_com_ps.h" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
copy ..\src\tpcc_com_ps.h ..\tpcc_com_all\src\

# End Custom Build

```

```

!ENDIF
# Begin Target
# Name "tpcc_com_ps - Win32 Release"
# Name "tpcc_com_ps - Win32 Debug"
# Begin Group "Source"
# PROP Default_Filter ""
# Begin Source File
SOURCE=\src\dll\data.c
# End Source File
# Begin Source File
SOURCE=\src\tpcc_com_ps.def
# PROP Exclude_From_Build 1
# End Source File
# Begin Source File
SOURCE=\src\tpcc_com_ps.idl
!IF "$(CFG)" == "tpcc_com_ps - Win32 Release"
# PROP Ignore_Default_Tool 1
# Begin Custom Build
InputPath=\src\tpcc_com_ps.idl
BuildCmds= \
midl /Oicf /h "tpcc_com_ps.h" /iid "tpcc_com_ps_i.c"
"\src\tpcc_com_ps.idl" /out ".\src"
"\src\tpcc_com_ps.h" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)
"\src\tpcc_com_ps_i.c" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)
"\src\dll\data.c" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)
"\src\tpcc_com_ps.p.c" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)
# End Custom Build
!ELSEIF "$(CFG)" == "tpcc_com_ps - Win32 Debug"
# PROP Ignore_Default_Tool 1
# Begin Custom Build
InputPath=\src\tpcc_com_ps.idl
BuildCmds= \
midl /Oicf /h "tpcc_com_ps.h" /iid "tpcc_com_ps_i.c"
"\src\tpcc_com_ps.idl" /out ".\src"
"\src\tpcc_com_ps.h" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)
"\src\tpcc_com_ps_i.c" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)
"\src\dll\data.c" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)
"\src\tpcc_com_ps.p.c" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)
# End Custom Build

```

```
!ENDIF
```

```
# End Source File  
# Begin Source File
```

```
SOURCE=.\src\tpcc_com_ps_i.c  
# End Source File  
# Begin Source File
```

```
SOURCE=.\src\tpcc_com_ps_p.c  
# End Source File  
# End Group  
# End Target  
# End Project
```

Tpcc_com_ps.h

```
#pragma warning( disable: 4049 ) /* more than 64k source lines */
```

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

```
/* File created by MIDL compiler version 5.03.0280 */  
/* at Thu Dec 13 23:13:08 2001  
*/
```

```
/* Compiler settings for \src\tpcc_com_ps.idl:  
Oicf (OptLev=i2), W1, Zp8, env=Win32 (32b run), ms_ext, c_ext  
error checks: allocation ref bounds_check enum stub_data  
VC __declspec() decoration level:  
__declspec(uuid()), __declspec(selectany), __declspec(novtable)  
DECLSPEC_UUID(), MIDL_INTERFACE()  
*/
```

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

```
/* verify that the <rpcndr.h> version is high enough to compile this file*/  
#ifndef __REQUIRED_RPCNDR_H_VERSION__  
#define __REQUIRED_RPCNDR_H_VERSION__ 440  
#endif
```

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

```
#ifndef __RPCNDR_H_VERSION__  
#error this stub requires an updated version of <rpcndr.h>  
#endif // __RPCNDR_H_VERSION__
```

```
#ifndef COM_NO_WINDOWS_H  
#include "windows.h"  
#include "ole2.h"  
#endif /*COM_NO_WINDOWS_H*/
```

```
#ifndef __tpcc_com_ps_h__  
#define __tpcc_com_ps_h__
```

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

```
#ifndef __ITPCC_FWD_DEFINED__  
#define __ITPCC_FWD_DEFINED__  
typedef interface ITPCC ITPCC;  
#endif /* __ITPCC_FWD_DEFINED__ */
```

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

```
#ifndef __cplusplus  
extern "C"{  
#endif
```

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

```
/* interface __MIDL_itf_tpcc_com_ps_0000 */  
/* [local] */
```

```
extern RPC_IF_HANDLE __MIDL_itf_tpcc_com_ps_0000_v0_0_c_ifspec;  
extern RPC_IF_HANDLE __MIDL_itf_tpcc_com_ps_0000_v0_0_s_ifspec;
```

```
#ifndef __ITPCC_INTERFACE_DEFINED__  
#define __ITPCC_INTERFACE_DEFINED__
```

```
/* interface ITPCC */  
/* [unique][helpstring][uuid][oleautomation][object] */
```

```
EXTERN_C const IID IID_ITPCC;
```

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

```
MIDL_INTERFACE("FEEE6AA2-84B1-11d2-BA47-00C04FBFE08B")  
ITPCC : public IUnknown
```

```
{  
public:  
virtual HRESULT STDMETHODCALLTYPE NewOrder(  
/* [in] */ VARIANT txn_in,  
/* [out] */ VARIANT __RPC_FAR *txn_out) = 0;
```

```
virtual HRESULT STDMETHODCALLTYPE Payment(  
/* [in] */ VARIANT txn_in,  
/* [out] */ VARIANT __RPC_FAR *txn_out) = 0;
```

```
virtual HRESULT STDMETHODCALLTYPE Delivery(  
/* [in] */ VARIANT txn_in,  
/* [out] */ VARIANT __RPC_FAR *txn_out) = 0;
```

```
virtual HRESULT STDMETHODCALLTYPE StockLevel(  
/* [in] */ VARIANT txn_in,  
/* [out] */ VARIANT __RPC_FAR *txn_out) = 0;
```

```
virtual HRESULT STDMETHODCALLTYPE OrderStatus(  
/* [in] */ VARIANT txn_in,  
/* [out] */ VARIANT __RPC_FAR *txn_out) = 0;
```

```
virtual HRESULT STDMETHODCALLTYPE 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,
    /* [out] */ VARIANT __RPC_FAR *txn_out);

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

#define ITPCC_StockLevel(This,txn_in,txn_out) \
    (This)->lpVtbl->StockLevel(This,txn_in,txn_out)

#define ITPCC_OrderStatus(This,txn_in,txn_out) \
    (This)->lpVtbl->OrderStatus(This,txn_in,txn_out)

#define ITPCC_CallSetComplete(This) \

```

```

    (This)->lpVtbl->CallSetComplete(This)

#endif /* COBJMACROS */

#endif /* C style interface */

HRESULT 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,
    /* [out] */ VARIANT __RPC_FAR *txn_out);

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

void __RPC_STUB ITPCC_OrderStatus_Stub(
    IRpcStubBuffer *This,
    IRpcChannelBuffer *pRpcChannelBuffer,

```

```

PRPC_MESSAGE_pRpcMessage,
DWORD *_pdwStubPhase);

HRESULT __stdcall ITPCC_CallSetComplete_Proxy(
    ITPCC __RPC_FAR * This);

void __RPC_STUB ITPCC_CallSetComplete_Stub(
    IRpcStubBuffer *This,
    IRpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE_pRpcMessage,
    DWORD *_pdwStubPhase);

#endif /* __ITPCC_INTERFACE_DEFINED__ */

/* Additional Prototypes for ALL interfaces */

unsigned long __RPC_USER VARIANT_UserSize( unsigned long
__RPC_FAR *, unsigned long , VARIANT __RPC_FAR * );
unsigned char __RPC_FAR * __RPC_USER VARIANT_UserMarshal(
unsigned long __RPC_FAR *, unsigned char __RPC_FAR *, VARIANT
__RPC_FAR * );
unsigned char __RPC_FAR * __RPC_USER
VARIANT_UserUnmarshal(unsigned long __RPC_FAR *, unsigned char
__RPC_FAR *, VARIANT __RPC_FAR * );
void __RPC_USER VARIANT_UserFree( unsigned long
__RPC_FAR *, VARIANT __RPC_FAR * );

/* end of Additional Prototypes */

#ifdef __cplusplus
}
#endif

#endif

Tpcc_com_ps.idl

/* FILE: ITPCC.IDL
* Microsoft TPC-C Kit Ver.
4.20.000
* Copyright Microsoft, 1999
* All Rights Reserved
* not yet audited
*
* PURPOSE: Defines the interface used by TPCC. This
interface can be implemented by C++ components.
*
* Change history:
* 4.20.000 - first version
*/

// Forward declare all types defined
interface ITPCC;
import "oaidl.idl";
import "ocidl.idl";

[
    object,
    oleautomation,
    uuid(FEEE6AA2-84B1-11d2-BA47-00C04FBFE08B),
    helpstring("ITPCC Interface"),
    pointer_default(unique)
]
interface ITPCC : IUnknown

```

```

{
    HRESULT __stdcall NewOrder
    (
        [in]
        VARIANT txn_in,
        [out]
        VARIANT *txn_out
    );

    HRESULT __stdcall Payment
    (
        [in]
        VARIANT txn_in,
        [out]
        VARIANT *txn_out
    );

    HRESULT __stdcall Delivery
    (
        [in]
        VARIANT txn_in,
        [out]
        VARIANT *txn_out
    );

    HRESULT __stdcall StockLevel
    (
        [in]
        VARIANT txn_in,
        [out]
        VARIANT *txn_out
    );

    HRESULT __stdcall OrderStatus
    (
        [in]
        VARIANT txn_in,
        [out]
        VARIANT *txn_out
    );

    HRESULT __stdcall CallSetComplete
    (
        );
}; // interface ITPCC

Tpcc_com_ps.i.c

#pragma warning( disable: 4049 ) /* more than 64k source lines */

/* this ALWAYS GENERATED file contains the IIDs and CLSIDs */

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

/* File created by MIDL compiler version 5.03.0280 */
/* at Thu Dec 13 23:13:08 2001
*/
/* Compiler settings for .\src\tpcc_com_ps.idl:
Oicf (OptLev=i2), W1, Zp8, env=Win32 (32b run), ms_ext, c_ext
error checks: allocation ref bounds_check enum stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany), __declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/

```

```

@@@MIDL_FILE_HEADING( )

#if !defined(_M_IA64) && !defined(_M_AXP64)

#ifdef __cplusplus
extern "C"{
#endif

#include <rpc.h>
#include <rpcndr.h>

#ifdef _MIDL_USE_GUIDDEF_

#ifndef INITGUID
#define INITGUID
#include <guiddef.h>
#undef INITGUID
#else
#include <guiddef.h>
#endif

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
    DEFINE_GUID(name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8)

#else // !_MIDL_USE_GUIDDEF_

#ifndef __IID_DEFINED__
#define __IID_DEFINED__

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

#endif // __IID_DEFINED__

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

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
    const type name = {l,w1,w2,{b1,b2,b3,b4,b5,b6,b7,b8}}

#endif !_MIDL_USE_GUIDDEF_

MIDL_DEFINE_GUID(IID,
IID_ITPCC,0xFEEE6AA2,0x84B1,0x11d2,0xBA,0x47,0x00,0xC0,0x4F,0xBF,
0xE0,0x8B);

#undef MIDL_DEFINE_GUID

#ifdef __cplusplus
}
#endif

#endif /* !defined(_M_IA64) && !defined(_M_AXP64)*/

#pragma warning( disable: 4049 ) /* more than 64k source lines */

/* this ALWAYS GENERATED file contains the IIDs and CLSIDs */

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

/* File created by MIDL compiler version 5.03.0280 */
/* at Thu Dec 13 23:13:08 2001
*/
/* Compiler settings for .\src\tpcc_com_ps.idl:
Oicf (OptLev=i2), W1, Zp8, env=Win64 (32b run,appending), ms_ext, c_ext,
robust
error checks: allocation ref bounds_check enum stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany), __declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
@@@MIDL_FILE_HEADING( )

#if defined(_M_IA64) || defined(_M_AXP64)

#ifdef __cplusplus
extern "C"{
#endif

#include <rpc.h>
#include <rpcndr.h>

#ifdef _MIDL_USE_GUIDDEF_

#ifndef INITGUID
#define INITGUID
#include <guiddef.h>
#undef INITGUID
#else
#include <guiddef.h>
#endif

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
    DEFINE_GUID(name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8)

#else // !_MIDL_USE_GUIDDEF_

#ifndef __IID_DEFINED__
#define __IID_DEFINED__

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

#endif // __IID_DEFINED__

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

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
    const type name = {l,w1,w2,{b1,b2,b3,b4,b5,b6,b7,b8}}

#endif !_MIDL_USE_GUIDDEF_

MIDL_DEFINE_GUID(IID,
IID_ITPCC,0xFEEE6AA2,0x84B1,0x11d2,0xBA,0x47,0x00,0xC0,0x4F,0xBF,
0xE0,0x8B);

#undef MIDL_DEFINE_GUID

```

```

#ifdef __cplusplus
}
#endif

#ifdef defined(_M_IA64) || defined(_M_AXP64)*/

Tpcc_com_ps_p.c

#pragma warning( disable: 4049 ) /* more than 64k source lines */

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

/* File created by MIDL compiler version 5.03.0280 */
/* at Thu Dec 13 23:13:08 2001
*/
/* Compiler settings for \src\tpcc_com_ps.idl:
Oicf (OptLev=i2), W1, Zp8, env=Win32 (32b run), ms_ext, c_ext
error checks: allocation ref bounds_check enum stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany), __declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@@MIDL_FILE_HEADING( )

#ifdef !defined(_M_IA64) && !defined(_M_AXP64)
#define USE_STUBLESS_PROXY

/* verify that the <rpcproxy.h> version is high enough to compile this file*/
#ifdef __REDQ_RPCPROXY_H_VERSION__
#define __REQUIRED_RPCPROXY_H_VERSION__ 440
#endif

#include "rpcproxy.h"
#ifdef __RPCPROXY_H_VERSION__
#error this stub requires an updated version of <rpcproxy.h>
#endif // __RPCPROXY_H_VERSION__

#include "tpcc_com_ps.h"

#define TYPE_FORMAT_STRING_SIZE 997
#define PROC_FORMAT_STRING_SIZE 193
#define TRANSMIT_AS_TABLE_SIZE 0
#define WIRE_MARSHAL_TABLE_SIZE 1

typedef struct _MIDL_TYPE_FORMAT_STRING
{
short Pad;
unsigned char Format[ TYPE_FORMAT_STRING_SIZE ];
} MIDL_TYPE_FORMAT_STRING;

typedef struct _MIDL_PROC_FORMAT_STRING
{
short Pad;
unsigned char Format[ PROC_FORMAT_STRING_SIZE ];
} MIDL_PROC_FORMAT_STRING;

extern const MIDL_TYPE_FORMAT_STRING __MIDL_TypeFormatString;
extern const MIDL_PROC_FORMAT_STRING __MIDL_ProcFormatString;

/* Standard interface: __MIDL_itf_tpcc_com_ps_0000, ver. 0.0,

```

```

GUID={0x00000000,0x0000,0x0000,{0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00}} */

/* Object interface: IUnknown, ver. 0.0,

GUID={0x00000000,0x0000,0x0000,{0xC0,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x46}} */

/* Object interface: ITPCC, ver. 0.0,

GUID={0xFEE6AA2,0x84B1,0x11d2,{0xBA,0x47,0x00,0xC0,0x4F,0xBF,0xE0,0x8B}} */

extern const MIDL_STUB_DESC Object_StubDesc;

extern const MIDL_SERVER_INFO ITPCC_ServerInfo;

#pragma code_seg(".orpc")
static const unsigned short ITPCC_FormatStringOffsetTable[] =
{
0,
34,
68,
102,
136,
170
};

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

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

CINTERFACE_PROXY_VTABLE(9) _ITPCCProxyVtbl =
{
&ITPCC_ProxyInfo,
&IID_ITPCC,
IUnknown_QueryInterface_Proxy,
IUnknown_AddRef_Proxy,
IUnknown_Release_Proxy ,
(void *)-1 /* ITPCC::NewOrder */,
(void *)-1 /* ITPCC::Payment */,
(void *)-1 /* ITPCC::Delivery */,
(void *)-1 /* ITPCC::StockLevel */,
(void *)-1 /* ITPCC::OrderStatus */,
(void *)-1 /* ITPCC::CallSetComplete */

```

```

};

const CInterfaceStubVtbl _ITPCCStubVtbl =
{
    &IID_ITPCC,
    &ITPCC_ServerInfo,
    9,
    0, /* pure interpreted */
    CStdStubBuffer_METHODS
};

extern const USER_MARSHAL_ROUTINE_QUADRUPLE
UserMarshalRoutines[ WIRE_MARSHAL_TABLE_SIZE ];

static const MIDL_STUB_DESC Object_StubDesc =
{
    0,
    NdrOleAllocate,
    NdrOleFree,
    0,
    0,
    0,
    0,
    0,
    0,
    _MIDL_TypeFormatString.Format,
    1, /* -error bounds_check flag */
    0x20000, /* Ndr library version */
    0,
    0x5030118, /* MIDL Version 5.3.280 */
    0,
    UserMarshalRoutines,
    0, /* notify & notify_flag routine table */
    0x1, /* MIDL flag */
    0, /* Reserved3 */
    0, /* Reserved4 */
    0 /* Reserved5 */
};

#pragma data_seg("rdata")

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

#if !defined(__RPC_WIN32__)
#error Invalid build platform for this stub.
#endif

#if !(TARGET_IS_NT40_OR_LATER)
#error You need a Windows NT 4.0 or later to run this stub because it uses
these features:
#error -Oif or -Oicf, [wire_marshal] or [user_marshal] attribute.
#error However, your C/C++ compilation flags indicate you intend to run this
app on earlier systems.
#error This app will die there with the RPC_X_WRONG_STUB_VERSION
error.
#endif

```

```

static const MIDL_PROC_FORMAT_STRING __MIDL_ProcFormatString =
{
    0,
    {
        /* Procedure NewOrder */

        FC_AUTO_HANDLE /*/
        0x33, /*/
        /* Old Flags: object,
        OI2 */
        /* 2 */ NdrFcLong( 0x0 ), /* 0 */
        /* 6 */ NdrFcShort( 0x3 ), /* 3 */
#ifdef _ALPHA_
#ifdef _PPC_
#if !defined(_MIPS_)
/* 8 */ NdrFcShort( 0x1c ), /* x86 Stack size/offset = 28 */
#else
NdrFcShort( 0x20 ), /* MIPS Stack
size/offset = 32 */
#endif
#endif
#else
NdrFcShort( 0x20 ), /* PPC Stack size/offset
= 32 */
#endif
#else
NdrFcShort( 0x28 ), /* Alpha Stack
size/offset = 40 */
#endif
/* 10 */ NdrFcShort( 0x0 ), /* 0 */
/* 12 */ NdrFcShort( 0x8 ), /* 8 */
/* 14 */ 0x7, /* OI2 Flags: srv must size, clt must size, has
return, */
0x3, /* 3 */

/* Parameter txn_in */
/* 16 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */
#ifdef _ALPHA_
#ifdef _PPC_
#if !defined(_MIPS_)
/* 18 */ NdrFcShort( 0x4 ), /* x86 Stack size/offset = 4 */
#else
NdrFcShort( 0x8 ), /* MIPS Stack
size/offset = 8 */
#endif
#else
NdrFcShort( 0x8 ), /* PPC Stack size/offset
= 8 */
#endif
#else
NdrFcShort( 0x8 ), /* Alpha Stack
size/offset = 8 */
#endif
#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_
#ifdef _PPC_
#if !defined(_MIPS_)
/* 24 */ NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */
#else
NdrFcShort( 0x18 ), /* MIPS Stack
size/offset = 24 */

```

```

#endif
#else
= 24 */
#endif
#else
size/offset = 24 */
#endif
/* 26 */ NdrFcShort( 0x3da ), /* Type Offset=986 */

/* Return value */

/* 28 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifndef _ALPHA_
#ifndef _PPC_
#if !defined(_MIPS_)
/* 30 */ NdrFcShort( 0x18 ), /* x86 Stack size/offset = 24 */
#else
size/offset = 28 */
#endif
#else
= 28 */
#endif
#else
NdrFcShort( 0x1c ), /* MIPS Stack

size/offset = 28 */
#endif
#else
NdrFcShort( 0x1c ), /* PPC Stack size/offset

= 28 */
#endif
#else
NdrFcShort( 0x20 ), /* Alpha Stack

size/offset = 32 */
#endif
/* 32 */ 0x8, /* FC_LONG */
0x0, /* 0 */

/* Procedure Payment */

/* 34 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /* Old Flags: object,

Oi2 */
/* 36 */ NdrFcLong( 0x0 ), /* 0 */
/* 40 */ NdrFcShort( 0x4 ), /* 4 */
#ifndef _ALPHA_
#ifndef _PPC_
#if !defined(_MIPS_)
/* 42 */ NdrFcShort( 0x1c ), /* x86 Stack size/offset = 28 */
#else
NdrFcShort( 0x20 ), /* MIPS Stack

size/offset = 32 */
#endif
#else
NdrFcShort( 0x20 ), /* PPC Stack size/offset

= 32 */
#endif
#else
NdrFcShort( 0x28 ), /* Alpha Stack

size/offset = 40 */
#endif
/* 44 */ NdrFcShort( 0x0 ), /* 0 */
/* 46 */ NdrFcShort( 0x8 ), /* 8 */
/* 48 */ 0x7, /* Oi2 Flags: srv must size, clt must size, has
return, */
0x3, /* 3 */

/* Parameter txn_in */

/* 50 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */
#ifndef _ALPHA_
#ifndef _PPC_
#if !defined(_MIPS_)
/* 52 */ NdrFcShort( 0x4 ), /* x86 Stack size/offset = 4 */
#else
NdrFcShort( 0x8 ), /* MIPS Stack

size/offset = 8 */
#endif
#else
= 8 */
#endif
#else
NdrFcShort( 0x8 ), /* PPC Stack size/offset

= 8 */
#endif
#else
NdrFcShort( 0x8 ), /* Alpha Stack

size/offset = 8 */
#endif
/* 54 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */

/* Parameter txn_out */

/* 56 */ NdrFcShort( 0x4113 ), /* Flags: must size, must free, out,
simple ref, srv alloc size=16 */
#ifndef _ALPHA_
#ifndef _PPC_
#if !defined(_MIPS_)
/* 58 */ NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */
#else
NdrFcShort( 0x18 ), /* MIPS Stack

size/offset = 24 */
#endif
#else
= 24 */
#endif
#else
NdrFcShort( 0x18 ), /* PPC Stack size/offset

= 24 */
#endif
#else
NdrFcShort( 0x18 ), /* Alpha Stack

size/offset = 24 */
#endif
/* 60 */ NdrFcShort( 0x3da ), /* Type Offset=986 */

/* Return value */

/* 62 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifndef _ALPHA_
#ifndef _PPC_
#if !defined(_MIPS_)
/* 64 */ NdrFcShort( 0x18 ), /* x86 Stack size/offset = 24 */
#else
NdrFcShort( 0x1c ), /* MIPS Stack

size/offset = 28 */
#endif
#else
NdrFcShort( 0x1c ), /* PPC Stack size/offset

= 28 */
#endif
#else
NdrFcShort( 0x20 ), /* Alpha Stack

size/offset = 32 */
#endif
/* 66 */ 0x8, /* FC_LONG */
0x0, /* 0 */

/* Procedure Delivery */

/* 68 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /* Old Flags: object,

Oi2 */
/* 70 */ NdrFcLong( 0x0 ), /* 0 */
/* 74 */ NdrFcShort( 0x5 ), /* 5 */
#ifndef _ALPHA_
#ifndef _PPC_

```

```

#if !defined(_MIPS_)
/* 76 */ NdrFcShort( 0x1c ), /* x86 Stack size/offset = 28 */
#else
NdrFcShort( 0x20 ), /* MIPS Stack
size/offset = 32 */
#endif
#else
NdrFcShort( 0x20 ), /* PPC Stack size/offset
= 32 */
#endif
#else
NdrFcShort( 0x28 ), /* Alpha Stack
size/offset = 40 */
#endif
/* 78 */ NdrFcShort( 0x0 ), /* 0 */
/* 80 */ NdrFcShort( 0x8 ), /* 8 */
/* 82 */ 0x7, /* Oi2 Flags: srv must size, clt must size, has
return, */
0x3, /* 3 */
/* Parameter txn_in */
/* 84 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */
#ifndef _ALPHA_
#ifndef _PPC_
#if !defined(_MIPS_)
/* 86 */ NdrFcShort( 0x4 ), /* x86 Stack size/offset = 4 */
#else
NdrFcShort( 0x8 ), /* MIPS Stack
size/offset = 8 */
#endif
#else
NdrFcShort( 0x8 ), /* PPC Stack size/offset
= 8 */
#endif
#else
NdrFcShort( 0x8 ), /* Alpha Stack
size/offset = 8 */
#endif
/* 88 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */
/* Parameter txn_out */
/* 90 */ NdrFcShort( 0x4113 ), /* Flags: must size, must free, out,
simple ref, srv alloc size=16 */
#ifndef _ALPHA_
#ifndef _PPC_
#if !defined(_MIPS_)
/* 92 */ NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */
#else
NdrFcShort( 0x18 ), /* MIPS Stack
size/offset = 24 */
#endif
#else
NdrFcShort( 0x18 ), /* PPC Stack size/offset
= 24 */
#endif
#else
NdrFcShort( 0x18 ), /* Alpha Stack
size/offset = 24 */
#endif
/* 94 */ NdrFcShort( 0x3da ), /* Type Offset=986 */
/* Return value */
/* 96 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifndef _ALPHA_
#ifndef _PPC_

```

```

#if !defined(_MIPS_)
/* 98 */ NdrFcShort( 0x18 ), /* x86 Stack size/offset = 24 */
#else
NdrFcShort( 0x1c ), /* MIPS Stack
size/offset = 28 */
#endif
#else
NdrFcShort( 0x1c ), /* PPC Stack size/offset
= 28 */
#endif
#else
NdrFcShort( 0x20 ), /* Alpha Stack
size/offset = 32 */
#endif
/* 100 */ 0x8, /* FC_LONG */
0x0, /* 0 */
/* Procedure StockLevel */
/* 102 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /* Old Flags: object,
Oi2 */
/* 104 */ NdrFcLong( 0x0 ), /* 0 */
/* 108 */ NdrFcShort( 0x6 ), /* 6 */
#ifndef _ALPHA_
#ifndef _PPC_
#if !defined(_MIPS_)
/* 110 */ NdrFcShort( 0x1c ), /* x86 Stack size/offset = 28 */
#else
NdrFcShort( 0x20 ), /* MIPS Stack
size/offset = 32 */
#endif
#else
NdrFcShort( 0x20 ), /* PPC Stack size/offset
= 32 */
#endif
#else
NdrFcShort( 0x28 ), /* Alpha Stack
size/offset = 40 */
#endif
/* 112 */ NdrFcShort( 0x0 ), /* 0 */
/* 114 */ NdrFcShort( 0x8 ), /* 8 */
/* 116 */ 0x7, /* Oi2 Flags: srv must size, clt must size, has
return, */
0x3, /* 3 */
/* Parameter txn_in */
/* 118 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */
#ifndef _ALPHA_
#ifndef _PPC_
#if !defined(_MIPS_)
/* 120 */ NdrFcShort( 0x4 ), /* x86 Stack size/offset = 4 */
#else
NdrFcShort( 0x8 ), /* MIPS Stack
size/offset = 8 */
#endif
#else
NdrFcShort( 0x8 ), /* PPC Stack size/offset
= 8 */
#endif
#else
NdrFcShort( 0x8 ), /* Alpha Stack
size/offset = 8 */
#endif
/* 122 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */
/* Parameter txn_out */

```

```

/* 124 */ NdrFcShort( 0x4113 ), /* Flags: must size, must free, out,
simple ref, srv alloc size=16 */
#ifdef _ALPHA_
#ifdef _PPC_
#if !defined( _MIPS_ )
/* 126 */ NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */
#else
NdrFcShort( 0x18 ), /* MIPS Stack
size/offset = 24 */
#endif
#else
NdrFcShort( 0x18 ), /* PPC Stack size/offset
= 24 */
#endif
#else
NdrFcShort( 0x18 ), /* Alpha Stack
size/offset = 24 */
#endif
/* 128 */ NdrFcShort( 0x3da ), /* Type Offset=986 */

/* Return value */

/* 130 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifdef _ALPHA_
#ifdef _PPC_
#if !defined( _MIPS_ )
/* 132 */ NdrFcShort( 0x18 ), /* x86 Stack size/offset = 24 */
#else
NdrFcShort( 0x1c ), /* MIPS Stack
size/offset = 28 */
#endif
#else
NdrFcShort( 0x1c ), /* PPC Stack size/offset
= 28 */
#endif
#else
NdrFcShort( 0x20 ), /* Alpha Stack
size/offset = 32 */
#endif
/* 134 */ 0x8, /* FC_LONG */
0x0, /* 0 */

/* Procedure OrderStatus */

/* 136 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /* Old Flags: object,
Oi2 */
/* 138 */ NdrFcLong( 0x0 ), /* 0 */
/* 142 */ NdrFcShort( 0x7 ), /* 7 */
#ifdef _ALPHA_
#ifdef _PPC_
#if !defined( _MIPS_ )
/* 144 */ NdrFcShort( 0x1c ), /* x86 Stack size/offset = 28 */
#else
NdrFcShort( 0x20 ), /* MIPS Stack
size/offset = 32 */
#endif
#else
NdrFcShort( 0x20 ), /* PPC Stack size/offset
= 32 */
#endif
#else
NdrFcShort( 0x28 ), /* Alpha Stack
size/offset = 40 */
#endif
/* 146 */ NdrFcShort( 0x0 ), /* 0 */
/* 148 */ NdrFcShort( 0x8 ), /* 8 */

/* 150 */ 0x7, /* Oi2 Flags: srv must size, clt must size, has
return, */
0x3, /* 3 */

/* Parameter txn_in */

/* 152 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */
#ifdef _ALPHA_
#ifdef _PPC_
#if !defined( _MIPS_ )
/* 154 */ NdrFcShort( 0x4 ), /* x86 Stack size/offset = 4 */
#else
NdrFcShort( 0x8 ), /* MIPS Stack
size/offset = 8 */
#endif
#else
NdrFcShort( 0x8 ), /* PPC Stack size/offset
= 8 */
#endif
#else
NdrFcShort( 0x8 ), /* Alpha Stack
size/offset = 8 */
#endif
/* 156 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */

/* Parameter txn_out */

/* 158 */ NdrFcShort( 0x4113 ), /* Flags: must size, must free, out,
simple ref, srv alloc size=16 */
#ifdef _ALPHA_
#ifdef _PPC_
#if !defined( _MIPS_ )
/* 160 */ NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */
#else
NdrFcShort( 0x18 ), /* MIPS Stack
size/offset = 24 */
#endif
#else
NdrFcShort( 0x18 ), /* PPC Stack size/offset
= 24 */
#endif
#else
NdrFcShort( 0x20 ), /* Alpha Stack
size/offset = 24 */
#endif
/* 162 */ NdrFcShort( 0x3da ), /* Type Offset=986 */

/* Return value */

/* 164 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifdef _ALPHA_
#ifdef _PPC_
#if !defined( _MIPS_ )
/* 166 */ NdrFcShort( 0x18 ), /* x86 Stack size/offset = 24 */
#else
NdrFcShort( 0x1c ), /* MIPS Stack
size/offset = 28 */
#endif
#else
NdrFcShort( 0x1c ), /* PPC Stack size/offset
= 28 */
#endif
#else
NdrFcShort( 0x20 ), /* Alpha Stack
size/offset = 32 */
#endif
/* 168 */ 0x8, /* FC_LONG */
0x0, /* 0 */

```

```

/* Procedure CallSetComplete */
/* 170 */ 0x33, /* FC_AUTO_HANDLE */
           0x6c, /* Old Flags: object,
Oi2 */
/* 172 */ NdrFcLong( 0x0 ), /* 0 */
/* 176 */ NdrFcShort( 0x8 ), /* 8 */
#ifdef _ALPHA_
/* 178 */ NdrFcShort( 0x8 ), /* x86, MIPS, PPC Stack size/offset = 8 */
#else
           NdrFcShort( 0x10 ), /* Alpha Stack
size/offset = 16 */
#endif
/* 180 */ NdrFcShort( 0x0 ), /* 0 */
/* 182 */ NdrFcShort( 0x8 ), /* 8 */
/* 184 */ 0x4, /* Oi2 Flags: has return, */
           0x1, /* 1 */

/* Return value */

/* 186 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifdef _ALPHA_
/* 188 */ NdrFcShort( 0x4 ), /* x86, MIPS, PPC Stack size/offset = 4 */
#else
           NdrFcShort( 0x8 ), /* Alpha Stack
size/offset = 8 */
#endif
/* 190 */ 0x8, /* FC_LONG */
           0x0, /* 0 */

           0x0

}
};

static const MIDL_TYPE_FORMAT_STRING __MIDL_TypeFormatString =
{
    0,
    {
        NdrFcShort( 0x0 ), /* 0 */
/* 2 */
        0x12, 0x0, /* FC_UP */
/* 4 */ NdrFcShort( 0x3b0 ), /* Offset= 944 (948) */
/* 6 */
        0x2b, /*
FC_NON_ENCAPSULATED_UNION */
        0x9, /* FC_ULONG */
/* 8 */ 0x7, /* Corr desc: FC_USHORT */
           0x0, /* */
/* 10 */ NdrFcShort( 0xffff ), /* -8 */
/* 12 */ NdrFcShort( 0x2 ), /* Offset= 2 (14) */
/* 14 */ NdrFcShort( 0x10 ), /* 16 */
/* 16 */ NdrFcShort( 0x2b ), /* 43 */
/* 18 */ NdrFcLong( 0x3 ), /* 3 */
/* 22 */ NdrFcShort( 0x8008 ), /* Simple arm type: FC_LONG */
/* 24 */ NdrFcLong( 0x11 ), /* 17 */
/* 28 */ NdrFcShort( 0x8001 ), /* Simple arm type: FC_BYTE */
/* 30 */ NdrFcLong( 0x2 ), /* 2 */
/* 34 */ NdrFcShort( 0x8006 ), /* Simple arm type: FC_SHORT */
/* 36 */ NdrFcLong( 0x4 ), /* 4 */
/* 40 */ NdrFcShort( 0x800a ), /* Simple arm type: FC_FLOAT */
/* 42 */ NdrFcLong( 0x5 ), /* 5 */
/* 46 */ NdrFcShort( 0x800c ), /* Simple arm type: FC_DOUBLE */
/*
*/
/* 48 */ NdrFcLong( 0xb ), /* 11 */
/* 52 */ NdrFcShort( 0x8006 ), /* Simple arm type: FC_SHORT */
/* 54 */ NdrFcLong( 0xa ), /* 10 */
/* 58 */ NdrFcShort( 0x8008 ), /* Simple arm type: FC_LONG */
/* 60 */ NdrFcLong( 0x6 ), /* 6 */
/* 64 */ NdrFcShort( 0xd6 ), /* Offset= 214 (278) */
/* 66 */ NdrFcLong( 0x7 ), /* 7 */
/* 70 */ NdrFcShort( 0x800c ), /* Simple arm type: FC_DOUBLE */
/*
*/
/* 72 */ NdrFcLong( 0x8 ), /* 8 */
/* 76 */ NdrFcShort( 0xd0 ), /* Offset= 208 (284) */
/* 78 */ NdrFcLong( 0xd ), /* 13 */
/* 82 */ NdrFcShort( 0xe2 ), /* Offset= 226 (308) */
/* 84 */ NdrFcLong( 0x9 ), /* 9 */
/* 88 */ NdrFcShort( 0xee ), /* Offset= 238 (326) */
/* 90 */ NdrFcLong( 0x2000 ), /* 8192 */
/* 94 */ NdrFcShort( 0xfa ), /* Offset= 250 (344) */
/* 96 */ NdrFcLong( 0x24 ), /* 36 */
/* 100 */ NdrFcShort( 0x308 ), /* Offset= 776 (876) */
/* 102 */ NdrFcLong( 0x4024 ), /* 16420 */
/* 106 */ NdrFcShort( 0x302 ), /* Offset= 770 (876) */
/* 108 */ NdrFcLong( 0x4011 ), /* 16401 */
/* 112 */ NdrFcShort( 0x300 ), /* Offset= 768 (880) */
/* 114 */ NdrFcLong( 0x4002 ), /* 16386 */
/* 118 */ NdrFcShort( 0x2fe ), /* Offset= 766 (884) */
/* 120 */ NdrFcLong( 0x4003 ), /* 16387 */
/* 124 */ NdrFcShort( 0x2fc ), /* Offset= 764 (888) */
/* 126 */ NdrFcLong( 0x4004 ), /* 16388 */
/* 130 */ NdrFcShort( 0x2fa ), /* Offset= 762 (892) */
/* 132 */ NdrFcLong( 0x4005 ), /* 16389 */
/* 136 */ NdrFcShort( 0x2f8 ), /* Offset= 760 (896) */
/* 138 */ NdrFcLong( 0x400b ), /* 16395 */
/* 142 */ NdrFcShort( 0x2e6 ), /* Offset= 742 (884) */
/* 144 */ NdrFcLong( 0x400a ), /* 16394 */
/* 148 */ NdrFcShort( 0x2e4 ), /* Offset= 740 (888) */
/* 150 */ NdrFcLong( 0x4006 ), /* 16390 */
/* 154 */ NdrFcShort( 0x2ea ), /* Offset= 746 (900) */
/* 156 */ NdrFcLong( 0x4007 ), /* 16391 */
/* 160 */ NdrFcShort( 0x2e0 ), /* Offset= 736 (896) */
/* 162 */ NdrFcLong( 0x4008 ), /* 16392 */
/* 166 */ NdrFcShort( 0x2e2 ), /* Offset= 738 (904) */
/* 168 */ NdrFcLong( 0x400d ), /* 16397 */
/* 172 */ NdrFcShort( 0x2e0 ), /* Offset= 736 (908) */
/* 174 */ NdrFcLong( 0x4009 ), /* 16393 */
/* 178 */ NdrFcShort( 0x2de ), /* Offset= 734 (912) */
/* 180 */ NdrFcLong( 0x6000 ), /* 24576 */
/* 184 */ NdrFcShort( 0x2dc ), /* Offset= 732 (916) */
/* 186 */ NdrFcLong( 0x400c ), /* 16396 */
/* 190 */ NdrFcShort( 0x2da ), /* Offset= 730 (920) */
/* 192 */ NdrFcLong( 0x10 ), /* 16 */
/* 196 */ NdrFcShort( 0x8002 ), /* Simple arm type: FC_CHAR */
/* 198 */ NdrFcLong( 0x12 ), /* 18 */
/* 202 */ NdrFcShort( 0x8006 ), /* Simple arm type: FC_SHORT */
/* 204 */ NdrFcLong( 0x13 ), /* 19 */
/* 208 */ NdrFcShort( 0x8008 ), /* Simple arm type: FC_LONG */
/* 210 */ NdrFcLong( 0x16 ), /* 22 */
/* 214 */ NdrFcShort( 0x8008 ), /* Simple arm type: FC_LONG */
/* 216 */ NdrFcLong( 0x17 ), /* 23 */
/* 220 */ NdrFcShort( 0x8008 ), /* Simple arm type: FC_LONG */
/* 222 */ NdrFcLong( 0xe ), /* 14 */
/* 226 */ NdrFcShort( 0x2be ), /* Offset= 702 (928) */
/* 228 */ NdrFcLong( 0x400e ), /* 16398 */
/* 232 */ NdrFcShort( 0x2c4 ), /* Offset= 708 (940) */
/* 234 */ NdrFcLong( 0x4010 ), /* 16400 */
/* 238 */ NdrFcShort( 0x2c2 ), /* Offset= 706 (944) */
/* 240 */ NdrFcLong( 0x4012 ), /* 16402 */
/* 244 */ NdrFcShort( 0x280 ), /* Offset= 640 (884) */
/* 246 */ NdrFcLong( 0x4013 ), /* 16403 */
/* 250 */ NdrFcShort( 0x27e ), /* Offset= 638 (888) */
/* 252 */ NdrFcLong( 0x4016 ), /* 16406 */
/* 256 */ NdrFcShort( 0x278 ), /* Offset= 632 (888) */
/* 258 */ NdrFcLong( 0x4017 ), /* 16407 */

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/* 262 */ NdrFcShort( 0x272 ), /* Offset= 626 (888) */
/* 264 */ NdrFcLong( 0x0 ), /* 0 */
/* 268 */ NdrFcShort( 0x0 ), /* Offset= 0 (268) */
/* 270 */ NdrFcLong( 0x1 ), /* 1 */
/* 274 */ NdrFcShort( 0x0 ), /* Offset= 0 (274) */
/* 276 */ NdrFcShort( 0xffffffff ), /* Offset= -1 (275) */
/* 278 */
0x15, /* FC_STRUCT */
0x7, /* 7 */
/* 280 */ NdrFcShort( 0x8 ), /* 8 */
/* 282 */ 0xb, /* FC_HYPER */
0x5b, /* FC_END */
/* 284 */
0x12, 0x0, /* FC_UP */
/* 286 */ NdrFcShort( 0xc ), /* Offset= 12 (298) */
/* 288 */
0x1b, /* FC_CARRAY */
0x1, /* 1 */
/* 290 */ NdrFcShort( 0x2 ), /* 2 */
/* 292 */ 0x9, /* Corr desc: FC_ULONG */
0x0, /* */
/* 294 */ NdrFcShort( 0xfffc ), /* -4 */
/* 296 */ 0x6, /* FC_SHORT */
0x5b, /* FC_END */
/* 298 */
0x17, /* FC_CSTRUCT */
0x3, /* 3 */
/* 300 */ NdrFcShort( 0x8 ), /* 8 */
/* 302 */ NdrFcShort( 0xffffffff2 ), /* Offset= -14 (288) */
/* 304 */ 0x8, /* FC_LONG */
0x8, /* FC_LONG */
/* 306 */ 0x5c, /* FC_PAD */
0x5b, /* FC_END */
/* 308 */
0x2f, /* FC_IP */
0x5a, /*
FC_CONSTANT_IID */
/* 310 */ NdrFcLong( 0x0 ), /* 0 */
/* 314 */ NdrFcShort( 0x0 ), /* 0 */
/* 316 */ NdrFcShort( 0x0 ), /* 0 */
/* 318 */ 0xc0, /* 192 */
0x0, /* 0 */
/* 320 */ 0x0, /* 0 */
0x0, /* 0 */
/* 322 */ 0x0, /* 0 */
0x0, /* 0 */
/* 324 */ 0x0, /* 0 */
0x46, /* 70 */
/* 326 */
0x2f, /* FC_IP */
0x5a, /*
FC_CONSTANT_IID */
/* 328 */ NdrFcLong( 0x20400 ), /* 132096 */
/* 332 */ NdrFcShort( 0x0 ), /* 0 */
/* 334 */ NdrFcShort( 0x0 ), /* 0 */
/* 336 */ 0xc0, /* 192 */
0x0, /* 0 */
/* 338 */ 0x0, /* 0 */
0x0, /* 0 */
/* 340 */ 0x0, /* 0 */
0x0, /* 0 */
/* 342 */ 0x0, /* 0 */
0x46, /* 70 */
/* 344 */
0x12, 0x10, /* FC_UP
[pointer_deref] */
/* 346 */ NdrFcShort( 0x2 ), /* Offset= 2 (348) */
/* 348 */
0x12, 0x0, /* FC_UP */
/* 350 */ NdrFcShort( 0x1fc ), /* Offset= 508 (858) */
/* 352 */
0x2a, /*
FC_ENCAPSULATED_UNION */
0x49, /* 73 */
/* 354 */ NdrFcShort( 0x18 ), /* 24 */
/* 356 */ NdrFcShort( 0xa ), /* 10 */
/* 358 */ NdrFcLong( 0x8 ), /* 8 */
/* 362 */ NdrFcShort( 0x58 ), /* Offset= 88 (450) */
/* 364 */ NdrFcLong( 0xd ), /* 13 */
/* 368 */ NdrFcShort( 0x78 ), /* Offset= 120 (488) */
/* 370 */ NdrFcLong( 0x9 ), /* 9 */
/* 374 */ NdrFcShort( 0x94 ), /* Offset= 148 (522) */
/* 376 */ NdrFcLong( 0xc ), /* 12 */
/* 380 */ NdrFcShort( 0xbc ), /* Offset= 188 (568) */
/* 382 */ NdrFcLong( 0x24 ), /* 36 */
/* 386 */ NdrFcShort( 0x114 ), /* Offset= 276 (662) */
/* 388 */ NdrFcLong( 0x800d ), /* 32781 */
/* 392 */ NdrFcShort( 0x130 ), /* Offset= 304 (696) */
/* 394 */ NdrFcLong( 0x10 ), /* 16 */
/* 398 */ NdrFcShort( 0x148 ), /* Offset= 328 (726) */
/* 400 */ NdrFcLong( 0x2 ), /* 2 */
/* 404 */ NdrFcShort( 0x160 ), /* Offset= 352 (756) */
/* 406 */ NdrFcLong( 0x3 ), /* 3 */
/* 410 */ NdrFcShort( 0x178 ), /* Offset= 376 (786) */
/* 412 */ NdrFcLong( 0x14 ), /* 20 */
/* 416 */ NdrFcShort( 0x190 ), /* Offset= 400 (816) */
/* 418 */ NdrFcShort( 0xffffffff ), /* Offset= -1 (417) */
/* 420 */
0x1b, /* FC_CARRAY */
0x3, /* 3 */
/* 422 */ NdrFcShort( 0x4 ), /* 4 */
/* 424 */ 0x19, /* Corr desc: field pointer, FC_ULONG */
0x0, /* */
/* 426 */ NdrFcShort( 0x0 ), /* 0 */
/* 428 */
0x4b, /* FC_PP */
0x5c, /* FC_PAD */
/* 430 */
0x48, /*
FC_VARIABLE_REPEAT */
0x49, /*
FC_FIXED_OFFSET */
/* 432 */ NdrFcShort( 0x4 ), /* 4 */
/* 434 */ NdrFcShort( 0x0 ), /* 0 */
/* 436 */ NdrFcShort( 0x1 ), /* 1 */
/* 438 */ NdrFcShort( 0x0 ), /* 0 */
/* 440 */ NdrFcShort( 0x0 ), /* 0 */
/* 442 */ 0x12, 0x0, /* FC_UP */
/* 444 */ NdrFcShort( 0xffffffff6e ), /* Offset= -146 (298) */
/* 446 */
0x5b, /* FC_END */
0x8, /* FC_LONG */
/* 448 */ 0x5c, /* FC_PAD */
0x5b, /* FC_END */
/* 450 */
0x16, /* FC_PSTRUCT */
0x3, /* 3 */
/* 452 */ NdrFcShort( 0x8 ), /* 8 */
/* 454 */
0x4b, /* FC_PP */
0x5c, /* FC_PAD */
/* 456 */
0x46, /* FC_NO_REPEAT */
0x5c, /* FC_PAD */
/* 458 */ NdrFcShort( 0x4 ), /* 4 */

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```

/* 460 */ NdrFcShort( 0x4 ), /* 4 */
/* 462 */ 0x11, 0x0, /* FC_RP */
/* 464 */ NdrFcShort( 0xfffffd4 ), /* Offset= -44 (420) */
/* 466 */
                                0x5b, /* FC_END */
                                0x8, /* FC_LONG */
/* 468 */ 0x8, /* FC_LONG */
                                0x5b, /* FC_END */
/* 470 */
                                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 */
                                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 */
                                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 */
/* 512 */ NdrFcLong( 0xffffffff ), /* -1 */
/* 516 */ 0x4c, /* FC_EMBEDDED_COMPLEX */
                                0x0, /* 0 */
/* 518 */ NdrFcShort( 0xfffff40 ), /* Offset= -192 (326) */
/* 520 */ 0x5c, /* FC_PAD */
                                0x5b, /* FC_END */
/* 522 */
                                0x1a, /*
FC_BOGUS_STRUCT */
                                0x3, /* 3 */
/* 524 */ NdrFcShort( 0x8 ), /* 8 */
/* 526 */ NdrFcShort( 0x0 ), /* 0 */
/* 528 */ NdrFcShort( 0x6 ), /* Offset= 6 (534) */
/* 530 */ 0x8, /* FC_LONG */
                                0x36, /* FC_POINTER */
/* 532 */ 0x5c, /* FC_PAD */
                                0x5b, /* FC_END */
/* 534 */
                                0x11, 0x0, /* FC_RP */
/* 536 */ NdrFcShort( 0xfffffe0 ), /* Offset= -32 (504) */
/* 538 */
                                0x1b, /* FC_CARRY */
                                0x3, /* 3 */
/* 540 */ NdrFcShort( 0x4 ), /* 4 */
/* 542 */ 0x19, /* Corr desc: field pointer, FC_ULONG */
                                0x0, /* */
/* 544 */ NdrFcShort( 0x0 ), /* 0 */
/* 546 */
                                0x4b, /* FC_PP */
                                0x5c, /* FC_PAD */
/* 548 */
                                0x48, /*
FC_VARIABLE_REPEAT */
                                0x49, /*
FC_FIXED_OFFSET */
/* 550 */ NdrFcShort( 0x4 ), /* 4 */
/* 552 */ NdrFcShort( 0x0 ), /* 0 */
/* 554 */ NdrFcShort( 0x1 ), /* 1 */
/* 556 */ NdrFcShort( 0x0 ), /* 0 */
/* 558 */ NdrFcShort( 0x0 ), /* 0 */
/* 560 */ 0x12, 0x0, /* FC_UP */
/* 562 */ NdrFcShort( 0x182 ), /* Offset= 386 (948) */
/* 564 */
                                0x5b, /* FC_END */
                                0x8, /* FC_LONG */
/* 566 */ 0x5c, /* FC_PAD */
                                0x5b, /* FC_END */
/* 568 */
                                0x1a, /*
FC_BOGUS_STRUCT */
                                0x3, /* 3 */
/* 570 */ NdrFcShort( 0x8 ), /* 8 */
/* 572 */ NdrFcShort( 0x0 ), /* 0 */
/* 574 */ NdrFcShort( 0x6 ), /* Offset= 6 (580) */
/* 576 */ 0x8, /* FC_LONG */
                                0x36, /* FC_POINTER */
/* 578 */ 0x5c, /* FC_PAD */
                                0x5b, /* FC_END */
/* 580 */
                                0x11, 0x0, /* FC_RP */
/* 582 */ NdrFcShort( 0xfffffd4 ), /* Offset= -44 (538) */
/* 584 */
                                0x2f, /* FC_IP */
                                0x5a, /*
FC_CONSTANT_IID */
/* 586 */ NdrFcLong( 0x2f ), /* 47 */
/* 590 */ NdrFcShort( 0x0 ), /* 0 */
/* 592 */ NdrFcShort( 0x0 ), /* 0 */
/* 594 */ 0xc0, /* 192 */
                                0x0, /* 0 */
/* 596 */ 0x0, /* 0 */
                                0x0, /* 0 */
/* 598 */ 0x0, /* 0 */
                                0x0, /* 0 */
/* 600 */ 0x0, /* 0 */
                                0x46, /* 70 */
/* 602 */
                                0x1b, /* FC_CARRY */
                                0x0, /* 0 */
/* 604 */ NdrFcShort( 0x1 ), /* 1 */
/* 606 */ 0x19, /* Corr desc: field pointer, FC_ULONG */
                                0x0, /* */
/* 608 */ NdrFcShort( 0x4 ), /* 4 */
/* 610 */ 0x1, /* FC_BYTE */
                                0x5b, /* FC_END */
/* 612 */
                                0x1a, /*
FC_BOGUS_STRUCT */
                                0x3, /* 3 */
/* 614 */ NdrFcShort( 0x10 ), /* 16 */

```


/* 762 */			0x46,	/* FC_NO_REPEAT */	/* 834 */	0x8,	/* FC_LONG */
			0x5c,	/* FC_PAD */	/* 836 */	0x5b,	/* FC_END */
/* 764 */	NdrFcShort(0x4),	/* 4 */					
/* 766 */	NdrFcShort(0x4),	/* 4 */				0x15,	/* FC_STRUCT */
/* 768 */	0x12, 0x0, /* FC_UP */					0x3,	/* 3 */
/* 770 */	NdrFcShort(0xfffffe8),	/* Offset= -24 (746) */			/* 838 */	NdrFcShort(0x8),	/* 8 */
/* 772 */					/* 840 */	0x8,	/* FC_LONG */
			0x5b,	/* FC_END */		0x8,	/* FC_LONG */
					/* 842 */	0x5c,	/* FC_PAD */
/* 774 */	0x8,		0x8,	/* FC_LONG */	/* 844 */	0x5b,	/* FC_END */
			0x5b,	/* FC_END */			
/* 776 */						0x1b,	/* FC_CARRAY */
			0x1b,	/* FC_CARRAY */	/* 846 */	NdrFcShort(0x8),	/* 8 */
/* 778 */	NdrFcShort(0x4),	/* 4 */	0x3,	/* 3 */	/* 848 */	0x7,	/* Corr desc: FC_USHORT */
/* 780 */	0x19,	/* Corr desc: field pointer, FC_ULONG */			/* 850 */	NdrFcShort(0xfffd8),	/* -40 */
			0x0,	/* */	/* 852 */	0x4c,	/* FC_EMBEDDED_COMPLEX */
/* 782 */	NdrFcShort(0x0),	/* 0 */				0x0,	/* 0 */
/* 784 */	0x8,	/* FC_LONG */			/* 854 */	NdrFcShort(0xfffffee),	/* Offset= -18 (836) */
			0x5b,	/* FC_END */	/* 856 */	0x5c,	/* FC_PAD */
/* 786 */						0x5b,	/* FC_END */
			0x16,	/* FC_PSTRUCT */	/* 858 */		
/* 788 */	NdrFcShort(0x8),	/* 8 */	0x3,	/* 3 */		0x1a,	/*
/* 790 */						FC_BOGUS_STRUCT */	
			0x4b,	/* FC_PP */	/* 860 */	NdrFcShort(0x28),	/* 40 */
			0x5c,	/* FC_PAD */	/* 862 */	NdrFcShort(0xfffffee),	/* Offset= -18 (844) */
/* 792 */					/* 864 */	NdrFcShort(0x0),	/* Offset= 0 (864) */
			0x46,	/* FC_NO_REPEAT */	/* 866 */	0x6,	/* FC_SHORT */
/* 794 */	NdrFcShort(0x4),	/* 4 */	0x5c,	/* FC_PAD */	/* 868 */	0x38,	/* FC_ALIGNM4 */
/* 796 */	NdrFcShort(0x4),	/* 4 */				0x8,	/* FC_LONG */
/* 798 */	0x12, 0x0, /* FC_UP */				/* 870 */	0x8,	/* FC_LONG */
/* 800 */	NdrFcShort(0xfffffe8),	/* Offset= -24 (776) */				0x4c,	/*
/* 802 */			0x5b,	/* FC_END */		FC_EMBEDDED_COMPLEX */	
					/* 872 */	0x0,	/* 0 */
/* 804 */	0x8,		0x8,	/* FC_LONG */		NdrFcShort(0xfffffd7),	/* Offset=
			0x5b,	/* FC_END */		-521 (352) */	
/* 806 */					/* 876 */		
			0x1b,	/* FC_CARRAY */		0x12, 0x0, /* FC_UP */	
/* 808 */	NdrFcShort(0x8),	/* 8 */	0x7,	/* 7 */	/* 878 */	NdrFcShort(0xfffffe6),	/* Offset= -266 (612) */
/* 810 */	0x19,	/* Corr desc: field pointer, FC_ULONG */			/* 880 */		
			0x0,	/* */		0x12, 0x8, /* FC_UP [simple_pointer] */	
/* 812 */	NdrFcShort(0x0),	/* 0 */				0x5c,	/* FC_PAD */
/* 814 */	0xb,	/* FC_HYPER */			/* 884 */		
			0x5b,	/* FC_END */	/* 886 */	0x6,	/* FC_SHORT */
/* 816 */						0x5c,	/* FC_PAD */
			0x16,	/* FC_PSTRUCT */	/* 888 */		
/* 818 */	NdrFcShort(0x8),	/* 8 */	0x3,	/* 3 */	/* 890 */	0x8,	/* FC_UP [simple_pointer] */
/* 820 */						0x5c,	/* FC_LONG */
			0x4b,	/* FC_PP */	/* 892 */		/* FC_PAD */
			0x5c,	/* FC_PAD */	/* 894 */	0xa,	/* FC_FLOAT */
/* 822 */					/* 896 */		
			0x46,	/* FC_NO_REPEAT */	/* 898 */	0xc,	/* FC_UP [simple_pointer] */
/* 824 */	NdrFcShort(0x4),	/* 4 */	0x5c,	/* FC_PAD */		0x5c,	/* FC_PAD */
/* 826 */	NdrFcShort(0x4),	/* 4 */			/* 900 */		
/* 828 */	0x12, 0x0, /* FC_UP */				/* 902 */	NdrFcShort(0xffffd90),	/* Offset= -624 (278) */
/* 830 */	NdrFcShort(0xfffffe8),	/* Offset= -24 (806) */			/* 904 */		
/* 832 */			0x5b,	/* FC_END */			

```

                                0x12, 0x10,          /* FC_UP
[pointer_deref] */
/* 906 */ NdrFcShort( 0xfffffd92 ),          /* Offset= -622 (284) */
/* 908 */
                                0x12, 0x10,          /* FC_UP
[pointer_deref] */
/* 910 */ NdrFcShort( 0xffffda6 ),          /* Offset= -602 (308) */
/* 912 */
                                0x12, 0x10,          /* FC_UP
[pointer_deref] */
/* 914 */ NdrFcShort( 0xffffdb4 ),          /* Offset= -588 (326) */
/* 916 */
                                0x12, 0x10,          /* FC_UP
[pointer_deref] */
/* 918 */ NdrFcShort( 0xffffdc2 ),          /* Offset= -574 (344) */
/* 920 */
                                0x12, 0x10,          /* FC_UP
[pointer_deref] */
/* 922 */ NdrFcShort( 0x2 ),          /* Offset= 2 (924) */
/* 924 */
                                0x12, 0x0, /* FC_UP */
/* 926 */ NdrFcShort( 0x16 ),          /* Offset= 22 (948) */
/* 928 */
                                0x15,          /* FC_STRUCT */
                                0x7,          /* 7 */
/* 930 */ NdrFcShort( 0x10 ),          /* 16 */
/* 932 */ 0x6,          /* FC_SHORT */
                                0x1,          /* FC_BYTE */
/* 934 */ 0x1,          /* FC_BYTE */
                                0x38,          /* FC_ALIGNM4 */
/* 936 */ 0x8,          /* FC_LONG */
                                0x39,          /* FC_ALIGNM8 */
/* 938 */ 0xb,          /* FC_HYPER */
                                0x5b,          /* FC_END */
/* 940 */
                                0x12, 0x0, /* FC_UP */
/* 942 */ NdrFcShort( 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( 0xfffffd0 ),          /* 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_uuid] interfaces */
    0, /* Filler1 */
    0, /* Filler2 */
    0 /* Filler3 */
};
#endif /* !defined(_M_IA64) && !defined(_M_AXP64) */
#pragma warning( disable: 4049 ) /* more than 64k source lines */

```

```

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

/* File created by MIDL compiler version 5.03.0280 */
/* at Thu Dec 13 23:13:08 2001
*/
/* Compiler settings for \src\tpcc_com_ps.idl:
Oicf (OptLev=i2), W1, Zp8, env=Win64 (32b run,appending), ms_ext, c_ext,
robust
error checks: allocation ref bounds_check enum stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany), __declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@@MIDL_FILE_HEADING( )

#ifdef _M_IA64 || defined(_M_AXP64)
#define USE_STUBLESS_PROXY

/* verify that the <rpcproxy.h> version is high enough to compile this file*/
#ifndef __REDQ_RPCPROXY_H_VERSION__
#define __REQUIRED_RPCPROXY_H_VERSION__ 475
#endif

#include "rpcproxy.h"
#ifndef __RPCPROXY_H_VERSION__
#error this stub requires an updated version of <rpcproxy.h>
#endif // __RPCPROXY_H_VERSION__

#include "tpcc_com_ps.h"

#define TYPE_FORMAT_STRING_SIZE 979
#define PROC_FORMAT_STRING_SIZE 253
#define TRANSMIT_AS_TABLE_SIZE 0
#define WIRE_MARSHAL_TABLE_SIZE 1

typedef struct _MIDL_TYPE_FORMAT_STRING
{
    short Pad;
    unsigned char Format[ TYPE_FORMAT_STRING_SIZE ];
} MIDL_TYPE_FORMAT_STRING;

typedef struct _MIDL_PROC_FORMAT_STRING
{
    short Pad;
    unsigned char Format[ PROC_FORMAT_STRING_SIZE ];
} MIDL_PROC_FORMAT_STRING;

extern const MIDL_TYPE_FORMAT_STRING __MIDL_TypeFormatString;
extern const MIDL_PROC_FORMAT_STRING __MIDL_ProcFormatString;

/* Standard interface: __MIDL_itf_tpcc_com_ps_0000, ver. 0.0,
GUID={0x00000000,0x0000,0x0000,{0x00,0x00,0x00,0x00,0x00,0x00,0x00,0
x00}} */

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

```

```

/* Object interface: ITPCC, ver. 0.0,
GUID={0xFEE6AA2,0x84B1,0x11d2,{0xBA,0x47,0x00,0xC0,0x4F,0xBF,0xE0,0x8B}} */

extern const MIDL_STUB_DESC Object_StubDesc;

extern const MIDL_SERVER_INFO ITPCC_ServerInfo;

#pragma code_seg("orpc")
static const unsigned short ITPCC_FormatStringOffsetTable[] =
{
    0,
    44,
    88,
    132,
    176,
    220
};

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

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

CINTERFACE_PROXY_VTABLE(9) _ITPCCProxyVtbl =
{
    &ITPCC_ProxyInfo,
    &IID_ITPCC,
    IUnknown_QueryInterface_Proxy,
    IUnknown_AddRef_Proxy,
    IUnknown_Release_Proxy ,
    (void *)-1 /* ITPCC::NewOrder */,
    (void *)-1 /* ITPCC::Payment */,
    (void *)-1 /* ITPCC::Delivery */,
    (void *)-1 /* ITPCC::StockLevel */,
    (void *)-1 /* ITPCC::OrderStatus */,
    (void *)-1 /* ITPCC::CallSetComplete */
};

const CInterfaceStubVtbl _ITPCCStubVtbl =
{
    &IID_ITPCC,
    &ITPCC_ServerInfo,
    9,
    0, /* pure interpreted */
    CStdStubBuffer_METHODS
};

```



```

/* 62 */ NdrFcShort( 0x20 ), /* 32 */
/* 64 */ NdrFcShort( 0x20 ), /* 32 */
/* 66 */ NdrFcShort( 0x0 ), /* 0 */
/* 68 */ NdrFcShort( 0x0 ), /* 0 */

/* Parameter txn_in */

/* 70 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */
#ifdef _ALPHA_
/* 72 */ NdrFcShort( 0x10 ), /* ia64 Stack size/offset = 16 */
#else
NdrFcShort( 0x8 ), /* axp64 Stack
size/offset = 8 */
#endif
/* 74 */ NdrFcShort( 0x3b6 ), /* Type Offset=950 */

/* Parameter txn_out */

/* 76 */ NdrFcShort( 0x6113 ), /* Flags: must size, must free, out,
simple ref, srv alloc size=24 */
#ifdef _ALPHA_
/* 78 */ NdrFcShort( 0x28 ), /* ia64 Stack size/offset = 40 */
#else
NdrFcShort( 0x20 ), /* axp64 Stack
size/offset = 32 */
#endif
/* 80 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */

/* Return value */

/* 82 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifdef _ALPHA_
/* 84 */ NdrFcShort( 0x30 ), /* ia64 Stack size/offset = 48 */
#else
NdrFcShort( 0x28 ), /* axp64 Stack
size/offset = 40 */
#endif
/* 86 */ 0x8, /* FC_LONG */
0x0, /* 0 */

/* Procedure Delivery */

/* 88 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /* Old Flags: object,
Oi2 */
/* 90 */ NdrFcLong( 0x0 ), /* 0 */
/* 94 */ NdrFcShort( 0x5 ), /* 5 */
#ifdef _ALPHA_
/* 96 */ NdrFcShort( 0x38 ), /* ia64 Stack size/offset = 56 */
#else
NdrFcShort( 0x30 ), /* axp64 Stack
size/offset = 48 */
#endif
/* 98 */ NdrFcShort( 0x0 ), /* 0 */
/* 100 */ NdrFcShort( 0x8 ), /* 8 */
/* 102 */ 0x47, /* Oi2 Flags: srv must size, clt must size, has
return, has ext, */
0x3, /* 3 */
/* 104 */ 0xa, /* 10 */
0x7, /* Ext Flags: new corr
desc, clt corr check, srv corr check, */
/* 106 */ NdrFcShort( 0x20 ), /* 32 */
/* 108 */ NdrFcShort( 0x20 ), /* 32 */
/* 110 */ NdrFcShort( 0x0 ), /* 0 */
/* 112 */ NdrFcShort( 0x0 ), /* 0 */

/* Parameter txn_in */

/* 114 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */
#ifdef _ALPHA_
/* 116 */ NdrFcShort( 0x10 ), /* ia64 Stack size/offset = 16 */
#else
NdrFcShort( 0x8 ), /* axp64 Stack
size/offset = 8 */
#endif
/* 118 */ NdrFcShort( 0x3b6 ), /* Type Offset=950 */

/* Parameter txn_out */

/* 120 */ NdrFcShort( 0x6113 ), /* Flags: must size, must free, out,
simple ref, srv alloc size=24 */
#ifdef _ALPHA_
/* 122 */ NdrFcShort( 0x28 ), /* ia64 Stack size/offset = 40 */
#else
NdrFcShort( 0x20 ), /* axp64 Stack
size/offset = 32 */
#endif
/* 124 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */

/* Return value */

/* 126 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifdef _ALPHA_
/* 128 */ NdrFcShort( 0x30 ), /* ia64 Stack size/offset = 48 */
#else
NdrFcShort( 0x28 ), /* axp64 Stack
size/offset = 40 */
#endif
/* 130 */ 0x8, /* FC_LONG */
0x0, /* 0 */

/* Procedure StockLevel */

/* 132 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /* Old Flags: object,
Oi2 */
/* 134 */ NdrFcLong( 0x0 ), /* 0 */
/* 138 */ NdrFcShort( 0x6 ), /* 6 */
#ifdef _ALPHA_
/* 140 */ NdrFcShort( 0x38 ), /* ia64 Stack size/offset = 56 */
#else
NdrFcShort( 0x30 ), /* axp64 Stack
size/offset = 48 */
#endif
/* 142 */ NdrFcShort( 0x0 ), /* 0 */
/* 144 */ NdrFcShort( 0x8 ), /* 8 */
/* 146 */ 0x47, /* Oi2 Flags: srv must size, clt must size, has
return, has ext, */
0x3, /* 3 */
/* 148 */ 0xa, /* 10 */
0x7, /* Ext Flags: new corr
desc, clt corr check, srv corr check, */
/* 150 */ NdrFcShort( 0x20 ), /* 32 */
/* 152 */ NdrFcShort( 0x20 ), /* 32 */
/* 154 */ NdrFcShort( 0x0 ), /* 0 */
/* 156 */ NdrFcShort( 0x0 ), /* 0 */

/* Parameter txn_in */

/* 158 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */
#ifdef _ALPHA_
/* 160 */ NdrFcShort( 0x10 ), /* ia64 Stack size/offset = 16 */
#else
NdrFcShort( 0x8 ), /* axp64 Stack
size/offset = 8 */
#endif

```

```

/* 162 */ NdrFcShort( 0x3b6 ), /* Type Offset=950 */
        /* Parameter txn_out */

/* 164 */ NdrFcShort( 0x6113 ), /* Flags: must size, must free, out,
simple ref, srv alloc size=24 */
#ifdef _ALPHA_
/* 166 */ NdrFcShort( 0x28 ), /* ia64 Stack size/offset = 40 */
#else
        NdrFcShort( 0x20 ), /* axp64 Stack
size/offset = 32 */
#endif
/* 168 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */

        /* Return value */

/* 170 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifdef _ALPHA_
/* 172 */ NdrFcShort( 0x30 ), /* ia64 Stack size/offset = 48 */
#else
        NdrFcShort( 0x28 ), /* axp64 Stack
size/offset = 40 */
#endif
/* 174 */ 0x8, /* FC_LONG */
        0x0, /* 0 */

        /* Procedure OrderStatus */

/* 176 */ 0x33, /* FC_AUTO_HANDLE */
        0x6c, /* Old Flags: object,
Oi2 */
/* 178 */ NdrFcLong( 0x0 ), /* 0 */
/* 182 */ NdrFcShort( 0x7 ), /* 7 */
#ifdef _ALPHA_
/* 184 */ NdrFcShort( 0x38 ), /* ia64 Stack size/offset = 56 */
#else
        NdrFcShort( 0x30 ), /* axp64 Stack
size/offset = 48 */
#endif
/* 186 */ NdrFcShort( 0x0 ), /* 0 */
/* 188 */ NdrFcShort( 0x8 ), /* 8 */
/* 190 */ 0x47, /* Oi2 Flags: srv must size, clt must size, has
return, has ext, */
        0x3, /* 3 */
/* 192 */ 0xa, /* 10 */
        0x7, /* Ext Flags: new corr
desc, clt corr check, srv corr check, */
/* 194 */ NdrFcShort( 0x20 ), /* 32 */
/* 196 */ NdrFcShort( 0x20 ), /* 32 */
/* 198 */ NdrFcShort( 0x0 ), /* 0 */
/* 200 */ NdrFcShort( 0x0 ), /* 0 */

        /* Parameter txn_in */

/* 202 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */
#ifdef _ALPHA_
/* 204 */ NdrFcShort( 0x10 ), /* ia64 Stack size/offset = 16 */
#else
        NdrFcShort( 0x8 ), /* axp64 Stack
size/offset = 8 */
#endif
/* 206 */ NdrFcShort( 0x3b6 ), /* Type Offset=950 */

        /* Parameter txn_out */

/* 208 */ NdrFcShort( 0x6113 ), /* Flags: must size, must free, out,
simple ref, srv alloc size=24 */
#ifdef _ALPHA_
/* 210 */ NdrFcShort( 0x28 ), /* ia64 Stack size/offset = 40 */
#else
        NdrFcShort( 0x20 ), /* axp64 Stack
size/offset = 32 */
#endif
/* 212 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */

        /* Return value */

/* 214 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifdef _ALPHA_
/* 216 */ NdrFcShort( 0x30 ), /* ia64 Stack size/offset = 48 */
#else
        NdrFcShort( 0x28 ), /* axp64 Stack
size/offset = 40 */
#endif
/* 218 */ 0x8, /* FC_LONG */
        0x0, /* 0 */

        /* Procedure CallSetComplete */

/* 220 */ 0x33, /* FC_AUTO_HANDLE */
        0x6c, /* Old Flags: object,
Oi2 */
/* 222 */ NdrFcLong( 0x0 ), /* 0 */
/* 226 */ NdrFcShort( 0x8 ), /* 8 */
/* 228 */ NdrFcShort( 0x10 ), /* ia64, axp64 Stack size/offset = 16 */
/* 230 */ NdrFcShort( 0x0 ), /* 0 */
/* 232 */ NdrFcShort( 0x8 ), /* 8 */
/* 234 */ 0x44, /* Oi2 Flags: has return, has ext, */
        0x1, /* 1 */
/* 236 */ 0xa, /* 10 */
        0x1, /* Ext Flags: new corr
desc, */
/* 238 */ NdrFcShort( 0x0 ), /* 0 */
/* 240 */ NdrFcShort( 0x0 ), /* 0 */
/* 242 */ NdrFcShort( 0x0 ), /* 0 */
/* 244 */ NdrFcShort( 0x0 ), /* 0 */

        /* Return value */

/* 246 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
/* 248 */ NdrFcShort( 0x8 ), /* ia64, axp64 Stack size/offset = 8 */
/* 250 */ 0x8, /* FC_LONG */
        0x0, /* 0 */

        0x0
    }
};

static const MIDL_TYPE_FORMAT_STRING __MIDL_TypeFormatString =
{
    0,
    {
        NdrFcShort( 0x0 ), /* 0 */
/* 2 */
        0x12, 0x0, /* FC_UP */
/* 4 */ NdrFcShort( 0x39e ), /* Offset= 926 (930) */
/* 6 */
        0x2b, /*
FC_NON_ENCAPSULATED_UNION */
        0x9, /* FC_ULONG */
/* 8 */ 0x7, /* Corr desc: FC_USHORT */
        0x0, /* */
/* 10 */ NdrFcShort( 0xffff8 ), /* -8 */
/* 12 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 14 */ NdrFcShort( 0x2 ), /* Offset= 2 (16) */
/* 16 */ NdrFcShort( 0x10 ), /* 16 */

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```

/* 18 */ NdrFcShort( 0x2b ), /* 43 */
/* 20 */ NdrFcLong( 0x3 ), /* 3 */
/* 24 */ NdrFcShort( 0x8008 ), /* Simple arm type: FC_LONG */
/* 26 */ NdrFcLong( 0x11 ), /* 17 */
/* 30 */ NdrFcShort( 0x8001 ), /* Simple arm type: FC_BYTE */
/* 32 */ NdrFcLong( 0x2 ), /* 2 */
/* 36 */ NdrFcShort( 0x8006 ), /* Simple arm type: FC_SHORT */
/* 38 */ NdrFcLong( 0x4 ), /* 4 */
/* 42 */ NdrFcShort( 0x800a ), /* Simple arm type: FC_FLOAT */
/* 44 */ NdrFcLong( 0x5 ), /* 5 */
/* 48 */ NdrFcShort( 0x800c ), /* Simple arm type: FC_DOUBLE */
/*
/* 50 */ NdrFcLong( 0xb ), /* 11 */
/* 54 */ NdrFcShort( 0x8006 ), /* Simple arm type: FC_SHORT */
/* 56 */ NdrFcLong( 0xa ), /* 10 */
/* 60 */ NdrFcShort( 0x8008 ), /* Simple arm type: FC_LONG */
/* 62 */ NdrFcLong( 0x6 ), /* 6 */
/* 66 */ NdrFcShort( 0xd6 ), /* Offset= 214 (280) */
/* 68 */ NdrFcLong( 0x7 ), /* 7 */
/* 72 */ NdrFcShort( 0x800c ), /* Simple arm type: FC_DOUBLE */
/*
/* 74 */ NdrFcLong( 0x8 ), /* 8 */
/* 78 */ NdrFcShort( 0xd0 ), /* Offset= 208 (286) */
/* 80 */ NdrFcLong( 0xd ), /* 13 */
/* 84 */ NdrFcShort( 0xe4 ), /* Offset= 228 (312) */
/* 86 */ NdrFcLong( 0x9 ), /* 9 */
/* 90 */ NdrFcShort( 0xf0 ), /* Offset= 240 (330) */
/* 92 */ NdrFcLong( 0x2000 ), /* 8192 */
/* 96 */ NdrFcShort( 0xfc ), /* Offset= 252 (348) */
/* 98 */ NdrFcLong( 0x24 ), /* 36 */
/* 102 */ NdrFcShort( 0x2f4 ), /* Offset= 756 (858) */
/* 104 */ NdrFcLong( 0x4024 ), /* 16420 */
/* 108 */ NdrFcShort( 0x2ee ), /* Offset= 750 (858) */
/* 110 */ NdrFcLong( 0x4011 ), /* 16401 */
/* 114 */ NdrFcShort( 0x2ec ), /* Offset= 748 (862) */
/* 116 */ NdrFcLong( 0x4002 ), /* 16386 */
/* 120 */ NdrFcShort( 0x2ea ), /* Offset= 746 (866) */
/* 122 */ NdrFcLong( 0x4003 ), /* 16387 */
/* 126 */ NdrFcShort( 0x2e8 ), /* Offset= 744 (870) */
/* 128 */ NdrFcLong( 0x4004 ), /* 16388 */
/* 132 */ NdrFcShort( 0x2e6 ), /* Offset= 742 (874) */
/* 134 */ NdrFcLong( 0x4005 ), /* 16389 */
/* 138 */ NdrFcShort( 0x2e4 ), /* Offset= 740 (878) */
/* 140 */ NdrFcLong( 0x400b ), /* 16395 */
/* 144 */ NdrFcShort( 0x2d2 ), /* Offset= 722 (866) */
/* 146 */ NdrFcLong( 0x400a ), /* 16394 */
/* 150 */ NdrFcShort( 0x2d0 ), /* Offset= 720 (870) */
/* 152 */ NdrFcLong( 0x4006 ), /* 16390 */
/* 156 */ NdrFcShort( 0x2d6 ), /* Offset= 726 (882) */
/* 158 */ NdrFcLong( 0x4007 ), /* 16391 */
/* 162 */ NdrFcShort( 0x2cc ), /* Offset= 716 (878) */
/* 164 */ NdrFcLong( 0x4008 ), /* 16392 */
/* 168 */ NdrFcShort( 0x2ce ), /* Offset= 718 (886) */
/* 170 */ NdrFcLong( 0x400d ), /* 16397 */
/* 174 */ NdrFcShort( 0x2cc ), /* Offset= 716 (890) */
/* 176 */ NdrFcLong( 0x4009 ), /* 16393 */
/* 180 */ NdrFcShort( 0x2ca ), /* Offset= 714 (894) */
/* 182 */ NdrFcLong( 0x6000 ), /* 24576 */
/* 186 */ NdrFcShort( 0x2c8 ), /* Offset= 712 (898) */
/* 188 */ NdrFcLong( 0x400c ), /* 16396 */
/* 192 */ NdrFcShort( 0x2c6 ), /* Offset= 710 (902) */
/* 194 */ NdrFcLong( 0x10 ), /* 16 */
/* 198 */ NdrFcShort( 0x8002 ), /* Simple arm type: FC_CHAR */
/* 200 */ NdrFcLong( 0x12 ), /* 18 */
/* 204 */ NdrFcShort( 0x8006 ), /* Simple arm type: FC_SHORT */
/* 206 */ NdrFcLong( 0x13 ), /* 19 */
/* 210 */ NdrFcShort( 0x8008 ), /* Simple arm type: FC_LONG */
/* 212 */ NdrFcLong( 0x16 ), /* 22 */
/* 216 */ NdrFcShort( 0x8008 ), /* Simple arm type: FC_LONG */
/* 218 */ NdrFcLong( 0x17 ), /* 23 */
/* 222 */ NdrFcShort( 0x8008 ), /* Simple arm type: FC_LONG */
/* 224 */ NdrFcLong( 0xe ), /* 14 */
/* 228 */ NdrFcShort( 0x2aa ), /* Offset= 682 (910) */
/* 230 */ NdrFcLong( 0x400e ), /* 16398 */
/* 234 */ NdrFcShort( 0x2b0 ), /* Offset= 688 (922) */
/* 236 */ NdrFcLong( 0x4010 ), /* 16400 */
/* 240 */ NdrFcShort( 0x2ae ), /* Offset= 686 (926) */
/* 242 */ NdrFcLong( 0x4012 ), /* 16402 */
/* 246 */ NdrFcShort( 0x26c ), /* Offset= 620 (866) */
/* 248 */ NdrFcLong( 0x4013 ), /* 16403 */
/* 252 */ NdrFcShort( 0x26a ), /* Offset= 618 (870) */
/* 254 */ NdrFcLong( 0x4016 ), /* 16406 */
/* 258 */ NdrFcShort( 0x264 ), /* Offset= 612 (870) */
/* 260 */ NdrFcLong( 0x4017 ), /* 16407 */
/* 264 */ NdrFcShort( 0x25e ), /* Offset= 606 (870) */
/* 266 */ NdrFcLong( 0x0 ), /* 0 */
/* 270 */ NdrFcShort( 0x0 ), /* Offset= 0 (270) */
/* 272 */ NdrFcLong( 0x1 ), /* 1 */
/* 276 */ NdrFcShort( 0x0 ), /* Offset= 0 (276) */
/* 278 */ NdrFcShort( 0xffffffff ), /* Offset= -1 (277) */
/* 280 */
0x15, /* FC_STRUCT */
0x7, /* 7 */
/* 282 */ NdrFcShort( 0x8 ), /* 8 */
/* 284 */ 0xb, /* FC_HYPER */
0x5b, /* FC_END */
/* 286 */
0x12, 0x0, /* FC_UP */
/* 288 */ NdrFcShort( 0xe ), /* Offset= 14 (302) */
/* 290 */
0x1b, /* FC_CARRAY */
0x1, /* 1 */
/* 292 */ NdrFcShort( 0x2 ), /* 2 */
/* 294 */ 0x9, /* Corr desc: FC_ULONG */
0x0, /* */
/* 296 */ NdrFcShort( 0xfffc ), /* -4 */
/* 298 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 300 */ 0x6, /* FC_SHORT */
0x5b, /* FC_END */
/* 302 */
0x17, /* FC_CSTRUCT */
0x3, /* 3 */
/* 304 */ NdrFcShort( 0x8 ), /* 8 */
/* 306 */ NdrFcShort( 0xffffffff0 ), /* Offset= -16 (290) */
/* 308 */ 0x8, /* FC_LONG */
0x8, /* FC_LONG */
/* 310 */ 0x5c, /* FC_PAD */
0x5b, /* FC_END */
/* 312 */
0x2f, /* FC_IP */
0x5a, /*
FC_CONSTANT_IID */
/* 314 */ NdrFcLong( 0x0 ), /* 0 */
/* 318 */ NdrFcShort( 0x0 ), /* 0 */
/* 320 */ NdrFcShort( 0x0 ), /* 0 */
/* 322 */ 0xc0, /* 192 */
0x0, /* 0 */
/* 324 */ 0x0, /* 0 */
0x0, /* 0 */
/* 326 */ 0x0, /* 0 */
0x0, /* 0 */
/* 328 */ 0x0, /* 0 */
0x46, /* 70 */
/* 330 */
0x2f, /* FC_IP */

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0x5a, /*
FC_CONSTANT_IID */
/* 332 */ NdrFcLong( 0x20400 ), /* 132096 */
/* 336 */ NdrFcShort( 0x0 ), /* 0 */
/* 338 */ NdrFcShort( 0x0 ), /* 0 */
/* 340 */ 0xc0, /* 192 */
/* 342 */ 0x0, /* 0 */
/* 344 */ 0x0, /* 0 */
/* 346 */ 0x0, /* 0 */
/* 348 */ 0x46, /* 70 */
/* 350 */ NdrFcShort( 0x2 ), /* Offset= 2 (352) */
/* 352 */ 0x12, 0x0, /* FC_UP */
/* 354 */ NdrFcShort( 0x1e6 ), /* Offset= 486 (840) */
/* 356 */ 0x2a, /*
FC_ENCAPSULATED_UNION */
/* 358 */ NdrFcShort( 0x20 ), /* 32 */
/* 360 */ NdrFcShort( 0xa ), /* 10 */
/* 362 */ NdrFcLong( 0x8 ), /* 8 */
/* 366 */ NdrFcShort( 0x50 ), /* Offset= 80 (446) */
/* 368 */ NdrFcLong( 0xd ), /* 13 */
/* 372 */ NdrFcShort( 0x70 ), /* Offset= 112 (484) */
/* 374 */ NdrFcLong( 0x9 ), /* 9 */
/* 378 */ NdrFcShort( 0x90 ), /* Offset= 144 (522) */
/* 380 */ NdrFcLong( 0xc ), /* 12 */
/* 384 */ NdrFcShort( 0xb0 ), /* Offset= 176 (560) */
/* 386 */ NdrFcLong( 0x24 ), /* 36 */
/* 390 */ NdrFcShort( 0x104 ), /* Offset= 260 (650) */
/* 392 */ NdrFcLong( 0x800d ), /* 32781 */
/* 396 */ NdrFcShort( 0x120 ), /* Offset= 288 (684) */
/* 398 */ NdrFcLong( 0x10 ), /* 16 */
/* 402 */ NdrFcShort( 0x13a ), /* Offset= 314 (716) */
/* 404 */ NdrFcLong( 0x2 ), /* 2 */
/* 408 */ NdrFcShort( 0x150 ), /* Offset= 336 (744) */
/* 410 */ NdrFcLong( 0x3 ), /* 3 */
/* 414 */ NdrFcShort( 0x166 ), /* Offset= 358 (772) */
/* 416 */ NdrFcLong( 0x14 ), /* 20 */
/* 420 */ NdrFcShort( 0x17c ), /* Offset= 380 (800) */
/* 422 */ NdrFcShort( 0xffffffff ), /* Offset= -1 (421) */
/* 424 */ 0x21, /*
FC_BOGUS_ARRAY */
/* 426 */ NdrFcShort( 0x0 ), /* 0 */
/* 428 */ 0x19, /* Corr desc: field pointer, FC_ULONG */
/* 430 */ NdrFcShort( 0x0 ), /* 0 */
/* 432 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 434 */ NdrFcLong( 0xffffffff ), /* -1 */
/* 438 */ NdrFcShort( 0x0 ), /* Corr flags: */
/* 440 */ 0x12, 0x0, /* FC_UP */
/* 442 */ NdrFcShort( 0xffffffff74 ), /* Offset= -140 (302) */
/* 444 */ 0x5c, /* FC_PAD */
/* 446 */ 0x5b, /* FC_END */
/* 448 */ 0x1a, /*
FC_BOGUS_STRUCT */
/* 450 */ NdrFcShort( 0x0 ), /* 0 */
/* 452 */ NdrFcShort( 0x6 ), /* Offset= 6 (458) */
/* 454 */ 0x8, /* FC_LONG */
/* 456 */ 0x36, /* FC_POINTER */
/* 458 */ 0x5b, /* FC_END */
/* 460 */ NdrFcShort( 0x11, 0x0, /* FC_RP */
/* 462 */ NdrFcShort( 0xffffffffdc ), /* Offset= -36 (424) */
/* 464 */ 0x21, /*
FC_BOGUS_ARRAY */
/* 466 */ NdrFcShort( 0x0 ), /* 0 */
/* 468 */ 0x19, /* Corr desc: field pointer, FC_ULONG */
/* 470 */ NdrFcShort( 0x0 ), /* 0 */
/* 472 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 474 */ NdrFcLong( 0xffffffff ), /* -1 */
/* 476 */ NdrFcShort( 0x0 ), /* Corr flags: */
/* 478 */ 0x4c, /* FC_EMBEDDED_COMPLEX */
/* 480 */ NdrFcShort( 0xffffffff58 ), /* Offset= -168 (312) */
/* 482 */ 0x5c, /* FC_PAD */
/* 484 */ 0x5b, /* FC_END */
/* 486 */ 0x1a, /*
FC_BOGUS_STRUCT */
/* 488 */ NdrFcShort( 0x0 ), /* 0 */
/* 490 */ NdrFcShort( 0x10 ), /* 16 */
/* 492 */ NdrFcShort( 0x0 ), /* 0 */
/* 494 */ NdrFcShort( 0x6 ), /* Offset= 6 (496) */
/* 496 */ 0x8, /* FC_LONG */
/* 498 */ 0x36, /* FC_POINTER */
/* 500 */ 0x5b, /* FC_END */
/* 502 */ NdrFcShort( 0x11, 0x0, /* FC_RP */
/* 504 */ NdrFcShort( 0xffffffffdc ), /* Offset= -36 (462) */
/* 506 */ NdrFcShort( 0x0 ), /* 0 */
/* 508 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 510 */ NdrFcLong( 0xffffffff ), /* -1 */
/* 512 */ NdrFcShort( 0x0 ), /* Corr flags: */
/* 514 */ 0x4c, /* FC_EMBEDDED_COMPLEX */
/* 516 */ 0x0, /* 0 */
/* 518 */ NdrFcShort( 0xffffffff44 ), /* Offset= -188 (330) */
/* 520 */ 0x5c, /* FC_PAD */
/* 522 */ 0x5b, /* FC_END */
/* 524 */ 0x1a, /*
FC_BOGUS_STRUCT */
/* 526 */ NdrFcShort( 0x0 ), /* 0 */
/* 528 */ NdrFcShort( 0x10 ), /* 16 */
/* 530 */ NdrFcShort( 0x6 ), /* Offset= 6 (534) */
/* 532 */ 0x8, /* FC_LONG */
/* 534 */ 0x36, /* FC_POINTER */
/* 536 */ 0x5b, /* FC_END */
/* 538 */ NdrFcShort( 0x11, 0x0, /* FC_RP */

