

TPC Benchmark™ C
Full Disclosure Report
for
IBM® @server® xSeries® 365
using
Microsoft® SQL Server 2000 Enterprise Edition
and
Microsoft Windows® Server 2003 Enterprise Edition

TPC-C Version 5.2

Submitted for Review
March 1, 2004



First Edition - March 2004

THE INFORMATION CONTAINED IN THIS DOCUMENT IS DISTRIBUTED ON AN AS IS BASIS WITHOUT ANY WARRANTY EITHER EXPRESSED OR IMPLIED. The use of this information or the implementation of any of these techniques is the customer's responsibility and depends on the customer's ability to evaluate and integrate them into the customer's operational environment. While each item has been reviewed by IBM for accuracy in a specific situation, there is no guarantee that the same or similar results will be obtained elsewhere. Customers attempting to adapt these techniques to their own environment do so at their own risk.

In this document, any references made to an IBM licensed program are not intended to state or imply that only IBM's licensed program may be used; any functionally equivalent program may be used.

This publication was produced in the United States. IBM may not offer the products, services, or features discussed in this document in other countries, and the information is subject to change without notice. Consult your local IBM representative for information on products and services available in your area.

© Copyright International Business Machines Corporation 2004. All rights reserved.

Permission is hereby granted to reproduce this document in whole or in part, provided the copyright notice as printed above is set forth in full text on the title page of each item reproduced.

U.S. Government Users - Documentation related to restricted rights: Use, duplication, or disclosure is subject to restrictions set forth in GSA ADP Schedule Contract with IBM Corp.

Trademarks

IBM, xSeries, and the eServer logo are trademarks or registered trademarks of International Business Machines Corporation.

The following terms used in this publication are trademarks of other companies as follows: TPC Benchmark, tpmC, and \$/tpmC trademark of Transaction Processing Performance Council; Intel and Xeon are trademarks or registered trademarks of Intel Corporation; Microsoft, Windows and BenchCraft are trademarks or registered trademarks of Microsoft Corporation. Other company, product, or service names, which may be denoted by two asterisks (**), may be trademarks or service marks of others.

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® 365 configured as a client/server system. This report documents the full disclosure information required by the TPC Benchmark C Standard Specification, Revision 5.2, including the methodology used to achieve the reported results. All testing fully complied with this revision level.

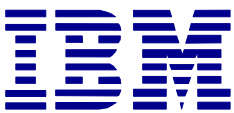
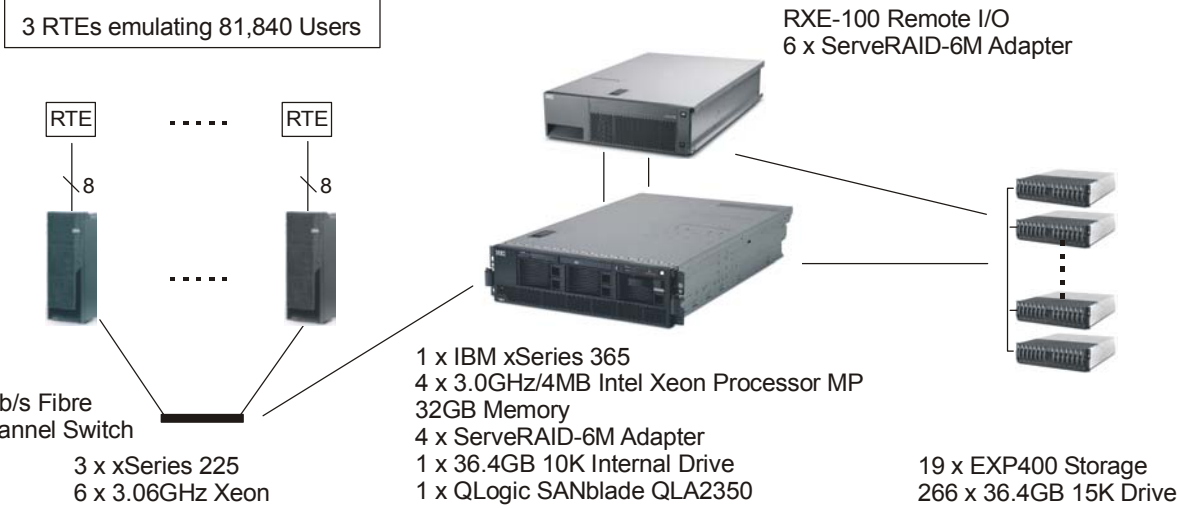
The software used on the xSeries 365 system includes Microsoft® Windows® Server 2003 Enterprise Edition operating system and Microsoft SQL Server 2000 Enterprise Edition database.

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 365	Microsoft SQL Server 2000 Enterprise Edition Microsoft Windows Server 2003 Enterprise Edition	\$361,742	102,667.42	\$3.52	March 31, 2004