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/* 536 */ NdrFcShort( 0xfffffde ), /* Offset= -36 (500) */
/* 538 */
FC_BOGUS_ARRAY */
0x21, /*
0x3, /* 3 */
/* 540 */ NdrFcShort( 0x0 ), /* 0 */
/* 542 */ 0x19, /* Corr desc: field pointer, FC_ULONG */
0x0, /* */
/* 544 */ NdrFcShort( 0x0 ), /* 0 */
/* 546 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 548 */ NdrFcLong( 0xffffffff ), /* -1 */
/* 552 */ NdrFcShort( 0x0 ), /* Corr flags: */
/* 554 */
0x12, 0x0, /* FC_UP */
/* 556 */ NdrFcShort( 0x176 ), /* Offset= 374 (930) */
/* 558 */ 0x5c, /* FC_PAD */
0x5b, /* FC_END */
/* 560 */
0x1a, /*
FC_BOGUS_STRUCT */
0x3, /* 3 */
/* 562 */ NdrFcShort( 0x10 ), /* 16 */
/* 564 */ NdrFcShort( 0x0 ), /* 0 */
/* 566 */ NdrFcShort( 0x6 ), /* Offset= 6 (572) */
/* 568 */ 0x8, /* FC_LONG */
0x39, /* FC_ALIGNM8 */
/* 570 */ 0x36, /* FC_POINTER */
0x5b, /* FC_END */
/* 572 */
0x11, 0x0, /* FC_RP */
/* 574 */ NdrFcShort( 0xfffffde ), /* Offset= -36 (538) */
/* 576 */
0x2f, /* FC_IP */
0x5a, /*
FC_CONSTANT_IID */
/* 578 */ NdrFcLong( 0x2f ), /* 47 */
/* 582 */ NdrFcShort( 0x0 ), /* 0 */
/* 584 */ NdrFcShort( 0x0 ), /* 0 */
/* 586 */ 0xc0, /* 192 */
0x0, /* 0 */
/* 588 */ 0x0, /* 0 */
0x0, /* 0 */
/* 590 */ 0x0, /* 0 */
0x0, /* 0 */
/* 592 */ 0x0, /* 0 */
0x46, /* 70 */
/* 594 */
0x1b, /* FC_CARRAY */
0x0, /* 0 */
/* 596 */ NdrFcShort( 0x1 ), /* 1 */
/* 598 */ 0x19, /* Corr desc: field pointer, FC_ULONG */
0x0, /* */
/* 600 */ NdrFcShort( 0x4 ), /* 4 */
/* 602 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 604 */ 0x1, /* FC_BYTE */
0x5b, /* FC_END */
/* 606 */
0x1a, /*
FC_BOGUS_STRUCT */
0x3, /* 3 */
/* 608 */ NdrFcShort( 0x18 ), /* 24 */
/* 610 */ NdrFcShort( 0x0 ), /* 0 */
/* 612 */ NdrFcShort( 0xc ), /* Offset= 12 (624) */
/* 614 */ 0x8, /* FC_LONG */
0x8, /* FC_LONG */
/* 616 */ 0x4c, /* FC_EMBEDDED_COMPLEX */
0x0, /* 0 */
/* 618 */ NdrFcShort( 0xfffffd6 ), /* Offset= -42 (576) */
/* 620 */ 0x39, /* FC_ALIGNM8 */
0x36, /* FC_POINTER */
/* 622 */ 0x5c, /* FC_PAD */
0x5b, /* FC_END */
/* 624 */
0x12, 0x0, /* FC_UP */
/* 626 */ NdrFcShort( 0xfffffe0 ), /* Offset= -32 (594) */
/* 628 */
0x21, /*
FC_BOGUS_ARRAY */
0x3, /* 3 */
/* 630 */ NdrFcShort( 0x0 ), /* 0 */
/* 632 */ 0x19, /* Corr desc: field pointer, FC_ULONG */
0x0, /* */
/* 634 */ NdrFcShort( 0x0 ), /* 0 */
/* 636 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 638 */ NdrFcLong( 0xffffffff ), /* -1 */
/* 642 */ NdrFcShort( 0x0 ), /* Corr flags: */
/* 644 */
0x12, 0x0, /* FC_UP */
/* 646 */ NdrFcShort( 0xfffffd8 ), /* Offset= -40 (606) */
/* 648 */ 0x5c, /* FC_PAD */
0x5b, /* FC_END */
/* 650 */
0x1a, /*
FC_BOGUS_STRUCT */
0x3, /* 3 */
/* 652 */ NdrFcShort( 0x10 ), /* 16 */
/* 654 */ NdrFcShort( 0x0 ), /* 0 */
/* 656 */ NdrFcShort( 0x6 ), /* Offset= 6 (662) */
/* 658 */ 0x8, /* FC_LONG */
0x39, /* FC_ALIGNM8 */
/* 660 */ 0x36, /* FC_POINTER */
0x5b, /* FC_END */
/* 662 */
0x11, 0x0, /* FC_RP */
/* 664 */ NdrFcShort( 0xfffffde ), /* Offset= -36 (628) */
/* 666 */
0x1d, /* FC_SMFARRAY */
0x0, /* 0 */
/* 668 */ NdrFcShort( 0x8 ), /* 8 */
/* 670 */ 0x1, /* FC_BYTE */
0x5b, /* FC_END */
/* 672 */
0x15, /* FC_STRUCT */
0x3, /* 3 */
/* 674 */ NdrFcShort( 0x10 ), /* 16 */
/* 676 */ 0x8, /* FC_LONG */
0x6, /* FC_SHORT */
/* 678 */ 0x6, /* FC_SHORT */
0x4c, /*
FC_EMBEDDED_COMPLEX */
/* 680 */ 0x0, /* 0 */
NdrFcShort( 0xfffff1 ), /* Offset=
-15 (666) */
0x5b, /* FC_END */
/* 684 */
0x1a, /*
FC_BOGUS_STRUCT */
0x3, /* 3 */
/* 686 */ NdrFcShort( 0x20 ), /* 32 */
/* 688 */ NdrFcShort( 0x0 ), /* 0 */
/* 690 */ NdrFcShort( 0xa ), /* Offset= 10 (700) */
/* 692 */ 0x8, /* FC_LONG */
0x39, /* FC_ALIGNM8 */
/* 694 */ 0x36, /* FC_POINTER */
0x4c, /*
FC_EMBEDDED_COMPLEX */

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/* 696 */ 0x0, /* 0 */
-25 (672) */ NdrFcShort( 0xffffffe7 ), /* Offset=
/* 700 */ 0x5b, /* FC_END */
0x11, 0x0, /* FC_RP */
/* 702 */ NdrFcShort( 0xfffff10 ), /* Offset=-240 (462) */
/* 704 */ 0x1b, /* FC_CARRAY */
0x0, /* 0 */
/* 706 */ NdrFcShort( 0x1 ), /* 1 */
/* 708 */ 0x19, /* Corr desc: field pointer, FC_ULONG */
0x0, /* */
/* 710 */ NdrFcShort( 0x0 ), /* 0 */
/* 712 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 714 */ 0x1, /* FC_BYTE */
0x5b, /* FC_END */
/* 716 */ 0x1a, /*
FC_BOGUS_STRUCT */
0x3, /* 3 */
/* 718 */ NdrFcShort( 0x10 ), /* 16 */
/* 720 */ NdrFcShort( 0x0 ), /* 0 */
/* 722 */ NdrFcShort( 0x6 ), /* Offset= 6 (728) */
/* 724 */ 0x8, /* FC_LONG */
0x39, /* FC_ALIGNM8 */
/* 726 */ 0x36, /* FC_POINTER */
0x5b, /* FC_END */
/* 728 */ 0x12, 0x0, /* FC_UP */
/* 730 */ NdrFcShort( 0xfffffe6 ), /* Offset=-26 (704) */
/* 732 */ 0x1b, /* FC_CARRAY */
0x1, /* 1 */
/* 734 */ NdrFcShort( 0x2 ), /* 2 */
/* 736 */ 0x19, /* Corr desc: field pointer, FC_ULONG */
0x0, /* */
/* 738 */ NdrFcShort( 0x0 ), /* 0 */
/* 740 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 742 */ 0x6, /* FC_SHORT */
0x5b, /* FC_END */
/* 744 */ 0x1a, /*
FC_BOGUS_STRUCT */
0x3, /* 3 */
/* 746 */ NdrFcShort( 0x10 ), /* 16 */
/* 748 */ NdrFcShort( 0x0 ), /* 0 */
/* 750 */ NdrFcShort( 0x6 ), /* Offset= 6 (756) */
/* 752 */ 0x8, /* FC_LONG */
0x39, /* FC_ALIGNM8 */
/* 754 */ 0x36, /* FC_POINTER */
0x5b, /* FC_END */
/* 756 */ 0x12, 0x0, /* FC_UP */
/* 758 */ NdrFcShort( 0xfffffe6 ), /* Offset=-26 (732) */
/* 760 */ 0x1b, /* FC_CARRAY */
0x3, /* 3 */
/* 762 */ NdrFcShort( 0x4 ), /* 4 */
/* 764 */ 0x19, /* Corr desc: field pointer, FC_ULONG */
0x0, /* */
/* 766 */ NdrFcShort( 0x0 ), /* 0 */
/* 768 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 770 */ 0x8, /* FC_LONG */
0x5b, /* FC_END */
/* 772 */ 0x1a, /*
FC_BOGUS_STRUCT */
0x3, /* 3 */
/* 774 */ NdrFcShort( 0x10 ), /* 16 */
/* 776 */ NdrFcShort( 0x0 ), /* 0 */
/* 778 */ NdrFcShort( 0x6 ), /* Offset= 6 (784) */
/* 780 */ 0x8, /* FC_LONG */
0x39, /* FC_ALIGNM8 */
/* 782 */ 0x36, /* FC_POINTER */
0x5b, /* FC_END */
/* 784 */ 0x12, 0x0, /* FC_UP */
/* 786 */ NdrFcShort( 0xfffffe6 ), /* Offset=-26 (760) */
/* 788 */ 0x1b, /* FC_CARRAY */
0x7, /* 7 */
/* 790 */ NdrFcShort( 0x8 ), /* 8 */
/* 792 */ 0x19, /* Corr desc: field pointer, FC_ULONG */
0x0, /* */
/* 794 */ NdrFcShort( 0x0 ), /* 0 */
/* 796 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 798 */ 0xb, /* FC_HYPER */
0x5b, /* FC_END */
/* 800 */ 0x1a, /*
FC_BOGUS_STRUCT */
0x3, /* 3 */
/* 802 */ NdrFcShort( 0x10 ), /* 16 */
/* 804 */ NdrFcShort( 0x0 ), /* 0 */
/* 806 */ NdrFcShort( 0x6 ), /* Offset= 6 (812) */
/* 808 */ 0x8, /* FC_LONG */
0x39, /* FC_ALIGNM8 */
/* 810 */ 0x36, /* FC_POINTER */
0x5b, /* FC_END */
/* 812 */ 0x12, 0x0, /* FC_UP */
/* 814 */ NdrFcShort( 0xfffffe6 ), /* Offset=-26 (788) */
/* 816 */ 0x15, /* FC_STRUCT */
0x3, /* 3 */
/* 818 */ NdrFcShort( 0x8 ), /* 8 */
/* 820 */ 0x8, /* FC_LONG */
0x8, /* FC_LONG */
/* 822 */ 0x5c, /* FC_PAD */
0x5b, /* FC_END */
/* 824 */ 0x1b, /* FC_CARRAY */
0x3, /* 3 */
/* 826 */ NdrFcShort( 0x8 ), /* 8 */
/* 828 */ 0x7, /* Corr desc: FC_USHORT */
0x0, /* */
/* 830 */ NdrFcShort( 0xffc8 ), /* -56 */
/* 832 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 834 */ 0x4c, /* FC_EMBEDDED_COMPLEX */
0x0, /* 0 */
/* 836 */ NdrFcShort( 0xfffffec ), /* Offset=-20 (816) */
/* 838 */ 0x5c, /* FC_PAD */
0x5b, /* FC_END */
/* 840 */ 0x1a, /*
FC_BOGUS_STRUCT */
0x3, /* 3 */
/* 842 */ NdrFcShort( 0x38 ), /* 56 */
/* 844 */ NdrFcShort( 0xfffffec ), /* Offset=-20 (824) */
/* 846 */ NdrFcShort( 0x0 ), /* Offset= 0 (846) */
/* 848 */ 0x6, /* FC_SHORT */
0x6, /* FC_SHORT */
/* 850 */ 0x38, /* FC_ALIGNM4 */
0x8, /* FC_LONG */
/* 852 */ 0x8, /* FC_LONG */

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FC_EMBEDDED_COMPLEX /*
/* 854 */ 0x4, /* 4 */
NdrFcShort( 0xfffffe0d ), /* Offset=
-499 (356) */
/* 858 */
0x5b, /* FC_END */
/* 860 */ NdrFcShort( 0xfffff02 ), /* Offset= -254 (606) */
/* 862 */
0x12, 0x8, /* FC_UP [simple_pointer] */
/* FC_BYTE */
/* 864 */ 0x1,
0x5c, /* FC_PAD */
/* 866 */
0x12, 0x8, /* FC_UP [simple_pointer] */
/* FC_SHORT */
/* 868 */ 0x6,
0x5c, /* FC_PAD */
/* 870 */
0x12, 0x8, /* FC_UP [simple_pointer] */
/* FC_LONG */
/* 872 */ 0x8,
0x5c, /* FC_PAD */
/* 874 */
0x12, 0x8, /* FC_UP [simple_pointer] */
/* FC_FLOAT */
/* 876 */ 0xa,
0x5c, /* FC_PAD */
/* 878 */
0x12, 0x8, /* FC_UP [simple_pointer] */
/* FC_DOUBLE */
/* 880 */ 0xc,
0x5c, /* FC_PAD */
/* 882 */
0x12, 0x0, /* FC_UP */
/* 884 */ NdrFcShort( 0xffffda4 ), /* Offset= -604 (280) */
/* 886 */
0x12, 0x10, /* FC_UP
[pointer_deref] */
/* 888 */ NdrFcShort( 0xffffda6 ), /* Offset= -602 (286) */
/* 890 */
0x12, 0x10, /* FC_UP
[pointer_deref] */
/* 892 */ NdrFcShort( 0xffffdbc ), /* Offset= -580 (312) */
/* 894 */
0x12, 0x10, /* FC_UP
[pointer_deref] */
/* 896 */ NdrFcShort( 0xffffdca ), /* Offset= -566 (330) */
/* 898 */
0x12, 0x10, /* FC_UP
[pointer_deref] */
/* 900 */ NdrFcShort( 0xffffdd8 ), /* Offset= -552 (348) */
/* 902 */
0x12, 0x10, /* FC_UP
[pointer_deref] */
/* 904 */ NdrFcShort( 0x2 ), /* Offset= 2 (906) */
/* 906 */
0x12, 0x0, /* FC_UP */
/* 908 */ NdrFcShort( 0x16 ), /* Offset= 22 (930) */
/* 910 */
0x15, /* FC_STRUCT */
0x7, /* 7 */
/* 912 */ NdrFcShort( 0x10 ), /* 16 */
/* 914 */ 0x6, /* FC_SHORT */
0x1, /* FC_BYTE */
/* 916 */ 0x1, /* FC_BYTE */
0x38, /* FC_ALIGNM4 */
/* 918 */ 0x8, /* FC_LONG */
0x39, /* FC_ALIGNM8 */
/* 920 */ 0xb, /* FC_HYPER */
0x5b, /* FC_END */
/* 922 */

```

```

0x12, 0x0, /* FC_UP */
/* 924 */ NdrFcShort( 0xfffff2 ), /* Offset= -14 (910) */
/* 926 */
0x12, 0x8, /* FC_UP [simple_pointer] */
/* FC_CHAR */
/* 928 */ 0x2,
0x5c, /* FC_PAD */
/* 930 */
0x1a, /*
FC_BOGUS_STRUCT */
0x7, /* 7 */
/* 932 */ NdrFcShort( 0x20 ), /* 32 */
/* 934 */ NdrFcShort( 0x0 ), /* 0 */
/* 936 */ NdrFcShort( 0x0 ), /* Offset= 0 (936) */
/* 938 */ 0x8, /* FC_LONG */
0x8, /* FC_LONG */
/* 940 */ 0x6, /* FC_SHORT */
0x6, /* FC_SHORT */
/* 942 */ 0x6, /* FC_SHORT */
0x6, /* FC_SHORT */
/* 944 */ 0x4c, /* FC_EMBEDDED_COMPLEX */
0x0, /* 0 */
/* 946 */ NdrFcShort( 0xffffc54 ), /* Offset= -940 (6) */
/* 948 */ 0x5c, /* FC_PAD */
0x5b, /* FC_END */
/* 950 */ 0xb4, /* FC_USER_MARSHAL */
0x83, /* 131 */
/* 952 */ NdrFcShort( 0x0 ), /* 0 */
/* 954 */ NdrFcShort( 0x18 ), /* 24 */
/* 956 */ NdrFcShort( 0x0 ), /* 0 */
/* 958 */ NdrFcShort( 0xffffc44 ), /* Offset= -956 (2) */
/* 960 */
0x11, 0x4, /* FC_RP [allocated_on_stack] */
/* 962 */ NdrFcShort( 0x6 ), /* Offset= 6 (968) */
/* 964 */
0x13, 0x0, /* FC_OP */
/* 966 */ NdrFcShort( 0xfffffdc ), /* Offset= -36 (930) */
/* 968 */ 0xb4, /* FC_USER_MARSHAL */
0x83, /* 131 */
/* 970 */ NdrFcShort( 0x0 ), /* 0 */
/* 972 */ NdrFcShort( 0x18 ), /* 24 */
/* 974 */ NdrFcShort( 0x0 ), /* 0 */
/* 976 */ NdrFcShort( 0xffffff4 ), /* Offset= -12 (964) */
0x0
}
};
const CInterfaceProxyVtbl * _tpcc_com_ps_ProxyVtblList[] =
{
( CInterfaceProxyVtbl *) &_ITPCCProxyVtbl,
0
};
const CInterfaceStubVtbl * _tpcc_com_ps_StubVtblList[] =
{
( CInterfaceStubVtbl *) &_ITPCCStubVtbl,
0
};
PCInterfaceName const _tpcc_com_ps_InterfaceNamesList[] =
{
"ITPCC",
0
};
#define _tpcc_com_ps_CHECK_IID(n) IID_GENERIC_CHECK_IID(
_tpcc_com_ps, piID, n)

```

```

int __stdcall _tpcc_com_ps_IID_Lookup( const IID * pIID, int * pIndex )
{
    if(!_tpcc_com_ps_CHECK_IID(0))
    {
        *pIndex = 0;
        return 1;
    }

    return 0;
}

```

```

const ExtendedProxyFileInfo tpcc_com_ps_ProxyFileInfo =
{
    (PCInterfaceProxyVtblList *) & _tpcc_com_ps_ProxyVtblList,
    (PCInterfaceStubVtblList *) & _tpcc_com_ps_StubVtblList,
    (const PCInterfaceName *) & _tpcc_com_ps_InterfaceNamesList,
    0, // no delegation
    & _tpcc_com_ps_IID_Lookup,
    1,
    2,
    0, /* table of [async_uuid] interfaces */
    0, /* Filler1 */
    0, /* Filler2 */
    0 /* Filler3 */
};

```

```
#endif /* defined(_M_IA64) || defined(_M_AXP64)*/
```

Tpcc_com_sl.rgs

```

HKCR
{
    TPCC.StockLevel.1 = s 'StockLevel Class'
    {
        CLSID = s
        '{2668369E-A50D-11D2-BA4E-00C04FBFE08B}'
    }
    TPCC.StockLevel = s 'StockLevel Class'
    {
        CurVer = s 'TPCC.StockLevel.1'
    }
    NoRemove CLSID
    {
        ForceRemove
        {2668369E-A50D-11D2-BA4E-00C04FBFE08B} = s 'StockLevel Class'
        {
            ProgID = s 'TPCC.StockLevel.1'
            VersionIndependentProgID = s
            'TPCC.StockLevel'
            InprocServer32 = s '%MODULE%'
            {
                val ThreadingModel = s 'Both'
            }
        }
    }
}

```

tpcc_odbc.cpp

```

/* FILE: TPCC_ODBC.CPP
 * Microsoft TPC-C Kit Ver.
4.20.000

```

```

* Copyright Microsoft, 1999
* All Rights Reserved
*
* Version 4.10.000 audited by
Richard Gimarc, Performance Metrics, 3/17/99
*
* PURPOSE: Implements ODBC calls for TPC-C txns.
* Contact: Charles Levine (clevine@microsoft.com)
*
* Change history:
* 4.20.000 - updated rev number to match kit
* 4.10.001 - not deleting error class in catch handler on
deadlock retry;
* not a functional bug, but a
memory leak
*/
#include <windows.h>
#include <stdio.h>
#include <assert.h>

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

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

// need to declare functions for export
#define DllDecl __declspec( dllexport )

#include "..\..\common\src\error.h"
#include "..\..\common\src\trans.h"
#include "..\..\common\src\txn_base.h"
#include "tpcc_odbc.h"

// version string; must match return value from tpcc_version stored proc
const char sVersion[] = "4.10.000";

const iMaxRetries = 10; // how many retries on deadlock

const int iErrOleDbProvider = 7312;
const char sErrTimeoutExpired[] = "Timeout expired";

static SQLHENV henv = SQL_NULL_HENV;
// ODBC environment handle

BOOL WINAPIENTRY DllMain(HMODULE hModule, DWORD
ul_reason_for_call, LPVOID lpReserved)
{
    switch( ul_reason_for_call )
    {
        case DLL_PROCESS_ATTACH:
            DisableThreadLibraryCalls(hModule);
            if (
SQLAllocHandleStd(SQL_HANDLE_ENV, SQL_NULL_HANDLE, &henv)
!= SQL_SUCCESS )
                return FALSE;
                break;

        case DLL_PROCESS_DETACH:
            if (henv != NULL)
                SQLFreeEnv(henv);
            break;
    }
}

```

```

        default:
            /* nothing */;
        }
        return TRUE;
    }

/* FUNCTION: CTPCC_ODBC_ERR::ErrorText
 *
 */

char* CTPCC_ODBC_ERR::ErrorText(void)
{
    int i;

    static SERRORMSG errorMsgs[] =
    {
        { ERR_WRONG_SP_VERSION,
        "Wrong version of stored procs on database server" },
        { ERR_INVALID_CUST,
        "Invalid Customer id,name." },
        { ERR_NO_SUCH_ORDER,
        "No orders found for customer." },
        { ERR_RETRIED_TRANS,
        "Retries before transaction succeeded." },
        { 0,
        "" }
    };

    static char szNotFound[] = "Unknown error number.";

    for(i=0; errorMsgs[i].szMsg[0]; i++)
    {
        if ( m_erno == errorMsgs[i].iError )
            break;
    }
    if ( !errorMsgs[i].szMsg[0] )
        return szNotFound;
    else
        return errorMsgs[i].szMsg;
}

// wrapper routine for class constructor
__declspec(dllexport) CTPCC_ODBC* CTPCC_ODBC_new(
    LPCSTR szServer,          // name of SQL server
    LPCSTR szUser,           // user name for login
    LPCSTR szPassword,      // password for login
    LPCSTR szHost,          // not used
    LPCSTR szDatabase )     // name of database to use
{
    return new CTPCC_ODBC( szServer, szUser, szPassword, szHost,
szDatabase );
}

CTPCC_ODBC::CTPCC_ODBC (
    LPCSTR szServer,          // name of
SQL server
    LPCSTR szUser,           //
user name for login
    LPCSTR szPassword,      // password
for login
    LPCSTR szHost,          //
not used
    LPCSTR szDatabase      // name of
database to use
)
{
    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);

    {
        char          buffer[128];

        // set some options affecting connection behavior
strcpy(buffer, "set nocount on set XACT_ABORT ON");
rc = SQLExecDirect(m_hstmt, (unsigned char *)buffer,
SQL_NTS);

        if (rc != SQL_SUCCESS && 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 && !INativeError !=
0)
            pODBCErr->m_NativeError = INativeError;

        // quit if there isn't enough room to concatenate error text
        if ( (strlen(szMsg) + 2) > (sizeof(szTmp) - strlen(szTmp))
)
            break;

        // include line break after first error msg
        if (szTmp[0] != 0)
            strcat( szTmp, "\n");
        strcat( szTmp, szMsg );
    }

    if (pODBCErr->m_odbcerrstr != NULL)
    {
        delete [] pODBCErr->m_odbcerrstr;
        pODBCErr->m_odbcerrstr = NULL;
    }

    if (strlen(szTmp) > 0)
    {
        pODBCErr->m_odbcerrstr = new char[ strlen(szTmp)+1
];
        strcpy( pODBCErr->m_odbcerrstr, szTmp );
    }

    SQLFreeStmt(m_hstmt, SQL_CLOSE);
    throw pODBCErr;
}

void CTPCC_ODBC::InitStockLevelParams()
{
    if ( SQLAllocHandle(SQL_HANDLE_STMT, m_hdbc,
&m_hstmtStockLevel) != SQL_SUCCESS )
        ThrowError(CODBCERR::eAllocHandle);

    m_hstmt = m_hstmtStockLevel;

    int i = 0;
    if ( SQLBindParameter(m_hstmt, ++i, SQL_PARAM_INPUT,
SQL_C_SSHORT, SQL_SMALLINT, 0, 0, &m_txn.StockLevel.w_id, 0,
NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT, SQL_TINYINT, 0, 0,
&m_txn.StockLevel.d_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SSHORT, SQL_SMALLINT, 0, 0,
&m_txn.StockLevel.threshold, 0, NULL) != SQL_SUCCESS
    )
        ThrowError(CODBCERR::eBindParam);

    if ( SQLBindCol(m_hstmt, 1, SQL_C_SLONG,
&m_txn.StockLevel.low_stock, 0, NULL) != SQL_SUCCESS )
        ThrowError(CODBCERR::eBindCol);
}

void CTPCC_ODBC::StockLevel()
{
    RETCODE          rc;
    int              iTryCount = 0;

    m_hstmt = m_hstmtStockLevel;

```

```

while (TRUE)
{
    try
    {
        rc = SQLExecDirectW(m_hstmt,
(SQLWCHAR*)L" {call tpcc_stocklevel(?,?,?)", SQL_NTS);
        if (rc != SQL_SUCCESS && rc !=
SQL_SUCCESS_WITH_INFO)
ThrowError(CODBCERR::eExecDirect);

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

        SQLFreeStmt(m_hstmt, SQL_CLOSE);

        m_txn.StockLevel.exec_status_code = eOK;
        break;
    }
    catch (CODBCERR *e)
    {
        if ((!e->m_bDeadLock) || (++iTryCount >
iMaxRetries))
            throw;

        // hit deadlock; backoff for increasingly longer
        period
            delete e;
            Sleep(10 * iTryCount);
    }

    // if (iTryCount)
    // throw new
    CTPCC_ODBC_ERR(CTPCC_ODBC_ERR::ERR_RETRIED_TRANS,
iTryCount);
}

void CTPCC_ODBC::InitNewOrderParams()
{
    if ( SQLAllocHandle(SQL_HANDLE_STMT, m_hdbc,
&m_hstmtNewOrder) != SQL_SUCCESS
        || SQLAllocHandle(SQL_HANDLE_DESC, m_hdbc,
&m_descNewOrderCols1) != SQL_SUCCESS
        || SQLAllocHandle(SQL_HANDLE_DESC, m_hdbc,
&m_descNewOrderCols2) != SQL_SUCCESS
    )
        ThrowError(CODBCERR::eAllocHandle);

    m_hstmt = m_hstmtNewOrder;

    if ( SQLSetStmtAttrW(m_hstmt, SQL_ATTR_APP_ROW_DESC,
m_descNewOrderCols1, SQL_IS_POINTER ) != SQL_SUCCESS )
        ThrowError(CODBCERR::eSetStmtAttr);

    int i = 0;
    if ( SQLBindParameter(m_hstmt, ++i, SQL_PARAM_INPUT,
SQL_C_SSHORT, SQL_SMALLINT, 0, 0, &m_txn.NewOrder.w_id, 0,
NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT, SQL_TINYINT, 0, 0,
&m_txn.NewOrder.d_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SLONG, SQL_INTEGER, 0, 0,
&m_txn.NewOrder.c_id, 0, NULL) != SQL_SUCCESS
        || 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_SSHORT, SQL_SMALLINT, 0, 0,
&m_txn.NewOrder.OL[j].ol_supply_w_id, 0, NULL) != SQL_SUCCESS
            || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SSHORT, SQL_SMALLINT, 0, 0,
&m_txn.NewOrder.OL[j].ol_quantity, 0, NULL) != SQL_SUCCESS
        )
            ThrowError(CODBCERR::eBindParam);
    }

    // set the bind offset pointer
    if ( SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_ROW_BIND_OFFSET_PTR, &m_BindOffset,
SQL_IS_POINTER ) != SQL_SUCCESS )
        ThrowError(CODBCERR::eSetStmtAttr);

    i = 0;
    if ( SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.NewOrder.OL[0].ol_i_name,
sizeof(m_txn.NewOrder.OL[0].ol_i_name), NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_SSHORT,
&m_txn.NewOrder.OL[0].ol_stock, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.NewOrder.OL[0].ol_brand_generic,
sizeof(m_txn.NewOrder.OL[0].ol_brand_generic), NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.NewOrder.OL[0].ol_i_price, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.NewOrder.OL[0].ol_amount, 0, NULL) != SQL_SUCCESS
    )
        ThrowError(CODBCERR::eBindCol);

    // associate the column bindings for the second result set
    if ( SQLSetStmtAttrW(m_hstmt, SQL_ATTR_APP_ROW_DESC,
m_descNewOrderCols2, SQL_IS_POINTER ) != SQL_SUCCESS )
        ThrowError(CODBCERR::eSetStmtAttr);

    i = 0;
    if ( SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.NewOrder.w_tax, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.NewOrder.d_tax, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_SLONG,
&m_txn.NewOrder.o_id, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.NewOrder.c_last, sizeof(m_txn.NewOrder.c_last), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.NewOrder.c_discount, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.NewOrder.c_credit, sizeof(m_txn.NewOrder.c_credit), NULL) !=
SQL_SUCCESS

```

```

        // SQLBindCol(m_hstmt, ++i,
SQL_C_TYPE_TIMESTAMP, &m_txn.NewOrder.o_entry_d, 0, NULL) !=
SQL_SUCCESS
        // SQLBindCol(m_hstmt, ++i, SQL_C_SLONG,
&m_no_commit_flag, 0, NULL) != SQL_SUCCESS
    )
        ThrowError(CODBCERR::eBindCol);
}

void CTPCC_ODBC::NewOrder()
{
    int
    RETCODE
    int
    i;
    rc;
    iTryCount =
0;

    // 0 1 2
    // 012345678901234567890123456789
    wchar_t
    szSqlTemplate[] =
L" {call tpcc_neworder(?,?,?,?,,"
    L"?,?,?,?,?,?,?,?,?,?,?,?,,"
    L"?,?,?,?,?,?,?,?,?,?,?,?,,"
    L"?,?,?,?,?,?,?,?,?,?,?,?,?)}";

    m_hstmt = m_hstmtNewOrder;

    // associate the parameter and column bindings for this transaction
    if ( SQLSetStmtAttrW( m_hstmt, SQL_ATTR_APP_ROW_DESC,
m_descNewOrderCols1, SQL_IS_POINTER ) != SQL_SUCCESS )
        ThrowError(CODBCERR::eSetStmtAttr);

    // clip statement buffer based on number of parameters
    // fixed part is 29 chars and variable part is 6 chars per line item
    i = 29 + m_txn.NewOrder.o_ol_cnt*6;
    wcsncpy( &szSqlTemplate[i], L"");

    // check whether any order lines are for a remote warehouse
    m_txn.NewOrder.o_all_local = 1;
    for (i = 0; i < m_txn.NewOrder.o_ol_cnt; i++)
    {
        if (m_txn.NewOrder.OL[i].ol_supply_w_id !=
m_txn.NewOrder.w_id)
        {
            m_txn.NewOrder.o_all_local = 0; // at least
            one remote warehouse
            break;
        }
    }

    while (TRUE)
    {
        try
        {
            m_BindOffset = 0;
            rc = SQLExecDirectW(m_hstmt,
(SQLWCHAR*)szSqlTemplate, SQL_NTS);
            if (rc != SQL_SUCCESS && rc !=
SQL_SUCCESS_WITH_INFO)
                ThrowError(CODBCERR::eExecDirect);

            // Get order line results
            m_txn.NewOrder.total_amount = 0;
            for (i = 0; i < m_txn.NewOrder.o_ol_cnt; i++)

```

```

        {
            // set the bind offset value...
            m_BindOffset = i *
sizeof(m_txn.NewOrder.OL[0]);

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

            // move to the next resultset
            if ( SQLMoreResults(m_hstmt) ==
SQL_ERROR )
                ThrowError(CODBCERR::eMoreResults);

            m_txn.NewOrder.total_amount +=
m_txn.NewOrder.OL[i].ol_amount;
        }

        // associate the column bindings for the
second result set
        if ( SQLSetStmtAttrW( m_hstmt,
SQL_ATTR_APP_ROW_DESC, m_descNewOrderCols2, SQL_IS_POINTER
) != SQL_SUCCESS )
            ThrowError(CODBCERR::eSetStmtAttr);

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

            SQLFreeStmt(m_hstmt, SQL_CLOSE);

            if (m_no_commit_flag == 1)
            {
                m_txn.NewOrder.total_amount +=
((1 + m_txn.NewOrder.w_tax + m_txn.NewOrder.d_tax) * (1 -
m_txn.NewOrder.c_discount));

                m_txn.NewOrder.exec_status_code = eOK;
            }
            else
                m_txn.NewOrder.exec_status_code = eInvalidItem;

            break;
        }
        catch (CODBCERR *e)
        {
            if ((!e->m_bDeadLock) || (++iTryCount >
iMaxRetries))
                throw;

            // hit deadlock; backoff for increasingly longer
period
            delete e;
            Sleep(10 * iTryCount);
        }
    }

    // if (iTryCount)
    // throw new
CTPCC_ODBC_ERR(CTPCC_ODBC_ERR::ERR_RETRIED_TRANS,
iTryCount);
}

void CTPCC_ODBC::InitPaymentParams()

```

```

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

    m_hstmt = m_hstmtPayment;

    int i = 0;
    if ( SQLBindParameter(m_hstmt, ++i, SQL_PARAM_INPUT,
SQL_C_SSHORT, SQL_SMALLINT, 0, 0, &m_txn.Payment.w_id, 0, NULL)
!= SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SSHORT, SQL_SMALLINT, 0, 0,
&m_txn.Payment.c_w_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_DOUBLE, SQL_NUMERIC, 6, 2,
&m_txn.Payment.h_amount, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT, SQL_TINYINT, 0, 0,
&m_txn.Payment.d_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT, SQL_TINYINT, 0, 0,
&m_txn.Payment.c_d_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SLONG, SQL_INTEGER, 0, 0,
&m_txn.Payment.c_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_CHAR, SQL_CHAR,
sizeof(m_txn.Payment.c_last), 0, &m_txn.Payment.c_last,
sizeof(m_txn.Payment.c_last), NULL) != SQL_SUCCESS
    )
        ThrowError(CODBCERR::eBindParam);

    i = 0;
    if ( SQLBindCol(m_hstmt, ++i, SQL_C_SLONG,
&m_txn.Payment.c_id, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_last, sizeof(m_txn.Payment.c_last),
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_TYPE_TIMESTAMP, &m_txn.Payment.h_date,
0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.w_street_1, sizeof(m_txn.Payment.w_street_1),
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.w_street_2, sizeof(m_txn.Payment.w_street_2),
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),
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.d_street_2, sizeof(m_txn.Payment.d_street_2),
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),
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_street_1, sizeof(m_txn.Payment.c_street_1),
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_street_2, sizeof(m_txn.Payment.c_street_2),
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),
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.Payment.c_credit_lim, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.Payment.c_discount, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.Payment.c_balance, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_data, sizeof(m_txn.Payment.c_data),
NULL) != SQL_SUCCESS
    )
        ThrowError(CODBCERR::eBindCol);
}

void CTPCC_ODBC::Payment()
{
    RETCODE rc;
    int iTryCount = 0;

    m_hstmt = m_hstmtPayment;

    if (m_txn.Payment.c_id != 0)
        m_txn.Payment.c_last[0] = 0;

    while (TRUE)
    {
        try
        {
            rc = SQLExecDirectW(m_hstmt,
(SQLWCHAR*)"L" {call tpcc_payment(?,?,?,?,?,?)}", SQL_NTS);
            if (rc != SQL_SUCCESS && rc !=
SQL_SUCCESS_WITH_INFO)

```

```

ThrowError(CODBCERR::eExecDirect);

        if ( SQLFetch(m_hstmt) == SQL_ERROR)

ThrowError(CODBCERR::eFetch);

        SQLFreeStmt(m_hstmt, SQL_CLOSE);

        if (m_txn.Payment.c_id == 0)
            throw new CTPCC_ODBC_ERR(
CTPCC_ODBC_ERR::ERR_INVALID_CUST );
        else
            m_txn.Payment.exec_status_code

= eOK;

                break;
            }
        catch (CODBCERR *e)
        {
            if ((!e->m_bDeadLock) || (++iTryCount >
iMaxRetries))
                throw;

            // hit deadlock; backoff for increasingly longer
            period

                delete e;
                Sleep(10 * iTryCount);
            }
        }

//        if (iTryCount)
//            throw new
CTPCC_ODBC_ERR(CTPCC_ODBC_ERR::ERR_RETRIED_TRANS,
iTryCount);
}

void CTPCC_ODBC::InitOrderStatusParams()
{
    if ( SQLAllocHandle(SQL_HANDLE_STMT, m_hdbc,
&m_hstmtOrderStatus) != SQL_SUCCESS
        || SQLAllocHandle(SQL_HANDLE_DESC, m_hdbc,
&m_descOrderStatusCols1) != SQL_SUCCESS
        || SQLAllocHandle(SQL_HANDLE_DESC, m_hdbc,
&m_descOrderStatusCols2) != SQL_SUCCESS
    )
        ThrowError(CODBCERR::eAllocHandle);

    m_hstmt = m_hstmtOrderStatus;

    if ( SQLSetStmtAttrW( m_hstmt, SQL_ATTR_APP_ROW_DESC,
m_descOrderStatusCols1, SQL_IS_POINTER ) != SQL_SUCCESS )
        ThrowError(CODBCERR::eSetStmtAttr);

    int i = 0;
    if ( SQLBindParameter(m_hstmt, ++i, SQL_PARAM_INPUT,
SQL_C_SSHORT, SQL_SMALLINT, 0, 0, &m_txn.OrderStatus.w_id, 0,
NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT, SQL_TINYINT, 0, 0,
&m_txn.OrderStatus.d_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SLONG, SQL_INTEGER, 0, 0,
&m_txn.OrderStatus.c_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_CHAR, SQL_CHAR,
sizeof(m_txn.OrderStatus.c_last), 0, &m_txn.OrderStatus.c_last,
sizeof(m_txn.OrderStatus.c_last), NULL) != SQL_SUCCESS

```

```

        )
        ThrowError(CODBCERR::eBindParam);

        // configure block cursor
        if ( SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_ROW_BIND_TYPE,
(SQLPOINTER)sizeof(m_txn.OrderStatus.OL[0]), 0) != SQL_SUCCESS
            || SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_ROWS_FETCHED_PTR, &m_RowsFetched, 0) !=
SQL_SUCCESS
        )
            ThrowError(CODBCERR::eSetStmtAttr);

        i = 0;
        if ( SQLBindCol(m_hstmt, ++i, SQL_C_SSHORT,
&m_txn.OrderStatus.OL[0].ol_supply_w_id, 0, NULL) != SQL_SUCCESS
            || SQLBindCol(m_hstmt, ++i, SQL_C_SLONG,
&m_txn.OrderStatus.OL[0].ol_i_id, 0, NULL) != SQL_SUCCESS
            || SQLBindCol(m_hstmt, ++i, SQL_C_SSHORT,
&m_txn.OrderStatus.OL[0].ol_quantity, 0, NULL) != SQL_SUCCESS
            || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.OrderStatus.OL[0].ol_amount, 0, NULL) != SQL_SUCCESS
            || SQLBindCol(m_hstmt, ++i,
SQL_C_TYPE_TIMESTAMP, &m_txn.OrderStatus.OL[0].ol_delivery_d, 0,
NULL) != SQL_SUCCESS
        )
            ThrowError(CODBCERR::eBindCol);

        if ( SQLSetStmtAttrW( m_hstmt, SQL_ATTR_APP_ROW_DESC,
m_descOrderStatusCols2, SQL_IS_POINTER ) != SQL_SUCCESS )
            ThrowError(CODBCERR::eSetStmtAttr);

        i = 0;
        if ( SQLBindCol(m_hstmt, ++i, SQL_C_SLONG,
&m_txn.OrderStatus.c_id, 0, NULL) != SQL_SUCCESS
            || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.OrderStatus.c_last, sizeof(m_txn.OrderStatus.c_last), NULL) !=
SQL_SUCCESS
            || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.OrderStatus.c_first, sizeof(m_txn.OrderStatus.c_first), NULL) !=
SQL_SUCCESS
            || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.OrderStatus.c_middle, sizeof(m_txn.OrderStatus.c_middle), NULL) !=
SQL_SUCCESS
            || SQLBindCol(m_hstmt, ++i,
SQL_C_TYPE_TIMESTAMP, &m_txn.OrderStatus.o_entry_d, 0, NULL) !=
SQL_SUCCESS
            || SQLBindCol(m_hstmt, ++i, SQL_C_SSHORT,
&m_txn.OrderStatus.o_carrier_id, 0, NULL) != SQL_SUCCESS
            || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.OrderStatus.c_balance, 0, NULL) != SQL_SUCCESS
            || SQLBindCol(m_hstmt, ++i, SQL_C_SLONG,
&m_txn.OrderStatus.o_id, 0, NULL) != SQL_SUCCESS
        )
            ThrowError(CODBCERR::eBindCol);
    }

void CTPCC_ODBC::OrderStatus()
{
    int
iTryCount = 0;
    RETCODE
rc;

    m_hstmt = m_hstmtOrderStatus;

```

```

        if ( SQLSetStmtAttrW( m_hstmt, SQL_ATTR_APP_ROW_DESC,
m_descOrderStatusCols1, SQL_IS_POINTER ) != SQL_SUCCESS )
            ThrowError(CODBCERR::eSetStmtAttr);

        if ( m_txn.OrderStatus.c_id != 0 )
            m_txn.OrderStatus.c_last[0] = 0;

        while (TRUE)
        {
            try
            {
                // configure block cursor
                if ( SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_ROW_ARRAY_SIZE, (SQLPOINTER)1, 0) != SQL_SUCCESS )
                    ThrowError(CODBCERR::eSetStmtAttr);

                rc = SQLExecDirectW(m_hstmt,
(SQLWCHAR*)L" {call tpcc_orderstatus(?,?,?)", SQL_NTS);
                if ( ((rc == SQL_SUCCESS_WITH_INFO)
&& ( m_RowsFetched != 0)) || (rc == SQL_ERROR) )
                    ThrowError(CODBCERR::eExecDirect);

                // configure block cursor
                if ( SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_ROW_ARRAY_SIZE,
(SQLPOINTER)MAX_OL_ORDER_STATUS_ITEMS, 0) != SQL_SUCCESS
)
                    ThrowError(CODBCERR::eSetStmtAttr);

                rc = SQLFetchScroll( m_hstmt,
SQL_FETCH_NEXT, 0 );
                if ( ((rc == SQL_SUCCESS_WITH_INFO)
&& ( m_RowsFetched != 0)) || (rc == SQL_ERROR) )
                    ThrowError(CODBCERR::eFetchScroll);

                m_txn.OrderStatus.o_ol_cnt =
(short)m_RowsFetched;

                if ( m_txn.OrderStatus.o_ol_cnt != 0 )
                {
                    if ( SQLSetStmtAttrW( m_hstmt,
SQL_ATTR_APP_ROW_DESC, m_descOrderStatusCols2,
SQL_IS_POINTER ) != SQL_SUCCESS )
                        ThrowError(CODBCERR::eSetStmtAttr);

                    if ( SQLMoreResults(m_hstmt) ==
SQL_ERROR )
                        ThrowError(CODBCERR::eMoreResults);

                    if ( ( rc = SQLFetch(m_hstmt) ) ==
SQL_ERROR )
                        ThrowError(CODBCERR::eFetch);
                }

                SQLFreeStmt(m_hstmt, SQL_CLOSE);

                if ( m_txn.OrderStatus.o_ol_cnt == 0 )
                    throw new CTPCC_ODBC_ERR(
CTPCC_ODBC_ERR::ERR_NO_SUCH_ORDER );
                else if ( m_txn.OrderStatus.c_id == 0 &&
m_txn.OrderStatus.c_last[0] == 0 )

```

```

                    throw new CTPCC_ODBC_ERR(
CTPCC_ODBC_ERR::ERR_INVALID_CUST );
                else
                    m_txn.OrderStatus.exec_status_code = eOK;

                break;
            }
            catch (CODBCERR *e)
            {
                if ( (!e->m_bDeadLock) || (++iTryCount >
iMaxRetries) )
                    throw;

                // hit deadlock; backoff for increasingly longer
                period

                delete e;
                Sleep(10 * iTryCount);
            }

            // if (iTryCount)
            //     throw new
CTPCC_ODBC_ERR(CTPCC_ODBC_ERR::ERR_RETRIED_TRANS,
iTryCount);
        }

        void CTPCC_ODBC::InitDeliveryParams()
        {
            if ( SQLAllocHandle(SQL_HANDLE_STMT, m_hdbc,
&m_hstmtDelivery) != SQL_SUCCESS )
                ThrowError(CODBCERR::eAllocHandle);

            m_hstmt = m_hstmtDelivery;

            int i = 0;
            if ( SQLBindParameter(m_hstmt, ++i, SQL_PARAM_INPUT,
SQL_C_SSHORT, SQL_SMALLINT, 0, 0, &m_txn.Delivery.w_id, 0, NULL)
!= SQL_SUCCESS
                || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SSHORT, SQL_SMALLINT, 0, 0,
&m_txn.Delivery.o_carrier_id, 0, NULL) != SQL_SUCCESS
            )
                ThrowError(CODBCERR::eBindParam);

            for (i=0; i<10; i++)
            {
                if ( SQLBindCol(m_hstmt, (UWORD)(i+1),
SQL_C_SLONG, &m_txn.Delivery.o_id[i], 0, NULL) != SQL_SUCCESS )
                    ThrowError(CODBCERR::eBindCol);
            }
        }

        void CTPCC_ODBC::Delivery()
        {
            RETCODE rc;
            int iTryCount = 0;

            m_hstmt = m_hstmtDelivery;

            while (TRUE)
            {
                try
                {
                    rc = SQLExecDirectW(m_hstmt,
(SQLWCHAR*)L" {call tpcc_delivery(?,?)", SQL_NTS);
                    if (rc != SQL_SUCCESS && rc !=
SQL_SUCCESS_WITH_INFO)

```

```

ThrowError(CODBCERR::eExecDirect);
        if ( SQLFetch(m_hstmt) == SQL_ERROR )
ThrowError(CODBCERR::eFetch);
        SQLFreeStmt(m_hstmt, SQL_CLOSE);
        m_txn.Delivery.exec_status_code = eOK;
        break;
    }
    catch (CODBCERR *e)
    {
        if ((!e->m_bDeadLock) || (++iTryCount >
iMaxRetries))
            throw;

        // hit deadlock; backoff for increasingly longer
        period

        delete e;
        Sleep(10 * iTryCount);
    }

    //      if (iTryCount)
    //          throw new
CTPCC_ODBC_ERR(CTPCC_ODBC_ERR::ERR_RETRIED_TRANS,
iTryCount);
}

```

tpcc_odbc.h

```

/*      FILE:          TPCC_ODBC.H
*          Microsoft TPC-C Kit Ver.
4.20.000
*          Copyright Microsoft, 1999
*          All Rights Reserved
*
*          Version 4.10.000 audited by
Richard Gimarc, Performance Metrics, 3/17/99
*
*      PURPOSE:      Header file for TPC-C txn class
implementation.
*
*      Change history:
*          4.20.000 - updated rev number to match kit
*/
#pragma once

// need to declare functions for import, unless define has already been created
// by the DLL's .cpp module for export.
#ifdef DllDecl
#define DllDecl __declspec( dllimport )
#endif

class CODBCERR : public CBaseErr
{
public:
    enum ACTION
    {
        eNone,
        eUnknown,
        eAllocConn,
        error from SQLAllocConnect
        eAllocHandle,
        SQLAllocHandle
    }
};

```

```

eConnOption,
SQLSetConnectOption
eConnect,
error from SQLAllocStmt
eAllocStmt,
eExecDirect,
eBindParam,
eBindCol,
eFetch,
eFetchScroll,
eMoreResults,
ePrepare,
eExecute,
eSetEnvAttr,
eSetStmtAttr
SQLSetEnvAttr
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;

    void ThrowError( CODBCERR::ACTION eAction );

    void InitNewOrderParams();
    void InitPaymentParams();
    void InitDeliveryParams();
    void InitStockLevelParams();
    void InitOrderStatusParams();

    union
    {
        NEW_ORDER_DATA
NewOrder;
        PAYMENT_DATA          Payment;
        DELIVERY_DATA         Delivery;
        STOCK_LEVEL_DATA      StockLevel;
        ORDER_STATUS_DATA     OrderStatus;
    } m_txn;

public:
    CTPCC_ODBC(LPCSTR szServer, LPCSTR szUser,
LPCSTR szPassword, LPCSTR szHost, LPCSTR szDatabase);
    ~CTPCC_ODBC(void);

        inline PNEW_ORDER_DATA
BuffAddr_NewOrder() { return &m_txn.NewOrder; };
        inline PPAYMENT_DATA
BuffAddr_Payment() { return &m_txn.Payment; };
        inline PDELIVERY_DATA
BuffAddr_Delivery() { return &m_txn.Delivery; };
        inline PSTOCK_LEVEL_DATA BuffAddr_StockLevel()
{ return &m_txn.StockLevel; };
        inline PORDER_STATUS_DATA
BuffAddr_OrderStatus() { return &m_txn.OrderStatus; };

        void NewOrder          ();
        void Payment           ();
        void Delivery          ();
        void StockLevel        ();
        void OrderStatus       ();
};

// wrapper routine for class constructor
extern "C" DllDecl CTPCC_ODBC* CTPCC_ODBC_new
( LPCSTR szServer, LPCSTR szUser, LPCSTR szPassword,
LPCSTR szHost, LPCSTR szDatabase );

typedef CTPCC_ODBC* (TYPE_CTPCC_ODBC)(LPCSTR, LPCSTR,
LPCSTR, LPCSTR, LPCSTR);

```

trans.h

```

/*      FILE:          TRANS.H
*
*      Microsoft TPC-C Kit Ver.
4.20.000
*
*      Copyright Microsoft, 1999
*
*      All Rights Reserved
*
*
*      Version 4.10.000 audited by
Richard Gimarc, Performance Metrics, 3/17/99
*
*      PURPOSE:       Header file for TPC-C structure templates.
*
*      Change history:
*
*      4.20.000 - updated rev number to match kit
*/
#pragma once

// String length constants
#define SERVER_NAME_LEN      20
#define DATABASE_NAME_LEN   20
#define USER_NAME_LEN       20
#define PASSWORD_LEN        20
#define TABLE_NAME_LEN    20
#define I_DATA_LEN          50
#define I_NAME_LEN          24
#define BRAND_LEN           1
#define LAST_NAME_LEN       16
#define W_NAME_LEN          10
#define ADDRESS_LEN         20
#define STATE_LEN           2
#define ZIP_LEN              9
#define S_DIST_LEN          24
#define S_DATA_LEN          50
#define D_NAME_LEN          10
#define FIRST_NAME_LEN      16
#define MIDDLE_NAME_LEN     2

```

```

#define PHONE_LEN          16
#define DATETIME_LEN      30
#define CREDIT_LEN        2
#define C_DATA_LEN        250
#define H_DATA_LEN        24
#define DIST_INFO_LEN     24
#define MAX_OL_NEW_ORDER_ITEMS 15
#define MAX_OL_ORDER_STATUS_ITEMS 15
#define STATUS_LEN        25
#define OL_DIST_INFO_LEN  24

// TIMESTAMP_STRUCT is provided by the ODBC header file sqltypes.h, but
// is not available
// when compiling with dblink, 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 /*
*/ month;
    unsigned short /*
*/ day;
    unsigned short /*
*/ hour;
    unsigned short /*
*/ minute;
    unsigned short /*
*/ second;
    unsigned long  /*
fraction;
*/ SQLINTEGER */
} TIMESTAMP_STRUCT;
#endif

// possible values for exec_status_code after transaction completes
enum EXEC_STATUS
{
    eOK,          // 0      "Transaction
committed."
    eInvalidItem, // 1      "Item number is not valid."
    eDeliveryFailed // 2     "Delivery Post Failed."
};

// transaction structures
typedef struct
{
    // input params
    short          ol_supply_w_id;
    long           ol_i_id;
    short          ol_quantity;

    // output params
    char
ol_i_name[I_NAME_LEN+1];
    char
ol_brand_generic[BRAND_LEN+1];
    double
double
short          ol_i_price;
double
double
short          ol_amount;
short          ol_stock;
} OL_NEW_ORDER_DATA;

typedef struct
{
    // input params
    short          w_id;

```

```

short          d_id;
long           c_id;
short          o_ol_cnt;

// output params
EXEC_STATUS          exec_status_code;
char
char          c_last[LAST_NAME_LEN+1];
char          c_credit[CREDIT_LEN+1];
double
double
double
double          w_tax;
double          d_tax;
long           o_id;
short          o_commit_flag;
TIMESTAMP_STRUCT o_entry_d;
short          o_all_local;
double          total_amount;
OL_NEW_ORDER_DATA
OL[ MAX_OL_NEW_ORDER_ITEMS ];
} NEW_ORDER_DATA, *PNEW_ORDER_DATA;

typedef struct
{
    // input params
    short          w_id;
    short          d_id;
    long           c_id;
    short          c_d_id;
    short          c_w_id;
    double          h_amount;
    char          c_last[LAST_NAME_LEN+1];

    // output params
EXEC_STATUS          exec_status_code;
TIMESTAMP_STRUCT    h_date;
char
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
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
double
double
double          c_credit_lim;
double          c_discount;
double          c_balance;
char          c_data[200+1];
} PAYMENT_DATA, *PPAYMENT_DATA;

typedef struct
{
    long           ol_i_id;
    short          ol_supply_w_id;
    short          ol_quantity;
    double          ol_amount;
    TIMESTAMP_STRUCT ol_delivery_d;
} OL_ORDER_STATUS_DATA;

```

```

typedef struct
{
    // input params
    short    w_id;
    short    d_id;
    long     c_id;
    char     c_last[LAST_NAME_LEN+1];

    // output params
    EXEC_STATUS      exec_status_code;
    char             c_first[FIRST_NAME_LEN+1];
    char             c_middle[MIDDLE_NAME_LEN+1];
    double           c_balance;
    long             o_id;
    TIMESTAMP_STRUCT o_entry_d;
    short            o_carrier_id;
    OL_ORDER_STATUS_DATA
OL[MAX_OL_ORDER_STATUS_ITEMS];
    short            o_ol_cnt;
} ORDER_STATUS_DATA, *PORDER_STATUS_DATA;

```

```

typedef struct
{
    // input params
    short    w_id;
    short    o_carrier_id;

    // output params
    EXEC_STATUS      exec_status_code;
    SYSTEMTIME       queue_time;
    long             o_id[10]; //
} id's of delivered orders for districts 1 to 10
} DELIVERY_DATA, *PDELIVERY_DATA;

```

//This structure is used for posting delivery transactions and for writing them to the delivery server.

```

typedef struct _DELIVERY_TRANSACTION
{
    SYSTEMTIME    queue; //time
    delivery transaction queued
    short         w_id; //delivery
    warehouse
    short         o_carrier_id; //carrier id
} DELIVERY_TRANSACTION;

```

```

typedef struct
{
    // input params
    short    w_id;
    short    d_id;
    short    threshold;

    // output params
    EXEC_STATUS      exec_status_code;
    long             low_stock;
} STOCK_LEVEL_DATA, *PSTOCK_LEVEL_DATA;

```

txn_base.h

```

/* FILE: TXN_BASE.H
 * 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() = 0;
    virtual void Payment() = 0;
    virtual void Delivery() = 0;
    virtual void StockLevel() = 0;
    virtual void OrderStatus() = 0;
};

```

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; // one of
TXN_REC_TYPE_*
    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.
//
struct
//
{
JULIAN_TIME TS;
// timestamp of record
int
iPos; // byte position in file
//
}
RecMap[RecMapSize];
#define RecMapSize 200
} TXN_LOG_HEADER, *PTXN_LOG_HEADER;

/* Header of the sorted pointers blocks in Temp file (in merging). */
typedef struct BLOCK_HEADER {
long BlockPos;
_int64 CurPos;
DWORD BytesRead;
int nRecords;
BYTE *offset; /* offset of pointers to records in
the log file */
} BLOCK_HEADER, *PBLOCK_HEADER;

#define READ_BUFFER_SIZE 64*1024
#define WRITE_BUFFER_SIZE 8*1024

#define NUM_READ_BUFFERS 1
#define NUM_WRITE_BUFFERS 2
#define MAX_NUM_BUFFERS 2

// flags passed in to the constructor
#define TXN_LOG_WRITE 0x01

#define TXN_LOG_READ 0x02
#define TXN_LOG_SORTED 0x04
#define TXN_LOG_CRASHOPEN 0x08 // if set,
invalid headers will be tolerated; used for recovery

#define TXN_LOG_OS_ERROR 1
#define TXN_LOG_NOT_SORTED 2

#define SKIP_CTRL_RECS 1

class CTxnLog
{
private:
DWORD iBufferSize;
//buffer allocated size
DWORD iBytesFreeInBuffer;
//total bytes available for use in buffer
int iNumBuffers;
//buffers in use
int iActiveBuffer;
//indicates which buffer is active: 0 or 1
int iIoBuffer;
//buffer for any pending IO operation
int iFilePointer;
//position in file.
LARGE_INTEGER iFilePointer;
//position in file.
int iNextRec;
//when reading, ordinal value of next record

// A "save point" is remembered each time
GetNextRecord is called with a start time specified.
// The next time it is called, if start time is after the save
point, we start scanning from the
// save point. This is particularly useful in
FindBestInterval, where the log is scanned repeatedly.
JULIAN_TIME SavePtTime;
int
iSavePtFilePointer;
LARGE_INTEGER iSavePtFilePointer;
int
iSavePtNextRec;

JULIAN_TIME lastTS;
//when writing sorted output, used to verify records are sorted
BOOL bWrite;
//writing log file
BOOL bCrashOpen;
// tolerate bad headers and consistency checks

BOOL bLogSorted;
// is log file sorted? applies to both input and output
JULIAN_TIME BeginTxnTS;
// timestamp of first (lowest) txn start
JULIAN_TIME EndTxnTS;
// timestamp of last (highest) txn completion time
int iRecCount;
// number of records in log file

BYTE *pCurrent;
//ptr to current buffer
BYTE
*pBuffer[MAX_NUM_BUFFERS];

PTXN_RECORD_HEADER *TxnArray;
//transaction record pointer array for sort

DWORD dwError;

```

```

HANDLE          hTxnFile;
//handle to log file
HANDLE          hMapFile;
//map file used when sorting the log
HANDLE          hIoComplete;
//event to signify that there are no pending IOs
HANDLE          hLogFileIo;
//event to signal the IO thread to write the inactive buffer

Spinlock Spin;
//spin lock to protect the txn log file buffers

FILE            *tmpFile;
//temp file for merging sorted pieces
PBLOCK_HEADER  tmpHeaders;
//sorted pointers block header
BYTE           **recPointers;
//record pointer buffers for each sorted block
PTXN_RECORD_HEADER *recBuffers;
//record buffers for each sorted block
int            *PointersRead;
//# of pointers processed in each block
BOOL          *BlockAvailable;
//whether to check a particular block for jmin

int            nBlocks;
int            jmin;
//index (block-wise) of the lowest timestamp record
int            iAvgRecordLen;
//average record length

int            iSortedReturnedCount;
//keeps track of the # of sorted records returned through GetSortedRecord()

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

void LoadBuffers(int j);
//used in sort/merge to load record buffers

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

int WriteToLog(PTXN_RECORD_TPCC pTxnRcrd);
int WriteToLog(PTXN_RECORD_TPCC_DELIV_DEF
pTxnRcrd);
int WriteToLog(PTXN_RECORD_CONTROL
pCtrlRec);
int WriteToLog(PTXN_RECORD_HEADER pCtrlRec);

int WriteCtrlRecToLog(BYTE SubType, LPTSTR lpStr,
DWORD dwLen);

void CloseTransactionLogFile(void);

PTXN_RECORD_HEADER GetNextRecord(BOOL
bSkipCtrlRecs = FALSE);
PTXN_RECORD_HEADER
GetNextRecord(JULIAN_TIME SeekTimeT0, BOOL bSkipCtrlRecs =
FALSE);

int Sort(void);
PTXN_RECORD_HEADER GetSortedRecord();

```

```

inline BOOL IsSorted(void) { return bLogSorted; };
inline JULIAN_TIME BeginTS(void) { return
BeginTxnTS; };
inline JULIAN_TIME EndTS(void) { return EndTxnTS;
};
inline int RecordCount(void) { return iRecCount; };

class CTXNLOG_ERR : public CBaseErr
{
public:
enum CTXNLOG_ERRS
{
ERR_BAD_FILE_FORMAT, //
"File format is invalid."
ERR_UNKNOWN_LOG_VERSION, //
"Log file version is unknown."
ERR_BROKEN_LOG_FILE, //
"Log file is broken."
ERR_LOG_NOT_SORTED,
// "Log file is not sorted"
ERR_INVALID_TIME_SEQ, //
"Internal Error: Record Time Sequence invalid."
};

CTXNLOG_ERR(int iErr) : CBaseErr(iErr) {};

int ErrorType() {return ERR_TYPE_TXNLOG;};

char *ErrorText()
{
static char *szMsgs[] = {
"File format is invalid.",
"Log file version is unknown.",
"Log file is broken.",
"Log file is not sorted",
"Internal Error: Record Time
Sequence invalid.",
""
};

for(int i = 0; szMsgs[i][0]; i++)
{
if ( m_idMsg == i )
break;
}

return(szMsgs[i][0] ? szMsgs[i] :
ERR_UNKNOWN);
};
};

```

webclnt.dsp

```

# Microsoft Developer Studio Project File - Name="webclnt" - Package
Owner=<4>
# Microsoft Developer Studio Generated Build File, Format Version 5.00
# ** DO NOT EDIT **

# TARGETTYPE "Win32 (x86) Application" 0x0101

CFG=webclnt - Win32 Release
!MESSAGE This is not a valid makefile. To build this project using NMAKE,
!MESSAGE use the Export Makefile command and run
!MESSAGE
!MESSAGE NMAKE /f "Webclnt.mak".
!MESSAGE

```

```

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

```

```

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

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

```

```

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

```

```

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

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

```

```

# ADD RSC /I 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbccp32.lib
odbccp32.lib /nologo /subsystem:windows /debug /machine:I386
# ADD LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbccp32.lib
/nologo /subsystem:windows /debug /machine:I386

!ENDIF

# Begin Target

# Name "webcInt - Win32 Release"
# Name "webcInt - Win32 Debug"
# End Target
# End Project

```

Stored Procedures

neword.sql

```

-- File: NEWORD.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.42
-- Copyright Microsoft, 2002
-- Purpose: Creates new order transaction stored procedure
--
-- Interface Level: 4.10.000

use tpcc
go

if exists ( select name from sysobjects where name = 'tpcc_neworder' )
drop procedure tpcc_neworder
go

create proc tpcc_neworder

@w_id int,
@d_id tinyint,
@c_id int,
@o_ol_cnt tinyint,
@o_all_local tinyint,
@i_id1 int = 0,
@s_w_id1 int = 0, @ol_qty1 smallint = 0,
@i_id2 int = 0,
@s_w_id2 int = 0, @ol_qty2 smallint = 0,
@i_id3 int = 0,
@s_w_id3 int = 0, @ol_qty3 smallint = 0,
@i_id4 int = 0,
@s_w_id4 int = 0, @ol_qty4 smallint = 0,
@i_id5 int = 0,
@s_w_id5 int = 0, @ol_qty5 smallint = 0,
@i_id6 int = 0,
@s_w_id6 int = 0, @ol_qty6 smallint = 0,
@i_id7 int = 0,
@s_w_id7 int = 0, @ol_qty7 smallint = 0,
@i_id8 int = 0,
@s_w_id8 int = 0, @ol_qty8 smallint = 0,
@i_id9 int = 0,
@s_w_id9 int = 0, @ol_qty9 smallint = 0,
@i_id10 int = 0,
@s_w_id10 int = 0, @ol_qty10 smallint = 0,

```

```

@s_w_id11 int = 0, @ol_qty11 smallint = 0,
@s_w_id12 int = 0, @ol_qty12 smallint = 0,
@s_w_id13 int = 0, @ol_qty13 smallint = 0,
@s_w_id14 int = 0, @ol_qty14 smallint = 0,
@s_w_id15 int = 0, @ol_qty15 smallint = 0

```

```

as
declare @w_tax numeric(4,4),
        @d_tax numeric(4,4),
        @c_last char(16),
        @c_credit char(2),
        @c_discount numeric(4,4),
        @i_price numeric(5,2),
        @i_name char(24),
        @i_data char(50),
        @o_entry_d datetime,
        @remote_flag int,
        @s_quantity smallint,
        @s_data char(50),
        @s_dist char(24),
        @li_no int,
        @o_id int,
        @commit_flag tinyint,
        @li_id int,
        @li_s_w_id int,
        @li_qty smallint,
        @ol_number int,
        @c_id_local int

```

```
begin
```

```
begin transaction n
```

```

-- get district tax and next available order id and update
-- plus initialize local variables

```

```

update district
set @d_tax = d_tax,
    @o_id = d_next_o_id,
    d_next_o_id = d_next_o_id + 1,
    @o_entry_d = getdate(),
    @li_no = 0,
    @commit_flag = 1
where d_w_id = @w_id and
      d_id = @d_id

```

```
-- process orderlines
```

```

while (@li_no < @o_ol_cnt)
begin
    select @li_no = @li_no + 1

```

```
-- set i_id, s_w_id, and qty for this lineitem
```

```

select @li_id = case @li_no
when 1 then @i_id1
when 2 then @i_id2
when 3 then @i_id3
when 4 then @i_id4
when 5 then @i_id5
when 6 then @i_id6

```

```
@i_id11 int = 0,
```

```
@i_id12 int = 0,
```

```
@i_id13 int = 0,
```

```
@i_id14 int = 0,
```

```
@i_id15 int = 0,
```

```

when 7 then @i_id7
when 8 then @i_id8
when 9 then @i_id9
when 10 then @i_id10
when 11 then @i_id11
when 12 then @i_id12
when 13 then @i_id13
when 14 then @i_id14
when 15 then @i_id15
end,

```

```

@li_s_w_id = case @li_no
when 1 then @s_w_id1
when 2 then @s_w_id2
when 3 then @s_w_id3
when 4 then @s_w_id4
when 5 then @s_w_id5
when 6 then @s_w_id6
when 7 then @s_w_id7
when 8 then @s_w_id8
when 9 then @s_w_id9
when 10 then @s_w_id10
when 11 then @s_w_id11
when 12 then @s_w_id12
when 13 then @s_w_id13
when 14 then @s_w_id14
when 15 then @s_w_id15
end,

```

```

@li_qty = case @li_no
when 1 then @ol_qty1
when 2 then @ol_qty2
when 3 then @ol_qty3
when 4 then @ol_qty4
when 5 then @ol_qty5
when 6 then @ol_qty6
when 7 then @ol_qty7
when 8 then @ol_qty8
when 9 then @ol_qty9
when 10 then @ol_qty10
when 11 then @ol_qty11
when 12 then @ol_qty12
when 13 then @ol_qty13
when 14 then @ol_qty14
when 15 then @ol_qty15
end

```

```
-- get item data (no one updates item)
```

```

select @i_price = i_price,
       @i_name = i_name,
       @i_data = i_data
from item (tablock repeatableread)
where i_id = @li_id

```

```
-- update stock values
```

```

update stock
set s_ytd = s_ytd + @li_qty,
    @s_quantity = s_quantity - @li_qty +
    case
when (s_quantity - @li_qty < 10) then 91 else 0 end,
    s_order_cnt = s_order_cnt + 1,
    s_remote_cnt = s_remote_cnt + case
when (@li_s_w_id = @w_id) then 0 else 1 end,
    @s_data = s_data,
    @s_dist = case @d_id

```

```

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,
1899',
@li_qty,
*@li_qty,
@s_dist)

-- send line-item data to client
select @i_name,
@s_quantity,
b_g = 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
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

```

payment.sql

```

-- File: PAYMENT.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.42
-- Copyright Microsoft, 2002
-- Purpose: Creates payment transaction stored procedure
--
-- Interface Level: 4.10.000

use tpcc
go

if exists (select name from sysobjects where name = 'tpcc_payment' )
    drop procedure tpcc_payment
go

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

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

select @screen_data = ""

begin tran p

-- get payment date

select @datetime = getdate()

```

```

if (@c_id = 0)
begin

-- get customer id and info using last name

select @cnt = count(*)
from customer (repeatable read)
where c_last = @c_last and
       c_w_id = @c_w_id and
       c_d_id = @c_d_id

select @val = (@cnt + 1) / 2
set rowcount @val

select @c_id = c_id
from customer (repeatable read)
where c_last = @c_last and
       c_w_id = @c_w_id and
       c_d_id = @c_d_id

order by c_last, c_first

set rowcount 0

end

-- get customer info and update balances

update customer
set @c_balance = c_balance + @h_amount,
    c_payment_cnt = c_payment_cnt + 1,
    c_ytd_payment = c_ytd_payment + @h_amount,
    @c_first = c_first,
    @c_middle = c_middle,
    @c_last = c_last,
    @c_street_1 = c_street_1,
    @c_street_2 = c_street_2,
    @c_city = c_city,
    @c_state = c_state,
    @c_zip = c_zip,
    @c_phone = c_phone,
    @c_credit = c_credit,
    @c_credit_lim = c_credit_lim,
    @c_discount = c_discount,
    @c_since = c_since,
    @data = c_data,
    @c_id_local = c_id
where c_id = @c_id and
       c_w_id = @c_w_id and
       c_d_id = @c_d_id

-- if customer has bad credit get some more info

if (@c_credit = 'BC')
begin

-- compute new info

select @c_data = convert(char(5),@c_id) +
                convert(char(4),@c_d_id) +
                convert(char(5),@c_w_id) +
                convert(char(4),@d_id) +
                convert(char(5),@w_id) +
                convert(char(19),@h_amount) +
                substring(@data, 1, 458)

```

```

-- update customer info

update customer
set c_data = @c_data

where c_id = @c_id and
      c_w_id = @c_w_id and
      c_d_id = @c_d_id

select @screen_data = substring (@c_data,1,200)

end

```

```
-- get district data and update year-to-date
```

```

update district
set d_ytd = d_ytd + @h_amount,
    @d_street_1 = d_street_1,
    @d_street_2 = d_street_2,
    @d_city = d_city,
    @d_state = d_state,
    @d_zip = d_zip,
    @d_name = d_name,
    @d_id_local = d_id

where d_w_id = @w_id and
      d_id = @d_id

```

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

```

update warehouse
set w_ytd = w_ytd + @h_amount,
    @w_street_1 = w_street_1,
    @w_street_2 = w_street_2,
    @w_city = w_city,
    @w_state = w_state,
    @w_zip = w_zip,
    @w_name = w_name,
    @w_id_local = w_id

where w_id = @w_id

```

```
-- create history record
```

```

insert into history values (
    @c_id_local,
    @c_d_id,
    @c_w_id,
    @d_id_local,
    @w_id_local,
    @datetime,
    @h_amount,
    @w_name + ' ' +

```

```

@d_name)
commit tran p

```

```
-- return data to client
```

```

select @c_id,
       @c_last,
       @datetime,
       @w_street_1,
       @w_street_2,
       @w_city,
       @w_state,
       @w_zip,
       @d_street_1,
       @d_street_2,
       @d_city,
       @d_state,

```

```

@d_zip,
@c_first,
@c_middle,
@c_street_1,
@c_street_2,
@c_city,
@c_state,
@c_zip,
@c_phone,
@c_since,
@c_credit,
@c_credit_lim,
@c_discount,
@c_balance,
@screen_data

```

```
go
```

ordstat.sql

```

-- File: ORDSTAT.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.42
-- Copyright Microsoft, 2002
-- Purpose: Creates order status transaction stored procedure
--
-- Interface Level: 4.10.000

```

```

use tpcc
go

```

```

if exists ( select name from sysobjects where name = 'tpcc_orderstatus' )
drop procedure tpcc_orderstatus

```

```
go
```

```

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

```

```
as
```

```

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

```

```
begin tran o
```

```

if (@c_id = 0)
begin

```

```
-- get customer id and info using last name
```

```

select @cnt = (count(*)+1)/2
from customer (repeatableread)
where c_last = @c_last and
      c_w_id = @w_id and
      c_d_id = @d_id

```

```
set rowcount @cnt
```

```

select @c_id = c_id,
       @c_balance = c_balance,
       @c_first = c_first,

```

```

                @c_last = c_last,
                @c_middle = c_middle
from customer (repeatableread)
where c_last = @c_last and
       c_w_id = @w_id and
       c_d_id = @d_id

order by c_w_id, c_d_id, c_last, c_first

set rowcount 0

end

else

begin

-- get customer info if by id

select @c_balance = c_balance,
       @c_first = c_first,
       @c_middle = c_middle,
       @c_last = c_last
from customer (repeatableread)
where c_id = @c_id and
       c_d_id = @d_id and
       c_w_id = @w_id

select @cnt = @@rowcount

end

-- if no such customer

if (@cnt = 0)
begin
    raiserror('Customer not found',18,1)
    goto custnotfound
end

-- get order info

select @o_id = o_id,
       @o_entry_d = o_entry_d,
       @o_carrier_id = o_carrier_id
from orders (serializable)
where o_c_id = @c_id and
       o_d_id = @d_id and
       o_w_id = @w_id

order by o_id asc

-- select order lines for the current order

select ol_supply_w_id,
       ol_i_id,
       ol_quantity,
       ol_amount,
       ol_delivery_d
from order_line (repeatableread)
where ol_o_id = @o_id and
       ol_d_id = @d_id and
       ol_w_id = @w_id

custnotfound:

commit tran o

-- return data to client

select @c_id,

```

```

@c_last,
@c_first,
@c_middle,
@o_entry_d,
@o_carrier_id,
@c_balance,
@o_id

```

Go

delivery.sql

```

-- File: DELIVERY.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.42
-- Copyright Microsoft, 2002
-- Purpose: Creates delivery transaction stored procedure
--
-- Interface Level: 4.10.000

use tpcc
go

if exists (select name from sysobjects where name = 'tpcc_delivery')
drop procedure tpcc_delivery
go

create proc tpcc_delivery @w_id int,
                        @o_carrier_id smallint
as

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

select @d_id = 0

begin tran d

    while (@d_id < 10)
    begin

        select @d_id = @d_id + 1,
               @total = 0,
               @o_id = 0

        select top 1
               @o_id = no_o_id
        from new_order (serializable uplock)
        where no_w_id = @w_id and
               no_d_id = @d_id

        order by no_o_id asc

        if (@@rowcount <> 0)
        begin

```

```

-- claim the order for this district

delete new_order
where no_w_id = @w_id and
      no_d_id = @d_id and
      no_o_id = @o_id

-- set carrier_id on this order (and get customer id)

update orders
set o_carrier_id =

@o_carrier_id,

where @c_id = o_c_id
      o_w_id = @w_id
and
      o_d_id = @d_id
and
      o_id = @o_id

-- set date in all lineitems for this order (and sum amounts)

update order_line
set ol_delivery_d = getdate(),
  @total = @total +

ol_amount
where ol_w_id = @w_id
and
      ol_d_id = @d_id
and
      ol_o_id = @o_id

-- accumulate lineitem amounts for this order into customer

update customer
set c_balance = c_balance + @total,
  c_delivery_cnt =

c_delivery_cnt + 1
where c_w_id = @w_id
and
      c_d_id = @d_id
and
      c_id = @c_id

end

select @oid1 = case @d_id when 1 then @o_id else @oid1 end,
       @oid2 = case @d_id when 2 then @o_id else @oid2 end,
       @oid3 = case @d_id when 3 then @o_id else @oid3 end,
       @oid4 = case @d_id when 4 then @o_id else @oid4 end,
       @oid5 = case @d_id when 5 then @o_id else @oid5 end,
       @oid6 = case @d_id when 6 then @o_id else @oid6 end,
       @oid7 = case @d_id when 7 then @o_id else @oid7 end,
       @oid8 = case @d_id when 8 then @o_id else @oid8 end,
       @oid9 = case @d_id when 9 then @o_id else @oid9 end,
       @oid10 = case @d_id when 10 then @o_id else @oid10 end

end

commit tran d

-- return delivery data to client

select @oid1,
       @oid2,
       @oid3,
       @oid4,
       @oid5,
       @oid6,

```

```

@oid7,
@oid8,
@oid9,
@oid10

```

Go

Stocklev.sql

```

-- File: STOCKLEV.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.42
-- Copyright Microsoft, 2002
-- Purpose: Creates stock level transaction stored procedure
--
-- Interface Level: 4.10.000

use tpcc
go

if exists (select name from sysobjects where name = 'tpcc_stocklevel' )
drop procedure tpcc_stocklevel
go

create proc tpcc_stocklevel @w_id int,
                           @d_id tinyint,
                           @threshold smallint
as

declare @o_id_low int,
        @o_id_high int

select @o_id_low = (d_next_o_id - 20),
       @o_id_high = (d_next_o_id - 1)
from district
where d_w_id = @w_id and
      d_id = @d_id

select count(distinct(s_i_id))
from stock, order_line
where ol_w_id = @w_id and
      ol_d_id = @d_id and
      ol_o_id between @o_id_low and
                @o_id_high and
      s_w_id = ol_w_id and
      s_i_id = ol_i_id and
      s_quantity < @threshold

go

```

version.sql

```

-- File: VERSION.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.41
-- Copyright Microsoft, 2001
-- Purpose: Returns version level of TPC-C stored procs
-- Note: Always update the return value of this proc for
-- any interface changes or 'must have' bug fixes.
--
-- The value returned by this SP defines the 'interface level',
-- which must match between the stored procs and the client code.
-- The interface level may be down rev from the current kit. This
-- indicates that the interface hasn't changed since that version.

use tpcc
go

```

```
if exists ( select name from sysobjects where name = 'tpcc_version' )
    drop procedure tpcc_version
go

create proc tpcc_version
as
declare    @version char(8)

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

go
```

Appendix B: Database Design

Database Build

createdb.sql

```
-- File:   CREATEDB.SQL
--        Microsoft TPC-C Benchmark Kit Ver. 4.41
--        Copyright Microsoft, 2001
-- Purpose: Creates tpcc database and backup files

use master
go

--        Create temporary table for timing

if exists ( select name from sysobjects where name = 'tpcc_timer' )
    drop table tpcc_timer
go

create table tpcc_timer
(
    start_date          char(30),
    end_date            char(30)
)

insert into tpcc_timer values (0,0)
go

--        Store starting time

update tpcc_timer
set start_date = (select convert(char(30), getdate(),9))
go

-- create main database files

CREATE DATABASE tpcc
ON PRIMARY
(
    NAME                = MSSQL_tpcc_root,
    FILENAME            = 'F:\MSSQL_tpcc_root.mdf',
    SIZE                = 8MB,
    FILEGROWTH          = 0),
FILEGROUP MSSQL_misc_fg
(
    NAME                = MSSQL_misc1,
    FILENAME            = 'C:\mp\m1\',
    SIZE                = 16000MB,
    FILEGROWTH          = 0),
(
    NAME                = MSSQL_misc2,
    FILENAME            = 'C:\mp\m2\',
    SIZE                = 16000MB,
    FILEGROWTH          = 0),
(
    NAME                = MSSQL_misc3,
    FILENAME            = 'C:\mp\m3\',
    SIZE                = 16000MB,
    FILEGROWTH          = 0),
(
    NAME                = MSSQL_misc4,
    FILENAME            = 'C:\mp\m4\',
    SIZE                = 16000MB,
    FILEGROWTH          = 0),
(
    NAME                = MSSQL_misc5,
    FILENAME            = 'C:\mp\m5\',
    SIZE                = 16000MB,
    FILEGROWTH          = 0),
(
    NAME                = MSSQL_misc6,
```

```
FILENAME            = 'C:\mp\m6\',
SIZE                = 16000MB,
FILEGROWTH          = 0),
(
    NAME                = MSSQL_misc7,
    FILENAME            = 'C:\mp\m7\',
    SIZE                = 16000MB,
    FILEGROWTH          = 0),
(
    NAME                = MSSQL_misc8,
    FILENAME            = 'C:\mp\m8\',
    SIZE                = 16000MB,
    FILEGROWTH          = 0),
(
    NAME                = MSSQL_misc9,
    FILENAME            = 'C:\mp\m9\',
    SIZE                = 16000MB,
    FILEGROWTH          = 0),
(
    NAME                = MSSQL_misc10,
    FILENAME            = 'C:\mp\m10\',
    SIZE                = 16000MB,
    FILEGROWTH          = 0),
(
    NAME                = MSSQL_misc11,
    FILENAME            = 'C:\mp\m11\',
    SIZE                = 16000MB,
    FILEGROWTH          = 0),
(
    NAME                = MSSQL_misc12,
    FILENAME            = 'C:\mp\m12\',
    SIZE                = 16000MB,
    FILEGROWTH          = 0),
(
    NAME                = MSSQL_misc13,
    FILENAME            = 'C:\mp\m13\',
    SIZE                = 16000MB,
    FILEGROWTH          = 0),
(
    NAME                = MSSQL_misc14,
    FILENAME            = 'C:\mp\m14\',
    SIZE                = 16000MB,
    FILEGROWTH          = 0),
(
    NAME                = MSSQL_misc15,
    FILENAME            = 'C:\mp\m15\',
    SIZE                = 16000MB,
    FILEGROWTH          = 0),
(
    NAME                = MSSQL_misc16,
    FILENAME            = 'C:\mp\m16\',
    SIZE                = 16000MB,
    FILEGROWTH          = 0),
FILEGROUP MSSQL_cs_fg
(
    NAME                = MSSQL_cs1,
    FILENAME            = 'c:\mp\c1\',
    SIZE                = 28000MB,
    FILEGROWTH          = 0),
(
    NAME                = MSSQL_cs2,
    FILENAME            = 'c:\mp\c2\',
    SIZE                = 28000MB,
    FILEGROWTH          = 0),
(
    NAME                = MSSQL_cs3,
    FILENAME            = 'c:\mp\c3\',
    SIZE                = 28000MB,
    FILEGROWTH          = 0),
(
    NAME                = MSSQL_cs4,
    FILENAME            = 'c:\mp\c4\',
    SIZE                = 28000MB,
    FILEGROWTH          = 0),
(
    NAME                = MSSQL_cs5,
    FILENAME            = 'c:\mp\c5\',
    SIZE                = 28000MB,
    FILEGROWTH          = 0),
(
    NAME                = MSSQL_cs6,
    FILENAME            = 'c:\mp\c6\',
```

```

        SIZE                = 28000MB,
        FILEGROWTH          = 0),
(
    NAME                    = MSSQL_cs7,
    FILENAME                = 'c:\mp\c7\',
    SIZE                    = 28000MB,
    FILEGROWTH              = 0),
(
    NAME                    = MSSQL_cs8,
    FILENAME                = 'c:\mp\c8\',
    SIZE                    = 28000MB,
    FILEGROWTH              = 0),
(
    NAME                    = MSSQL_cs9,
    FILENAME                = 'c:\mp\c9\',
    SIZE                    = 28000MB,
    FILEGROWTH              = 0),
(
    NAME                    = MSSQL_cs10,
    FILENAME                = 'c:\mp\c10\',
    SIZE                    = 28000MB,
    FILEGROWTH              = 0),
(
    NAME                    = MSSQL_cs11,
    FILENAME                = 'c:\mp\c11\',
    SIZE                    = 28000MB,
    FILEGROWTH              = 0),
(
    NAME                    = MSSQL_cs12,
    FILENAME                = 'c:\mp\c12\',
    SIZE                    = 28000MB,
    FILEGROWTH              = 0),
(
    NAME                    = MSSQL_cs13,
    FILENAME                = 'c:\mp\c13\',
    SIZE                    = 28000MB,
    FILEGROWTH              = 0),
(
    NAME                    = MSSQL_cs14,
    FILENAME                = 'c:\mp\c14\',
    SIZE                    = 28000MB,
    FILEGROWTH              = 0),
(
    NAME                    = MSSQL_cs15,
    FILENAME                = 'c:\mp\c15\',
    SIZE                    = 28000MB,
    FILEGROWTH              = 0),
(
    NAME                    = MSSQL_cs16,
    FILENAME                = 'c:\mp\c16\',
    SIZE                    = 28000MB,
    FILEGROWTH              = 0)

LOG ON
(
    NAME                    = MSSQL_tpcc_log,
    FILENAME                = 'E:',
    SIZE                    = 206000MB,
    FILEGROWTH              = 0)

COLLATE Latin1_General_BIN
go

-- Store ending time
update tpcc_timer
set end_date = (select convert(char(30), getdate(),9))
go

select 'Elapsed time (in seconds): ', datediff(second,(select start_date from
tpcc_timer),(select end_date from tpcc_timer))

-- remove temporary table

if exists ( select name from sysobjects where name = 'tpcc_timer' )
drop table tpcc_timer
go

```

dbop1.sql

```

-- File: DBOPT1.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.41
-- Copyright Microsoft, 2001
-- Purpose: Sets database options for data load

```

```

use master
go

exec sp_dboption tpcc,'select into/bulkcopy',true
exec sp_dboption tpcc,'trunc. log on chkpt.',true
exec sp_dboption tpcc,'torn page detection',false
go

```

```

use tpcc
go

```

```

checkpoint
go

```

dbopt2.sql

```

-- File: DBOPT2.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.41
-- Copyright Microsoft, 2001
-- Purpose: Resets database options after data load

```

```

exec sp_dboption tpcc,'select into/bulkcopy',false
exec sp_dboption tpcc,'trunc. log on chkpt.',false
exec sp_dboption tpcc,'torn page detection',false
GO

```

```

USE tpcc
GO

```

```

CHECKPOINT
GO

```

```

sp_configure 'allow updates',1
GO

```

```

RECONFIGURE WITH OVERRIDE
GO

```

```

DECLARE @msg varchar(50)

```

```

-- --
-- OPTIONS FOR SQL SERVER 2000 --
-- Set option values for user-defined indexes --
-- --

```

```

SET @msg = ''
PRINT @msg
SET @msg = 'Setting SQL Server indexoptions'
PRINT @msg
SET @msg = ''
PRINT @msg

```

```

EXEC sp_indexoption 'customer', 'DisallowPageLocks', TRUE
EXEC sp_indexoption 'district', 'DisallowPageLocks', TRUE
EXEC sp_indexoption 'warehouse', 'DisallowPageLocks',
TRUE
EXEC sp_indexoption 'stock', 'DisallowPageLocks', TRUE
EXEC sp_indexoption 'order_line', 'DisallowRowLocks',
TRUE

```

```
EXEC sp_indexoption 'orders', 'DisallowRowLocks', TRUE
EXEC sp_indexoption 'new_order', 'DisallowRowLocks',
TRUE
EXEC sp_indexoption 'item', 'DisallowRowLocks',
TRUE
EXEC sp_indexoption 'item', 'DisallowPageLocks',
TRUE
GO
```

```
Print ''
Print '*****'
Print 'Pre-specified Locking Hierarchy:'
Print ' Lockflag = 0 ==> No pre-specified hierarchy'
Print ' Lockflag = 1 ==> Lock at Page-level then Table-level'
Print ' Lockflag = 2 ==> Lock at Row-level then Table-level'
Print ' Lockflag = 3 ==> Lock at Table-level'
Print ''
```

```
SELECT name,lockflags
FROM sysindexes
WHERE object_id('warehouse') = id OR
object_id('district') = id OR
object_id('customer') = id OR
object_id('stock') = id OR
object_id('orders') = id OR
object_id('order_line') = id OR
object_id('history') = id OR
object_id('new_order') = id OR
object_id('item') = id
ORDER BY lockflags asc
GO
```

```
sp_configure 'allow updates',0
GO
```

```
RECONFIGURE WITH OVERRIDE
GO
```

```
EXEC sp_dboption tpcc, 'auto update statistics',FALSE
EXEC sp_dboption tpcc, 'auto create statistics', FALSE
GO
```

```
EXEC sp_tableoption 'district', 'pintable',true
EXEC sp_tableoption 'warehouse', 'pintable',true
EXEC sp_tableoption 'new_order', 'pintable',true
EXEC sp_tableoption 'item', 'pintable',true
GO
```

delwh.sql

```
use tpcc
go
delete from warehouse where w_id > 7200
go
select count(*) from warehouse
go
select * from warehouse where w_id > 7200
go
print ""
select convert(char(30), getdate(),9)
print ""
go
```

idxcuscl.sql

```
-- File: IDXCUSCL.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.41
-- Copyright Microsoft, 2001
-- Purpose: Creates clustered index on customer table

use tpcc
go

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

if exists ( select name from sysindexes where name = 'customer_c1' )
drop index customer.customer_c1

create unique clustered index customer_c1 on customer(c_w_id, c_d_id, c_id)
on MSSQL_cs_fg

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

go
```

idxcusnc.sql

```
-- File: IDXCUSNC.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.41
-- Copyright Microsoft, 2001
-- Purpose: Creates non-clustered index on customer table

use tpcc
go

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

if exists ( select name from sysindexes where name = 'customer_nc1' )
drop index customer.customer_nc1

create unique nonclustered index customer_nc1 on customer(c_w_id, c_d_id,
c_last, c_first, c_id)
on MSSQL_cs_fg

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

go
```

idxdiscl.sql

```
-- File: IDXDISCL.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.41
-- Copyright Microsoft, 2001
-- Purpose: Creates clustered index on district table

use tpcc
go
```

```

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

if exists ( select name from sysindexes where name = 'district_c1' )
    drop index district.district_c1

create unique clustered index district_c1 on district(d_w_id, d_id)
with fillfactor=100 on MSSQL_misc_fg

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

go

```

idxhiscl.sql

```

-- File:  IDXHISCL.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.41
--      Copyright Microsoft, 2001
-- Purpose: Creates clustered index on history table
--
-- CAUTION: *****
-- CAUTION: This index is only beneficial for systems
-- CAUTION: with 8 or more processors.
-- CAUTION: It may negatively impact performance on
-- CAUTION: on systems with less than 8 processors.
-- CAUTION: *****

use tpcc
go

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

if exists ( select name from sysindexes where name = 'history_c1' )
    drop index history.history_c1

create unique clustered index history_c1 on history(h_c_w_id, h_date,
h_c_d_id, h_c_id, h_amount)
on MSSQL_misc_fg

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

go

```

idxitmcl.sql

```

-- File:  IDXITMCL.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.41
--      Copyright Microsoft, 2001
-- Purpose: Creates clustered index on item table

use tpcc
go

```

```

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

if exists ( select name from sysindexes where name = 'item_c1' )
    drop index item.item_c1

create unique clustered index item_c1 on item(i_id)
on MSSQL_misc_fg

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

go

```

idxnodcl.sql

```

-- File:  IDXNODCL.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.41
--      Copyright Microsoft, 2001
-- Purpose: Creates clustered index on new_order table

use tpcc
go

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

if exists ( select name from sysindexes where name = 'new_order_c1' )
    drop index new_order.new_order_c1

create unique clustered index new_order_c1 on new_order(no_w_id, no_d_id,
no_o_id)
on MSSQL_misc_fg

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

go

```

idxodlcl.sql

```

-- File:  IDXODLCL.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.41
--      Copyright Microsoft, 2001
-- Purpose: Creates clustered index on order_line table

use tpcc
go

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

if exists ( select name from sysindexes where name = 'order_line_c1' )
    drop index order_line.order_line_c1

```

```
create unique clustered index order_line_c1 on order_line(ol_w_id, ol_d_id,
ol_o_id, ol_number)
    on MSSQL_misc_fg
```

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

go

idxordcl.sql

```
-- File:  IDXORDCL.SQL
--       Microsoft TPC-C Benchmark Kit Ver. 4.41
--       Copyright Microsoft, 2001
-- Purpose:  Creates clustered index on orders table
```

```
use tpc
go
```

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

```
if exists ( select name from sysindexes where name = 'orders_c1' )
    drop index orders.orders_c1
```

```
create unique clustered index orders_c1 on orders(o_w_id, o_d_id, o_id)
    on MSSQL_misc_fg
```

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

go

idxordnc.sql

```
-- File:  IDXORDNC.SQL
--       Microsoft TPC-C Benchmark Kit Ver. 4.41
--       Copyright Microsoft, 2001
-- Purpose:  Creates non-clustered index on orders table
```

```
use tpc
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 orders.orders_nc1
```

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

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

go

idxstkcl.sql

```
-- File:  IDXSTKCL.SQL
--       Microsoft TPC-C Benchmark Kit Ver. 4.41
--       Copyright Microsoft, 2001
-- Purpose:  Creates clustered index on stock table
```

```
use tpc
go
```

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

```
if exists ( select name from sysindexes where name = 'stock_c1' )
    drop index stock.stock_c1
```

```
create unique clustered index stock_c1 on stock(s_i_id, s_w_id)
    on MSSQL_cs_fg
```

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

go

idxwarcl.sql

```
-- File:  IDXWARCL.SQL
--       Microsoft TPC-C Benchmark Kit Ver. 4.41
--       Copyright Microsoft, 2001
-- Purpose:  Creates clustered index on warehouse table
```

```
use tpc
go
```

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

```
if exists ( select name from sysindexes where name = 'warehouse_c1' )
    drop index warehouse.warehouse_c1
```

```
create unique clustered index warehouse_c1 on warehouse(w_id)
    with fillfactor=100 on MSSQL_misc_fg
```

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

go

RunSQLcfg.sql

```
-- File:  RUNSQLCFG.SQL
--       Microsoft TPC-C Benchmark Kit Ver. 4.41
--       Copyright Microsoft, 2001
-- Purpose:  This script file is used to set runtime server configuration
parameters
--
```

```

exec sp_configure "show advanced option", 1
go

reconfigure with override
go

/* change this value to approximately the number of connected users */
exec sp_configure "max worker threads",255

/* increase priority of user threads */
exec sp_configure "priority boost",1

/* disable automatic checkpointing */
exec sp_configure "recovery interval",32767

/* change to a mask appropriate for the number of processors on the server */
exec sp_configure "affinity mask",0xf

/* enable fibers */
exec sp_configure "lightweight pooling",1

go

reconfigure with override
go

```

sqlshutdown.sql

```

-- File:  SQLSHUTDOWN.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.41

--      Copyright Microsoft, 2001
-- Purpose: Checkpoints tpc database and issues a shutdown
--

use tpc
go
checkpoint
go
shutdown
go

```

tables.sql

```

-- File:  TABLES.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.42
--      Copyright Microsoft, 2002
-- Purpose: Creates TPC-C tables

SET ANSI_NULL_DFLT_OFF ON
go

use tpc
go

--
-- Remove all existing TPC-C tables
--

if exists ( select name from sysobjects where name = 'warehouse' )
    drop table warehouse
go
if exists ( select name from sysobjects where name = 'district' )
    drop table district

```

```

go
if exists ( select name from sysobjects where name = 'customer' )
    drop table customer
go
if exists ( select name from sysobjects where name = 'history' )
    drop table history
go
if exists ( select name from sysobjects where name = 'new_order' )
    drop table new_order
go
if exists ( select name from sysobjects where name = 'orders' )
    drop table orders
go
if exists ( select name from sysobjects where name = 'order_line' )
    drop table order_line
go
if exists ( select name from sysobjects where name = 'item' )
    drop table item
go
if exists ( select name from sysobjects where name = 'stock' )
    drop table stock
go

--
-- Create new tables
--

create table warehouse
(
    w_id                int,
    w_name              char(10),
    w_street_1         char(20),
    w_street_2         char(20),
    w_city              char(20),
    w_state             char(2),
    w_zip              char(9),
    w_tax               numeric(4,4),
    w_ytd               numeric(12,2)
) on MSSQL_misc_fg
go

create table district
(
    d_id                tinyint,
    d_w_id              int,
    d_name              char(10),
    d_street_1         char(20),
    d_street_2         char(20),
    d_city              char(20),
    d_state             char(2),
    d_zip              char(9),
    d_tax               numeric(4,4),
    d_ytd               numeric(12,2),
    d_next_o_id        int
) on MSSQL_misc_fg
go

create table customer
(
    c_id                int,
    c_d_id              tinyint,
    c_w_id              int,
    c_first             char(16),
    c_middle            char(2),
    c_last              char(16),
    c_street_1         char(20),
    c_street_2         char(20),
    c_city              char(20),

```

```

c_state          char(2),
c_zip            char(9),
c_phone         char(16),
c_since         datetime,
c_credit        char(2),
c_credit_lim    numeric(12,2),
c_discount      numeric(4,4),
c_balance       numeric(12,2),
c_ytd_payment   numeric(12,2),
c_payment_cnt   smallint,
c_delivery_cnt  smallint,
c_data          char(500)
) on MSSQL_cs_fg
go

```

```

create table history
(
  h_c_id          int,
  h_c_d_id        tinyint,
  h_c_w_id        int,
  h_d_id          tinyint,
  h_w_id          int,
  h_date          datetime,
  h_amount        numeric(6,2),
  h_data          char(24)
) on MSSQL_misc_fg
go

```

```

create table new_order
(
  no_o_id          int,
  no_d_id          tinyint,
  no_w_id          int
) on MSSQL_misc_fg
go

```

```

create table orders
(
  o_id            int,
  o_d_id          tinyint,
  o_w_id          int,
  o_c_id          int,
  o_entry_d       datetime,
  o_carrier_id    tinyint,
  o_ol_cnt        tinyint,
  o_all_local     tinyint
) on MSSQL_misc_fg
go

```

```

create table order_line
(
  ol_o_id          int,
  ol_d_id          tinyint,
  ol_w_id          int,
  ol_number        tinyint,
  ol_i_id          int,
  ol_supply_w_id  int,
  ol_delivery_d    datetime,
  ol_quantity      smallint,
  ol_amount        numeric(6,2),
  ol_dist_info    char(24)
) on MSSQL_misc_fg
go

```

```

create table item
(
  i_id            int,
  i_im_id         int,

```

```

  i_name          char(24),
  i_price         numeric(5,2),
  i_data          char(50)
) on MSSQL_misc_fg
go

```

```

create table stock
(
  s_i_id          int,
  s_w_id          int,
  s_quantity      smallint,
  s_dist_01       char(24),
  s_dist_02       char(24),
  s_dist_03       char(24),
  s_dist_04       char(24),
  s_dist_05       char(24),
  s_dist_06       char(24),
  s_dist_07       char(24),
  s_dist_08       char(24),
  s_dist_09       char(24),
  s_dist_10       char(24),
  s_ytd           int,
  s_order_cnt     smallint,
  s_remote_cnt    smallint,
  s_data          char(50)
) on MSSQL_cs_fg
go

```

Load Source Code

getargs.c

```

//      File:          GETARGS.C
//
//      Microsoft TPC-C Kit Ver. 4.41
//      Copyright Microsoft, 1996, 1997,
//      1998, 1999, 2000, 2001
//      Purpose:   Source file for command line processing

// Includes
#include "tpcc.h"

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

void GetArgsLoader(int argc, char **argv, 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->log_path             =
LOG_PATH;
    pargs->pack_size           = DEFLDPACKSIZE;
    pargs->starting_warehouse =
DEF_STARTING_WAREHOUSE;
    pargs->build_index         = BUILD_INDEX;
    pargs->index_order         = INDEX_ORDER;
    pargs->index_script_path   = INDEX_SCRIPT_PATH;
    pargs->scale_down          = SCALE_DOWN;

/* check for zero command line args */
if ( argc == 1 )
    GetArgsLoaderUsage();

for ( i = 1; i < argc; ++i )
{
    if ( argv[i][0] != '-' && argv[i][0] != '/' )
    {
        printf("\nUnrecognized command");
        GetArgsLoaderUsage();
        exit(1);
    }

    ptr = argv[i];

    switch ( ptr[1] )
    {
        case '?': /* Fall throught */
            GetArgsLoaderUsage();
            break;

        case 'D':
            pargs->database = ptr+2;
            break;

        case 'P':
            pargs->password = ptr+2;
            break;

        case 'S':
            pargs->server = ptr+2;
            break;

        case 'U':
            pargs->user = ptr+2;
            break;

        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':
            {
                pargs->tables_all =
FALSE;
                if ( strcmp(ptr+2,"item")
== 0 )
                    pargs->table_item = TRUE;
                else if
( strcmp(ptr+2,"warehouse") == 0 )
                    pargs->table_warehouse = TRUE;
                else if
( strcmp(ptr+2,"customer") == 0 )
                    pargs->table_customer = TRUE;
                else if
( strcmp(ptr+2,"orders") == 0 )
                    pargs->table_orders = TRUE;
                else
                {
                    printf("\nUnrecognized
command");
                    GetArgsLoaderUsage();
                    exit(1);
                }
                break;
            }

        case 'f':
            pargs->loader_res_file = ptr+2;
            break;

        case 'L':
            pargs->log_path = 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("[%d]DBG: Entering GetArgsLoaderUsage()\n", (int)
GetCurrentThreadId());
#endif

    printf("TPCCLDR:\n\n");
    printf("Parameter                Default\n");
    printf("-----\n\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                           %d\n", (long)
BATCH);
    printf("-p TDS packet size                       %d\n", (long)
DEFLDPACKSIZE);
    printf("-f Loader Results Output Filename      %s\n",
LOADER_RES_FILE);
    printf("-s Starting Warehouse                   %d\n", (long)
DEF_STARTING_WAREHOUSE);
    printf("-i Build Option (data = 0, data and index = 1) %d\n",
(long) BUILD_INDEX);
    printf("-o Cluster Index Build Order (before = 1, after = 0) %d\n",
(long) INDEX_ORDER);
    printf("-c Build Scaled Database (normal = 0, tiny = 1) %d\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. 4.41
//                      Copyright Microsoft, 1996, 1997,
1998, 1999, 2000, 2001
// Purpose: Random number generation routines for database loader

// Includes
#include "tpcc.h"
#include "math.h"

// Defines
#define A      16807
#define M      2147483647
#define Q      127773 /* M div A */
#define R      2836 /* M mod A */
#define Thread __declspec(thread)

// Globals
long Thread Seed = 0; /* thread local seed */

/*****
*****
* random -
* Implements a GOOD pseudo random number generator. This generator
* will/should? run the complete period before repeating.
* Copied from:
* Random Numbers Generators: Good Ones Are Hard to Find.
* Communications of the ACM - October 1988 Volume 31 Number 10
* Machine Dependencies:
* long must be 2 ^ 31 - 1 or greater.
*****
*****/

/*****
*****
* seed - load the Seed value used in irand and drand. Should be used before *
* first call to irand or drand.
*****
*****/

void seed(long val)
{
#ifdef DEBUG
    printf("[%d]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("[%d]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("[%d]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("[%d]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("[%d]DBG: RandomNumber between %d & %d ==> %d\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("[%d]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("[%d]DBG: RandomNumber between %d & %d ==> %d\n",
(int) GetCurrentThreadId(), lower,
upper, rand_num);
#endif

    return rand_num;
}
#endif

//=====
// Function : NURand
//
// Description:
//=====

```

```

long NURand(int iConst,
            long x,
            long y,
            long C)
{
    long rand_num;

#ifdef DEBUG
    printf("[%ld]DBG: Entering NURand(...)\n", (int) GetCurrentThreadId());
#endif

    rand_num = (((RandomNumber(0,iConst) | RandomNumber(x,y)) + C) %
                (y-x+1))+x;

#ifdef DEBUG
    printf("[%ld]DBG: NURand: num = %d\n", (int) GetCurrentThreadId(),
           rand_num);
#endif

    return rand_num;
}

strings.c

//      File:          STRINGS.C
//
//      Microsoft TPC-C Kit Ver. 4.41
//      Copyright Microsoft, 1996, 1997,
//      1998, 1999, 2000, 2001
//      Purpose:   Source file for database loader string functions

// Includes
#include "tpcc.h"
#include <string.h>
#include <ctype.h>

//=====
//
// Function name: MakeAddress
//
//=====

void MakeAddress(char *street_1,
                char *street_2,
                char *city,
                char *state,
                char *zip)
{
#ifdef DEBUG
    printf("[%ld]DBG: Entering MakeAddress()\n", (int) GetCurrentThreadId());
#endif

    MakeAlphaString (10, 20, ADDRESS_LEN, street_1);
    MakeAlphaString (10, 20, ADDRESS_LEN, street_2);
    MakeAlphaString (10, 20, ADDRESS_LEN, city);
    MakeAlphaString ( 2,  2, STATE_LEN, state);
    MakeZipNumberString( 9, 9, ZIP_LEN, zip);

#ifdef DEBUG
    printf("[%ld]DBG: MakeAddress: street_1: %s, street_2: %s, city: %s, state:
    %s, zip: %s\n",
           (int) GetCurrentThreadId(), street_1, street_2,
           city, state, zip);
#endif

    return;
}

```

```

}

//=====
//
// Function name: LastName
//
//=====

void LastName(int num,
             char *name)
{
    static char *n[] =
    {
        "BAR", "OUGHT", "ABLE", "PRI", "PRES",
        "ESE", "ANTI", "CALLY", "ATION", "EING"
    };

#ifdef DEBUG
    printf("[%ld]DBG: Entering LastName()\n", (int) GetCurrentThreadId());
#endif

    if ((num >= 0) && (num < 1000))
    {
        strcpy(name, n[(num/100)%10]);
        strcat(name, n[(num/10)%10]);
        strcat(name, n[(num/1)%10]);

        if (strlen(name) < LAST_NAME_LEN)
        {
            PaddString(LAST_NAME_LEN, name);
        }
    }
    else
    {
        printf("\nError in LastName()... num <%ld> out of range
        (0,999)\n", num);
        exit(-1);
    }

#ifdef DEBUG
    printf("[%ld]DBG: LastName: num = [%d] ==> [%d][%d][%d]\n",
           (int) GetCurrentThreadId(), num, num/100,
           (num/10)%10, num%10);
    printf("[%ld]DBG: LastName: String = %s\n", (int)
           GetCurrentThreadId(), name);
#endif

    return;
}

//=====
//
// Function name: MakeAlphaString
//
//=====

//philipdu 08/13/96 Changed MakeAlphaString to use A-Z, a-z, and 0-9 in
//accordance with spec see below:

```

```
//The spec says:
//4.3.2.2 The notation random a-string [x .. y]
//(respectively, n-string [x .. y]) represents a string of random alphanumeric
//(respectively, numeric) characters of a random length of minimum x,
maximum y,
//and mean (y+x)/2. Alphanumerics are A..Z, a..z, and 0..9. The only other
//requirement is that the character set used "must be able to represent a
minimum
//of 128 different characters". We are using 8-bit chars, so this is a non issue.
//It is completely unreasonable to stuff non-printing chars into the text fields.
//--CLevine 08/13/96
```

```
int MakeAlphaString( int x, int y, int z, char *str)
{
    int len;
    int i;
    char cc = 'a';
    static char chArray[] =
"0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz";
    static int chArrayMax = 61;
```

```
#ifdef DEBUG
    printf("[%ld]DBG: Entering MakeAlphaString()\n", (int)
GetCurrentThreadId());
#endif
```

```
    len= RandomNumber(x, y);

    for (i=0; i<len; i++)
    {
        cc = chArray[RandomNumber(0, chArrayMax)];
        str[i] = cc;
    }

    //if ( len < z )
    //    memset(str+len, ' ', z - len);
    str[len] = 0;

    return len;
}
```

```
//=====
//
// Function name: MakeOriginalAlphaString
//
//=====
```

```
int MakeOriginalAlphaString(int x,
                            int y,
                            int z,
                            char *str,
                            int percent)
{
    int len;
    int val;
    int start;
```

```
#ifdef DEBUG
    printf("[%ld]DBG: Entering MakeOriginalAlphaString()\n", (int)
GetCurrentThreadId());
#endif
```

```
// verify percentage is valid
if ((percent < 0) || (percent > 100))
```

```
    {
        printf("MakeOriginalAlphaString: Invalid percentage:
%d\n", percent);
        exit(-1);
    }

    // verify string is at least 8 chars in length
    if ((x + y) <= 8)
    {
        printf("MakeOriginalAlphaString: string length must be
>= 8\n");
        exit(-1);
    }
```

```
// Make Alpha String
len = MakeAlphaString(x,y, z, str);

val = RandomNumber(1,100);
if (val <= percent)
{
    start = RandomNumber(0, len - 8);
    strncpy(str + start, "ORIGINAL", 8);
}
```

```
#ifdef DEBUG
    printf("[%ld]DBG: MakeOriginalAlphaString : %s\n",
(int) GetCurrentThreadId(), str);
#endif
```

```
    return strlen(str);
}
```

```
//=====
//
// Function name: MakeNumberString
//
//=====
```

```
int MakeNumberString(int x, int y, int z, char *str)
{
    char tmp[16];

    //MakeNumberString is always called MakeZipNumberString(16,
16, 16, string)

    memset(str, '0', 16);
    itoa(RandomNumber(0, 99999999), tmp, 10);
    memcpy(str, tmp, strlen(tmp));

    itoa(RandomNumber(0, 99999999), tmp, 10);
    memcpy(str+8, tmp, strlen(tmp));

    str[16] = 0;

    return 16;
}
```

```
//=====
//
// Function name: MakeZipNumberString
//
//=====
```

```

int MakeZipNumberString(int x, int y, int z, char *str)
{
    char tmp[16];

    //MakeZipNumberString is always called MakeZipNumberString(9,
    9, 9, string)

    strcpy(str, "000011111");

    itoa(RandomNumber(0, 9999), tmp, 10);
    memcpy(str, tmp, strlen(tmp));

    return 9;
}

```

```

=====
//
// Function name: InitString
//
=====
void InitString(char *str, int len)
{
#ifdef DEBUG
    printf("[%ld]DBG: Entering InitString()\n", (int) GetCurrentThreadId());
#endif

    memset(str, '\0', 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, '\0', ADDRESS_LEN+1);
    memset(street_2, '\0', ADDRESS_LEN+1);
    memset(city, '\0', ADDRESS_LEN+1);

    street_1[ADDRESS_LEN+1] = 0;
    street_2[ADDRESS_LEN+1] = 0;
    city[ADDRESS_LEN+1] = 0;

    memset(state, '\0', STATE_LEN+1);
    state[STATE_LEN+1] = 0;

    memset(zip, '\0', 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, '\0', max - len);
    name[max] = 0;

    return;
}

```

time.c

```

// File: TIME.C
// Microsoft TPC-C Kit Ver. 4.41
// Copyright Microsoft, 1996, 1997,
1998, 1999, 2000, 2001
// Purpose: Source file for time functions

// Includes
#include "tpcc.h"

// Globals
static long start_sec;

```

```

=====
// Function name: TimeNow
//
=====
long TimeNow()
{
    long time_now;
    struct _timeb el_time;

#ifdef DEBUG
    printf("[%ld]DBG: Entering TimeNow()\n", (int) GetCurrentThreadId());
#endif

    _ftime(&el_time);

    time_now = ((el_time.time - start_sec) * 1000) + el_time.millitm;

    return time_now;
}

```

tpcc.h

```

// File: TPCC.H
// Microsoft TPC-C Kit Ver. 4.41
// Copyright Microsoft, 1996, 1997,
1998, 1999, 2000, 2001
// Purpose: Header file for TPC-C database loader

// Build number of TPC Benchmark Kit
#define TPCKIT_VER "4.41"

```

```

// General headers
#include <windows.h>
#include <winbase.h>
#include <stdlib.h>
#include <stdio.h>
#include <process.h>
#include <stddef.h>
#include <stdarg.h>
#include <string.h>
#include <time.h>
#include <sys/timeb.h>
#include <sys/types.h>

// ODBC headers
#include <sql.h>
#include <sqlext.h>
#include <odbcss.h>

// General constants
#define MILLI 1000
#define FALSE 0
#define TRUE 1
#define UNDEF -1
#define MINPRINTASCI 32
#define MAXPRINTASCI 126

// Default environment constants
#define SERVER ""
#define DATABASE "tpcc"
#define USER "sa"
#define PASSWORD ""

// Default loader arguments
#define BATCH 10000
#define DEFLOADPACKSIZE 32768
#define LOADER_RES_FILE "C:\\MSTPCC.440\\SETUP\\logs\\load.out"
#define LOG_PATH "C:\\MSTPCC.440\\SETUP\\LOGS\\";
#define LOADER_NURAND_C 123
#define DEF_STARTING_WAREHOUSE 1
#define BUILD_INDEX 1 23
// build both data and indexes
#define INDEX_ORDER 1 23
// build indexes before load
#define SCALE_DOWN 0
// build a normal scale database
#define INDEX_SCRIPT_PATH "scripts"

typedef struct
{
    char *server;
    char *database;
    char *user;
    char *password;
    BOOL tables_all;
// set if loading all tables
    BOOL table_item;
// set if loading ITEM table specifically
    BOOL table_warehouse; //
set if loading WAREHOUSE, DISTRICT, and STOCK
    BOOL table_customer;
// set if loading CUSTOMER and HISTORY
    BOOL table_orders;
// set if loading NEW-ORDER, ORDERS, ORDER-LINE
    long num_warehouses;
    long batch;
    long verbose;
    long pack_size;

    char *loader_res_file;
    char *log_path;
    char *synch_servername;
    long case_sensitivity;
    long starting_warehouse;
    long build_index;
    long index_order;
    long scale_down;
    char *index_script_path;
} TPCCLDR_ARGS;

// String length constants
#define SERVER_NAME_LEN 20
#define DATABASE_NAME_LEN 20
#define USER_NAME_LEN 20
#define PASSWORD_LEN 20
#define TABLE_NAME_LEN 20
#define I_DATA_LEN 50
#define I_NAME_LEN 24
#define BRAND_LEN 1
#define LAST_NAME_LEN 16
#define W_NAME_LEN 10
#define ADDRESS_LEN 20
#define STATE_LEN 2
#define ZIP_LEN 9
#define S_DIST_LEN 24
#define S_DATA_LEN 50
#define D_NAME_LEN 10
#define FIRST_NAME_LEN 16
#define MIDDLE_NAME_LEN 2
#define PHONE_LEN 16
#define CREDIT_LEN 2
#define C_DATA_LEN 500
#define H_DATA_LEN 24
#define DIST_INFO_LEN 24
#define MAX_OL_NEW_ORDER_ITEMS 15
#define MAX_OL_ORDER_STATUS_ITEMS 15
#define STATUS_LEN 25
#define OL_DIST_INFO_LEN 24
#define C_SINCE_LEN
#define H_DATE_LEN
#define OL_DELIVERY_D_LEN 23
#define O_ENTRY_D_LEN 23

// Functions in random.c
void seed();
long irand();
double drand();
void WUCreate();
short WURand();
long RandomNumber(long lower, long upper);

// Functions in getargs.c;
void GetArgsLoader();
void GetArgsLoaderUsage();

// Functions in time.c
long TimeNow();

// Functions in strings.c
void MakeAddress();
void LastName();
int MakeAlphaString();
int MakeOriginalAlphaString();
int MakeNumberString();

```

```

int      MakeZipNumberString();
void     InitString();
void     InitAddress();
void     PaddString();

```

tpccldr.c

```

//      File:          TPCCLDR.C
//      Microsoft TPC-C Kit Ver. 4.41
//      Copyright Microsoft, 1996, 1997,
1998, 1999, 2000, 2001
//      Purpose:   Source file for TPC-C database loader

```

```

// Includes
#include "tpcc.h"
#include "search.h"

```

```

// Defines
#define MAXITEMS          100000
#define MAXITEMS_SCALE_DOWN      100
#define CUSTOMERS_PER_DISTRICT  3000
#define CUSTOMERS_SCALE_DOWN     30
#define DISTRICT_PER_WAREHOUSE  10
#define ORDERS_PER_DISTRICT     3000
#define ORDERS_SCALE_DOWN       30
#define MAX_CUSTOMER_THREADS    2
#define MAX_ORDER_THREADS       3
#define MAX_MAIN_THREADS        4

```

```

// Functions declarations

```

```

void HandleErrorDBC (SQLHDBC hdbc1);

```

```

void CheckDataBase();

```

```

long NURand();
void LoadItem();
void LoadWarehouse();

```

```

void Stock();
void District();

```

```

void LoadCustomer();
void CustomerBufInit();
void CustomerBufLoad();
void LoadCustomerTable();
void LoadHistoryTable();

```

```

void LoadOrders();
void OrdersBufInit();
void OrdersBufLoad();
void LoadOrdersTable();
void LoadNewOrderTable();
void LoadOrderLineTable();
void GetPermutation();
void CheckForCommit();
void OpenConnections();
void BuildIndex();
void FormatDate ();

```

```

// Shared memory structures

```

```

typedef struct
{
    long      ol;
    long      ol_i_id;

```

```

short      ol_supply_w_id;
short      ol_quantity;
double     ol_amount;
char       ol_dist_info[DIST_INFO_LEN+1];
        char
ol_delivery_d[OL_DELIVERY_D_LEN+1];
} ORDER_LINE_STRUCT;

```

```

typedef struct
{
    long      o_id;
    short     o_d_id;
    short     o_w_id;
    long      o_c_id;
    short     o_carrier_id;
    short     o_ol_cnt;
    short     o_all_local;
        ORDER_LINE_STRUCT  o_ol[15];
} ORDERS_STRUCT;

```

```

typedef struct
{
    long      c_id;
    short     c_d_id;
    short     c_w_id;
        char
c_first[FIRST_NAME_LEN+1];
    char
c_middle[MIDDLE_NAME_LEN+1];
    char
c_last[LAST_NAME_LEN+1];
    char
c_street_1[ADDRESS_LEN+1];
    char
c_street_2[ADDRESS_LEN+1];
    char
c_city[ADDRESS_LEN+1];
    char
c_state[STATE_LEN+1];
    char
c_zip[ZIP_LEN+1];
    char
c_phone[PHONE_LEN+1];
    char
c_credit[CREDIT_LEN+1];
    double
c_credit_lim;
    double
c_discount;
// fix to avoid ODBC float to numeric conversion problem.
// double
c_balance;
        char
c_balance[6];

    double
c_ytd_payment;
        short
c_payment_cnt;
        short
c_delivery_cnt;

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
} 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;

//=====
//
// 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");

    // process command line arguments

    aptr = &args;
    GetArgsLoader(argc, argv, aptr);

    // verify database and tables exist before attempting to load
    //CheckDataBase();

    printf("Build interface is ODBC.\n");

    if (aptr->build_index == 0)
        printf("Data load only - no index creation.\n");
    else
        printf("Data load and index creation.\n");

    if (aptr->index_order == 0)
        printf("Clustered indexes will be created after bulk
load.\n");
    else
        printf("Clustered indexes will be created before bulk
load.\n");

    // set database scale values
    if (aptr->scale_down == 1)
    {
        printf("*** Scaled Down Database ***\n");
        max_items = MAXITEMS_SCALE_DOWN;
        customers_per_district =
CUSTOMERS_SCALE_DOWN;
        orders_per_district = ORDERS_SCALE_DOWN;
        first_new_order = 0;
        last_new_order = 30;
    }
    else
    {
        max_items = MAXITEMS;
        customers_per_district =
CUSTOMERS_PER_DISTRICT;
        orders_per_district = ORDERS_PER_DISTRICT;
        first_new_order = 2100;
        last_new_order = 3000;
    }

    // open connections to SQL Server

    OpenConnections();

    // open file for loader results
    fLoader = fopen(aptr->loader_res_file, "w");

    if (fLoader == NULL)

```

```

        {
            printf("Error, loader result file open failed.");
            exit(-1);
        }

// start loading data

sprintf(buffer,"TPC-C load started for %ld
warehouses.\n",aptr->num_warehouses);

printf("%s",buffer);
fprintf(fLoader,"%s",buffer);

main_time_start = (TimeNow() / MILLI);

// start parallel load threads

if (aptr->tables_all || aptr->table_item)
{
    fprintf(fLoader, "\nStarting loader threads for: item\n");

    hThread[0] = CreateThread(NULL,

0,
(LPPTHREAD_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,
(LPPTHREAD_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,
(LPPTHREAD_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,
(LPPTHREAD_START_ROUTINE) LoadOrders,
NULL,
0,
&dwThreadID[3]);

            if (hThread[3] == NULL)
            {
                printf("Error, failed in creating creating main
thread = 3.\n");
                exit(-1);
            }
        }

        // Wait for threads to finish...
        for (i=0; i<MAX_MAIN_THREADS; i++)
        {
            if (hThread[i] != NULL)
            {
                WaitForSingleObject( hThread[i], INFINITE
);

                CloseHandle(hThread[i]);
                hThread[i] = NULL;
            }
        }

        main_time_end = (TimeNow() / MILLI);

        sprintf(buffer,"\nTPC-C load completed successfully in %ld minutes.\n",
(main_time_end - main_time_start)/60);

        printf("%s",buffer);
        fprintf(fLoader, "%s", buffer);
    }
}

```

```

fclose(fLoader);
SQLFreeEnv(henv);
exit(0);
return 0;
}

//=====
//
// Function name: LoadItem
//
//=====

void LoadItem()
{
    long          i_id;
    long          i_im_id;
    char          i_name[I_NAME_LEN+1];
    double        i_price;
    char          i_data[I_DATA_LEN+1];
    char          name[20];
    long          time_start;
    RETCODE       rc;
    DBINT         rcint;
    char          bcphint[128];
    char          err_log_path[256];

    // Seed with unique number
    seed(1);

    printf("Loading item table...\n");

    // if build index before load
    if ((aptr->build_index == 1) && (aptr->index_order == 1))
        BuildIndex("idxitmcl");

    InitString(i_name, I_NAME_LEN+1);
    InitString(i_data, I_DATA_LEN+1);

    sprintf(name, "%s.%s", aptr->database, "item");

    //rc = bcp_init(i_hdbc1, name, NULL, "logs\\item.err", DB_IN);
    strcpy(err_log_path, aptr->log_path);
    strcat(err_log_path, "item.err");
    rc = bcp_init(i_hdbc1, name, NULL, err_log_path, DB_IN);
    if (rc != SUCCEED)
        HandleErrorDBC(i_hdbc1);

    if ((aptr->build_index == 1) && (aptr->index_order == 1))
    {
        sprintf(bcphint, "tablock, order (i_id),
ROWS_PER_BATCH = 100000");
        rc = bcp_control(i_hdbc1, BCPHINTS, (void*) bcphint);
        if (rc != SUCCEED)
            HandleErrorDBC(i_hdbc1);
    }

    rc = bcp_bind(i_hdbc1, (BYTE *) &i_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT4, 1);
    if (rc != SUCCEED)
        HandleErrorDBC(i_hdbc1);

    rc = bcp_bind(i_hdbc1, (BYTE *) &i_im_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 2);
    if (rc != SUCCEED)
        HandleErrorDBC(i_hdbc1);

    rc = bcp_bind(i_hdbc1, (BYTE *) i_name, 0, I_NAME_LEN,
NULL, 0, 0, 3);
    if (rc != SUCCEED)
        HandleErrorDBC(i_hdbc1);

    rc = bcp_bind(i_hdbc1, (BYTE *) &i_price, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 4);
    if (rc != SUCCEED)
        HandleErrorDBC(i_hdbc1);

    rc = bcp_bind(i_hdbc1, (BYTE *) i_data, 0, I_DATA_LEN, NULL,
0, 0, 5);
    if (rc != SUCCEED)
        HandleErrorDBC(i_hdbc1);

    time_start = (TimeNow()) / MILLI);

    item_rows_loaded = 0;

    for (i_id = 1; i_id <= max_items; i_id++)
    {
        i_im_id = RandomNumber(1L, 10000L);

        MakeAlphaString(14, 24, I_NAME_LEN, i_name);

        i_price = ((float) RandomNumber(100L, 10000L))/100.0;

        MakeOriginalAlphaString(26, 50, I_DATA_LEN, i_data,
10);

        rc = bcp_sendrow(i_hdbc1);
        if (rc != SUCCEED)
            HandleErrorDBC(i_hdbc1);

        item_rows_loaded++;
        CheckForCommit(i_hdbc1, i_hstmt1, item_rows_loaded,
"item", &time_start);
    }

    rcint = bcp_done(i_hdbc1);
    if (rcint < 0)
        HandleErrorDBC(i_hdbc1);

    printf("Finished loading item table.\n");

    SQLFreeStmt(i_hstmt1, SQL_DROP);
    SQLDisconnect(i_hdbc1);
    SQLFreeConnect(i_hdbc1);

    // if build index after load
    if ((aptr->build_index == 1) && (aptr->index_order == 0))
        BuildIndex("idxitmcl");
}

//=====
//
// Function : LoadWarehouse
//
// Loads WAREHOUSE table and loads Stock and District as Warehouses are
created

```

```

//
//=====
void LoadWarehouse()
{
    short    w_id;
    char     w_name[W_NAME_LEN+1];
    char     w_street_1[ADDRESS_LEN+1];
    char     w_street_2[ADDRESS_LEN+1];
    char     w_city[ADDRESS_LEN+1];
    char     w_state[STATE_LEN+1];
    char     w_zip[ZIP_LEN+1];
    double   w_tax;
    double   w_ytd;
    char     name[20];
    long     time_start;
    RETCODE  rc;
    DBINT    rcint;
    char     bcphint[128];
    char     err_log_path[256];

    // Seed with unique number
    seed(2);

    printf("Loading warehouse table...\n");

    // if build index before load...
    if((aptr->build_index == 1) && (aptr->index_order == 1))
        BuildIndex("idxwarc1");

    InitString(w_name, W_NAME_LEN+1);
    InitAddress(w_street_1, w_street_2, w_city, w_state, w_zip);

    sprintf(name, "%s..%s", aptr->database, "warehouse");

    //rc = bcp_init(w_hdbc1, name, NULL, "logs\\whouse.err", DB_IN);

    strcpy(err_log_path, aptr->log_path);
    strcat(err_log_path, "whouse.err");
    rc = bcp_init(w_hdbc1, name, NULL, err_log_path, DB_IN);
    if (rc != SUCCEEDED)
        HandleErrorDBC(w_hdbc1);

    if((aptr->build_index == 1) && (aptr->index_order == 1))
    {
        sprintf(bcphint, "tablock, order (w_id,
ROWS_PER_BATCH = %d", aptr->num_warehouses);
        rc = bcp_control(w_hdbc1, BCPHINTS, (void*)
bcphint);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);
    }

    rc = bcp_bind(w_hdbc1, (BYTE *) &w_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 1);
    if (rc != SUCCEEDED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) w_name, 0, W_NAME_LEN,
NULL, 0, 0, 2);
    if (rc != SUCCEEDED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) w_street_1, 0, ADDRESS_LEN,
NULL, 0, 0, 3);
    if (rc != SUCCEEDED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) w_street_2, 0, ADDRESS_LEN,
NULL, 0, 0, 4);
    if (rc != SUCCEEDED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) w_city, 0, ADDRESS_LEN,
NULL, 0, 0, 5);
    if (rc != SUCCEEDED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) w_state, 0, STATE_LEN,
NULL, 0, 0, 6);
    if (rc != SUCCEEDED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) w_zip, 0, ZIP_LEN, NULL, 0, 0,
7);
    if (rc != SUCCEEDED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) &w_tax, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 8);
    if (rc != SUCCEEDED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) &w_ytd, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 9);
    if (rc != SUCCEEDED)
        HandleErrorDBC(w_hdbc1);

    time_start = (TimeNow() / MILLI);

    warehouse_rows_loaded = 0;

    for (w_id = (short)aptr->starting_warehouse; w_id <=
aptr->num_warehouses; w_id++)
    {
        MakeAlphaString(6,10, W_NAME_LEN, w_name);

        MakeAddress(w_street_1, w_street_2, w_city, w_state,
w_zip);

        w_tax = ((float) RandomNumber(0L,2000L))/10000.00;

        w_ytd = 300000.00;

        rc = bcp_sendrow(w_hdbc1);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

        warehouse_rows_loaded++;
        CheckForCommit(w_hdbc1, i_hstmt1,
warehouse_rows_loaded, "warehouse", &time_start);
    }

    rcint = bcp_done(w_hdbc1);
    if (rcint < 0)
        HandleErrorDBC(w_hdbc1);

    printf("Finished loading warehouse table.\n");

    // if build index after load...
    if((aptr->build_index == 1) && (aptr->index_order == 0))
        BuildIndex("idxwarc1");

    stock_rows_loaded = 0;
    district_rows_loaded = 0;

```

```

District();
Stock();
}

//=====
//
// Function : District
//
//=====

void District()
{
short d_id;
short d_w_id;
char d_name[D_NAME_LEN+1];
char d_street_1[ADDRESS_LEN+1];
char d_street_2[ADDRESS_LEN+1];
char d_city[ADDRESS_LEN+1];
char d_state[STATE_LEN+1];
char d_zip[ZIP_LEN+1];
double d_tax;
double d_ytd;
char name[20];
long d_next_o_id;
long time_start;
int w_id;
RETCODE rc;
DBINT rcint;
char bcpint[128];
char err_log_path[256];

// Seed with unique number
seed(4);

printf("Loading district table...\n");

// build index before load
if((aptr->build_index == 1) && (aptr->index_order == 1))
    BuildIndex("idxdiscl");

InitString(d_name, D_NAME_LEN+1);
InitAddress(d_street_1, d_street_2, d_city, d_state, d_zip);
sprintf(name, "%s..%s", aptr->database, "district");

//rc = bcp_init(w_hdbc1, name, NULL, "logs\district.err", DB_IN);
strcpy(err_log_path, aptr->log_path);
streat(err_log_path, "district.err");
rc = bcp_init(w_hdbc1, name, NULL, err_log_path, DB_IN);
if (rc != SUCCEEDED)
    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", (aptr->num_warehouses * 10));
    rc = bcp_control(w_hdbc1, BCPHINTS, (void*)
bcpint);
    if (rc != SUCCEEDED)
        HandleErrorDBC(w_hdbc1);
}

rc = bcp_bind(w_hdbc1, (BYTE *)&d_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 1);

```

```

if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *)&d_w_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 2);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) d_name, 0, D_NAME_LEN,
NULL, 0, 0, 3);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) d_street_1, 0, ADDRESS_LEN,
NULL, 0, 0, 4);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) d_street_2, 0, ADDRESS_LEN,
NULL, 0, 0, 5);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) d_city, 0, ADDRESS_LEN,
NULL, 0, 0, 6);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) d_state, 0, STATE_LEN, NULL,
0, 0, 7);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) d_zip, 0, ZIP_LEN, NULL, 0, 0,
8);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *)&d_tax, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 9);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *)&d_ytd, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 10);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *)&d_next_o_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 11);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

d_ytd = 30000.0;

d_next_o_id = orders_per_district+1;

time_start = (TimeNow() / MILLI);

for (w_id = aptr->starting_warehouse; w_id <=
aptr->num_warehouses; w_id++)
{
    d_w_id = w_id;

    for (d_id = 1; d_id <= DISTRICT_PER_WAREHOUSE;
d_id++)
    {

```

```

        MakeAlphaString(6,10,D_NAME_LEN,
d_name);

        MakeAddress(d_street_1, d_street_2, d_city,
d_state, d_zip);

        d_tax = ((float)
RandomNumber(0L,2000L))/10000.00;

        rc = bcp_sendrow(w_hdbc1);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        district_rows_loaded++;
        CheckForCommit(w_hdbc1, w_hstmt1,
district_rows_loaded, "district", &time_start);
    }
}

rcint = bcp_done(w_hdbc1);
if (rcint < 0)
    HandleErrorDBC(w_hdbc1);

printf("Finished loading district table.\n");

// if build index after load...
if ((aptr->build_index == 1) && (aptr->index_order == 0))
    BuildIndex("idxdiscl");

return;
}

```

```

//=====
//
// Function : Stock
//
//=====

```

```

void Stock()
{
    long   s_i_id;
    short  s_w_id;
    short  s_quantity;
    char   s_dist_01[S_DIST_LEN+1];
    char   s_dist_02[S_DIST_LEN+1];
    char   s_dist_03[S_DIST_LEN+1];
    char   s_dist_04[S_DIST_LEN+1];
    char   s_dist_05[S_DIST_LEN+1];
    char   s_dist_06[S_DIST_LEN+1];
    char   s_dist_07[S_DIST_LEN+1];
    char   s_dist_08[S_DIST_LEN+1];
    char   s_dist_09[S_DIST_LEN+1];
    char   s_dist_10[S_DIST_LEN+1];
    long   s_ytd;
    short  s_order_cnt;
    short  s_remote_cnt;
    char   s_data[S_DATA_LEN+1];
    short  len;
    char   name[20];
    long   time_start;
    RETCODE rc;
    DBINT  rcint;
    char   bcp[128];
    char   err_log_path[256];
}

```

```

// Seed with unique number
seed(3);

// if build index before load...
if ((aptr->build_index == 1) && (aptr->index_order == 1))
    BuildIndex("idxstkcl");

sprintf(name, "%s.%s", aptr->database, "stock");

//rc = bcp_init(w_hdbc1, name, NULL, "logs\\stock.err", DB_IN);
strcpy(err_log_path,aptr->log_path);
strcat(err_log_path,"stock.err");
rc = bcp_init(w_hdbc1, name, NULL, err_log_path, DB_IN);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

if ((aptr->build_index == 1) && (aptr->index_order == 1))
{
    sprintf(bcp, "tablock, order (s_i_id, s_w_id),
ROWS_PER_BATCH = %u", (aptr->num_warehouses * 10000));
    rc = bcp_control(w_hdbc1, BCPHINTS, (void*)
bcp);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);
}

rc = bcp_bind(w_hdbc1, (BYTE *) &s_i_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 1);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

bcp_bind(w_hdbc1, (BYTE *) &s_w_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 2);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) &s_quantity, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 3);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_01, 0, S_DIST_LEN,
NULL, 0, 0, 4);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_02, 0, S_DIST_LEN,
NULL, 0, 0, 5);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_03, 0, S_DIST_LEN,
NULL, 0, 0, 6);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_04, 0, S_DIST_LEN,
NULL, 0, 0, 7);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_05, 0, S_DIST_LEN,
NULL, 0, 0, 8);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_06, 0, S_DIST_LEN,
NULL, 0, 0, 9);

```

```

    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_07, 0, S_DIST_LEN,
NULL, 0, 0, 10);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_08, 0, S_DIST_LEN,
NULL, 0, 0, 11);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_09, 0, S_DIST_LEN,
NULL, 0, 0, 12);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_10, 0, S_DIST_LEN,
NULL, 0, 0, 13);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) &s_ytd, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 14);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) &s_order_cnt, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 15);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) &s_remote_cnt, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 16);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) s_data, 0, S_DATA_LEN,
NULL, 0, 0, 17);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    s_ytd = s_order_cnt = s_remote_cnt = 0;

    time_start = (TimeNow() / MILLI);

    printf("...Loading stock table\n");

    for (s_i_id=1; s_i_id <= max_items; s_i_id++)
    {

        for (s_w_id = (short)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 != SUCCEED)
                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;
    short 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];

```

```

int
num_procs;
char
err_log_path_cust[256];
char
err_log_path_hist[256];
// SQLRETURN
// SQLSMALLINT
MsgLen;
// SQLCHAR
SqlState[6], Msg[SQL_MAX_MESSAGE_LENGTH];
// SQLINTEGER

// Seed with unique number
seed(5);

printf("Loading customer and history tables...\n");

// if build index before load...
if ((aptr->build_index == 1) && (aptr->index_order == 1))
{
    BuildIndex("idxcuscl");
    // check the number of processors on this system
    // if 8 or more processors, then build index on History.
    // if less than 8 processors, do not build the index
    num_procs = atoi(getenv(
"NUMBER_OF_PROCESSORS" ));
    if ( num_procs >= 8 )
        BuildIndex("idxhiscl");
}

// Initialize bulk copy
sprintf(name, "%s..%s", aptr->database, "customer");

DB_IN);
//rc = bcp_init(c_hdbc1, name, NULL, "logs\customer.err",
strcpy(err_log_path_cust,aptr->log_path);
strcat(err_log_path_cust,"customer.err");
rc = bcp_init(c_hdbc1, name, NULL, err_log_path_cust, DB_IN);
if (rc != SUCCEED)
    HandleErrorDBC(c_hdbc1);

if ((aptr->build_index == 1) && (aptr->index_order == 1))
{
    sprintf(bcphint, "tablock, order (c_w_id, c_d_id, c_id),
ROWS_PER_BATCH = %u", (aptr->num_warehouses * 30000));
rc = bcp_control(c_hdbc1, BCPHINTS, (void*) bcphint);

if (rc != SUCCEED)
    HandleErrorDBC(c_hdbc1);
}

sprintf(name, "%s..%s", aptr->database, "history");

rc = bcp_init(c_hdbc2, name, NULL, "logs\history.err", DB_IN);
strcpy(err_log_path_hist,aptr->log_path);
strcat(err_log_path_hist,"history.err");
rc = bcp_init(c_hdbc2, name, NULL, err_log_path_hist, DB_IN);
if (rc != SUCCEED)
    HandleErrorDBC(c_hdbc2);

sprintf(bcphint, "tablock");
rc = bcp_control(c_hdbc2, BCPHINTS, (void*) bcphint);
if (rc != SUCCEED)
    HandleErrorDBC(c_hdbc2);

customer_rows_loaded = 0;
history_rows_loaded = 0;

```

```

CustomerBufInit();

customer_time_start.time_start = (TimeNow() / MILLI);
history_time_start.time_start = (TimeNow() / MILLI);

for (w_id = (short)aptr->starting_warehouse; w_id <=
aptr->num_warehouses; w_id++)
{
    for (d_id = 1; d_id <= DISTRICT_PER_WAREHOUSE;
d_id++)
    {
        CustomerBufLoad(d_id, w_id);

        // Start parallel loading threads here...

        // Start customer table thread

        printf("...Loading customer table for: d_id =
%d, w_id = %d\n", d_id, w_id);

        hThread[0] = CreateThread(NULL,

0,

(LPTHREAD_START_ROUTINE) LoadCustomerTable,

&customer_time_start,

0,

&dwThreadID[0]);

if (hThread[0] == NULL)
{
    printf("Error, failed in creating
creating thread = 0.\n");
    exit(-1);
}

// Start History table thread

printf("...Loading history table for: d_id = %d,
w_id = %d\n", d_id, w_id);

hThread[1] = CreateThread(NULL,

0,

(LPTHREAD_START_ROUTINE) LoadHistoryTable,

&history_time_start,

0,

&dwThreadID[1]);

if (hThread[1] == NULL)
{
    printf("Error, failed in creating
creating thread = 1.\n");
    exit(-1);
}

WaitForSingleObject( hThread[0], INFINITE
);

```

```

        WaitForSingleObject( hThread[1], INFINITE
);

        if (CloseHandle(hThread[0]) == FALSE)
        {
            printf("Error, failed in closing
customer thread handle with errno: %d\n", GetLastError());
        }

        if (CloseHandle(hThread[1]) == FALSE)
        {
            printf("Error, failed in closing
history thread handle with errno: %d\n", GetLastError());
        }

    }

    // flush the bulk connection
    rcint = bcp_done(c_hdbc1);
    if (rcint < 0)
        HandleErrorDBC(c_hdbc1);

    rcint = bcp_done(c_hdbc2);
    if (rcint < 0)
        HandleErrorDBC(c_hdbc2);

    printf("Finished loading customer table.\n");

    // if build index after load...
    if ((aptr->build_index == 1) && (aptr->index_order == 0))
    {
        BuildIndex("idxcuscl");
        // check the number of processors on this system
        // if 8 or more processors, then build index on History.
        // if less than 8 processors, do not build the index
        num_procs = atoi(getenv(
"NUMBER_OF_PROCESSORS" ));
        if (num_procs >= 8)
            BuildIndex("idxhiscl");
    }

    // build non-clustered index
    if (aptr->build_index == 1)
        BuildIndex("idxcusnc");

    // Output the NURAND used for the loader into C_FIRST for C_ID
= 1,
    // C_W_ID = 1, and C_D_ID = 1
    //sprintf(cmd, "osql -S%s -U%s -P%s -d%s -e -Q\"update customer
set c_first = 'C_LOAD = %d' where c_id = 1 and c_w_id = 1 and c_d_id = 1\" >
logs\\nurand_load.log",
        sprintf(cmd, "osql -S%s -U%s -P%s -d%s -e -Q\"update customer set
c_first = 'C_LOAD = %d' where c_id = 1 and c_w_id = 1 and c_d_id = 1\" >
%snurand_load.log",

            aptr->server,
            aptr->user,
            aptr->password,
            aptr->database,
            LOADER_NURAND_C,
            aptr->log_path);

    system(cmd);

    SQLFreeStmt(c_hstmt1, SQL_DROP);
    SQLDisconnect(c_hdbc1);

```

```

SQLFreeConnect(c_hdbc1);

SQLFreeStmt(c_hstmt2, SQL_DROP);
SQLDisconnect(c_hdbc2);
SQLFreeConnect(c_hdbc2);

return;
}

//=====
//
// Function : CustomerBufInit
//=====

void CustomerBufInit()
{
    int i;

    for (i=0;i<customers_per_district;i++)
    {
        customer_buf[i].c_id = 0;
        customer_buf[i].c_d_id = 0;
        customer_buf[i].c_w_id = 0;

        strcpy(customer_buf[i].c_first,"");
        strcpy(customer_buf[i].c_middle,"");
        strcpy(customer_buf[i].c_last,"");
        strcpy(customer_buf[i].c_street_1,"");
        strcpy(customer_buf[i].c_street_2,"");
        strcpy(customer_buf[i].c_city,"");
        strcpy(customer_buf[i].c_state,"");
        strcpy(customer_buf[i].c_zip,"");
        strcpy(customer_buf[i].c_phone,"");
        strcpy(customer_buf[i].c_credit,"");

        customer_buf[i].c_credit_lim = 0;
        customer_buf[i].c_discount = (float) 0;

        // fix to avoid ODBC float to numeric conversion
        // customer_buf[i].c_balance = 0;
        strcpy(customer_buf[i].c_balance,"");

        customer_buf[i].c_ytd_payment = 0;
        customer_buf[i].c_payment_cnt = 0;
        customer_buf[i].c_delivery_cnt = 0;

        strcpy(customer_buf[i].c_data,"");

        customer_buf[i].h_amount = 0;

        strcpy(customer_buf[i].h_data,"");
    }
}

//=====
//

```

```

// Function : CustomerBufLoad
//
// Fills shared buffer for HISTORY and CUSTOMER
//=====
void CustomerBufLoad(int d_id, int w_id)
{
    long i;
    CUSTOMER_SORT_STRUCT c[CUSTOMERS_PER_DISTRICT];

    for (i=0;i<customers_per_district;i++)
    {
        if (i < 1000)
            LastName(i, c[i].c_last);
        else
            LastName(NURand(255,0,999,LOADER_NURAND_C), c[i].c_last);

        MakeAlphaString(8,16,FIRST_NAME_LEN,
c[i].c_first);

        c[i].c_id = i+1;
    }

    printf("...Loading customer buffer for: d_id = %d, w_id = %d\n",
        d_id, w_id);

    for (i=0;i<customers_per_district;i++)
    {
        customer_buf[i].c_d_id = d_id;
        customer_buf[i].c_w_id = w_id;
        customer_buf[i].h_amount = 10.0;

        customer_buf[i].c_ytd_payment = 10.0;

        customer_buf[i].c_payment_cnt = 1;
        customer_buf[i].c_delivery_cnt = 0;

        // Generate CUSTOMER and HISTORY data

        customer_buf[i].c_id = c[i].c_id;

        strcpy(customer_buf[i].c_first, c[i].c_first);
        strcpy(customer_buf[i].c_last, c[i].c_last);

        customer_buf[i].c_middle[0] = 'O';
        customer_buf[i].c_middle[1] = 'E';

        MakeAddress(customer_buf[i].c_street_1,
                    customer_buf[i].c_street_2,
                    customer_buf[i].c_city,
                    customer_buf[i].c_state,
                    customer_buf[i].c_zip);

        MakeNumberString(16, 16, PHONE_LEN,
customer_buf[i].c_phone);

        if (RandomNumber(1L, 100L) > 10)
            customer_buf[i].c_credit[0] = 'G';
        else
            customer_buf[i].c_credit[0] = 'B';
        customer_buf[i].c_credit[1] = 'C';

        customer_buf[i].c_credit_lim = 50000.0;

```

```

        customer_buf[i].c_discount = ((float)
RandomNumber(0L, 5000L)) / 10000.0;

        // fix to avoid ODBC float to numeric conversion
        problem.
        // customer_buf[i].c_balance = -10.0;
        strcpy(customer_buf[i].c_balance,"-10.0");

        MakeAlphaString(300, 500, C_DATA_LEN,
customer_buf[i].c_data);

        // Generate HISTORY data
        MakeAlphaString(12, 24, H_DATA_LEN,
customer_buf[i].h_data);
    }
}
//=====
//
// Function : LoadCustomerTable
//
//=====
void LoadCustomerTable(LOADER_TIME_STRUCT *customer_time_start)
{
    int i;
    long c_id;
    short c_d_id;
    short c_w_id;
    char c_first[FIRST_NAME_LEN+1];
    char c_middle[MIDDLE_NAME_LEN+1];
    char c_last[LAST_NAME_LEN+1];
    char c_street_1[ADDRESS_LEN+1];
    char c_street_2[ADDRESS_LEN+1];
    char c_city[ADDRESS_LEN+1];
    char c_state[STATE_LEN+1];
    char c_zip[ZIP_LEN+1];
    char c_phone[PHONE_LEN+1];
    char c_credit[CREDIT_LEN+1];
    double c_credit_lim;
    double c_discount;

    // fix to avoid ODBC float to numeric conversion problem.
    // double c_balance;
    char c_balance[6];

    double c_ytd_payment;
    short c_payment_cnt;
    short c_delivery_cnt;
    char c_data[C_DATA_LEN+1];
    char c_since[C_SINCE_LEN+1];
    RETCODE rc;

    rc = bcp_bind(c_hdbc1, (BYTE *) &c_id, 0, SQL_VARLEN_DATA, NULL,
0, SQLINT4, 1);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) &c_d_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 2);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) &c_w_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 3);

```

```

        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_first, 0, FIRST_NAME_LEN, NULL, 0,
0, 4);
        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_middle, 0,
MIDDLE_NAME_LEN, NULL, 0, 0, 5);
        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_last, 0, LAST_NAME_LEN, NULL, 0,
0, 6);
        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_street_1, 0, ADDRESS_LEN, NULL, 0,
0, 7);
        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_street_2, 0, ADDRESS_LEN,
NULL, 0, 0, 8);
        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_city, 0, ADDRESS_LEN, NULL, 0, 0,
9);
        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_state, 0, STATE_LEN, NULL, 0, 0, 10);
        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_zip, 0, ZIP_LEN, NULL, 0, 0, 11);
        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_phone, 0, PHONE_LEN, NULL, 0, 0,
12);
        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) &c_since, 0, C_SINCE_LEN,
NULL, 0, SQLCHARACTER, 13);
        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_credit, 0, CREDIT_LEN, NULL, 0, 0,
14);
        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) &c_credit_lim, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 15);
        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) &c_discount, 0, SQL_VARLEN_DATA,
NULL, 0, SQLFLT8, 16);
        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc1);

```

```

        // fix to avoid ODBC float to numeric conversion problem.

    // rc = bcp_bind(c_hdbc1, (BYTE *) &c_balance, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 17);
        // if (rc != SUCCEED)
        //     HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_balance, 0, 5, NULL, 0,
SQLCHARACTER, 17);
        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) &c_ytd_payment, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 18);
        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) &c_payment_cnt, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 19);
        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) &c_delivery_cnt, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 20);
        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_data, 0, 500, NULL, 0, 0, 21);
        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc1);

    for (i = 0; i < customers_per_district; i++)
    {
        c_id = customer_buf[i].c_id;
        c_d_id = customer_buf[i].c_d_id;
        c_w_id = customer_buf[i].c_w_id;

        strcpy(c_first, customer_buf[i].c_first);
        strcpy(c_middle, customer_buf[i].c_middle);
        strcpy(c_last, customer_buf[i].c_last);
        strcpy(c_street_1, customer_buf[i].c_street_1);
        strcpy(c_street_2, customer_buf[i].c_street_2);
        strcpy(c_city, customer_buf[i].c_city);
        strcpy(c_state, customer_buf[i].c_state);
        strcpy(c_zip, customer_buf[i].c_zip);
        strcpy(c_phone, customer_buf[i].c_phone);
        strcpy(c_credit, customer_buf[i].c_credit);

        FormatDate(&c_since);

        c_credit_lim = customer_buf[i].c_credit_lim;
        c_discount = customer_buf[i].c_discount;

        // fix to avoid ODBC float to numeric conversion
        // problem.
        // c_balance = customer_buf[i].c_balance;
        strcpy(c_balance, customer_buf[i].c_balance);

        c_ytd_payment = customer_buf[i].c_ytd_payment;
        c_payment_cnt = customer_buf[i].c_payment_cnt;
        c_delivery_cnt = customer_buf[i].c_delivery_cnt;

        strcpy(c_data, customer_buf[i].c_data);

        // Send data to server
        rc = bcp_sendrow(c_hdbc1);
        if (rc != SUCCEED)

```

```

        HandleErrorDBC(c_hdbc1);

        customer_rows_loaded++;
        CheckForCommit(c_hdbc1, c_hstmt1,
customer_rows_loaded, "customer", &customer_time_start->time_start);
    }
}

//=====
//
// Function : LoadHistoryTable
//
//=====

void LoadHistoryTable(LOADER_TIME_STRUCT *history_time_start)
{
    int i;
    long c_id;
    short c_d_id;
    short c_w_id;
    double h_amount;
    char h_data[H_DATA_LEN+1];
    char h_date[H_DATE_LEN+1];
    RETCODE rc;

    rc = bcp_bind(c_hdbc2, (BYTE *) &c_id, 0, SQL_VARLEN_DATA, NULL,
0, SQLINT4, 1);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &c_d_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 2);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &c_w_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 3);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &c_d_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 4);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &c_w_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 5);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &h_date, 0, H_DATE_LEN,
NULL, 0, SQLCHARACTER, 6);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &h_amount, 0, SQL_VARLEN_DATA,
NULL, 0, SQLFLT8, 7);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) h_data, 0, H_DATA_LEN, NULL, 0, 0,
8);
    if (rc != SUCCEEDED)
        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 != SUCCEEDED)
        HandleErrorDBC(c_hdbc2);

    history_rows_loaded++;
    CheckForCommit(c_hdbc2, c_hstmt2,
history_rows_loaded, "history", &history_time_start->time_start);
}
}

//=====
//
// Function : LoadOrders
//
//=====

void LoadOrders()
{
    LOADER_TIME_STRUCT orders_time_start;
    LOADER_TIME_STRUCT new_order_time_start;
    LOADER_TIME_STRUCT order_line_time_start;
    short w_id;
    short d_id;
    DWORD
dwThreadId[MAX_ORDER_THREADS];
    HANDLE
hThread[MAX_ORDER_THREADS];
    char name[20];
    RETCODE rc;
    char
bcphint[128];
    char
err_log_path_ord[256];
    char
err_log_path_nord[256];
    char
err_log_path_ordl[256];

    // seed with unique number
    seed(6);

    printf("Loading orders...\n");

    // if build index before load...
    if ((aptr->build_index == 1) && (aptr->index_order == 1))
    {
        BuildIndex("idxordcl");
        BuildIndex("idxnodel");
        BuildIndex("idxodlcl");
    }
}

```

```

// initialize bulk copy
sprintf(name, "%s.%s", aptr->database, "orders");

rc = bcp_init(o_hdbc1, name, NULL, "logs\\orders.err", DB_IN);
strcpy(err_log_path_ord, aptr->log_path);
strcat(err_log_path_ord, "orders.err");
rc = bcp_init(o_hdbc1, name, NULL, err_log_path_ord, DB_IN);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc1);

if ((aptr->build_index == 1) && (aptr->index_order == 1))
{
    sprintf(bcphint, "tablock, order (o_w_id, o_d_id, o_id),
ROWS_PER_BATCH = %u", (aptr->num_warehouses * 30000));
    rc = bcp_control(o_hdbc1, BCPHINTS, (void*) bcphint);

    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);
}

sprintf(name, "%s.%s", aptr->database, "new_order");

rc = bcp_init(o_hdbc2, name, NULL, "logs\\neword.err", DB_IN);
strcpy(err_log_path_nord, aptr->log_path);
strcat(err_log_path_nord, "neword.err");
rc = bcp_init(o_hdbc2, name, NULL, err_log_path_nord, DB_IN);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc2);

if ((aptr->build_index == 1) && (aptr->index_order == 1))
{
    sprintf(bcphint, "tablock, order (no_w_id, no_d_id,
no_o_id), ROWS_PER_BATCH = %u", (aptr->num_warehouses * 9000));
    rc = bcp_control(o_hdbc2, BCPHINTS, (void*) bcphint);

    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc2);
}

sprintf(name, "%s.%s", aptr->database, "order_line");

rc = bcp_init(o_hdbc3, name, NULL, "logs\\ordline.err", DB_IN);
strcpy(err_log_path_ordl, aptr->log_path);
strcat(err_log_path_ordl, "ordline.err");
rc = bcp_init(o_hdbc3, name, NULL, err_log_path_ordl, DB_IN);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc3);

if ((aptr->build_index == 1) && (aptr->index_order == 1))
{
    sprintf(bcphint, "tablock, order (ol_w_id, ol_d_id,
ol_o_id, ol_number), ROWS_PER_BATCH = %u", (aptr->num_warehouses *
300000));
    rc = bcp_control(o_hdbc3, BCPHINTS, (void*) bcphint);

    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);
}

orders_rows_loaded = 0;
new_order_rows_loaded = 0;
order_line_rows_loaded = 0;

OrdersBufInnit();

orders_time_start.time_start = (TimeNow() / MILLI);
new_order_time_start.time_start = (TimeNow() / MILLI);
order_line_time_start.time_start = (TimeNow() / MILLI);

for (w_id = (short)aptr->starting_warehouse; w_id <=
aptr->num_warehouses; w_id++)
{
    for (d_id = 1; d_id <= DISTRICT_PER_WAREHOUSE;
d_id++)
    {
        OrdersBufLoad(d_id, w_id);

        // start parallel loading threads here...

        // start Orders table thread
        printf("...Loading Order Table for: d_id = %d,
w_id = %d\n", d_id, w_id);

        hThread[0] = CreateThread(NULL,

0,

(LPTHREAD_START_ROUTINE) LoadOrdersTable,

&orders_time_start,

0,

&dwThreadID[0]);

        if (hThread[0] == NULL)
        {
            printf("Error, failed in creating
creating thread = 0.\n");
            exit(-1);
        }

        // start NewOrder table thread

        printf("...Loading New-Order Table for: d_id
= %d, w_id = %d\n", d_id, w_id);

        hThread[1] = CreateThread(NULL,

0,

(LPTHREAD_START_ROUTINE) LoadNewOrderTable,

&new_order_time_start,

0,

&dwThreadID[1]);

        if (hThread[1] == NULL)
        {
            printf("Error, failed in creating
creating thread = 1.\n");
            exit(-1);
        }

        // start Order-Line table thread

        printf("...Loading Order-Line Table for: d_id
= %d, w_id = %d\n", d_id, w_id);

        hThread[2] = CreateThread(NULL,

0,

```

```

(LPTHREAD_START_ROUTINE) LoadOrderLineTable,

&order_line_time_start,

0,

&dwThreadId[2]);

        if (hThread[2] == NULL)
        {
                printf("Error, failed in creating
creating thread = 2.\n");
                exit(-1);
        }

        WaitForSingleObject( hThread[0], INFINITE
);
        WaitForSingleObject( hThread[1], INFINITE
);
        WaitForSingleObject( hThread[2], INFINITE
);

        if (CloseHandle(hThread[0]) == FALSE)
        {
                printf("Error, failed in closing
Orders thread handle with errno: %d\n", GetLastError());
        }

        if (CloseHandle(hThread[1]) == FALSE)
        {
                printf("Error, failed in closing
NewOrder thread handle with errno: %d\n", GetLastError());
        }

        if (CloseHandle(hThread[2]) == FALSE)
        {
                printf("Error, failed in closing
OrderLine thread handle with errno: %d\n", GetLastError());
        }

    }

    printf("Finished loading orders.\n");

return;
}

```

```

=====
//
// Function : OrdersBufInit
//
// Clears shared buffer for ORDERS, NEWORDER, and ORDERLINE
//
=====

void OrdersBufInit()
{
    int i;
    int j;

    for (i=0;i<orders_per_district;i++)
    {

```

```

orders_buf[i].o_id = 0;
orders_buf[i].o_d_id = 0;
orders_buf[i].o_w_id = 0;
orders_buf[i].o_c_id = 0;
orders_buf[i].o_carrier_id = 0;
orders_buf[i].o_ol_cnt = 0;
orders_buf[i].o_all_local = 0;

for (j=0;j<=14;j++)
{
        orders_buf[i].o_ol[j].ol = 0;
        orders_buf[i].o_ol[j].ol_i_id = 0;

        orders_buf[i].o_ol[j].ol_supply_w_id = 0;
        orders_buf[i].o_ol[j].ol_quantity = 0;
        orders_buf[i].o_ol[j].ol_amount = 0;
        strcpy(orders_buf[i].o_ol[j].ol_dist_info,"");
}
}
}

```

```

=====
//
// Function : OrdersBufLoad
//
// Fills shared buffer for ORDERS, NEWORDER, and ORDERLINE
//
=====

```

```

void OrdersBufLoad(int d_id, int w_id)
{
    int cust[ORDERS_PER_DISTRICT+1];
    long o_id;
    short ol;

    printf("...Loading Order Buffer for: d_id = %d, w_id = %d\n",
d_id, w_id);

    GetPermutation(cust, orders_per_district);

    for (o_id=0;o_id<orders_per_district;o_id++)
    {

        // Generate ORDER and NEW-ORDER data

        orders_buf[o_id].o_d_id = d_id;
        orders_buf[o_id].o_w_id = w_id;
        orders_buf[o_id].o_id = o_id+1;
        orders_buf[o_id].o_c_id = cust[o_id+1];
        orders_buf[o_id].o_ol_cnt = (short)RandomNumber(5L,
15L);

        if (o_id < first_new_order)
        {
                orders_buf[o_id].o_carrier_id =
(short)RandomNumber(1L, 10L);
                orders_buf[o_id].o_all_local = 1;
        }
        else
        {
                orders_buf[o_id].o_carrier_id = 0;
                orders_buf[o_id].o_all_local = 1;

```

```

    }
    for (ol=0; ol<orders_buf[o_id].o_ol_cnt; ol++)
    {
        orders_buf[o_id].o_ol[ol].ol = ol+1;
        orders_buf[o_id].o_ol[ol].ol_i_id =
RandomNumber(1L, max_items);
        orders_buf[o_id].o_ol[ol].ol_supply_w_id =
w_id;
        orders_buf[o_id].o_ol[ol].ol_quantity = 5;
        MakeAlphaString(24, 24,
OL_DIST_INFO_LEN, &orders_buf[o_id].o_ol[ol].ol_dist_info);

        // Generate ORDER-LINE data
        if (o_id < first_new_order)
        {

orders_buf[o_id].o_ol[ol].ol_amount = 0;
// Added to insure ol_delivery_d
set properly during load

FormatDate(&orders_buf[o_id].o_ol[ol].ol_delivery_d);

        }
        else
        {

orders_buf[o_id].o_ol[ol].ol_amount = RandomNumber(1,999999)/100.0;
// Added to insure ol_delivery_d
set properly during load

// odbc datetime format
strcpy(orders_buf[o_id].o_ol[ol].ol_delivery_d,"1899-12-31 00:00:00.000");

        }
    }
}

```

```

//=====
//
// Function : LoadOrdersTable
//
//=====

```

```

void LoadOrdersTable(LOADER_TIME_STRUCT *orders_time_start)
{
    int i;
    long o_id;
    short o_d_id;
    short o_w_id;
    long o_c_id;
    short o_carrier_id;
    short o_ol_cnt;
    short o_all_local;
    char o_entry_d[O_ENTRY_D_LEN+1];
    RETCODE rc;
    DBINT rcint;

    // bind ORDER data

```

```

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT4, 1);
    if (rc != 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, SQLINT2, 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 == apr->num_warehouses) && (o_d_id == 10))
    {

```

```

rcint = bcp_done(o_hdbc1);
if (rcint < 0)
    HandleErrorDBC(o_hdbc1);

SQLFreeStmt(o_hstmt1, SQL_DROP);
SQLDisconnect(o_hdbc1);
SQLFreeConnect(o_hdbc1);

// if build index after load...
if ((aptr->build_index == 1) && (aptr->index_order ==
0))
    BuildIndex("idxordcl");

// build non-clustered index
if (aptr->build_index == 1)
    BuildIndex("idxordnc");
}

}

//=====
//
// Function : LoadNewOrderTable
//
//=====

void LoadNewOrderTable(LOADER_TIME_STRUCT *new_order_time_start)
{
    int i;
    long o_id;
    short o_d_id;
    short o_w_id;
    RETCODE rc;
    DBINT rcint;

    // Bind NEW-ORDER data

    rc = bcp_bind(o_hdbc2, (BYTE *) &o_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT4, 1);
    if (rc != 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, SQLINT2, 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 == aptr->num_warehouses) && (o_d_id == 10))
{
    rcint = bcp_done(o_hdbc2);
    if (rcint < 0)
        HandleErrorDBC(o_hdbc2);

    SQLFreeStmt(o_hstmt2, SQL_DROP);
    SQLDisconnect(o_hdbc2);
    SQLFreeConnect(o_hdbc2);

    // if build index after load...
    if ((aptr->build_index == 1) && (aptr->index_order ==
0))
        BuildIndex("idxnodcl");
}

}

//=====
//
// Function : LoadOrderLineTable
//
//=====

void LoadOrderLineTable(LOADER_TIME_STRUCT *order_line_time_start)
{
    int i,j;
    long o_id;
    short o_d_id;
    short o_w_id;
    long ol;
    long ol_i_id;
    short ol_supply_w_id;
    short ol_quantity;
    double ol_amount;
    char ol_dist_info[DIST_INFO_LEN+1];
    char ol_delivery_d[OL_DELIVERY_D_LEN+1];
    RETCODE rc;
    DBINT rcint;

    // bind ORDER-LINE data
    rc = bcp_bind(o_hdbc3, (BYTE *) &o_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT4, 1);
    if (rc != 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, SQLINT2, 3);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &ol, 0, SQL_VARLEN_DATA, NULL,
0, SQLINT4, 4);

```

```

        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc3);

        rc = bcp_bind(o_hdbc3, (BYTE *) &ol_i_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT4, 5);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc3);

        rc = bcp_bind(o_hdbc3, (BYTE *) &ol_supply_w_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 6);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc3);

        rc = bcp_bind(o_hdbc3, (BYTE *) &ol_delivery_d, 0,
OL_DELIVERY_D_LEN, NULL, 0, SQLCHARACTER, 7);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc3);

        rc = bcp_bind(o_hdbc3, (BYTE *) &ol_quantity, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 8);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc3);

        rc = bcp_bind(o_hdbc3, (BYTE *) &ol_amount, 0, SQL_VARLEN_DATA,
NULL, 0, SQLFLT8, 9);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc3);

        rc = bcp_bind(o_hdbc3, (BYTE *) ol_dist_info, 0, DIST_INFO_LEN,
NULL, 0, 0, 10);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc3);

        for (i = 0; i < orders_per_district; i++)
        {
            o_id = orders_buf[i].o_id;
            o_d_id = orders_buf[i].o_d_id;
            o_w_id = orders_buf[i].o_w_id;

            for (j=0; j < orders_buf[i].o_ol_cnt; j++)
            {
                ol = orders_buf[i].o_ol[j].ol;
                ol_i_id = orders_buf[i].o_ol[j].ol_i_id;
                ol_supply_w_id =
orders_buf[i].o_ol[j].ol_supply_w_id;
                ol_quantity =
orders_buf[i].o_ol[j].ol_quantity;
                ol_amount =
orders_buf[i].o_ol[j].ol_amount;

                strcpy(ol_delivery_d,orders_buf[i].o_ol[j].ol_delivery_d);

                strcpy(ol_dist_info,orders_buf[i].o_ol[j].ol_dist_info);

                rc = bcp_sendrow(o_hdbc3);
                if (rc != SUCCEED)
                    HandleErrorDBC(o_hdbc3);

                order_line_rows_loaded++;
                CheckForCommit(o_hdbc3, o_hstmt3,
order_line_rows_loaded, "order_line", &order_line_time_start->time_start);
            }
        }

        // rcint = bcp_batch(o_hdbc3);
        // if (rcint < 0)

```

```

// HandleErrorDBC(o_hdbc3);

if ((o_w_id == aptr->num_warehouses) && (o_d_id == 10))
{
    rcint = bcp_done(o_hdbc3);
    if (rcint < 0)
        HandleErrorDBC(o_hdbc3);

    SQLFreeStmt(o_hstmt3, SQL_DROP);
    SQLDisconnect(o_hdbc3);
    SQLFreeConnect(o_hdbc3);

    // if build index after load...
    if ((aptr->build_index == 1) && (aptr->index_order ==
0))
        BuildIndex("idxodlcl");
}
}

//=====
//
// Function : GetPermutation
//
//=====

void GetPermutation(int perm[], int n)
{
    int i, r, t;

    for (i=1;i<=n;i++)
        perm[i] = i;

    for (i=1;i<=n;i++)
    {
        r = RandomNumber(i,n);
        t = perm[i];
        perm[i] = perm[r];
        perm[r] = t;
    }
}

//=====
//
// Function : CheckForCommit
//
//=====

void CheckForCommit(HDBC hdbc,
                    HSTMT hstmt,
                    int rows_loaded,
                    char *table_name,
                    long *time_start)
{
    long time_end, time_diff;
    // DBINT rcint;

    if ( !(rows_loaded % aptr->batch) )
    {

```

```

// rcint = bcp_batch(hdbc);
// if (rcint < 0)
//     HandleErrorDBC(hdbc);

time_end = (TimeNow() / MILLI);
time_diff = time_end - *time_start;

printf("-> Loaded %ld rows into %s in %ld sec - Total =
%d (%.2f rps)\n",
        aptr->batch,
        table_name,
        time_diff,
        rows_loaded,
        (float) aptr->batch / (time_diff ?
time_diff : 1L));

*time_start = time_end;
}
return;
}

```

```

//=====
//
// Function : OpenConnections
//
//=====

```

```

void OpenConnections()
{
    RETCODE    rc;

    char        szDriverString[300];
    char        szDriverStringOut[1024];
    SQLSMALLINT cbDriverStringOut;

    SQLAllocHandle(SQL_HANDLE_ENV, SQL_NULL_HANDLE,
&henv );

    SQLSetEnvAttr(henv, SQL_ATTR_ODBC_VERSION,
(void*)SQL_OV_ODBC3, 0);

    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->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->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),
&cbDriverStringOut,

```

```

SQL_DRIVER_NOPROMPT );
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    // Connection 3

    sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" ,
aptr->server,

aptr->password,

aptr->database );

    rc = SQLSetConnectOption ( c_hdbc1, SQL_PACKET_SIZE,
aptr->pack_size);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

    rc = SQLDriverConnect ( c_hdbc1,

NULL,

(SQLCHAR*)&szDriverString[0] ,

SQL_NTS,

(SQLCHAR*)&szDriverStringOut[0],

sizeof(szDriverStringOut),

&cbDriverStringOut,

SQL_DRIVER_NOPROMPT );
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

    // Connection 4

    sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" ,
aptr->server,

aptr->password,

aptr->database );

    rc = SQLSetConnectOption ( c_hdbc2, SQL_PACKET_SIZE,
aptr->pack_size);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    rc = SQLDriverConnect ( c_hdbc2,

NULL,

(SQLCHAR*)&szDriverString[0] ,

SQL_NTS,

(SQLCHAR*)&szDriverStringOut[0],

sizeof(szDriverStringOut),

```

aptr->user,

aptr->user,

```

&cbDriverStringOut,

SQL_DRIVER_NOPROMPT );
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    // Connection 5

    sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" ,
aptr->server,

aptr->password,

aptr->database );

    rc = SQLSetConnectOption ( o_hdbc1, SQL_PACKET_SIZE,
aptr->pack_size);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = SQLDriverConnect ( o_hdbc1,

NULL,

(SQLCHAR*)&szDriverString[0] ,

SQL_NTS,

(SQLCHAR*)&szDriverStringOut[0],

sizeof(szDriverStringOut),

&cbDriverStringOut,

SQL_DRIVER_NOPROMPT );
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    // Connection 6

    sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" ,
aptr->server,

aptr->password,

aptr->database );

    rc = SQLSetConnectOption ( o_hdbc2, SQL_PACKET_SIZE,
aptr->pack_size);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc2);

    rc = SQLDriverConnect ( o_hdbc2,

NULL,

(SQLCHAR*)&szDriverString[0] ,

SQL_NTS,

(SQLCHAR*)&szDriverStringOut[0],

```

aptr->user,

aptr->user,

```

sizeof(szDriverStringOut),
&cbDriverStringOut,
SQL_DRIVER_NOPROMPT );
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc2);

    // Connection 7

    sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" ,
aptr->server,
aptr->password,
aptr->database );

    rc = SQLSetConnectOption (o_hdbc3, SQL_PACKET_SIZE,
aptr->pack_size);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

    rc = SQLDriverConnect ( o_hdbc3,
NULL,
(SQLCHAR*)&szDriverString[0] ,
SQL_NTS,
(SQLCHAR*)&szDriverStringOut[0],
sizeof(szDriverStringOut),
&cbDriverStringOut,
SQL_DRIVER_NOPROMPT );
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);
}

//=====
//
// Function name: BuildIndex
//
//=====

void BuildIndex(char *index_script)
{
    char    cmd[256];

    printf("Starting index creation: %s\n",index_script);

    sprintf(cmd, "osql -S%s -U%s -P%s -e -i%s\\%s.sql > %s%s.log",
aptr->server,
aptr->user,
aptr->password,
aptr->index_script_path,
index_script,
aptr->log_path,
index_script);

```

```

system(cmd);

    printf("Finished index creation: %s\n",index_script);
}

void HandleErrorDBC (SQLHDBC hdbc1)
{
    SQLCHAR            SqlState[6],
Msg[SQL_MAX_MESSAGE_LENGTH];
    SQLINTEGER NativeError;
    SQLSMALLINT i, MsgLen;
    SQLRETURN rc2;
    char    timebuf[128];
    char    datebuf[128];
    char    err_log_path[256];
    FILE    *fp1;

    i = 1;
    while (( rc2 = SQLGetDiagRec(SQL_HANDLE_DBC , hdbc1 , i,
SqlState , &NativeError,
Msg, sizeof(Msg) , &MsgLen ))
!= SQL_NO_DATA )
    {
        printf( szLastError , "%s" , Msg );

        _strtime(timebuf);
        _strdate(datebuf);

        printf( "[%s : %s] %s\n" , datebuf, timebuf, szLastError);

        strcpy(err_log_path,aptr->log_path);
        strcat(err_log_path,"tpcldr.err");
        fp1 = fopen(err_log_path,"w");
        //fp1 = fopen("logs\\tpcldr.err","w");
        if (fp1 == NULL)
            printf("ERROR: Unable to open errorlog
file.\n");
        else
        {
            fprintf(fp1, "[%s : %s] %s\n" , datebuf,
timebuf, szLastError);
            fclose(fp1);
        }

        i++;
    }
}

void HandleErrorSTMT (HSTMT hstmt1)
{
    SQLCHAR            SqlState[6],
Msg[SQL_MAX_MESSAGE_LENGTH];
    SQLINTEGER NativeError;
    SQLSMALLINT i, MsgLen;
    SQLRETURN rc2;
    char    timebuf[128];
    char    datebuf[128];
    char    err_log_path[256];
    FILE    *fp1;

    i = 1;

```

```

while (( rc2 = SQLGetDiagRec(SQL_HANDLE_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);
    strcpy(err_log_path,aptr->log_path);
    strcat(err_log_path,"tpccldr.err");
    fp1 = fopen(err_log_path,"w");
    //fp1 = fopen("logs\\tpccldr.err","w");
    if (fp1 == NULL)
        printf("ERROR: Unable to open errorlog
file.\n");
    else
    {
        fprintf(fp1, "[%s : %s] %s\n" , datebuf,
timebuf, szLastError);
        fclose(fp1);
    }
    i++;
}
}

```

```

void FormatDate ( char* szTimeCOutput )
{
    struct tm when;
    time_t now;
    time( &now );
    when = *localtime( &now );
    mktime( &when );
    // odbc datetime format
    strftime( szTimeCOutput , 30 , "%Y-%m-%d %H:%M:%S.000",
&when );
    return;
}

```

```

//=====
//
// Function : CheckDataBase
//
//=====
void CheckDataBase()
{
    RETCODE rc;
    char szDriverString[300];
    char szDriverStringOut[1024];

```

```

char TablesBitMap[9] =
{"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 LOGS\\ directory for database creation
errors.\n");
    // cleanup database connections and handles
    SQLFreeHandle(SQL_HANDLE_STMT, v_hstmt);
    SQLDisconnect(v_hdbc);
    SQLFreeHandle(SQL_HANDLE_DBC, v_hdbc);
    // since there is not a database, exit back to SETUP.CMD

```

```

        exit(1);
    }

    if( SQLAllocHandle(SQL_HANDLE_STMT, v_hdbc , &v_hstmt)
    != SQL_SUCCESS )
        HandleErrorDBC(v_hdbc);

    if( SQLBindCol(v_hstmt, 1, SQL_C_ULONG, &TabCount, 0,
    &TabCountInd) != SQL_SUCCESS )
        HandleErrorSTMT(v_hstmt);

    // count the number of user tables from sysobjects
    rc = SQLExecDirect(v_hstmt, "select count(*) from sysobjects
    where xtype = 'U'", SQL_NTS);
    if((rc != SQL_SUCCESS) && (rc !=
    SQL_SUCCESS_WITH_INFO))
        HandleErrorSTMT(v_hstmt);

    if( SQLFetch(v_hstmt) != SQL_SUCCESS )
        HandleErrorSTMT(v_hstmt);

    // if the number of tables is less than 9, select all the user tables in
    TPCC
    if (TabCount != 9)
    {
        SQLFreeHandle(SQL_HANDLE_STMT, v_hstmt);

        SQLAllocHandle(SQL_HANDLE_STMT, v_hdbc ,
    &v_hstmt);

        if( SQLBindCol(v_hstmt, 1, SQL_C_CHAR,
    &TabName, sizeof(TabName), &TabNameInd) != SQL_SUCCESS )
            HandleErrorSTMT(v_hstmt);

        // select the list of user tables into a result set
        rc = SQLExecDirect(v_hstmt, "select * from sysobjects
    where xtype = 'U'", SQL_NTS);
        if((rc != SQL_SUCCESS) && (rc !=
    SQL_SUCCESS_WITH_INFO))
            HandleErrorSTMT(v_hstmt);

        // go through the result set and set the bitmap for each
        found table
        // set the bitmap to '1' if the table name is found

        while ((rc = SQLFetch(v_hstmt)) != SQL_NO_DATA)
        {
            switch( TabName[0] )
            {
                case 'w':
                    TablesBitMap[0] = '1';
                    break;

                case 'd':
                    TablesBitMap[1] = '1';
                    break;

                case 'c':
                    TablesBitMap[2] = '1';
                    break;

                case 'h':
                    TablesBitMap[3] = '1';
                    break;

                case 'n':
                    TablesBitMap[4] = '1';
                    break;

                case 'o':
                    if (TabName[5] = 's')
                        TablesBitMap[5] = '1';
                    if (TabName[5] = '_')

```

```

                    TablesBitMap[6] = '1';
                    break;

                case 'i':
                    TablesBitMap[7] = '1';
                    break;

                case 's':
                    TablesBitMap[8] = '1';
                    break;
            }
        }

        // a '0' ExitFlag means do NOT exit the loader early, a '1'
        means exit the loader early
        ExitFlag = 0;

        // iterate through the bitmap to display which table(s) is
        actually missing
        for (i = 0; i <= 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 LOGS\ directory for
database\n");
    printf("or table creation errors.\n");

    // cleanup database connections and handles
    SQLFreeHandle(SQL_HANDLE_STMT,
v_hstmt);
    SQLDisconnect(v_hdbc);
    SQLFreeHandle(SQL_HANDLE_DBC,
v_hdbc);

    exit(1);
}

// cleanup database connections and handles
SQLFreeHandle(SQL_HANDLE_STMT, v_hstmt);
SQLDisconnect(v_hdbc);
SQLFreeHandle(SQL_HANDLE_DBC, v_hdbc);

return;
}

tpccldr.mak

# Microsoft Developer Studio Generated NMAKE File, Format Version 4.10
# ** DO NOT EDIT **

# TARGETTYPE "Win32 (x86) Console Application" 0x0103

!IF "$(CFG)" == ""
CFG=tpccldr - Win32 Debug
!MESSAGE No configuration specified. Defaulting to tpccldr - Win32 Debug.
!ENDIF

!IF "$(CFG)" != "tpccldr - Win32 Release" && "$(CFG)" !=\
"tpccldr - Win32 Debug"
!MESSAGE Invalid configuration "$(CFG)" specified.
!MESSAGE You can specify a configuration when running NMAKE on this
makefile
!MESSAGE by defining the macro CFG on the command line. For example:
!MESSAGE
!MESSAGE NMAKE /f "tpccldr.mak" CFG="tpccldr - Win32 Debug"
!MESSAGE
!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "tpccldr - Win32 Release" (based on "Win32 (x86) Console
Application")
!MESSAGE "tpccldr - Win32 Debug" (based on "Win32 (x86) Console
Application")
!MESSAGE
!ERROR An invalid configuration is specified.
!ENDIF

!IF "$(OS)" == "Windows_NT"
NULL=
!ELSE
NULL=nul
!ENDIF

#####
#####
# Begin Project
# PROP Target_Last_Scanned "tpccldr - Win32 Debug"
RSC=rc.exe
CPP=cl.exe

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "Release"
# PROP BASE Intermediate_Dir "Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir "bin"
# PROP Intermediate_Dir "objects"
# PROP Target_Dir ""
OUTDIR=.bin
INTDIR=.objects

ALL : "$(OUTDIR)\tpccldr.exe"

CLEAN :
    -@erase "$(INTDIR)\getargs.obj"
    -@erase "$(INTDIR)\random.obj"
    -@erase "$(INTDIR)\strings.obj"
    -@erase "$(INTDIR)\time.obj"
    -@erase "$(INTDIR)\tpccldr.obj"
    -@erase "$(OUTDIR)\tpccldr.exe"

"$(OUTDIR)" :
    if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

"$(INTDIR)" :
    if not exist "$(INTDIR)/$(NULL)" mkdir "$(INTDIR)"

# ADD BASE CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D
"_CONSOLE" /YX /c
# ADD CPP /nologo /MT /W3 /GX /O2 /I "c:\mssql\dblib\include" /D
"NDEBUG" /D "WIN32" /D "_CONSOLE" /D "DBNTWIN32" /c
# SUBTRACT CPP /YX

```

```

CPP_PROJ=/nologo /MT /W3 /GX /O2 /I "c:\mssql\dblib\include" /D
"NDEBUG" /D\
"WIN32" /D "_CONSOLE" /D "DBNTWIN32" /Fo "$(INTDIR)"/ /c
CPP_OBJS=.objects/
CPP_SBRS=.
# ADD BASE RSC /I 0x409 /d "NDEBUG"
# ADD RSC /I 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
BSC32_FLAGS=/nologo /o "$(OUTDIR)/tpccldr.bsc"
BSC32_SBRS= \

LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbccp32.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 odbccp32.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 odbccp32.lib odbccp32.lib /nologo /subsystem:console /pdb:none\
/machine:I386 /out:"$(OUTDIR)/tpccldr.exe"
LINK32_OBJS= \
    "$(INTDIR)\getargs.obj" \
    "$(INTDIR)\random.obj" \
    "$(INTDIR)\strings.obj" \
    "$(INTDIR)\time.obj" \
    "$(INTDIR)\tpccldr.obj"

 "$(OUTDIR)\tpccldr.exe" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
    $(LINK32) @<<
    $(LINK32_FLAGS) $(LINK32_OBJS)
<<

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "Debug"
# PROP BASE Intermediate_Dir "Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir "bin"
# PROP Intermediate_Dir "objects"
# PROP Target_Dir ""
OUTDIR=.bin
INTDIR=.objects

ALL : "$(OUTDIR)\tpccldr.exe"

CLEAN :
    -@erase "$(INTDIR)\getargs.obj"
    -@erase "$(INTDIR)\random.obj"
    -@erase "$(INTDIR)\strings.obj"
    -@erase "$(INTDIR)\time.obj"
    -@erase "$(INTDIR)\tpccldr.obj"
    -@erase "$(INTDIR)\vc40.idb"
    -@erase "$(INTDIR)\vc40.pdb"
    -@erase "$(OUTDIR)\tpccldr.exe"

 "$(OUTDIR)" :
    if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

```

```

 "$(INTDIR)" :
    if not exist "$(INTDIR)/$(NULL)" mkdir "$(INTDIR)"

# ADD BASE CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG"
/D "_CONSOLE" /YX /c
# ADD CPP /nologo /MTd /W3 /Gm /GX /Zi /Od /I "c:\mssql\dblib\include" /D
"_DEBUG" /D "WIN32" /D "_CONSOLE" /D "DBNTWIN32" /c
# SUBTRACT CPP /YX
CPP_PROJ=/nologo /MTd /W3 /Gm /GX /Zi /Od /I "c:\mssql\dblib\include" /D\
 "_DEBUG" /D "WIN32" /D "_CONSOLE" /D "DBNTWIN32"
/Fo "$(INTDIR)"/
/Fd "$(INTDIR)"/ /c
CPP_OBJS=.objects/
CPP_SBRS=.
# ADD BASE RSC /I 0x409 /d "_DEBUG"
# ADD RSC /I 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
BSC32_FLAGS=/nologo /o "$(OUTDIR)/tpccldr.bsc"
BSC32_SBRS= \

LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbccp32.lib
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 odbccp32.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 odbccp32.lib odbccp32.lib /nologo /subsystem:console /pdb:none /debug\
/machine:I386 /out:"$(OUTDIR)/tpccldr.exe"
LINK32_OBJS= \
    "$(INTDIR)\getargs.obj" \
    "$(INTDIR)\random.obj" \
    "$(INTDIR)\strings.obj" \
    "$(INTDIR)\time.obj" \
    "$(INTDIR)\tpccldr.obj"

 "$(OUTDIR)\tpccldr.exe" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
    $(LINK32) @<<
    $(LINK32_FLAGS) $(LINK32_OBJS)
<<

!ENDIF

.c {$(CPP_OBJS)}.obj:
    $(CPP) $(CPP_PROJ) $<

.cpp {$(CPP_OBJS)}.obj:
    $(CPP) $(CPP_PROJ) $<

.cxx {$(CPP_OBJS)}.obj:
    $(CPP) $(CPP_PROJ) $<

.c {$(CPP_SBRS)}.sbr:
    $(CPP) $(CPP_PROJ) $<

.cpp {$(CPP_SBRS)}.sbr:
    $(CPP) $(CPP_PROJ) $<

.cxx {$(CPP_SBRS)}.sbr:
    $(CPP) $(CPP_PROJ) $<

```

```
#####
#####
# Begin Target

# Name "tpccldr - Win32 Release"
# Name "tpccldr - Win32 Debug"

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

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

!ENDIF

#####
#####
# Begin Source File

SOURCE=\src\random.c
DEP_CPP_RANDO=\
    ".\src\tpcc.h"
    "\mssql\dblib\include\sqlldb.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\sqlldb.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\sqlldb.h"
    "\mssql\dblib\include\sqlfront.h"

"$$(INTDIR)\time.obj" : $(SOURCE) $(DEP_CPP_TIME_) "$$(INTDIR)"
    $(CPP) $(CPP_PROJ) $(SOURCE)

# End Source File
#####
#####
# Begin Source File

SOURCE=\src\tpccldr.c
DEP_CPP_TPCCCL=\
    ".\src\tpcc.h"
```

```
"\mssql\dblib\include\sqlldb.h"
"\mssql\dblib\include\sqlfront.h"

"$$(INTDIR)\tpccldr.obj" : $(SOURCE) $(DEP_CPP_TPCCCL) "$$(INTDIR)"
    $(CPP) $(CPP_PROJ) $(SOURCE)

# End Source File
#####
#####
# Begin Source File

SOURCE=\src\getargs.c
DEP_CPP_GETAR=\
    ".\src\tpcc.h"
    "\mssql\dblib\include\sqlldb.h"
    "\mssql\dblib\include\sqlfront.h"

"$$(INTDIR)\getargs.obj" : $(SOURCE) $(DEP_CPP_GETAR) "$$(INTDIR)"
    $(CPP) $(CPP_PROJ) $(SOURCE)

# End Source File
# End Target
# End Project
#####
#####
```

VerifyTpccLoad.sql

```
-- File: VERIFYTPCCLOAD.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.41
-- Copyright Microsoft, 2001
-- Purpose: Performs series of TPCC database checks to verify
-- that database load completed correctly

print " "
select convert(char(30), getdate(),9)
print " "

use tpcc
go

-- *****
-- Check rows per table from SYSINDEXES
-- *****

print 'WAREHOUSE TABLE'

select rows
from sysindexes
where id = object_id("warehouse")
go

print 'DISTRICT TABLE = (10 * No of warehouses)'

select rows
from sysindexes
where id =object_id("district")
go

print 'ITEM TABLE = 100,000'
```

```

select rows
from sysindexes
where id =object_id("item")
go

print 'CUSTOMER TABLE = (30,000 * No of warehouses)'

select rows
from sysindexes
where id =object_id("customer")
go

print 'ORDERS TABLE = (30,000 * No of warehouses)'

select rows
from sysindexes
where id =object_id("orders")
go

print 'HISTORY TABLE = (30,000 * No of warehouses)'

select rows
from sysindexes
where id =object_id("history")
go

print 'STOCK TABLE = (100,000 * No of warehouses)'

select rows
from sysindexes
where id =object_id("stock")
go

print 'ORDER_LINE TABLE = (300,000 * No of warehouses + some
change)'

select count_big(*)
from order_line
go

print 'NEW_ORDER TABLE = (9000 * No of warehouses)'

select rows
from sysindexes
where id =object_id("new_order")
go

-- *****
--
-- Check indices
--
-- *****

print '*****Index Check*****'

use tpcc
go

sp_helpindex customer
go

sp_helpindex stock
go

sp_helpindex district
go

```

```

sp_helpindex item
go

sp_helpindex new_order
go

sp_helpindex orders
go

sp_helpindex order_line
go

sp_helpindex warehouse
go

```

version.sql

```

-- File: VERSION.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.41
-- Copyright Microsoft, 2001
-- Purpose: Extracts current version of SQL Server

use master
go

SELECT CONVERT(char(20), SERVERPROPERTY('ProductVersion'))
go

SELECT CONVERT(char(20), SERVERPROPERTY('ProductLevel'))
go

SELECT CONVERT(char(30), getdate(),9)
go

```

Appendix C: Tunable Parameters

Microsoft SQL Server 2000 Configuration Parameters

1> 2> 3> 4> 5> 6> 7> 8> 9> 10> 11>

```
-- File:  VERSION.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.22
--      Copyright Microsoft, 2001
-- Purpose: Returns SQL Server version string
```

```
print " "
select convert(char(30), getdate(),9)
print " "
```

Oct 10 2003 4:12:36:993PM

(1 row affected)

```
1> 2> 3>
select @@version
```

```
-----
-----
-----
Microsoft SQL Server 2000 - 8.00.761 (Intel X86)
Feb 27 2003 12:09:37
Cop
yright (c) 1988-2003 Microsoft Corporation
Enterprise Edition on Windo
ws NT 5.2 (Build 3790: )
```

(1 row affected)

```
1> 2>
1> 2> 3> 4> 5> 6> 7> 8> 9> 10>
-- File:  CONFIG.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.22
--      Copyright Microsoft, 2001
-- Purpose: Collects SQL Server configuration parameters
```

```
print " "
select convert(char(30), getdate(),9)
print " "
```

Oct 10 2003 4:12:38:790PM

(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		minimum	maximum
name	config_value	run_value	
affinity mask	255 255	-2147483648	2147483647
allow updates	0	0	1 0
awe enabled	1	0	1 1
c2 audit mode	0	0	1 0
cost threshold for parallelism	5 5	0	32767
Cross DB Ownership Chaining	0 0		0 1
cursor threshold	-1 -1	-1	2147483647
default full-text language	1033 1033	0	2147483647
default language	0	0	9999 0
fill factor (%)	0	0	100 0
index create memory (KB)	0 0	704	2147483647
lightweight pooling	1	0	1 1
locks	0	5000	2147483647 0
max degree of parallelism	1	0	32 1
max server memory (MB)	31500 31500	4	2147483647
max text repl size (B)	65536 65536	0	2147483647
max worker threads	348 348	32	32767
media retention	0	0	365 0
min memory per query (KB)	1024 1024	512	2147483647
min server memory (MB)	0 0	0	2147483647
nested triggers	1	0	1 1
network packet size (B)	4096 4096	512	65536
open objects	0	0	2147483647 0
priority boost	1	0	1 1
query governor cost limit	0 0	0	2147483647
query wait (s)	-1	-1	2147483647 -1
recovery interval (min)	112 112	0	32767
remote access	1	0	1 1
remote login timeout (s)	0 0	0	2147483647
remote proc trans	0	0	1 0
remote query timeout (s)	0 0	0	2147483647

```

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>

```

Microsoft Windows Server 2003 Enterprise Edition

Changes to the SUT

Changes made to the default installation of Windows Server 2003 Enterprise Edition on the SUT

All services were left in their default setup, except the following services were disabled:

- Auto Update
- Computer Browser
- Error Reporting

Control Panel - System - Advanced - Performance Options - Visual Effects - Adjust for best performance
Then turn on "show windows contents while dragging"

c:\boot.ini added /PAE

gpedit.msc - Computer Configuration - Windows Settings - Security Settings - Local Policies - User Rights Assignments - policy 'Lock pages in memory' added group 'Administrators'

Enabled VIA protocol for SQL Server

Microsoft SQL Server Startup Parameters

C:\Program Files\Microsoft SQL Server\MSSQL\Binn\sqlservr -c -x -t3502 -T3428

where:

- c Start SQL Server independent of the Service Control Manager
- x Disable the keeping of CPU timeand cache hit ratio statistic
- t3502 writes a message to the SQL Server Errorlog showing the beginning and ending time of each checkpoint
- T3428 allows for faster recovery of corrupt database

Registry:

Added DWORD value to
HKLM\SYSTEM\CurrentControlSet\Services\tcpip\Parameters
"MaxUserPort" 0x9c40

Key Name:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Session
Manager\Memory Management
Class Name: <NO CLASS>
Last Write Time: 10/3/2003 - 1:13 PM

Value 0
Name: ClearPageFileAtShutdown
Type: REG_DWORD
Data: 0

Value 1
Name: DisablePagingExecutive
Type: REG_DWORD
Data: 0

Value 2
Name: LargeSystemCache
Type: REG_DWORD
Data: 0

Value 3
Name: NonPagedPoolQuota
Type: REG_DWORD
Data: 0

Value 4
Name: NonPagedPoolSize
Type: REG_DWORD
Data: 0

Value 5
Name: PagedPoolQuota
Type: REG_DWORD
Data: 0

Value 6
Name: PagedPoolSize
Type: REG_DWORD
Data: 0

Value 7
Name: SecondLevelDataCache
Type: REG_DWORD
Data: 0

Value 8
Name: SystemPages
Type: REG_DWORD
Data: 0

Value 9
Name: PagingFiles
Type: REG_MULTI_SZ
Data: c:\pagefile.sys 2046 4096

Value 10
Name: PhysicalAddressExtension
Type: REG_DWORD
Data: 0x1

Value 11
Name: WriteWatch
Type: REG_DWORD
Data: 0x1

Value 12
Name: SessionViewSize

Type: REG_DWORD
Data: 0x30

Value 13
Name: SessionPoolSize
Type: REG_DWORD
Data: 0x4

Value 14
Name: DontVerifyRandomDrivers
Type: REG_DWORD
Data: 0x1

Key Name:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Session
Manager\Memory Management\PrefetchParameters
Class Name: <NO CLASS>
Last Write Time: 10/10/2003 - 4:07 PM

Value 0
Name: VideoInitTime
Type: REG_DWORD
Data: 0x167

Value 1
Name: EnablePrefetcher
Type: REG_DWORD
Data: 0x2

Value 2
Name: AppLaunchMaxNumPages
Type: REG_DWORD
Data: 0xfa0

Value 3
Name: AppLaunchMaxNumSections
Type: REG_DWORD
Data: 0xaa

Value 4
Name: AppLaunchTimerPeriod
Type: REG_BINARY
Data: 80 69 67 ff ff ff ff ff - .igyyyyy

Value 5
Name: BootMaxNumPages
Type: REG_DWORD
Data: 0x1f400

Value 6
Name: BootMaxNumSections
Type: REG_DWORD
Data: 0xff0

Value 7
Name: BootTimerPeriod
Type: REG_BINARY
Data: 00 f2 d8 f8 ff ff ff ff - .o0øyyyy

Value 8
Name: MaxNumActiveTraces
Type: REG_DWORD
Data: 0x8

Value 9
Name: MaxNumSavedTraces

Type: REG_DWORD
Data: 0x8

Value 10
Name: RootDirPath
Type: REG_SZ
Data: Prefetch

Value 11
Name: HostingAppList
Type: REG_SZ
Data: DLLHOST.EXE,MMC.EXE,RUNDLL32.EXE

Key Name:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Session
Manager\I/O System
Class Name: <NO CLASS>
Last Write Time: 10/3/2003 - 1:13 PM

Value 0
Name: CountOperations
Type: REG_DWORD
Data: 0

Key Name:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika
Class Name: <NO CLASS>
Last Write Time: 10/10/2003 - 4:05 PM

Value 0
Name: start
Type: REG_DWORD
Data: 0x2

Value 1
Name: type
Type: REG_DWORD
Data: 0x1

Value 2
Name: Tag
Type: REG_DWORD
Data: 0x1

Value 3
Name: group
Type: REG_SZ
Data: MVIA

Value 4
Name: ErrorControl
Type: REG_DWORD
Data: 0x1

Key Name:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Ada
pters
Class Name: <NO CLASS>
Last Write Time: 10/3/2003 - 2:11 PM

Key Name:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Ada
pters\210000E08B0724B0
Class Name: Key
Last Write Time: 10/3/2003 - 2:12 PM
Value 0

Name: IPAddress
Type: REG_MULTI_SZ
Data: 192.168.120.1

Value 1
Name: VIDeviceNumber
Type: REG_DWORD
Data: 0

Key Name:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Parameters

Class Name: <NO CLASS>
Last Write Time: 10/3/2003 - 2:13 PM

Value 0
Name: SupportPrototypeCards
Type: REG_DWORD
Data: 0x1

Value 1
Name: HostFile
Type: REG_MULTI_SZ
Data: C:\WINDOWS\system32\drivers\etc\vihosts

Value 2
Name: SendDescQuota
Type: REG_DWORD
Data: 0x8

Value 3
Name: RecvDescQuota
Type: REG_DWORD
Data: 0x8

Value 4
Name: MaxRegisterMBytes
Type: REG_DWORD
Data: 0x200

Value 5
Name: MaxCQs
Type: REG_DWORD
Data: 0x400

Value 6
Name: MaxPTags
Type: REG_DWORD
Data: 0x800

Value 7
Name: MaxRegisterRegions
Type: REG_DWORD
Data: 0x1000

Value 8
Name: MaxCQEntries
Type: REG_DWORD
Data: 0x2000

Value 9
Name: MaxRegisterRdmaMBytes
Type: REG_DWORD
Data: 0x200

Value 10
Name: MaxTransferSize
Type: REG_DWORD

Data: 0x10000

Value 11
Name: MaxVIs
Type: REG_DWORD
Data: 0x400

Value 12
Name: IuBuffers
Type: REG_DWORD
Data: 0x100

Key Name:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Enum

Class Name: <NO CLASS>
Last Write Time: 10/10/2003 - 4:05 PM

Value 0
Name: 0
Type: REG_SZ
Data: Root\LEGACY_QLVIKA\0000

Value 1
Name: Count
Type: REG_DWORD
Data: 0x1

Value 2
Name: NextInstance
Type: REG_DWORD
Data: 0x1

SUT System Information Report

System Information report written at: 10/10/03 11:14:39

System Name: IBMSERV2

[System Summary]

Item	Value
------	-------

OS Name	Microsoft(R) Windows(R) Server 2003, Enterprise Edition
---------	---

Version	5.2.3790 Build 3790
---------	---------------------

OS Manufacturer	Microsoft Corporation
-----------------	-----------------------

Activation Status	Activation Pending (23 days remaining)
-------------------	--

System Name	IBMSERV2
-------------	----------

System Manufacturer	IBM
---------------------	-----

System Model	eserver xSeries 445 -[88704RY]-
--------------	---------------------------------

System Type	X86-based PC
-------------	--------------

Processor	x86 Family 15 Model 2 Stepping 5 GenuineIntel ~2799 Mhz
-----------	---

Processor	x86 Family 15 Model 2 Stepping 5 GenuineIntel ~2799 Mhz
-----------	---

Processor	x86 Family 15 Model 2 Stepping 5 GenuineIntel ~2799 Mhz
-----------	---

Processor	x86 Family 15 Model 2 Stepping 5 GenuineIntel ~2799 Mhz
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Processor x86 Family 15 Model 2 Stepping 5 GenuineIntel ~2799 Mhz
 Processor x86 Family 15 Model 2 Stepping 5 GenuineIntel ~2799 Mhz
 Processor x86 Family 15 Model 2 Stepping 5 GenuineIntel ~2799 Mhz
 Processor x86 Family 15 Model 2 Stepping 5 GenuineIntel ~2799 Mhz
 BIOS Version/Date IBM -[TESTBLDUS-1.02]-, 8/5/2003
 SMBIOS Version 2.3
 Windows Directory C:\WINDOWS
 System Directory C:\WINDOWS\system32
 Boot Device \Device\HarddiskVolume1
 Locale United States
 Hardware Abstraction Layer Version = "1.32.0000 built by: (Chrisk)"
 User NameIBMSERV2\Administrator
 Time Zone Eastern Daylight Time
 Total Physical Memory 32,768.00 MB
 Available Physical Memory 492.50 MB
 Total Virtual Memory 65.74 GB
 Available Virtual Memory 3.06 GB
 Page File Space 33.75 GB
 Page File C:\pagefile.sys
 [Hardware Resources]
 [Conflicts/Sharing]
 Resource Device
 Memory Address 0xF5200000-0xF52FFFFFF PCI bus
 Memory Address 0xF5200000-0xF52FFFFFF PCI standard PCI-to-PCI bridge
 I/O Port 0x00000000-0x00001FFF PCI bus
 I/O Port 0x00000000-0x00001FFF Direct memory access controller
 Memory Address 0xF0000000-0xF1FFFFFF PCI bus
 Memory Address 0xF0000000-0xF1FFFFFF RAGE XL PCI
 Memory Address 0xF5300000-0xF53FFFFFF PCI bus
 Memory Address 0xF5300000-0xF53FFFFFF PCI standard PCI-to-PCI bridge
 I/O Port 0x00002000-0x000027FF PCI bus
 I/O Port 0x00002000-0x000027FF LSI Logic 1020/1030 Ultra320 SCSI Adapter

Memory Address 0xF4A00000-0xF4BFFFFFF PCI bus
 Memory Address 0xF4A00000-0xF4BFFFFFF PCI standard PCI-to-PCI bridge
 Memory Address 0xF1000000-0xF11FFFFFF IBM (Version 5.13) Remote Supervisor+Serial Port+Mouse/Keyboard
 Memory Address 0xF1000000-0xF11FFFFFF IBM (Version 5.13) Remote Supervisor + Mouse/Keyboard
 Memory Address 0xF4C00000-0xF4DFFFFFF PCI bus
 Memory Address 0xF4C00000-0xF4DFFFFFF PCI standard PCI-to-PCI bridge
 I/O Port 0x00002800-0x000029FF PCI bus
 I/O Port 0x00002800-0x000029FF QLogic QLA23xx PCI Fibre Channel Adapter
 IRQ 16 IBM (Version 5.13) Remote Supervisor+Serial Port+Mouse/Keyboard
 IRQ 16 IBM (Version 5.13) Remote Supervisor + Mouse/Keyboard
 IRQ 16 IBM (Version 5.13) Remote Supervisor Serial Port (COM3)
 IRQ 18 VIA Rev 5 or later USB Universal Host Controller
 IRQ 18 VIA Rev 5 or later USB Universal Host Controller
 Memory Address 0xF4800000-0xF49FFFFFF PCI bus
 Memory Address 0xF4800000-0xF49FFFFFF PCI standard PCI-to-PCI bridge
 Memory Address 0xF5000000-0xF50FFFFFF PCI bus
 Memory Address 0xF5000000-0xF50FFFFFF LSI Logic 1020/1030 Ultra320 SCSI Adapter
 Memory Address 0xA0000-0xA7FFF PCI bus
 Memory Address 0xA0000-0xA7FFF RAGE XL PCI
 [DMA]
 Resource Device Status
 Channel 2 Standard floppy disk controller OK
 Channel 4 Direct memory access controller OK
 [Forced Hardware]
 Device PNP Device ID
 [I/O]
 Resource Device Status

0x00000000-0x00001FFF	PCI bus	OK	0x00000700-0x0000070F	VIA Bus Master IDE Controller	OK
0x00000000-0x00001FFF	Direct memory access controller	OK	0x000001F0-0x000001F7	Primary IDE Channel	OK
0x00001800-0x000018FF	RAGE XL PCI	OK	0x000003F6-0x000003F6	Primary IDE Channel	OK
0x000003B0-0x000003BB	RAGE XL PCI	OK	0x00000170-0x00000177	Secondary IDE Channel	OK
0x000003C0-0x000003DF	RAGE XL PCI	OK	0x00000376-0x00000376	Secondary IDE Channel	OK
0x00001900-0x0000197F	IBM (Version 5.13) Remote Supervisor+Serial Port+Mouse/Keyboard	OK	0x00001980-0x0000199F	VIA Rev 5 or later USB Universal Host Controller	OK
0x00000A79-0x00000A79	ISAPNP Read Data Port	OK	0x000019A0-0x000019BF	VIA Rev 5 or later USB Universal Host Controller	OK
0x00000279-0x00000279	ISAPNP Read Data Port	OK	0x00002000-0x000027FF	PCI bus	OK
0x00000274-0x00000277	ISAPNP Read Data Port	OK	0x00002000-0x000027FF	LSI Logic 1020/1030 Ultra320 SCSI Adapter	OK
0x00000430-0x00000437	Motherboard resources	OK	0x00002100-0x000021FF	LSI Logic 1020/1030 Ultra320 SCSI Adapter	OK
0x00000438-0x00000439	Motherboard resources	OK	0x00003000-0x00003FFF	PCI bus	OK
0x0000002E-0x0000002F	Motherboard resources	OK	0x00004000-0x00004FFF	PCI bus	OK
0x00000064-0x00000064	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard	OK	0x00002800-0x000029FF	PCI bus	OK
0x00000060-0x00000060	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard	OK	0x00002800-0x000029FF	QLogic QLA23xx PCI Fibre Channel Adapter	OK
0x000003F0-0x000003F5	Standard floppy disk controller	OK	0x00006000-0x00007FFF	PCI bus	OK
0x000003F7-0x000003F7	Standard floppy disk controller	OK	0x00008000-0x00009FFF	PCI bus	OK
0x00000020-0x00000021	Advanced programmable interrupt controller	OK	0x0000A000-0x0000BFFF	PCI bus	OK
0x000000A0-0x000000A1	Advanced programmable interrupt controller	OK	[IRQs]		
0x00000080-0x0000008F	Direct memory access controller	OK	Resource	Device	Status
0x000000C0-0x000000DF	Direct memory access controller	OK	IRQ 9	Microsoft ACPI-Compliant System	OK
0x00000040-0x00000043	System timer	OK	IRQ 39	RAGE XL PCI	OK
0x00000070-0x00000073	System CMOS/real time clock	OK	IRQ 16	IBM (Version 5.13) Remote Supervisor+Serial Port+Mouse/Keyboard	OK
0x00000061-0x00000061	System speaker	OK	IRQ 16	IBM (Version 5.13) Remote Supervisor + Mouse/Keyboard	OK
0x000000F0-0x000000FF	Numeric data processor	OK	IRQ 16	IBM (Version 5.13) Remote Supervisor Serial Port (COM3)	OK
0x00000092-0x00000092	Motherboard resources	OK	IRQ 1	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard	OK
0x000000A8-0x000000A9	Motherboard resources	OK	IRQ 12	PS/2 Compatible Mouse	OK
0x00000440-0x0000044F	Motherboard resources	OK	IRQ 6	Standard floppy disk controller	OK
0x000004C0-0x000004C3	Motherboard resources	OK	IRQ 0	System timer	OK
0x000004D0-0x000004D1	Motherboard resources	OK	IRQ 8	System CMOS/real time clock	OK
0x000004E0-0x000004FF	Motherboard resources	OK	IRQ 13	Numeric data processor	OK
0x00000500-0x0000057F	Motherboard resources	OK			

IRQ 14	Primary IDE Channel	OK	0xF5000000-0xF50FFFFFFF	LSI Logic 1020/1030 Ultra320 SCSI Adapter	OK
IRQ 15	Secondary IDE Channel	OK	0xF5010000-0xF501FFFFFFF	LSI Logic 1020/1030 Ultra320 SCSI Adapter	OK
IRQ 18	VIA Rev 5 or later USB Universal Host Controller	OK	0xF5020000-0xF502FFFFFFF	LSI Logic 1020/1030 Ultra320 SCSI Adapter	OK
IRQ 18	VIA Rev 5 or later USB Universal Host Controller	OK	0xF5030000-0xF503FFFFFFF	LSI Logic 1020/1030 Ultra320 SCSI Adapter	OK
IRQ 40	LSI Logic 1020/1030 Ultra320 SCSI Adapter	OK	0xF5040000-0xF504FFFFFFF	Broadcom NetXtreme Gigabit Ethernet #2	OK
IRQ 41	LSI Logic 1020/1030 Ultra320 SCSI Adapter	OK	0xF5050000-0xF505FFFFFFF	Broadcom NetXtreme Gigabit Ethernet #2	OK
IRQ 51	IBM ServeRAID 6M Controller	OK	0xF4800000-0xF49FFFFFFF	PCI bus	OK
IRQ 55	IBM ServeRAID 6M Controller	OK	0xF4800000-0xF49FFFFFFF	PCI standard PCI-to-PCI bridge	OK
IRQ 71	IBM ServeRAID 6M Controller	OK	0xF4900000-0xF49FFFFFFF	PCI standard PCI-to-PCI bridge	OK
IRQ 67	IBM ServeRAID 6M Controller	OK	0xF4980000-0xF4980FFF	IBM ServeRAID 6M Controller	OK
IRQ 59	IBM ServeRAID 6M Controller	OK	0xF4880000-0xF4880FFF	IBM ServeRAID 6M Controller	OK
IRQ 63	IBM ServeRAID 6M Controller	OK	0xF5200000-0xF52FFFFFFF	PCI bus	OK
IRQ 120	IBM ServeRAID 6M Controller	OK	0xF5200000-0xF52FFFFFFF	PCI standard PCI-to-PCI bridge	OK
IRQ 113	IBM ServeRAID 6M Controller	OK	0xF5280000-0xF5280FFF	IBM ServeRAID 6M Controller	OK
IRQ 102	QLogic QLA23xx PCI Fibre Channel Adapter	OK	0xF5300000-0xF53FFFFFFF	PCI bus	OK
IRQ 106	IBM ServeRAID 6M Controller	OK	0xF5300000-0xF53FFFFFFF	PCI standard PCI-to-PCI bridge	OK
[Memory]					
Resource	Device	Status			
0xA0000-0xA7FFF	PCI bus	OK	0xF5380000-0xF5380FFF	IBM ServeRAID 6M Controller	OK
0xA0000-0xA7FFF	RAGE XL PCI	OK	0xF4A00000-0xF4BFFFFFFF	PCI bus	OK
0xA8000-0xAFFFF	PCI bus	OK	0xF4A00000-0xF4BFFFFFFF	PCI standard PCI-to-PCI bridge	OK
0xB0000-0xB7FFF	PCI bus	OK	0xF4B00000-0xF4BFFFFFFF	PCI standard PCI-to-PCI bridge	OK
0xB8000-0xBFFFF	PCI bus	OK	0xF4B80000-0xF4B80FFF	IBM ServeRAID 6M Controller	OK
0xF0000000-0xF1FFFFFFF	PCI bus	OK	0xF4A80000-0xF4A80FFF	IBM ServeRAID 6M Controller	OK
0xF0000000-0xF1FFFFFFF	RAGE XL PCI	OK	0xF2000000-0xF27FFFFFFF	PCI bus	OK
0xF1200000-0xF1200FFF	RAGE XL PCI	OK	0xF9800000-0xF9BFFFFFFF	PCI bus	OK
0xF1000000-0xF11FFFFFFF	IBM (Version 5.13) Remote Supervisor+Serial Port+Mouse/Keyboard	OK	0xF2400000-0xF24FFFFFFF	PCI standard PCI-to-PCI bridge	OK
0xF1000000-0xF11FFFFFFF	IBM (Version 5.13) Remote Supervisor + Mouse/Keyboard	OK	0xF2480000-0xF2480FFF	IBM ServeRAID 6M Controller	OK
0x0400-0x04FF	System board	OK	0xF2800000-0xF2FFFFFFF	PCI bus	OK
0x100000-0xBFFAC33F	Memory Module	OK	0xF9C00000-0xF9FFFFFFF	PCI bus	OK
0xF5000000-0xF50FFFFFFF	PCI bus	OK	0xF2C00000-0xF2CFFFFFFF	PCI standard PCI-to-PCI bridge	OK
			0xF2C80000-0xF2C80FFF	IBM ServeRAID 6M Controller	OK
			0xF4C00000-0xF4DFFFFFFF	PCI bus	OK

0xF4C00000-0xF4DFFFFF PCI standard PCI-to-PCI bridge OK

0xF4D20000-0xF4D20FFF QLogic QLA23xx PCI Fibre Channel Adapter OK

0xF4C80000-0xF4C80FFF IBM ServeRAID 6M Controller OK

0xF3000000-0xF37FFFFF PCI bus OK

0xF8000000-0xF87FFFFF PCI bus OK

0xF3800000-0xF3FFFFFF PCI bus OK

0xF8800000-0xF8FFFFFF PCI bus OK

0xF4000000-0xF47FFFFF PCI bus OK

0xF9000000-0xF97FFFFF PCI bus OK

[Components]

[Multimedia]

[Audio Codecs]

CODEC Version	Manufacturer Size	Description Creation Date	Status	File
c:\windows\system32\sl_anet.acm Sipro Lab Telecom Audio Codec C:\WINDOWS\system32\SL_ANET.ACM	3.02	Sipro Lab Telecom Inc. OK	84.00 KB (86,016 bytes)	3/25/2003 7:00 AM
c:\windows\system32\msaud32.acm Windows Media Audio Codec C:\WINDOWS\system32\MSAUD32.ACM	8.00.00.4487	Microsoft Corporation OK	288.00 KB (294,912 bytes)	3/25/2003 7:00 AM
c:\windows\system32\msadp32.acm OK (srv03_rtm.030324-2048)	14.50 KB (14,848 bytes)	Microsoft Corporation C:\WINDOWS\system32\MSADP32.ACM 5.2.3790.0	3/25/2003 7:00 AM	
c:\windows\system32\msg711.acm OK (srv03_rtm.030324-2048)	10.00 KB (10,240 bytes)	Microsoft Corporation C:\WINDOWS\system32\MSG711.ACM 5.2.3790.0	3/25/2003 7:00 AM	
c:\windows\system32\msgsm32.acm OK (srv03_rtm.030324-2048)	20.50 KB (20,992 bytes)	Microsoft Corporation C:\WINDOWS\system32\MSGSM32.ACM 5.2.3790.0	3/25/2003 7:00 AM	
c:\windows\system32\tssoft32.acm OK (9,728 bytes)	1.01	DSP GROUP, INC. C:\WINDOWS\system32\TSSOFT32.ACM 1, 9, 0, 0305	9.50 KB	3/25/2003 7:00 AM
c:\windows\system32\msg723.acm OK (118,784 bytes)	4.4.4000	Microsoft Corporation C:\WINDOWS\system32\MSG723.ACM	116.00 KB (118,784 bytes)	10/3/2003 11:31 AM
c:\windows\system32\l3codeca.acm Schaltungen IIS Fraunhofer IIS MPEG Layer-3 Codec C:\WINDOWS\system32\L3CODECA.ACM	1, 9, 0, 0305	Fraunhofer Institut Integrierte Schaltungen IIS Fraunhofer IIS MPEG Layer-3 Codec OK	284.00 KB (290,816 bytes)	3/25/2003 7:00 AM

c:\windows\system32\imaadp32.acm Microsoft Corporation
OK C:\WINDOWS\system32\IMAADP32.ACM 5.2.3790.0
(srv03_rtm.030324-2048) 15.50 KB (15,872 bytes) 3/25/2003 7:00 AM

[Video Codecs]

CODEC Version	Manufacturer Size	Description Creation Date	Status	File
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c:\windows\system32\msrle32.dll Microsoft Corporation
OK C:\WINDOWS\system32\MSRLE32.DLL 5.2.3790.0
(srv03_rtm.030324-2048) 10.50 KB (10,752 bytes) 3/25/2003 7:00 AM

c:\windows\system32\msh261.drv Microsoft Corporation
OK C:\WINDOWS\system32\MSH261.DRV 4.4.4000 180.00 KB (184,320 bytes) 10/3/2003 11:31 AM

c:\windows\system32\msyuv.dll Microsoft Corporation
OK C:\WINDOWS\system32\MSYUV.DLL 5.2.3790.0
(srv03_rtm.030324-2048) 16.50 KB (16,896 bytes) 3/24/2003 8:49 PM

c:\windows\system32\msvidc32.dll Microsoft Corporation
OK C:\WINDOWS\system32\MSVIDC32.DLL 5.2.3790.0
(srv03_rtm.030324-2048) 26.50 KB (27,136 bytes) 3/25/2003 7:00 AM

c:\windows\system32\iyuv_32.dll Microsoft Corporation
OK C:\WINDOWS\system32\IYUV_32.DLL 5.2.3790.0
(srv03_rtm.030324-2048) 45.00 KB (46,080 bytes) 3/24/2003 8:49 PM

c:\windows\system32\msh263.drv Microsoft Corporation
OK C:\WINDOWS\system32\MSH263.DRV 4.4.4000 284.00 KB (290,816 bytes) 3/24/2003 8:46 PM

c:\windows\system32\tsbyuv.dll Microsoft Corporation
OK C:\WINDOWS\system32\TSBYUV.DLL 5.2.3790.0
(srv03_rtm.030324-2048) 8.00 KB (8,192 bytes) 3/24/2003 8:50 PM

[CD-ROM]

Item	Value
Drive	Z:
Description	CD-ROM Drive
Media Loaded	No
Media Type	CD-ROM
Name	HL-DT-ST DVD-ROM GDR8081N
Manufacturer	(Standard CD-ROM drives)
Status	OK
Transfer Rate	Not Available
SCSI Target ID	0

PNP Device ID
IDE\CDROMHL-DT-ST_DVD-ROM_GDR8081N_____0012____
_5&CBC355F&0&0.0.0

Driver c:\windows\system32\drivers\cdrom.sys (5.2.3790.0
(srv03_rtm.030324-2048), 49.50 KB (50,688 bytes), 3/25/2003 7:00 AM)

[Sound Device]

Item Value

[Display]

Item Value

Name RAGE XL PCI

PNP Device ID
PCI\VEN_1002&DEV_4752&SUBSYS_02401014&REV_27\3&267A616A&
0&18

Adapter Type ATI RAGE XL PCI (B41), ATI Technologies Inc.
compatible

Adapter Description RAGE XL PCI

Adapter RAM 8.00 MB (8,388,608 bytes)

Installed Drivers ati2drad.dll

Driver Version 5.00.2195.5012

INF File oem7.inf (ati2mpad section)

Color Planes 1

Color Table Entries 65536

Resolution 1024 x 768 x 75 hertz

Bits/Pixel 16

Memory Address 0xF0000000-0xF1FFFFFF

I/O Port 0x00001800-0x000018FF

Memory Address 0xF1200000-0xF1200FFF

IRQ Channel IRQ 39

I/O Port 0x000003B0-0x000003BB

I/O Port 0x000003C0-0x000003DF

Memory Address 0xA0000-0xA7FFF

Driver c:\windows\system32\drivers\ati2mpad.sys (5.00.2195.5012, 316.20
KB (323,793 bytes), 10/3/2003 12:23 PM)

[Infrared]

Item Value

[Input]

[Keyboard]

Item Value

Description Standard 101/102-Key or Microsoft Natural PS/2
Keyboard

Name Enhanced (101- or 102-key)

Layout 00000409

PNP Device ID ACPI\PNP0303\4&7FD7688&0

Number of Function Keys 12

IRQ Channel IRQ 1

I/O Port 0x00000064-0x00000064

I/O Port 0x00000060-0x00000060

Driver c:\windows\system32\drivers\i8042prt.sys (5.2.3790.0
(srv03_rtm.030324-2048), 68.50 KB (70,144 bytes), 3/25/2003 7:00 AM)

[Pointing Device]

Item Value

Hardware Type PS/2 Compatible Mouse

Number of Buttons 2

Status OK

PNP Device ID ACPI\PNP0F13\4&7FD7688&0

Power Management Supported No

Double Click Threshold 6

Handedness Right Handed Operation

IRQ Channel IRQ 12

Driver c:\windows\system32\drivers\i8042prt.sys (5.2.3790.0
(srv03_rtm.030324-2048), 68.50 KB (70,144 bytes), 3/25/2003 7:00 AM)

[Modem]

Item Value

[Network]

[Adapter]

Item Value

Name [00000001] RAS Async Adapter

Adapter Type Not Available

Product Type RAS Async Adapter

Installed Yes
 PNP Device ID Not Available
 Last Reset 10/10/2003 10:48 AM
 Index 1
 Service Name AsyncMac
 IP Address Not Available
 IP Subnet Not Available
 Default IP Gateway Not Available
 DHCP Enabled No
 DHCP Server Not Available
 DHCP Lease Expires Not Available
 DHCP Lease Obtained Not Available
 MAC Address Not Available

 Name [00000002] WAN Miniport (L2TP)
 Adapter Type Not Available
 Product Type WAN Miniport (L2TP)
 Installed Yes
 PNP Device ID ROOT\MS_L2TPMINIPOINT\0000
 Last Reset 10/10/2003 10:48 AM
 Index 2
 Service Name Rasl2tp
 IP Address Not Available
 IP Subnet Not Available
 Default IP Gateway Not Available
 DHCP Enabled No
 DHCP Server Not Available
 DHCP Lease Expires Not Available
 DHCP Lease Obtained Not Available
 MAC Address Not Available
 Driver c:\windows\system32\drivers\rasl2tp.sys (5.2.3790.0 (srv03_rtm.030324-2048), 77.00 KB (78,848 bytes), 3/25/2003 7:00 AM)

 Name [00000003] WAN Miniport (PPTP)
 Adapter Type Wide Area Network (WAN)

Product Type WAN Miniport (PPTP)
 Installed Yes
 PNP Device ID ROOT\MS_PPTPMINIPOINT\0000
 Last Reset 10/10/2003 10:48 AM
 Index 3
 Service Name PptpMiniport
 IP Address Not Available
 IP Subnet Not Available
 Default IP Gateway Not Available
 DHCP Enabled No
 DHCP Server Not Available
 DHCP Lease Expires Not Available
 DHCP Lease Obtained Not Available
 MAC Address 50:50:54:50:30:30
 Driver c:\windows\system32\drivers\raspppt.sys (5.2.3790.0 (srv03_rtm.030324-2048), 70.50 KB (72,192 bytes), 3/25/2003 7:00 AM)

 Name [00000004] WAN Miniport (PPPOE)
 Adapter Type Wide Area Network (WAN)
 Product Type WAN Miniport (PPPOE)
 Installed Yes
 PNP Device ID ROOT\MS_PPPOEMINIPOINT\0000
 Last Reset 10/10/2003 10:48 AM
 Index 4
 Service Name RasPppoe
 IP Address Not Available
 IP Subnet Not Available
 Default IP Gateway Not Available
 DHCP Enabled No
 DHCP Server Not Available
 DHCP Lease Expires Not Available
 DHCP Lease Obtained Not Available
 MAC Address 33:50:6F:45:30:30
 Driver c:\windows\system32\drivers\raspppoe.sys (5.2.3790.0 (srv03_rtm.030324-2048), 38.00 KB (38,912 bytes), 3/25/2003 7:00 AM)

Name [00000005] Direct Parallel
 Adapter Type Not Available
 Product Type Direct Parallel
 Installed Yes
 PNP Device ID ROOT\MS_PTMINIPORT\0000
 Last Reset 10/10/2003 10:48 AM
 Index 5
 Service Name Raspti
 IP Address Not Available
 IP Subnet Not Available
 Default IP Gateway Not Available
 DHCP Enabled No
 DHCP Server Not Available
 DHCP Lease Expires Not Available
 DHCP Lease Obtained Not Available
 MAC Address Not Available
 Driver c:\windows\system32\drivers\raspti.sys (5.2.3790.0 (srv03_rtm.030324-2048), 18,500 bytes), 3/25/2003 7:00 AM)

Name [00000006] WAN Miniport (IP)
 Adapter Type Not Available
 Product Type WAN Miniport (IP)
 Installed Yes
 PNP Device ID ROOT\MS_NDISWANIP\0000
 Last Reset 10/10/2003 10:48 AM
 Index 6
 Service Name NdisWan
 IP Address Not Available
 IP Subnet Not Available
 Default IP Gateway Not Available
 DHCP Enabled No
 DHCP Server Not Available
 DHCP Lease Expires Not Available
 DHCP Lease Obtained Not Available
 MAC Address Not Available

Driver c:\windows\system32\drivers\ndiswan.sys (5.2.3790.0 (srv03_rtm.030324-2048), 96,500 bytes), 3/25/2003 7:00 AM)

Name [00000007] Broadcom NetXtreme Gigabit Ethernet
 Adapter Type Not Available
 Product Type Broadcom NetXtreme Gigabit Ethernet
 Installed Yes
 PNP Device ID PCI\VEN_14E4&DEV_1648&SUBSYS_02A61014&REV_02\3&13C0B0C5&0&21
 Last Reset 10/10/2003 10:48 AM
 Index 7
 Service Name b57w2k
 IP Address Not Available
 IP Subnet Not Available
 Default IP Gateway Not Available
 DHCP Enabled Yes
 DHCP Server Not Available
 DHCP Lease Expires Not Available
 DHCP Lease Obtained Not Available
 MAC Address Not Available

Driver c:\windows\system32\drivers\b57xp32.sys (6.34.0.0 built by: WinDDK, 166,880 bytes), 10/3/2003 12:03 PM)

Name [00000008] Broadcom NetXtreme Gigabit Ethernet
 Adapter Type Ethernet 802.3
 Product Type Broadcom NetXtreme Gigabit Ethernet
 Installed Yes
 PNP Device ID PCI\VEN_14E4&DEV_1648&SUBSYS_02A61014&REV_02\3&13C0B0C5&0&20
 Last Reset 10/10/2003 10:48 AM
 Index 8
 Service Name b57w2k
 IP Address 192.168.122.200
 IP Subnet 255.255.255.0
 Default IP Gateway Not Available
 DHCP Enabled No

DHCP Server Not Available
 DHCP Lease Expires Not Available
 DHCP Lease Obtained Not Available
 MAC Address 00:09:6B:E6:01:8C
 Memory Address 0xF5040000-0xF504FFFF
 Memory Address 0xF5050000-0xF505FFFF
 IRQ Channel IRQ 42
 Driver c:\windows\system32\drivers\b57xp32.sys (6.34.0.0 built by: WinDDK, 166.88 KB (170,880 bytes), 10/3/2003 12:03 PM)

[Protocol]

Item Value

Name MSAFD Tcip [TCP/IP]

Connectionless Service No
 Guarantees Delivery Yes
 Guarantees Sequencing Yes
 Maximum Address Size 16 bytes
 Maximum Message Size 0 bytes
 Message Oriented No
 Minimum Address Size 16 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting No
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption No
 Supports Expedited Data Yes
 Supports Graceful Closing Yes
 Supports Guaranteed Bandwidth No
 Supports Multicasting No

Name MSAFD Tcip [UDP/IP]

Connectionless Service Yes
 Guarantees Delivery No
 Guarantees Sequencing No
 Maximum Address Size 16 bytes
 Maximum Message Size 63.93 KB (65,467 bytes)

Message Oriented Yes
 Minimum Address Size 16 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting Yes
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption No
 Supports Expedited Data No
 Supports Graceful Closing No
 Supports Guaranteed Bandwidth No
 Supports Multicasting Yes

Name RSVP UDP Service Provider

Connectionless Service Yes
 Guarantees Delivery No
 Guarantees Sequencing No
 Maximum Address Size 16 bytes
 Maximum Message Size 63.93 KB (65,467 bytes)
 Message Oriented Yes
 Minimum Address Size 16 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting Yes
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption Yes
 Supports Expedited Data No
 Supports Graceful Closing No
 Supports Guaranteed Bandwidth No
 Supports Multicasting Yes

Name RSVP TCP Service Provider

Connectionless Service No
 Guarantees Delivery Yes
 Guarantees Sequencing Yes

Maximum Address Size	16 bytes
Maximum Message Size	0 bytes
Message Oriented	No
Minimum Address Size	16 bytes
Pseudo Stream Oriented	No
Supports Broadcasting	No
Supports Connect Data	No
Supports Disconnect Data	No
Supports Encryption	Yes
Supports Expedited Data	Yes
Supports Graceful Closing	Yes
Supports Guaranteed Bandwidth	No
Supports Multicasting	No
Name MSAFD NetBIOS [\Device\NetBT_Tcpip_{2336F50A-65CB-49D6-B1B8-B0CA7198D8B9}] SEQPACKET 3	
Connectionless Service	No
Guarantees Delivery	Yes
Guarantees Sequencing	Yes
Maximum Address Size	20 bytes
Maximum Message Size	62.50 KB (64,000 bytes)
Message Oriented	Yes
Minimum Address Size	20 bytes
Pseudo Stream Oriented	No
Supports Broadcasting	No
Supports Connect Data	No
Supports Disconnect Data	No
Supports Encryption	No
Supports Expedited Data	No
Supports Graceful Closing	No
Supports Guaranteed Bandwidth	No
Supports Multicasting	No
Name MSAFD NetBIOS [\Device\NetBT_Tcpip_{2336F50A-65CB-49D6-B1B8-B0CA7198D8B9}] DATAGRAM 3	

Connectionless Service	Yes
Guarantees Delivery	No
Guarantees Sequencing	No
Maximum Address Size	20 bytes
Maximum Message Size	62.50 KB (64,000 bytes)
Message Oriented	Yes
Minimum Address Size	20 bytes
Pseudo Stream Oriented	No
Supports Broadcasting	Yes
Supports Connect Data	No
Supports Disconnect Data	No
Supports Encryption	No
Supports Expedited Data	No
Supports Graceful Closing	No
Supports Guaranteed Bandwidth	No
Supports Multicasting	No
Name MSAFD NetBIOS [\Device\NetBT_Tcpip_{C117CF49-BDD2-47A8-9957-5FA1B31899B2}] SEQPACKET 0	
Connectionless Service	No
Guarantees Delivery	Yes
Guarantees Sequencing	Yes
Maximum Address Size	20 bytes
Maximum Message Size	62.50 KB (64,000 bytes)
Message Oriented	Yes
Minimum Address Size	20 bytes
Pseudo Stream Oriented	No
Supports Broadcasting	No
Supports Connect Data	No
Supports Disconnect Data	No
Supports Encryption	No
Supports Expedited Data	No
Supports Graceful Closing	No
Supports Guaranteed Bandwidth	No
Supports Multicasting	No

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{C117CF49-BDD2-47A8-9957-5FA1B31899B2}]
 DATAGRAM 0

Connectionless Service Yes
 Guarantees Delivery No
 Guarantees Sequencing No
 Maximum Address Size 20 bytes
 Maximum Message Size 62.50 KB (64,000 bytes)
 Message Oriented Yes
 Minimum Address Size 20 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting Yes
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption No
 Supports Expedited Data No
 Supports Graceful Closing No
 Supports Guaranteed Bandwidth No
 Supports Multicasting No

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{37ABFD58-783B-4792-B0BD-5AD1FE2581B2}]
 SEQPACKET 1

Connectionless Service No
 Guarantees Delivery Yes
 Guarantees Sequencing Yes
 Maximum Address Size 20 bytes
 Maximum Message Size 62.50 KB (64,000 bytes)
 Message Oriented Yes
 Minimum Address Size 20 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting No
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption No
 Supports Expedited Data No

Supports Graceful Closing No

Supports Guaranteed Bandwidth No

Supports Multicasting No

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{37ABFD58-783B-4792-B0BD-5AD1FE2581B2}]
 DATAGRAM 1

Connectionless Service Yes
 Guarantees Delivery No
 Guarantees Sequencing No
 Maximum Address Size 20 bytes
 Maximum Message Size 62.50 KB (64,000 bytes)
 Message Oriented Yes
 Minimum Address Size 20 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting Yes
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption No

Supports Expedited Data No

Supports Graceful Closing No

Supports Guaranteed Bandwidth No

Supports Multicasting No

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{853438AE-4BEC-4DA1-92B0-531FA4AF9F81}]
 SEQPACKET 2

Connectionless Service No
 Guarantees Delivery Yes
 Guarantees Sequencing Yes
 Maximum Address Size 20 bytes
 Maximum Message Size 62.50 KB (64,000 bytes)
 Message Oriented Yes
 Minimum Address Size 20 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting No
 Supports Connect Data No

Supports Disconnect Data No
 Supports Encryption No
 Supports Expedited Data No
 Supports Graceful Closing No
 Supports Guaranteed Bandwidth No
 Supports Multicasting No

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{853438AE-4BEC-4DA1-92B0-531FA4AF9F81}]
 DATAGRAM 2

Connectionless Service Yes
 Guarantees Delivery No
 Guarantees Sequencing No
 Maximum Address Size 20 bytes
 Maximum Message Size 62.50 KB (64,000 bytes)
 Message Oriented Yes
 Minimum Address Size 20 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting Yes
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption No
 Supports Expedited Data No
 Supports Graceful Closing No
 Supports Guaranteed Bandwidth No
 Supports Multicasting No

[WinSock]

Item	Value
File	c:\windows\system32\winsock.dll
Size	2.80 KB (2,864 bytes)
Version	3.10
File	c:\windows\system32\wsock32.dll
Size	22.00 KB (22,528 bytes)
Version	5.2.3790.0 (srv03_rtm.030324-2048)

[Ports]

[Serial]

Item	Value
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[Parallel]

Item	Value
------	-------

[Storage]

[Drives]

Item	Value
------	-------

Drive	A:	Description	3 1/2 Inch Floppy Drive
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Drive	C:	Description	Local Fixed Disk
-------	----	-------------	------------------

Compressed	No
File System	NTFS
Size	33.89 GB (36,388,605,952 bytes)
Free Space	26.83 GB (28,813,062,144 bytes)
Volume Name	C_DRIVE
Volume Serial Number	F8D97098

Drive	E:	Description	Local Fixed Disk
-------	----	-------------	------------------

Compressed	Not Available
File System	Not Available

Size	Not Available
Free Space	Not Available

Volume Name	Not Available
Volume Serial Number	Not Available

Drive	F:	Description	Local Fixed Disk
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Compressed	No
File System	NTFS

Size	35.16 GB (37,748,715,520 bytes)
------	---------------------------------

Free Space 35.08 GB (37,671,575,552 bytes)

Volume Name F_DRIVE

Volume Serial Number 345D1661

Drive G:

Description Local Fixed Disk

Compressed No

File System NTFS

Size 430.18 GB (461,899,804,672 bytes)

Free Space 288.80 GB (310,097,113,088 bytes)

Volume Name G_DRIVE

Volume Serial Number 407D7A60

Drive H:

Description Local Fixed Disk

Compressed No

File System NTFS

Size 430.18 GB (461,899,804,672 bytes)

Free Space 288.80 GB (310,097,113,088 bytes)

Volume Name H_DRIVE

Volume Serial Number 70985DAF

Drive I:

Description Local Fixed Disk

Compressed No

File System NTFS

Size 430.18 GB (461,899,804,672 bytes)

Free Space 288.80 GB (310,097,178,624 bytes)

Volume Name I_DRIVE

Volume Serial Number 24B36BB0

Drive J:

Description Local Fixed Disk

Compressed No

File System NTFS

Size 430.18 GB (461,899,804,672 bytes)

Free Space 288.80 GB (310,097,178,624 bytes)

Volume Name J_DRIVE

Volume Serial Number 04CBDE14

Drive K:

Description Local Fixed Disk

Compressed No

File System NTFS

Size 430.18 GB (461,899,804,672 bytes)

Free Space 288.80 GB (310,097,113,088 bytes)

Volume Name K_DRIVE

Volume Serial Number 94E2DCA7

Drive L:

Description Local Fixed Disk

Compressed No

File System NTFS

Size 430.18 GB (461,899,804,672 bytes)

Free Space 288.16 GB (309,411,627,008 bytes)

Volume Name L_DRIVE

Volume Serial Number 1C0345A8

Drive M:

Description Local Fixed Disk

Compressed No

File System NTFS

Size 430.18 GB (461,899,804,672 bytes)

Free Space 288.80 GB (310,097,178,624 bytes)

Volume Name M_DRIVE

Volume Serial Number 381AB466

Drive N:

Description Local Fixed Disk

Compressed No

File System NTFS

Size 430.18 GB (461,899,804,672 bytes)

Free Space 288.80 GB (310,097,178,624 bytes)

Volume Name N_DRIVE

Volume Serial Number 182F8293

Drive O:

Description Local Fixed Disk

Compressed No

File System NTFS

Size 430.18 GB (461,899,804,672 bytes)

Free Space 288.57 GB (309,852,139,520 bytes)

Volume Name O_DRIVE

Volume Serial Number E8447BC8

Drive P:

Description Local Fixed Disk

Compressed No

File System NTFS

Size 430.18 GB (461,899,804,672 bytes)

Free Space 288.57 GB (309,852,139,520 bytes)

Volume Name P_DRIVE

Volume Serial Number 245C68C3

Drive Q:

Description Local Fixed Disk

Compressed No

File System NTFS

Size 430.18 GB (461,899,804,672 bytes)

Free Space 288.57 GB (309,852,139,520 bytes)

Volume Name Q_DRIVE

Volume Serial Number DC714C69

Drive R:

Description Local Fixed Disk

Compressed No

File System NTFS

Size 430.18 GB (461,899,804,672 bytes)

Free Space 288.57 GB (309,852,139,520 bytes)

Volume Name R_DRIVE

Volume Serial Number 0C87D87E

Drive S:

Description Local Fixed Disk

Compressed No

File System NTFS

Size 430.18 GB (461,899,804,672 bytes)

Free Space 147.04 GB (157,886,169,088 bytes)

Volume Name S_DRIVE

Volume Serial Number E4A1A987

Drive T:

Description Local Fixed Disk

Compressed No

File System NTFS

Size 430.18 GB (461,899,804,672 bytes)

Free Space 288.57 GB (309,852,139,520 bytes)

Volume Name T_DRIVE

Volume Serial Number 7CB7FC89

Drive U:

Description Local Fixed Disk

Compressed No

File System NTFS

Size 430.18 GB (461,899,804,672 bytes)

Free Space 147.04 GB (157,886,169,088 bytes)

Volume Name U_DRIVE

Volume Serial Number 2CD77243

Drive V:
 Description Local Fixed Disk
 Compressed No
 File System NTFS
 Size 430.18 GB (461,899,804,672 bytes)
 Free Space 430.10 GB (461,818,114,048 bytes)
 Volume Name V_DRIVE
 Volume Serial Number 88D1D80E

Drive Z:
 Description CD-ROM Disc

[Disks]

Item	Value
Description	Disk drive
Manufacturer	(Standard disk drives)
Model	IBM ServeRAID SCSI Disk Device
Bytes/Sector	512
Media Loaded	Yes
Media Type	Fixed hard disk
Partitions	3
SCSI Bus	0
SCSI Logical Unit	0
SCSI Port	8
SCSI Target ID	0
Sectors/Track	32
Size	474.61 GB (509,612,130,304 bytes)
Total Cylinders	243,002
Total Sectors	995,336,192
Total Tracks	31,104,256
Tracks/Cylinder	128
Partition	Disk #6, Partition #0
Partition Size	27.83 GB (29,886,496,768 bytes)
Partition Starting Offset	2,113,536 bytes

Partition	Disk #6, Partition #1
Partition Size	16.12 GB (17,303,584,768 bytes)
Partition Starting Offset	29,888,626,688 bytes
Partition	Disk #6, Partition #2
Partition Size	430.18 GB (461,899,808,768 bytes)
Partition Starting Offset	47,192,227,840 bytes
Description	Disk drive
Manufacturer	(Standard disk drives)
Model	IBM ServeRAID SCSI Disk Device
Bytes/Sector	512
Media Loaded	Yes
Media Type	Fixed hard disk
Partitions	3
SCSI Bus	0
SCSI Logical Unit	0
SCSI Port	8
SCSI Target ID	1
Sectors/Track	32
Size	474.61 GB (509,612,130,304 bytes)
Total Cylinders	243,002
Total Sectors	995,336,192
Total Tracks	31,104,256
Tracks/Cylinder	128
Partition	Disk #7, Partition #0
Partition Size	27.83 GB (29,886,496,768 bytes)
Partition Starting Offset	2,113,536 bytes
Partition	Disk #7, Partition #1
Partition Size	16.12 GB (17,303,584,768 bytes)
Partition Starting Offset	29,888,626,688 bytes
Partition	Disk #7, Partition #2
Partition Size	430.18 GB (461,899,808,768 bytes)
Partition Starting Offset	47,192,227,840 bytes
Description	Disk drive

Manufacturer (Standard disk drives)
 Model IBM ServeRAID SCSI Disk Device
 Bytes/Sector 512
 Media Loaded Yes
 Media Type Fixed hard disk
 Partitions 3
 SCSI Bus 0
 SCSI Logical Unit 0
 SCSI Port 7
 SCSI Target ID 0
 Sectors/Track 32
 Size 474.62 GB (509,616,324,608 bytes)
 Total Cylinders 243,004
 Total Sectors 995,344,384
 Total Tracks 31,104,512
 Tracks/Cylinder 128
 Partition Disk #4, Partition #0
 Partition Size 27.83 GB (29,886,496,768 bytes)
 Partition Starting Offset 2,113,536 bytes
 Partition Disk #4, Partition #1
 Partition Size 16.12 GB (17,303,584,768 bytes)
 Partition Starting Offset 29,888,626,688 bytes
 Partition Disk #4, Partition #2
 Partition Size 430.18 GB (461,899,808,768 bytes)
 Partition Starting Offset 47,192,227,840 bytes
 Description Disk drive
 Manufacturer (Standard disk drives)
 Model IBM ServeRAID SCSI Disk Device
 Bytes/Sector 512
 Media Loaded Yes
 Media Type Fixed hard disk
 Partitions 3
 SCSI Bus 0

SCSI Logical Unit 0
 SCSI Port 7
 SCSI Target ID 1
 Sectors/Track 32
 Size 474.62 GB (509,616,324,608 bytes)
 Total Cylinders 243,004
 Total Sectors 995,344,384
 Total Tracks 31,104,512
 Tracks/Cylinder 128
 Partition Disk #5, Partition #0
 Partition Size 27.83 GB (29,886,496,768 bytes)
 Partition Starting Offset 2,113,536 bytes
 Partition Disk #5, Partition #1
 Partition Size 16.12 GB (17,303,584,768 bytes)
 Partition Starting Offset 29,888,626,688 bytes
 Partition Disk #5, Partition #2
 Partition Size 430.18 GB (461,899,808,768 bytes)
 Partition Starting Offset 47,192,227,840 bytes
 Description Disk drive
 Manufacturer (Standard disk drives)
 Model IBM ServeRAID SCSI Disk Device
 Bytes/Sector 512
 Media Loaded Yes
 Media Type Fixed hard disk
 Partitions 3
 SCSI Bus 0
 SCSI Logical Unit 0
 SCSI Port 11
 SCSI Target ID 0
 Sectors/Track 32
 Size 474.62 GB (509,616,324,608 bytes)
 Total Cylinders 243,004
 Total Sectors 995,344,384
 Total Tracks 31,104,512

Tracks/Cylinder 128

Partition Disk #12, Partition #0

Partition Size 27.83 GB (29,886,496,768 bytes)

Partition Starting Offset 2,113,536 bytes

Partition Disk #12, Partition #1

Partition Size 16.12 GB (17,303,584,768 bytes)

Partition Starting Offset 29,888,626,688 bytes

Partition Disk #12, Partition #2

Partition Size 430.18 GB (461,899,808,768 bytes)

Partition Starting Offset 47,192,227,840 bytes

Description Disk drive

Manufacturer (Standard disk drives)

Model IBM ServeRAID SCSI Disk Device

Bytes/Sector 512

Media Loaded Yes

Media Type Fixed hard disk

Partitions 3

SCSI Bus 0

SCSI Logical Unit 0

SCSI Port 11

SCSI Target ID 1

Sectors/Track 32

Size 474.62 GB (509,616,324,608 bytes)

Total Cylinders 243,004

Total Sectors 995,344,384

Total Tracks 31,104,512

Tracks/Cylinder 128

Partition Disk #13, Partition #0

Partition Size 27.83 GB (29,886,496,768 bytes)

Partition Starting Offset 2,113,536 bytes

Partition Disk #13, Partition #1

Partition Size 16.12 GB (17,303,584,768 bytes)

Partition Starting Offset 29,888,626,688 bytes

Partition Disk #13, Partition #2

Partition Size 430.18 GB (461,899,808,768 bytes)

Partition Starting Offset 47,192,227,840 bytes

Description Disk drive

Manufacturer (Standard disk drives)

Model IBM ServeRAID SCSI Disk Device

Bytes/Sector 512

Media Loaded Yes

Media Type Fixed hard disk

Partitions 2

SCSI Bus 0

SCSI Logical Unit 0

SCSI Port 5

SCSI Target ID 0

Sectors/Track 32

Size 237.31 GB (254,808,162,304 bytes)

Total Cylinders 121,502

Total Sectors 497,672,192

Total Tracks 15,552,256

Tracks/Cylinder 128

Partition Disk #1, Partition #0

Partition Size 201.66 GB (216,533,024,768 bytes)

Partition Starting Offset 2,113,536 bytes

Partition Disk #1, Partition #1

Partition Size 35.16 GB (37,748,719,616 bytes)

Partition Starting Offset 216,535,154,688 bytes

Description Disk drive

Manufacturer (Standard disk drives)

Model IBM ServeRAID SCSI Disk Device

Bytes/Sector 512

Media Loaded Yes

Media Type Fixed hard disk

Partitions 3

SCSI Bus 0
 SCSI Logical Unit 0
 SCSI Port 13
 SCSI Target ID 0
 Sectors/Track 32
 Size 474.61 GB (509,612,130,304 bytes)
 Total Cylinders 243,002
 Total Sectors 995,336,192
 Total Tracks 31,104,256
 Tracks/Cylinder 128
 Partition Disk #16, Partition #0
 Partition Size 27.83 GB (29,886,496,768 bytes)
 Partition Starting Offset 2,113,536 bytes
 Partition Disk #16, Partition #1
 Partition Size 16.12 GB (17,303,584,768 bytes)
 Partition Starting Offset 29,888,626,688 bytes
 Partition Disk #16, Partition #2
 Partition Size 430.18 GB (461,899,808,768 bytes)
 Partition Starting Offset 47,192,227,840 bytes

 Description Disk drive
 Manufacturer (Standard disk drives)
 Model IBM ServeRAID SCSI Disk Device
 Bytes/Sector 512
 Media Loaded Yes
 Media Type Fixed hard disk
 Partitions 3
 SCSI Bus 0
 SCSI Logical Unit 0
 SCSI Port 13
 SCSI Target ID 1
 Sectors/Track 32
 Size 474.61 GB (509,612,130,304 bytes)
 Total Cylinders 243,002
 Total Sectors 995,336,192

Total Tracks 31,104,256
 Tracks/Cylinder 128
 Partition Disk #17, Partition #0
 Partition Size 27.83 GB (29,886,496,768 bytes)
 Partition Starting Offset 2,113,536 bytes
 Partition Disk #17, Partition #1
 Partition Size 16.12 GB (17,303,584,768 bytes)
 Partition Starting Offset 29,888,626,688 bytes
 Partition Disk #17, Partition #2
 Partition Size 430.18 GB (461,899,808,768 bytes)
 Partition Starting Offset 47,192,227,840 bytes

 Description Disk drive
 Manufacturer (Standard disk drives)
 Model IBM ServeRAID SCSI Disk Device
 Bytes/Sector 512
 Media Loaded Yes
 Media Type Fixed hard disk
 Partitions 3
 SCSI Bus 0
 SCSI Logical Unit 0
 SCSI Port 10
 SCSI Target ID 0
 Sectors/Track 32
 Size 474.61 GB (509,612,130,304 bytes)
 Total Cylinders 243,002
 Total Sectors 995,336,192
 Total Tracks 31,104,256
 Tracks/Cylinder 128
 Partition Disk #10, Partition #0
 Partition Size 27.83 GB (29,886,496,768 bytes)
 Partition Starting Offset 2,113,536 bytes
 Partition Disk #10, Partition #1
 Partition Size 16.12 GB (17,303,584,768 bytes)

Partition Starting Offset	29,888,626,688 bytes	Bytes/Sector	512
Partition	Disk #10, Partition #2	Media Loaded	Yes
Partition Size	430.18 GB (461,899,808,768 bytes)	Media Type	Fixed hard disk
Partition Starting Offset	47,192,227,840 bytes	Partitions	3
Description	Disk drive	SCSI Bus	0
Manufacturer	(Standard disk drives)	SCSI Logical Unit	0
Model	IBM ServeRAID SCSI Disk Device	SCSI Port	9
Bytes/Sector	512	SCSI Target ID	0
Media Loaded	Yes	Sectors/Track	32
Media Type	Fixed hard disk	Size	474.62 GB (509,616,324,608 bytes)
Partitions	3	Total Cylinders	243,004
SCSI Bus	0	Total Sectors	995,344,384
SCSI Logical Unit	0	Total Tracks	31,104,512
SCSI Port	10	Tracks/Cylinder	128
SCSI Target ID	1	Partition	Disk #8, Partition #0
Sectors/Track	32	Partition Size	27.83 GB (29,886,496,768 bytes)
Size	474.61 GB (509,612,130,304 bytes)	Partition Starting Offset	2,113,536 bytes
Total Cylinders	243,002	Partition	Disk #8, Partition #1
Total Sectors	995,336,192	Partition Size	16.12 GB (17,303,584,768 bytes)
Total Tracks	31,104,256	Partition Starting Offset	29,888,626,688 bytes
Tracks/Cylinder	128	Partition	Disk #8, Partition #2
Partition	Disk #11, Partition #0	Partition Size	430.18 GB (461,899,808,768 bytes)
Partition Size	27.83 GB (29,886,496,768 bytes)	Partition Starting Offset	47,192,227,840 bytes
Partition Starting Offset	2,113,536 bytes	Description	Disk drive
Partition	Disk #11, Partition #1	Manufacturer	(Standard disk drives)
Partition Size	16.12 GB (17,303,584,768 bytes)	Model	IBM ServeRAID SCSI Disk Device
Partition Starting Offset	29,888,626,688 bytes	Bytes/Sector	512
Partition	Disk #11, Partition #2	Media Loaded	Yes
Partition Size	430.18 GB (461,899,808,768 bytes)	Media Type	Fixed hard disk
Partition Starting Offset	47,192,227,840 bytes	Partitions	3
Description	Disk drive	SCSI Bus	0
Manufacturer	(Standard disk drives)	SCSI Logical Unit	0
Model	IBM ServeRAID SCSI Disk Device	SCSI Port	9
		SCSI Target ID	1

Sectors/Track 32

Size 474.62 GB (509,616,324,608 bytes)

Total Cylinders 243,004

Total Sectors 995,344,384

Total Tracks 31,104,512

Tracks/Cylinder 128

Partition Disk #9, Partition #0

Partition Size 27.83 GB (29,886,496,768 bytes)

Partition Starting Offset 2,113,536 bytes

Partition Disk #9, Partition #1

Partition Size 16.12 GB (17,303,584,768 bytes)

Partition Starting Offset 29,888,626,688 bytes

Partition Disk #9, Partition #2

Partition Size 430.18 GB (461,899,808,768 bytes)

Partition Starting Offset 47,192,227,840 bytes

Description Disk drive

Manufacturer (Standard disk drives)

Model IBM ServeRAID SCSI Disk Device

Bytes/Sector 512

Media Loaded Yes

Media Type Fixed hard disk

Partitions 3

SCSI Bus 0

SCSI Logical Unit 0

SCSI Port 6

SCSI Target ID 0

Sectors/Track 32

Size 474.61 GB (509,612,130,304 bytes)

Total Cylinders 243,002

Total Sectors 995,336,192

Total Tracks 31,104,256

Tracks/Cylinder 128

Partition Disk #2, Partition #0

Partition Size 27.83 GB (29,886,496,768 bytes)

Partition Starting Offset 2,113,536 bytes

Partition Disk #2, Partition #1

Partition Size 16.12 GB (17,303,584,768 bytes)

Partition Starting Offset 29,888,626,688 bytes

Partition Disk #2, Partition #2

Partition Size 430.18 GB (461,899,808,768 bytes)

Partition Starting Offset 47,192,227,840 bytes

Description Disk drive

Manufacturer (Standard disk drives)

Model IBM ServeRAID SCSI Disk Device

Bytes/Sector 512

Media Loaded Yes

Media Type Fixed hard disk

Partitions 3

SCSI Bus 0

SCSI Logical Unit 0

SCSI Port 6

SCSI Target ID 1

Sectors/Track 32

Size 474.61 GB (509,612,130,304 bytes)

Total Cylinders 243,002

Total Sectors 995,336,192

Total Tracks 31,104,256

Tracks/Cylinder 128

Partition Disk #3, Partition #0

Partition Size 27.83 GB (29,886,496,768 bytes)

Partition Starting Offset 2,113,536 bytes

Partition Disk #3, Partition #1

Partition Size 16.12 GB (17,303,584,768 bytes)

Partition Starting Offset 29,888,626,688 bytes

Partition Disk #3, Partition #2

Partition Size 430.18 GB (461,899,808,768 bytes)

Partition Starting Offset 47,192,227,840 bytes

Description Disk drive
 Manufacturer (Standard disk drives)
 Model IBM ServeRAID SCSI Disk Device
 Bytes/Sector 512
 Media Loaded Yes
 Media Type Fixed hard disk
 Partitions 3
 SCSI Bus 0
 SCSI Logical Unit 0
 SCSI Port 12
 SCSI Target ID 0
 Sectors/Track 32
 Size 474.61 GB (509,612,130,304 bytes)
 Total Cylinders 243,002
 Total Sectors 995,336,192
 Total Tracks 31,104,256
 Tracks/Cylinder 128
 Partition Disk #14, Partition #0
 Partition Size 27.83 GB (29,886,496,768 bytes)
 Partition Starting Offset 2,113,536 bytes
 Partition Disk #14, Partition #1
 Partition Size 16.12 GB (17,303,584,768 bytes)
 Partition Starting Offset 29,888,626,688 bytes
 Partition Disk #14, Partition #2
 Partition Size 430.18 GB (461,899,808,768 bytes)
 Partition Starting Offset 47,192,227,840 bytes

Description Disk drive
 Manufacturer (Standard disk drives)
 Model IBM ServeRAID SCSI Disk Device
 Bytes/Sector 512
 Media Loaded Yes
 Media Type Fixed hard disk

Partitions 3
 SCSI Bus 0
 SCSI Logical Unit 0
 SCSI Port 12
 SCSI Target ID 1
 Sectors/Track 32
 Size 474.61 GB (509,612,130,304 bytes)
 Total Cylinders 243,002
 Total Sectors 995,336,192
 Total Tracks 31,104,256
 Tracks/Cylinder 128
 Partition Disk #15, Partition #0
 Partition Size 27.83 GB (29,886,496,768 bytes)
 Partition Starting Offset 2,113,536 bytes
 Partition Disk #15, Partition #1
 Partition Size 16.12 GB (17,303,584,768 bytes)
 Partition Starting Offset 29,888,626,688 bytes
 Partition Disk #15, Partition #2
 Partition Size 430.18 GB (461,899,808,768 bytes)
 Partition Starting Offset 47,192,227,840 bytes
 Description Disk drive
 Manufacturer (Standard disk drives)
 Model IBM-ESXS DTN036C3UCDY10FN SCSI Disk Device
 Bytes/Sector 512
 Media Loaded Yes
 Media Type Fixed hard disk
 Partitions 1
 SCSI Bus 0
 SCSI Logical Unit 0
 SCSI Port 3
 SCSI Target ID 0
 Sectors/Track 63
 Size 33.90 GB (36,396,864,000 bytes)

Total Cylinders 4,425
 Total Sectors 71,087,625
 Total Tracks 1,128,375
 Tracks/Cylinder 255
 Partition Disk #0, Partition #0
 Partition Size 33.89 GB (36,388,606,464 bytes)
 Partition Starting Offset 32,256 bytes

[SCSI]

Item	Value
Name	LSI Logic 1020/1030 Ultra320 SCSI Adapter
Manufacturer	LSI Logic
Status	OK
PNP Device ID	PCI\VEN_1000&DEV_0030&SUBSYS_02921014&REV_07\3&13C0B0C5&0&18
I/O Port	0x00002000-0x000027FF
Memory Address	0xF5000000-0xF50FFFFF
Memory Address	0xF5010000-0xF501FFFF
IRQ Channel	IRQ 40
Driver	c:\windows\system32\drivers\symmpi.sys (1.08.23.00 built by: DPRILL, 36.25 KB (37,120 bytes), 10/3/2003 12:23 PM)

Name	LSI Logic 1020/1030 Ultra320 SCSI Adapter
Manufacturer	LSI Logic
Status	OK
PNP Device ID	PCI\VEN_1000&DEV_0030&SUBSYS_02921014&REV_07\3&13C0B0C5&0&19
I/O Port	0x00002100-0x000021FF
Memory Address	0xF5020000-0xF502FFFF
Memory Address	0xF5030000-0xF503FFFF
IRQ Channel	IRQ 41
Driver	c:\windows\system32\drivers\symmpi.sys (1.08.23.00 built by: DPRILL, 36.25 KB (37,120 bytes), 10/3/2003 12:23 PM)

Name	IBM ServeRAID 6M Controller
Manufacturer	IBM Corporation
Status	OK
PNP Device ID	PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&1C91D199&0&4008
Memory Address	0xF4980000-0xF4980FFF
IRQ Channel	IRQ 51
Driver	c:\windows\system32\drivers\infrd6m.sys (6.08.06 built by: WinDDK, 29.50 KB (30,208 bytes), 10/3/2003 12:09 PM)

Name	IBM ServeRAID 6M Controller
Manufacturer	IBM Corporation
Status	OK
PNP Device ID	PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&392398EF&0&4010
Memory Address	0xF4880000-0xF4880FFF
IRQ Channel	IRQ 55
Driver	c:\windows\system32\drivers\infrd6m.sys (6.08.06 built by: WinDDK, 29.50 KB (30,208 bytes), 10/3/2003 12:09 PM)

Name	IBM ServeRAID 6M Controller
Manufacturer	IBM Corporation
Status	OK
PNP Device ID	PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&180CD7A4&0&4020
Memory Address	0xF5280000-0xF5280FFF
IRQ Channel	IRQ 71
Driver	c:\windows\system32\drivers\infrd6m.sys (6.08.06 built by: WinDDK, 29.50 KB (30,208 bytes), 10/3/2003 12:09 PM)

Name	IBM ServeRAID 6M Controller
Manufacturer	IBM Corporation
Status	OK
PNP Device ID	PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&14F365D1&0&4018
Memory Address	0xF5380000-0xF5380FFF

IRQ Channel IRQ 67
Driver c:\windows\system32\drivers\nfrd6m.sys (6.08.06 built by:
WinDDK, 29.50 KB (30,208 bytes), 10/3/2003 12:09 PM)

Name IBM ServeRAID 6M Controller
Manufacturer IBM Corporation
Status OK

PNP Device ID
PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&27CC8076&
0&4008

Memory Address 0xF4B80000-0xF4B80FFF
IRQ Channel IRQ 59

Driver c:\windows\system32\drivers\nfrd6m.sys (6.08.06 built by:
WinDDK, 29.50 KB (30,208 bytes), 10/3/2003 12:09 PM)

Name IBM ServeRAID 6M Controller
Manufacturer IBM Corporation
Status OK

PNP Device ID
PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&8C37DC5&0
&4010

Memory Address 0xF4A80000-0xF4A80FFF
IRQ Channel IRQ 63

Driver c:\windows\system32\drivers\nfrd6m.sys (6.08.06 built by:
WinDDK, 29.50 KB (30,208 bytes), 10/3/2003 12:09 PM)

Name IBM ServeRAID 6M Controller
Manufacturer IBM Corporation
Status OK

PNP Device ID
PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&23B656E&0
&4010

Memory Address 0xF2480000-0xF2480FFF
IRQ Channel IRQ 120

Driver c:\windows\system32\drivers\nfrd6m.sys (6.08.06 built by:
WinDDK, 29.50 KB (30,208 bytes), 10/3/2003 12:09 PM)

Name IBM ServeRAID 6M Controller
Manufacturer IBM Corporation

Status OK

PNP Device ID
PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&2952CC5&0
&4010

Memory Address 0xF2C80000-0xF2C80FFF
IRQ Channel IRQ 113

Driver c:\windows\system32\drivers\nfrd6m.sys (6.08.06 built by:
WinDDK, 29.50 KB (30,208 bytes), 10/3/2003 12:09 PM)

Name QLogic QLA23xx PCI Fibre Channel Adapter
Manufacturer QLogic

Status OK

PNP Device ID
PCI\VEN_1077&DEV_2312&SUBSYS_010C1077&REV_02\3&21E977AD&
0&08

I/O Port 0x00002800-0x000029FF

Memory Address 0xF4D20000-0xF4D20FFF
IRQ Channel IRQ 102

Driver c:\windows\system32\drivers\ql2300.sys (8.2.0 Beta 10 (W2K VI),
431.38 KB (441,733 bytes), 10/3/2003 2:07 PM)

Name IBM ServeRAID 6M Controller
Manufacturer IBM Corporation
Status OK

PNP Device ID
PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&12D7BE27&
0&4010

Memory Address 0xF4C80000-0xF4C80FFF
IRQ Channel IRQ 106

Driver c:\windows\system32\drivers\nfrd6m.sys (6.08.06 built by:
WinDDK, 29.50 KB (30,208 bytes), 10/3/2003 12:09 PM)

[IDE]

Item Value

Name VIA Bus Master IDE Controller

Manufacturer VIA Technologies, Inc.

Status OK

PNP Device ID
PCI\VEN_1106&DEV_0571&SUBSYS_02A61014&REV_06\3&267A616A&0&29

I/O Port 0x00000700-0x0000070F

Driver c:\windows\system32\drivers\vialde.sys (1.00.01.00, 7.00 KB (7,168 bytes), 3/25/2003 7:00 AM)

Name Primary IDE Channel

Manufacturer (Standard IDE ATA/ATAPI controllers)

Status OK

PNP Device ID PCIIDE\IDECHANNEL\4&29582549&0&0

I/O Port 0x000001F0-0x000001F7

I/O Port 0x000003F6-0x000003F6

IRQ Channel IRQ 14

Driver c:\windows\system32\drivers\atapi.sys (5.2.3790.0 (srv03_rtm.030324-2048), 89.00 KB (91,136 bytes), 3/25/2003 7:00 AM)

Name Secondary IDE Channel

Manufacturer (Standard IDE ATA/ATAPI controllers)

Status OK

PNP Device ID PCIIDE\IDECHANNEL\4&29582549&0&1

I/O Port 0x00000170-0x00000177

I/O Port 0x00000376-0x00000376

IRQ Channel IRQ 15

Driver c:\windows\system32\drivers\atapi.sys (5.2.3790.0 (srv03_rtm.030324-2048), 89.00 KB (91,136 bytes), 3/25/2003 7:00 AM)

[Printing]

Name Driver Port Name Server Name

[Problem Devices]

Device PNP Device ID Error Code

Broadcom NetXtreme Gigabit Ethernet
PCI\VEN_14E4&DEV_1648&SUBSYS_02A61014&REV_02\3&13C0B0C5&0&21 This device is disabled.

[USB]

Device PNP Device ID

VIA Rev 5 or later USB Universal Host Controller
PCI\VEN_1106&DEV_3038&SUBSYS_02A61014&REV_16\3&267A616A&0&2A

USB Root Hub USB\ROOT_HUB\4&226DFD17&0

VIA Rev 5 or later USB Universal Host Controller
PCI\VEN_1106&DEV_3038&SUBSYS_02A61014&REV_16\3&267A616A&0&2B

USB Root Hub USB\ROOT_HUB\4&3527ADBC&0

[Software Environment]

[System Drivers]

Name	Description	File	Type	Started	Start Mode
State	Status	Error Control	Accept Pause	Accept Pause	Accept Stop
abiosdsk Disabled	Abiosdsk Stopped	Not Available OK Ignore	Kernel Driver No	No	No
acpi Boot	Microsoft ACPI Driver Running	c:\windows\system32\drivers\acpi.sys OK Normal	Kernel Driver No	Yes	Yes
acpiec Driver No	ACPIEC No	c:\windows\system32\drivers\acpiec.sys Disabled Stopped	Kernel Driver OK	Normal	No
adpu160m Disabled	adpu160m Stopped	Not Available OK Normal	Kernel Driver No	No	No
adpu320 Disabled	adpu320 Stopped	Not Available OK Normal	Kernel Driver No	No	No
afcnt Disabled	afcnt Stopped	Not Available OK Normal	Kernel Driver No	No	No
afd Auto	AFD Networking Support Environment Running	c:\windows\system32\drivers\afd.sys OK Normal	Kernel Driver No	Yes	Yes
aha154x Disabled	Aha154x Stopped	Not Available OK Normal	Kernel Driver No	No	No
aic78u2 Disabled	aic78u2 Stopped	Not Available OK Normal	Kernel Driver No	No	No
aic78xx Disabled	aic78xx Stopped	Not Available OK Normal	Kernel Driver No	No	No
aliide Disabled	AliIde Stopped	Not Available OK Normal	Kernel Driver No	No	No
asynctac Manual	RAS Asynchronous Media Driver Stopped	c:\windows\system32\drivers\asynctac.sys OK Normal	Kernel Driver No	No	No

i8042prt	i8042 Keyboard and PS/2 Mouse Port Driver	c:\windows\system32\drivers\i8042prt.sys	Kernel Driver	Yes	System	Running	OK	Normal	No	Yes	modem	Modem Driver	c:\windows\system32\drivers\modem.sys	Kernel Driver	No	Manual	Stopped	OK	Ignore	No	
ibmcomw	IBM (Version 5.13) Remote Supervisor Serial Port	c:\windows\system32\drivers\ibmcomw.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No	Yes	mouclass	Mouse Class Driver	c:\windows\system32\drivers\mouclass.sys	Kernel Driver	Yes	System	Running	OK	Normal	No	
ibmhpa	IBMHPA Driver	c:\windows\system32\drivers\ibmhpa.sys	Kernel Driver	No	Yes	Manual	Running	OK	Normal	No	mountmgr	Mount Point Manager	c:\windows\system32\drivers\mountmgr.sys	Kernel Driver	Yes	Boot	Running	OK	Normal	No	
ibmbspw	IBM (Version 5.13) Remote Supervisor + Mouse/Keyboard	c:\windows\system32\drivers\ibmbspw.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No	Yes	mraid35x	mraid35x Disabled	Not Available	Kernel Driver	No	OK	Normal	No	No	No	
iirsp	iirsp	Not Available	Kernel Driver	No	Disabled	Stopped	OK	Normal	No	No	mrxdav	WebDav Client Redirector	c:\windows\system32\drivers\mrxdav.sys	File System Driver	No	Manual	Stopped	OK	Normal	No	No
imapi	CD-Burning Filter Driver	c:\windows\system32\drivers\imapi.sys	Kernel Driver	No	System	Stopped	OK	Normal	No	No	mrxsmmb	MRXSMB Driver	c:\windows\system32\drivers\mrxsmmb.sys	File System Driver	Yes	System	Running	OK	Normal	No	
intelide	IntelIde	Not Available	Kernel Driver	No	Disabled	Stopped	OK	Normal	No	No	msfs	Msfs Driver	c:\windows\system32\drivers\msfs.sys	File System Driver	Yes	System	Running	OK	Normal	No	
ipfilterdriver	IP Traffic Filter Driver	c:\windows\system32\drivers\ipfltdrv.sys	Kernel Driver	No	Manual	Stopped	OK	Normal	No	No	mup	Mup Driver	c:\windows\system32\drivers\mup.sys	File System Driver	Yes	Boot	Running	OK	Normal	No	
ipinip	IP in IP Tunnel Driver	c:\windows\system32\drivers\ipinip.sys	Kernel Driver	Normal	No	No	No	Manual	Stopped	OK	ndis	NDIS System Driver	c:\windows\system32\drivers\ndis.sys	Kernel Driver	Yes	Boot	Running	OK	Normal	No	
ipnat	IP Network Address Translator	c:\windows\system32\drivers\ipnat.sys	Kernel Driver	No	Manual	Stopped	OK	Normal	No	No	ndistapi	Remote Access NDIS TAPI Driver	c:\windows\system32\drivers\ndistapi.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No	Yes
ipsec	IPSEC driver	c:\windows\system32\drivers\ipsec.sys	Kernel Driver	Normal	No	Yes	Yes	System	Running	OK	ndisuio	NDIS Usermode I/O Protocol	c:\windows\system32\drivers\ndisuio.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No	Yes
ipsraidn	ipsraidn	Not Available	Kernel Driver	No	Disabled	Stopped	OK	Normal	No	No	ndiswan	Remote Access NDIS WAN Driver	c:\windows\system32\drivers\ndiswan.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No	Yes
isapnp	PnP ISA/EISA Bus Driver	c:\windows\system32\drivers\isapnp.sys	Kernel Driver	Yes	Boot	Running	OK	Critical	No	Yes	ndproxy	NDIS Proxy	c:\windows\system32\drivers\ndproxy.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No	
kbdclass	Keyboard Class Driver	c:\windows\system32\drivers\kbdclass.sys	Kernel Driver	Yes	System	Running	OK	Normal	No	Yes	netbios	NetBIOS Interface	c:\windows\system32\drivers\netbios.sys	File System Driver	Yes	System	Running	OK	Normal	No	
ksecdd	KSecDD Driver	c:\windows\system32\drivers\ksecdd.sys	Kernel Driver	No	Yes	Boot	Running	OK	Normal	No	netbt	NetBios over Tcpip	c:\windows\system32\drivers\netbt.sys	Kernel Driver	Yes	System	Running	OK	Normal	No	
lp6nds35	lp6nds35	Not Available	Kernel Driver	No	Disabled	Stopped	OK	Normal	No	No	nfrd6m	IBM ServeRAID 6M Device Driver	c:\windows\system32\drivers\nfrd6m.sys	Kernel Driver	Yes	Boot	Running	OK	Normal	No	Yes
mf	mf Driver	c:\windows\system32\drivers\mf.sys	Kernel Driver	No	Yes	Manual	Running	OK	Normal	No	nfrd6mpf	IBM ServeRAID 6M Performance Driver	c:\windows\system32\drivers\nfrd6mpf.sys	Kernel Driver	Yes	Boot	Running	OK	Normal	No	Yes
mnmdd	mnmdd Driver	c:\windows\system32\drivers\mnmdd.sys	Kernel Driver	No	Yes	System	Running	OK	Ignore	No											

nfrd960 Disabled	nfrd960 Stopped	Not Available OK	Kernel Driver Normal	No No	No	q11080 Disabled	q11080 Stopped	Not Available OK	Kernel Driver Normal	No No	No
npfs Driver Yes	Npfs Yes	c:\windows\system32\drivers\npfs.sys System	Running OK	File System Normal	No	q110wnt Disabled	Q110wnt Stopped	Not Available OK	Kernel Driver Normal	No No	No
ntfs Driver Yes	Ntfs Yes	c:\windows\system32\drivers\ntfs.sys Disabled	Running OK	File System Normal	No	q112160 Disabled	q112160 Stopped	Not Available OK	Kernel Driver Normal	No No	No
null Driver Yes	Null Yes	c:\windows\system32\drivers\null.sys System	Running OK	Kernel Normal	No	q11240 Disabled	q11240 Stopped	Not Available OK	Kernel Driver Normal	No No	No
parport Driver No	Parport No	c:\windows\system32\drivers\parport.sys Manual	Stopped OK	Kernel Ignore	No	q11280 Disabled	q11280 Stopped	Not Available OK	Kernel Driver Normal	No No	No
partmgr Kernel Driver No	Partition Manager Yes	c:\windows\system32\drivers\partmgr.sys Boot	Running OK	Kernel Normal	No	q12100 Disabled	q12100 Stopped	Not Available OK	Kernel Driver Normal	No No	No
pci Kernel Driver No	PCI Bus Driver Yes	c:\windows\system32\drivers\pci.sys Boot	Running OK	Kernel Critical	No	q12200 Disabled	q12200 Stopped	Not Available OK	Kernel Driver Normal	No No	No
pciide Disabled	PCIIde Stopped	Not Available OK	Kernel Driver Normal	No No	No	q12300 Driver Yes	q12300 Yes	c:\windows\system32\drivers\q12300.sys Boot	Running OK	Kernel Normal	No
pcmcia Driver No	Pcmcia No	c:\windows\system32\drivers\pcmcia.sys Disabled	Stopped OK	Kernel Normal	No	qlvika Driver Yes	qlvika Yes	c:\windows\system32\drivers\qlvika.sys Auto	Running OK	Kernel Normal	No
pdcomp Manual	PDCOMP Stopped	Not Available OK	Kernel Driver Ignore	No No	No	rasacd System	Remote Access Auto Connection Driver Running	c:\windows\system32\drivers\rasacd.sys OK	Kernel Driver Normal	No Yes	Yes
pdframe No	PDFRAME Manual	Not Available Stopped	Kernel Driver OK	No No	No	rasl2tp Manual	WAN Miniport (L2TP) Running	c:\windows\system32\drivers\rasl2tp.sys OK	Kernel Driver Normal	No Yes	Yes
pdreli Manual	PDRELI Stopped	Not Available OK	Kernel Driver Ignore	No No	No	rasppoe Manual	Remote Access PPPOE Driver Running	c:\windows\system32\drivers\rasppoe.sys OK	Kernel Driver Normal	No Yes	Yes
pdrframe No	PDRFRAME Manual	Not Available Stopped	Kernel Driver OK	No No	No	raspti Kernel Driver No	Direct Parallel Yes	c:\windows\system32\drivers\raspti.sys Manual	Running OK	Kernel Normal	No
perc2 Disabled	perc2 Stopped	Not Available OK	Kernel Driver Normal	No No	No	rdbss Driver Yes	Rdbss Yes	c:\windows\system32\drivers\rdbss.sys System	Running OK	Kernel Normal	No
perc2hib Disabled	perc2hib Stopped	Not Available OK	Kernel Driver Normal	No No	No	rdpcdd Driver Yes	RDPCDD Yes	c:\windows\system32\drivers\rdpcdd.sys System	Running OK	Kernel Ignore	No
pnpmem Manual	Microsoft Memory Module Driver Running	c:\windows\system32\drivers\pnpmem.sys OK	Kernel Driver Normal	No Yes	Yes	rdpdr Manual	Terminal Server Device Redirector Driver Running	c:\windows\system32\drivers\rdpdr.sys OK	Kernel Driver Normal	No Yes	Yes
pptpminiport Manual	WAN Miniport (PPTP) Running	c:\windows\system32\drivers\raspttp.sys OK	Kernel Driver Normal	No Yes	Yes	rdpwd Driver No	RDPWD No	c:\windows\system32\drivers\rdpwd.sys Manual	Stopped OK	Kernel Ignore	No
processor Kernel Driver No	Processor Driver Yes	c:\windows\system32\drivers\processr.sys Manual	Running OK	Kernel Normal	No	redbook System	Digital CD Audio Playback Filter Driver Running	c:\windows\system32\drivers\redbook.sys OK	Kernel Driver Normal	No Yes	Yes
ptilink Manual	Direct Parallel Link Driver Running	c:\windows\system32\drivers\ptilink.sys OK	Kernel Driver Normal	No Yes	Yes	secdrv Driver No	Secdrv No	c:\windows\system32\drivers\secdrv.sys Manual	Stopped OK	Kernel Normal	No

serial Driver No	Serial No	c:\windows\system32\drivers\serial.sys	Kernel Driver No	usbhub Kernel Driver No	USB2 Enabled Hub Yes	c:\windows\system32\drivers\usbhub.sys	Kernel Driver No	Manual Running OK	Normal
sfloppy Driver No	Sfloppy No	c:\windows\system32\drivers\sfloppy.sys	Kernel Driver No	usbuhci Kernel Driver Manual	Microsoft USB Universal Host Controller Miniport Driver	c:\windows\system32\drivers\usbuhci.sys	Kernel Driver Yes	Running OK Normal	No Yes
simbad Disabled	Simbad Stopped	Not Available OK	Kernel Driver No	vgasave Kernel Driver System	VGA Display Controller.	c:\windows\system32\drivers\vga.sys	Kernel Driver Yes	Running OK Ignore	No Yes
sparrow Disabled	Sparrow Stopped	Not Available OK	Kernel Driver No	viaide Kernel Driver Yes	ViaIde	c:\windows\system32\drivers\viaide.sys	Kernel Driver No	Running OK Normal	No
srv Driver Yes	Srv Yes	c:\windows\system32\drivers\srv.sys	File System Driver No	volsnap Kernel Driver No	Storage volumes Yes	c:\windows\system32\drivers\volsnap.sys	Kernel Driver No	Running OK	Normal
swenum Kernel Driver No	Software Bus Driver Yes	c:\windows\system32\drivers\swenum.sys	Kernel Driver Normal	wanarp Kernel Driver Manual	Remote Access IP ARP Driver	c:\windows\system32\drivers\wanarp.sys	Kernel Driver Yes	Running OK Normal	No Yes
symc810 Disabled	symc810 Stopped	Not Available OK	Kernel Driver No	wdica Kernel Driver Manual	WDICA	Not Available OK	Kernel Driver No	Ignore	No
symc8xx Disabled	symc8xx Stopped	Not Available OK	Kernel Driver No	wlbs Kernel Driver Manual	Network Load Balancing	c:\windows\system32\drivers\wlbs.sys	Kernel Driver No	Running OK Normal	No
symmpi Driver Yes	symmpi Yes	c:\windows\system32\drivers\symmpi.sys	Kernel Driver No	[Signed Drivers]					
sym_hi Disabled	sym_hi Stopped	Not Available OK	Kernel Driver No	Device Name Signed Device Class Driver Version Driver Date Manufacturer INF Name Driver Name Device ID					
tcpip System	TCP/IP Protocol Driver Running	c:\windows\system32\drivers\tcpip.sys	Kernel Driver Yes	Not Available Not Available Not Available Not Available Not Available Not Available Not Available Not Available Not Available HTREE\ROOT\0					
tdpipe Driver No	TDPIPE No	c:\windows\system32\drivers\tdpipe.sys	Kernel Driver No	ACPI Multiprocessor Node No COMPUTER 1.32.0.0 4/14/2002 (Node-based Computers) oem0.inf Not Available ROOT\ACPI_HAL\0000					
tdtcp Driver No	TDTCP No	c:\windows\system32\drivers\tdtcp.sys	Kernel Driver No	Microsoft ACPI-Compliant System Yes SYSTEM 5.2.3790.0 10/1/2002 Microsoft acpi.inf Not Available ACPI_HAL\PNP0C08\0					
termdd System	Terminal Device Driver Running	c:\windows\system32\drivers\termdd.sys	Kernel Driver Yes	IBM Active PCI Device Yes SYSTEM 5.1.1.1 2/7/2003 IBM Corporation oem2.inf Not Available ACPI\IBM37D4\2&DABA3FF&0					
toside Disabled	TosIde Stopped	Not Available OK	Kernel Driver No	PCI bus Yes SYSTEM 5.2.3790.0 10/1/2002 (Standard system devices) machine.inf Not Available ACPI\PNP0A03\0					
udfs Driver No	Udfs No	c:\windows\system32\drivers\udfs.sys	File System Driver No	PCI standard host CPU bridge Yes SYSTEM 5.2.3790.0 10/1/2002 (Standard system devices) machine.inf Not Available PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_05\3&267A616A&0&00					
ultra Disabled	ultra Stopped	Not Available OK	Kernel Driver No	RAGE XL PCI No DISPLAY 5.0.2195.5012 12/28/2001 ATI Technologies Inc. oem7.inf Not Available PCI\VEN_1002&DEV_4752&SUBSYS_02401014&REV_27\3&267A616A&0&18					
update Manual	Microcode Update Driver Running	c:\windows\system32\drivers\update.sys	Kernel Driver Yes						

Default Monitor Yes MONITOR 5.1.2001.0 6/6/2001 (Standard monitor types) monitor.inf Not Available DISPLAYDEFAULT_MONITOR\4&F17EA7B&0&80000000&00&03

IBM (Version 5.13) Remote Supervisor+Serial Port+Mouse/Keyboard No MULTIFUNCTION 5.13.0.0 2/13/2003 IBM oem3.inf Not Available PCI\VEN_1014&DEV_010F&SUBSYS_01131014&REV_00\3&267A616A&0&20

IBM (Version 5.13) Remote Supervisor + Mouse/Keyboard No SYSTEM 5.13.0.0 2/13/2003 IBM oem4.inf Not Available MF\PCI#VEN_1014&DEV_010F&SUBSYS_01131014&REV_00\4&20A2B2&0&20#CHILD0002

IBM (Version 5.13) Remote Supervisor Serial Port No PORTS 5.13.0.0 2/13/2003 IBM oem5.inf Not Available MF\PCI#VEN_1014&DEV_010F&SUBSYS_01131014&REV_00\4&20A2B2&0&20#CHILD0001

VIA Tech PCI to ISA bridge Yes SYSTEM 5.2.3790.0 10/1/2002 VIA machine.inf Not Available PCI\VEN_1106&DEV_0686&SUBSYS_00000000&REV_40\3&267A616A&0&28

ISAPNP Read Data Port (Standard system devices) Yes SYSTEM 5.2.3790.0 10/1/2002 machine.inf Not Available ISAPNP\READDATAPORT\0

Motherboard resources (Standard system devices) Yes SYSTEM 5.2.3790.0 10/1/2002 machine.inf Not Available ACPI\PNP0C02\2

Standard 101/102-Key or Microsoft Natural PS/2 Keyboard Yes KEYBOARD 5.2.3790.0 10/1/2002 (Standard keyboards) keyboard.inf Not Available ACPI\PNP0303\4&7FD7688&0

PS/2 Compatible Mouse Yes MOUSE 5.2.3790.0 10/1/2002 Microsoft msmouse.inf Not Available ACPI\PNP0F13\4&7FD7688&0

Standard floppy disk controller (Standard floppy disk controllers) Yes FDC 5.2.3790.0 10/1/2002 fdm.inf Not Available ACPI\PNP0700\4&7FD7688&0

Floppy disk drive (Standard floppy disk drives) Yes FLOPPYDISK 5.2.3790.0 10/1/2002 floppydisk.inf Not Available FDC\GENERIC_FLOPPY_DRIVE\5&17D92A40&0&0

Advanced programmable interrupt controller (Standard system devices) Yes SYSTEM 5.2.3790.0 10/1/2002 machine.inf Not Available Available ACPI\PNP0003\4&7FD7688&0

Direct memory access controller (Standard system devices) Yes SYSTEM 5.2.3790.0 10/1/2002 machine.inf Not Available ACPI\PNP0200\4&7FD7688&0

System timer (Standard system devices) Yes SYSTEM 5.2.3790.0 10/1/2002 machine.inf Not Available ACPI\PNP0100\4&7FD7688&0

System CMOS/real time clock (Standard system devices) Yes SYSTEM 5.2.3790.0 10/1/2002 machine.inf Not Available ACPI\PNP0B00\4&7FD7688&0

System speaker (Standard system devices) Yes SYSTEM 5.2.3790.0 10/1/2002 machine.inf Not Available ACPI\PNP0800\4&7FD7688&0

Numeric data processor (Standard system devices) Yes SYSTEM 5.2.3790.0 10/1/2002 machine.inf Not Available ACPI\PNP0C04\4&7FD7688&0

Motherboard resources (Standard system devices) Yes SYSTEM 5.2.3790.0 10/1/2002 machine.inf Not Available ACPI\PNP0C02\3

VIA Bus Master IDE Controller (Standard system devices) Yes HDC 5.2.3790.0 10/1/2002 VIA Technologies, Inc. mshdc.inf Not Available PCI\VEN_1106&DEV_0571&SUBSYS_02A61014&REV_06\3&267A616A&0&29

Primary IDE Channel (Standard IDE ATA/ATAPI controllers) Yes HDC 5.2.3790.0 10/1/2002 mshdc.inf Not Available PCI\IDE\IDECHANNEL\4&29582549&0&0

CD-ROM Drive (Standard CD-ROM drives) Yes CDROM 5.2.3790.0 10/1/2002 IDE\CDROMHL-DT-ST_DVD-ROM_GDR8081N_0012_5&CBC355F&0&0.0.0

Secondary IDE Channel (Standard IDE ATA/ATAPI controllers) Yes HDC 5.2.3790.0 10/1/2002 mshdc.inf Not Available PCI\IDE\IDECHANNEL\4&29582549&0&0

VIA Rev 5 or later USB Universal Host Controller (Standard system devices) Yes USB 5.2.3790.0 10/1/2002 VIA Technologies usbport.inf Not Available PCI\VEN_1106&DEV_3038&SUBSYS_02A61014&REV_16\3&267A616A&0&2A

USB Root Hub (Standard USB Host Controller) Yes USB 5.2.3790.0 10/1/2002 usbport.inf Not Available USB\ROOT_HUB\4&226DFD17&0

VIA Rev 5 or later USB Universal Host Controller (Standard system devices) Yes USB 5.2.3790.0 10/1/2002 VIA Technologies usbport.inf Not Available PCI\VEN_1106&DEV_3038&SUBSYS_02A61014&REV_16\3&267A616A&0&2B

USB Root Hub (Standard USB Host Controller) Yes USB 5.2.3790.0 10/1/2002 usbport.inf Not Available USB\ROOT_HUB\4&3527ADBC&0

VIA Tech Power Management controller (Standard system devices) Yes SYSTEM 5.2.3790.0 10/1/2002 VIA machine.inf Not Available PCI\VEN_1106&DEV_3057&SUBSYS_02A61014&REV_40\3&267A616A&0&2C

System board (Standard system devices) Yes SYSTEM 5.2.3790.0 10/1/2002 machine.inf Not Available ACPI\PNP0C01\1

ACPI Fixed Feature Button (Standard system devices) Yes SYSTEM 5.2.3790.0 10/1/2002 machine.inf Not Available ACPI\FIXEDBUTTON\2&DABA3FF&0

Processor (Standard processor types) Yes PROCESSOR 5.2.3790.0 10/1/2002 cpu.inf Not Available ACPI\GENUINEINTEL_-_X86_FAMILY_15_MODEL_2_0

Processor (Standard processor types) Yes PROCESSOR 5.2.3790.0 10/1/2002 cpu.inf Not Available ACPI\GENUINEINTEL_-_X86_FAMILY_15_MODEL_2_1

Processor Yes processor types)	PROCESSOR cpu.inf	5.2.3790.0 Not Available	10/1/2002 (Standard)	ACPI\GENUINEINTEL_-X86_FAMILY_15_MODEL_2\2	Broadcom NetXtreme Gigabit Ethernet 2/17/2003 Broadcom oem1.inf	Yes Not Available	NET	6.34.0.0
Processor Yes processor types)	PROCESSOR cpu.inf	5.2.3790.0 Not Available	10/1/2002 (Standard)	ACPI\GENUINEINTEL_-X86_FAMILY_15_MODEL_2\3	Broadcom NetXtreme Gigabit Ethernet 2/17/2003 Broadcom oem1.inf	Yes Not Available	NET	6.34.0.0
Processor Yes processor types)	PROCESSOR cpu.inf	5.2.3790.0 Not Available	10/1/2002 (Standard)	ACPI\GENUINEINTEL_-X86_FAMILY_15_MODEL_2\4	PCI bus machine.inf	Yes Not Available	SYSTEM	5.2.3790.0 10/1/2002 (Standard system devices)
Processor Yes processor types)	PROCESSOR cpu.inf	5.2.3790.0 Not Available	10/1/2002 (Standard)	ACPI\GENUINEINTEL_-X86_FAMILY_15_MODEL_2\5	PCI standard host CPU bridge (Standard system devices)	Yes Not Available	SYSTEM	5.2.3790.0 10/1/2002
Processor Yes processor types)	PROCESSOR cpu.inf	5.2.3790.0 Not Available	10/1/2002 (Standard)	ACPI\GENUINEINTEL_-X86_FAMILY_15_MODEL_2\6	PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_05\3&1070020&0&00	Yes Not Available	SYSTEM	5.2.3790.0 10/1/2002
Memory Module memory.inf	Yes Not Available	MEMORY5.2.3790.0 ACPI\PNP0C80\0	10/1/2002 (Standard)	Microsoft	PCI standard PCI-to-PCI bridge (Standard system devices)	Yes Not Available	SYSTEM	5.2.3790.0 10/1/2002
PCI bus devices)	Yes machine.inf	SYSTEM 5.2.3790.0 Not Available	10/1/2002 (Standard system devices)	ACPI\PNP0A03\1	PCI\VEN_1014&DEV_01A7&SUBSYS_00000000&REV_02\3&1070020&0&08	Yes Not Available	SYSTEM	5.2.3790.0 10/1/2002
PCI standard host CPU bridge (Standard system devices)	Yes machine.inf	SYSTEM 5.2.3790.0 Not Available	10/1/2002 (Standard system devices)	PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_05\3&13C0B0C5&0&00	IBM ServeRAID 6M Controller 4/30/2003 IBM Corporation oem8.inf	No Not Available	SCSIADAPTER	6.8.6.0
LSI Logic 1020/1030 Ultra320 SCSI Adapter SCSIADAPTER	1.8.23.0 Not Available	12/10/2002 LSI Logic oem6.inf	No	PCI\VEN_1000&DEV_0030&SUBSYS_02921014&REV_07\3&13C0B0C5&0&18	IBM scsidev.inf	Yes Not Available	SYSTEM	5.2.3790.0 10/1/2002
Disk drive disk drives)	Yes disk.inf	DISKDRIVE 5.2.3790.0 Not Available	10/1/2002 (Standard disk drives)	SCSI\DISK&VEN_IBM&PROD_DTN036C3UCDY10FN&REV_S23\4&3CF91A&0&000	SCSI Processor Device IBM	Yes Not Available	SYSTEM	5.2.3790.0 10/1/2002
SCSI Processor Device IBM	Yes scsidev.inf	SYSTEM 5.2.3790.0 Not Available	10/1/2002 (Standard system devices)	SCSI\PROCESSOR&VEN_IBM&PROD_EXP300__S160&REV_D014\5&1ECB5FAB&0&1F0	SCSI Processor Device IBM	Yes Not Available	SYSTEM	5.2.3790.0 10/1/2002
IBM Dummy Device scsidev.inf	Yes Not Available	SYSTEM 5.2.3790.0 Not Available	10/1/2002 (Standard system devices)	SCSI\BRIDGE&VEN_IBM&PROD_DUMMY_DEVICE&REV_6.08\5&1ECB5FAB&0&300	SCSI Processor Device IBM	Yes Not Available	SYSTEM	5.2.3790.0 10/1/2002
LSI Logic 1020/1030 Ultra320 SCSI Adapter SCSIADAPTER	1.8.23.0 Not Available	12/10/2002 LSI Logic oem6.inf	No	PCI\VEN_1014&DEV_01A7&SUBSYS_00000000&REV_02\3&1070020&0&10	IBM Dummy Device scsidev.inf	Yes Not Available	SYSTEM	5.2.3790.0 10/1/2002
IBM Dummy Device scsidev.inf	Yes Not Available	SYSTEM 5.2.3790.0 Not Available	10/1/2002 (Standard system devices)	IBM ServeRAID 6M Controller 4/30/2003 IBM Corporation oem8.inf	No Not Available	SCSIADAPTER	6.8.6.0	
Disk drive disk drives)	Yes disk.inf	DISKDRIVE 5.2.3790.0 Not Available	10/1/2002 (Standard disk drives)	SCSI\DISK&VEN_IBM&PROD_SERVERAID&REV_6.08\5&18834900&0&00	IBM ServeRAID 6M Controller 4/30/2003 IBM Corporation oem8.inf	No Not Available	SCSIADAPTER	6.8.6.0
SCSI Processor Device IBM	Yes scsidev.inf	SYSTEM 5.2.3790.0 Not Available	10/1/2002 (Standard system devices)	SCSI\BRIDGE&VEN_IBM&PROD_DUMMY_DEVICE&REV_4.80\4&3CF91A&0&100	IBM Dummy Device scsidev.inf	Yes Not Available	SYSTEM	5.2.3790.0 10/1/2002
IBM Dummy Device scsidev.inf	Yes Not Available	SYSTEM 5.2.3790.0 Not Available	10/1/2002 (Standard system devices)	LSI Logic 1020/1030 Ultra320 SCSI Adapter SCSIADAPTER	1.8.23.0 Not Available	12/10/2002 LSI Logic oem6.inf	No	
Disk drive disk drives)	Yes disk.inf	DISKDRIVE 5.2.3790.0 Not Available	10/1/2002 (Standard disk drives)	PCI\VEN_1000&DEV_0030&SUBSYS_02921014&REV_07\3&13C0B0C5&0&19	IBM Dummy Device scsidev.inf	Yes Not Available	SYSTEM	5.2.3790.0 10/1/2002
SCSI Processor Device IBM	Yes scsidev.inf	SYSTEM 5.2.3790.0 Not Available	10/1/2002 (Standard system devices)	IBM Dummy Device scsidev.inf	Yes Not Available	SYSTEM	5.2.3790.0 10/1/2002	IBM

SCSI Processor Device	Yes	SYSTEM	5.2.3790.0	10/1/2002	PCI\VEN_1014&DEV_01A7&SUBSYS_00000000&REV_02\3&172E68DD&0&18
IBM scsidev.inf	Not Available				
SCSI\PROCESSOR&VEN_IBM&PROD_EXP300__S160&REV_D014\5&18834900&0&1F0					
SCSI Processor Device	Yes	SYSTEM	5.2.3790.0	10/1/2002	IBM ServeRAID 6M Controller No SCSIADAPTER 6.8.6.0
IBM scsidev.inf	Not Available				4/30/2003 IBM Corporation oem8.inf Not Available
SCSI\PROCESSOR&VEN_IBM&PROD_EXP300__S160&REV_D014\5&18834900&0&2F0					PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&14F365D1&0&4018
IBM Dummy Device	Yes	SYSTEM	5.2.3790.0	10/1/2002	Disk drive Yes DISKDRIVE 5.2.3790.0 10/1/2002 (Standard disk drives) disk.inf Not Available
scsidev.inf	Not Available				SCSI\DISK&VEN_IBM&PROD_SERVERAID&REV_6.08\5&1D86B3A9&0&000
SCSI\BRIDGE&VEN_IBM&PROD_DUMMY_DEVICE&REV_6.08\5&18834900&0&300					Disk drive Yes DISKDRIVE 5.2.3790.0 10/1/2002 (Standard disk drives) disk.inf Not Available
PCI bus	Yes	SYSTEM	5.2.3790.0	10/1/2002	SCSI\DISK&VEN_IBM&PROD_SERVERAID&REV_6.08\5&1D86B3A9&0&010
(Standard system devices)	machine.inf	Not Available			SCSI\PROCESSOR Device Yes SYSTEM 5.2.3790.0 10/1/2002
					IBM scsidev.inf Not Available
					SCSI\PROCESSOR&VEN_IBM&PROD_EXP300__S160&REV_D014\5&1D86B3A9&0&1F0
PCI standard host CPU bridge	Yes	SYSTEM	5.2.3790.0	10/1/2002	SCSI Processor Device Yes SYSTEM 5.2.3790.0 10/1/2002
(Standard system devices)	machine.inf	Not Available			IBM scsidev.inf Not Available
PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_05\3&29E81982&0&00					SCSI\PROCESSOR&VEN_IBM&PROD_EXP300__S160&REV_D014\5&1D86B3A9&0&2F0
PCI standard PCI-to-PCI bridge	Yes	SYSTEM	5.2.3790.0	10/1/2002	IBM Dummy Device Yes SYSTEM 5.2.3790.0 10/1/2002
(Standard system devices)	machine.inf	Not Available			scsidev.inf Not Available
PCI\VEN_1014&DEV_01A7&SUBSYS_00000000&REV_02\3&29E81982&0&20					SCSI\BRIDGE&VEN_IBM&PROD_DUMMY_DEVICE&REV_6.08\5&1D86B3A9&0&300
IBM ServeRAID 6M Controller	No	SCSIADAPTER	6.8.6.0		PCI bus Yes SYSTEM 5.2.3790.0 10/1/2002 (Standard system devices) machine.inf Not Available ACPI\PNP0A03\5
4/30/2003 IBM Corporation	oem8.inf	Not Available			
PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&180CD7A4&0&4020					PCI standard host CPU bridge Yes SYSTEM 5.2.3790.0 10/1/2002 (Standard system devices) machine.inf Not Available
Disk drive	Yes	DISKDRIVE	5.2.3790.0	10/1/2002	PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_05\3&474B838&0&00
(Standard disk drives)	disk.inf	Not Available			PCI standard PCI-to-PCI bridge Yes SYSTEM 5.2.3790.0 10/1/2002 (Standard system devices) machine.inf Not Available
SCSI\DISK&VEN_IBM&PROD_SERVERAID&REV_6.08\5&35EFC5FC&0&000					PCI\VEN_1014&DEV_01A7&SUBSYS_00000000&REV_02\3&474B838&0&08
Disk drive	Yes	DISKDRIVE	5.2.3790.0	10/1/2002	IBM ServeRAID 6M Controller No SCSIADAPTER 6.8.6.0
(Standard disk drives)	disk.inf	Not Available			4/30/2003 IBM Corporation oem8.inf Not Available
SCSI\DISK&VEN_IBM&PROD_SERVERAID&REV_6.08\5&35EFC5FC&0&010					PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&27CC8076&0&4008
SCSI Processor Device	Yes	SYSTEM	5.2.3790.0	10/1/2002	Disk drive Yes DISKDRIVE 5.2.3790.0 10/1/2002 (Standard disk drives) disk.inf Not Available
IBM scsidev.inf	Not Available				SCSI\DISK&VEN_IBM&PROD_SERVERAID&REV_6.08\5&2AEF9AA8&0&000
SCSI\PROCESSOR&VEN_IBM&PROD_EXP300__S160&REV_D014\5&35EFC5FC&0&1F0					Disk drive Yes DISKDRIVE 5.2.3790.0 10/1/2002 (Standard disk drives) disk.inf Not Available
SCSI Processor Device	Yes	SYSTEM	5.2.3790.0	10/1/2002	SCSI\DISK&VEN_IBM&PROD_SERVERAID&REV_6.08\5&2AEF9AA8&0&010
IBM scsidev.inf	Not Available				SCSI Processor Device Yes SYSTEM 5.2.3790.0 10/1/2002
SCSI\PROCESSOR&VEN_IBM&PROD_EXP300__S160&REV_D014\5&35EFC5FC&0&2F0					IBM scsidev.inf Not Available
IBM Dummy Device	Yes	SYSTEM	5.2.3790.0	10/1/2002	SCSI\PROCESSOR&VEN_IBM&PROD_EXP300__S160&REV_D014\5&2AEF9AA8&0&1F0
scsidev.inf	Not Available				SCSI Processor Device Yes SYSTEM 5.2.3790.0 10/1/2002
SCSI\BRIDGE&VEN_IBM&PROD_DUMMY_DEVICE&REV_6.08\5&35EFC5FC&0&300					IBM scsidev.inf Not Available
PCI bus	Yes	SYSTEM	5.2.3790.0	10/1/2002	
(Standard system devices)	machine.inf	Not Available			
PCI standard host CPU bridge	Yes	SYSTEM	5.2.3790.0	10/1/2002	
(Standard system devices)	machine.inf	Not Available			
PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_05\3&172E68DD&0&00					
PCI standard PCI-to-PCI bridge	Yes	SYSTEM	5.2.3790.0	10/1/2002	
(Standard system devices)	machine.inf	Not Available			

SCSI\PROCESSOR&VEN_IBM&PROD_EXP300___S160&REV_D014\5&2
AEF9AA8&0&2F0

IBM Dummy Device Yes SYSTEM 5.2.3790.0 10/1/2002 IBM
scsidev.inf Not Available
SCSI\BRIDGE&VEN_IBM&PROD_DUMMY_DEVICE&REV_6.08\5&2AE
F9AA8&0&300

PCI standard PCI-to-PCI bridge Yes SYSTEM 5.2.3790.0 10/1/2002
(Standard system devices) machine.inf Not Available
PCI\VEN_1014&DEV_01A7&SUBSYS_00000000&REV_02\3&474B838&0
&10

IBM ServeRAID 6M Controller No SCSIADAPTER 6.8.6.0
4/30/2003 IBM Corporation oem8.inf Not Available
PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&8C37DC5&0
&4010

Disk drive Yes DISKDRIVE 5.2.3790.0 10/1/2002 (Standard
disk drives) disk.inf Not Available
SCSI\DISK&VEN_IBM&PROD_SERVERAID&REV_6.08\5&F3D1498&0&
000

Disk drive Yes DISKDRIVE 5.2.3790.0 10/1/2002 (Standard
disk drives) disk.inf Not Available
SCSI\DISK&VEN_IBM&PROD_SERVERAID&REV_6.08\5&F3D1498&0&
010

SCSI Processor Device Yes SYSTEM 5.2.3790.0 10/1/2002
IBM scsidev.inf Not Available
SCSI\PROCESSOR&VEN_IBM&PROD_EXP300___S160&REV_D014\5&F
3D1498&0&1F0

SCSI Processor Device Yes SYSTEM 5.2.3790.0 10/1/2002
IBM scsidev.inf Not Available
SCSI\PROCESSOR&VEN_IBM&PROD_EXP300___S160&REV_D014\5&F
3D1498&0&2F0

IBM Dummy Device Yes SYSTEM 5.2.3790.0 10/1/2002 IBM
scsidev.inf Not Available
SCSI\BRIDGE&VEN_IBM&PROD_DUMMY_DEVICE&REV_6.08\5&F3D
1498&0&300

Motherboard resources Yes SYSTEM 5.2.3790.0 10/1/2002
(Standard system devices) machine.inf Not Available
ACPI\PNP0C02\10

PCI bus Yes SYSTEM 5.2.3790.0 10/1/2002 (Standard system
devices) machine.inf Not Available ACPI\PNP0A03\80

PCI standard host CPU bridge Yes SYSTEM 5.2.3790.0 10/1/2002
(Standard system devices) machine.inf Not Available
PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_03\3&389E99D&0
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PCI standard PCI-to-PCI bridge Yes SYSTEM 5.2.3790.0 10/1/2002
(Standard system devices) machine.inf Not Available
PCI\VEN_1014&DEV_01A7&SUBSYS_00000000&REV_02\3&389E99D&0
&10

IBM ServeRAID 6M Controller No SCSIADAPTER 6.8.6.0
4/30/2003 IBM Corporation oem8.inf Not Available
PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&23B656E&0
&4010

Disk drive Yes DISKDRIVE 5.2.3790.0 10/1/2002 (Standard
disk drives) disk.inf Not Available

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Disk drive Yes DISKDRIVE 5.2.3790.0 10/1/2002 (Standard
disk drives) disk.inf Not Available
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SCSI Processor Device Yes SYSTEM 5.2.3790.0 10/1/2002
IBM scsidev.inf Not Available
SCSI\PROCESSOR&VEN_IBM&PROD_EXP300___S160&REV_D014\5&3
490684C&0&1F0

SCSI Processor Device Yes SYSTEM 5.2.3790.0 10/1/2002
IBM scsidev.inf Not Available
SCSI\PROCESSOR&VEN_IBM&PROD_EXP300___S160&REV_D014\5&3
490684C&0&2F0

IBM Dummy Device Yes SYSTEM 5.2.3790.0 10/1/2002 IBM
scsidev.inf Not Available
SCSI\BRIDGE&VEN_IBM&PROD_DUMMY_DEVICE&REV_6.08\5&3490
684C&0&300

PCI bus Yes SYSTEM 5.2.3790.0 10/1/2002 (Standard system
devices) machine.inf Not Available ACPI\PNP0A03\81

PCI standard host CPU bridge Yes SYSTEM 5.2.3790.0 10/1/2002
(Standard system devices) machine.inf Not Available
PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_03\3&F2FC708&0
&00

PCI standard PCI-to-PCI bridge Yes SYSTEM 5.2.3790.0 10/1/2002
(Standard system devices) machine.inf Not Available
PCI\VEN_1014&DEV_01A7&SUBSYS_00000000&REV_02\3&F2FC708&0
&10

IBM ServeRAID 6M Controller No SCSIADAPTER 6.8.6.0
4/30/2003 IBM Corporation oem8.inf Not Available
PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&2952CC5&0
&4010

Disk drive Yes DISKDRIVE 5.2.3790.0 10/1/2002 (Standard
disk drives) disk.inf Not Available
SCSI\DISK&VEN_IBM&PROD_SERVERAID&REV_6.08\5&13C9572A&0
&000

Disk drive Yes DISKDRIVE 5.2.3790.0 10/1/2002 (Standard
disk drives) disk.inf Not Available
SCSI\DISK&VEN_IBM&PROD_SERVERAID&REV_6.08\5&13C9572A&0
&010

SCSI Processor Device Yes SYSTEM 5.2.3790.0 10/1/2002
IBM scsidev.inf Not Available
SCSI\PROCESSOR&VEN_IBM&PROD_EXP300___S160&REV_D014\5&1
3C9572A&0&1F0

SCSI Processor Device Yes SYSTEM 5.2.3790.0 10/1/2002
IBM scsidev.inf Not Available
SCSI\PROCESSOR&VEN_IBM&PROD_EXP300___S160&REV_D014\5&1
3C9572A&0&2F0

IBM Dummy Device Yes SYSTEM 5.2.3790.0 10/1/2002 IBM
scsidev.inf Not Available
SCSI\BRIDGE&VEN_IBM&PROD_DUMMY_DEVICE&REV_6.08\5&13C9
572A&0&300

PCI bus Yes SYSTEM 5.2.3790.0 10/1/2002 (Standard system
devices) machine.inf Not Available ACPI\PNP0A03\82

PCI standard host CPU bridge (Standard system devices)	Yes	SYSTEM	5.2.3790.0	10/1/2002	machine.inf	Not Available	PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_03\3&21E977AD&0&00
QLogic QLA23xx PCI Fibre Channel Adapter	No				QLogic	oem9.inf	
SCSIADAPTER	8.2.0.0	10/22/2002					PCI\VEN_1077&DEV_2312&SUBSYS_010C1077&REV_02\3&21E977AD&0&08
Qlogic processor device	Yes	SYSTEM	5.2.3790.0	10/1/2002			
QLOGIC	scsidev.inf	Not Available					
SCSIPROCESSOR&VEN_QLOGIC&PROD_PSEUDO_LUN&REV_4&1A64A01B&0&07F0							
PCI standard PCI-to-PCI bridge (Standard system devices)	Yes	SYSTEM	5.2.3790.0	10/1/2002	machine.inf	Not Available	PCI\VEN_1014&DEV_01A7&SUBSYS_00000000&REV_02\3&21E977AD&0&10
IBM ServeRAID 6M Controller	No	SCSIADAPTER	6.8.6.0				
4/30/2003 IBM Corporation	oem8.inf	Not Available					PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&12D7BE27&0&4010
Disk drive (Standard disk drives)	Yes	DISKDRIVE	5.2.3790.0	10/1/2002	disk.inf	Not Available	SCSI\DISK&VEN_IBM&PROD_SERVERAID&REV_6.08\5&3B4BE8F8&0&000
Disk drive (Standard disk drives)	Yes	DISKDRIVE	5.2.3790.0	10/1/2002	disk.inf	Not Available	SCSI\DISK&VEN_IBM&PROD_SERVERAID&REV_6.08\5&3B4BE8F8&0&010
SCSI Processor Device	Yes	SYSTEM	5.2.3790.0	10/1/2002			
IBM	scsidev.inf	Not Available					SCSI\PROCESSOR&VEN_IBM&PROD_EXP300__S160&REV_D014\5&3B4BE8F8&0&1F0
SCSI Processor Device	Yes	SYSTEM	5.2.3790.0	10/1/2002			
IBM	scsidev.inf	Not Available					SCSI\PROCESSOR&VEN_IBM&PROD_EXP300__S160&REV_D014\5&3B4BE8F8&0&2F0
IBM Dummy Device	Yes	SYSTEM	5.2.3790.0	10/1/2002			
scsidev.inf	Not Available						SCSI\BRIDGE&VEN_IBM&PROD_DUMMY_DEVICE&REV_6.08\5&3B4BE8F8&0&300
Motherboard resources (Standard system devices)	Yes	SYSTEM	5.2.3790.0	10/1/2002	machine.inf	Not Available	ACPI\PNP0C02\20
PCI bus (Standard system devices)	Yes	SYSTEM	5.2.3790.0	10/1/2002	machine.inf	Not Available	ACPI\PNP0A03\88
PCI standard host CPU bridge (Standard system devices)	Yes	SYSTEM	5.2.3790.0	10/1/2002	machine.inf	Not Available	PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_03\3&32219A6E&0&00
PCI bus (Standard system devices)	Yes	SYSTEM	5.2.3790.0	10/1/2002	machine.inf	Not Available	ACPI\PNP0A03\89
PCI standard host CPU bridge (Standard system devices)	Yes	SYSTEM	5.2.3790.0	10/1/2002	machine.inf	Not Available	PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_03\3&1F67E9C9&0&00
PCI bus (Standard system devices)	Yes	SYSTEM	5.2.3790.0	10/1/2002	machine.inf	Not Available	ACPI\PNP0A03\8A
PCI standard host CPU bridge (Standard system devices)	Yes	SYSTEM	5.2.3790.0	10/1/2002	machine.inf	Not Available	PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_03\3&3ACAD158&0&00
Motherboard resources (Standard system devices)	Yes	SYSTEM	5.2.3790.0	10/1/2002	machine.inf	Not Available	ACPI\PNP0C02\21
Logical Disk Manager (Standard system devices)	Yes	SYSTEM	5.2.3790.0	10/1/2002	machine.inf	Not Available	ROOT\DMIO\0000
Volume Manager (Standard system devices)	Yes	SYSTEM	5.2.3790.0	10/1/2002	machine.inf	Not Available	ROOT\FTDISK\0000
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002		Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE97159715OFFSET7E00LENGTH878EE1200
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002		Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE17B2500AOFFSET204000LENGTH326A5FC000
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002		Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE17B2500AOFFSET326A804000LENGTH8C9FFC000
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002		Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519FB0FFSET204000LENGTH6F55FC000
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002		Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519FB0FFSET6F5804000LENGTH4075FC000
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002		Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519FB0FFSETAFCE04000LENGTH6B8B5FC000
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002		Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519FD0FFSET204000LENGTH6F55FC000
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002		Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519FD0FFSET6F5804000LENGTH4075FC000
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002		Not Available	

STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519F1OFFSETAFCE04000LENGTH6B8B5FC000	Generic volume	Yes	VOLUME 5.2.3790.0 10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519F9OFFSET6F5804000LENGTH4075FC000	Generic volume	Yes	VOLUME 5.2.3790.0 10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519F9OFFSETAFCE04000LENGTH6B8B5FC000
STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519F0OFFSET204000LENGTH6F55FC000	Generic volume	Yes	VOLUME 5.2.3790.0 10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519F0OFFSET6F5804000LENGTH4075FC000	AFD Networking Support Environment	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519F0OFFSETAFCE04000LENGTH6B8B5FC000	Generic volume	Yes	VOLUME 5.2.3790.0 10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519F0OFFSETAFCE04000LENGTH6B8B5FC000	Beep	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519FCOFFSET204000LENGTH6F55FC000	Generic volume	Yes	VOLUME 5.2.3790.0 10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519FCOFFSET204000LENGTH6F55FC000	CRC Disk Filter Driver	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519FCOFFSET6F5804000LENGTH4075FC000	Generic volume	Yes	VOLUME 5.2.3790.0 10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519FCOFFSET6F5804000LENGTH4075FC000	dmboot	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519FCOFFSETAFCE04000LENGTH6B8B5FC000	Generic volume	Yes	VOLUME 5.2.3790.0 10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519FCOFFSETAFCE04000LENGTH6B8B5FC000	dmload	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519FFOFFSET204000LENGTH6F55FC000	Generic volume	Yes	VOLUME 5.2.3790.0 10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519FFOFFSET204000LENGTH6F55FC000	Fips	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519FFOFFSET6F5804000LENGTH4075FC000	Generic volume	Yes	VOLUME 5.2.3790.0 10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519FFOFFSET6F5804000LENGTH4075FC000	Generic Packet Classifier	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519FFOFFSETAFCE04000LENGTH6B8B5FC000	Generic volume	Yes	VOLUME 5.2.3790.0 10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519FFOFFSETAFCE04000LENGTH6B8B5FC000	IPSEC driver	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519FFOFFSETAFCE04000LENGTH6B8B5FC000	Generic volume	Yes	VOLUME 5.2.3790.0 10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519FFOFFSETAFCE04000LENGTH6B8B5FC000	ksecdd	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519E6OFFSET204000LENGTH6F55FC000	Generic volume	Yes	VOLUME 5.2.3790.0 10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519E6OFFSET204000LENGTH6F55FC000	mnmd	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519E6OFFSET6F5804000LENGTH4075FC000	Generic volume	Yes	VOLUME 5.2.3790.0 10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519E6OFFSET6F5804000LENGTH4075FC000	mountmgr	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519E6OFFSETAFCE04000LENGTH6B8B5FC000	Generic volume	Yes	VOLUME 5.2.3790.0 10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519E6OFFSETAFCE04000LENGTH6B8B5FC000	NDIS System Driver	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519F9OFFSET204000LENGTH6F55FC000	Generic volume	Yes	VOLUME 5.2.3790.0 10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519F9OFFSET204000LENGTH6F55FC000	Remote Access NDIS TAPI Driver	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519F9OFFSET6F5804000LENGTH4075FC000	Generic volume	Yes	VOLUME 5.2.3790.0 10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519F9OFFSET6F5804000LENGTH4075FC000	NDIS Usermode I/O Protocol	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available

NDProxy Not Available LEGACYDRIVER Not Available
 Not Available Not Available Not Available Not
 Available ROOT\LEGACY_NDPROXY\0000

NetBios over Tcpip Not Available LEGACYDRIVER Not
 Available Not Available Not Available Not Available
 Not Available ROOT\LEGACY_NETBT\0000

Null Not Available LEGACYDRIVER Not Available
 Not Available Not Available Not Available Not
 Available ROOT\LEGACY_NULL\0000

Partition Manager Not Available LEGACYDRIVER Not
 Available Not Available Not Available Not Available
 Not Available ROOT\LEGACY_PARTMGR\0000

qlvika Not Available LEGACYDRIVER Not Available
 Not Available Not Available Not Available Not
 Available ROOT\LEGACY_QLVIKA\0000

Remote Access Auto Connection Driver Not Available
 LEGACYDRIVER Not Available Not Available Not
 Available Not Available Not Available
 ROOT\LEGACY_RASACD\0000

RDPCDD Not Available LEGACYDRIVER Not Available
 Not Available Not Available Not Available Not
 Available ROOT\LEGACY_RDPCDD\0000

TCP/IP Protocol Driver Not Available LEGACYDRIVER
 Not Available Not Available Not Available Not
 Available Not Available ROOT\LEGACY_TCPIP\0000

VGA Display Controller. Not Available LEGACYDRIVER
 Not Available Not Available Not Available Not
 Available Not Available ROOT\LEGACY_VGASAVE\0000

volsnap Not Available LEGACYDRIVER Not Available
 Not Available Not Available Not Available Not
 Available ROOT\LEGACY_VOLSNAPE\0000

Remote Access IP ARP Driver Not Available LEGACYDRIVER
 Not Available Not Available Not Available Not
 Available Not Available ROOT\LEGACY_WANARP\0000

Audio Codecs Yes MEDIA 5.2.3790.0 10/1/2002 (Standard
 system devices) wave.inf Not Available
 ROOT\MEDIA\MS_MMAMC

Legacy Audio Drivers Yes MEDIA 5.2.3790.0 10/1/2002 (Standard
 system devices) wave.inf Not Available
 ROOT\MEDIA\MS_MMDRV

Media Control Devices Yes MEDIA 5.2.3790.0 10/1/2002
 (Standard system devices) wave.inf Not Available
 ROOT\MEDIA\MS_MMMCI

Legacy Video Capture Devices Yes MEDIA 5.2.3790.0 10/1/2002
 (Standard system devices) wave.inf Not Available
 ROOT\MEDIA\MS_MMVCD

Video Codecs Yes MEDIA 5.2.3790.0 10/1/2002 (Standard
 system devices) wave.inf Not Available
 ROOT\MEDIA\MS_MMVID

WAN Miniport (L2TP) Yes NET 5.2.3790.0 10/1/2002
 Microsoft netrasa.inf Not Available
 ROOT\MS_L2TPMINIPORT\0000

WAN Miniport (IP) Yes NET 5.2.3790.0 10/1/2002 Microsoft
 netrasa.inf Not Available ROOT\MS_NDISWANIP\0000

WAN Miniport (PPPOE) Yes NET 5.2.3790.0 10/1/2002
 Microsoft netrasa.inf Not Available
 ROOT\MS_PPPOEMINIPORT\0000

WAN Miniport (PPTP) Yes NET 5.2.3790.0 10/1/2002
 Microsoft netrasa.inf Not Available
 ROOT\MS_PPTPMINIPORT\0000

Direct Parallel Yes NET 5.2.3790.0 10/1/2002 Microsoft
 netrasa.inf Not Available ROOT\MS_PTMINIPORT\0000

Terminal Server Device Redirector Yes SYSTEM 5.2.3790.0
 10/1/2002 (Standard system devices) machine.inf Not
 Available ROOT\RDPDR\0000

Terminal Server Keyboard Driver Yes SYSTEM 5.2.3790.0
 10/1/2002 (Standard system devices) machine.inf Not
 Available ROOT\RDP_KBD\0000

Terminal Server Mouse Driver Yes SYSTEM 5.2.3790.0 10/1/2002
 (Standard system devices) machine.inf Not Available
 ROOT\RDP_MOU\0000

Plug and Play Software Device Enumerator Yes SYSTEM 5.2.3790.0
 10/1/2002 (Standard system devices) machine.inf Not
 Available ROOT\SYSTEM\0000

Microcode Update Device Yes SYSTEM 5.2.3790.0 10/1/2002
 (Standard system devices) machine.inf Not Available
 ROOT\SYSTEM\0001

[Environment Variables]

Variable	Value	User Name
ClusterLog	C:\WINDOWS\Cluster\cluster.log	<SYSTEM>
ComSpec	%SystemRoot%\system32\cmd.exe	<SYSTEM>
NUMBER_OF_PROCESSORS	8	<SYSTEM>
OS	Windows_NT	<SYSTEM>
Path	%SystemRoot%\system32;%SystemRoot%;%SystemRoot%\System32\Wbem;c:\tools;c:\tools\util;c:\batfiles;C:\Program Files\Microsoft SQL Server\80\Tools\BINN	<SYSTEM>
PATHEXT	.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH	<SYSTEM>
PROCESSOR_ARCHITECTURE	x86	<SYSTEM>
PROCESSOR_IDENTIFIER	x86 Family 15 Model 2 Stepping 5, GenuineIntel	<SYSTEM>
PROCESSOR_LEVEL	15	<SYSTEM>
PROCESSOR_REVISION	0205	<SYSTEM>
TEMP	%SystemRoot%\TEMP	<SYSTEM>

TMP	%SystemRoot%\TEMP	<SYSTEM>	(srv03_rtm.030324-2048)	536.50 KB (549,376 bytes)	3/25/2003 7:00 AM
windir	%SystemRoot%	<SYSTEM>	services.exe	c:\windows\system32\services.exe	588 9
TEMP	%USERPROFILE%\Local Settings\Temp	NT	204800	1413120	10/10/2003 10:49 AM
AUTHORITY\SYSTEM			(srv03_rtm.030324-2048)	102.00 KB (104,448 bytes)	3/25/2003 7:00 AM
TMP	%USERPROFILE%\Local Settings\Temp	NT	lsass.exe	c:\windows\system32\lsass.exe	600 9 204800
AUTHORITY\SYSTEM			1413120	10/10/2003 10:49 AM	5.2.3790.0 (srv03_rtm.030324-2048)
TEMP	%USERPROFILE%\Local Settings\Temp	NT	13.00 KB (13,312 bytes)	3/25/2003 7:00 AM	
AUTHORITY\LOCAL SERVICE			svchost.exe	c:\windows\system32\svchost.exe	764 8
TMP	%USERPROFILE%\Local Settings\Temp	NT	204800	1413120	10/10/2003 10:49 AM
AUTHORITY\LOCAL SERVICE			(srv03_rtm.030324-2048)	13.00 KB (13,312 bytes)	3/25/2003 7:00 AM
TEMP	%USERPROFILE%\Local Settings\Temp	NT	svchost.exe	c:\windows\system32\svchost.exe	796 8
AUTHORITY\NETWORK SERVICE			204800	1413120	10/10/2003 10:49 AM
TMP	%USERPROFILE%\Local Settings\Temp	NT	(srv03_rtm.030324-2048)	13.00 KB (13,312 bytes)	3/25/2003 7:00 AM
AUTHORITY\NETWORK SERVICE			svchost.exe	Not Available	936 8 Not Available
TEMP	%USERPROFILE%\Local Settings\Temp		Available	Not Available	10/10/2003 10:49 AM
IBMSERV2\Administrator			Not Available	Not Available	
TMP	%USERPROFILE%\Local Settings\Temp		svchost.exe	Not Available	984 8 Not Available
IBMSERV2\Administrator			Available	Not Available	10/10/2003 10:49 AM
			Not Available	Not Available	
[Print Jobs]					
Document Size	Owner	Notify	Status	Time Submitted	
Start Time	Until Time	Elapsed Time	Pages Printed	Job ID	
Priority	Parameters	Driver	Print Processor	Host Print Queue	
Data Type	Name				
[Network Connections]					
Local Name	Remote Name	Type	Status	User Name	
[Running Tasks]					
Name	Path	Process ID	Priority	Min Working Set	Max
Working Set		Start Time	Version	Size	File Date
system idle process	Not Available	Not Available	0	0	Not Available
Available	Not Available	Not Available	Not Available	Not Available	
Not Available	Not Available				
system	Not Available	4	8	0	1413120
Not Available	Not Available	Not Available	Not Available	Not Available	
Available					
smss.exe	Not Available	472	11	204800	1413120
10/10/2003 10:49 AM	Not Available	Not Available	Not Available	Not Available	
Available					
csrss.exe	Not Available	520	13	Not Available	Not Available
Not Available	10/10/2003 10:49 AM	Not Available	Not Available	Not Available	
Available	Not Available				
winlogon.exe	c:\windows\system32\winlogon.exe			544	
13	204800	1413120	10/10/2003 10:49 AM	5.2.3790.0	
					(srv03_rtm.030324-2048)
					130.50 KB (133,632 bytes)
					3/25/2003 7:00 AM

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explorer.exe      c:\windows\explorer.exe      1916      8
204800 1413120 10/10/2003 10:49 AM 6.00.3790.0
(srv03_rtm.030324-2048)      1,008.50 KB (1,032,704 bytes) 3/25/2003
7:00 AM

wmiprvse.exe     Not Available      444      8      Not
Available Not Available      10/10/2003 10:50 AM Not Available
Not Available      Not Available

wpabaln.exe     c:\windows\system32\wpabaln.exe      976      8
204800 1413120 10/10/2003 10:51 AM 5.2.3790.0
(srv03_rtm.030324-2048)      31.00 KB (31,744 bytes)      3/25/2003
7:00 AM

cmd.exe c:\windows\system32\cmd.exe 1028      8      204800
1413120 10/10/2003 10:52 AM 5.2.3790.0 (srv03_rtm.030324-2048)
374.00 KB (382,976 bytes)      3/25/2003 7:00 AM

sqlservr.exe c:\program files\microsoft sql
server\mssql\binn\sqlservr.exe 1024      13      204800 1413120
10/10/2003 10:52 AM 2000.080.0761.00      7.11 MB (7,450,664 bytes)
10/3/2003 1:11 PM

isqlw.exe c:\program files\microsoft sql server\80\tools\binn\isqlw.exe
1744      8      204800 1413120 10/10/2003 10:53 AM
2000.080.0760.00      344.56 KB (352,828 bytes)      10/3/2003 1:11 PM

helpctr.exe c:\windows\pchealth\helpctr\binaries\helpctr.exe      272      8
204800 1413120 10/10/2003 11:12 AM 5.2.3790.0
(srv03_rtm.030324-2048)      764.00 KB (782,336 bytes)      10/3/2003
11:31 AM

wmiprvse.exe     Not Available      344      8      Not
Available Not Available      10/10/2003 11:12 AM Not Available
Not Available      Not Available

helpsvc.exe c:\windows\pchealth\helpctr\binaries\helpsvc.exe
2012      8      204800 1413120 10/10/2003 11:12 AM 5.2.3790.0
(srv03_rtm.030324-2048)      720.00 KB (737,280 bytes)      10/3/2003
11:31 AM

```

[Loaded Modules]

Name	Version	Size	File Date	Manufacturer	Path
winlogon	5.2.3790.0 (srv03_rtm.030324-2048)	536.50 KB (549,376 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\winlogon.exe
ntdll	5.2.3790.0 (srv03_rtm.030324-2048)	722.50 KB (739,840 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\ntdll.dll
kernel32	5.2.3790.0 (srv03_rtm.030324-2048)	965.00 KB (988,160 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\kernel32.dll
msvcrt	7.0.3790.0 (srv03_rtm.030324-2048)	319.50 KB (327,168 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\msvcrt.dll
advapi32	5.2.3790.0 (srv03_rtm.030324-2048)	559.50 KB (572,928 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\advapi32.dll

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rpctr4 5.2.3790.0 (srv03_rtm.030324-2048)      643.50 KB (658,944
bytes) 3/25/2003 7:00 AM Microsoft Corporation
c:\windows\system32\rpctr4.dll

user32 5.2.3790.0 (srv03_rtm.030324-2048)      562.00 KB (575,488
bytes) 3/25/2003 7:00 AM Microsoft Corporation
c:\windows\system32\user32.dll

gdi32 5.2.3790.0 (srv03_rtm.030324-2048)      263.00 KB (269,312
bytes) 3/25/2003 7:00 AM Microsoft Corporation
c:\windows\system32\gdi32.dll

userenv 5.2.3790.0 (srv03_rtm.030324-2048)      732.50 KB (750,080
bytes) 3/25/2003 7:00 AM Microsoft Corporation
c:\windows\system32\userenv.dll

nddeapi 5.2.3790.0 (srv03_rtm.030324-2048)      16.00 KB (16,384
bytes) 3/25/2003 7:00 AM Microsoft Corporation
c:\windows\system32\nddeapi.dll

crypt32 5.131.3790.0 (srv03_rtm.030324-2048)      598.00 KB (612,352
bytes) 3/25/2003 7:00 AM Microsoft Corporation
c:\windows\system32\crypt32.dll

msasn1 5.2.3790.0 (srv03_rtm.030324-2048)      58.00 KB (59,392
bytes) 3/25/2003 7:00 AM Microsoft Corporation
c:\windows\system32\msasn1.dll

secur32 5.2.3790.0 (srv03_rtm.030324-2048)      63.00 KB (64,512
bytes) 3/25/2003 7:00 AM Microsoft Corporation
c:\windows\system32\secur32.dll

winsta 5.2.3790.0 (srv03_rtm.030324-2048)      51.00 KB (52,224
bytes) 3/25/2003 7:00 AM Microsoft Corporation
c:\windows\system32\winsta.dll

netapi32 5.2.3790.0 (srv03_rtm.030324-2048)      317.00 KB (324,608
bytes) 3/25/2003 7:00 AM Microsoft Corporation
c:\windows\system32\netapi32.dll

profmap 5.2.3790.0 (srv03_rtm.030324-2048)      22.00 KB (22,528
bytes) 3/25/2003 7:00 AM Microsoft Corporation
c:\windows\system32\profmap.dll

regapi 5.2.3790.0 (srv03_rtm.030324-2048)      48.50 KB (49,664
bytes) 3/25/2003 7:00 AM Microsoft Corporation
c:\windows\system32\regapi.dll

ws2_32 5.2.3790.0 (srv03_rtm.030324-2048)      87.50 KB (89,600
bytes) 3/25/2003 7:00 AM Microsoft Corporation
c:\windows\system32\ws2_32.dll

ws2help 5.2.3790.0 (srv03_rtm.030324-2048)      19.50 KB (19,968
bytes) 3/25/2003 7:00 AM Microsoft Corporation
c:\windows\system32\ws2help.dll

psapi 5.2.3790.0 (srv03_rtm.030324-2048)      21.50 KB (22,016
bytes) 3/25/2003 7:00 AM Microsoft Corporation
c:\windows\system32\psapi.dll

version 5.2.3790.0 (srv03_rtm.030324-2048)      17.00 KB (17,408
bytes) 3/25/2003 7:00 AM Microsoft Corporation
c:\windows\system32\version.dll

setupapi 5.2.3790.0 (srv03_rtm.030324-2048)      1,014.50 KB
(1,038,848 bytes) 3/25/2003 7:00 AM Microsoft Corporation
c:\windows\system32\setupapi.dll

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msgina	5.2.3790.0 (srv03_rtm.030324-2048)	1.14 MB (1,191,936 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\msgina.dll
shsvcs	6.00.3790.0 (srv03_rtm.030324-2048)	121.50 KB (124,416 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\shsvcs.dll
shlwapi	6.00.3790.0 (srv03_rtm.030324-2048)	281.00 KB (287,744 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\shlwapi.dll
sfc	5.2.3790.0 (srv03_rtm.030324-2048)	4.50 KB (4,608 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\sfc.dll
sfc_os	5.2.3790.0 (srv03_rtm.030324-2048)	133.00 KB (136,192 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\sfc_os.dll
wintrust	5.131.3790.0 (srv03_rtm.030324-2048)	161.50 KB (165,376 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\wintrust.dll
ole32	5.2.3790.0 (srv03_rtm.030324-2048)	1.13 MB (1,187,328 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\ole32.dll
imagehlp	5.2.3790.0 (srv03_rtm.030324-2048)	142.50 KB (145,920 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\imagehlp.dll
comctl32	6.0 (srv03_rtm.030324-2048)	907.00 KB (928,768 bytes)	10/3/2003 6:11 AM	Microsoft Corporation	c:\windows\winsxs\x86_microsoft.windows.common-controls_6595b64144ccfd_6.0.100.0_x-ww_8417450b\comctl32.dll
winscard	5.2.3790.0 (srv03_rtm.030324-2048)	98.50 KB (100,864 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\winscard.dll
wtsapi32	5.2.3790.0 (srv03_rtm.030324-2048)	17.50 KB (17,920 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\wtsapi32.dll
sxs	5.2.3790.0 (srv03_rtm.030324-2048)	733.00 KB (750,592 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\sxs.dll
winmm	5.2.3790.0 (srv03_rtm.030324-2048)	166.00 KB (169,984 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\winmm.dll
shell32	6.00.3790.0 (srv03_rtm.030324-2048)	7.79 MB (8,166,400 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\shell32.dll
wldap32	5.2.3790.0 (srv03_rtm.030324-2048)	158.00 KB (161,792 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\wldap32.dll
rsaenh	5.2.3790.0 (srv03_rtm.030324-2048)	176.83 KB (181,072 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\rsaenh.dll
csdll	5.2.3790.0 (srv03_rtm.030324-2048)	99.00 KB (101,376 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\csdll.dll
wlnotify	5.2.3790.0 (srv03_rtm.030324-2048)	87.50 KB (89,600 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\wlnotify.dll
winspool	5.2.3790.0 (srv03_rtm.030324-2048)	140.00 KB (143,360 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\winspool.drv
mpr	5.2.3790.0 (srv03_rtm.030324-2048)	56.00 KB (57,344 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\mpr.dll
comctl32	5.82 (srv03_rtm.030324-2048)	561.00 KB (574,464 bytes)	10/3/2003 6:11 AM	Microsoft Corporation	c:\windows\winsxs\x86_microsoft.windows.common-controls_6595b64144ccfd_5.82.0.0_x-ww_8a69ba05\comctl32.dll
uxtheme	6.00.3790.0 (srv03_rtm.030324-2048)	196.00 KB (200,704 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\uxtheme.dll
samlib	5.2.3790.0 (srv03_rtm.030324-2048)	49.00 KB (50,176 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\samlib.dll
cscui	5.2.3790.0 (srv03_rtm.030324-2048)	305.00 KB (312,320 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\cscui.dll
mprapi	5.2.3790.0 (srv03_rtm.030324-2048)	81.00 KB (82,944 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\mprapi.dll
activeds	5.2.3790.0 (srv03_rtm.030324-2048)	189.00 KB (193,536 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\activeds.dll
adslidpc	5.2.3790.0 (srv03_rtm.030324-2048)	142.50 KB (145,920 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\adslidpc.dll
credui	5.2.3790.0 (srv03_rtm.030324-2048)	159.00 KB (162,816 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\credui.dll
atl	3.05.2283	83.00 KB (84,992 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\atl.dll
oleaut32	5.2.3790.0	486.00 KB (497,664 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\oleaut32.dll
rtutils	5.2.3790.0 (srv03_rtm.030324-2048)	32.00 KB (32,768 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\rtutils.dll
clbcatq	2001.12.4720.0 (srv03_rtm.030324-2048)	481.00 KB (492,544 bytes)	10/3/2003 11:27 AM	Microsoft Corporation	c:\windows\system32\clbcatq.dll
comres	2001.12.4720.0 (srv03_rtm.030324-2048)	778.00 KB (796,672 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\comres.dll
ntmarta	5.2.3790.0 (srv03_rtm.030324-2048)	114.00 KB (116,736 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\ntmarta.dll

services	5.2.3790.0 (srv03_rtm.030324-2048)	102.00 KB (104,448 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\services.exe
scesrv	5.2.3790.0 (srv03_rtm.030324-2048)	316.50 KB (324,096 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\scesrv.dll
authz	5.2.3790.0 (srv03_rtm.030324-2048)	67.00 KB (68,608 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\authz.dll
umpnpgmr	5.2.3790.0 (srv03_rtm.030324-2048)	121.50 KB (124,416 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\umpnpgmr.dll
ncobjapi	5.2.3790.0 (srv03_rtm.030324-2048)	34.50 KB (35,328 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\ncobjapi.dll
msvcp60	6.05.2144.0	388.00 KB (397,312 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\msvcp60.dll
eventlog	5.2.3790.0 (srv03_rtm.030324-2048)	60.50 KB (61,952 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\eventlog.dll
lsass	5.2.3790.0 (srv03_rtm.030324-2048)	13.00 KB (13,312 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\lsass.exe
lsasrv	5.2.3790.0 (srv03_rtm.030324-2048)	780.50 KB (799,232 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\lsasrv.dll
samsrv	5.2.3790.0 (srv03_rtm.030324-2048)	452.00 KB (462,848 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\samsrv.dll
cryptdll	5.2.3790.0 (srv03_rtm.030324-2048)	34.00 KB (34,816 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\cryptdll.dll
dnsapi	5.2.3790.0 (srv03_rtm.030324-2048)	147.50 KB (151,040 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\dnsapi.dll
ntdsapi	5.2.3790.0 (srv03_rtm.030324-2048)	76.00 KB (77,824 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\ntdsapi.dll
msprivs	5.2.3790.0 (srv03_rtm.030324-2048)	46.50 KB (47,616 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\msprivs.dll
kerberos	5.2.3790.0 (srv03_rtm.030324-2048)	332.50 KB (340,480 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\kerberos.dll
msv1_0	5.2.3790.0 (srv03_rtm.030324-2048)	127.00 KB (130,048 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\msv1_0.dll
netlogon	5.2.3790.0 (srv03_rtm.030324-2048)	409.00 KB (418,816 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\netlogon.dll
w32time	5.2.3790.0 (srv03_rtm.030324-2048)	216.00 KB (221,184 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\w32time.dll
iphlpapi	5.2.3790.0 (srv03_rtm.030324-2048)	82.50 KB (84,480 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\iphlpapi.dll
schannel	5.2.3790.0 (srv03_rtm.030324-2048)	149.50 KB (153,088 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\schannel.dll
wdigest	5.2.3790.0 (srv03_rtm.030324-2048)	61.00 KB (62,464 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\wdigest.dll
rassfm	5.2.3790.0 (srv03_rtm.030324-2048)	20.50 KB (20,992 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\rassfm.dll
kdcsvc	5.2.3790.0 (srv03_rtm.030324-2048)	221.00 KB (226,304 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\kdcsvc.dll
ntdsa	5.2.3790.0 (srv03_rtm.030324-2048)	1.45 MB (1,520,640 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\ntdsa.dll
ntdsatq	5.2.3790.0 (srv03_rtm.030324-2048)	32.00 KB (32,768 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\ntdsatq.dll
mswsock	5.2.3790.0 (srv03_rtm.030324-2048)	254.00 KB (260,096 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\mswsock.dll
esent	5.2.3790.0 (srv03_rtm.030324-2048)	1.01 MB (1,056,256 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\esent.dll
scecli	5.2.3790.0 (srv03_rtm.030324-2048)	179.50 KB (183,808 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\scecli.dll
wshtcpip	5.2.3790.0 (srv03_rtm.030324-2048)	18.00 KB (18,432 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\wshtcpip.dll
ipsecsvc	5.2.3790.0 (srv03_rtm.030324-2048)	162.50 KB (166,400 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\ipsecsvc.dll
oakley	5.2.3790.0 (srv03_rtm.030324-2048)	325.50 KB (333,312 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\oakley.dll
winipsec	5.2.3790.0 (srv03_rtm.030324-2048)	34.50 KB (35,328 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\winipsec.dll
pstorsvc	5.2.3790.0 (srv03_rtm.030324-2048)	24.00 KB (24,576 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\pstorsvc.dll
psbase	5.2.3790.0 (srv03_rtm.030324-2048)	81.00 KB (82,944 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\psbase.dll

dssenh	5.2.3790.0 (srv03_rtm.030324-2048)	131.33 KB (134,480 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\dssenh.dll
wlbcstrl	5.2.3790.0 (srv03_rtm.030324-2048)	78.00 KB (79,872 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\wlbcstrl.dll
svchost	5.2.3790.0 (srv03_rtm.030324-2048)	13.00 KB (13,312 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\svchost.exe
rpsvc	5.2.3790.0 (srv03_rtm.030324-2048)	276.50 KB (283,136 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\rpsvc.dll
termsrv	5.2.3790.0 (srv03_rtm.030324-2048)	216.50 KB (221,696 bytes)	10/3/2003 11:27 AM	Microsoft Corporation	c:\windows\system32\termsrv.dll
icaapi	5.2.3790.0 (srv03_rtm.030324-2048)	10.50 KB (10,752 bytes)	10/3/2003 11:27 AM	Microsoft Corporation	c:\windows\system32\icaapi.dll
mstlsapi	5.2.3790.0 (srv03_rtm.030324-2048)	104.50 KB (107,008 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\mstlsapi.dll
wzcsvc	5.2.3790.0 (srv03_rtm.030324-2048)	272.50 KB (279,040 bytes)	3/25/2003 7:15 AM	Microsoft Corporation	c:\windows\system32\wzcsvc.dll
wmi	5.2.3790.0 (srv03_rtm.030324-2048)	6.50 KB (6,656 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\wmi.dll
dhcpcsvc	5.2.3790.0 (srv03_rtm.030324-2048)	101.50 KB (103,936 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\dhcpcsvc.dll
rasnls	5.2.3790.0 (srv03_rtm.030324-2048)	155.00 KB (158,720 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\rasnls.dll
cryptui	5.131.3790.0 (srv03_rtm.030324-2048)	473.50 KB (484,864 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\cryptui.dll
rasapi32	5.2.3790.0 (srv03_rtm.030324-2048)	227.50 KB (232,960 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\rasapi32.dll
rasman	5.2.3790.0 (srv03_rtm.030324-2048)	56.50 KB (57,856 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\rasman.dll
tapi32	5.2.3790.0 (srv03_rtm.030324-2048)	175.00 KB (179,200 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\tapi32.dll
raschap	5.2.3790.0 (srv03_rtm.030324-2048)	106.00 KB (108,544 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\raschap.dll
schedsvc	5.2.3790.0 (srv03_rtm.030324-2048)	176.00 KB (180,224 bytes)	10/3/2003 11:30 AM	Microsoft Corporation	c:\windows\system32\schedsvc.dll
msidle	6.00.3790.0 (srv03_rtm.030324-2048)	5.50 KB (5,632 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\msidle.dll
wkssvc	5.2.3790.0 (srv03_rtm.030324-2048)	125.00 KB (128,000 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\wkssvc.dll
wiarpc	5.2.3790.0 (srv03_rtm.030324-2048)	30.00 KB (30,720 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\wiarpc.dll
cryptsvc	5.2.3790.0 (srv03_rtm.030324-2048)	51.00 KB (52,224 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\cryptsvc.dll
certcli	5.2.3790.0 (srv03_rtm.030324-2048)	228.00 KB (233,472 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\certcli.dll
vssapi	5.2.3790.0 (srv03_rtm.030324-2048)	528.00 KB (540,672 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\vssapi.dll
dmserver	5.2.3790.0 (srv03_rtm.030324-2048)	24.00 KB (24,576 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\dmserver.dll
es	2001.12.4720.0 (srv03_rtm.030324-2048)	221.50 KB (226,816 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\es.dll
pchsvc	5.2.3790.0 (srv03_rtm.030324-2048)	31.50 KB (32,256 bytes)	10/3/2003 11:31 AM	Microsoft Corporation	c:\windows\pchealth\helpctr\binaries\pchsvc.dll
srvc	5.2.3790.0 (srv03_rtm.030324-2048)	89.00 KB (91,136 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\srvc.dll
seclogon	5.2.3790.0 (srv03_rtm.030324-2048)	16.50 KB (16,896 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\seclogon.dll
sens	5.2.3790.0 (srv03_rtm.030324-2048)	35.50 KB (36,352 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\sens.dll
trkwks	5.2.3790.0 (srv03_rtm.030324-2048)	85.00 KB (87,040 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\trkwks.dll
wmisvc	5.2.3790.0 (srv03_rtm.030324-2048)	131.00 KB (134,144 bytes)	10/3/2003 11:27 AM	Microsoft Corporation	c:\windows\system32\wbem\wmisvc.dll
comsvcs	2001.12.4720.0 (srv03_rtm.030324-2048)	1.14 MB (1,199,616 bytes)	10/3/2003 11:27 AM	Microsoft Corporation	c:\windows\system32\comsvcs.dll
netman	5.2.3790.0 (srv03_rtm.030324-2048)	209.00 KB (214,016 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\netman.dll
wzcsapi	5.2.3790.0 (srv03_rtm.030324-2048)	24.50 KB (25,088 bytes)	3/25/2003 7:15 AM	Microsoft Corporation	c:\windows\system32\wzcsapi.dll

netshell	5.2.3790.0 (srv03_rtm.030324-2048)	1.67 MB (1,747,456 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\netshell.dll
clusapi	5.2.3790.0 (srv03_rtm.030324-2048)	56.00 KB (57,344 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\clusapi.dll
hnctcfig	5.2.3790.0 (srv03_rtm.030324-2048)	243.50 KB (249,344 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\hnctcfig.dll
winet	6.00.3790.0 (srv03_rtm.030324-2048)	609.00 KB (623,616 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\winet.dll
wbemcomn	5.2.3790.0 (srv03_rtm.030324-2048)	211.50 KB (216,576 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\wbem\wbemcomn.dll
wbemcore	5.2.3790.0 (srv03_rtm.030324-2048)	457.00 KB (467,968 bytes)	10/3/2003 11:27 AM	Microsoft Corporation	c:\windows\system32\wbem\wbemcore.dll
esscli	5.2.3790.0 (srv03_rtm.030324-2048)	235.50 KB (241,152 bytes)	10/3/2003 11:27 AM	Microsoft Corporation	c:\windows\system32\wbem\esscli.dll
fastprox	5.2.3790.0 (srv03_rtm.030324-2048)	443.00 KB (453,632 bytes)	10/3/2003 11:27 AM	Microsoft Corporation	c:\windows\system32\wbem\fastprox.dll
wbemsvc	5.2.3790.0 (srv03_rtm.030324-2048)	42.50 KB (43,520 bytes)	10/3/2003 11:27 AM	Microsoft Corporation	c:\windows\system32\wbem\wbemsvc.dll
wmiutils	5.2.3790.0 (srv03_rtm.030324-2048)	90.50 KB (92,672 bytes)	10/3/2003 11:27 AM	Microsoft Corporation	c:\windows\system32\wbem\wmiutils.dll
repdrvfs	5.2.3790.0 (srv03_rtm.030324-2048)	165.00 KB (168,960 bytes)	10/3/2003 11:27 AM	Microsoft Corporation	c:\windows\system32\wbem\repdrvfs.dll
wmiprvsd	5.2.3790.0 (srv03_rtm.030324-2048)	405.50 KB (415,232 bytes)	10/3/2003 11:27 AM	Microsoft Corporation	c:\windows\system32\wbem\wmiprvsd.dll
wbemess	5.2.3790.0 (srv03_rtm.030324-2048)	256.50 KB (262,656 bytes)	10/3/2003 11:27 AM	Microsoft Corporation	c:\windows\system32\wbem\wbemess.dll
rasdlg	5.2.3790.0 (srv03_rtm.030324-2048)	642.00 KB (657,408 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\rasdlg.dll
rasadhlp	5.2.3790.0 (srv03_rtm.030324-2048)	6.50 KB (6,656 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\rasadhlp.dll
ncprov	5.2.3790.0 (srv03_rtm.030324-2048)	43.00 KB (44,032 bytes)	10/3/2003 11:27 AM	Microsoft Corporation	c:\windows\system32\wbem\ncprov.dll
netcfgx	5.2.3790.0 (srv03_rtm.030324-2048)	726.00 KB (743,424 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\netcfgx.dll
spoolsv	5.2.3790.0 (srv03_rtm.030324-2048)	55.00 KB (56,320 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\spoolsv.exe
spoolss	5.2.3790.0 (srv03_rtm.030324-2048)	79.00 KB (80,896 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\spoolss.dll
localspl	5.2.3790.0 (srv03_rtm.030324-2048)	304.50 KB (311,808 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\localspl.dll
cnbjmon	5.2.3680.0 (Lab03_dev(skatar).020509-1043)	45.50 KB (46,592 bytes)	3/24/2003 8:48 PM	Microsoft Corporation	c:\windows\system32\cnbjmon.dll
pjlmon	5.2.3790.0 (srv03_rtm.030324-2048)	15.00 KB (15,360 bytes)	3/24/2003 8:49 PM	Microsoft Corporation	c:\windows\system32\pjlmon.dll
tcpmon	5.2.3790.0 (srv03_rtm.030324-2048)	44.00 KB (45,056 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\tcpmon.dll
mgmtapi	5.2.3790.0 (srv03_rtm.030324-2048)	14.00 KB (14,336 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\mgmtapi.dll
snmpapi	5.2.3790.0 (srv03_rtm.030324-2048)	17.50 KB (17,920 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\snmpapi.dll
wsnmp32	5.2.3790.0 (srv03_rtm.030324-2048)	39.50 KB (40,448 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\wsnmp32.dll
usbmon	5.2.3790.0 (srv03_rtm.030324-2048)	17.00 KB (17,408 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\usbmon.dll
winnr	5.2.3790.0 (srv03_rtm.030324-2048)	15.00 KB (15,360 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\winnr.dll
wshqos	5.2.3790.0 (srv03_rtm.030324-2048)	23.00 KB (23,552 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\wshqos.dll
win32spl	5.2.3790.0 (srv03_rtm.030324-2048)	94.50 KB (96,768 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\win32spl.dll
netrap	5.2.3790.0 (srv03_rtm.030324-2048)	11.50 KB (11,776 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\netrap.dll
inetpp	5.2.3790.0 (srv03_rtm.030324-2048)	71.50 KB (73,216 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\inetpp.dll
icmp	5.2.3790.0 (srv03_rtm.030324-2048)	4.50 KB (4,608 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\icmp.dll
ibmhpasv	5.1.1.1	14.50 KB (14,848 bytes)	10/3/2003 12:23 PM	IBM Corporation	c:\windows\system32\ibmhpasv.exe

ibmbspvc	Not Available 12:23 PM Not Available	29.50 KB (30,208 bytes) c:\windows\system32\ibmbspvc.exe	10/3/2003	webcheck	6.00.3790.0 (srv03_rtm.030324-2048) 3/25/2003 7:00 AM Microsoft Corporation c:\windows\system32\webcheck.dll	261.50 KB (267,776 bytes)	10/3/2003
ibmsprem	Not Available 12:23 PM Not Available	35.00 KB (35,840 bytes) c:\windows\system32\ibmsprem.exe	10/3/2003	stobject	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 7:00 AM Microsoft Corporation c:\windows\system32\stobject.dll	117.50 KB (120,320 bytes)	10/3/2003
ibmspw	5.13 IBM Corporation	67.00 KB (68,608 bytes) c:\windows\system32\ibmspw.dll	10/3/2003 12:23 PM	batmeter	6.00.3790.0 (srv03_rtm.030324-2048) 3/25/2003 7:00 AM Microsoft Corporation c:\windows\system32\batmeter.dll	28.50 KB (29,184 bytes)	10/3/2003
hid	5.2.3790.0 (srv03_rtm.030324-2048) 3/24/2003 8:48 PM Microsoft Corporation c:\windows\system32\hid.dll	17.50 KB (17,920 bytes)		powrprof	6.00.3790.0 (srv03_rtm.030324-2048) 3/25/2003 7:00 AM Microsoft Corporation c:\windows\system32\powrprof.dll	14.50 KB (14,848 bytes)	
dfssvc	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 7:00 AM Microsoft Corporation c:\windows\system32\dfssvc.exe	130.50 KB (133,632 bytes)		printui	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 7:00 AM Microsoft Corporation c:\windows\system32\printui.dll	536.50 KB (549,376 bytes)	
resutils	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 7:00 AM Microsoft Corporation c:\windows\system32\resutils.dll	59.00 KB (60,416 bytes)		cfgmgr32	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 7:00 AM Microsoft Corporation c:\windows\system32\cfgmgr32.dll	17.50 KB (17,920 bytes)	
mfc42u	6.05.3014.0 Microsoft Corporation	960.00 KB (983,040 bytes) c:\windows\system32\mfc42u.dll	3/25/2003 7:00 AM	drprov	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 7:00 AM Microsoft Corporation c:\windows\system32\drprov.dll	12.50 KB (12,800 bytes)	
wsock32	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 7:00 AM Microsoft Corporation c:\windows\system32\wsock32.dll	22.00 KB (22,528 bytes)		ntlanman	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 7:00 AM Microsoft Corporation c:\windows\system32\ntlanman.dll	41.00 KB (41,984 bytes)	
explorer	6.00.3790.0 (srv03_rtm.030324-2048) 3/25/2003 7:00 AM Microsoft Corporation c:\windows\explorer.exe	1,008.50 KB (1,032,704 bytes)		netui0	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 7:00 AM Microsoft Corporation c:\windows\system32\netui0.dll	75.50 KB (77,312 bytes)	
browseui	6.00.3790.0 (srv03_rtm.030324-2048) 3/25/2003 7:00 AM Microsoft Corporation c:\windows\system32\browseui.dll	1.01 MB (1,057,280 bytes)		netui1	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 7:00 AM Microsoft Corporation c:\windows\system32\netui1.dll	184.00 KB (188,416 bytes)	
shdocvw	6.00.3790.0 (srv03_rtm.030324-2048) 3/25/2003 7:00 AM Microsoft Corporation c:\windows\system32\shdocvw.dll	1.33 MB (1,393,664 bytes)		davclnt	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 7:00 AM Microsoft Corporation c:\windows\system32\davclnt.dll	23.50 KB (24,064 bytes)	
apphelp	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 7:00 AM Microsoft Corporation c:\windows\system32\apphelp.dll	122.00 KB (124,928 bytes)		wpabaln	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 7:00 AM Microsoft Corporation c:\windows\system32\wpabaln.exe	31.00 KB (31,744 bytes)	
themeui	6.00.3790.0 (srv03_rtm.030324-2048) 3/25/2003 7:00 AM Microsoft Corporation c:\windows\system32\themeui.dll	360.50 KB (369,152 bytes)		cmd	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 7:00 AM Microsoft Corporation c:\windows\system32\cmd.exe	374.00 KB (382,976 bytes)	
msimg32	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 7:00 AM Microsoft Corporation c:\windows\system32\msimg32.dll	4.50 KB (4,608 bytes)		sqlservr	2000.080.0761.00 1:11 PM Microsoft Corporation c:\program files\microsoft sql server\mssql\binn\sqlservr.exe	7.11 MB (7,450,664 bytes)	10/3/2003
actxprxy	6.00.3790.0 (srv03_rtm.030324-2048) 3/25/2003 7:00 AM Microsoft Corporation c:\windows\system32\actxprxy.dll	95.00 KB (97,280 bytes)		opends60	2000.080.0194.00 1:11 PM Microsoft Corporation c:\program files\microsoft sql server\mssql\binn\opends60.dll	24.06 KB (24,639 bytes)	10/3/2003
linkinfo	5.2.3790.0 (srv03_rtm.030324-2048) 3/25/2003 7:00 AM Microsoft Corporation c:\windows\system32\linkinfo.dll	16.50 KB (16,896 bytes)		ums	2000.080.0760.00 1:11 PM Microsoft Corporation c:\program files\microsoft sql server\mssql\binn\ums.dll	52.55 KB (53,808 bytes)	10/3/2003
ntshrui	6.00.3790.0 (srv03_rtm.030324-2048) 3/25/2003 7:00 AM Microsoft Corporation c:\windows\system32\ntshrui.dll	136.00 KB (139,264 bytes)		sqlsort	2000.080.0760.00 1:11 PM Microsoft Corporation c:\program files\microsoft sql server\mssql\binn\sqlsort.dll	576.56 KB (590,396 bytes)	10/3/2003
urlmon	6.00.3790.0 (srv03_rtm.030324-2048) 3/25/2003 7:00 AM Microsoft Corporation c:\windows\system32\urlmon.dll	501.50 KB (513,536 bytes)					

msvcirt	7.0.3790.0 (srv03_rtm.030324-2048)	50.00 KB (51,200 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\msvcirt.dll
sqllevn70	2000.080.0760.00	28.00 KB (28,672 bytes)	10/3/2003 1:11 PM	Microsoft Corporation	c:\program files\microsoft sql server\mssql\binn\resources\1033\sqllevn70.rll
xolehlp	2001.12.4720.0 (srv03_rtm.030324-2048)	8.50 KB (8,704 bytes)	10/3/2003 11:27 AM	Microsoft Corporation	c:\windows\system32\xolehlp.dll
msdtcprx	2001.12.4720.0 (srv03_rtm.030324-2048)	427.50 KB (437,760 bytes)	10/3/2003 11:27 AM	Microsoft Corporation	c:\windows\system32\msdtcprx.dll
mtxclu	2001.12.4720.0 (srv03_rtm.030324-2048)	74.50 KB (76,288 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\mtxclu.dll
ssnetlib	2000.080.0766.00	80.56 KB (82,492 bytes)	10/3/2003 1:11 PM	Microsoft Corporation	c:\program files\microsoft sql server\mssql\binn\ssnetlib.dll
ssnmpn70	2000.080.0534.00	24.56 KB (25,148 bytes)	10/3/2003 1:11 PM	Microsoft Corporation	c:\program files\microsoft sql server\mssql\binn\ssnmpn70.dll
security	5.2.3790.0 (srv03_rtm.030324-2048)	5.50 KB (5,632 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\security.dll
ssmslpcn	2000.080.0760.00	28.56 KB (29,244 bytes)	10/3/2003 1:11 PM	Microsoft Corporation	c:\program files\microsoft sql server\mssql\binn\ssmslpcn.dll
ssmsqlgc	2000.080.0760.00	32.56 KB (33,340 bytes)	10/3/2003 1:38 PM	Microsoft Corporation	c:\program files\microsoft sql server\mssql\binn\ssmsqlgc.dll
qlvipl	Not Available	92.05 KB (94,262 bytes)	10/3/2003 2:09 PM	Not Available	c:\windows\system32\qlvipl.dll
isqlw	2000.080.0760.00	344.56 KB (352,828 bytes)	10/3/2003 1:11 PM	Microsoft Corporation	c:\program files\microsoft sql server\80\tools\binn\isqlw.exe
sqlunirl	2000.080.0728.00	176.56 KB (180,800 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\sqlunirl.dll
comdlg32	6.00.3790.0 (srv03_rtm.030324-2048)	261.00 KB (267,264 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\comdlg32.dll
sqlresld	2000.080.0382.00	28.56 KB (29,248 bytes)	10/3/2003 1:11 PM	Microsoft Corporation	c:\program files\microsoft sql server\80\tools\binn\sqlresld.dll
sqlgui	2000.080.0760.00	444.56 KB (455,232 bytes)	10/3/2003 1:11 PM	Microsoft Corporation	c:\program files\microsoft sql server\80\tools\binn\sqlgui.dll
w95scm	2000.080.0760.00	48.56 KB (49,728 bytes)	10/3/2003 1:11 PM	Microsoft Corporation	c:\program files\microsoft sql server\80\tools\binn\w95scm.dll
odbc32	3.525.1022.0 (srv03_rtm.030324-2048)	232.00 KB (237,568 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\odbc32.dll
sqlsvc	2000.080.0760.00	92.56 KB (94,784 bytes)	10/3/2003 1:11 PM	Microsoft Corporation	c:\program files\microsoft sql server\80\tools\binn\sqlsvc.dll
odbcbcnp	2000.085.1022.0 (srv03_rtm.030324-2048)	24.00 KB (24,576 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\odbcbcnp.dll
imm32	5.2.3790.0 (srv03_rtm.030324-2048)	105.50 KB (108,032 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\imm32.dll
sqlqry	2000.080.0760.00	392.56 KB (401,984 bytes)	10/3/2003 1:11 PM	Microsoft Corporation	c:\program files\microsoft sql server\80\tools\binn\sqlqry.dll
pfutil80	2000.080.0760.00	272.56 KB (279,104 bytes)	10/3/2003 1:11 PM	Microsoft Corporation	c:\program files\microsoft sql server\80\tools\binn\pfutil80.dll
semsfc	2000.080.0760.00	228.56 KB (234,048 bytes)	10/3/2003 1:11 PM	Microsoft Corporation	c:\program files\microsoft sql server\80\tools\binn\semsfc.dll
pfclnt80	2000.080.0760.00	404.56 KB (414,272 bytes)	10/3/2003 1:11 PM	Microsoft Corporation	c:\program files\microsoft sql server\80\tools\binn\pfclnt80.dll
odbcint	3.525.1022.0 (srv03_rtm.030324-2048)	92.00 KB (94,208 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\odbcint.dll
sqlsvc	2000.080.0194.00	24.00 KB (24,576 bytes)	10/3/2003 1:11 PM	Microsoft Corporation	c:\program files\microsoft sql server\80\tools\binn\resources\1033\sqlsvc.rll
sqlgui	2000.080.0194.00	56.00 KB (57,344 bytes)	10/3/2003 1:11 PM	Microsoft Corporation	c:\program files\microsoft sql server\80\tools\binn\resources\1033\sqlgui.rll
semsfc	2000.080.0194.00	24.00 KB (24,576 bytes)	10/3/2003 1:11 PM	Microsoft Corporation	c:\program files\microsoft sql server\80\tools\binn\resources\1033\semsfc.rll
pfclnt80	2000.080.0194.00	28.00 KB (28,672 bytes)	10/3/2003 1:11 PM	Microsoft Corporation	c:\program files\microsoft sql server\80\tools\binn\resources\1033\pfclnt80.rll
pfutil80	2000.080.0382.00	144.00 KB (147,456 bytes)	10/3/2003 1:11 PM	Microsoft Corporation	c:\program files\microsoft sql server\80\tools\binn\resources\1033\pfutil80.rll
sqlqry	2000.080.0194.00	180.00 KB (184,320 bytes)	10/3/2003 1:11 PM	Microsoft Corporation	c:\program files\microsoft sql server\80\tools\binn\resources\1033\sqlqry.rll
isqlw	2000.080.0382.00	240.00 KB (245,760 bytes)	10/3/2003 1:11 PM	Microsoft Corporation	c:\program files\microsoft sql server\80\tools\binn\resources\1033\isqlw.rll
odbc32	3.525.1022.0 (srv03_rtm.030324-2048)	100.00 KB (102,400 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\odbc32.dll

sqllex	2000.080.0194.00	148.06 KB (151,616 bytes)	10/3/2003 1:11 PM	Microsoft Corporation	c:\program files\microsoft sql server\80\tools\bin\sqllex.dll
sqlsrv32	2000.085.1022.00 (srv03_rtm.030324-2048)	404.00 KB (413,696 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\sqlsrv32.dll
sqlsrv32	2000.085.1022.00 (srv03_rtm.030324-2048)	88.00 KB (90,112 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\sqlsrv32.rll
dbnetlib	2000.085.1022 (srv03_rtm.030324-2048)	76.00 KB (77,824 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\dbnetlib.dll
dbmslpcn	2000.080.0760.00	28.56 KB (29,244 bytes)	10/3/2003 1:11 PM	Microsoft Corporation	c:\windows\system32\dbmslpcn.dll
helpctr	5.2.3790.0 (srv03_rtm.030324-2048)	764.00 KB (782,336 bytes)	10/3/2003 11:31 AM	Microsoft Corporation	c:\windows\pchealth\helpctr\binaries\helpctr.exe
hcappres	5.2.3790.0 (srv03_rtm.030324-2048)	6.50 KB (6,656 bytes)	10/3/2003 11:31 AM	Microsoft Corporation	c:\windows\pchealth\helpctr\binaries\hcappres.dll
itss	5.2.3790.0 (srv03_rtm.030324-2048)	119.50 KB (122,368 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\itss.dll
msxml3	8.40.9419.0	1.28 MB (1,337,344 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\msxml3.dll
pchshell	5.2.3790.0 (srv03_rtm.030324-2048)	100.50 KB (102,912 bytes)	10/3/2003 11:31 AM	Microsoft Corporation	c:\windows\pchealth\helpctr\binaries\pchshell.dll
mlang	6.00.3790.0 (srv03_rtm.030324-2048)	570.00 KB (583,680 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\mlang.dll
mshtml	6.00.3790.0 (srv03_rtm.030324-2048)	2.78 MB (2,916,352 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\mshtml.dll
msimtf	5.2.3790.0 (srv03_rtm.030324-2048)	149.00 KB (152,576 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\msimtf.dll
msctf	5.2.3790.0 (srv03_rtm.030324-2048)	287.00 KB (293,888 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\msctf.dll
shdoclc	6.00.3790.0 (srv03_rtm.030324-2048)	588.50 KB (602,624 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\shdoclc.dll
jscript	5.6.0.8515 436.00 KB (446,464 bytes)		3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\jscript.dll
msls31	3.10.349.0 147.00 KB (150,528 bytes)		3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\msls31.dll
mshtmlmled	6.00.3790.0 (srv03_rtm.030324-2048)	443.50 KB (454,144 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\mshtmlmled.dll
vbscript	5.6.0.8515 404.00 KB (413,696 bytes)		3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\vbscript.dll
mfc42	6.05.3014.0	960.00 KB (983,040 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\mfc42.dll
msinfo	5.2.3790.0 (srv03_rtm.030324-2048)	358.50 KB (367,104 bytes)	10/3/2003 11:31 AM	Microsoft Corporation	c:\windows\pchealth\helpctr\binaries\msinfo.dll
riched32	5.2.3790.0 (srv03_rtm.030324-2048)	3.50 KB (3,584 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\riched32.dll
riched20	5.31.23.1218	406.00 KB (415,744 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\riched20.dll
wbemprox	5.2.3790.0 (srv03_rtm.030324-2048)	17.50 KB (17,920 bytes)	10/3/2003 11:27 AM	Microsoft Corporation	c:\windows\system32\wbem\wbemprox.dll
mydocs	6.00.3790.0 (srv03_rtm.030324-2048)	88.00 KB (90,112 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\mydocs.dll
helpsvc	5.2.3790.0 (srv03_rtm.030324-2048)	720.00 KB (737,280 bytes)	10/3/2003 11:31 AM	Microsoft Corporation	c:\windows\pchealth\helpctr\binaries\helpsvc.exe
[Services]					
Display Name	Name	State	Start Name	Mode	Service Type
Path	Error Control	Start	Tag	ID	
Alerter	Alerter	Running	Auto	Share	Process
c:\windows\system32\svchost.exe	-k localservice			Normal	NT
AUTHORITY\LocalService		0			
Application Layer Gateway Service		ALG	Stopped	Manual	
Own Process	c:\windows\system32\alg.exe		Normal	NT	
AUTHORITY\LocalService		0			
Application Management	AppMgmt	Stopped	Manual	Share	
Process	c:\windows\system32\svchost.exe	-k netsvcs	Normal		
LocalSystem		0			
Windows Audio	AudioSrv	Stopped	Disabled	Share	Process
c:\windows\system32\svchost.exe	-k netsvcs	Normal	LocalSystem		0
Background Intelligent Transfer Service		BITS	Stopped	Manual	
Share Process	c:\windows\system32\svchost.exe	-k netsvcs	Normal		
LocalSystem		0			
Computer Browser	Browser	Stopped	Manual	Share	Process
c:\windows\system32\svchost.exe	-k netsvcs	Normal	LocalSystem		0
Indexing Service	CiSvc	Stopped	Disabled	Share	Process
c:\windows\system32\cisvc.exe		Normal	LocalSystem		0
ClipBook	ClipSrv	Stopped	Disabled	Own	Process
c:\windows\system32\clipsrv.exe		Normal	LocalSystem		0
COM+ System Application	COMSysApp	Stopped	Manual		
Own Process	c:\windows\system32\dllhost.exe				
/processid: {02d4b3f1-fd88-11d1-960d-00805fc79235}		Normal			
LocalSystem		0			

Cryptographic Services Process c:\windows\system32\svchost.exe -k netsvcs LocalSystem 0	CryptSvc Running Auto Share	Workstation Process c:\windows\system32\svchost.exe -k netsvcs LocalSystem 0	lanmanworkstation Running Auto Share
Distributed File System Process c:\windows\system32\dfsrv.exe LocalSystem 0	Dfs Running Auto Own	License Logging Process c:\windows\system32\llsdrv.exe AUTHORITY\NetworkService 0	LicenseService Stopped Disabled Own
DHCP Client c:\windows\system32\svchost.exe -k networkservice AUTHORITY\NetworkService 0	Dhcp Running Auto Share Process Normal NT	TCP/IP NetBIOS Helper Process c:\windows\system32\svchost.exe -k localservice NT AUTHORITY\LocalService 0	LmHosts Running Auto Share Normal
Logical Disk Manager Manual Share Process Normal LocalSystem 0	Administrative Service dmadmin Stopped	Messenger Process c:\windows\system32\svchost.exe -k netsvcs LocalSystem 0	Messenger Stopped Disabled Share Process Normal LocalSystem 0
Logical Disk Manager c:\windows\system32\svchost.exe -k netsvcs LocalSystem 0	dmserver Running Auto Share Process Normal LocalSystem	NetMeeting Own Process LocalSystem 0	Remote Desktop Sharing mnmrvc Stopped Disabled Normal
DNS Client c:\windows\system32\svchost.exe -k networkservice AUTHORITY\NetworkService 0	Dnscache Running Auto Share Process Normal NT	Distributed Transaction Coordinator Own Process AUTHORITY\NetworkService 0	MSDTC Running Auto Normal NT
Error Reporting Service Process c:\windows\system32\svchost.exe -k winerr LocalSystem 0	ERSvc Stopped Manual Share Process Ignore	Windows Installer c:\windows\system32\msiexec.exe /v LocalSystem 0	MSIServer Stopped Manual Share Process Normal LocalSystem 0
Event Log c:\windows\system32\services.exe LocalSystem 0	eventlog Running Auto Share Process Normal LocalSystem	MSSQLSERVER Process c:\progra~1\microso~1\mssql~1\bin\sqlservr.exe LocalSystem 0	MSSQLSERVER Stopped Manual Own Normal
COM+ Event System Process c:\windows\system32\svchost.exe -k netsvcs LocalSystem 0	EventSystem Running Manual Share Process Normal	MSSQLServerADHelper Manual Own Process server\80\tools\bin\sqladhlp.exe LocalSystem 0	MSSQLServerADHelper Stopped
Help and Support c:\windows\system32\svchost.exe -k netsvcs LocalSystem 0	helpsvc Running Auto Share Process Normal LocalSystem	Network DDE c:\windows\system32\netdde.exe LocalSystem 0	NetDDE Stopped Disabled Share Process Normal LocalSystem 0
Human Interface Device Access Process c:\windows\system32\svchost.exe -k netsvcs LocalSystem 0	HidServ Stopped Disabled Share Process Normal LocalSystem	Network DDE Process c:\windows\system32\netdde.exe LocalSystem 0	DSDMNetDDE sdm Stopped Disabled Share Process Normal LocalSystem 0
HTTP SSLHTTPFilter c:\windows\system32\lsass.exe LocalSystem 0	Stopped Manual Share Process Normal LocalSystem	Net Logon c:\windows\system32\lsass.exe LocalSystem 0	Netlogon Stopped Manual Share Process Normal LocalSystem 0
IBM Active PCI Alert Service Process c:\windows\system32\ibmhpasv.exe LocalSystem 0	IBMHPS Running Auto Own Process Normal	Network Connections c:\windows\system32\svchost.exe -k netsvcs LocalSystem 0	Netman Running Manual Share Process Normal LocalSystem 0
IBM Advanced System Management Auto Own Process Normal LocalSystem 0	Remote Mouse ibmmspsvc Running	Network Location Awareness (NLA) Share Process LocalSystem 0	Nla Running Manual Normal
IMAPI CD-Burning COM Service Disabled Own Process LocalSystem 0	ImapiService Stopped Normal	File Replication c:\windows\system32\ntfrs.exe LocalSystem 0	NtFrs Stopped Manual Own Process Ignore LocalSystem 0
Intersite Messaging c:\windows\system32\ismserv.exe LocalSystem 0	Ismserv Stopped Disabled Own Process Normal LocalSystem	NT LM Security Support Provider Share Process LocalSystem 0	NtLmSsp Stopped Manual Normal
Kerberos Key Distribution Center Share Process LocalSystem 0	kdc Stopped Disabled Normal	Removable Storage c:\windows\system32\svchost.exe -k netsvcs LocalSystem 0	NtmsSvc Stopped Manual Share Process Normal LocalSystem 0
Server c:\windows\system32\svchost.exe -k netsvcs LocalSystem 0	lanmanserver Running Auto Share Process Normal LocalSystem	Plug and Play c:\windows\system32\services.exe LocalSystem 0	PlugPlay Running Auto Share Process Normal LocalSystem 0
		IPSEC Services Process c:\windows\system32\lsass.exe LocalSystem 0	PolicyAgent Running Auto Share Process Normal LocalSystem 0
		Protected Storage Process c:\windows\system32\lsass.exe LocalSystem 0	ProtectedStorage Running Auto Share Process Normal LocalSystem 0

Remote Access Auto Connection Manager	RasAuto	Stopped	Manual	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0
Remote Access Connection Manager	RasMan	Stopped	Manual	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0
Remote Desktop Help Session Manager	RDSessMgr	Stopped	Manual	Own Process	c:\windows\system32\sessmgr.exe	Normal	LocalSystem	0
Routing and Remote Access	RemoteAccess	Stopped	Disabled	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0
Remote Registry	RemoteRegistry	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k regsvc	Normal	NT AUTHORITY\LocalService	0
Remote Procedure Call (RPC) Locator	RpcLocator	Stopped	Manual	Own Process	c:\windows\system32\locator.exe	Normal	NT AUTHORITY\NetworkService	0
Remote Procedure Call (RPC)	RpcSs	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k rpcss	Normal	LocalSystem	0
Resultant Set of Policy Provider	RSOPProv	Stopped	Manual	Share Process	c:\windows\system32\rsopprov.exe	Normal	LocalSystem	0
Special Administration Console Helper	sacsvr	Stopped	Manual	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0
Security Accounts Manager	SamSs	Running	Auto	Share Process	c:\windows\system32\lsass.exe	Normal	LocalSystem	0
Smart Card	SCardSvr	Stopped	Manual	Share Process	c:\windows\system32\scardsvr.exe	Ignore	NT AUTHORITY\LocalService	0
Task Scheduler	Schedule	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0
Secondary Logon	seclogon	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Ignore	LocalSystem	0
System Event Notification	SENS	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0
Internet Connection Firewall (ICF) / Internet Connection Sharing (ICS)	SharedAccess	Stopped	Disabled	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0
Shell Hardware Detection	ShellHWDetection	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Ignore	LocalSystem	0
Print Spooler	Spooler	Running	Auto	Own Process	c:\windows\system32\spoolsv.exe	Normal	LocalSystem	0
SQLSERVERAGENT	SQLSERVERAGENT	Stopped	Manual	Own Process	c:\progra~1\micro~1\mssql\bin\sqlagent.exe	Normal	LocalSystem	0
Windows Image Acquisition (WIA)	stisvc	Stopped	Disabled	Share Process	c:\windows\system32\svchost.exe -k imgsvc	Normal	NT AUTHORITY\LocalService	0
Microsoft Software Shadow Copy Provider	swprv	Stopped	Manual	Own Process	c:\windows\system32\svchost.exe -k swprv	Normal	LocalSystem	0
Performance Logs and Alerts	SysmonLog	Stopped	Manual	Own Process	c:\windows\system32\smlogsvc.exe	Normal	NT Authority\NetworkService	0
Telephony TapiSrv	TapiSrv	Stopped	Manual	Share Process	c:\windows\system32\svchost.exe -k tapisrv	Normal	LocalSystem	0
Terminal Services	TermService	Running	Manual	Share Process	c:\windows\system32\svchost.exe -k termsvc	Normal	LocalSystem	0
Themes	Themes	Stopped	Disabled	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0
Telnet	TlntSvr	Stopped	Disabled	Own Process	c:\windows\system32\tlntsvr.exe	Normal	NT AUTHORITY\LocalService	0
Distributed Link Tracking Server	TrkSvr	Stopped	Disabled	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0
Distributed Link Tracking Client	TrkWks	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0
Terminal Services Session Directory	Tssdis	Stopped	Disabled	Own Process	c:\windows\system32\tssdis.exe	Normal	LocalSystem	0
Upload Manager	uploadmgr	Stopped	Manual	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0
Uninterruptible Power Supply	UPS	Stopped	Manual	Own Process	c:\windows\system32\ups.exe	Normal	LocalSystem	0
Virtual Disk Service	vds	Stopped	Manual	Own Process	c:\windows\system32\vds.exe	Normal	LocalSystem	0
Volume Shadow Copy	VSS	Stopped	Manual	Own Process	c:\windows\system32\vssvc.exe	Normal	LocalSystem	0
Windows Time	W32Time	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0
WebClient	WebClient	Stopped	Disabled	Share Process	c:\windows\system32\svchost.exe -k localservice	Normal	NT AUTHORITY\LocalService	0
WinHTTP Web Proxy Auto-Discovery Service	WinHttpAutoProxySvc	Stopped	Manual	Share Process	c:\windows\system32\svchost.exe -k localservice	Normal	NT AUTHORITY\LocalService	0
Windows Management Instrumentation	winmgmt	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Ignore	LocalSystem	0
Portable Media Serial Number Service	WmdmPmSN	Stopped	Manual	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0

```

Windows Management Instrumentation Driver Extensions      Wmi
Stopped Manual Share Process      c:\windows\system32\svchost.exe
-k netsvcs Normal LocalSystem      0

WMI Performance Adapter      WmiApSrv      Stopped Manual
Own Process      c:\windows\system32\wbem\wmiapsrv.exe Normal
LocalSystem      0

Automatic Updates      wuauerv Stopped Manual Share Process
c:\windows\system32\svchost.exe -k netsvcs Normal LocalSystem      0

Wireless Configuration      WZCSVC Running Auto Share
Process      c:\windows\system32\svchost.exe -k netsvcs Normal
LocalSystem      0

```

[Program Groups]

```

Group Name      Name      User Name

Accessories      Default User:Accessories      Default User

Accessories\Accessibility      Default User:Accessories\Accessibility
Default User

Accessories\Entertainment      Default User:Accessories\Entertainment
Default User

Startup      Default User:Startup      Default User

Accessories      All Users:Accessories All Users

Accessories\Accessibility      All Users:Accessories\Accessibility
All Users

Accessories\Communications      All Users:Accessories\Communications
All Users

Accessories\Entertainment      All Users:Accessories\Entertainment
All Users

Accessories\System Tools      All Users:Accessories\System Tools
All Users

Administrative Tools All Users:Administrative Tools All Users

Microsoft SQL Server All Users:Microsoft SQL Server All Users

ServeRAID Manager All Users:ServeRAID Manager All Users

Startup      All Users:Startup      All Users

Accessories      NT AUTHORITY\SYSTEM:Accessories NT
AUTHORITY\SYSTEM

Accessories\Accessibility      NT
AUTHORITY\SYSTEM:Accessories\Accessibility NT
AUTHORITY\SYSTEM

Accessories\Entertainment      NT
AUTHORITY\SYSTEM:Accessories\Entertainment NT
AUTHORITY\SYSTEM

Startup      NT AUTHORITY\SYSTEM:Startup      NT
AUTHORITY\SYSTEM

```

```

Accessories      IBMSERV2\Administrator:Accessories
IBMSERV2\Administrator

Accessories\Accessibility
IBMSERV2\Administrator:Accessories\Accessibility
IBMSERV2\Administrator

Accessories\Entertainment
IBMSERV2\Administrator:Accessories\Entertainment
IBMSERV2\Administrator

Administrative Tools IBMSERV2\Administrator:Administrative Tools
IBMSERV2\Administrator

QLogic Corporation IBMSERV2\Administrator:QLogic Corporation
IBMSERV2\Administrator

QLogic Corporation\SANblade Control VIX IBMSERV2\Administrator:QLogic
Corporation\SANblade Control VIX      IBMSERV2\Administrator

Startup      IBMSERV2\Administrator:Startup
IBMSERV2\Administrator

[Startup Programs]

Program      Command      User Name      Location

desktop      desktop.ini NT AUTHORITY\SYSTEM      Startup

desktop      desktop.ini IBMSERV2\Administrator      Startup

desktop      desktop.ini DEFAULT      Startup

desktop      desktop.ini All Users      Common Startup

Shortcut to synctime c:\batfiles\synctime.bat      All Users      Common
Startup

[OLE Registration]

Object      Local Server

Sound (OLE2)      sndrec32.exe

Media Clip      mplay32.exe

Video Clip mplay32.exe /avi

MIDI Sequence      mplay32.exe /mid

Sound      Not Available

Media Clip      Not Available

WordPad Document "%programfiles%\windows nt\accessories\wordpad.exe"

Windows Media Services DRM Storage object      Not Available

Bitmap Image      mspaint.exe

[Windows Error Reporting]

```

Time	Type	Details			
		dxtmsft.dll 6.3.3790.0 344 KB 3/25/2003 8:00:00 AM C:\WINDOWS\system32 Microsoft Corporation			
	[Internet Settings]	iecont.dll <File Missing> Not Available Not Available Not Available Not Available			
	[Internet Explorer]	iecontlc.dll <File Missing> Not Available Not Available Not Available Not Available			
		iedkcs32.dll 16.0.3790.0 300 KB 3/25/2003 8:00:00 AM C:\WINDOWS\system32 Microsoft Corporation			
	[Following are sub-categories of this main category]				
	[Summary]				
Item	Value				
Version	6.0.3790.0				
Build	63790				
Application Path	C:\Program Files\Internet Explorer				
Language	English (United States)				
Active Printer	Not Available				
Cipher Strength	128-bit				
Content Advisor	Disabled				
IEAK Install	No				
		ieexplr.exe 6.0.3790.0 90 KB 3/25/2003 8:00:00 AM C:\Program Files\Internet Explorer Microsoft Corporation			
		imgutil.dll 5.2.3790.0 35 KB 3/25/2003 8:00:00 AM C:\WINDOWS\system32 Microsoft Corporation			
		inetctl.dll 6.0.3790.0 303 KB 3/25/2003 8:00:00 AM C:\WINDOWS\system32 Microsoft Corporation			
		inetctl.dll 6.0.3790.0 109 KB 3/25/2003 8:00:00 AM C:\WINDOWS\system32 Microsoft Corporation			
		inseng.dll 6.0.3790.0 72 KB 3/25/2003 8:00:00 AM C:\WINDOWS\system32 Microsoft Corporation			
		mlang.dll 6.0.3790.0 570 KB 3/25/2003 8:00:00 AM C:\WINDOWS\system32 Microsoft Corporation			
	[File Versions]				
File	Version	Size	Date	Path	Company
actxprxy.dll	6.0.3790.0	95 KB	3/25/2003 8:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
advpack.dll	6.0.3790.0	94 KB	3/25/2003 8:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
asctrls.ocx	6.0.3790.0	90 KB	3/25/2003 8:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
browsecl.dll	6.0.3790.0	62 KB	3/25/2003 8:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
browseui.dll	6.0.3790.0	1,033 KB	3/25/2003 8:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
cdfview.dll	6.0.3790.0	144 KB	3/25/2003 8:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
comctl32.dll	5.82.3790.0	561 KB	3/25/2003 8:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
dxtrans.dll	6.3.3790.0	198 KB	3/25/2003 8:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
					msencode.dll 2002.10.4.0 112 KB 3/25/2003 8:00:00 AM C:\WINDOWS\system32 Not Available
					mshta.exe 6.0.3790.0 26 KB 3/25/2003 8:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
					mshtml.dll 6.0.3790.0 2,848 KB 3/25/2003 8:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
					mshtml.tlb 6.0.3790.0 1,319 KB 3/25/2003 8:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
					mshtml.dll 6.0.3790.0 444 KB 3/25/2003 8:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
					mshtml.dll 6.0.3790.0 55 KB 3/25/2003 8:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
					msident.dll 6.0.3790.0 47 KB 3/25/2003 8:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
					msidntld.dll 6.0.3790.0 15 KB 3/25/2003 8:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
					msieftp.dll 6.0.3790.0 230 KB 3/25/2003 8:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
					msrating.dll 6.0.3790.0 132 KB 3/25/2003 8:00:00 AM C:\WINDOWS\system32 Microsoft Corporation

mstime.dll 6.0.3790.0 491 KB 3/25/2003 8:00:00 AM
C:\WINDOWS\system32 Microsoft Corporation

occache.dll 6.0.3790.0 89 KB 3/25/2003 8:00:00 AM
C:\WINDOWS\system32 Microsoft Corporation

proctexe.ocx 6.3.3790.0 78 KB 3/25/2003 8:00:00 AM
C:\WINDOWS\system32 Intel Corporation

sendmail.dll 6.0.3790.0 52 KB 3/25/2003 8:00:00 AM
C:\WINDOWS\system32 Microsoft Corporation

shdoclc.dll 6.0.3790.0 589 KB 3/25/2003 8:00:00 AM
C:\WINDOWS\system32 Microsoft Corporation

shdocvw.dll 6.0.3790.0 1,361 KB 3/25/2003 8:00:00 AM
C:\WINDOWS\system32 Microsoft Corporation

shfolder.dll 6.0.3790.0 23 KB 3/25/2003 8:00:00 AM
C:\WINDOWS\system32 Microsoft Corporation

shlwapi.dll 6.0.3790.0 281 KB 3/25/2003 8:00:00 AM
C:\WINDOWS\system32 Microsoft Corporation

tdc.ocx 1.3.0.3130 58 KB 3/25/2003 8:00:00 AM
C:\WINDOWS\system32 Microsoft Corporation

url.dll 6.0.3790.0 36 KB 3/25/2003 8:00:00 AM
C:\WINDOWS\system32 Microsoft Corporation

urlmon.dll 6.0.3790.0 502 KB 3/25/2003 8:00:00 AM
C:\WINDOWS\system32 Microsoft Corporation

webcheck.dll 6.0.3790.0 262 KB 3/25/2003 8:00:00 AM
C:\WINDOWS\system32 Microsoft Corporation

wininet.dll 6.0.3790.0 609 KB 3/25/2003 8:00:00 AM
C:\WINDOWS\system32 Microsoft Corporation

[Connectivity]

Item	Value
Connection Preference	Never dial

LAN Settings

AutoConfigProxy	Not Available
AutoProxyDetectMode	Disabled
AutoConfigURL	
Proxy	Disabled
ProxyServer	
ProxyOverride	

[Cache]

[Following are sub-categories of this main category]

[Summary]

Item	Value
Page Refresh Type	Automatic
Temporary Internet Files Folder	C:\Documents and Settings\NetworkService\Local Settings\Temporary Internet Files
Total Disk Space	Not Available
Available Disk Space	Not Available
Maximum Cache Size	Not Available
Available Cache Size	Not Available

[List of Objects]

Program File	Status	CodeBase
No cached object information available		

[Content]

[Following are sub-categories of this main category]

[Summary]

Item	Value
Content Advisor	Disabled

[Personal Certificates]

Issued To	Issued By	Validity	Signature Algorithm
No personal certificate information available			

[Other People Certificates]

Issued To	Issued By	Validity	Signature Algorithm
No other people certificate information available			

[Publishers]

Name
No publisher information available

[Security]

Zone	Security Level
------	----------------

My Computer Custom
 Local intranet Medium-low
 Trusted sites Medium
 Internet High
 Restricted sites High

Disk Controller Configuration Parameters

Controller 1

October 10, 2003 4:19:05 PM EDT

Configuration summary

Server name.....ibmserv2
 ServeRAID Manager agent.....6.10.24 (1250)
 ServeRAID Manager console.....6.10.24 (1250)
 Number of controllers.....11
 Operating system.....Windows 2003

Configuration information for controller 1

Controller type.....LSI 1030
 BIOS version.....5.03.10.00
 Firmware version.....1.00.14.00
 Device driver version.....1.08.23.00
 Hot-swap rebuild.....Enabled
 Data scrubbing.....Enabled
 Auto-synchronization.....Enabled
 Unattended mode.....Enabled
 Number of arrays.....0
 Number of logical drives.....0
 Number of hot-spare drives.....0
 Number of ready drives.....1

SCSI channel 1

Number of drives.....1
 SCSI initiator ID.....7

Type.....Hard disk drive
 Vendor.....IBM-ESXS
 Product or model number.....DTN036C3UCDY10
 FRU part number.....32P0729
 Serial number.....E3V4R7BB
 Firmware level.....S23J
 Channel.....1
 SCSI ID.....0
 Size.....34715 MB
 State.....Ready
 PFA error.....No
 Partitioned.....Yes
 Write-cache mode.....Write through

Type.....Enclosure
 Vendor.....IBM
 Product or model number.....25P3495a S320
 Firmware level.....1
 Channel.....1
 SCSI ID.....8

End of the configuration information for controller 1

Controller 2

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Configuration summary

Server name.....ibmserv2
 ServeRAID Manager agent.....6.10.24 (1250)
 ServeRAID Manager console.....6.10.24 (1250)
 Number of controllers.....11
 Operating system.....Windows 2003

Configuration information for controller 2

Controller type.....LSI 1030
 BIOS version.....5.03.10.00
 Firmware version.....1.00.14.00
 Device driver version.....1.08.23.00
 Hot-swap rebuild.....Enabled
 Data scrubbing.....Enabled
 Auto-synchronization.....Enabled
 Unattended mode.....Enabled
 Number of arrays.....0
 Number of logical drives.....0
 Number of hot-spare drives.....0
 Number of ready drives.....0

SCSI channel 1

Number of drives.....0
 SCSI initiator ID.....7

End of the configuration information for controller 2

Controller 3

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Configuration summary

Server name.....ibmserv2
 ServeRAID Manager agent.....6.10.24 (1250)
 ServeRAID Manager console.....6.10.24 (1250)
 Number of controllers.....11
 Operating system.....Windows 2003

Configuration information for controller 3

Controller type.....ServeRAID-6M
 SCSI backend type.....AIC-7902
 SCSI backend revision.....16
 Controller FRU.....02R0998
 Battery FRU.....02R0986
 Serial number.....30B7EA2B
 Part number.....02R0988
 Physical slot.....1
 BIOS version.....6.10.24
 Firmware version.....6.10.24

Device driver version.....6.08.06
 Battery-backup cache.....Installed
 Battery temperature.....Normal
 Battery charge level.....100 %
 Battery-backup cache size.....256 MB
 Read-ahead cache mode.....Adaptive
 Stripe-unit size.....64 KB
 Rebuild rate.....High
 Hot-swap rebuild.....Enabled
 Copy back.....Enabled
 Data scrubbing.....Enabled
 Auto-synchronization.....Enabled
 Clustering.....Disabled
 Unattended mode.....Disabled
 BIOS-compatibility mapping.....Limited
 Number of arrays.....1
 Number of logical drives.....1
 Number of hot-spare drives.....0
 Number of ready drives.....0

Spanned array 1

 Array identifier.....1
 Array size.....486010 MB
 Free space.....0 MB
 Number of logical drives.....1
 Number of physical drives.....14

Arrays in spanned array 1

 Array identifier.....A
 Array size.....69430 MB
 Stripe order (channel/device)...1/0 2/8
 Number of physical drives.....2

Array identifier.....B
 Array size.....69430 MB
 Stripe order (channel/device)...1/1 2/9
 Number of physical drives.....2

Array identifier.....C
 Array size.....69430 MB
 Stripe order (channel/device)...1/2 2/10
 Number of physical drives.....2

Array identifier.....D
 Array size.....69430 MB
 Stripe order (channel/device)...1/3 2/11
 Number of physical drives.....2

Array identifier.....E
 Array size.....69430 MB
 Stripe order (channel/device)...1/4 2/12
 Number of physical drives.....2

Array identifier.....F
 Array size.....69430 MB
 Stripe order (channel/device)...1/5 2/13
 Number of physical drives.....2

Array identifier.....G
 Array size.....69430 MB
 Stripe order (channel/device)...1/6 2/14
 Number of physical drives.....2

Physical drives in array A

Type.....Hard disk drive
 Vendor.....IBM-ESXS
 Product or model number.....ST336753
 FRU part number.....32P0736
 Serial number.....3HX0BX6G
 Firmware level.....B855
 Channel.....1
 SCSI ID.....0
 Size.....34715 MB
 State.....Online
 Array letter.....A
 PFA error.....No

Type.....Hard disk drive
 Vendor.....IBM-ESXS
 Product or model number.....ST336753
 FRU part number.....32P0736
 Serial number.....3HX0CEH6
 Firmware level.....B855
 Channel.....2
 SCSI ID.....8
 Size.....34715 MB
 State.....Online
 Array letter.....A
 PFA error.....No

Physical drives in array B

 Type.....Hard disk drive
 Vendor.....IBM-ESXS
 Product or model number.....ST336753
 FRU part number.....32P0736
 Serial number.....3HX0BZ6N
 Firmware level.....B855
 Channel.....1
 SCSI ID.....1
 Size.....34715 MB
 State.....Online
 Array letter.....B
 PFA error.....No

Type.....Hard disk drive
 Vendor.....IBM-ESXS
 Product or model number.....ST336753
 FRU part number.....32P0736
 Serial number.....3HX0BXND
 Firmware level.....B855
 Channel.....2
 SCSI ID.....9
 Size.....34715 MB
 State.....Online
 Array letter.....B
 PFA error.....No

Physical drives in array C

 Type.....Hard disk drive
 Vendor.....IBM-ESXS
 Product or model number.....ST336753
 FRU part number.....32P0736
 Serial number.....3HX0BSQX
 Firmware level.....B855
 Channel.....1
 SCSI ID.....2
 Size.....34715 MB
 State.....Online

Array letter.....C
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0AS1B
Firmware level.....B855
Channel.....2
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....C
PFA error.....No

Physical drives in array D

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0BKPS
Firmware level.....B855
Channel.....1
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....D
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0C9AA
Firmware level.....B855
Channel.....2
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....D
PFA error.....No

Physical drives in array E

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX07RC9
Firmware level.....B855
Channel.....1
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....E
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0ARYW
Firmware level.....B855
Channel.....2

SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....E
PFA error.....No

Physical drives in array F

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX099T3
Firmware level.....B855
Channel.....1
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....F
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0Q1AY
Firmware level.....B855
Channel.....2
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....F
PFA error.....No

Physical drives in array G

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0BT9B
Firmware level.....B855
Channel.....1
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....G
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0R1CJ
Firmware level.....B855
Channel.....2
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....G
PFA error.....No

Logical drives in spanned array 1

Logical drive.....1

Spanned array number1
State.....Okay
RAID level.....10
Data space.....243005 MB
Parity space.....243005 MB
Date created.....09/23/2003
Write-cache mode.....Write through
Merge-group number.....207
Merge-group state.....Non-shared

SCSI channel 1

Number of drives.....7
SCSI transfer speed.....Optimal
SCSI initiator ID.....7

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0BX6G
Firmware level.....B855
Channel.....1
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0BZ6N
Firmware level.....B855
Channel.....1
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0BSQX
Firmware level.....B855
Channel.....1
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....C
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0BKPS
Firmware level.....B855
Channel.....1
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....D
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX07RC9
Firmware level.....B855
Channel.....1
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....E
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX099T3
Firmware level.....B855
Channel.....1
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....F
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0BT9B
Firmware level.....B855
Channel.....1
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....G
PFA error.....No

Type.....Enclosure
Vendor.....IBM
Product or model number.....EXP300
Serial number.....xO???
Firmware level.....D014
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....19K1171
FRU serial number.....1R02309T488
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....07K5985
FRU serial number.....1R0KC09M239
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....19K1173
FRU serial number.....1R02209S424
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....19K1172
FRU serial number.....1R02409S298
Channel.....1
SCSI ID.....15
Enclosure ID.....0

Enclosure status.....Okay
Fan 1 status.....Okay
Fan 2 status.....Okay
Power supply 1 status.....Okay
Power supply 2 status.....Okay
Temperature status.....Normal

SCSI channel 2

Number of drives.....7
SCSI transfer speed.....Optimal
SCSI initiator ID.....7

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0CEH6
Firmware level.....B855
Channel.....2
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0BXND
Firmware level.....B855
Channel.....2
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0AS1B
Firmware level.....B855
Channel.....2
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....C
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0C9AA
Firmware level.....B855
Channel.....2
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....D
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753

FRU part number.....32P0736
Serial number.....3HX0ARYW
Firmware level.....B855
Channel.....2
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....E
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0Q1AY
Firmware level.....B855
Channel.....2
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....F
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0R1CJ
Firmware level.....B855
Channel.....2
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....G
PFA error.....No

Type.....Enclosure
Vendor.....IBM
Product or model number.....EXP300
Serial number.....xO???
Firmware level.....D014
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....19K1171
FRU serial number.....1R02309T419
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....07K5985
FRU serial number.....1R0KC09M239
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....19K1173
FRU serial number.....1R02209S424
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....19K1172
FRU serial number.....1R02409S298
Channel.....2
SCSI ID.....15
Enclosure ID.....0
Enclosure status.....Okay
Fan 1 status.....Okay
Fan 2 status.....Okay
Power supply 1 status.....Okay

Power supply 2 status.....Okay
Temperature status.....Normal

End of the configuration information for controller 3

Controller 4

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Configuration summary

Server name.....ibmserv2
ServeRAID Manager agent.....6.10.24 (1250)
ServeRAID Manager console.....6.10.24 (1250)
Number of controllers.....11
Operating system.....Windows 2003

Configuration information for controller 4

Controller type.....ServeRAID-6M
SCSI backend type.....AIC-7902
SCSI backend revision.....16
Controller FRU.....02R0998
Battery FRU.....02R0986
Serial number.....30B7EA1E
Part number.....02R0988
Physical slot.....8
BIOS version.....6.10.24
Firmware version.....6.10.24
Device driver version.....6.08.06
Battery-backup cache.....Installed
Battery temperature.....Normal
Battery charge level.....100 %
Battery-backup cache size.....256 MB
Read-ahead cache mode.....Adaptive
Stripe-unit size.....64 KB
Rebuild rate.....High
Hot-swap rebuild.....Enabled
Copy back.....Enabled
Data scrubbing.....Enabled
Auto-synchronization.....Enabled
Clustering.....Disabled
Unattended mode.....Disabled
BIOS-compatibility mapping.....Limited
Number of arrays.....2
Number of logical drives.....2
Number of hot-spare drives.....0
Number of ready drives.....0

Array A

Array identifier.....A
Array size.....486010 MB
Free space.....0 MB
Number of logical drives.....1
Stripe order (channel/device)...1/0 1/1 1/2 1/3 1/4 1/5 1/6 1/8 1/9 1/10 1/11 1/12
1/13 1/14
Number of physical drives.....14

Logical drives in array A

Logical drive.....1
Array letter.....A
State.....Okay

RAID level.....0
Data space.....486010 MB
Parity space.....0 MB
Date created.....09/26/2003
Write-cache mode.....Write through
Merge-group number.....207
Merge-group state.....Non-shared

Physical drives in array A

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NDB
Firmware level.....B85A
Channel.....1
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17MJP
Firmware level.....B85A
Channel.....1
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17WZH
Firmware level.....B85A
Channel.....1
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17MZY
Firmware level.....B85A
Channel.....1
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N77

Firmware level.....B85A
Channel.....1
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17XW8
Firmware level.....B85A
Channel.....1
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17L01
Firmware level.....B85A
Channel.....1
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N0B
Firmware level.....B85A
Channel.....1
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N8Q
Firmware level.....B85A
Channel.....1
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N13
Firmware level.....B85A
Channel.....1
SCSI ID.....10

Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17PMH
Firmware level.....B85A
Channel.....1
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N2C
Firmware level.....B85A
Channel.....1
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N38
Firmware level.....B85A
Channel.....1
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17G7R
Firmware level.....B85A
Channel.....1
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Array B

Array identifier.....B
Array size.....486010 MB
Free space.....0 MB
Number of logical drives.....1
Stripe order (channel/device)...2/0 2/1 2/2 2/3 2/4 2/5 2/6 2/8 2/9 2/10 2/11 2/12
2/13 2/14
Number of physical drives.....14

Logical drives in array B

Logical drive.....2
Array letter.....B
State.....Okay
RAID level.....0
Data space.....486010 MB
Parity space.....0 MB
Date created.....09/26/2003
Write-cache mode.....Write through
Merge-group number.....207
Merge-group state.....Non-shared

Physical drives in array B

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17WX3
Firmware level.....B85A
Channel.....2
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17MW2
Firmware level.....B85A
Channel.....2
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N0A
Firmware level.....B85A
Channel.....2
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17VXC
Firmware level.....B85A
Channel.....2
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive

Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX174V3
Firmware level.....B85A
Channel.....2
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17MWP
Firmware level.....B85A
Channel.....2
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NMP
Firmware level.....B85A
Channel.....2
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17VPX
Firmware level.....B85A
Channel.....2
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17978
Firmware level.....B85A
Channel.....2
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736

Serial number.....3HX17QNF
Firmware level.....B85A
Channel.....2
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17DR7
Firmware level.....B85A
Channel.....2
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17RDE
Firmware level.....B85A
Channel.....2
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17WXQ
Firmware level.....B85A
Channel.....2
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17RC1
Firmware level.....B85A
Channel.....2
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

SCSI channel 1

Number of drives.....14
SCSI transfer speed.....Optimal
SCSI initiator ID.....7

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NDB
Firmware level.....B85A
Channel.....1
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17MJP
Firmware level.....B85A
Channel.....1
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17WZH
Firmware level.....B85A
Channel.....1
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17MZY
Firmware level.....B85A
Channel.....1
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N77
Firmware level.....B85A
Channel.....1
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753

FRU part number.....32P0736
Serial number.....3HX17XW8
Firmware level.....B85A
Channel.....1
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17L01
Firmware level.....B85A
Channel.....1
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N0B
Firmware level.....B85A
Channel.....1
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N8Q
Firmware level.....B85A
Channel.....1
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N13
Firmware level.....B85A
Channel.....1
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17PMH
Firmware level.....B85A

Channel.....1
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N2C
Firmware level.....B85A
Channel.....1
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N38
Firmware level.....B85A
Channel.....1
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17G7R
Firmware level.....B85A
Channel.....1
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Enclosure
Vendor.....IBM
Product or model number.....EXP300
Serial number.....6807276
Firmware level.....D014
FRU type.....MIDPLANE
FRU vendor.....IBM
FRU date of manufacture.....11/2000
FRU part number.....19K1239
FRU serial number.....6807276
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1171
FRU serial number.....1R0230AB148
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1171
FRU serial number.....1R0230AB186
FRU type.....Power
FRU vendor.....IBM

FRU date of manufacture.....10/2000
 FRU part number.....07K5985
 FRU serial number.....1R0KC0A7140
 FRU type.....Power
 FRU vendor.....IBM
 FRU date of manufacture.....10/2000
 FRU part number.....07K5985
 FRU serial number.....1R0KC0A7294
 FRU type.....CARD
 FRU vendor.....IBM
 FRU date of manufacture.....10/2000
 FRU part number.....19K1173
 FRU serial number.....1R0220AA944
 FRU type.....CARD
 FRU vendor.....IBM
 FRU date of manufacture.....10/2000
 FRU part number.....19K1172
 FRU serial number.....1R0240A4988
 Channel.....1
 SCSI ID.....15
 Enclosure ID.....0
 Enclosure status.....Okay
 Fan 1 status.....Okay
 Fan 2 status.....Okay
 Power supply 1 status.....Okay
 Power supply 2 status.....Okay
 Temperature status.....Normal

SCSI channel 2

 Number of drives.....14
 SCSI transfer speed.....Optimal
 SCSI initiator ID.....7

Type.....Hard disk drive
 Vendor.....IBM-ESXS
 Product or model number.....ST336753
 FRU part number.....32P0736
 Serial number.....3HX17WX3
 Firmware level.....B85A
 Channel.....2
 SCSI ID.....0
 Size.....34715 MB
 State.....Online
 Array letter.....B
 PFA error.....No

Type.....Hard disk drive
 Vendor.....IBM-ESXS
 Product or model number.....ST336753
 FRU part number.....32P0736
 Serial number.....3HX17MW2
 Firmware level.....B85A
 Channel.....2
 SCSI ID.....1
 Size.....34715 MB
 State.....Online
 Array letter.....B
 PFA error.....No

Type.....Hard disk drive
 Vendor.....IBM-ESXS
 Product or model number.....ST336753
 FRU part number.....32P0736
 Serial number.....3HX17N0A
 Firmware level.....B85A
 Channel.....2
 SCSI ID.....2

Size.....34715 MB
 State.....Online
 Array letter.....B
 PFA error.....No

Type.....Hard disk drive
 Vendor.....IBM-ESXS
 Product or model number.....ST336753
 FRU part number.....32P0736
 Serial number.....3HX17VXC
 Firmware level.....B85A
 Channel.....2
 SCSI ID.....3
 Size.....34715 MB
 State.....Online
 Array letter.....B
 PFA error.....No

Type.....Hard disk drive
 Vendor.....IBM-ESXS
 Product or model number.....ST336753
 FRU part number.....32P0736
 Serial number.....3HX174V3
 Firmware level.....B85A
 Channel.....2
 SCSI ID.....4
 Size.....34715 MB
 State.....Online
 Array letter.....B
 PFA error.....No

Type.....Hard disk drive
 Vendor.....IBM-ESXS
 Product or model number.....ST336753
 FRU part number.....32P0736
 Serial number.....3HX17MWP
 Firmware level.....B85A
 Channel.....2
 SCSI ID.....5
 Size.....34715 MB
 State.....Online
 Array letter.....B
 PFA error.....No

Type.....Hard disk drive
 Vendor.....IBM-ESXS
 Product or model number.....ST336753
 FRU part number.....32P0736
 Serial number.....3HX17NMP
 Firmware level.....B85A
 Channel.....2
 SCSI ID.....6
 Size.....34715 MB
 State.....Online
 Array letter.....B
 PFA error.....No

Type.....Hard disk drive
 Vendor.....IBM-ESXS
 Product or model number.....ST336753
 FRU part number.....32P0736
 Serial number.....3HX17VPPX
 Firmware level.....B85A
 Channel.....2
 SCSI ID.....8
 Size.....34715 MB
 State.....Online
 Array letter.....B

PFA error.....No
Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17978
Firmware level.....B85A
Channel.....2
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17QNF
Firmware level.....B85A
Channel.....2
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17DR7
Firmware level.....B85A
Channel.....2
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17RDE
Firmware level.....B85A
Channel.....2
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17WXQ
Firmware level.....B85A
Channel.....2
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive

Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17RC1
Firmware level.....B85A
Channel.....2
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Enclosure
Vendor.....IBM
Product or model number.....EXP300
Serial number.....xO???
Firmware level.....D014
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1171
FRU serial number.....1R0230AB344
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1171
FRU serial number.....1R0230AB343
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....07K5985
FRU serial number.....1R0KC0A8243
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....07K5985
FRU serial number.....1R0KC0A8253
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1173
FRU serial number.....1R0220AB012
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1172
FRU serial number.....1R0240AA628
Channel.....2
SCSI ID.....15
Enclosure ID.....0
Enclosure status.....Okay
Fan 1 status.....Okay
Fan 2 status.....Okay
Power supply 1 status.....Okay
Power supply 2 status.....Okay
Temperature status.....Normal

End of the configuration information for controller 4

Controller 5

October 10, 2003 4:19:06 PM EDT
Configuration summary

Server name.....ibmserv2
ServeRAID Manager agent.....6.10.24 (1250)
ServeRAID Manager console.....6.10.24 (1250)
Number of controllers.....11
Operating system.....Windows 2003

Configuration information for controller 5

Controller type.....ServeRAID-6M
SCSI backend type.....AIC-7902
SCSI backend revision.....16
Controller FRU.....02R0998
Battery FRU.....02R0986
Serial number.....30B7EA2A
Part number.....02R0988
Physical slot.....2
BIOS version.....6.10.24
Firmware version.....6.10.24
Device driver version.....6.08.06
Battery-backup cache.....Installed
Battery temperature.....Normal
Battery charge level.....100 %
Battery-backup cache size.....256 MB
Read-ahead cache mode.....Adaptive
Stripe-unit size.....64 KB
Rebuild rate.....High
Hot-swap rebuild.....Enabled
Copy back.....Enabled
Data scrubbing.....Enabled
Auto-synchronization.....Enabled
Clustering.....Disabled
Unattended mode.....Disabled
BIOS-compatibility mapping.....Limited
Number of arrays.....2
Number of logical drives.....2
Number of hot-spare drives.....0
Number of ready drives.....0

Array A

Array identifier.....A
Array size.....486010 MB
Free space.....0 MB
Number of logical drives.....1
Stripe order (channel/device)...1/0 1/1 1/2 1/3 1/4 1/5 1/6 1/8 1/9 1/10 1/11 1/12
1/13 1/14
Number of physical drives.....14

Logical drives in array A

Logical drive.....1
Array letter.....A
State.....Okay
RAID level.....0
Data space.....486010 MB
Parity space.....0 MB
Date created.....09/26/2003
Write-cache mode.....Write through
Merge-group number.....207
Merge-group state.....Non-shared

Physical drives in array A

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736

Serial number.....3HX17NEM
Firmware level.....B85A
Channel.....1
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N1M
Firmware level.....B85A
Channel.....1
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX15SZA
Firmware level.....B85A
Channel.....1
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17MV0
Firmware level.....B85A
Channel.....1
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N8J
Firmware level.....B85A
Channel.....1
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17VQD
Firmware level.....B85A
Channel.....1

SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17VG8
Firmware level.....B85A
Channel.....1
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17FJ7
Firmware level.....B85A
Channel.....1
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N25
Firmware level.....B85A
Channel.....1
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17RB2
Firmware level.....B85A
Channel.....1
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N1F
Firmware level.....B85A
Channel.....1
SCSI ID.....11
Size.....34715 MB
State.....Online

Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N3D
Firmware level.....B85A
Channel.....1
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17TBG
Firmware level.....B85A
Channel.....1
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX16VM0
Firmware level.....B85A
Channel.....1
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Array B

Array identifier.....B
Array size.....486010 MB
Free space.....0 MB
Number of logical drives.....1
Stripe order (channel/device)...2/0 2/1 2/2 2/3 2/4 2/5 2/6 2/8 2/9 2/10 2/11 2/12
2/13 2/14
Number of physical drives.....14

Logical drives in array B

Logical drive.....2
Array letter.....B
State.....Okay
RAID level.....0
Data space.....486010 MB
Parity space.....0 MB
Date created.....09/26/2003
Write-cache mode.....Write through
Merge-group number.....207
Merge-group state.....Non-shared

Physical drives in array B

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N75
Firmware level.....B85A
Channel.....2
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NE9
Firmware level.....B85A
Channel.....2
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX16G0S
Firmware level.....B85A
Channel.....2
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17MTP
Firmware level.....B85A
Channel.....2
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17TBK
Firmware level.....B85A
Channel.....2
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753

FRU part number.....32P0736
Serial number.....3HX17WC9
Firmware level.....B85A
Channel.....2
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17SJD
Firmware level.....B85A
Channel.....2
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17RBE
Firmware level.....B85A
Channel.....2
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17EZS
Firmware level.....B85A
Channel.....2
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17V4W
Firmware level.....B85A
Channel.....2
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17TS4
Firmware level.....B85A

Channel.....2
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NJE
Firmware level.....B85A
Channel.....2
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17XBA
Firmware level.....B85A
Channel.....2
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17WES
Firmware level.....B85A
Channel.....2
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

SCSI channel 1

Number of drives.....14
SCSI transfer speed.....Optimal
SCSI initiator ID.....7

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NEM
Firmware level.....B85A
Channel.....1
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS

Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N1M
Firmware level.....B85A
Channel.....1
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX15SZA
Firmware level.....B85A
Channel.....1
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17MV0
Firmware level.....B85A
Channel.....1
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N8J
Firmware level.....B85A
Channel.....1
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17VQD
Firmware level.....B85A
Channel.....1
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17VG8

Firmware level.....B85A
Channel.....1
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17FJ7
Firmware level.....B85A
Channel.....1
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N25
Firmware level.....B85A
Channel.....1
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17RB2
Firmware level.....B85A
Channel.....1
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N1F
Firmware level.....B85A
Channel.....1
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N3D
Firmware level.....B85A
Channel.....1
SCSI ID.....12

Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17TBG
Firmware level.....B85A
Channel.....1
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX16VM0
Firmware level.....B85A
Channel.....1
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Enclosure
Vendor.....IBM
Product or model number.....EXP300
Serial number.....6806270
Firmware level.....D014
FRU type.....MIDPLANE
FRU vendor.....IBM
FRU date of manufacture.....11/2000
FRU part number.....19K1239
FRU serial number.....6806270
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1171
FRU serial number.....1R0230A3926
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1171
FRU serial number.....1R0230A3968
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....07K5985
FRU serial number.....1R0KC09W128
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....07K5985
FRU serial number.....1R0KC09W159
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1173
FRU serial number.....1R0220A2566
FRU type.....CARD
FRU vendor.....IBM

FRU date of manufacture.....09/2000
FRU part number.....19K1172
FRU serial number.....1R02409Y347
Channel.....1
SCSI ID.....15
Enclosure ID.....0
Enclosure status.....Okay
Fan 1 status.....Okay
Fan 2 status.....Okay
Power supply 1 status.....Okay
Power supply 2 status.....Okay
Temperature status.....Normal

SCSI channel 2

Number of drives.....14
SCSI transfer speed.....Optimal
SCSI initiator ID.....7

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N75
Firmware level.....B85A
Channel.....2
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NE9
Firmware level.....B85A
Channel.....2
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX16G0S
Firmware level.....B85A
Channel.....2
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17MTP
Firmware level.....B85A
Channel.....2
SCSI ID.....3
Size.....34715 MB
State.....Online

Array letter.....B
PFA error.....No
Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17TBK
Firmware level.....B85A
Channel.....2
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17WC9
Firmware level.....B85A
Channel.....2
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17SJD
Firmware level.....B85A
Channel.....2
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17RBE
Firmware level.....B85A
Channel.....2
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17EZS
Firmware level.....B85A
Channel.....2
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17V4W
Firmware level.....B85A
Channel.....2
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17TS4
Firmware level.....B85A
Channel.....2
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NJE
Firmware level.....B85A
Channel.....2
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17XBA
Firmware level.....B85A
Channel.....2
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17WES
Firmware level.....B85A
Channel.....2
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Enclosure
Vendor.....IBM
Product or model number.....EXP300

Serial number.....xO???
Firmware level.....D014
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1171
FRU serial number.....1R0230A3919
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1171
FRU serial number.....1R0230A3916
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....07K5985
FRU serial number.....1R0KC09W094
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....07K5985
FRU serial number.....1R0KC09V291
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1173
FRU serial number.....1R0220A2651
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....19K1172
FRU serial number.....1R02409Y316
Channel.....2
SCSI ID.....15
Enclosure ID.....0
Enclosure status.....Okay
Fan 1 status.....Okay
Fan 2 status.....Okay
Power supply 1 status.....Okay
Power supply 2 status.....Okay
Temperature status.....Normal

End of the configuration information for controller 5

Controller 6

October 10, 2003 4:19:06 PM EDT
Configuration summary

Server name.....ibmserv2
ServeRAID Manager agent.....6.10.24 (1250)
ServeRAID Manager console.....6.10.24 (1250)
Number of controllers.....11
Operating system.....Windows 2003

Configuration information for controller 6

Controller type.....ServeRAID-6M
SCSI backend type.....AIC-7902
SCSI backend revision.....16
Controller FRU.....02R0985
Battery FRU.....02R0986
Serial number.....20B757BC
Part number.....32P0033
Physical slot.....10
BIOS version.....6.10.24

Firmware version.....6.10.24
Device driver version.....6.08.06
Battery-backup cache.....Installed
Battery temperature.....Normal
Battery charge level.....100 %
Battery-backup cache size.....128 MB
Read-ahead cache mode.....Adaptive
Stripe-unit size.....64 KB
Rebuild rate.....High
Hot-swap rebuild.....Enabled
Copy back.....Enabled
Data scrubbing.....Enabled
Auto-synchronization.....Enabled
Clustering.....Disabled
Unattended mode.....Disabled
BIOS-compatibility mapping.....Limited
Number of arrays.....2
Number of logical drives.....2
Number of hot-spare drives.....0
Number of ready drives.....0

Array A

Array identifier.....A
Array size.....486010 MB
Free space.....0 MB
Number of logical drives.....1
Stripe order (channel/device)....1/0 1/1 1/2 1/3 1/4 1/5 1/6 1/8 1/9 1/10 1/11 1/12
1/13 1/14
Number of physical drives.....14

Logical drives in array A

Logical drive.....1
Array letter.....A
State.....Okay
RAID level.....0
Data space.....486010 MB
Parity space.....0 MB
Date created.....09/26/2003
Write-cache mode.....Write through
Merge-group number.....207
Merge-group state.....Non-shared

Physical drives in array A

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX15SYB
Firmware level.....B85A
Channel.....1
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N5H
Firmware level.....B85A
Channel.....1
SCSI ID.....1

Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No
Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17E48
Firmware level.....B85A
Channel.....1
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17WHN
Firmware level.....B85A
Channel.....1
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17VZM
Firmware level.....B85A
Channel.....1
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17WYM
Firmware level.....B85A
Channel.....1
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17EK6
Firmware level.....B85A
Channel.....1
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....A

PFA error.....No
Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17SEQ
Firmware level.....B85A
Channel.....1
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NKK
Firmware level.....B85A
Channel.....1
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX181M5
Firmware level.....B85A
Channel.....1
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX181ML
Firmware level.....B85A
Channel.....1
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N86
Firmware level.....B85A
Channel.....1
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive

Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX181M3
Firmware level.....B85A
Channel.....1
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17TLB
Firmware level.....B85A
Channel.....1
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Array B

Array identifier.....B
Array size.....486010 MB
Free space.....0 MB
Number of logical drives.....1
Stripe order (channel/device)...2/0 2/1 2/2 2/3 2/4 2/5 2/6 2/8 2/9 2/10 2/11 2/12
2/13 2/14
Number of physical drives.....14

Logical drives in array B

Logical drive.....2
Array letter.....B
State.....Okay
RAID level.....0
Data space.....486010 MB
Parity space.....0 MB
Date created.....09/26/2003
Write-cache mode.....Write through
Merge-group number.....207
Merge-group state.....Non-shared

Physical drives in array B

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N8L
Firmware level.....B85A
Channel.....2
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736

Serial number.....3HX17VZD
Firmware level.....B85A
Channel.....2
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17WC1
Firmware level.....B85A
Channel.....2
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N23
Firmware level.....B85A
Channel.....2
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17VZL
Firmware level.....B85A
Channel.....2
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17WY4
Firmware level.....B85A
Channel.....2
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX15T0G
Firmware level.....B85A
Channel.....2

SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17VZY
Firmware level.....B85A
Channel.....2
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17G83
Firmware level.....B85A
Channel.....2
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17FTN
Firmware level.....B85A
Channel.....2
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17VSD
Firmware level.....B85A
Channel.....2
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NNE
Firmware level.....B85A
Channel.....2
SCSI ID.....12
Size.....34715 MB
State.....Online

Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17V3N
Firmware level.....B85A
Channel.....2
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17TT9
Firmware level.....B85A
Channel.....2
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

SCSI channel 1

Number of drives.....14
SCSI transfer speed.....Optimal
SCSI initiator ID.....7

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX15SYB
Firmware level.....B85A
Channel.....1
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N5H
Firmware level.....B85A
Channel.....1
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17E48
Firmware level.....B85A

Channel.....1
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17WHN
Firmware level.....B85A
Channel.....1
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17VZM
Firmware level.....B85A
Channel.....1
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17WYM
Firmware level.....B85A
Channel.....1
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17EK6
Firmware level.....B85A
Channel.....1
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17SEQ
Firmware level.....B85A
Channel.....1
SCSI ID.....8
Size.....34715 MB

State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NKK
Firmware level.....B85A
Channel.....1
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX181M5
Firmware level.....B85A
Channel.....1
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX181ML
Firmware level.....B85A
Channel.....1
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N86
Firmware level.....B85A
Channel.....1
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX181M3
Firmware level.....B85A
Channel.....1
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17TLB
Firmware level.....B85A
Channel.....1
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Enclosure
Vendor.....IBM
Product or model number.....EXP300
Serial number.....xO???
Firmware level.....D014
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1171
FRU serial number.....1R0230AG971
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1171
FRU serial number.....1R0230AG764
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....07K5985
FRU serial number.....1R0KC0AB100
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....07K5985
FRU serial number.....1R0KC0AC195
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1173
FRU serial number.....1R0220AD621
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1172
FRU serial number.....1R0240AB942
Channel.....1
SCSI ID.....15
Enclosure ID.....0
Enclosure status.....Okay
Fan 1 status.....Okay
Fan 2 status.....Okay
Power supply 1 status.....Okay
Power supply 2 status.....Okay
Temperature status.....Normal

SCSI channel 2

Number of drives.....14
SCSI transfer speed.....Optimal
SCSI initiator ID.....7

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753

FRU part number.....32P0736
Serial number.....3HX17N8L
Firmware level.....B85A
Channel.....2
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17VZD
Firmware level.....B85A
Channel.....2
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17WC1
Firmware level.....B85A
Channel.....2
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N23
Firmware level.....B85A
Channel.....2
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17VZL
Firmware level.....B85A
Channel.....2
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17WY4
Firmware level.....B85A

Channel.....2
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX15T0G
Firmware level.....B85A
Channel.....2
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17VZY
Firmware level.....B85A
Channel.....2
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17G83
Firmware level.....B85A
Channel.....2
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17FTN
Firmware level.....B85A
Channel.....2
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17VSD
Firmware level.....B85A
Channel.....2
SCSI ID.....11
Size.....34715 MB

State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NNE
Firmware level.....B85A
Channel.....2
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17V3N
Firmware level.....B85A
Channel.....2
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17TT9
Firmware level.....B85A
Channel.....2
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Enclosure
Vendor.....IBM
Product or model number.....EXP300
Serial number.....xO???
Firmware level.....D014
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1171
FRU serial number.....1R0230A3890
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1171
FRU serial number.....1R0230A3893
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....07K5985
FRU serial number.....1R0KC09W104
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....07K5985
FRU serial number.....1R0KC09W084

FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1173
FRU serial number.....1R0220A2652
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1172
FRU serial number.....1R0240A3611
Channel.....2
SCSI ID.....15
Enclosure ID.....0
Enclosure status.....Okay
Fan 1 status.....Okay
Fan 2 status.....Okay
Power supply 1 status.....Okay
Power supply 2 status.....Okay
Temperature status.....Normal

End of the configuration information for controller 6

Controller 7

October 10, 2003 4:19:07 PM EDT
Configuration summary

Server name.....ibmserv2
ServeRAID Manager agent.....6.10.24 (1250)
ServeRAID Manager console.....6.10.24 (1250)
Number of controllers.....11
Operating system.....Windows 2003

Configuration information for controller 7

Controller type.....ServeRAID-6M
SCSI backend type.....AIC-7902
SCSI backend revision.....16
Controller FRU.....02R0985
Battery FRU.....02R0986
Serial number.....00B772BF
Part number.....32P0033
Physical slot.....6
BIOS version.....6.10.24
Firmware version.....6.10.24
Device driver version.....6.08.06
Battery-backup cache.....Installed
Battery temperature.....Normal
Battery charge level.....100 %
Battery-backup cache size.....128 MB
Read-ahead cache mode.....Adaptive
Stripe-unit size.....64 KB
Rebuild rate.....High
Hot-swap rebuild.....Enabled
Copy back.....Enabled
Data scrubbing.....Enabled
Auto-synchronization.....Enabled
Clustering.....Disabled
Unattended mode.....Disabled
BIOS-compatibility mapping.....Limited
Number of arrays.....2
Number of logical drives.....2
Number of hot-spare drives.....0
Number of ready drives.....0

Array A

Array identifier.....A
Array size.....486010 MB
Free space.....0 MB
Number of logical drives.....1
Stripe order (channel/device)...1/0 1/1 1/2 1/3 1/4 1/5 1/6 1/8 1/9 1/10 1/11 1/12
1/13 1/14
Number of physical drives.....14

Logical drives in array A

Logical drive.....1
Array letter.....A
State.....Okay
RAID level.....0
Data space.....486010 MB
Parity space.....0 MB
Date created.....09/23/2003
Write-cache mode.....Write through
Merge-group number.....207
Merge-group state.....Non-shared

Physical drives in array A

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0C6JV
Firmware level.....B855
Channel.....1
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0CHV0
Firmware level.....B855
Channel.....1
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0BV6T
Firmware level.....B855
Channel.....1
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753

FRU part number.....32P0736
Serial number.....3HX0BQFQ
Firmware level.....B855
Channel.....1
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0AMMJ
Firmware level.....B855
Channel.....1
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0R1JN
Firmware level.....B855
Channel.....1
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0APLD
Firmware level.....B855
Channel.....1
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0CFVJ
Firmware level.....B855
Channel.....1
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0CEAK
Firmware level.....B855

Channel.....1
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0BV65
Firmware level.....B855
Channel.....1
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0BSPF
Firmware level.....B855
Channel.....1
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0C7N5
Firmware level.....B855
Channel.....1
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0CBAV
Firmware level.....B855
Channel.....1
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0BW67
Firmware level.....B855
Channel.....1
SCSI ID.....14
Size.....34715 MB

State.....Online
Array letter.....A
PFA error.....No

Array B

Array identifier.....B
Array size.....486010 MB
Free space.....0 MB
Number of logical drives.....1
Stripe order (channel/device)...2/0 2/1 2/2 2/3 2/4 2/5 2/6 2/8 2/9 2/10 2/11 2/12
2/13 2/14
Number of physical drives.....14

Logical drives in array B

Logical drive.....2
Array letter.....B
State.....Okay
RAID level.....0
Data space.....486010 MB
Parity space.....0 MB
Date created.....09/26/2003
Write-cache mode.....Write through
Merge-group number.....207
Merge-group state.....Non-shared

Physical drives in array B

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17E7Y
Firmware level.....B85A
Channel.....2
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NB9
Firmware level.....B85A
Channel.....2
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX16LMY
Firmware level.....B85A
Channel.....2
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17MX8
Firmware level.....B85A
Channel.....2
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17F2C
Firmware level.....B85A
Channel.....2
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17EDX
Firmware level.....B85A
Channel.....2
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17TPG
Firmware level.....B85A
Channel.....2
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17RCC
Firmware level.....B85A
Channel.....2
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS

Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17TXX
Firmware level.....B85A
Channel.....2
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17TWT
Firmware level.....B85A
Channel.....2
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17TC8
Firmware level.....B85A
Channel.....2
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17PPC
Firmware level.....B85A
Channel.....2
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NGH
Firmware level.....B85A
Channel.....2
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17XQ8

Firmware level.....B85A
Channel.....2
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

SCSI channel 1

Number of drives.....14
SCSI transfer speed.....Optimal
SCSI initiator ID.....7

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0C6JV
Firmware level.....B855
Channel.....1
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0CHV0
Firmware level.....B855
Channel.....1
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0BV6T
Firmware level.....B855
Channel.....1
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0BQFQ
Firmware level.....B855
Channel.....1
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive

Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0AMMJ
Firmware level.....B855
Channel.....1
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0R1JN
Firmware level.....B855
Channel.....1
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0APLD
Firmware level.....B855
Channel.....1
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0CFVJ
Firmware level.....B855
Channel.....1
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0CEAK
Firmware level.....B855
Channel.....1
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736

Serial number.....3HX0BV65
Firmware level.....B855
Channel.....1
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0BSPF
Firmware level.....B855
Channel.....1
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0C7N5
Firmware level.....B855
Channel.....1
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0CBV
Firmware level.....B855
Channel.....1
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0BW67
Firmware level.....B855
Channel.....1
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Enclosure
Vendor.....IBM
Product or model number.....EXP300
Serial number.....6807094
Firmware level.....D014
FRU type.....MIDPLANE
FRU vendor.....IBM

FRU date of manufacture.....11/2000
FRU part number.....19K1239
FRU serial number.....6807094
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1171
FRU serial number.....1R0230AA766
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1171
FRU serial number.....1R0230AA821
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....07K5985
FRU serial number.....1R0KC0A5322
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....07K5985
FRU serial number.....1R0KC0A5324
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1173
FRU serial number.....1R0220A6321
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1172
FRU serial number.....1R0240A9360
Channel.....1
SCSI ID.....15
Enclosure ID.....0
Enclosure status.....Okay
Fan 1 status.....Okay
Fan 2 status.....Okay
Power supply 1 status.....Okay
Power supply 2 status.....Okay
Temperature status.....Normal

SCSI channel 2

Number of drives.....14
SCSI transfer speed.....Optimal
SCSI initiator ID.....7

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17E7Y
Firmware level.....B85A
Channel.....2
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NB9
Firmware level.....B85A

Channel.....2
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX16LMY
Firmware level.....B85A
Channel.....2
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17MX8
Firmware level.....B85A
Channel.....2
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17F2C
Firmware level.....B85A
Channel.....2
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17EDX
Firmware level.....B85A
Channel.....2
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17TPG
Firmware level.....B85A
Channel.....2
SCSI ID.....6
Size.....34715 MB

State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17RCC
Firmware level.....B85A
Channel.....2
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17TXX
Firmware level.....B85A
Channel.....2
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17TWT
Firmware level.....B85A
Channel.....2
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17TC8
Firmware level.....B85A
Channel.....2
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17PPC
Firmware level.....B85A
Channel.....2
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NGH
Firmware level.....B85A
Channel.....2
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17XQ8
Firmware level.....B85A
Channel.....2
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Enclosure
Vendor.....IBM
Product or model number.....EXP300
Serial number.....6805181
Firmware level.....D014
FRU type.....MIDPLANE
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....19K1170
FRU serial number.....6805181
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....19K1171
FRU serial number.....1R02309M954
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....07K5985
FRU serial number.....1R0KC09G227
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....07K5985
FRU serial number.....1R0KC09G048
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1173
FRU serial number.....1R0220A2710
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....19K1172
FRU serial number.....1R02409M653
Channel.....2

SCSI ID.....15
Enclosure ID.....0
Enclosure status.....Okay
Fan 1 status.....Okay
Fan 2 status.....Okay
Power supply 1 status.....Okay
Power supply 2 status.....Okay
Temperature status.....Normal

End of the configuration information for controller 7

Controller 8

October 10, 2003 4:19:07 PM EDT

Configuration summary

Server name.....ibmserv2
ServeRAID Manager agent.....6.10.24 (1250)
ServeRAID Manager console.....6.10.24 (1250)
Number of controllers.....11
Operating system.....Windows 2003

Configuration information for controller 8

Controller type.....ServeRAID-6M
SCSI backend type.....AIC-7902
SCSI backend revision.....16
Controller FRU.....02R0985
Battery FRU.....02R0986
Serial number.....00B772BC
Part number.....32P0033
Physical slot.....12
BIOS version.....6.10.24
Firmware version.....6.10.24
Device driver version.....6.08.06
Battery-backup cache.....Installed
Battery temperature.....Normal
Battery charge level.....100 %
Battery-backup cache size.....128 MB
Read-ahead cache mode.....Adaptive
Stripe-unit size.....64 KB
Rebuild rate.....High
Hot-swap rebuild.....Enabled
Copy back.....Enabled
Data scrubbing.....Enabled
Auto-synchronization.....Enabled
Clustering.....Disabled
Unattended mode.....Disabled
BIOS-compatibility mapping.....Limited
Number of arrays.....2
Number of logical drives.....2
Number of hot-spare drives.....0
Number of ready drives.....0

Array A

Array identifier.....A
Array size.....486010 MB
Free space.....0 MB
Number of logical drives.....1
Stripe order (channel/device)...1/0 1/1 1/2 1/3 1/4 1/5 1/6 1/8 1/9 1/10 1/11 1/12
1/13 1/14

Number of physical drives.....14

Logical drives in array A

Logical drive.....1
Array letter.....A
State.....Okay
RAID level.....0
Data space.....486010 MB
Parity space.....0 MB
Date created.....09/26/2003
Write-cache mode.....Write through
Merge-group number.....207
Merge-group state.....Non-shared

Physical drives in array A

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17G3K
Firmware level.....B85A
Channel.....1
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17PME
Firmware level.....B85A
Channel.....1
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17WPR
Firmware level.....B85A
Channel.....1
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17F12
Firmware level.....B85A
Channel.....1
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....A

PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17TV8
Firmware level.....B85A
Channel.....1
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17VDD
Firmware level.....B85A
Channel.....1
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX15T0F
Firmware level.....B85A
Channel.....1
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NLK
Firmware level.....B85A
Channel.....1
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17RDX
Firmware level.....B85A
Channel.....1
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive

Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17PMR
Firmware level.....B85A
Channel.....1
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17WXG
Firmware level.....B85A
Channel.....1
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX15SYW
Firmware level.....B85A
Channel.....1
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17XF5
Firmware level.....B85A
Channel.....1
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17PMF
Firmware level.....B85A
Channel.....1
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Array B

Array identifier.....B
Array size.....486010 MB

Free space.....0 MB
Number of logical drives.....1
Stripe order (channel/device)...2/0 2/1 2/2 2/3 2/4 2/5 2/6 2/8 2/9 2/10 2/11 2/12
2/13 2/14
Number of physical drives.....14

Logical drives in array B

Logical drive.....2
Array letter.....B
State.....Okay
RAID level.....0
Data space.....486010 MB
Parity space.....0 MB
Date created.....09/26/2003
Write-cache mode.....Write through
Merge-group number.....207
Merge-group state.....Non-shared

Physical drives in array B

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17M4R
Firmware level.....B85A
Channel.....2
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX15SXJ
Firmware level.....B85A
Channel.....2
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17PNG
Firmware level.....B85A
Channel.....2
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17RAR
Firmware level.....B85A
Channel.....2

SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NC3
Firmware level.....B85A
Channel.....2
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N8Z
Firmware level.....B85A
Channel.....2
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NHY
Firmware level.....B85A
Channel.....2
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N4C
Firmware level.....B85A
Channel.....2
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N60
Firmware level.....B85A
Channel.....2
SCSI ID.....9
Size.....34715 MB
State.....Online

Array letter.....B
PFA error.....No
Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N4F
Firmware level.....B85A
Channel.....2
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17V4D
Firmware level.....B85A
Channel.....2
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX16GR1
Firmware level.....B85A
Channel.....2
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX15SSD
Firmware level.....B85A
Channel.....2
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N21
Firmware level.....B85A
Channel.....2
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

SCSI channel 1

Number of drives.....14
SCSI transfer speed.....Optimal
SCSI initiator ID.....7

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17G3K
Firmware level.....B85A
Channel.....1
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17PME
Firmware level.....B85A
Channel.....1
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17WPR
Firmware level.....B85A
Channel.....1
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17F12
Firmware level.....B85A
Channel.....1
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17TV8
Firmware level.....B85A
Channel.....1
SCSI ID.....4
Size.....34715 MB

State.....Online
Array letter.....A
PFA error.....No
Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17VDD
Firmware level.....B85A
Channel.....1
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX15T0F
Firmware level.....B85A
Channel.....1
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NLK
Firmware level.....B85A
Channel.....1
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17RDV
Firmware level.....B85A
Channel.....1
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17PMR
Firmware level.....B85A
Channel.....1
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17WXG
Firmware level.....B85A
Channel.....1
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX15SYW
Firmware level.....B85A
Channel.....1
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17XF5
Firmware level.....B85A
Channel.....1
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17PMF
Firmware level.....B85A
Channel.....1
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Enclosure
Vendor.....IBM
Product or model number.....EXP300
Serial number.....6805602
Firmware level.....D014
FRU type.....MIDPLANE
FRU vendor.....IBM
FRU date of manufacture.....11/2000
FRU part number.....19K1239
FRU serial number.....6805602
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....19K1171
FRU serial number.....1R02309P809

FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....19K1171
FRU serial number.....1R02309P778
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....07K5985
FRU serial number.....1R0KC09L036
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....07K5985
FRU serial number.....1R0KC09M272
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....19K1173
FRU serial number.....1R02209M756
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....19K1172
FRU serial number.....1R02409P099

Channel.....1
SCSI ID.....15
Enclosure ID.....0
Enclosure status.....Okay
Fan 1 status.....Okay
Fan 2 status.....Okay
Power supply 1 status.....Okay
Power supply 2 status.....Okay
Temperature status.....Normal

SCSI channel 2

Number of drives.....14
SCSI transfer speed.....Optimal
SCSI initiator ID.....7

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17M4R
Firmware level.....B85A
Channel.....2
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX15SXJ
Firmware level.....B85A
Channel.....2
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive

Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17PNG
Firmware level.....B85A
Channel.....2
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17RAR
Firmware level.....B85A
Channel.....2
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NC3
Firmware level.....B85A
Channel.....2
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N8Z
Firmware level.....B85A
Channel.....2
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NHY
Firmware level.....B85A
Channel.....2
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736

Serial number.....3HX17N4C
Firmware level.....B85A
Channel.....2
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N60
Firmware level.....B85A
Channel.....2
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N4F
Firmware level.....B85A
Channel.....2
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17V4D
Firmware level.....B85A
Channel.....2
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX16GR1
Firmware level.....B85A
Channel.....2
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX15SSD
Firmware level.....B85A
Channel.....2

SCSI ID.....13
 Size.....34715 MB
 State.....Online
 Array letter.....B
 PFA error.....No

Type.....Hard disk drive
 Vendor.....IBM-ESXS
 Product or model number.....ST336753
 FRU part number.....32P0736
 Serial number.....3HX17N21
 Firmware level.....B85A
 Channel.....2
 SCSI ID.....14
 Size.....34715 MB
 State.....Online
 Array letter.....B
 PFA error.....No

Type.....Enclosure
 Vendor.....IBM
 Product or model number.....EXP300
 Serial number.....6805591
 Firmware level.....D014
 FRU type.....MIDPLANE
 FRU vendor.....IBM
 FRU date of manufacture.....11/2000
 FRU part number.....19K1239
 FRU serial number.....6805591
 FRU type.....CARD
 FRU vendor.....IBM
 FRU date of manufacture.....09/2000
 FRU part number.....19K1171
 FRU serial number.....1R02309P846
 FRU type.....CARD
 FRU vendor.....IBM
 FRU date of manufacture.....09/2000
 FRU part number.....19K1171
 FRU serial number.....1R02309P847
 FRU type.....Power
 FRU vendor.....IBM
 FRU date of manufacture.....09/2000
 FRU part number.....07K5985
 FRU serial number.....1R0KC09M125
 FRU type.....Power
 FRU vendor.....IBM
 FRU date of manufacture.....09/2000
 FRU part number.....07K5985
 FRU serial number.....1R0KC09M132
 FRU type.....CARD
 FRU vendor.....IBM
 FRU date of manufacture.....09/2000
 FRU part number.....19K1173
 FRU serial number.....1R02209P145
 FRU type.....CARD
 FRU vendor.....IBM
 FRU date of manufacture.....09/2000
 FRU part number.....19K1172
 FRU serial number.....1R02409P053
 Channel.....2
 SCSI ID.....15
 Enclosure ID.....0
 Enclosure status.....Okay
 Fan 1 status.....Okay
 Fan 2 status.....Okay
 Power supply 1 status.....Okay
 Power supply 2 status.....Okay
 Temperature status.....Normal

End of the configuration information for controller 8

Controller 9

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Configuration summary

Server name.....ibmserv2
 ServeRAID Manager agent.....6.10.24 (1250)
 ServeRAID Manager console.....6.10.24 (1250)
 Number of controllers.....11
 Operating system.....Windows 2003

Configuration information for controller 9

Controller type.....ServeRAID-6M
 SCSI backend type.....AIC-7902
 SCSI backend revision.....16
 Controller FRU.....02R0998
 Battery FRU.....02R0986
 Serial number.....30B7EA1C
 Part number.....02R0988
 Physical slot.....5
 BIOS version.....6.10.24
 Firmware version.....6.10.24
 Device driver version.....6.08.06
 Battery-backup cache.....Installed
 Battery temperature.....Normal
 Battery charge level.....100 %
 Battery-backup cache size.....256 MB
 Read-ahead cache mode.....Adaptive
 Stripe-unit size.....64 KB
 Rebuild rate.....High
 Hot-swap rebuild.....Enabled
 Copy back.....Enabled
 Data scrubbing.....Enabled
 Auto-synchronization.....Enabled
 Clustering.....Disabled
 Unattended mode.....Disabled
 BIOS-compatibility mapping.....Limited
 Number of arrays.....2
 Number of logical drives.....2
 Number of hot-spare drives.....0
 Number of ready drives.....0

Array A

Array identifier.....A
 Array size.....486010 MB
 Free space.....0 MB
 Number of logical drives.....1
 Stripe order (channel/device)...1/0 1/1 1/2 1/3 1/4 1/5 1/6 1/8 1/9 1/10 1/11 1/12
 1/13 1/14
 Number of physical drives.....14

Logical drives in array A

Logical drive.....1
 Array letter.....A
 State.....Okay
 RAID level.....0
 Data space.....486010 MB

Parity space.....0 MB
Date created.....08/28/2003
Write-cache mode.....Write through
Merge-group number.....207
Merge-group state.....Non-shared

Physical drives in array A

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0PGPA
Firmware level.....B855
Channel.....1
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0LXWD
Firmware level.....B855
Channel.....1
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QMG7
Firmware level.....B855
Channel.....1
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QQG9
Firmware level.....B855
Channel.....1
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QQEZ
Firmware level.....B855
Channel.....1

SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0R19W
Firmware level.....B855
Channel.....1
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0PFX0
Firmware level.....B855
Channel.....1
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0R24P
Firmware level.....B855
Channel.....1
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QN45
Firmware level.....B855
Channel.....1
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0PEV9
Firmware level.....B855
Channel.....1
SCSI ID.....10
Size.....34715 MB
State.....Online

Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QML4
Firmware level.....B855
Channel.....1
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QSW1
Firmware level.....B855
Channel.....1
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QN57
Firmware level.....B855
Channel.....1
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0R1K6
Firmware level.....B855
Channel.....1
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Array B

Array identifier.....B
Array size.....486010 MB
Free space.....0 MB
Number of logical drives.....1
Stripe order (channel/device).....2/0 2/1 2/2 2/3 2/4 2/5 2/6 2/8 2/9 2/10 2/11 2/12
2/13 2/14
Number of physical drives.....14

Logical drives in array B

Logical drive.....2

Array letter.....B
State.....Okay
RAID level.....0
Data space.....486010 MB
Parity space.....0 MB
Date created.....08/28/2003
Write-cache mode.....Write through
Merge-group number.....207
Merge-group state.....Non-shared

Physical drives in array B

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QMD6
Firmware level.....B855
Channel.....2
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QMWH
Firmware level.....B855
Channel.....2
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0Q4PP
Firmware level.....B855
Channel.....2
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QP57
Firmware level.....B855
Channel.....2
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753

FRU part number.....32P0736
Serial number.....3HX0QMG9
Firmware level.....B855
Channel.....2
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QMRR
Firmware level.....B855
Channel.....2
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QSVN
Firmware level.....B855
Channel.....2
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0PHBY
Firmware level.....B855
Channel.....2
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QQGN
Firmware level.....B855
Channel.....2
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0Q0B9
Firmware level.....B855

Channel.....2
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0R1WW
Firmware level.....B855
Channel.....2
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0PE7P
Firmware level.....B855
Channel.....2
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0Q0N8
Firmware level.....B855
Channel.....2
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QQG7
Firmware level.....B855
Channel.....2
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

SCSI channel 1

Number of drives.....14
SCSI transfer speed.....Optimal
SCSI initiator ID.....7

Type.....Hard disk drive
Vendor.....IBM-ESXS

Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0PGPA
Firmware level.....B855
Channel.....1
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0LXWD
Firmware level.....B855
Channel.....1
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QMG7
Firmware level.....B855
Channel.....1
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QQG9
Firmware level.....B855
Channel.....1
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QQEZ
Firmware level.....B855
Channel.....1
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0R19W

Firmware level.....B855
Channel.....1
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0PFX0
Firmware level.....B855
Channel.....1
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0R24P
Firmware level.....B855
Channel.....1
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QN45
Firmware level.....B855
Channel.....1
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0PEV9
Firmware level.....B855
Channel.....1
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QML4
Firmware level.....B855
Channel.....1
SCSI ID.....11

Size.....34715 MB
 State.....Online
 Array letter.....A
 PFA error.....No

 Type.....Hard disk drive
 Vendor.....IBM-ESXS
 Product or model number.....ST336753
 FRU part number.....32P0736
 Serial number.....3HX0QSW1
 Firmware level.....B855
 Channel.....1
 SCSI ID.....12
 Size.....34715 MB
 State.....Online
 Array letter.....A
 PFA error.....No

 Type.....Hard disk drive
 Vendor.....IBM-ESXS
 Product or model number.....ST336753
 FRU part number.....32P0736
 Serial number.....3HX0QN57
 Firmware level.....B855
 Channel.....1
 SCSI ID.....13
 Size.....34715 MB
 State.....Online
 Array letter.....A
 PFA error.....No

 Type.....Hard disk drive
 Vendor.....IBM-ESXS
 Product or model number.....ST336753
 FRU part number.....32P0736
 Serial number.....3HX0R1K6
 Firmware level.....B855
 Channel.....1
 SCSI ID.....14
 Size.....34715 MB
 State.....Online
 Array letter.....A
 PFA error.....No

 Type.....Enclosure
 Vendor.....IBM
 Product or model number.....EXP300
 Serial number.....6802660
 Firmware level.....D014
 FRU type.....MIDPLANE
 FRU vendor.....IBM
 FRU date of manufacture.....11/2000
 FRU part number.....19K1239
 FRU serial number.....6802660
 FRU type.....CARD
 FRU vendor.....IBM
 FRU date of manufacture.....09/2000
 FRU part number.....19K1171
 FRU serial number.....1R02309Y301
 FRU type.....CARD
 FRU vendor.....IBM
 FRU date of manufacture.....09/2000
 FRU part number.....19K1171
 FRU serial number.....1R02309Y268
 FRU type.....Power
 FRU vendor.....IBM
 FRU date of manufacture.....09/2000
 FRU part number.....07K5985

FRU serial number.....1R0KC09T233
 FRU type.....Power
 FRU vendor.....IBM
 FRU date of manufacture.....09/2000
 FRU part number.....07K5985
 FRU serial number.....1R0KC09T235
 FRU type.....CARD
 FRU vendor.....IBM
 FRU date of manufacture.....09/2000
 FRU part number.....19K1173
 FRU serial number.....1R02209X231
 FRU type.....CARD
 FRU vendor.....IBM
 FRU date of manufacture.....09/2000
 FRU part number.....19K1172
 FRU serial number.....1R02409X173
 Channel.....1
 SCSI ID.....15
 Enclosure ID.....0
 Enclosure status.....Okay
 Fan 1 status.....Okay
 Fan 2 status.....Okay
 Power supply 1 status.....Okay
 Power supply 2 status.....Okay
 Temperature status.....Normal

 SCSI channel 2

 Number of drives.....14
 SCSI transfer speed.....Optimal
 SCSI initiator ID.....7

 Type.....Hard disk drive
 Vendor.....IBM-ESXS
 Product or model number.....ST336753
 FRU part number.....32P0736
 Serial number.....3HX0QMD6
 Firmware level.....B855
 Channel.....2
 SCSI ID.....0
 Size.....34715 MB
 State.....Online
 Array letter.....B
 PFA error.....No

 Type.....Hard disk drive
 Vendor.....IBM-ESXS
 Product or model number.....ST336753
 FRU part number.....32P0736
 Serial number.....3HX0QMWH
 Firmware level.....B855
 Channel.....2
 SCSI ID.....1
 Size.....34715 MB
 State.....Online
 Array letter.....B
 PFA error.....No

 Type.....Hard disk drive
 Vendor.....IBM-ESXS
 Product or model number.....ST336753
 FRU part number.....32P0736
 Serial number.....3HX0Q4PP
 Firmware level.....B855
 Channel.....2
 SCSI ID.....2
 Size.....34715 MB
 State.....Online

Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QP57
Firmware level.....B855
Channel.....2
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QMG9
Firmware level.....B855
Channel.....2
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QMRR
Firmware level.....B855
Channel.....2
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QSVN
Firmware level.....B855
Channel.....2
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0PHBY
Firmware level.....B855
Channel.....2
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QQGN
Firmware level.....B855
Channel.....2
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0Q0B9
Firmware level.....B855
Channel.....2
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0R1WW
Firmware level.....B855
Channel.....2
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0PE7P
Firmware level.....B855
Channel.....2
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0Q0N8
Firmware level.....B855
Channel.....2
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753

FRU part number.....32P0736
 Serial number.....3HX0QQG7
 Firmware level.....B855
 Channel.....2
 SCSI ID.....14
 Size.....34715 MB
 State.....Online
 Array letter.....B
 PFA error.....No

Type.....Enclosure
 Vendor.....IBM
 Product or model number.....EXP300
 Serial number.....6808936
 Firmware level.....D014
 FRU type.....MIDPLANE
 FRU vendor.....IBM
 FRU date of manufacture.....11/2000
 FRU part number.....19K1239
 FRU serial number.....6808936
 FRU type.....CARD
 FRU vendor.....IBM
 FRU date of manufacture.....09/2000
 FRU part number.....19K1171
 FRU serial number.....1R02309Y288
 FRU type.....CARD
 FRU vendor.....IBM
 FRU date of manufacture.....09/2000
 FRU part number.....19K1171
 FRU serial number.....1R02309Y259
 FRU type.....Power
 FRU vendor.....IBM
 FRU date of manufacture.....09/2000
 FRU part number.....07K5985
 FRU serial number.....1R0KC09T270
 FRU type.....Power
 FRU vendor.....IBM
 FRU date of manufacture.....09/2000
 FRU part number.....07K5985
 FRU serial number.....1R0KC09T258
 FRU type.....CARD
 FRU vendor.....IBM
 FRU date of manufacture.....09/2000
 FRU part number.....19K1173
 FRU serial number.....1R02209X234
 FRU type.....CARD
 FRU vendor.....IBM
 FRU date of manufacture.....09/2000
 FRU part number.....19K1172
 FRU serial number.....1R02409X136
 Channel.....2
 SCSI ID.....15
 Enclosure ID.....0
 Enclosure status.....Okay
 Fan 1 status.....Okay
 Fan 2 status.....Okay
 Power supply 1 status.....Okay
 Power supply 2 status.....Okay
 Temperature status.....Normal

End of the configuration information for controller 9

Controller 10

October 10, 2003 4:19:07 PM EDT

Configuration summary

 Server name.....ibmserv2
 ServeRAID Manager agent.....6.10.24 (1250)
 ServeRAID Manager console.....6.10.24 (1250)
 Number of controllers.....11
 Operating system.....Windows 2003

Configuration information for controller 10

 Controller type.....ServerRAID-6M
 SCSI backend type.....AIC-7902
 SCSI backend revision.....16
 Controller FRU.....02R0998
 Battery FRU.....02R0986
 Serial number.....30B7EA05
 Part number.....02R0988
 Physical slot.....4
 BIOS version.....6.10.24
 Firmware version.....6.10.24
 Device driver version.....6.08.06
 Battery-backup cache.....Installed
 Battery temperature.....Normal
 Battery charge level.....100 %
 Battery-backup cache size.....256 MB
 Read-ahead cache mode.....Adaptive
 Stripe-unit size.....64 KB
 Rebuild rate.....High
 Hot-swap rebuild.....Enabled
 Copy back.....Enabled
 Data scrubbing.....Enabled
 Auto-synchronization.....Enabled
 Clustering.....Disabled
 Unattended mode.....Disabled
 BIOS-compatibility mapping.....Limited
 Number of arrays.....2
 Number of logical drives.....2
 Number of hot-spare drives.....0
 Number of ready drives.....0

Array A

 Array identifier.....A
 Array size.....486010 MB
 Free space.....0 MB
 Number of logical drives.....1
 Stripe order (channel/device).....1/0 1/1 1/2 1/3 1/4 1/5 1/6 1/8 1/9 1/10 1/11 1/12
 1/13 1/14
 Number of physical drives.....14

Logical drives in array A

 Logical drive.....1
 Array letter.....A
 State.....Okay
 RAID level.....0
 Data space.....486010 MB
 Parity space.....0 MB
 Date created.....09/26/2003
 Write-cache mode.....Write through
 Merge-group number.....207
 Merge-group state.....Non-shared

Physical drives in array A

 Type.....Hard disk drive

Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17PPJ
Firmware level.....B85A
Channel.....1
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX15SWS
Firmware level.....B85A
Channel.....1
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NBV
Firmware level.....B85A
Channel.....1
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17DQ3
Firmware level.....B85A
Channel.....1
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17WX9
Firmware level.....B85A
Channel.....1
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736

Serial number.....3HX17REA
Firmware level.....B85A
Channel.....1
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17ESD
Firmware level.....B85A
Channel.....1
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17TBS
Firmware level.....B85A
Channel.....1
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17M1V
Firmware level.....B85A
Channel.....1
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17KBG
Firmware level.....B85A
Channel.....1
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17MZ8
Firmware level.....B85A
Channel.....1

SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N0Q
Firmware level.....B85A
Channel.....1
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17F93
Firmware level.....B85A
Channel.....1
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX16H0P
Firmware level.....B85A
Channel.....1
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Array B

Array identifier.....B
Array size.....486010 MB
Free space.....0 MB
Number of logical drives.....1
Stripe order (channel/device)...2/0 2/1 2/2 2/3 2/4 2/5 2/6 2/8 2/9 2/10 2/11 2/12
2/13 2/14
Number of physical drives.....14

Logical drives in array B

Logical drive.....2
Array letter.....B
State.....Okay
RAID level.....0
Data space.....486010 MB
Parity space.....0 MB
Date created.....08/28/2003
Write-cache mode.....Write through
Merge-group number.....207
Merge-group state.....Non-shared

Physical drives in array B

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0R1TX
Firmware level.....B855
Channel.....2
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QSVR
Firmware level.....B855
Channel.....2
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0PFZF
Firmware level.....B855
Channel.....2
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0R1SP
Firmware level.....B855
Channel.....2
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QSVQ
Firmware level.....B855
Channel.....2
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0Q500
Firmware level.....B855
Channel.....2
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QMD7
Firmware level.....B855
Channel.....2
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QQD2
Firmware level.....B855
Channel.....2
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QP73
Firmware level.....B855
Channel.....2
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0PGME
Firmware level.....B855
Channel.....2
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753

FRU part number.....32P0736
Serial number.....3HX0PESR
Firmware level.....B855
Channel.....2
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QN6G
Firmware level.....B855
Channel.....2
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0CH67
Firmware level.....B855
Channel.....2
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0KRJ6
Firmware level.....B855
Channel.....2
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

SCSI channel 1

Number of drives.....14
SCSI transfer speed.....Optimal
SCSI initiator ID.....7

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17PPJ
Firmware level.....B85A
Channel.....1
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX15SWS
Firmware level.....B85A
Channel.....1
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NBV
Firmware level.....B85A
Channel.....1
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17DQ3
Firmware level.....B85A
Channel.....1
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17WX9
Firmware level.....B85A
Channel.....1
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17REA
Firmware level.....B85A
Channel.....1
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS

Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17ESD
Firmware level.....B85A
Channel.....1
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17TBS
Firmware level.....B85A
Channel.....1
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17M1V
Firmware level.....B85A
Channel.....1
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17KBG
Firmware level.....B85A
Channel.....1
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17MZ8
Firmware level.....B85A
Channel.....1
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N0Q

Firmware level.....B85A
Channel.....1
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17F93
Firmware level.....B85A
Channel.....1
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX16H0P
Firmware level.....B85A
Channel.....1
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Enclosure
Vendor.....IBM
Product or model number.....EXP300
Serial number.....6806249
Firmware level.....D014
FRU type.....MIDPLANE
FRU vendor.....IBM
FRU date of manufacture.....11/2000
FRU part number.....19K1239
FRU serial number.....6806249
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1171
FRU serial number.....1R0230A3822
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1171
FRU serial number.....1R0230A3838
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....07K5985
FRU serial number.....1R0KCC09V207
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....07K5985
FRU serial number.....1R0KCC09V201
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....19K1173

FRU serial number.....1R02209P081
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....19K1172
FRU serial number.....1R02409Y418
Channel.....1
SCSI ID.....15
Enclosure ID.....0
Enclosure status.....Okay
Fan 1 status.....Okay
Fan 2 status.....Okay
Power supply 1 status.....Okay
Power supply 2 status.....Okay
Temperature status.....Normal

SCSI channel 2

Number of drives.....14
SCSI transfer speed.....Optimal
SCSI initiator ID.....7

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0R1TX
Firmware level.....B855
Channel.....2
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QSVR
Firmware level.....B855
Channel.....2
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0PFZF
Firmware level.....B855
Channel.....2
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0R1SP
Firmware level.....B855
Channel.....2

SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QSVQ
Firmware level.....B855
Channel.....2
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0Q500
Firmware level.....B855
Channel.....2
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QMD7
Firmware level.....B855
Channel.....2
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QQD2
Firmware level.....B855
Channel.....2
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QP73
Firmware level.....B855
Channel.....2
SCSI ID.....9
Size.....34715 MB
State.....Online

Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0PGME
Firmware level.....B855
Channel.....2
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0PESR
Firmware level.....B855
Channel.....2
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0QN6G
Firmware level.....B855
Channel.....2
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0CH67
Firmware level.....B855
Channel.....2
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0KRJ6
Firmware level.....B855
Channel.....2
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Enclosure
Vendor.....IBM
Product or model number.....EXP300
Serial number.....xO???
Firmware level.....D014
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....19K1171
FRU serial number.....1R02309S972
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....19K1171
FRU serial number.....1R02309S979
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....07K5985
FRU serial number.....1R0KC09M299
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....19K1173
FRU serial number.....1R02209P122
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....09/2000
FRU part number.....19K1172
FRU serial number.....1R02409P085
Channel.....2
SCSI ID.....15
Enclosure ID.....0
Enclosure status.....Okay
Fan 1 status.....Okay
Fan 2 status.....Okay
Power supply 1 status.....Okay
Power supply 2 status.....Okay
Temperature status.....Normal

End of the configuration information for controller 10

Controller 11

October 10, 2003 4:19:07 PM EDT

Configuration summary

Server name.....ibmserv2
ServeRAID Manager agent.....6.10.24 (1250)
ServeRAID Manager console.....6.10.24 (1250)
Number of controllers.....11
Operating system.....Windows 2003

Configuration information for controller 11

Controller type.....ServeRAID-6M
SCSI backend type.....AIC-7902
SCSI backend revision.....16
Controller FRU.....02R0998
Battery FRU.....02R0986
Serial number.....00B772BA
Part number.....02R0988
Physical slot.....3

BIOS version.....6.10.24
Firmware version.....6.10.24
Device driver version.....6.08.06
Battery-backup cache.....Installed
Battery temperature.....Normal
Battery charge level.....100 %
Battery-backup cache size.....256 MB
Read-ahead cache mode.....Adaptive
Stripe-unit size.....64 KB
Rebuild rate.....High
Hot-swap rebuild.....Enabled
Copy back.....Enabled
Data scrubbing.....Enabled
Auto-synchronization.....Enabled
Clustering.....Disabled
Unattended mode.....Disabled
BIOS-compatibility mapping.....Limited
Number of arrays.....2
Number of logical drives.....2
Number of hot-spare drives.....0
Number of ready drives.....0

Array A

Array identifier.....A
Array size.....486010 MB
Free space.....0 MB
Number of logical drives.....1
Stripe order (channel/device)...1/0 1/1 1/2 1/3 1/4 1/5 1/6 1/8 1/9 1/10 1/11 1/12
1/13 1/14
Number of physical drives.....14

Logical drives in array A

Logical drive.....1
Array letter.....A
State.....Okay
RAID level.....0
Data space.....486010 MB
Parity space.....0 MB
Date created.....09/26/2003
Write-cache mode.....Write through
Merge-group number.....207
Merge-group state.....Non-shared

Physical drives in array A

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17MWS
Firmware level.....B85A
Channel.....1
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N07
Firmware level.....B85A
Channel.....1

SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX15SQA
Firmware level.....B85A
Channel.....1
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17RTD
Firmware level.....B85A
Channel.....1
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17MXH
Firmware level.....B85A
Channel.....1
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NKQ
Firmware level.....B85A
Channel.....1
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17MVJ
Firmware level.....B85A
Channel.....1
SCSI ID.....6
Size.....34715 MB
State.....Online

Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX16GGN
Firmware level.....B85A
Channel.....1
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17RB7
Firmware level.....B85A
Channel.....1
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17MTS
Firmware level.....B85A
Channel.....1
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NH3
Firmware level.....B85A
Channel.....1
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17MYJ
Firmware level.....B85A
Channel.....1
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17X3P
Firmware level.....B85A
Channel.....1
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N2J
Firmware level.....B85A
Channel.....1
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Array B

Array identifier.....B
Array size.....486010 MB
Free space.....0 MB
Number of logical drives.....1
Stripe order (channel/device)...2/0 2/1 2/2 2/3 2/4 2/5 2/6 2/8 2/9 2/10 2/11 2/12
2/13 2/14
Number of physical drives.....14

Logical drives in array B

Logical drive.....2
Array letter.....B
State.....Okay
RAID level.....0
Data space.....486010 MB
Parity space.....0 MB
Date created.....09/26/2003
Write-cache mode.....Write through
Merge-group number.....207
Merge-group state.....Non-shared

Physical drives in array B

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17TW8
Firmware level.....B85A
Channel.....2
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753

FRU part number.....32P0736
Serial number.....3HX17MZD
Firmware level.....B85A
Channel.....2
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17SCG
Firmware level.....B85A
Channel.....2
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX170RC
Firmware level.....B85A
Channel.....2
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N79
Firmware level.....B85A
Channel.....2
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17HR1
Firmware level.....B85A
Channel.....2
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17PPT
Firmware level.....B85A

Channel.....2
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NE8
Firmware level.....B85A
Channel.....2
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NKN
Firmware level.....B85A
Channel.....2
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17VGE
Firmware level.....B85A
Channel.....2
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17MYM
Firmware level.....B85A
Channel.....2
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N5V
Firmware level.....B85A
Channel.....2
SCSI ID.....12
Size.....34715 MB

State.....Online
Array letter.....B
PFA error.....No
Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17TJB
Firmware level.....B85A
Channel.....2
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NMS
Firmware level.....B85A
Channel.....2
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

SCSI channel 1

Number of drives.....14
SCSI transfer speed.....Optimal
SCSI initiator ID.....7

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17MWS
Firmware level.....B85A
Channel.....1
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N07
Firmware level.....B85A
Channel.....1
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX15SQA

Firmware level.....B85A
Channel.....1
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17RTD
Firmware level.....B85A
Channel.....1
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17MXH
Firmware level.....B85A
Channel.....1
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NKQ
Firmware level.....B85A
Channel.....1
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17MVJ
Firmware level.....B85A
Channel.....1
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX16GGN
Firmware level.....B85A
Channel.....1
SCSI ID.....8

Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17RB7
Firmware level.....B85A
Channel.....1
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17MTS
Firmware level.....B85A
Channel.....1
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NH3
Firmware level.....B85A
Channel.....1
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17MYJ
Firmware level.....B85A
Channel.....1
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17X3P
Firmware level.....B85A
Channel.....1
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....A

PFA error.....No
Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N2J
Firmware level.....B85A
Channel.....1
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

Type.....Enclosure
Vendor.....IBM
Product or model number.....EXP300
Serial number.....6807381
Firmware level.....D014
FRU type.....MIDPLANE
FRU vendor.....IBM
FRU date of manufacture.....11/2000
FRU part number.....19K1239
FRU serial number.....6807381
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1171
FRU serial number.....1R0230AB276
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1171
FRU serial number.....1R0230AB320
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....07K5985
FRU serial number.....1R0KC0A9119
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....07K5985
FRU serial number.....1R0KC0A8020
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1173
FRU serial number.....1R0220AB980
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1172
FRU serial number.....1R0240AB707
Channel.....1
SCSI ID.....15
Enclosure ID.....0
Enclosure status.....Okay
Fan 1 status.....Okay
Fan 2 status.....Okay
Power supply 1 status.....Okay
Power supply 2 status.....Okay
Temperature status.....Normal

SCSI channel 2

Number of drives.....14

SCSI transfer speed.....Optimal
SCSI initiator ID.....7
Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17TW8
Firmware level.....B85A
Channel.....2
SCSI ID.....0
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17MZD
Firmware level.....B85A
Channel.....2
SCSI ID.....1
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17SCG
Firmware level.....B85A
Channel.....2
SCSI ID.....2
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX170RC
Firmware level.....B85A
Channel.....2
SCSI ID.....3
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N79
Firmware level.....B85A
Channel.....2
SCSI ID.....4
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17HR1
Firmware level.....B85A
Channel.....2
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17PPT
Firmware level.....B85A
Channel.....2
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NE8
Firmware level.....B85A
Channel.....2
SCSI ID.....8
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NKN
Firmware level.....B85A
Channel.....2
SCSI ID.....9
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17VGE
Firmware level.....B85A
Channel.....2
SCSI ID.....10
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753

FRU part number.....32P0736
Serial number.....3HX17MYM
Firmware level.....B85A
Channel.....2
SCSI ID.....11
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17N5V
Firmware level.....B85A
Channel.....2
SCSI ID.....12
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17TJB
Firmware level.....B85A
Channel.....2
SCSI ID.....13
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX17NMS
Firmware level.....B85A
Channel.....2
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Enclosure
Vendor.....IBM
Product or model number.....EXP300
Serial number.....6807349
Firmware level.....D014
FRU type.....MIDPLANE
FRU vendor.....IBM
FRU date of manufacture.....11/2000
FRU part number.....19K1239
FRU serial number.....6807349
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1171
FRU serial number.....1R0230AB306
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1171

FRU serial number.....1R0230AB300
 FRU type.....Power
 FRU vendor.....IBM
 FRU date of manufacture.....10/2000
 FRU part number.....07K5985
 FRU serial number.....1R0KC0A8264
 FRU type.....Power
 FRU vendor.....IBM
 FRU date of manufacture.....10/2000
 FRU part number.....07K5985
 FRU serial number.....1R0KC0A8252
 FRU type.....CARD
 FRU vendor.....IBM
 FRU date of manufacture.....10/2000
 FRU part number.....19K1173
 FRU serial number.....1R0220AB967
 FRU type.....CARD
 FRU vendor.....IBM
 FRU date of manufacture.....10/2000
 FRU part number.....19K1172
 FRU serial number.....1R0240AB711
 Channel.....2
 SCSI ID.....15
 Enclosure ID.....0
 Enclosure status.....Okay
 Fan 1 status.....Okay
 Fan 2 status.....Okay
 Power supply 1 status.....Okay
 Power supply 2 status.....Okay
 Temperature status.....Normal

End of the configuration information for controller 11

Client Configuration Parameters

Microsoft Windows 2000 Client System Information Report

The system configuration is identical for all three clients.

System Information report written at: 10/14/2003 12:13:42 PM

[System Information]

[Following are sub-categories of this main category]

[System Summary]

Item	Value
OS Name	Microsoft Windows 2000 Server
Version	5.0.2195 Service Pack 3 Build 2195
OS Manufacturer	Microsoft Corporation

System Name	VCLIENT10
System Manufacturer	IBM
System Model	-[8647xxx]-
System Type	X86-based PC
Processor	x86 Family 15 Model 2 Stepping 7 GenuineIntel ~3066 Mhz
Processor	x86 Family 15 Model 2 Stepping 7 GenuineIntel ~3066 Mhz
Processor	x86 Family 15 Model 2 Stepping 7 GenuineIntel ~3066 Mhz
Processor	x86 Family 15 Model 2 Stepping 7 GenuineIntel ~3066 Mhz
BIOS Version)Phoenix - Award WorkstationBIOS v6.00PG
Windows Directory	C:\WINNT
System Directory	C:\WINNT\System32
Boot Device	\Device\Harddisk0\Partition1
Locale	United States
User Name	VCLIENT10\Administrator
Time Zone	Eastern Daylight Time
Total Physical Memory	2,096,604 KB
Available Physical Memory	1,869,976 KB
Total Virtual Memory	5,608,508 KB
Available Virtual Memory	5,303,412 KB
Page File Space	3,511,904 KB
Page File	C:\pagefile.sys

[Hardware Resources]

[Following are sub-categories of this main category]

[Conflicts/Sharing]

Resource Device
 No conflicted/shared resources

[DMA]

Channel	Device	Status
---------	--------	--------

4	Direct memory access controller	OK	0x8400-0x843F	Intel(R) PRO/100 S Dual Port Server Adapter #4	OK
2	Standard floppy disk controller	OK	0x9000-0x90FF	LSI Logic 1020/1030 Ultra320 SCSI Adapter	OK
[Forced Hardware]			0x9400-0x94FF	LSI Logic 1020/1030 Ultra320 SCSI Adapter	OK
Device	PNP Device ID		0xD400-0xD41F	Intel(R) 82801DB/DBM USB Universal Host Controller	- 24C2 OK
No Forced Hardware			0xD000-0xD01F	Intel(R) 82801DB/DBM USB Universal Host Controller	- 24C4 OK
[I/O]			0xC000-0xC0FF	RAGE XL PCI	OK
			0x03B0-0x03BB	RAGE XL PCI	OK
			0x03C0-0x03DF	RAGE XL PCI	OK
Address Range	Device	Status	0x0A79-0x0A79	ISAPNP Read Data Port	OK
0x0000-0x0CF7	PCI bus	OK	0x0279-0x0279	ISAPNP Read Data Port	OK
0x0000-0x0CF7	Direct memory access controller	OK	0x0274-0x0277	ISAPNP Read Data Port	OK
0x0D00-0x40B7	PCI bus	OK	0x0010-0x001F	Motherboard resources	OK
0x40B9-0xFFFF	PCI bus	OK	0x0022-0x003F	Motherboard resources	OK
0x7000-0xBFFF	Intel(R) E7000 Series Hub Interface B PCI-to-PCI Bridge	- 2553 OK	0x0044-0x005F	Motherboard resources	OK
0x7000-0xBFFF	Intel(R) P64H2 PCI to PCI Bridge - 1460	OK	0x0062-0x0063	Motherboard resources	OK
0x7000-0xBFFF	PCI standard PCI-to-PCI bridge	OK	0x0065-0x006F	Motherboard resources	OK
0x7000-0xBFFF	Intel(R) PRO/100 S Dual Port Server Adapter	OK	0x0074-0x007F	Motherboard resources	OK
0xA000-0xBFFF	Intel(R) P64H2 PCI to PCI Bridge - 1460	OK	0x0091-0x0093	Motherboard resources	OK
0xA000-0xBFFF	DEC 21154 PCI to PCI bridge	OK	0x00A2-0x00BF	Motherboard resources	OK
0xA000-0xBFFF	Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter	OK	0x00E0-0x00EF	Motherboard resources	OK
0xB000-0xB0FF	QLogic QLA23xx PCI Fibre Channel Adapter	OK	0x04D0-0x04D1	Motherboard resources	OK
0xA400-0xA4FF	Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter #2	OK	0x0800-0x087F	Motherboard resources	OK
0xA800-0xA8FF	Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter #3	OK	0x0020-0x0021	Programmable interrupt controller	OK
0xAC00-0xACFF	Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter #4	OK	0x00A0-0x00A1	Programmable interrupt controller	OK
0x7400-0x743F	Intel(R) PRO/100 S Dual Port Server Adapter #2	OK	0x0080-0x0090	Direct memory access controller	OK
0x8000-0x8FFF	PCI standard PCI-to-PCI bridge	OK	0x0094-0x009F	Direct memory access controller	OK
0x8000-0x8FFF	Intel(R) PRO/100 S Dual Port Server Adapter #3	OK	0x00C0-0x00DF	Direct memory access controller	OK
			0x0040-0x0043	System timer	OK
			0x0070-0x0073	System CMOS/real time clock	OK
			0x0061-0x0061	System speaker	OK
			0x00F0-0x00FF	Numeric data processor	OK
			0x03F2-0x03F5	Standard floppy disk controller	OK

0x03F7-0x03F7	Standard floppy disk controller	OK
0x03F8-0x03FF	Communications Port (COM1)	OK
0x02F8-0x02FF	Communications Port (COM2)	OK
0x0378-0x037F	Printer Port (LPT1)	OK
0x0060-0x0060	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard	OK
0x0064-0x0064	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard	OK
0xF000-0xF00F	Intel(R) 82801DB Ultra ATA Storage Controller - 24CB	OK
0x01F0-0x01F7	Primary IDE Channel	OK
0x03F6-0x03F6	Primary IDE Channel	OK
0x0170-0x0177	Secondary IDE Channel	OK
0x0376-0x0376	Secondary IDE Channel	OK
0x5000-0x501F	Intel(R) 82801DB/DBM SMBus Controller - 24C3	OK
0xDC00-0xDCFF	SoundMAX Integrated Digital Audio	OK
0xE000-0xE03F	SoundMAX Integrated Digital Audio	OK
0x4000-0x40BF	Motherboard resources	OK
0x40B8-0x40B8	Not Available	OK

[IRQs]

IRQ Number	Device
9	Microsoft ACPI-Compliant System
48	Broadcom NetXtreme Gigabit Ethernet
52	QLogic QLA23xx PCI Fibre Channel Adapter
56	Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter
57	Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter #2
58	Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter #3
59	Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter #4
24	Intel(R) PRO/100 S Dual Port Server Adapter
25	Intel(R) PRO/100 S Dual Port Server Adapter #2
28	Intel(R) PRO/100 S Dual Port Server Adapter #3
29	Intel(R) PRO/100 S Dual Port Server Adapter #4
32	LSI Logic 1020/1030 Ultra320 SCSI Adapter

33	LSI Logic 1020/1030 Ultra320 SCSI Adapter
16	Intel(R) 82801DB/DBM USB Universal Host Controller - 24C2
19	Intel(R) 82801DB/DBM USB Universal Host Controller - 24C4
23	Intel PCI to USB Enhanced Host Controller
22	RAGE XL PCI
8	System CMOS/real time clock
13	Numeric data processor
6	Standard floppy disk controller
4	Communications Port (COM1)
3	Communications Port (COM2)
12	PS/2 Compatible Mouse
1	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
14	Primary IDE Channel
15	Secondary IDE Channel
5	Intel(R) 82801DB/DBM SMBus Controller - 24C3
17	SoundMAX Integrated Digital Audio

[Memory]

Range	Device	Status
0xC8000-0xCBFFF	System board	OK
0xCD800-0xCFFFF	System board	OK
0xF0000-0xFBFFF	System board	OK
0xFC000-0xFFFFF	System board	OK
0x7FFF0000-0x7FFFFFFF	System board	OK
0x0000-0x9FFF	System board	OK
0x100000-0x7FEFFFF	System board	OK
0xFEC00000-0xFECFFFFF	System board	OK
0xFEE00000-0xFEEFFFFF	System board	OK
0xFFB00000-0xFFB7FFFF	System board	OK
0xFFFF00000-0xFFFFFFFF	System board	OK
0xE0000-0xEFFFF	System board	OK
0xFFB80000-0xFFBFFFFF	Intel(r) 82802 Firmware Hub Device	OK

0xA0000-0xBFFFF	PCI bus	OK	0xF5041000-0xF5041FFF	Intel(R) PRO/100 S Dual Port Server Adapter #3	OK
0xA0000-0xBFFFF	RAGE XL PCI	OK	0xF5040000-0xF5040FFF	Intel(R) PRO/100 S Dual Port Server Adapter #4	OK
0xC0000-0xDFFFF	PCI bus	OK	0xF5020000-0xF503FFFF	Intel(R) PRO/100 S Dual Port Server Adapter #4	OK
0x80000000-0xFEBFFFFF	PCI bus	OK	0xF5210000-0xF521FFFF	LSI Logic 1020/1030 Ultra320 SCSI Adapter	OK
0xEC000000-0xEFFFFFFF	Intel(R) E7000 Series Processor to AGP Controller - 2552	OK	0xF5200000-0xF520FFFF	LSI Logic 1020/1030 Ultra320 SCSI Adapter	OK
0xE8000000-0xEBFFFFF	Intel(R) E7000 Series Processor to AGP Controller - 2552	OK	0xF5220000-0xF522FFFF	LSI Logic 1020/1030 Ultra320 SCSI Adapter	OK
0xF0000000-0xF6FFFFFF	Intel(R) E7000 Series Hub Interface B PCI-to-PCI Bridge - 2553	OK	0xF5230000-0xF523FFFF	LSI Logic 1020/1030 Ultra320 SCSI Adapter	OK
0xF0000000-0xF6FFFFFF	Intel(R) P64H2 PCI to PCI Bridge - 1460	OK	0xFA000000-0xFA0003FF	Intel PCI to USB Enhanced Host Controller	OK
0xF6001000-0xF6001FFF	Intel(R) P64H2 I/O Advanced Programmable Interrupt Controller - 1461	OK	0xF7000000-0xF7FFFFFF	RAGE XL PCI	OK
0xF3000000-0xF300FFFF	Broadcom NetXtreme Gigabit Ethernet	OK	0xF9000000-0xF9000FFF	RAGE XL PCI	OK
0xF3010000-0xF3010FFF	QLogic QLA23xx PCI Fibre Channel Adapter	OK	0xFEBBFC00-0xFEBBFFFF	Intel(R) 82801DB Ultra ATA Storage Controller - 24CB	OK
0xF1000000-0xF2FFFFFF	DEC 21154 PCI to PCI bridge	OK	0xFA001000-0xFA0011FF	SoundMAX Integrated Digital Audio	OK
0xF2000000-0xF207FFFF	Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter	OK	0xFA002000-0xFA0020FF	SoundMAX Integrated Digital Audio	OK
0xF2080000-0xF20FFFFFF	Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter #2	OK			
0xF2100000-0xF217FFFF	Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter #3	OK			
0xF2180000-0xF21FFFFFF	Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter #4	OK	[Components]		
0xF6000000-0xF6000FFF	Intel(R) P64H2 I/O Advanced Programmable Interrupt Controller - 1461	OK	[Following are sub-categories of this main category]		
0xF4000000-0xF5FFFFFF	Intel(R) P64H2 PCI to PCI Bridge - 1460	OK	[Multimedia]		
0xF5100000-0xF51FFFFFF	PCI standard PCI-to-PCI bridge	OK	[Following are sub-categories of this main category]		
0xF5100000-0xF51FFFFFF	Intel(R) PRO/100 S Dual Port Server Adapter	OK	[Audio Codecs]		
0xF5141000-0xF5141FFF	Intel(R) PRO/100 S Dual Port Server Adapter	OK			
0xF5140000-0xF5140FFF	Intel(R) PRO/100 S Dual Port Server Adapter #2	OK			
0xF5120000-0xF513FFFF	Intel(R) PRO/100 S Dual Port Server Adapter #2	OK			
0xF5000000-0xF50FFFFFF	PCI standard PCI-to-PCI bridge	OK			
0xF5000000-0xF50FFFFFF	Intel(R) PRO/100 S Dual Port Server Adapter #3	OK			
			Codec	Manufacturer	Description
			Version	Size	Creation Date
			File		
			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	

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\tssoft32.acm DSP GROUP, INC. OK
 C:\WINNT\System32\TSSOFT32.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 5.00.2134.1
 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 5.00.2134.1
 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 5.00.2134.1
 10.27 KB (10,512 bytes) 12/7/1999 7:00:00 AM

c:\winnt\system32\lhacm.acm Microsoft Corporation
 OK C:\WINNT\System32\LHACM.ACM 4.4.3385 33.27 KB
 (34,064 bytes) 2/12/2003 12:55:58 PM

c:\winnt\system32\msg723.acm Microsoft Corporation
 OK C:\WINNT\System32\MSG723.ACM 4.4.3385 106.77 KB
 (109,328 bytes) 2/12/2003 12:55:58 PM

[Video Codecs]

Codec Version	Manufacturer Size	Description Creation Date	Status	File
c:\winnt\system32\ir50_32.dll OK 737.50 KB (755,200 bytes)	Intel Corporation C:\WINNT\System32\IR50_32.DLL	Indeo® video 5.10 R.5.10.15.2.55		12/7/1999 7:00:00 AM
c:\winnt\system32\msyuv.dll OK 14.77 KB (15,120 bytes)	Microsoft Corporation C:\WINNT\System32\MSYUV.DLL	5.00.2134.1 2/12/2003 2:09:29 PM		
c:\winnt\system32\msh263.drv OK (258,320 bytes)	Microsoft Corporation C:\WINNT\System32\MSH263.DRV	4.4.3385 252.27 KB 2/12/2003 12:55:39 PM		
c:\winnt\system32\msh261.drv OK (167,696 bytes)	Microsoft Corporation C:\WINNT\System32\MSH261.DRV	4.4.3385 163.77 KB 2/12/2003 12:55:58 PM		
c:\winnt\system32\msvidc32.dll OK 27.27 KB (27,920 bytes)	Microsoft Corporation C:\WINNT\System32\MSVIDC32.DLL	5.00.2134.1 12/7/1999 7:00:00 AM		
c:\winnt\system32\ir32_32.dll C:\WINNT\System32\IR32_32.DLL (199,168 bytes)	Intel(R) Corporation Not Available	OK 194.50 KB		12/7/1999 7:00:00 AM
c:\winnt\system32\msrle32.dll OK 10.77 KB (11,024 bytes)	Microsoft Corporation C:\WINNT\System32\MSRLE32.DLL	5.00.2134.1 12/7/1999 7:00:00 AM		
c:\winnt\system32\iccvld.dll C:\WINNT\System32\ICCVLD.DLL bytes)	Radius Inc. 1.10.0.6	OK 108.00 KB (110,592 bytes)		12/7/1999 7:00:00 AM

[CD-ROM]

Item	Value
Drive	Z:
Description	CD-ROM Drive
Media Loaded	False
Media Type	CD-ROM
Name	HL-DT-ST CD-ROM GCR-8480B
Manufacturer	(Standard CD-ROM drives)
Status	OK
Transfer Rate	Not Available
SCSI Target ID	0
PNP Device ID	IDE\CDROMHL-DT-ST_CD-ROM_GCR-8480B_____1.02____\5&74A80B&0&0.0.0

[Sound Device]

Item	Value
Name	SoundMAX Integrated Digital Audio
Status	OK
PNP Device ID	PCI\VEN_8086&DEV_24C5&SUBSYS_027A1014&REV_02\3&13C0B0C5&0&FD
IRQ Number	17
I/O Port	0xDC00-0xDCFF
I/O Port	0xE000-0xE03F
Memory Range	0xFA001000-0xFA0011FF
Memory Range	0xFA002000-0xFA0020FF
Driver	c:\winnt\system32\drivers\smwdm.sys (552932, PRE-RELEASE)

[Display]

Item	Value
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Name RAGE XL PCI

PNP Device ID
PCI\VEN_1002&DEV_4752&SUBSYS_02401014&REV_27\4&1A671D0C&0&08F0

Adapter Type ATI RAGE XL PCI (B41), ATI Technologies Inc. compatible

Adapter Description RAGE XL PCI

Adapter RAM 8.00 MB (8,388,608 bytes)

Installed Drivers ati2drad.dll

Driver Version 5.00.2195.5005

INF File oem1.inf (ati2mpad section)

Color Planes 1

Color Table Entries 65536

Resolution 1024 x 768 x 85 hertz

Bits/Pixel 16

[Infrared]

Item Value

No infrared devices

[Input]

[Following are sub-categories of this main category]

[Keyboard]

Item Value

Description Standard 101/102-Key or Microsoft Natural PS/2 Keyboard

Name Enhanced (101- or 102-key)

Layout 00000409

PNP Device ID ACPI\PNP0303\4&323CF337&0

NumberOfFunctionKeys 12

[Pointing Device]

Item Value

Hardware Type PS/2 Compatible Mouse

Number of Buttons 3

Status OK

PNP Device ID ACPI\PNP0F13\4&323CF337&0

Power Management Supported False

Double Click Threshold 6

Handedness Right Handed Operation

[Modem]

Item Value

No modems

[Network]

[Following are sub-categories of this main category]

[Adapter]

Item Value

Name [00000000] RAS Async Adapter

Adapter Type Not Available

Product Name RAS Async Adapter

Installed True

PNP Device ID Not Available

Last Reset 10/14/2003 7:23:05 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 10/14/2003 7:23:05 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 (52112, 5.00.2195.4052)

Name [00000002] WAN Miniport (PPTP)
Adapter Type Wide Area Network (WAN)
Product Name WAN Miniport (PPTP)
Installed True
PNP Device ID ROOT\MS_PPTPMINIPOINT\0000
Last Reset 10/14/2003 7:23:05 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\rasptp.sys (47888, 5.00.2195.4080)

Name [00000003] Direct Parallel
Adapter Type Not Available
Product Name Direct Parallel
Installed True
PNP Device ID ROOT\MS_PTIMINIPOINT\0000
Last Reset 10/14/2003 7:23:05 AM
Index 3

Service Name Raspti
IP Address Not Available
IP Subnet Not Available
Default IP Gateway Not Available
DHCP Enabled False
DHCP Server Not Available
DHCP Lease Expires Not Available
DHCP Lease Obtained Not Available
MAC Address Not Available
Service Name Raspti
Driver c:\winnt\system32\drivers\raspti.sys (16880, 5.00.2146.1)

Name [00000004] WAN Miniport (IP)
Adapter Type Not Available
Product Name WAN Miniport (IP)
Installed True

PNP Device ID ROOT\MS_NDISWANIP\0000
 Last Reset 10/14/2003 7:23:05 AM
 Index 4
 Service Name NdisWan
 IP Address Not Available
 IP Subnet Not Available
 Default IP Gateway Not Available
 DHCP Enabled False
 DHCP Server Not Available
 DHCP Lease Expires Not Available
 DHCP Lease Obtained Not Available
 MAC Address Not Available
 Service Name NdisWan
 Driver c:\winnt\system32\drivers\ndiswan.sys (93104, 5.00.2195.5241)

Name [00000005] Broadcom NetXtreme Gigabit Ethernet
 Adapter Type Ethernet 802.3
 Product Name Broadcom NetXtreme Gigabit Ethernet
 Installed True
 PNP Device ID PCI\VEN_14E4&DEV_16A7&SUBSYS_026F1014&REV_02\5&121CC7C2&0&08E810
 Last Reset 10/14/2003 7:23:05 AM
 Index 5
 Service Name b57w2k
 IP Address 192.168.122.10
 IP Subnet 255.255.255.0
 Default IP Gateway Not Available
 DHCP Enabled False
 DHCP Server Not Available
 DHCP Lease Expires Not Available
 DHCP Lease Obtained Not Available
 MAC Address 00:10:DC:72:A2:2D
 Service Name b57w2k
 IRQ Number 48

Driver c:\winnt\system32\drivers\b57w2k.sys (79336, 2.90.0.0)
 Name [00000006] Intel(R) PRO/100 S Dual Port Server Adapter
 Adapter Type Ethernet 802.3
 Product Name Intel(R) PRO/100 S Dual Port Server Adapter
 Installed True
 PNP Device ID PCI\VEN_8086&DEV_1229&SUBSYS_10158086&REV_0D\6&11588895&0&2008F810
 Last Reset 10/14/2003 7:23:05 AM
 Index 6
 Service Name E100B
 IP Address 192.168.13.99
 IP Subnet 255.255.255.0
 Default IP Gateway Not Available
 DHCP Enabled False
 DHCP Server Not Available
 DHCP Lease Expires Not Available
 DHCP Lease Obtained Not Available
 MAC Address 00:02:B3:AC:69:D8
 Service Name E100B
 IRQ Number 24
 I/O Port 0x7000-0xBFFF
 Driver c:\winnt\system32\drivers\e100bnt5.sys (141584, 6.04.14.0000)
 Name [00000007] Intel(R) PRO/100 S Dual Port Server Adapter
 Adapter Type Ethernet 802.3
 Product Name Intel(R) PRO/100 S Dual Port Server Adapter
 Installed True
 PNP Device ID PCI\VEN_8086&DEV_1229&SUBSYS_10158086&REV_0D\6&11588895&0&2808F810
 Last Reset 10/14/2003 7:23:05 AM
 Index 7
 Service Name E100B
 IP Address 192.168.12.99

IP Subnet 255.255.255.0
 Default IP Gateway Not Available
 DHCP Enabled False
 DHCP Server Not Available
 DHCP Lease Expires Not Available
 DHCP Lease Obtained Not Available
 MAC Address 00:02:B3:AC:69:D9
 Service Name E100B
 IRQ Number 25
 I/O Port 0x7400-0x743F
 Driver c:\winnt\system32\drivers\e100bnt5.sys (141584, 6.04.14.0000)

Name [00000008] Intel(R) PRO/100 S Dual Port Server Adapter
 Adapter Type Ethernet 802.3
 Product Name Intel(R) PRO/100 S Dual Port Server Adapter
 Installed True
 PNP Device ID
 PCI\VEN_8086&DEV_1229&SUBSYS_10158086&REV_0D\6&34E7E7F4&0&2010F810
 Last Reset 10/14/2003 7:23:05 AM
 Index 8
 Service Name E100B
 IP Address 192.168.17.99
 IP Subnet 255.255.255.0
 Default IP Gateway Not Available
 DHCP Enabled False
 DHCP Server Not Available
 DHCP Lease Expires Not Available
 DHCP Lease Obtained Not Available
 MAC Address 00:02:B3:AC:6C:44
 Service Name E100B
 IRQ Number 28
 I/O Port 0x8000-0x8FFF
 Driver c:\winnt\system32\drivers\e100bnt5.sys (141584, 6.04.14.0000)

Name [00000009] Intel(R) PRO/100 S Dual Port Server Adapter
 Adapter Type Ethernet 802.3
 Product Name Intel(R) PRO/100 S Dual Port Server Adapter
 Installed True
 PNP Device ID
 PCI\VEN_8086&DEV_1229&SUBSYS_10158086&REV_0D\6&34E7E7F4&0&2810F810
 Last Reset 10/14/2003 7:23:05 AM
 Index 9
 Service Name E100B
 IP Address 192.168.16.99
 IP Subnet 255.255.255.0
 Default IP Gateway Not Available
 DHCP Enabled False
 DHCP Server Not Available
 DHCP Lease Expires Not Available
 DHCP Lease Obtained Not Available
 MAC Address 00:02:B3:AC:6C:45
 Service Name E100B
 IRQ Number 29
 I/O Port 0x8400-0x843F
 Driver c:\winnt\system32\drivers\e100bnt5.sys (141584, 6.04.14.0000)

Name [00000014] Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter
 Adapter Type Ethernet 802.3
 Product Name Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter
 Installed True
 PNP Device ID
 PCI\VEN_9004&DEV_6915&SUBSYS_00199004&REV_03\6&1CD10E71&0&2018E810
 Last Reset 10/14/2003 7:23:05 AM
 Index 14
 Service Name ADPTSF
 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 00:00:D1:EF:69:F9
 Service Name ADPTSF
 IRQ Number 56
 I/O Port 0xA000-0xBFFF
 Driver c:\winnt\system32\drivers\adptsf50.sys (48384, 5.20.0.24)

Name [00000015] Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter
 Adapter Type Ethernet 802.3
 Product Name Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter
 Installed True
 PNP Device ID
 PCI\VEN_9004&DEV_6915&SUBSYS_00199004&REV_03\6&1CD10E71&0&2818E810
 Last Reset 10/14/2003 7:23:05 AM
 Index 15
 Service Name ADPTSF
 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 00:00:D1:EF:69:FA
 Service Name ADPTSF
 IRQ Number 57
 I/O Port 0xA400-0xA4FF
 Driver c:\winnt\system32\drivers\adptsf50.sys (48384, 5.20.0.24)

Name [00000016] Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter
 Adapter Type Ethernet 802.3
 Product Name Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter
 Installed True
 PNP Device ID
 PCI\VEN_9004&DEV_6915&SUBSYS_00199004&REV_03\6&1CD10E71&0&3018E810
 Last Reset 10/14/2003 7:23:05 AM
 Index 16
 Service Name ADPTSF
 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 00:00:D1:EF:69:FB
 Service Name ADPTSF
 IRQ Number 58
 I/O Port 0xA800-0xA8FF
 Driver c:\winnt\system32\drivers\adptsf50.sys (48384, 5.20.0.24)

Name [00000017] Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter
 Adapter Type Ethernet 802.3
 Product Name Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter
 Installed True
 PNP Device ID
 PCI\VEN_9004&DEV_6915&SUBSYS_00199004&REV_03\6&1CD10E71&0&3818E810
 Last Reset 10/14/2003 7:23:05 AM
 Index 17
 Service Name ADPTSF
 IP Address 192.168.14.99

IP Subnet 255.255.255.0
 Default IP Gateway Not Available
 DHCP Enabled False
 DHCP Server Not Available
 DHCP Lease Expires Not Available
 DHCP Lease Obtained Not Available
 MAC Address 00:00:D1:EF:69:FC
 Service Name ADPTSF
 IRQ Number 59
 I/O Port 0xAC00-0xACFF
 Driver c:\winnt\system32\drivers\adptsf50.sys (48384, 5.20.0.24)

[Protocol]

Item	Value
Name	MSAFD Tcpip [TCP/IP]
ConnectionlessService	False
GuaranteesDelivery	True
GuaranteesSequencing	True
MaximumAddressSize	16 bytes
MaximumMessageSize	0 bytes
MessageOriented	False
MinimumAddressSize	16 bytes
PseudoStreamOriented	False
SupportsBroadcasting	False
SupportsConnectData	False
SupportsDisconnectData	False
SupportsEncryption	False
SupportsExpeditedData	True
SupportsGracefulClosing	True
SupportsGuaranteedBandwidth	False
SupportsMulticasting	False

Name	MSAFD Tcpip [UDP/IP]
ConnectionlessService	True
GuaranteesDelivery	False
GuaranteesSequencing	False
MaximumAddressSize	16 bytes
MaximumMessageSize	65467 bytes
MessageOriented	True
MinimumAddressSize	16 bytes
PseudoStreamOriented	False
SupportsBroadcasting	True
SupportsConnectData	False
SupportsDisconnectData	False
SupportsEncryption	False
SupportsExpeditedData	False
SupportsGracefulClosing	False
SupportsGuaranteedBandwidth	False
SupportsMulticasting	True

Name	RSVP UDP Service Provider
ConnectionlessService	True
GuaranteesDelivery	False
GuaranteesSequencing	False
MaximumAddressSize	16 bytes
MaximumMessageSize	65467 bytes
MessageOriented	True
MinimumAddressSize	16 bytes
PseudoStreamOriented	False
SupportsBroadcasting	True
SupportsConnectData	False
SupportsDisconnectData	False
SupportsEncryption	True
SupportsExpeditedData	False
SupportsGracefulClosing	False
SupportsGuaranteedBandwidth	False

SupportsMulticasting	True	SupportsExpeditedData	False
Name	RSVP TCP Service Provider	SupportsGracefulClosing	False
ConnectionlessService	False	SupportsGuaranteedBandwidth	False
GuaranteesDelivery	True	SupportsMulticasting	False
GuaranteesSequencing	True	Name	MSAFD NetBIOS
MaximumAddressSize	16 bytes	[\Device\NetBT_Tcpip_{C5A9DCD8-47C5-437F-A456-3998B708852F}]	
MaximumMessageSize	0 bytes	DATAGRAM 14	
MessageOriented	False	ConnectionlessService	True
MinimumAddressSize	16 bytes	GuaranteesDelivery	False
PseudoStreamOriented	False	GuaranteesSequencing	False
SupportsBroadcasting	False	MaximumAddressSize	20 bytes
SupportsConnectData	False	MaximumMessageSize	64000 bytes
SupportsDisconnectData	False	MessageOriented	True
SupportsEncryption	True	MinimumAddressSize	20 bytes
SupportsExpeditedData	True	PseudoStreamOriented	False
SupportsGracefulClosing	True	SupportsBroadcasting	True
SupportsGuaranteedBandwidth	False	SupportsConnectData	False
SupportsMulticasting	False	SupportsDisconnectData	False
Name	MSAFD NetBIOS	SupportsEncryption	False
[\Device\NetBT_Tcpip_{C5A9DCD8-47C5-437F-A456-3998B708852F}]		SupportsExpeditedData	False
SEQPACKET 14		SupportsGracefulClosing	False
ConnectionlessService	False	SupportsGuaranteedBandwidth	False
GuaranteesDelivery	True	SupportsMulticasting	False
GuaranteesSequencing	True	Name	MSAFD NetBIOS
MaximumAddressSize	20 bytes	[\Device\NetBT_Tcpip_{7342D553-7C2A-4066-9070-1B50781771D5}]	
MaximumMessageSize	64000 bytes	SEQPACKET 11	
MessageOriented	True	ConnectionlessService	False
MinimumAddressSize	20 bytes	GuaranteesDelivery	True
PseudoStreamOriented	False	GuaranteesSequencing	True
SupportsBroadcasting	False	MaximumAddressSize	20 bytes
SupportsConnectData	False	MaximumMessageSize	64000 bytes
SupportsDisconnectData	False	MessageOriented	True
SupportsEncryption	False	MinimumAddressSize	20 bytes
		PseudoStreamOriented	False

SupportsBroadcasting	False	MaximumMessageSize	64000 bytes
SupportsConnectData	False	MessageOriented	True
SupportsDisconnectData	False	MinimumAddressSize	20 bytes
SupportsEncryption	False	PseudoStreamOriented	False
SupportsExpeditedData	False	SupportsBroadcasting	False
SupportsGracefulClosing	False	SupportsConnectData	False
SupportsGuaranteedBandwidth	False	SupportsDisconnectData	False
SupportsMulticasting	False	SupportsEncryption	False
Name	MSAFD NetBIOS [\Device\NetBT_Tcpip_{7342D553-7C2A-4066-9070-1B50781771D5}] DATAGRAM 11	SupportsExpeditedData	False
ConnectionlessService	True	SupportsGracefulClosing	False
GuaranteesDelivery	False	SupportsGuaranteedBandwidth	False
GuaranteesSequencing	False	SupportsMulticasting	False
MaximumAddressSize	20 bytes	Name	MSAFD NetBIOS [\Device\NetBT_Tcpip_{4A2A9C9A-DDD8-4FED-BF81-B957B71EB0BE}] DATAGRAM 4
MaximumMessageSize	64000 bytes	ConnectionlessService	True
MessageOriented	True	GuaranteesDelivery	False
MinimumAddressSize	20 bytes	GuaranteesSequencing	False
PseudoStreamOriented	False	MaximumAddressSize	20 bytes
SupportsBroadcasting	True	MaximumMessageSize	64000 bytes
SupportsConnectData	False	MessageOriented	True
SupportsDisconnectData	False	MinimumAddressSize	20 bytes
SupportsEncryption	False	PseudoStreamOriented	False
SupportsExpeditedData	False	SupportsBroadcasting	True
SupportsGracefulClosing	False	SupportsConnectData	False
SupportsGuaranteedBandwidth	False	SupportsDisconnectData	False
SupportsMulticasting	False	SupportsEncryption	False
Name	MSAFD NetBIOS [\Device\NetBT_Tcpip_{4A2A9C9A-DDD8-4FED-BF81-B957B71EB0BE}] SEQPACKET 4	SupportsExpeditedData	False
ConnectionlessService	False	SupportsGracefulClosing	False
GuaranteesDelivery	True	SupportsGuaranteedBandwidth	False
GuaranteesSequencing	True	SupportsMulticasting	False
MaximumAddressSize	20 bytes	Name	MSAFD NetBIOS [\Device\NetBT_Tcpip_{04626D60-9758-487A-8A9E-33BA956B6C94}] SEQPACKET 3

ConnectionlessService	False
GuaranteesDelivery	True
GuaranteesSequencing	True
MaximumAddressSize	20 bytes
MaximumMessageSize	64000 bytes
MessageOriented	True
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_{04626D60-9758-487A-8A9E-33BA956B6C94}] 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_{9580B244-281D-49A2-868D-2DB50DC4BB14}] SEQPACKET 13	
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_{9580B244-281D-49A2-868D-2DB50DC4BB14}] DATAGRAM 13	
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_{F37FFD50-F485-4FB7-A01E-55B193228DED}] SEQPACKET 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_{F37FFD50-F485-4FB7-A01E-55B193228DED}] 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_{E64AEA55-29FE-46A2-900A-0F724D1CC407}] SEQPACKET 12	
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_{E64AEA55-29FE-46A2-900A-0F724D1CC407}] DATAGRAM 12	
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_{70347C08-B8F8-4918-93D1-FFF1CE9DB212}] SEQPACKET 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_{70347C08-B8F8-4918-93D1-FFF1CE9DB212}] 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_{4DA8936B-544A-43FE-B2F7-D71CAF394BCD}] SEQPACKET 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_{4DA8936B-544A-43FE-B2F7-D71CAF394BCD}]
 DATAGRAM 0

ConnectionlessService True

GuaranteesDelivery False

GuaranteesSequencing False

MaximumAddressSize 20 bytes

MaximumMessageSize 64000 bytes

MessageOriented True

MinimumAddressSize20 bytes

PseudoStreamOriented False

SupportsBroadcasting True

SupportsConnectData False

SupportsDisconnectData False

SupportsEncryption False

SupportsExpeditedData False

SupportsGracefulClosing False

SupportsGuaranteedBandwidth False

SupportsMulticasting False

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{E4642D43-676A-4938-B902-1D94A9E14871}]
 SEQPACKET 1

ConnectionlessService False

GuaranteesDelivery True

GuaranteesSequencing True

MaximumAddressSize 20 bytes

MaximumMessageSize 64000 bytes

MessageOriented True

MinimumAddressSize20 bytes

PseudoStreamOriented False

SupportsBroadcasting False

SupportsConnectData False

SupportsDisconnectData False

SupportsEncryption False

SupportsExpeditedData False

SupportsGracefulClosing False

SupportsGuaranteedBandwidth False

SupportsMulticasting False

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{E4642D43-676A-4938-B902-1D94A9E14871}]
 DATAGRAM 1

ConnectionlessService True

GuaranteesDelivery False

GuaranteesSequencing False

MaximumAddressSize 20 bytes

MaximumMessageSize 64000 bytes

MessageOriented True

MinimumAddressSize20 bytes

PseudoStreamOriented False

SupportsBroadcasting True

SupportsConnectData False

SupportsDisconnectData False

SupportsEncryption False

SupportsExpeditedData False

SupportsGracefulClosing False

SupportsGuaranteedBandwidth False

SupportsMulticasting False

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{7A1A1C49-720E-4C27-ADCC-2C8703574F7C}]
 SEQPACKET 2

ConnectionlessService False

GuaranteesDelivery True

GuaranteesSequencing True

MaximumAddressSize 20 bytes

MaximumMessageSize 64000 bytes

MessageOriented True
 MinimumAddressSize 20 bytes
 PseudoStreamOriented False
 SupportsBroadcasting False
 SupportsConnectData False
 SupportsDisconnectData False
 SupportsEncryption False
 SupportsExpeditedData False
 SupportsGracefulClosing False
 SupportsGuaranteedBandwidth False
 SupportsMulticasting False

 Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{7A1A1C49-720E-4C27-ADCC-2C8703574F7C}]
 DATAGRAM 2

 ConnectionlessService True
 GuaranteesDelivery False
 GuaranteesSequencing False
 MaximumAddressSize 20 bytes
 MaximumMessageSize 64000 bytes
 MessageOriented True
 MinimumAddressSize 20 bytes
 PseudoStreamOriented False
 SupportsBroadcasting True
 SupportsConnectData False
 SupportsDisconnectData False
 SupportsEncryption False
 SupportsExpeditedData False
 SupportsGracefulClosing False
 SupportsGuaranteedBandwidth False
 SupportsMulticasting False

 [WinSock]

Item	Value
File	c:\winnt\system32\winsock.dll
Version	3.10
Size	2.80 KB (2,864 bytes)
File	c:\winnt\system32\wsock32.dll
Version	5.00.2195.4874
Size	21.27 KB (21,776 bytes)
[Ports]	
[Following are sub-categories of this main category]	
[Serial]	
Item	Value
Name	COM1
Status	OK
PNP Device ID	ACPI\PNP0501\1
Maximum Input Buffer Size	0
Maximum Output Buffer Size	False
Settable Baud Rate	True
Settable Data Bits	True
Settable Flow Control	True
Settable Parity	True
Settable Parity Check	True
Settable Stop Bits	True
Settable RLSD	True
Supports RLSD	True
Supports 16 Bit Mode	False
Supports Special Characters	False
Baud Rate	9600
Bits/Byte	8

Stop Bits 1
 Parity None
 Busy 0
 Abort Read/Write on Error 0
 Binary Mode Enabled -1
 Continue XMit on XOff 0
 CTS Outflow Control 0
 Discard NULL Bytes 0
 DSR Outflow Control 0
 DSR Sensitivity 0
 DTR Flow Control Type Enable
 EOF Character 0
 Error Replace Character 0
 Error Replacement Enabled 0
 Event Character 0
 Parity Check Enabled 0
 RTS Flow Control Type Enable
 XOff Character 19
 XOffXMit Threshold 512
 XOn Character 17
 XOnXMit Threshold 2048
 XOnXOff InFlow Control 0
 XOnXOff OutFlow Control 0
 IRQ Number 4
 I/O Port 0x03F8-0x03FF
 Driver c:\winnt\system32\drivers\serial.sys (62512, 5.00.2195.5080)

Name COM2
 Status OK
 PNP Device ID ACPI\PNP0501\2
 Maximum Input Buffer Size 0
 Maximum Output Buffer Size False
 Settable Baud Rate True
 Settable Data Bits True

Settable Flow Control True
 Settable Parity True
 Settable Parity Check True
 Settable Stop Bits True
 Settable RLSD True
 Supports RLSD True
 Supports 16 Bit Mode False
 Supports Special Characters False
 Baud Rate 9600
 Bits/Byte 8
 Stop Bits 1
 Parity None
 Busy 0
 Abort Read/Write on Error 0
 Binary Mode Enabled -1
 Continue XMit on XOff 0
 CTS Outflow Control 0
 Discard NULL Bytes 0
 DSR Outflow Control 0
 DSR Sensitivity 0
 DTR Flow Control Type Enable
 EOF Character 0
 Error Replace Character 0
 Error Replacement Enabled 0
 Event Character 0
 Parity Check Enabled 0
 RTS Flow Control Type Enable
 XOff Character 19
 XOffXMit Threshold 512
 XOn Character 17
 XOnXMit Threshold 2048
 XOnXOff InFlow Control 0
 XOnXOff OutFlow Control 0
 IRQ Number 3

I/O Port 0x02F8-0x02FF
 Driver c:\winnt\system32\drivers\serial.sys (62512, 5.00.2195.5080)

[Parallel]

Item	Value
Name	LPT1
PNP Device ID	ACPI\PNP0400\4&323CF337&0

[Storage]

[Following are sub-categories of this main category]

[Drives]

Item	Value
Drive	A:
Description	3 1/2 Inch Floppy Drive
Drive	C:
Description	Local Fixed Disk
Compressed	False
File System	NTFS
Size	33.90 GB (36,396,830,720 bytes)
Free Space	28.69 GB (30,809,366,528 bytes)
Volume Name	C_Drive
Volume Serial Number	5C29133F
Partition	Disk #0, Partition #0
Partition Size	33.90 GB (36,396,831,744 bytes)
Starting Offset	32256 bytes
Drive Description	Disk drive
Drive Manufacturer	(Standard disk drives)

Drive Model	IBM-ESXS DTN036C3UCDY10FN SCSI Disk Device
Drive BytesPerSector	512
Drive MediaLoaded	True
Drive MediaType	Fixed hard disk media
Drive Partitions	1
Drive SCSI Bus	0
Drive SCSI Logical Unit	0
Drive SCSI Port	2
Drive SCSI Target Id	4
Drive SectorsPerTrack	63
Drive Size	36396864000 bytes
Drive TotalCylinders	4425
Drive TotalSectors	71087625
Drive TotalTracks	1128375
Drive TracksPerCylinder	255

Drive	X:
Description	Network Connection
Provider Name	\\fsserv\hdrive

[SCSI]

Item	Value
Name	QLogic QLA23xx PCI Fibre Channel Adapter
Caption	QLogic QLA23xx PCI Fibre Channel Adapter
Driver	ql2300
Status	OK
PNP Device ID	PCI\VEN_1077&DEV_2312&SUBSYS_010C1077&REV_02\5&121CC7C2&0&10E810
Device ID	PCI\VEN_1077&DEV_2312&SUBSYS_010C1077&REV_02\5&121CC7C2&0&10E810
Device Map	Not Available
Index	Not Available

Max Number Controlled Not Available

IRQ Number 52

I/O Port 0xB000-0xB0FF

Driver c:\winnt\system32\drivers\ql2300.sys (441733, 8.2.0 Beta 10 (W2K VI))

Name LSI Logic 1020/1030 Ultra320 SCSI Adapter

Caption LSI Logic 1020/1030 Ultra320 SCSI Adapter

Driver SYMMPI

Status OK

PNP Device ID
PCI\VEN_1000&DEV_0030&SUBSYS_10001014&REV_07\5&21593F33&0&18F810

Device ID
PCI\VEN_1000&DEV_0030&SUBSYS_10001014&REV_07\5&21593F33&0&18F810

Device Map Not Available

Index Not Available

Max Number Controlled Not Available

IRQ Number 32

I/O Port 0x9000-0x90FF

Driver c:\winnt\system32\drivers\symmpi.sys (38512, 1.08.22.00)

Name LSI Logic 1020/1030 Ultra320 SCSI Adapter

Caption LSI Logic 1020/1030 Ultra320 SCSI Adapter

Driver SYMMPI

Status OK

PNP Device ID
PCI\VEN_1000&DEV_0030&SUBSYS_10001014&REV_07\5&21593F33&0&19F810

Device ID
PCI\VEN_1000&DEV_0030&SUBSYS_10001014&REV_07\5&21593F33&0&19F810

Device Map Not Available

Index Not Available

Max Number Controlled Not Available

IRQ Number 33

I/O Port 0x9400-0x94FF

Driver c:\winnt\system32\drivers\symmpi.sys (38512, 1.08.22.00)

[Printing]

Name Port Name Server Name

No printing information

[Problem Devices]

Device	PNP Device ID	Error Code
Not Available	ACPI\IBM37D6\2&DABA3FF&0	28
Not Available	ACPI\ASF0001\2&DABA3FF&0	28

[USB]

Device PNP Device ID
Intel(R) 82801DB/DBM USB Universal Host Controller - 24C2
PCI\VEN_8086&DEV_24C2&SUBSYS_027A1014&REV_02\3&13C0B0C5&0&E8

USB Root Hub USB\ROOT_HUB\4&BF47197&0

Intel(R) 82801DB/DBM USB Universal Host Controller - 24C4
PCI\VEN_8086&DEV_24C4&SUBSYS_027A1014&REV_02\3&13C0B0C5&0&E9

USB Root Hub USB\ROOT_HUB\4&31A3CFF4&0

Intel PCI to USB Enhanced Host Controller
PCI\VEN_8086&DEV_24CD&SUBSYS_027A1014&REV_02\3&13C0B0C5&0&EF

USB 2.0 Root Hub USB\ROOT_HUB20\4&E58626F&0

[Software Environment]

[Following are sub-categories of this main category]

[Drivers]

Name	Description	File	Type	Started	Start Mode
State	Status	Error Control	Accept Pause	Accept Stop	
abiosdsk Disabled	Abiosdsk Stopped	Not Available OK	Kernel Driver Ignore	False False	False
abp480n5 Disabled	abp480n5 Stopped	Not Available OK	Kernel Driver Normal	False False	False
acpi Kernel Driver False	Microsoft ACPI Driver True	True	Kernel Driver Boot	Running OK	Normal

msfs Driver True	Msfs True	c:\winnt\system32\drivers\msfs.sys System Running OK Normal	File System False	nwlnkfld IPX Traffic Forwarder Driver c:\winnt\system32\drivers\nwlnkfld.sys Kernel Driver Manual Stopped OK Normal False False
mksksrv Manual Stopped OK Normal False False	Microsoft Streaming Service Proxy True	c:\winnt\system32\drivers\mksksrv.sys Kernel Driver Manual Stopped OK Normal False False	Kernel Driver False	parallel Parallel class driver c:\winnt\system32\drivers\parallel.sys Kernel Driver True Manual Running OK Normal False True
mspclock Manual Stopped OK Normal False False	Microsoft Streaming Clock Proxy True	c:\winnt\system32\drivers\mspclock.sys Kernel Driver Manual Stopped OK Normal False False	Kernel Driver False	parport Parallel port driver c:\winnt\system32\drivers\parport.sys Kernel Driver True System Running OK Ignore False True
mbspqm Manual Stopped OK Normal False False	Microsoft Streaming Quality Manager Proxy True	c:\winnt\system32\drivers\mbspqm.sys Kernel Driver Manual Stopped OK Normal False False	Kernel Driver False	partmgr PartMgr c:\winnt\system32\drivers\partmgr.sys Kernel Driver True Boot Running OK Normal False True
mup Driver True	Mup True	c:\winnt\system32\drivers\mup.sys Boot Running OK Normal	File System False	parvdm ParVdm c:\winnt\system32\drivers\parvdm.sys Kernel Driver True Auto Running OK Ignore False True
nrc710 Disabled Stopped OK Normal False False	Nrc710 Not Available True	Kernel Driver Manual Stopped OK Normal False False	Kernel Driver False	pci PCI Bus Driver c:\winnt\system32\drivers\pci.sys Kernel Driver True Boot Running OK Critical False True
ndis Kernel Driver False True	NDIS System Driver True	c:\winnt\system32\drivers\ndis.sys Boot Running OK Normal	Kernel Driver Normal	pcidump PCIDump Not Available Kernel Driver System Stopped OK Ignore False False
ndistapi Manual Running OK Normal False True	Remote Access NDIS TAPI Driver True	c:\winnt\system32\drivers\ndistapi.sys Kernel Driver Manual Running OK Normal False True	Kernel Driver True	pciide PCIIde c:\winnt\system32\drivers\pciide.sys Kernel Driver True Boot Running OK Normal False True
ndiswan Manual Running OK Normal False True	Remote Access NDIS WAN Driver True	c:\winnt\system32\drivers\ndiswan.sys Kernel Driver Manual Running OK Normal False True	Kernel Driver True	pcmcia Pcmcia c:\winnt\system32\drivers\pcmcia.sys Kernel Driver False Disabled Stopped OK Normal False False
ndproxy Kernel Driver False True	NDIS Proxy True	c:\winnt\system32\drivers\ndproxy.sys Manual Running OK Normal	Kernel Driver Normal	pdcomp PDCOMP Not Available Kernel Driver Manual Stopped OK Ignore False False
netbios File System Driver False True	NetBIOS Interface True	c:\winnt\system32\drivers\netbios.sys System Running OK Normal	Kernel Driver Normal	pdframe PDFRAME Not Available Kernel Driver False Manual Stopped OK Ignore False False
netbt Kernel Driver False True	NetBios over Tcpip True	c:\winnt\system32\drivers\netbt.sys System Running OK Normal	Kernel Driver Normal	pdreli PDRELI Not Available Kernel Driver Manual Stopped OK Ignore False False
netdetect Driver False	NetDetect False	c:\winnt\system32\drivers\netdetect.sys Manual Stopped OK Normal	Kernel Driver False	pdrframe PDRFRAME Not Available Kernel Driver False Manual Stopped OK Ignore False False
npfs Driver True	Npfs True	c:\winnt\system32\drivers\npfs.sys System Running OK Normal	File System False	pptpminiport WAN Miniport (PPTP) c:\winnt\system32\drivers\rasppptp.sys Kernel Driver Manual Running OK Normal False True
ntfs Driver True	Ntfs True	c:\winnt\system32\drivers\ntfs.sys Disabled Running OK Normal	File System False	ptilink Direct Parallel Link Driver c:\winnt\system32\drivers\ptilink.sys Kernel Driver Manual Running OK Normal False True
null Driver True	Null True	c:\winnt\system32\drivers\null.sys System Running OK Normal	Kernel Driver False	ql1080 ql1080 Not Available Kernel Driver Disabled Stopped OK Normal False False
nwlnkflt Manual Stopped OK Normal False False	IPX Traffic Filter Driver True	c:\winnt\system32\drivers\nwlnkflt.sys Kernel Driver Manual Stopped OK Normal False False	Kernel Driver False	ql10wnt Ql10wnt Not Available Kernel Driver Disabled Stopped OK Normal False False
				ql1240 ql1240 Not Available Kernel Driver Disabled Stopped OK Normal False False
				ql2100 ql2100 Not Available Kernel Driver Disabled Stopped OK Normal False False

ql2300 Driver True	ql2300 True	c:\winnt\system32\drivers\ql2300.sys	Kernel Driver	False	srv Srv c:\winnt\system32\drivers\srv.sys File System Driver True Manual Running OK Normal False True
ql2300vi Driver True	ql2300vi True	c:\winnt\system32\drivers\ql2300vi.sys	Kernel Driver	False	swenum Software Bus Driver c:\winnt\system32\drivers\swenum.sys Kernel Driver True Manual Running OK Normal False True
qlvika Driver True	qlvika True	c:\winnt\system32\drivers\qlvika.sys	Kernel Driver	False	swmidi Microsoft Kernel GS Wavetable Synthesizer c:\winnt\system32\drivers\swmidi.sys Kernel Driver False Manual Stopped OK Normal False False
rasacd System Running	Remote Access Auto Connection Driver True	c:\winnt\system32\drivers\rasacd.sys	Kernel Driver	True	symc810 symc810 Not Available Disabled Stopped OK Normal Kernel Driver False False False
rasl2tp Manual Running	WAN Miniport (L2TP) True	c:\winnt\system32\drivers\rasl2tp.sys	Kernel Driver	True	symc8xx symc8xx Not Available Disabled Stopped OK Normal Kernel Driver False False
raspti Kernel Driver False	Direct Parallel True	c:\winnt\system32\drivers\raspti.sys	Kernel Driver	Normal	symmpi symmpi c:\winnt\system32\drivers\symmpi.sys Kernel Driver True Boot Running OK Normal False True
rca Stopped	Microsoft Streaming Network Raw Channel Access OK	c:\winnt\system32\drivers\rca.sys	Kernel Driver	Manual	sym_hi sym_hi Not Available Disabled Stopped OK Normal Kernel Driver False False
rdbs Driver True	Rdbs System Running	c:\winnt\system32\drivers\rdbs.sys	File System Driver	False	sysaudio Microsoft System Audio Device c:\winnt\system32\drivers\sysaudio.sys Kernel Driver Manual Running OK Normal False True True
rdpwd Driver False	RDPWD Manual Stopped	c:\winnt\system32\drivers\rdpwd.sys	Kernel Driver	False	tcpip TCP/IP Protocol Driver c:\winnt\system32\drivers\tcpip.sys Kernel Driver True System Running OK Normal False True
redbook System Stopped	Digital CD Audio Playback Filter Driver OK	c:\winnt\system32\drivers\redbook.sys	Kernel Driver	False	tdasync TDASYNC c:\winnt\system32\drivers\tdasync.sys Kernel Driver False Manual Stopped OK Ignore False False
serenum Kernel Driver False	Serenum Filter Driver True	c:\winnt\system32\drivers\serenum.sys	Kernel Driver	Normal	tdipx TDIPX c:\winnt\system32\drivers\tdipx.sys Kernel Driver False Manual Stopped OK Ignore False
serial Kernel Driver False	Serial port driver True	c:\winnt\system32\drivers\serial.sys	Kernel Driver	Ignore	tdnetb TDNETB c:\winnt\system32\drivers\tdnetb.sys Kernel Driver False Manual Stopped OK Ignore False
sfloppy Driver False	Sfloppy System Stopped	c:\winnt\system32\drivers\sfloppy.sys	Kernel Driver	False	tdpipe TDPIPE c:\winnt\system32\drivers\tdpipe.sys Kernel Driver False Manual Stopped OK Ignore False
sglfb System Stopped	Not Available OK	Kernel Driver	False	tdspx TDSPX c:\winnt\system32\drivers\tdspx.sys Kernel Driver False Manual Stopped OK Ignore False	
simbad Disabled	Simbad Not Available Stopped	Kernel Driver	False	tdtcp TDTCP c:\winnt\system32\drivers\tdtcp.sys Kernel Driver False Manual Stopped OK Ignore False	
smwdm Driver True	smwdm Manual Running	c:\winnt\system32\drivers\smwdm.sys	Kernel Driver	False	termdd Terminal Device Driver c:\winnt\system32\drivers\termdd.sys Kernel Driver Disabled Stopped OK Normal False False
sparrow Disabled	Sparrow Not Available Stopped	Kernel Driver	False	tga tga Not Available System Stopped OK Ignore Kernel Driver False False	
spud Kernel Driver False	Special Purpose Utility Driver True	c:\winnt\system32\drivers\spud.sys	Kernel Driver	Normal	udfs Udfs c:\winnt\system32\drivers\udfs.sys Driver False Disabled Stopped OK Normal False

```

uhcd      Microsoft USB Universal Host Controller Driver
c:\winnt\system32\drivers\uhcd.sys      Kernel Driver      True
Manual   Running   OK       Normal   False   True

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

usbehci   Microsoft USB 2.0 Enhanced Host Controller Miniport Driver
c:\winnt\system32\drivers\usbehci.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

usbhub20  USB 2.0 Root Hub Support
c:\winnt\system32\drivers\usbhub20.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

wdmaud    Microsoft WINMM WDM Audio Compatibility Driver
c:\winnt\system32\drivers\wdmaud.sys    Kernel Driver      True
Manual   Running   OK       Normal   False   True

```

[Environment Variables]

Variable	Value	User Name
ComSpec	%SystemRoot%\system32\cmd.exe	<SYSTEM>
NUMBER_OF_PROCESSORS	4	<SYSTEM>
OS	Windows_NT	<SYSTEM>
Os2LibPath	%SystemRoot%\system32\os2\dll;	<SYSTEM>
Path	%SystemRoot%\system32;%SystemRoot%;%SystemRoot%\System32\Wbem; C:\Program Files\Microsoft SQL Server\80\Tools\BINN;c:\batfiles;c:\tools <SYSTEM>	
PATHEXT	.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH	<SYSTEM>
PROCESSOR_ARCHITECTURE	x86	<SYSTEM>
PROCESSOR_IDENTIFIER	x86 Family 15 Model 2 Stepping 7, GenuineIntel	<SYSTEM>
PROCESSOR_LEVEL	15	<SYSTEM>

```

PROCESSOR_REVISION    0207    <SYSTEM>
TEMP                  %SystemRoot%\TEMP    <SYSTEM>
TMP                   %SystemRoot%\TEMP    <SYSTEM>
windir                %SystemRoot%         <SYSTEM>
TEMP                  %USERPROFILE%\Local Settings\Temp
VCLIENT10\Administrator
TMP                   %USERPROFILE%\Local Settings\Temp
VCLIENT10\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
X:	\\fsserv\hdrive	Disk	OK	
	VCLIENT10\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
Available	Not Available		Not Available	Unknown	Unknown
Unknown					
system	Not Available	8	8	0	1413120
Not Available		Unknown	Unknown	Unknown	
smss.exe	c:\winnt\system32\smss.exe	176	11	204800	
1413120	10/14/2003 11:23:38 AM	5.00.2195.5382		44.77 KB	
(45,840 bytes)	12/7/1999 7:00:00 AM				

csrss.exe	Not Available	200	13	Not Available	dfssvc.exe	c:\winnt\system32\dfssvc.exe	752	8	204800	
Not Available	10/14/2003 11:23:41 AM			Unknown Unknown	1413120	10/14/2003 11:24:15 AM	5.00.2195.3649		88.27 KB	
Unknown					(90,384 bytes)	3/6/2003 1:53:59 PM				
winlogon.exe	c:\winnt\system32\winlogon.exe	196	13		svchost.exe	c:\winnt\system32\svchost.exe	360	8		
204800	1413120 10/14/2003 11:23:41 AM	5.00.2195.5386			204800	1413120 10/14/2003 11:26:56 AM	5.00.2134.1			
174.77 KB (178,960 bytes)	3/6/2003 1:54:15 PM				7.77 KB (7,952 bytes)	12/7/1999 7:00:00 AM				
services.exe	c:\winnt\system32\services.exe	248	9		mmc.exe	c:\winnt\system32\mmc.exe	776	8	204800	
204800	1413120 10/14/2003 11:23:42 AM	5.00.2195.3940			1413120	10/14/2003 12:11:36 PM	5.00.2195.4933		589.27 KB	
86.77 KB (88,848 bytes)	12/7/1999 7:00:00 AM				(603,408 bytes)	3/6/2003 1:54:04 PM				
lsass.exe	c:\winnt\system32\lsass.exe	260	9	204800	cmd.exe	c:\winnt\system32\cmd.exe	984	8	204800	
1413120	10/14/2003 11:23:42 AM	5.00.2195.5430		32.77 KB	1413120	10/14/2003 12:12:01 PM	5.00.2195.4803		230.77 KB	
(33,552 bytes)	12/7/1999 7:00:00 AM				(236,304 bytes)	12/7/1999 7:00:00 AM				
svchost.exe	c:\winnt\system32\svchost.exe	436	8		rsvp.exe	c:\winnt\system32\rsvp.exe	1468	8	204800	
204800	1413120 10/14/2003 11:23:44 AM	5.00.2134.1			1413120	10/14/2003 12:13:28 PM	5.00.2167.1		172.77 KB	
7.77 KB (7,952 bytes)	12/7/1999 7:00:00 AM				(176,912 bytes)	12/7/1999 7:00:00 AM				
spoolsv.exe	c:\winnt\system32\spoolsv.exe	464	8		[Loaded Modules]					
204800	1413120 10/14/2003 11:23:44 AM	5.00.2195.4299			Name	Version	Size	File Date	Manufacturer	Path
44.27 KB (45,328 bytes)	2/12/2003 7:39:06 AM				traffic.dll	5.00.2139.1	30.77 KB (31,504 bytes)			12/7/1999
msdtc.exe	c:\winnt\system32\msdtc.exe	492	8	204800	7:00:00 AM				Microsoft Corporation	
1413120	10/14/2003 11:23:44 AM	1999.9.3421.3		6.77 KB	c:\winnt\system32\traffic.dll					
(6,928 bytes)	2/12/2003 7:52:40 AM				rsvp.exe	5.00.2167.1	172.77 KB (176,912 bytes)			12/7/1999
svchost.exe	c:\winnt\system32\svchost.exe	656	8		7:00:00 AM				Microsoft Corporation	
204800	1413120 10/14/2003 11:23:45 AM	5.00.2134.1			c:\winnt\system32\rsvp.exe					
7.77 KB (7,952 bytes)	12/7/1999 7:00:00 AM				cmd.exe	5.00.2195.4803	230.77 KB (236,304 bytes)			12/7/1999
llssrv.exe	c:\winnt\system32\llssrv.exe	680	9	204800	7:00:00 AM				Microsoft Corporation	
1413120	10/14/2003 11:23:45 AM	5.00.2195.4907		81.27 KB	c:\winnt\system32\cmd.exe					
(83,216 bytes)	7/22/2002 1:05:04 PM				wbemprox.dll	1.50.1085.0045	40.08 KB (41,040 bytes)			
regsvc.exe	c:\winnt\system32\regsvc.exe	764	8	204800	3/6/2003 1:54:18 PM				Microsoft Corporation	
1413120	10/14/2003 11:23:46 AM	5.00.2195.3649		65.27 KB	c:\winnt\system32\wbem\wbemprox.dll					
(66,832 bytes)	3/6/2003 1:54:11 PM				mlang.dll	6.00.2800.1106	561.50 KB (574,976 bytes)			8/29/2002
rsys.exe	Not Available	868	8	Not Available	8:14:40 AM				Microsoft Corporation	
Not Available	10/14/2003 11:23:47 AM			Unknown Unknown	c:\winnt\system32\mlang.dll					
Unknown					cabinet.dll	5.00.2147.1	54.77 KB (56,080 bytes)			12/7/1999
explorer.exe	c:\winnt\explorer.exe	992	8	204800	7:00:00 AM				Microsoft Corporation	
1413120	10/14/2003 11:23:55 AM	5.00.3502.5321		237.27 KB	c:\winnt\system32\cabinet.dll					
(242,960 bytes)	3/6/2003 1:54:16 PM				msinfo32.dll	5.00.2195.4601	312.27 KB (319,760 bytes)			
mstask.exe	c:\winnt\system32\mstask.exe	744	8	204800	3/6/2003 1:54:19 PM				Microsoft Corporation	c:\program
1413120	10/14/2003 11:24:10 AM	4.71.2195.1		115.77 KB	files\common files\microsoft shared\msinfo\msinfo32.dll					
(118,544 bytes)	3/6/2003 1:54:07 PM				mmcndmgr.dll	5.00.2195.5352	816.27 KB (835,856 bytes)			
tcpvcs.exe	c:\winnt\system32\tcpvcs.exe	732	8		3/6/2003 1:54:04 PM				Microsoft Corporation	
204800	1413120 10/14/2003 11:24:10 AM	5.00.2134.1			c:\winnt\system32\mmcndmgr.dll					
24.77 KB (25,360 bytes)	12/7/1999 7:00:00 AM				mmc.exe	5.00.2195.4933	589.27 KB (603,408 bytes)			3/6/2003
winmgmt.exe	c:\winnt\system32\wbem\winmgmt.exe	1108	8		1:54:04 PM				Microsoft Corporation	
204800	1413120 10/14/2003 11:24:10 AM	1.50.1085.0070			c:\winnt\system32\mmc.exe					
192.08 KB (196,685 bytes)	3/6/2003 1:54:18 PM				tapisrv.dll	5.00.2195.5227	169.27 KB (173,328 bytes)			3/6/2003
svchost.exe	c:\winnt\system32\svchost.exe	1140	8		1:54:14 PM				Microsoft Corporation	
204800	1413120 10/14/2003 11:24:10 AM	5.00.2134.1			c:\winnt\system32\tapisrv.dll					
7.77 KB (7,952 bytes)	12/7/1999 7:00:00 AM									
inetinfo.exe	c:\winnt\system32\inetinfo.exe	1152	8							
204800	1413120 10/14/2003 11:24:10 AM	5.00.0984		14.27 KB						
(14,608 bytes)	3/6/2003 1:54:26 PM									

dfssvc.exe	5.00.2195.3649	88.27 KB (90,384 bytes)	3/6/2003 1:53:59 PM	Microsoft Corporation	c:\winnt\system32\dfssvc.exe
iislog.dll	5.00.0984	75.27 KB (77,072 bytes)	3/6/2003 1:54:26 PM	Microsoft Corporation	c:\winnt\system32\inetsrv\iislog.dll
ntfsdrv.dll	5.00.0984	37.27 KB (38,160 bytes)	3/6/2003 1:54:26 PM	Microsoft Corporation	c:\winnt\system32\inetsrv\ntfsdrv.dll
ntlsapi.dll	5.00.2195.4907	6.77 KB (6,928 bytes)	12/7/1999 7:00:00 AM	Microsoft Corporation	c:\winnt\system32\ntlsapi.dll
httpext.dll	5.00.0984	240.27 KB (246,032 bytes)	3/6/2003 1:54:26 PM	Microsoft Corporation	c:\winnt\system32\inetsrv\httpext.dll
aqueue.dll	5.00.0984	313.77 KB (321,296 bytes)	3/6/2003 1:54:21 PM	Microsoft Corporation	c:\winnt\system32\inetsrv\aqueue.dll
rpcproxy.dll	5.00.2195.5419	16.27 KB (16,656 bytes)	3/6/2003 1:54:22 PM	Microsoft Corporation	c:\winnt\system32\rpcproxy\rpcproxy.dll
fpexedll.dll	4.0.2.5526	20.06 KB (20,541 bytes)	3/6/2003 1:54:21 PM	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)	3/6/2003 1:54:26 PM	Microsoft Corporation	c:\winnt\system32\inetsrv\md5filt.dll
gzip.dll	5.00.0984	30.27 KB (30,992 bytes)	3/6/2003 1:54:26 PM	Microsoft Corporation	c:\winnt\system32\inetsrv\gzip.dll
compfilt.dll	5.00.0984	22.77 KB (23,312 bytes)	3/6/2003 1:54:25 PM	Microsoft Corporation	c:\winnt\system32\inetsrv\compfilt.dll
seo.dll	5.00.0984	229.27 KB (234,768 bytes)	3/6/2003 1:54:26 PM	Microsoft Corporation	c:\winnt\system32\inetsrv\seo.dll
sspifilt.dll	5.00.0984	42.77 KB (43,792 bytes)	3/6/2003 1:54:27 PM	Microsoft Corporation	c:\winnt\system32\inetsrv\sspifilt.dll
iscomlog.dll	5.00.0984	24.27 KB (24,848 bytes)	3/6/2003 1:54:26 PM	Microsoft Corporation	c:\winnt\system32\inetsrv\iscomlog.dll
lonsint.dll	5.00.0984	11.77 KB (12,048 bytes)	3/6/2003 1:54:26 PM	Microsoft Corporation	c:\winnt\system32\inetsrv\lonsint.dll
inetsloc.dll	5.00.0984	20.27 KB (20,752 bytes)	3/6/2003 1:54:02 PM	Microsoft Corporation	c:\winnt\system32\inetsloc.dll
w3svc.dll	5.00.0984	335.27 KB (343,312 bytes)	3/6/2003 1:54:27 PM	Microsoft Corporation	c:\winnt\system32\inetsrv\w3svc.dll
staxmem.dll	5.00.0984	8.27 KB (8,464 bytes)	3/6/2003 1:54:13 PM	Microsoft Corporation	c:\winnt\system32\staxmem.dll
extrace.dll	5.00.0984	13.77 KB (14,096 bytes)	2/12/2003 7:53:07 AM	Microsoft Corporation	c:\winnt\system32\extrace.dll
rwnh.dll	5.00.0984	10.77 KB (11,024 bytes)	3/6/2003 1:54:12 PM	Microsoft Corporation	c:\winnt\system32\rwnh.dll
fcachdll.dll	5.00.0984	43.77 KB (44,816 bytes)	3/6/2003 1:54:01 PM	Microsoft Corporation	c:\winnt\system32\fcachdll.dll
iisfecnv.dll	5.00.0984	7.27 KB (7,440 bytes)	2/12/2003 7:53:06 AM	Microsoft Corporation	c:\winnt\system32\inetsrv\iisfecnv.dll
isatq.dll	5.00.0984	60.77 KB (62,224 bytes)	3/6/2003 1:54:26 PM	Microsoft Corporation	c:\winnt\system32\inetsrv\isatq.dll
infocomm.dll	5.00.0984	240.77 KB (246,544 bytes)	3/6/2003 1:54:26 PM	Microsoft Corporation	c:\winnt\system32\inetsrv\infocomm.dll
smtpsvc.dll	5.00.0984	428.27 KB (438,544 bytes)	3/6/2003 1:54:26 PM	Microsoft Corporation	c:\winnt\system32\inetsrv\smtpsvc.dll
security.dll	5.00.2154.1	5.77 KB (5,904 bytes)	12/7/1999 7:00:00 AM	Microsoft Corporation	c:\winnt\system32\security.dll
svcxext.dll	5.00.0984	39.77 KB (40,720 bytes)	3/6/2003 1:54:27 PM	Microsoft Corporation	c:\winnt\system32\inetsrv\svcxext.dll
admexs.dll	5.00.0984	27.77 KB (28,432 bytes)	3/6/2003 1:54:25 PM	Microsoft Corporation	c:\winnt\system32\inetsrv\admexs.dll
wamreg.dll	5.00.0984	45.77 KB (46,864 bytes)	3/6/2003 1:54:27 PM	Microsoft Corporation	c:\winnt\system32\inetsrv\wamreg.dll
metadata.dll	5.00.0984	68.77 KB (70,416 bytes)	3/6/2003 1:54:26 PM	Microsoft Corporation	c:\winnt\system32\inetsrv\metadata.dll
iismap.dll	5.00.0984	55.77 KB (57,104 bytes)	3/6/2003 1:54:02 PM	Microsoft Corporation	c:\winnt\system32\iismap.dll
nsepm.dll	5.00.0984	43.27 KB (44,304 bytes)	3/6/2003 1:54:26 PM	Microsoft Corporation	c:\winnt\system32\inetsrv\nsepm.dll
admwprox.dll	5.00.0984	31.77 KB (32,528 bytes)	2/12/2003 7:53:06 AM	Microsoft Corporation	c:\winnt\system32\admwprox.dll
coadmin.dll	5.00.0984	39.77 KB (40,720 bytes)	3/6/2003 1:54:25 PM	Microsoft Corporation	c:\winnt\system32\inetsrv\coadmin.dll
iisadmin.dll	5.00.0984	15.27 KB (15,632 bytes)	3/6/2003 1:54:26 PM	Microsoft Corporation	c:\winnt\system32\inetsrv\iisadmin.dll
rpref.dll	5.00.0984	4.27 KB (4,368 bytes)	3/6/2003 1:54:26 PM	Microsoft Corporation	c:\winnt\system32\inetsrv\rpref.dll
iisrtl.dll	5.00.0984	119.77 KB (122,640 bytes)	3/6/2003 1:54:02 PM	Microsoft Corporation	c:\winnt\system32\iisrtl.dll
inetinfo.exe	5.00.0984	14.27 KB (14,608 bytes)	3/6/2003 1:54:26 PM	Microsoft Corporation	c:\winnt\system32\inetsrv\inetinfo.exe
winhttp.dll	5.1.2600.1039 (xpsp1.020511-1800)	303.00 KB (310,272 bytes)	3/6/2003 1:54:25 PM	Microsoft Corporation	c:\winnt\system32\winhttp.dll

regapi.dll	5.00.2195.5201	35.27 KB (36,112 bytes)	3/6/2003 1:54:11 PM	Microsoft Corporation	c:\winnt\system32\regapi.dll
util.dll	5.00.2153.1	25.77 KB (26,384 bytes)	12/7/1999 7:00:00 AM	Microsoft Corporation	c:\winnt\system32\util.dll
wtsapi32.dll	5.00.2134.1	14.27 KB (14,608 bytes)	12/7/1999 7:00:00 AM	Microsoft Corporation	c:\winnt\system32\wtsapi32.dll
advpack.dll	6.00.2800.1106	89.00 KB (91,136 bytes)	8/29/2002 8:14:40 AM	Microsoft Corporation	c:\winnt\system32\advpack.dll
wuaueng.dll	5.4.3628.1 built by: lab04_n	182.50 KB (186,880 bytes)	3/6/2003 1:54:25 PM	Microsoft Corporation	c:\winnt\system32\wuaueng.dll
wuauerv.dll	5.4.3628.1 built by: lab04_n	8.50 KB (8,704 bytes)	3/6/2003 1:54:25 PM	Microsoft Corporation	c:\winnt\system32\wuauerv.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
ntmarta.dll	5.00.2195.4836	99.77 KB (102,160 bytes)	3/6/2003 1:54:09 PM	Microsoft Corporation	c:\winnt\system32\ntmarta.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
provthrd.dll	1.50.1085.0000	68.07 KB (69,708 bytes)	2/12/2003 12:55:49 PM	Microsoft Corporation	c:\winnt\system32\wbem\provthrd.dll
ntevt.dll	1.50.1085.0072	192.06 KB (196,671 bytes)	3/6/2003 1:54:17 PM	Microsoft Corporation	c:\winnt\system32\wbem\ntevt.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	1.50.1085.0076	164.07 KB (168,009 bytes)	3/6/2003 1:54:17 PM	Microsoft Corporation	c:\winnt\system32\wbem\framedyn.dll
cimwin32.dll	1.50.1085.0073	1.04 MB (1,085,520 bytes)	3/6/2003 1:54:17 PM	Microsoft Corporation	c:\winnt\system32\wbem\cimwin32.dll
wbemsvcs.dll	1.50.1085.0007	40.07 KB (41,036 bytes)	3/6/2003 1:54:18 PM	Microsoft Corporation	c:\winnt\system32\wbem\wbemsvcs.dll
wbemess.dll	1.50.1085.0074	364.07 KB (372,804 bytes)	3/6/2003 1:54:18 PM	Microsoft Corporation	c:\winnt\system32\wbem\wbemess.dll
fastprox.dll	1.50.1085.0056	144.08 KB (147,536 bytes)	3/6/2003 1:54:17 PM	Microsoft Corporation	c:\winnt\system32\wbem\fastprox.dll
wbemcore.dll	1.50.1085.0085	628.07 KB (643,146 bytes)	3/6/2003 1:54:18 PM	Microsoft Corporation	c:\winnt\system32\wbem\wbemcore.dll
wbemcomn.dll	1.50.1085.0077	692.07 KB (708,675 bytes)	3/6/2003 1:54:18 PM	Microsoft Corporation	c:\winnt\system32\wbem\wbemcomn.dll
winmgmt.exe	1.50.1085.0070	192.08 KB (196,685 bytes)	3/6/2003 1:54:18 PM	Microsoft Corporation	c:\winnt\system32\wbem\winmgmt.exe
simptcp.dll	5.00.2134.1	19.27 KB (19,728 bytes)	2/12/2003 7:52:36 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	4.71.2195.1	115.77 KB (118,544 bytes)	3/6/2003 1:54:07 PM	Microsoft Corporation	c:\winnt\system32\mstask.exe
wininet.dll	6.00.2800.1106	572.00 KB (585,728 bytes)	8/29/2002 8:14:40 AM	Microsoft Corporation	c:\winnt\system32\wininet.dll
linkinfo.dll	5.00.2134.1	15.77 KB (16,144 bytes)	12/7/1999 7:00:00 AM	Microsoft Corporation	c:\winnt\system32\linkinfo.dll
faxshell.dll	5.00.2134.1	8.27 KB (8,464 bytes)	12/7/1999 7:00:00 AM	Microsoft Corporation	c:\winnt\system32\faxshell.dll
avifil32.dll	5.00.2134.1	76.27 KB (78,096 bytes)	12/7/1999 7:00:00 AM	Microsoft Corporation	c:\winnt\system32\avifil32.dll
msvfw32.dll	5.00.2134.1	113.77 KB (116,496 bytes)	12/7/1999 7:00:00 AM	Microsoft Corporation	c:\winnt\system32\msvfw32.dll
docprop2.dll	5.00.2178.1	297.77 KB (304,912 bytes)	12/7/1999 7:00:00 AM	Microsoft Corporation	c:\winnt\system32\docprop2.dll
msacm32.dll	5.00.2134.1	65.27 KB (66,832 bytes)	12/7/1999 7:00:00 AM	Microsoft Corporation	c:\winnt\system32\msacm32.dll
msacm32.drv	5.00.2134.1	20.77 KB (21,264 bytes)	12/7/1999 7:00:00 AM	Microsoft Corporation	c:\winnt\system32\msacm32.drv
msi.dll	2.0.2600.1	1.90 MB (1,991,168 bytes)	3/6/2003 1:54:05 PM	Microsoft Corporation	c:\winnt\system32\msi.dll
powrprof.dll	5.00.3502.5305	13.27 KB (13,584 bytes)	3/6/2003 1:54:10 PM	Microsoft Corporation	c:\winnt\system32\powrprof.dll
batmeter.dll	5.00.3502.5305	20.27 KB (20,752 bytes)	3/6/2003 1:53:55 PM	Microsoft Corporation	c:\winnt\system32\batmeter.dll

stobject.dll	5.00.2195.4455	79.27 KB (81,168 bytes)	3/6/2003 1:54:13 PM	Microsoft Corporation	c:\winnt\system32\stobject.dll
webcheck.dll	6.00.2800.1106	252.00 KB (258,048 bytes)	8/29/2002 8:14:40 AM	Microsoft Corporation	c:\winnt\system32\webcheck.dll
netui1.dll	5.00.2134.1	210.27 KB (215,312 bytes)	12/7/1999 7:00:00 AM	Microsoft Corporation	c:\winnt\system32\netui1.dll
netui0.dll	5.00.2195.4874	70.77 KB (72,464 bytes)	3/6/2003 1:54:08 PM	Microsoft Corporation	c:\winnt\system32\netui0.dll
ntlanman.dll	5.00.2195.5428	35.27 KB (36,112 bytes)	12/7/1999 7:00:00 AM	Microsoft Corporation	c:\winnt\system32\ntlanman.dll
ntshrui.dll	5.00.2134.1	46.77 KB (47,888 bytes)	12/7/1999 7:00:00 AM	Microsoft Corporation	c:\winnt\system32\ntshrui.dll
mydocs.dll	5.00.3315.4065	55.27 KB (56,592 bytes)	3/6/2003 1:54:08 PM	Microsoft Corporation	c:\winnt\system32\mydocs.dll
hhsetup.dll	4.74.8702	66.27 KB (67,856 bytes)	12/7/1999 7:00:00 AM	Microsoft Corporation	c:\winnt\system32\hhsetup.dll
mmshext.dll	5.00.2153.1	24.27 KB (24,848 bytes)	12/7/1999 7:00:00 AM	Microsoft Corporation	c:\winnt\system32\mmshext.dll
browseui.dll	6.00.2800.1106	1002.00 KB (1,026,048 bytes)	8/29/2002 8:14:40 AM	Microsoft Corporation	c:\winnt\system32\browseui.dll
shdocvw.dll	6.00.2800.1106	1.28 MB (1,338,368 bytes)	8/29/2002 8:14:40 AM	Microsoft Corporation	c:\winnt\system32\shdocvw.dll
explorer.exe	5.00.3502.5321	237.27 KB (242,960 bytes)	3/6/2003 1:54:16 PM	Microsoft Corporation	c:\winnt\explorer.exe
regsvc.exe	5.00.2195.3649	65.27 KB (66,832 bytes)	3/6/2003 1:54:11 PM	Microsoft Corporation	c:\winnt\system32\regsvc.exe
llsrpc.dll	5.00.2195.4907	47.77 KB (48,912 bytes)	12/7/1999 7:00:00 AM	Microsoft Corporation	c:\winnt\system32\llsrpc.dll
llsrvr.exe	5.00.2195.4907	81.27 KB (83,216 bytes)	7/22/2002 1:05:04 PM	Microsoft Corporation	c:\winnt\system32\llsrvr.exe
rasdlg.dll	5.00.2195.5438	515.77 KB (528,144 bytes)	12/7/1999 7:00:00 AM	Microsoft Corporation	c:\winnt\system32\rasdlg.dll
netcfgx.dll	5.00.2195.4874	534.77 KB (547,600 bytes)	3/6/2003 1:54:08 PM	Microsoft Corporation	c:\winnt\system32\netcfgx.dll
rasmans.dll	5.00.2195.5436	149.27 KB (152,848 bytes)	3/6/2003 1:54:11 PM	Microsoft Corporation	c:\winnt\system32\rasmans.dll
wmi.dll	5.00.2191.1	6.27 KB (6,416 bytes)	12/7/1999 7:00:00 AM	Microsoft Corporation	c:\winnt\system32\wmi.dll
netshell.dll	5.00.2195.5431	457.77 KB (468,752 bytes)	3/6/2003 1:54:08 PM	Microsoft Corporation	c:\winnt\system32\netshell.dll
netman.dll	5.00.2195.5282	89.27 KB (91,408 bytes)	3/6/2003 1:54:08 PM	Microsoft Corporation	c:\winnt\system32\netman.dll
comsvcs.dll	2000.2.3497.0	1.37 MB (1,439,504 bytes)	3/6/2003 1:53:57 PM	Microsoft Corporation	c:\winnt\system32\comsvcs.dll
ntmsdba.dll	5.00.2195.5279	169.27 KB (173,328 bytes)	3/6/2003 1:54:09 PM	Microsoft Corporation	c:\winnt\system32\ntmsdba.dll
sens.dll	5.00.2163.1	36.77 KB (37,648 bytes)	12/7/1999 7:00:00 AM	Microsoft Corporation	c:\winnt\system32\sens.dll
iashlpr.dll	5.00.2184.1	33.27 KB (34,064 bytes)	12/7/1999 7:00:00 AM	Microsoft Corporation	c:\winnt\system32\iashlpr.dll
iasacct.dll	5.00.2195.4115	28.27 KB (28,944 bytes)	3/6/2003 1:54:01 PM	Microsoft Corporation	c:\winnt\system32\iasacct.dll
iasuser.dll	5.00.2195.4609	19.77 KB (20,240 bytes)	12/7/1999 7:00:00 AM	Microsoft Corporation	c:\winnt\system32\iasuser.dll
iasnap.dll	5.00.2195.4115	58.77 KB (60,176 bytes)	3/6/2003 1:54:01 PM	Microsoft Corporation	c:\winnt\system32\iasnap.dll
iaspipe.dll	5.00.2134.1	41.77 KB (42,768 bytes)	12/7/1999 7:00:00 AM	Microsoft Corporation	c:\winnt\system32\iaspipe.dll
expsrv.dll	6.72.9414	371.77 KB (380,688 bytes)	3/6/2003 1:54:00 PM	Microsoft Corporation	c:\winnt\system32\expsrv.dll
vbajet32.dll	6.1.8268	30.27 KB (30,992 bytes)	3/6/2003 1:54:15 PM	Microsoft Corporation	c:\winnt\system32\vbajet32.dll
msjtes40.dll	4.00.5914.0	236.27 KB (241,936 bytes)	3/6/2003 1:54:06 PM	Microsoft Corporation	c:\winnt\system32\msjtes40.dll
oledb32r.dll	2.70.9001.0 built by: Lab06_N(dagbuild)	64.00 KB (65,536 bytes)	5/27/2003 9:51:18 AM	Microsoft Corporation	c:\program files\common files\system\ole db\oledb32r.dll
comdlg32.dll	5.00.3315.3727	221.27 KB (226,576 bytes)	12/7/1999 7:00:00 AM	Microsoft Corporation	c:\winnt\system32\comdlg32.dll

msdart.dll 2.71.9031.4 built by: Lab06_N(dagbuild) 124.00 KB (126,976 bytes) 5/27/2003 9:51:18 AM Microsoft Corporation c:\winnt\system32\msdart.dll	resutils.dll 5.00.2195.5339 39.77 KB (40,720 bytes) 3/6/2003 1:54:11 PM Microsoft Corporation c:\winnt\system32\resutils.dll
oledb32.dll 2.71.9031.4 built by: Lab06_N(dagbuild) 408.00 KB (417,792 bytes) 5/27/2003 9:51:18 AM Microsoft Corporation c:\program files\common files\system\ole db\oledb32.dll	clusapi.dll 5.00.2195.4678 54.27 KB (55,568 bytes) 3/6/2003 1:53:57 PM Microsoft Corporation c:\winnt\system32\clusapi.dll
msjint40.dll 4.00.2927.2 148.27 KB (151,824 bytes) 3/6/2003 1:54:06 PM Microsoft Corporation c:\winnt\system32\msjint40.dll	msvcpl50.dll 5.00.7051 552.50 KB (565,760 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\msvcpl50.dll
msjter40.dll 4.00.2927.2 52.27 KB (53,520 bytes) 3/6/2003 1:54:06 PM Microsoft Corporation c:\winnt\system32\msjter40.dll	xolehlp.dll 1999.9.3421.3 17.27 KB (17,680 bytes) 2/12/2003 7:52:40 AM Microsoft Corporation c:\winnt\system32\xolehlp.dll
mswstr10.dll 4.00.3829.2 600.27 KB (614,672 bytes) 3/6/2003 1:54:07 PM Microsoft Corporation c:\winnt\system32\mswstr10.dll	msdtclog.dll 2000.2.3497.0 86.77 KB (88,848 bytes) 3/6/2003 1:54:04 PM Microsoft Corporation c:\winnt\system32\msdtclog.dll
msjet40.dll 4.00.6218.0 1.43 MB (1,503,504 bytes) 3/6/2003 1:54:06 PM Microsoft Corporation c:\winnt\system32\msjet40.dll	mtxclu.dll 2000.2.3497.0 51.27 KB (52,496 bytes) 3/6/2003 1:54:08 PM Microsoft Corporation c:\winnt\system32\mtxclu.dll
msjetoledb40.dll 4.00.5919.0 340.27 KB (348,432 bytes) 3/6/2003 1:54:06 PM Microsoft Corporation c:\winnt\system32\msjetoledb40.dll	msdtcprx.dll 2000.2.3497.0 683.77 KB (700,176 bytes) 3/6/2003 1:54:04 PM Microsoft Corporation c:\winnt\system32\msdtcprx.dll
iasrad.dll 5.00.2195.4841 94.77 KB (97,040 bytes) 3/6/2003 1:54:01 PM Microsoft Corporation c:\winnt\system32\iasrad.dll	txfaux.dll 2000.2.3497.0 383.27 KB (392,464 bytes) 3/6/2003 1:54:14 PM Microsoft Corporation c:\winnt\system32\txfaux.dll
iassam.dll 5.00.2195.5427 98.27 KB (100,624 bytes) 3/6/2003 1:54:01 PM Microsoft Corporation c:\winnt\system32\iassam.dll	msdtctm.dll 2000.2.3497.0 1.08 MB (1,128,208 bytes) 3/6/2003 1:54:05 PM Microsoft Corporation c:\winnt\system32\msdtctm.dll
iasads.dll 5.00.2195.5080 73.77 KB (75,536 bytes) 3/6/2003 1:54:01 PM Microsoft Corporation c:\winnt\system32\iasads.dll	msdtc.exe 1999.9.3421.3 6.77 KB (6,928 bytes) 2/12/2003 7:52:40 AM Microsoft Corporation c:\winnt\system32\msdtc.exe
iaspolcy.dll 5.00.2134.1 25.27 KB (25,872 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\iaspolcy.dll	inetpp.dll 5.00.2195.4299 64.27 KB (65,808 bytes) 3/6/2003 1:54:02 PM Microsoft Corporation c:\winnt\system32\inetpp.dll
iassvcs.dll 5.00.2195.4916 58.77 KB (60,176 bytes) 3/6/2003 1:54:01 PM Microsoft Corporation c:\winnt\system32\iassvcs.dll	win32spl.dll 5.00.2195.5201 92.27 KB (94,480 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\win32spl.dll
iassdo.dll 5.00.2195.4115 263.27 KB (269,584 bytes) 3/6/2003 1:54:01 PM Microsoft Corporation c:\winnt\system32\iassdo.dll	usbmon.dll 5.00.2195.4299 11.27 KB (11,536 bytes) 3/6/2003 1:54:14 PM Microsoft Corporation c:\winnt\system32\usbmon.dll
ntmssvc.dll 5.00.2195.5254 391.77 KB (401,168 bytes) 3/6/2003 1:54:09 PM Microsoft Corporation c:\winnt\system32\ntmssvc.dll	tcpmon.dll 5.00.2195.4299 40.77 KB (41,744 bytes) 3/6/2003 1:54:14 PM Microsoft Corporation c:\winnt\system32\tcpmon.dll
ias.dll 5.00.2134.1 7.27 KB (7,440 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\ias.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
es.dll 2000.2.3497.0 225.27 KB (230,672 bytes) 3/6/2003 1:54:00 PM Microsoft Corporation c:\winnt\system32\es.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
mtxoci.dll 2000.2.3497.0 103.77 KB (106,256 bytes) 3/6/2003 1:54:08 PM Microsoft Corporation c:\winnt\system32\mtxoci.dll	localspl.dll 5.00.2195.5423 250.27 KB (256,272 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\localspl.dll

spoolss.dll 5.00.2195.5400 61.77 KB (63,248 bytes) 2/12/2003 7:39:06 AM Microsoft Corporation c:\winnt\system32\spoolss.dll	rsabase.dll 5.00.2195.3839 128.27 KB (131,344 bytes) 7/22/2002 1:05:04 PM Microsoft Corporation c:\winnt\system32\rsabase.dll
spoolsv.exe 5.00.2195.4299 44.27 KB (45,328 bytes) 2/12/2003 7:39:06 AM Microsoft Corporation c:\winnt\system32\spoolsv.exe	schannel.dll 5.00.2195.5284 139.27 KB (142,608 bytes) 5/4/2001 1:05:02 PM Microsoft Corporation c:\winnt\system32\schannel.dll
rpsess.dll 5.00.2195.5429 231.27 KB (236,816 bytes) 3/6/2003 1:54:11 PM Microsoft Corporation c:\winnt\system32\rpsess.dll	netlogon.dll 5.00.2195.5400 362.77 KB (371,472 bytes) 3/6/2003 1:54:08 PM Microsoft Corporation c:\winnt\system32\netlogon.dll
svchost.exe 5.00.2134.1 7.77 KB (7,952 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\svchost.exe	kerberos.dll 5.00.2195.5246 202.77 KB (207,632 bytes) 3/6/2003 1:54:03 PM Microsoft Corporation c:\winnt\system32\kerberos.dll
dssenh.dll 5.00.2195.3665 142.77 KB (146,192 bytes) 3/6/2003 1:54:23 PM Microsoft Corporation c:\winnt\system32\dssenh.dll	msprivs.dll 5.00.2154.1 41.50 KB (42,496 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\msprivs.dll
oakley.dll 5.00.2195.5326 382.27 KB (391,440 bytes) 3/6/2003 1:54:09 PM Microsoft Corporation c:\winnt\system32\oakley.dll	samsrv.dll 5.00.2195.5201 374.27 KB (383,248 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\samsrv.dll
mfc42u.dll 6.00.8665.0 972.05 KB (995,384 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\mfc42u.dll	lsasrv.dll 5.00.2195.5430 500.27 KB (512,272 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\lsasrv.dll
polagent.dll 5.00.2195.5428 94.77 KB (97,040 bytes) 3/6/2003 1:54:10 PM Microsoft Corporation c:\winnt\system32\polagent.dll	lsass.exe 5.00.2195.5430 32.77 KB (33,552 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\lsass.exe
scecli.dll 5.00.2195.4874 109.27 KB (111,888 bytes) 3/6/2003 1:54:12 PM Microsoft Corporation c:\winnt\system32\scecli.dll	xactsrv.dll 5.00.2134.1 90.27 KB (92,432 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\xactsrv.dll
atl.dll 3.00.9435 73.06 KB (74,810 bytes) 3/6/2003 1:53:55 PM Microsoft Corporation c:\winnt\system32\atl.dll	wmicore.dll 5.00.2195.3649 72.27 KB (74,000 bytes) 3/6/2003 1:54:15 PM Microsoft Corporation c:\winnt\system32\wmicore.dll
certcli.dll 5.00.2195.3649 130.27 KB (133,392 bytes) 3/6/2003 1:53:56 PM Microsoft Corporation c:\winnt\system32\certcli.dll	rasadhlp.dll 5.00.2168.1 7.27 KB (7,440 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\rasadhlp.dll
esent.dll 6.0.3940.25 1.09 MB (1,137,936 bytes) 3/6/2003 1:54:00 PM Microsoft Corporation c:\winnt\system32\esent.dll	winmr.dll 5.00.2160.1 18.77 KB (19,216 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\winmr.dll
ntdsatq.dll 5.00.2195.5246 31.27 KB (32,016 bytes) 3/6/2003 1:54:08 PM Microsoft Corporation c:\winnt\system32\ntdsatq.dll	rn20.dll 5.00.2195.4874 35.77 KB (36,624 bytes) 3/6/2003 1:54:11 PM Microsoft Corporation c:\winnt\system32\rn20.dll
ntdsa.dll 5.00.2195.5438 1002.27 KB (1,026,320 bytes) 3/6/2003 1:54:08 PM Microsoft Corporation c:\winnt\system32\ntdsa.dll	wshtcpip.dll 5.00.2195.4874 17.27 KB (17,680 bytes) 3/6/2003 1:54:16 PM Microsoft Corporation c:\winnt\system32\wshtcpip.dll
kdcsvc.dll 5.00.2195.5246 141.77 KB (145,168 bytes) 3/6/2003 1:54:03 PM Microsoft Corporation c:\winnt\system32\kdcsvc.dll	msafd.dll 5.00.2195.4874 103.27 KB (105,744 bytes) 3/6/2003 1:54:04 PM Microsoft Corporation c:\winnt\system32\msafd.dll
sfmapi.dll 5.00.2134.1 38.77 KB (39,696 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\sfmapi.dll	mswsock.dll 5.00.2195.4874 62.77 KB (64,272 bytes) 3/6/2003 1:54:07 PM Microsoft Corporation c:\winnt\system32\mswsock.dll
rassfm.dll 5.00.2195.4874 21.27 KB (21,776 bytes) 3/6/2003 1:54:11 PM Microsoft Corporation c:\winnt\system32\rassfm.dll	msgsvc.dll 5.00.2195.4874 34.77 KB (35,600 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\msgsvc.dll

browser.dll	5.00.2195.4874	48.77 KB (49,936 bytes)		rtutils.dll	5.00.2168.1	43.77 KB (44,816 bytes)	12/7/1999
3/6/2003 1:53:55 PM Microsoft Corporation c:\winnt\system32\browser.dll				7:00:00 AM Microsoft Corporation c:\winnt\system32\rtutils.dll			
alrsvc.dll	5.00.2134.1	17.77 KB (18,192 bytes)	12/7/1999	adslrpc.dll	5.00.2195.5400	127.77 KB (130,832 bytes)	3/6/2003
7:00:00 AM Microsoft Corporation c:\winnt\system32\alrsvc.dll				1:53:55 PM Microsoft Corporation c:\winnt\system32\adslrpc.dll			
trkwks.dll	5.00.2195.4874	88.77 KB (90,896 bytes)	3/6/2003	activeds.dll	5.00.2195.5312	175.27 KB (179,472 bytes)	
1:54:14 PM Microsoft Corporation c:\winnt\system32\trkwks.dll				3/6/2003 1:53:53 PM Microsoft Corporation c:\winnt\system32\activeds.dll			
seclogon.dll	5.00.2195.5201	17.27 KB (17,680 bytes)		mprapi.dll	5.00.2181.1	79.27 KB (81,168 bytes)	12/7/1999
3/6/2003 1:54:12 PM Microsoft Corporation c:\winnt\system32\seclogon.dll				7:00:00 AM Microsoft Corporation c:\winnt\system32\mprapi.dll			
psbase.dll	5.00.2195.4822	111.77 KB (114,448 bytes)	3/6/2003	iphlpapi.dll	5.00.2195.2	68.27 KB (69,904 bytes)	
1:54:10 PM Microsoft Corporation c:\winnt\system32\psbase.dll				3/6/2003 1:54:02 PM Microsoft Corporation c:\winnt\system32\iphlpapi.dll			
cryptsvc.dll	5.00.2195.4368	73.27 KB (75,024 bytes)		icmp.dll	5.00.2134.1	7.27 KB (7,440 bytes)	12/7/1999 7:00:00 AM
3/6/2003 1:53:58 PM Microsoft Corporation c:\winnt\system32\cryptsvc.dll				Microsoft Corporation c:\winnt\system32\icmp.dll			
cryptdll.dll	5.00.2135.1	41.27 KB (42,256 bytes)	12/7/1999	dhcpcsvc.dll	5.00.2195.4874	87.77 KB (89,872 bytes)	
7:00:00 AM Microsoft Corporation c:\winnt\system32\cryptdll.dll				12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\dhcpcsvc.dll			
wkssvc.dll	5.00.2195.4874	95.27 KB (97,552 bytes)	12/7/1999	eventlog.dll	5.00.2195.5336	44.27 KB (45,328 bytes)	
7:00:00 AM Microsoft Corporation c:\winnt\system32\wkssvc.dll				3/6/2003 1:54:00 PM Microsoft Corporation c:\winnt\system32\eventlog.dll			
srvsvc.dll	5.00.2195.5400	81.77 KB (83,728 bytes)	12/7/1999	ntdsapi.dll	5.00.2195.4827	56.27 KB (57,616 bytes)	3/6/2003
7:00:00 AM Microsoft Corporation c:\winnt\system32\srvsvc.dll				1:54:08 PM Microsoft Corporation c:\winnt\system32\ntdsapi.dll			
cfgmgr32.dll	5.00.2134.1	16.77 KB (17,168 bytes)		scsrsv.dll	5.00.2195.5316	242.77 KB (248,592 bytes)	3/6/2003
12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\cfgmgr32.dll				1:54:12 PM Microsoft Corporation c:\winnt\system32\scsrsv.dll			
dmserver.dll	2195.3649.297.3	12.27 KB (12,560 bytes)		umpnpmgr.dll	5.00.2182.1	86.27 KB (88,336 bytes)	
3/6/2003 1:53:59 PM VERITAS Software Corp. c:\winnt\system32\dmserver.dll				12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\umpnpmgr.dll			
winsta.dll	5.00.2195.4655	36.77 KB (37,648 bytes)	3/6/2003	services.exe	5.00.2195.3940	86.77 KB (88,848 bytes)	
1:54:15 PM Microsoft Corporation c:\winnt\system32\winsta.dll				12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\services.exe			
lmhsvc.dll	5.00.2195.4874	9.77 KB (10,000 bytes)	12/7/1999	msv1_0.dll	5.00.2195.4745	112.27 KB (114,960 bytes)	12/7/1999
7:00:00 AM Microsoft Corporation c:\winnt\system32\lmhsvc.dll				7:00:00 AM Microsoft Corporation c:\winnt\system32\msv1_0.dll			
dnssrslvr.dll	5.00.2195.5354	89.77 KB (91,920 bytes)		clbcatq.dll	2000.2.3497.0	497.77 KB (509,712 bytes)	3/6/2003
3/6/2003 1:53:59 PM Microsoft Corporation c:\winnt\system32\dnssrslvr.dll				1:53:57 PM Microsoft Corporation c:\winnt\system32\clbcatq.dll			
tapi32.dll	5.00.2182.1	123.27 KB (126,224 bytes)	12/7/1999	oleaut32.dll	2.40.4518	612.27 KB (626,960 bytes)	12/7/1999
7:00:00 AM Microsoft Corporation c:\winnt\system32\tapi32.dll				7:00:00 AM Microsoft Corporation c:\winnt\system32\oleaut32.dll			
rasman.dll	5.00.2195.5292	54.77 KB (56,080 bytes)	12/7/1999	cscui.dll	5.00.2195.4104	233.77 KB (239,376 bytes)	3/6/2003
7:00:00 AM Microsoft Corporation c:\winnt\system32\rasman.dll				1:53:58 PM Microsoft Corporation c:\winnt\system32\cscui.dll			
rasapi32.dll	5.00.2195.5438	191.77 KB (196,368 bytes)		winspool.drv	5.00.2195.5225	111.27 KB (113,936 bytes)	
12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\rasapi32.dll				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)		shlwapi.dll	6.00.2800.1106	386.00 KB (395,264 bytes)	8/29/2002
12/7/1999 7:00:00 AM	Microsoft Corporation			8:14:40 AM	Microsoft Corporation		
c:\winnt\system32\winscard.dll				c:\winnt\system32\shlwapi.dll			
wlnotify.dll	5.00.2195.5377	54.27 KB (55,568 bytes)		shell32.dll	5.00.3502.5436	2.26 MB (2,374,416 bytes)	3/6/2003
3/6/2003 1:54:15 PM	Microsoft Corporation			1:54:12 PM	Microsoft Corporation		
c:\winnt\system32\wlnotify.dll				c:\winnt\system32\shell32.dll			
csddl.dll	5.00.2195.5434	98.77 KB (101,136 bytes)	3/6/2003	msgina.dll	5.00.2195.4733	324.77 KB (332,560 bytes)	12/7/1999
1:53:58 PM	Microsoft Corporation			7:00:00 AM	Microsoft Corporation		
c:\winnt\system32\csddl.dll				c:\winnt\system32\msgina.dll			
lz32.dll	5.00.2134.1	9.77 KB (10,000 bytes)	12/7/1999	wsock32.dll	5.00.2195.4874	21.27 KB (21,776 bytes)	
7:00:00 AM	Microsoft Corporation			3/6/2003 1:54:16 PM	Microsoft Corporation		
c:\winnt\system32\lz32.dll				c:\winnt\system32\wsock32.dll			
version.dll	5.00.2134.1	15.77 KB (16,144 bytes)	12/7/1999	dnsapi.dll	5.00.2195.5354	131.27 KB (134,416 bytes)	3/6/2003
7:00:00 AM	Microsoft Corporation			1:53:59 PM	Microsoft Corporation		
c:\winnt\system32\version.dll				c:\winnt\system32\dnsapi.dll			
wdmaud.dr	5.00.2195.3649	21.27 KB (21,776 bytes)		wldap32.dll	5.00.2195.5400	158.77 KB (162,576 bytes)	
3/6/2003 1:54:15 PM	Microsoft Corporation			3/6/2003 1:54:15 PM	Microsoft Corporation		
c:\winnt\system32\wdmaud.dr				c:\winnt\system32\wldap32.dll			
rsaenh.dll	5.00.2195.3839	130.77 KB (133,904 bytes)	3/6/2003	ws2help.dll	5.00.2134.1	17.77 KB (18,192 bytes)	
1:54:23 PM	Microsoft Corporation			12/7/1999 7:00:00 AM	Microsoft Corporation		
c:\winnt\system32\rsaenh.dll				c:\winnt\system32\ws2help.dll			
mscat32.dll	5.131.2134.1	7.77 KB (7,952 bytes)	12/7/1999	ws2_32.dll	5.00.2195.4874	66.77 KB (68,368 bytes)	3/6/2003
7:00:00 AM	Microsoft Corporation			1:54:15 PM	Microsoft Corporation		
c:\winnt\system32\mscat32.dll				c:\winnt\system32\ws2_32.dll			
ole32.dll	5.00.2195.5400	968.27 KB (991,504 bytes)	3/6/2003	samlib.dll	5.00.2195.4827	49.77 KB (50,960 bytes)	12/7/1999
1:54:09 PM	Microsoft Corporation			7:00:00 AM	Microsoft Corporation		
c:\winnt\system32\ole32.dll				c:\winnt\system32\samlib.dll			
imagehlp.dll	5.00.2195.5242	125.77 KB (128,784 bytes)		netrap.dll	5.00.2134.1	11.27 KB (11,536 bytes)	12/7/1999
5/4/2001 1:05:02 PM	Microsoft Corporation			7:00:00 AM	Microsoft Corporation		
c:\winnt\system32\imagehlp.dll				c:\winnt\system32\netrap.dll			
msasn1.dll	5.00.2195.4067	51.27 KB (52,496 bytes)	12/7/1999	netapi32.dll	5.00.2195.5427	305.27 KB (312,592 bytes)	
7:00:00 AM	Microsoft Corporation			3/6/2003 1:54:08 PM	Microsoft Corporation		
c:\winnt\system32\msasn1.dll				c:\winnt\system32\netapi32.dll			
crypt32.dll	5.131.2195.4558	464.27 KB (475,408 bytes)	3/6/2003	profmap.dll	5.00.2181.1	29.27 KB (29,968 bytes)	
1:53:57 PM	Microsoft Corporation			12/7/1999 7:00:00 AM	Microsoft Corporation		
c:\winnt\system32\crypt32.dll				c:\winnt\system32\profmap.dll			
wintrust.dll	5.131.2195.3775	162.27 KB (166,160 bytes)		secur32.dll	5.00.2195.4587	47.27 KB (48,400 bytes)	3/6/2003
3/6/2003 1:54:15 PM	Microsoft Corporation			1:54:12 PM	Microsoft Corporation		
c:\winnt\system32\wintrust.dll				c:\winnt\system32\secur32.dll			
setupapi.dll	5.00.2195.5400	553.77 KB (567,056 bytes)		sfc.dll	5.00.2195.3649	92.11 KB (94,320 bytes)	3/6/2003
12/7/1999 7:00:00 AM	Microsoft Corporation			1:54:12 PM	Microsoft Corporation		
c:\winnt\system32\setupapi.dll				c:\winnt\system32\sfc.dll			
winmm.dll	5.00.2161.1	184.77 KB (189,200 bytes)	12/7/1999	nddeapi.dll	5.00.2195.4509	15.77 KB (16,144 bytes)	3/6/2003
7:00:00 AM	Microsoft Corporation			1:54:08 PM	Microsoft Corporation		
c:\winnt\system32\winmm.dll				c:\winnt\system32\nddeapi.dll			
mpr.dll	5.00.2195.3649	53.77 KB (55,056 bytes)	3/6/2003	userenv.dll	5.00.2195.5425	363.77 KB (372,496 bytes)	12/7/1999
1:54:04 PM	Microsoft Corporation			7:00:00 AM	Microsoft Corporation		
c:\winnt\system32\mpr.dll				c:\winnt\system32\userenv.dll			
comctl32.dll	5.81	517.27 KB (529,680 bytes)	8/29/2002	user32.dll	5.00.2195.4314	395.77 KB (405,264 bytes)	12/7/1999
8:14:40 AM	Microsoft Corporation			7:00:00 AM	Microsoft Corporation		
c:\winnt\system32\comctl32.dll				c:\winnt\system32\user32.dll			

gdi32.dll 5.00.2195.5252 228.77 KB (234,256 bytes) 12/7/1999
7:00:00 AM Microsoft Corporation
c:\winnt\system32\gdi32.dll

rpert4.dll 5.00.2195.5419 440.27 KB (450,832 bytes) 3/6/2003
1:54:11 PM Microsoft Corporation
c:\winnt\system32\rpert4.dll

advapi32.dll 5.00.2195.5385 358.77 KB (367,376 bytes)
12/7/1999 7:00:00 AM Microsoft Corporation
c:\winnt\system32\advapi32.dll

kernel32.dll 5.00.2195.5400 716.77 KB (733,968 bytes)
12/7/1999 7:00:00 AM Microsoft Corporation
c:\winnt\system32\kernel32.dll

msvcrt.dll 6.10.9359.0 284.05 KB (290,869 bytes) 7/22/2002
1:05:04 PM Microsoft Corporation
c:\winnt\system32\msvcrt.dll

winlogon.exe 5.00.2195.5386 174.77 KB (178,960 bytes)
3/6/2003 1:54:15 PM Microsoft Corporation
c:\winnt\system32\winlogon.exe

sfcfiles.dll 5.00.2195.5426 951.27 KB (974,096 bytes) 3/6/2003
1:54:12 PM Microsoft Corporation
c:\winnt\system32\sfcfiles.dll

ntdll.dll 5.00.2195.5400 479.27 KB (490,768 bytes) 5/4/2001
1:05:02 PM Microsoft Corporation
c:\winnt\system32\ntdll.dll

smss.exe 5.00.2195.5382 44.77 KB (45,840 bytes) 12/7/1999
7:00:00 AM Microsoft Corporation
c:\winnt\system32\smss.exe

[Services]

Display Name	Name	State	Start Mode	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
Background Intelligent Transfer Service	BITS	Stopped	Manual	Share Process
c:\winnt\system32\svchost.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		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		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		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\ismsserv.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		Normal	LocalSystem	0
Network DDE	NetDDE	Stopped	Manual	Share Process
c:\winnt\system32\netdde.exe		Normal	LocalSystem	0

Network DDE Process	DSDMNetDDEdsdm	Stopped	Manual	Share	0	Task Scheduler	Schedule	Running	Auto	Share	0
	c:\winnt\system32\netdde.exe	Normal	LocalSystem			c:\winnt\system32\mstask.exe		Normal	LocalSystem		
Net Logon	Netlogon	Stopped	Manual	Share	0	RunAs Service	seclogon	Running	Auto	Share	0
	c:\winnt\system32\lsass.exe	Normal	LocalSystem			c:\winnt\system32\services.exe		Ignore	LocalSystem		
Network Connections	Netman	Running	Manual	Share	0	System Event Notification	SENS	Running	Auto	Share	0
	c:\winnt\system32\svchost.exe -k netsvcs	Normal	LocalSystem			Process	c:\winnt\system32\svchost.exe -k netsvcs	Normal	LocalSystem		
File Replication	NtFrs	Stopped	Manual	Own	0	Internet Connection Sharing	SharedAccess	Stopped	Manual		
	c:\winnt\system32\ntfrs.exe	Ignore	LocalSystem			Share Process	c:\winnt\system32\svchost.exe -k netsvcs	Normal	LocalSystem		
NT LM Security Support Provider			NtLmSsp	Stopped	Manual	Simple TCP/IP Services	SimpTcp	Running	Auto	Share	0
Share Process	c:\winnt\system32\lsass.exe		Normal			Process	c:\winnt\system32\tcpvcs.exe	Normal	LocalSystem		
LocalSystem	0					Simple Mail Transport Protocol (SMTP)	SMTPSVC	Running	Auto	Share	0
Removable Storage	NtmsSvc	Running	Auto	Share	0	Auto	Share Process	c:\winnt\system32\inetrv\inetinfo.exe	Normal	LocalSystem	
	c:\winnt\system32\svchost.exe -k netsvcs	Normal	LocalSystem			Print Spooler	Spooler	Running	Auto	Own	0
Plug and Play	PlugPlay	Running	Auto	Share	0	c:\winnt\system32\spoolsv.exe	Normal	LocalSystem			
	c:\winnt\system32\services.exe	Normal	LocalSystem			Performance Logs and Alerts	SysmonLog	Stopped	Manual		
IPSEC Policy Agent	PolicyAgent		Running	Auto	Share	Own Process	c:\winnt\system32\smlogsvc.exe	Normal	LocalSystem		
Process	c:\winnt\system32\lsass.exe		Normal	LocalSystem	0	LocalSystem	0				
Protected Storage	ProtectedStorage	Running	Auto	Share	0	Telephony TapiSrv	Running	Manual	Share	Process	0
Process	c:\winnt\system32\services.exe	Normal	LocalSystem			c:\winnt\system32\svchost.exe -k tapisrv	Normal	LocalSystem			
Remote Access Auto Connection Manager	RasAuto	Stopped	Manual			Terminal Services	TermService	Stopped	Disabled	Own	0
Share Process	c:\winnt\system32\svchost.exe -k netsvcs	Normal	LocalSystem			Process	c:\winnt\system32\termsrv.exe	Normal	LocalSystem		
LocalSystem	0					Telnet	TlntSvr	Stopped	Manual	Own	0
Remote Access Connection Manager	RasMan	Stopped	Manual			c:\winnt\system32\tlntsvr.exe	Normal	LocalSystem			
Share Process	c:\winnt\system32\svchost.exe -k netsvcs	Normal	LocalSystem			Distributed Link Tracking Server	TrkSvr	Stopped	Manual	Share	0
LocalSystem	0					Process	c:\winnt\system32\services.exe	Normal	LocalSystem		
Routing and Remote Access	RemoteAccess	Stopped	Disabled			Distributed Link Tracking Client	TrkWks	Running	Auto	Share	0
Share Process	c:\winnt\system32\svchost.exe -k netsvcs	Normal	LocalSystem			Process	c:\winnt\system32\services.exe	Normal	LocalSystem		
LocalSystem	0					Uninterruptible Power Supply	UPS	Stopped	Manual	Own	0
Remote Registry Service	RemoteRegistry	Running	Auto			Process	c:\winnt\system32\ups.exe	Normal	LocalSystem		
Own Process	c:\winnt\system32\regsvc.exe	Normal	LocalSystem			Utility Manager	UtilMan	Stopped	Manual	Own	0
LocalSystem	0					c:\winnt\system32\utilman.exe	Normal	LocalSystem			
Remote Command Service	RMSYS	Running	Auto	Own		Windows Time	W32Time	Stopped	Manual	Share	0
Process	c:\program files\benchcraft\rsys.exe	Normal	LocalSystem			c:\winnt\system32\services.exe	Normal	LocalSystem			
.\Administrator	0					World Wide Web Publishing Service	W3SVC	Running	Auto	Share	0
Remote Procedure Call (RPC) Locator	RpcLocator	Stopped	Manual	Own	0	Share Process	c:\winnt\system32\inetrv\inetinfo.exe	Normal	LocalSystem		
Manual	Own Process	c:\winnt\system32\locator.exe	Normal	LocalSystem	0	LocalSystem	0				
Remote Procedure Call (RPC)	RpcSs	Running	Auto	Share		Windows Management Instrumentation	WinMgmt	Running	Auto	Own	0
Process	c:\winnt\system32\svchost -k rpsvc	Normal	LocalSystem			Own Process	c:\winnt\system32\wbem\winmgmt.exe	Ignore	LocalSystem		
LocalSystem	0					LocalSystem	0				
QoS RSVP	RSVP	Running	Manual	Own	0	Windows Management Instrumentation Driver Extensions	Wmi	Running	Manual	Share	0
	c:\winnt\system32\rsvp.exe -s	Normal	LocalSystem			Running	Manual	Share Process	c:\winnt\system32\services.exe	Normal	LocalSystem
Security Accounts Manager	SamSs	Running	Auto	Share	0	Normal	LocalSystem	0			
Process	c:\winnt\system32\lsass.exe	Normal	LocalSystem			Automatic Updates	wuauerv	Running	Auto	Share	0
Smart Card Helper	SCardDrv	Stopped	Manual	Share	0	c:\winnt\system32\svchost.exe -k wugroup	Normal	LocalSystem			
	c:\winnt\system32\scardsvr.exe	Ignore	LocalSystem								
Smart Card	SCardSvr	Stopped	Manual	Share	0						
	c:\winnt\system32\scardsvr.exe	Ignore	LocalSystem								

[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
Startup	All Users:Startup	All Users
Accessories	VCLIENT10\Administrator:Accessories	VCLIENT10\Administrator
Accessories\Accessibility	VCLIENT10\Administrator:Accessories\Accessibility	VCLIENT10\Administrator
Accessories\Entertainment	VCLIENT10\Administrator:Accessories\Entertainment	VCLIENT10\Administrator
Accessories\System Tools	VCLIENT10\Administrator:Accessories\System Tools	VCLIENT10\Administrator
Administrative Tools	VCLIENT10\Administrator:Administrative Tools	VCLIENT10\Administrator
Benchcraft	VCLIENT10\Administrator:Benchcraft	VCLIENT10\Administrator
QLogic Corporation	VCLIENT10\Administrator:QLogic Corporation	VCLIENT10\Administrator

QLogic Corporation\SANblade Control VIX
VCLIENT10\Administrator:QLogic Corporation\SANblade Control VIX
VCLIENT10\Administrator

Startup VCLIENT10\Administrator:Startup
VCLIENT10\Administrator

[Startup Programs]

Program	Command	User Name	Location
synctime	synctime.cmd	All Users	Common Startup

[OLE Registration]

Object	Local Server
Sound (OLE2)	sndrec32.exe
Media Clip	mplay32.exe
Video Clip	mplay32.exe /avi
MIDI Sequence	mplay32.exe /mid
Sound	Not Available
Media Clip	Not Available
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	C:\WINNT\System32\mspaint.exe

[Internet Explorer]

[Following are sub-categories of this main category]

[Summary]

Item	Value
Version	6.0.2800.1106
Build	62800.1106
Product ID	55736-459-9608732-04017

Application Path C:\Program Files\Internet Explorer
 Language English (United States)
 Active Printer Not Available
 Cipher Strength 128-bit
 Content Advisor Disabled
 Update Versions ;SP1;
 Java VM Version 5.0.3805.0
 IEAK Install No

[File Versions]

File	Version	Size	Date	Path	Company
advapi32.dll	5.0.2195.5385	359 KB	7/22/2002 1:05:04 PM	C:\WINNT\system32	Microsoft Corporation
advpack.dll	6.0.2800.1106	89 KB	8/29/2002 8:14:40 AM	C:\WINNT\system32	Microsoft Corporation
browsecl.dll	6.0.2800.1106	62 KB	8/29/2002 8:14:40 AM	C:\WINNT\system32	Microsoft Corporation
browseui.dll	6.0.2800.1106	1002 KB	8/29/2002 8:14:40 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	5.81.4916.400	517 KB	8/29/2002 8:14:40 AM	C:\WINNT\system32	Microsoft Corporation
crypt32.dll	5.131.2195.4558	464 KB	7/22/2002 1:05:04 PM	C:\WINNT\system32	Microsoft Corporation
ehshg.dll	File not present	Not Available	Not Available	Not Available	Not Available
iemigrat.dll	File not present	Not Available	Not Available	Not Available	Not Available
iesetup.dll	6.0.2800.1106	57 KB	8/29/2002 8:14:40 AM	C:\WINNT\system32	Microsoft Corporation
iexplore.exe	6.0.2800.1106	89 KB	8/29/2002 8:14:40 AM	C:\Program Files\Internet Explorer	Microsoft Corporation
imagehlp.dll	5.0.2195.5242	126 KB	7/22/2002 1:05:04 PM	C:\WINNT\system32	Microsoft Corporation
inseng.dll	6.0.2800.1106	68 KB	8/29/2002 8:14:40 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

jscript.dll	5.6.0.6626	576 KB	6/26/2001 5:36:02 PM	C:\WINNT\system32	Microsoft Corporation
jsproxy.dll	6.0.2800.1106	12 KB	8/29/2002 8:14:40 AM	C:\WINNT\system32	Microsoft Corporation
mshtml.dll	6.0.2800.1106	2722 KB	8/29/2002 8:14:40 AM	C:\WINNT\system32	Microsoft Corporation
msjava.dll	5.0.3805.0	924 KB	7/22/2002 1:05:04 PM	C:\WINNT\system32	Microsoft Corporation
msoss.dll	File not present	Not Available	Not Available	Not Available	Not Available
msxml.dll	8.0.6730.0	494 KB	7/22/2002 1:05:04 PM	C:\WINNT\system32	Microsoft Corporation
occache.dll	6.0.2800.1106	86 KB	8/29/2002 8:14:40 AM	C:\WINNT\system32	Microsoft Corporation
ole32.dll	5.0.2195.5400	968 KB	7/22/2002 1:05:04 PM	C:\WINNT\system32	Microsoft Corporation
oleaut32.dll	2.40.4518.0	612 KB	7/22/2002 1:05:04 PM	C:\WINNT\system32	Microsoft Corporation
olepro32.dll	5.0.4518.0	160 KB	7/22/2002 1:05:04 PM	C:\WINNT\system32	Microsoft Corporation
rsabase.dll	5.0.2195.3839	128 KB	7/22/2002 1:05:04 PM	C:\WINNT\system32	Microsoft Corporation
rsaenh.dll	5.0.2195.3839	131 KB	7/22/2002 1:05:04 PM	C:\WINNT\system32	Microsoft Corporation
rasapi32.dll	5.0.2195.5438	192 KB	7/22/2002 1:05:04 PM	C:\WINNT\system32	Microsoft Corporation
rsasig.dll	File not present	Not Available	Not Available	Not Available	Not Available
schannel.dll	5.1.2195.0	139 KB	7/22/2002 1:05:04 PM	C:\WINNT\system32	Microsoft Corporation
shdoc401.dll	File not present	Not Available	Not Available	Not Available	Not Available
shdocvw.dll	6.0.2800.1106	1307 KB	8/29/2002 8:14:40 AM	C:\WINNT\system32	Microsoft Corporation
shell32.dll	5.0.3502.5436	2319 KB	7/22/2002 1:05:04 PM	C:\WINNT\system32	Microsoft Corporation
shlwapi.dll	6.0.2800.1106	386 KB	8/29/2002 8:14:40 AM	C:\WINNT\system32	Microsoft Corporation
url.dll	6.0.2800.1106	104 KB	8/29/2002 8:14:40 AM	C:\WINNT\system32	Microsoft Corporation
urlmon.dll	6.0.2800.1106	472 KB	8/29/2002 8:14:40 AM	C:\WINNT\system32	Microsoft Corporation
vbscript.dll	5.6.0.7426	452 KB	2/26/2002 4:58:06 PM	C:\WINNT\system32	Microsoft Corporation

webcheck.dll	6.0.2800.1106	252 KB	8/29/2002 8:14:40 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	6.0.2800.1106	572 KB	8/29/2002 8:14:40 AM
C:\WINNT\system32 Microsoft Corporation			
winsock.dll	3.10.0.103	3 KB	12/7/1999 8:00:00 AM
C:\WINNT\system32 Microsoft Corporation			
wintrust.dll	5.131.2195.3775	162 KB	7/22/2002 1:05:04 PM
C:\WINNT\system32 Microsoft Corporation			
wsock.vxd	File not present	Not Available	Not Available
Not Available			
wsock32.dll	5.0.2195.4874	21 KB	7/22/2002 1:05:04 PM
C:\WINNT\system32 Microsoft Corporation			
wsock32n.dll	File not present	Not Available	Not Available
Available Not Available			

[Connectivity]

Item	Value
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Connection Preference	Never dial
EnableHttp1.1	1
ProxyHttp1.1	0

LAN Settings

AutoConfigProxy	wininet.dll
AutoProxyDetectMode	Disabled
AutoConfigURL	
Proxy	Disabled
ProxyServer	
ProxyOverride	

[Cache]

[Following are sub-categories of this main category]

[Summary]

Item	Value
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Page Refresh Type	Automatic
Temporary Internet Files Folder	C:\Documents and Settings\Administrator\Local Settings\Temporary Internet Files

Total Disk Space	34710 MB
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Available Disk Space	29382 MB
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Maximum Cache Size	541 MB
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Available Cache Size	542 MB
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[List of Objects]

Program File	Status	Version	CodeBase
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No cached object information available

[Content]

[Following are sub-categories of this main category]

[Summary]

Item	Value
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Content Advisor	Disabled
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[Personal Certificates]

Issued To	Issued By	Validity	Signature Algorithm
Administrator	Administrator	2/12/2003 to 1/19/2103	sha1RSA

[Other People Certificates]

Issued To	Issued By	Validity	Signature Algorithm
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No other people certificate information available

[Publishers]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\ADCLaunch\AdvancedDataFactory]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\ADCLaunch\RDSServer.DataFactory]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\Script Map]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\Virtual Roots]

"/"="c:\inetpub\wwwroot,,205"
"/Scripts"="c:\inetpub\scripts,,1"
"/IISHelp"="c:\winnt\help\iishelp,,1"
"/IISAdmin"="C:\WINNT\System32\inetrv\iisadmin,,1"
"/IISamples"="c:\inetpub\iisamples,,1"
"/MSADC"="c:\program files\common files\system\msadc,,1"
"/_vti_bin"="C:\Program Files\Common Files\Microsoft Shared\Web Server Extensions\40\isapi,,1"
"/Rpc"="C:\WINNT\System32\RpcProxy,,1"
"/Printers"="C:\WINNT\web\printers,,201"

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Performance]

"Library"="w3ctrs.dll"
"Open"="OpenW3PerformanceData"
"Close"="CloseW3PerformanceData"
"Collect"="CollectW3PerformanceData"
"WbemAdapFileTime"=hex:00,a0,13,ec,a1,31,c2,01
"WbemAdapFileSize"=dword:00001d10
"WbemAdapStatus"=dword:00000000
"Last Counter"=dword:00000b76
"Last Help"=dword:00000b77
"First Counter"=dword:00000ad4
"First Help"=dword:00000ad5
"Library Validation Code"=hex:72,cd,1f,77,30,e4,c2,01,10,1d,00,00,00,00,00

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Security]

"Security"=hex:01,00,14,80,a0,00,00,00,ac,00,00,00,14,00,00,00,30,00,00,00,02,00,1c,00,01,00,00,00,02,80,14,00,ff,01,0f,00,01,01,00,00,00,00,00,01,00,00,00,00,02,00,70,00,04,00,00,00,00,18,00,fd,01,02,00,01,01,00,00,00,00,05,12,00,00,00,74,00,6f,00,00,00,1c,00,ff,01,0f,00,01,02,00,00,00,00,05,20,00,00,20,02,00,00,72,00,73,00,00,00,18,00,8d,01,02,00,01,01,00,00,00,00,05,0b,00,00,00,20,02,00,00,00,1c,00,fd,01,02,00,01,02,00,00,00,00,05,20,00,00,00,23,02,00,00,72,00,73,00,01,01,00,00,00,00,05,12,00,00,00,01,01,00,00,00,00,05,12,00,00,00

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Enum]

"0"="Root\LEGACY_W3SVC\0000"
"Count"=dword:00000001
"NextInstance"=dword:00000001

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\ImagePath]

"ImagePath"=hex(2):53,00,79,00,73,00,74,00,65,00,6d,00,33,00,32,00,5c,00,44,00,52,00,49,00,56,00,45,00,52,00,53,00,5c,00,71,00,6c,00,76,00,69,00,6b,00,61,00,2e,00,73,00,79,00,73,00,00,00
"Tag"=dword:00000001
"group"="MVIa"
"Type"=dword:00000001
"Start"=dword:00000002
"ErrorControl"=dword:00000001

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Adapters]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Adapters\210000E08B07D2AF]

"IPAddress"=hex(7):31,00,39,00,32,00,2e,00,31,00,36,00,38,00,2e,00,31,00,32,00,30,00,2e,00,32,00,30,00,00,00,00,00
"VIDeviceNumber"=dword:00000000

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Adapters\210000E08B07D3AF]

"IPAddress"=hex(7):31,00,39,00,32,00,2e,00,31,00,36,00,38,00,2e,00,32,00,33,00,30,00,2e,00,31,00,31,00,00,00,00,00

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Parameters]

"MaxRegisterMBytes"=dword:00000200
"MaxRegisterRdmaMBytes"=dword:00000200
"MaxCQEntries"=dword:00002000
"MaxRegisterRegions"=dword:00001000
"MaxVIs"=dword:00000400
"MaxCQs"=dword:00000400
"MaxTransferSize"=dword:00010000
"MaxPTags"=dword:00000800
"IuBuffers"=dword:00000100
"SendDescQuota"=dword:00000008
"RecvDescQuota"=dword:00000008
"SupportPrototypeCards"=dword:00000001
"HostFile"=hex(7):43,00,3a,00,5c,00,57,00,49,00,4e,00,4e,00,54,00,5c,00,73,00,79,00,73,00,74,00,65,00,6d,00,33,00,32,00,5c,00,64,00,72,00,69,00,76,00,65,00,72,00,73,00,5c,00,65,00,74,00,63,00,5c,00,76,00,69,00,68,00,6f,00,73,00,74,00,73,00,00,00,00,00

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Security]

"Security"=hex:01,00,14,80,a0,00,00,00,ac,00,00,00,14,00,00,00,30,00,00,00,02,00,1c,00,01,00,00,00,02,80,14,00,ff,01,0f,00,01,01,00,00,00,00,00,01,00,00,00,00,02,00,70,00,04,00,00,00,00,18,00,fd,01,02,00,01,01,00,00,00,00,05,12,00,00,00,61,67,65,72,00,00,1c,00,ff,01,0f,00,01,02,00,00,00,00,05,20,00,00,20,02,00,00,00,00,00,18,00,8d,01,02,00,01,01,00,00,00,00,05,0b,00,00,00,20,02,00,00,00,1c,00,fd,01,02,00,01,02,00,00,00,00,05,20,00,00,00,23,02,00,00,00,00,01,01,00,00,00,00,05,12,00,00,00,01,01,00,00,00,00,05,12,00,00,00

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Enum]

"0"="Root\LEGACY_QLVIKA\0000"
"Count"=dword:00000001
"NextInstance"=dword:00000001

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\InetInfo]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\InetInfo\Parameters]

"ListenBackLog"=dword:00000096
"DispatchEntries"=hex(7):4c,00,44,00,41,00,50,00,53,00,56,00,43,00,00,00,53,00,4d,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\InetInfo\Performance]

"Library"="infectrs.dll"

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Adapters]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Adapters\210000E08B07D1AF]
"IPAddress"=hex(7):31,00,39,00,32,00,2e,00,31,00,36,00,38,00,2e,00,31,00,32,00,30,00,2e,00,34,00,30,00,00,00,00,00
"VIDeviceNumber"=dword:00000000

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Adapters\210000E08B07D3AF]
"IPAddress"=hex(7):31,00,39,00,32,00,2e,00,31,00,36,00,38,00,2e,00,32,00,33,00,30,00,2e,00,31,00,31,00,00,00,00,00

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Parameters]
"MaxRegisterMBytes"=dword:00000200
"MaxRegisterRdmaMBytes"=dword:00000200
"MaxCQEntries"=dword:00002000
"MaxRegisterRegions"=dword:00001000
"MaxVIs"=dword:00000400
"MaxCQs"=dword:00000400
"MaxTransferSize"=dword:00010000
"MaxPTags"=dword:00000800
"IuBuffers"=dword:00000100
"SendDescQuota"=dword:00000008
"RecvDescQuota"=dword:00000008
"SupportPrototypeCards"=dword:00000001
"HostFile"=hex(7):43,00,3a,00,5c,00,57,00,49,00,4e,00,4e,00,54,00,5c,00,73,00,79,00,73,00,74,00,65,00,6d,00,33,00,32,00,5c,00,64,00,72,00,69,00,76,00,65,00,00,72,00,73,00,5c,00,65,00,74,00,63,00,5c,00,76,00,69,00,68,00,6f,00,73,00,74,00,73,00,00,00,00,00

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Security]
"Security"=hex:01,00,14,80,a0,00,00,00,ac,00,00,00,14,00,00,00,30,00,00,00,02,00,1c,00,01,00,00,00,02,80,14,00,ff,01,0f,00,01,01,00,00,00,00,00,01,00,00,00,00,02,00,70,00,04,00,00,00,00,00,18,00,fd,01,02,00,01,01,00,00,00,00,00,05,12,00,00,00,61,67,65,72,00,00,1c,00,ff,01,0f,00,01,02,00,00,00,00,00,05,20,00,00,00,20,02,00,00,00,00,00,00,18,00,8d,01,02,00,01,01,00,00,00,00,00,05,0b,00,00,00,00,20,02,00,00,00,1c,00,fd,01,02,00,01,02,00,00,00,00,00,05,20,00,00,00,23,02,00,00,00,00,00,01,01,00,00,00,00,00,05,12,00,00,00,01,01,00,00,00,00,00,05,12,00,00,00

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Enum]
"0"="Root\LEGACY_QLVIKA\0000"
"Count"=dword:00000001
"NextInstance"=dword:00000001

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\InetInfo]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\InetInfo\Parameters]
"ListenBackLog"=dword:00000096
"DispatchEntries"=hex(7):4c,00,44,00,41,00,50,00,53,00,56,00,43,00,00,00,53,00,4d,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\InetInfo\Performance]

"Library"="infectrs.dll"
"Open"="OpenINFOPerformanceData"
"Close"="CloseINFOPerformanceData"
"Collect"="CollectINFOPerformanceData"
"Last Counter"=dword:00000bfe
"Last Help"=dword:00000bff
"First Counter"=dword:00000bbe
"First Help"=dword:00000bbf
"Library Validation Code"=hex:24,7c,6e,a4,30,e4,c2,01,10,25,00,00,00,00,00,00
"WbemAdapFileTime"=hex:00,a0,13,ec,a1,31,c2,01
"WbemAdapFileSize"=dword:00002510
"WbemAdapStatus"=dword:00000000

[HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\TPCC]
"Path"="C:\\Inetpub\\wwwroot\\"
"NumberOfDeliveryThreads"=dword:00000012
"MaxConnections"=dword:00000abe0
"MaxPendingDeliveries"=dword:00001130
"DB_Protocol"="ODBC"
"TxnMonitor"="COM"
"DbServer"="ibmserv2"
"DbName"="tpcc"
"DbUser"="sa"
"DbPassword"=""
"COM_SinglePool"="YES"

RTE Input Parameters

Profile: 7200x3x8x3000
File Path: C:\Program Files\BenchCraft\7200x3x8x3000.pro
Version: 3

Number of Engines: 24

Name: v10e
Description: v10e
Directory: c:\rtelogs\v10e.log
Machine: vrte10
Parameter Set: PARAM2
Index: 312500000
Seed: 4678
Configured Users: 3000
Pipe Name: DRIVER14723953
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3000
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 0

Name: v20a
Description: v20a
Directory: c:\rtelogs\v20a.log
Machine: vrte20
Parameter Set: PARAM2
Index: 562500000
Seed: 4678
Configured Users: 3000
Pipe Name: DRIVER24872015
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3000
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 0

Name: v20b
Description: v20b
Directory: c:\rtelogs\v20b.log
Machine: vrte20
Parameter Set: PARAM2
Index: 625000000
Seed: 4678
Configured Users: 3000
Pipe Name: DRIVER34966171
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3000
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 1

Name: v10f
Description: v10f
Directory: c:\rtelogs\v10f.log
Machine: vrte10
Parameter Set: PARAM2
Index: 375000000
Seed: 4678
Configured Users: 3000
Pipe Name: DRIVER45012500
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3000
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 1

Name: v10a
Description: v10a
Directory: c:\rtelogs\v10a.log
Machine: vrte10
Parameter Set: PARAM2
Index: 625000000
Seed: 4678
Configured Users: 3000
Pipe Name: DRIVER55066765
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3000
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 0

Name: v20c
Description: v20c
Directory: c:\rtelogs\v20c.log
Machine: vrte20
Parameter Set: PARAM2
Index: 687500000
Seed: 4678
Configured Users: 3000
Pipe Name: DRIVER65126187
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3000
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 0

Name: v20d
Description: v20d
Directory: c:\rtelogs\v20d.log

Machine: vrte20
Parameter Set: PARAM2
Index: 750000000
Seed: 4678
Configured Users: 3000
Pipe Name: DRIVER75175640
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3000
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 1

Name: v10b
Description: v10b
Directory: c:\rtelogs\v10b.log
Machine: vrte10
Parameter Set: PARAM2
Index: 125000000
Seed: 4678
Configured Users: 3000
Pipe Name: DRIVER85211109
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3000
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 1

Name: v10c
Description: v10c
Directory: c:\rtelogs\v10c.log
Machine: vrte10
Parameter Set: PARAM2
Index: 187500000
Seed: 4678
Configured Users: 3000
Pipe Name: DRIVER95259171
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3000
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 0

Name: v20e
Description: v20e
Directory: c:\rtelogs\v20e.log
Machine: vrte20
Parameter Set: PARAM2
Index: 812500000
Seed: 4678
Configured Users: 3000
Pipe Name: DRIVER105308218
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3000
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 0

Name: v20f
Description: v20f
Directory: c:\rtelogs\v20f.log
Machine: vrte20
Parameter Set: PARAM2
Index: 875000000
Seed: 4678

Configured Users: 3000
Pipe Name: DRIVER115358203
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3000
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 1

Name: v10d
Description: v10d
Directory: c:\rtelogs\v10d.log
Machine: vrte10
Parameter Set: PARAM2
Index: 250000000
Seed: 4678
Configured Users: 3000
Pipe Name: DRIVER125397734
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3000
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 1

Name: v10g
Description: v10g
Directory: c:\rtelogs\v10g.log
Machine: vrte10
Parameter Set: PARAM2
Index: 437500000
Seed: 4678
Configured Users: 3000
Pipe Name: DRIVER135452671
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3000
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 0

Name: v10h
Description: v10h
Directory: c:\rtelogs\v10h.log
Machine: vrte10
Parameter Set: PARAM2
Index: 500000000
Seed: 4678
Configured Users: 3000
Pipe Name: DRIVER145492328
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3000
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 1

Name: v20g
Description: v20g
Directory: c:\rtelogs\v20g.log
Machine: vrte20
Parameter Set: PARAM2
Index: 937500000
Seed: 4678
Configured Users: 3000
Pipe Name: DRIVER155552765
Connect Rate: 1000
Start Rate: 0

Max. Concurrency: 3000
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 0

Name: v20h
Description: v20h
Directory: c:\rtelogs\v20h.log
Machine: vrte20
Parameter Set: PARAM2
Index: 1000000000
Seed: 4678
Configured Users: 3000
Pipe Name: DRIVER165598015
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3000
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 1

Name: v40a
Description: v40a
Directory: c:\rtelogs\v40a.log
Machine: vrte40
Parameter Set: PARAM2
Index: 1062500000
Seed: 4678
Configured Users: 3000
Pipe Name: DRIVER4367196046
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3000
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 0

Name: v40b
Description: v40b
Directory: c:\rtelogs\v40b.log
Machine: vrte40
Parameter Set: PARAM2
Index: 1125000000
Seed: 4678
Configured Users: 3000
Pipe Name: DRIVER4467244484
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3000
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 1

Name: v40c
Description: v40c
Directory: c:\rtelogs\v40c.log
Machine: vrte40
Parameter Set: PARAM2
Index: 1187500000
Seed: 4678
Configured Users: 3000
Pipe Name: DRIVER4567282265
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3000
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 0

Name: v40d
Description: v40d
Directory: c:\rtelogs\v40d.log
Machine: vrte40
Parameter Set: PARAM2
Index: 125000000
Seed: 4678
Configured Users: 3000
Pipe Name: DRIVER4667357593
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3000
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 1

Name: v40e
Description: v40e
Directory: c:\rtelogs\v40e.log
Machine: vrte40
Parameter Set: PARAM2
Index: 131250000
Seed: 4678
Configured Users: 3000
Pipe Name: DRIVER4767405796
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3000
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 0

Name: v40f
Description: v40f
Directory: c:\rtelogs\v40f.log
Machine: vrte40
Parameter Set: PARAM2
Index: 137500000
Seed: 4678
Configured Users: 3000
Pipe Name: DRIVER4867450406
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3000
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 1

Name: v40g
Description: v40g
Directory: c:\rtelogs\v40g.log
Machine: vrte40
Parameter Set: PARAM2
Index: 143750000
Seed: 4678
Configured Users: 3000
Pipe Name: DRIVER4967505484
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3000
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 0

Name: v40h
Description: v40h
Directory: c:\rtelogs\v40h.log

Machine: vrte40
Parameter Set: PARAM2
Index: 150000000
Seed: 4678
Configured Users: 3000
Pipe Name: DRIVER5067590062
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3000
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 1

Number of User groups: 24

Driver Engine: v10e
IIS Server: vclient10e
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 1201 - 1500
w_id Min Warehouse: 1
w_id Max Warehouse: 7200
Scale: Normal
User Count: 3000
District id: 1
Scale Down: No

Driver Engine: v10f
IIS Server: vclient10f
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 1501 - 1800
w_id Min Warehouse: 1
w_id Max Warehouse: 7200
Scale: Normal
User Count: 3000
District id: 1
Scale Down: No

Driver Engine: v10a
IIS Server: vclient10a
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 1 - 300
w_id Min Warehouse: 1
w_id Max Warehouse: 7200
Scale: Normal
User Count: 3000
District id: 1
Scale Down: No

Driver Engine: v10b
IIS Server: vclient10b
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 301 - 600
w_id Min Warehouse: 1
w_id Max Warehouse: 7200
Scale: Normal
User Count: 3000

District id: 1
Scale Down: No

Driver Engine: v10c
IIS Server: vclient10c
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 601 - 900
w_id Min Warehouse: 1
w_id Max Warehouse: 7200
Scale: Normal
User Count: 3000
District id: 1
Scale Down: No

Driver Engine: v10d
IIS Server: vclient10d
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 901 - 1200
w_id Min Warehouse: 1
w_id Max Warehouse: 7200
Scale: Normal
User Count: 3000
District id: 1
Scale Down: No

Driver Engine: v10g
IIS Server: vclient10g
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 1801 - 2100
w_id Min Warehouse: 1
w_id Max Warehouse: 7200
Scale: Normal
User Count: 3000
District id: 1
Scale Down: No

Driver Engine: v10h
IIS Server: vclient10h
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 2101 - 2400
w_id Min Warehouse: 1
w_id Max Warehouse: 7200
Scale: Normal
User Count: 3000
District id: 1
Scale Down: No

Driver Engine: v20a
IIS Server: vclient20a
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 2401 - 2700
w_id Min Warehouse: 1
w_id Max Warehouse: 7200

Scale: Normal
User Count: 3000
District id: 1
Scale Down: No

Driver Engine: v20b
IIS Server: vclient20b
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 2701 - 3000
w_id Min Warehouse: 1
w_id Max Warehouse: 7200
Scale: Normal
User Count: 3000
District id: 1
Scale Down: No

Driver Engine: v20c
IIS Server: vclient20c
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 3001 - 3300
w_id Min Warehouse: 1
w_id Max Warehouse: 7200
Scale: Normal
User Count: 3000
District id: 1
Scale Down: No

Driver Engine: v20d
IIS Server: vclient20d
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 3301 - 3600
w_id Min Warehouse: 1
w_id Max Warehouse: 7200
Scale: Normal
User Count: 3000
District id: 1
Scale Down: No

Driver Engine: v20e
IIS Server: vclient20e
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 3601 - 3900
w_id Min Warehouse: 1
w_id Max Warehouse: 7200
Scale: Normal
User Count: 3000
District id: 1
Scale Down: No

Driver Engine: v20f
IIS Server: vclient20f
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 3901 - 4200

w_id Min Warehouse: 1
w_id Max Warehouse: 7200
Scale: Normal
User Count: 3000
District id: 1
Scale Down: No

Driver Engine: v20g
IIS Server: vclient20g
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 4201 - 4500
w_id Min Warehouse: 1
w_id Max Warehouse: 7200
Scale: Normal
User Count: 3000
District id: 1
Scale Down: No

Driver Engine: v20h
IIS Server: vclient20h
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 4501 - 4800
w_id Min Warehouse: 1
w_id Max Warehouse: 7200
Scale: Normal
User Count: 3000
District id: 1
Scale Down: No

Driver Engine: v40a
IIS Server: vclient40a
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 4801 - 5100
w_id Min Warehouse: 1
w_id Max Warehouse: 7200
Scale: Normal
User Count: 3000
District id: 1
Scale Down: No

Driver Engine: v40b
IIS Server: vclient40b
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 5101 - 5400
w_id Min Warehouse: 1
w_id Max Warehouse: 7200
Scale: Normal
User Count: 3000
District id: 1
Scale Down: No

Driver Engine: v40c
IIS Server: vclient40c
SQL Server: ibmserv2
Database: tpcc
User: sa

Protocol: HTML
w_id Range: 5401 - 5700
w_id Min Warehouse: 1
w_id Max Warehouse: 7200
Scale: Normal
User Count: 3000
District id: 1
Scale Down: No

Driver Engine: v40d
IIS Server: vclient40d
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 5701 - 6000
w_id Min Warehouse: 1
w_id Max Warehouse: 7200
Scale: Normal
User Count: 3000
District id: 1
Scale Down: No

Driver Engine: v40e
IIS Server: vclient40e
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 6001 - 6300
w_id Min Warehouse: 1
w_id Max Warehouse: 7200
Scale: Normal
User Count: 3000
District id: 1
Scale Down: No

Driver Engine: v40f
IIS Server: vclient40f
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 6301 - 6600
w_id Min Warehouse: 1
w_id Max Warehouse: 7200
Scale: Normal
User Count: 3000
District id: 1
Scale Down: No

Driver Engine: v40g
IIS Server: vclient40g
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 6601 - 6900
w_id Min Warehouse: 1
w_id Max Warehouse: 7200
Scale: Normal
User Count: 3000
District id: 1
Scale Down: No

Driver Engine: v40h
IIS Server: vclient40h
SQL Server: ibmserv2

Database: tpcc
 User: sa
 Protocol: HTML
 w_id Range: 6901 - 7200
 w_id Min Warehouse: 1
 w_id Max Warehouse: 7200
 Scale: Normal
 User Count: 3000
 District id: 1
 Scale Down: No

Number of Parameter Sets: 2

~Default

Default Parameter Set

		Txn Weight	Think Time	Key Time	RT Delay	RT Fence	Menu Delay
	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

3 Tier

		Txn Weight	Think Time	Key Time	RT Delay	RT Fence	Menu Delay
	New Order	10.09	12.05	18.01	0.10		
5.00	0.10						
	Payment	9.66	12.05	3.01	0.10		
5.00	0.10						
	Delivery	0.90	5.05	2.01	0.10		
5.00	0.10						
	Stock Level	0.90	5.05	2.01	0.10		
20.00	0.10						
	Order Status	0.90	10.05	2.01	0.10		
5.00	0.10						

Appendix D: 60-Day Space

TPC-C 60-Day Space Requirements						
Warehouses	7,200				tpmC	90,271.76
Table	Rows	Data KB	Index KB	Extra 5% KB	8HR Space	Total Space KB
Warehouse	7,200	784	128	45.60		957.60
District	75,200	8,480	152	431.60		9,063.60
Item	100,000	9,528	152	484.00		10,164.00
New-Order	67,679,993	1,205,912	3,104		601,600.00	1,810,616.00
History	225,600,005	13,468,680	52,352		2,712,371.90	16,233,403.90
Orders	225,600,013	7,366,560	3,593,688		2,198,668.62	13,158,916.62
Customer	225,600,000	164,072,728	10,239,192	8,715,596.00		183,027,516.00
Order-Line	2,255,993,025	150,399,560	355,952		30,242,145.33	180,997,657.33
Stock	752,000,000	240,640,000	509,656	12,057,482.80		253,207,138.80
Totals		577,172,232	14,754,376	20,774,040.00	35,754,785.85	648,455,433.85
Segment	LogDev Cnt.	Segment Size	Needed	Overhead		Not Needed
misc	16	16,384,000	212,220,779	2,122,208		(197,958,986.84)
big	16	28,672,000	436,234,655	4,362,347		(411,925,001.35)
master, msdb,model	1	13,312	13,312			-
tpcc_root	1	8,192	8,192			-
tempdb	1	8,704	8,704			-
Totals		45,086,208.00	648,485,641.85	6,484,554.34		(609,883,988.18)
Dynamic Space	171,234,800.00	Sum of Data for Order, Order-Line and History				
Static Space	447,950,402.34	Data + Index + 5% Space + Overhead - Dynamic Space				
Free Space	35,784,993.85	Total Segment Size - Dynamic Space - Static Space - Not needed				
Daily Growth	34,350,370.60	(Dynamic Space/W * 62.5) * tpmC				
Daily Spread	(15,740,562.05)	Free Space - 1.5 * Daily Growth (Zero If Negative)				
60-Day Space (KB)	2,508,972,638.24	Static Space + 60 (Daily Growth + Daily Spread)				
60-Day Space (GB)	2,392.74	60-Day Space in GB (Excludes OS,Paging and RDBMS Logs)				
Available (GB)	7,593.91	Total storage configured and available for database, minus logs, in RAID-0 configuration.				
Log File Storage Requirement						
Log Size (MB)	206,000.00	Total Size of Log File				
% Log Used	34.3411	% of Log File Used During Entire Run				
Total N-O Txn	15,291,011.00	Total Count of New-Order Transactions during Entire Run				
Log / N-O Txn	4.74	KB of Log per New-Order Transaction				
8 Hour Log (GB)	195.77	8 Hours of Log in GB (Excluding Space for Redundancy)				
Log Configured (GB)	237.31					
Disk Capacity	MB	GB				
36.4GB	34,715	33.90				
Space Usage	GB Needed		Disks Priced	Disk Size	GB Priced	GB Usable
60-Day (RAID-0)	2,392.74		224	36.4GB	7,593.91	7,593.91
					Total DB	7,593.91
8hr Log (RAID-1)	195.77		14	36.4GB	474.62	237.31
					Total Log	237.31
OS, SQL Server	4.00		1	36.4GB	33.90	33.9
Total Space	2,592.51		239		8,102.43	7,865.12

Appendix E: Third-Party Quotations



Protect Your Data - Grow Your Business

To:
Attention:
Phone:
Fax:
Email:

From: Alan Powers
Phone: (248)223-1020 x344
Fax: (248)223-1026
Email: apowers@compsat.com

QUOTE # : 4WES445_101703
DATE: October 17, 2003

IBM x445 Configuration

Part No.	Description	Qty	List Price		Compsat Discounted Price	
			(per unit) US Dollar	(quantity x unit price) US Dollar	(per unit) US Dollar	(quantity x unit price) US Dollar
x445 SERVER(s)						
88704AX	x445, 2xXeon MP 2.8GHz/400MHz, 2MB, 0GB, O/Bay, 2x1050W p/s, Rack	1	\$ 26,379.00	\$ 26,379.00	\$23,213.52	\$23,213.52
96P2688	3 YR onsite repair 24x7x4 hour (x445)	1	\$ 3,390.00	\$ 3,390.00	\$3,051.00	\$3,051.00
02R2064	xSeries 2.8GHz/400Mhz, 2MB L3 Upgrade with Xeon Processor MP	2	\$ 6,599.00	\$ 13,198.00	\$5,807.12	\$11,614.24
33L5040	2GB PC2100 DDR ECC SDRAM RDIMM	16	\$ 2,899.00	\$ 46,384.00	\$2,551.12	\$40,817.92
32P0726	IBM 36.4GB 10K Ultra320 SCSI Hot-Swap SL HDD	1	\$ 299.00	\$ 299.00	\$251.16	\$251.16
32P0033	IBM ServeRAID-6M Ultra320 SCSI Adapter	6	\$ 999.00	\$ 5,994.00	\$839.16	\$5,034.96
633147N	E54 15" Colour Monitor (Stealth Grey)/MPRII	1	\$ 119.00	\$ 119.00	\$113.05	\$113.05
30L9183	3 YR onsite exch. 24x7x4 hour (E54 Monitor)	1	\$ 90.00	\$ 90.00	\$81.00	\$81.00
31P7415	IBM Preferred Pro Full-size Keyboard PS/2	1	\$ 29.00	\$ 29.00	\$27.55	\$27.55
28L3673	IBM Sleek 2-Button Mouse	1	\$ 14.95	\$ 14.95	\$14.20	\$14.20
RXE100						
86841RX	RXE-100 Remote Expansion Enclosure	1	\$ 4,569.00	\$ 4,569.00	\$4,020.72	\$4,020.72
96P2469	3 YR onsite exch. 24x7x4 hour (RXE100)	1	\$ 1,330.00	\$ 1,330.00	\$1,197.00	\$1,197.00
32P0033	IBM ServeRAID-6M Ultra320 SCSI Adapter	3	\$ 999.00	\$ 2,997.00	\$839.16	\$2,517.48
03K9311	4.2M Ultra2 SCSI Cable	18	\$ 105.00	\$ 1,890.00	\$88.20	\$1,587.60
QLA2350-BK	QLogic 2350 FC-VI Adapter (2 will be used as Spares)	3	\$ 1,995.00	\$ 5,985.00	\$1,795.50	\$ 5,386.50
EXP300(s)						
35311RU	IBM EXP300 Storage Expansion Unit	17	\$ 3,179.00	\$ 54,043.00	\$2,797.52	\$47,557.84
21P2020	3 YR onsite repair 24x7x4 hour (EXP300)	17	\$ 200.00	\$ 3,400.00	\$180.00	\$3,060.00
06P5768	IBM 36.4 GB 15K Ultra160 SCSI Hot-Swap HDD	238	\$ 495.00	\$ 117,810.00	\$415.80	\$98,960.40
3534F08	IBM SAN Fibre Channel 8-Port Switch	1	\$ 6,000.00	\$ 6,000.00	\$5,040.00	\$5,040.00
96P1994	3 YR onsite exch. 24x7x4 hour (F08 Switch)	1	\$ 2,300.00	\$ 2,300.00	\$2,070.00	\$2,070.00
19K1248	IBM 5M LC-LC Fibre Channel Cable	4	\$ 129.00	\$ 516.00	\$108.36	\$433.44
RACK and OPTIONS						
9306421	NetBAY42 SX Standard Expansion Rack Cabinet - includes Perforated front doc	2	\$ 1,439.00	\$ 2,878.00	\$1,208.76	\$2,417.52
41L2758	3 YR onsite repair 24x7x4 hour (NetBAY Rack)	2	\$ 168.00	\$ 336.00	\$151.20	\$302.40
33L3477	IBM UPS 500	1	\$ 99.00	\$ 99.00	\$83.16	\$83.16
00N7991	IBM 20/40GB DDS/4 4mm Internal Tape Drive -SCSI	1	\$ 699.00	\$ 699.00	\$587.16	\$587.16
0034BOX	IBM NetBAY Tape Enclosure - rack mountable	1	\$ 849.00	\$ 849.00	\$713.16	\$713.16
41L2756	3 YR onsite 24x7x4 hour (NetBAY Tape Enclosure)	1	\$ 120.00	\$ 120.00	\$108.00	\$108.00
x225 SERVER(s)						
864762X	x225, Intel Xeon 3.06GHz/533MHz, 512KB, 128MB, 1x36.4GB drive, 1x425W p/	3	\$ 1,775.00	\$ 5,325.00	\$1,562.00	\$4,686.00
69P9511	3 YR onsite repair 24x7x4 hour (x225)	3	\$ 698.00	\$ 2,094.00	\$628.20	\$1,884.60
24P8122	3.06Hz/533Mhz, 512KB Upgrade with Intel Xeon Processor	3	\$ 999.00	\$ 2,997.00	\$839.16	\$2,517.48
33L5038	512MB PC2100 CL2.5 ECC DDR SDRAM RDIMM	12	\$ 305.00	\$ 3,660.00	\$256.20	\$3,074.40
31P6401	NetXtreme 1000 T Dual Port Ethernet Adapter	6	\$ 269.00	\$ 1,614.00	\$225.96	\$1,355.76
1932500	Adaptec Quartet66 Network 4-port Interface Adapter (ANA64044)	3	\$ 550.00	\$ 1,650.00	\$495.00	\$ 1,485.00
QLA2350-BK	QLogic 2350 FC-VI Adapter	3	\$ 1,995.00	\$ 5,985.00	\$1,795.50	\$ 5,386.50
633147N	E54 15" Colour Monitor (Stealth Grey)/MPRII	3	\$ 119.00	\$ 357.00	\$113.05	\$339.15
30L9183	3 YR onsite exch. 24x7x4 hour (E54 Monitor)	3	\$ 90.00	\$ 270.00	\$81.00	\$243.00
TOTAL =			\$325,669.95	\$325,669.95	TOTAL =	\$281,232.87

13.64%

25330 Telegraph Road / Suite 200 Raleigh Officecentre / Southfield, Michigan 48034
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NOTE:

- This quote may include Compsat Technology consulting and configuration charges.
- Mfg. pricing is out of our control and could change without notice.
- Pricing good for 30 Days from date quoted.

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Microsoft

October 15, 2003

IBM Corporation
Chris King
3039 Cornwallis Road
Research Triangle Park,
NC 27709

Ms. King:

Here is the information you requested regarding pricing for several Microsoft products to be used in conjunction with your TPC-C benchmark testing.

All pricing shown is in US Dollars (\$).

Part Number	Description	Unit Price	Quantity	Price
810-00846	SQL Server 2000 Enterprise Edition <i>Per processor licensing</i> <i>Discount Schedule: Open Program Level C</i> <i>Unit Price reflects a 17% discount from the retail unit price of \$19,999.</i>	\$16,541	4	\$66,164
C11-00821	Windows 2000 Server <i>Server license only - No CALs</i> <i>Discount Schedule: Open Program - No Level</i> <i>Unit Price reflects a 8% discount from the retail unit price of \$799.</i>	\$738	3	\$2,214
P72-00264	Windows Server 2003, Enterprise Edition <i>Server license only - No CALs</i> <i>Discount Schedule: Open Program - No Level</i> <i>Unit Price reflects a 40% discount from the retail unit price of \$3,999.</i>	\$2,399	1	\$2,399
254-00170	Visual C++ Standard <i>No discounts applied</i>	\$109	1	\$109
PRO-PRORS-16U-01	Database Server Support Package <i>1 Year Term</i>	\$1,950	3	\$5,850

All products are currently orderable through Microsoft's normal distribution channels.

This quote is valid for the next 90 days.

If we can be of any further assistance, please contact Jamie Reding at (425) 703-0510 or jamiere@microsoft.com.