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

		IBM®@server®xSeries® 365 c/s with Microsoft® SQL Server 2000		TPC-C Rev. 5.2
				Report Date: Mar. 1, 2004
Total System Cost		TPC-C Throughput	Price/Performance	Availability Date
\$361,742		102,667.42 tpmC	\$3.52 / tpmC	March 31, 2004
Database Server Processors/Cores/Threads	Database Manager	Operating System	Other Software	Number of Users
4/4/8 Intel® Xeon™ Processor MP 3.0GHz	Microsoft SQL Server 2000 Enterprise Edition SP3 with QFE	Microsoft Windows® Server 2003 Enterprise Edition with QFE KB834628	Microsoft Visual C++ 6.0 Microsoft COM+	81,840
 3 RTEs emulating 81,840 Users RTE 8 2Gb/s Fibre Channel Switch 3 x xSeries 225 6 x 3.06GHz Xeon 1 x IBM xSeries 365 4 x 3.0GHz/4MB Intel Xeon Processor MP 32GB Memory 4 x ServeRAID-6M Adapter 1 x 36.4GB 10K Internal Drive 1 x QLogic SANblade QLA2350 RXE-100 Remote I/O 6 x ServeRAID-6M Adapter 19 x EXP400 Storage 266 x 36.4GB 15K Drive				
System Component	Qty	Server:	Qty	Each of Three Clients:
Processors/Cores/Threads	4/4/8	3.0GHz Xeon Processor MP	2/2/4	3.06GHz Xeon
Cache		4MB L3 Cache		512KB L2 Cache
Memory	16	2GB ECC RDIMM	4	512MB
Disk Controllers	10	ServeRAID-6M Adapter	1	Ultra320 SCSI Interface
Disk Drives	1	36.4GB (10000 rpm)	1	36.4GB Hard Disk
	266	36.4GB (15000 rpm)		
Total Storage		9051.67GB		
Tape Drive	1	20/40GB SCSI Tape Drive		

7	9	11	13	15	17
---	---	----	----	----	----

Numerical Quantities Summary			
MQTh, Computed Maximum Qualified Throughput: 102,667.42 tpmC			
Response Times (in seconds)	90th Percentile	Average	Maximum
New-Order	0.44	0.29	8.35
Payment	0.39	0.24	5.15
Delivery	0.27	0.16	1.34
Stock Level	1.08	0.82	2.42
Order Status	0.41	0.27	10.15
Delivery (Deferred)	0.18	0.13	3.63
Menu	0.27	0.16	5.82
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	18.02 / 12.06	18.05 / 120.52
Payment	3.00 / 0.00	3.02 / 12.05	3.05 / 120.52
Delivery	2.00 / 0.00	2.02 / 5.05	2.05 / 50.51
Stock Level	2.00 / 0.00	2.02 / 5.05	2.05 / 50.51
Order Status	2.00 / 0.00	2.02 / 10.06	2.05 / 100.52
Test Duration			
Ramp-up time			51 minutes 40 seconds
Measurement interval			120 minutes
Number of checkpoints			4
Checkpoint interval			30 minutes
Number of transactions (all types) completed in measurement interval			28,515,442

Table of Contents

Abstract	3
Numerical Quantities Summary	3
Preface	11
General Items	12
Application Code Disclosure and Definition Statements	12
Benchmark Sponsor	12
Parameter Settings	12
Configuration Diagrams	12
Clause 1: Logical Database Design Related Items	15
Table Definitions	15
Physical Organization of the Database	15
Insert and Delete Operations	15
Horizontal or Vertical Partitioning	15
Replication	15
Table Attributes	15
Clause 2: Transaction and Terminal Profiles Related Items	16
Random Number Generation	16
Screen Layout	16
Terminal Verification	16
Intelligent Terminals	16
Transaction Profiles	16
Deferred Delivery Mechanism	17
Clause 3: Transaction and System Properties Related Items	18
Atomicity Requirements	18
Consistency Requirements	18
Isolation Requirements	19
Durability Requirements	19
Clause 4: Scaling and Database Population Related Items	21
Cardinality of Tables	21
Distribution of Tables and Logs	21
Database Model Implemented	23
Partitions/Replications Mapping	23
60-Day Space Requirement	24
Clause 5: Performance Metrics and Response Time Related Items	25
Measured tpmC	25
Response Times	25
Keying/Think Times	25
Response Time Frequency Distribution Curves	26
Performance Curve for Response Time vs. Throughput	28
New Order Think Time Distribution	29
Steady State Methodology	30
Work Performed during Steady State	30
Checkpoints	30
Measurement Interval	30
Transaction Mix	30
Percentage of Total Mix	31
Number of Checkpoints	31
Clause 6: SUT, Driver and Communication Definition Related Items	33
Description of RTE	33
Emulated Components	33
Benchmarked and Targeted System Configuration Diagrams	33
Network Configuration	33
Network Bandwidth	33

Operator Intervention	33
Clause 7: Pricing Related Items	34
Hardware and Software Components	34
Availability Date	34
Measured tpmC	34
Country-Specific Pricing	34
Usage Pricing	34
System Pricing	35
Clause 9: Audit Related Items	36
Auditor	36
Availability of the Full Disclosure Report	36
<i>Attestation letter</i>	37
Appendix A: Source Code	39
Web Client Source Code	39
<i>db_odbc_dll.dsp</i>	39
<i>dlldata.c</i>	40
<i>error.h</i>	40
<i>install.c</i>	43
<i>install.dsp</i>	50
<i>install.h</i>	52
<i>install.rc</i>	52
<i>install_com.cpp</i>	55
<i>install_resource.h</i>	57
<i>isapi_dll.dsp</i>	58
<i>isapi_dll_resource.h</i>	59
<i>license.txt</i>	60
<i>methods.h</i>	61
<i>null_txns.sql</i>	63
<i>readregistry.cpp</i>	66
<i>readregistry.h</i>	67
<i>restore.vbs</i>	67
<i>runsqlcfg.vbs</i>	68
<i>rtetime.h</i>	70
<i>setup.vbs</i>	70
<i>spinlock.h</i>	77
<i>tm_com_dll.dsp</i>	78
<i>tpcc.cpp</i>	101
<i>tpcc.def</i>	124
<i>tpcc.h</i>	124
<i>tpcc.rc</i>	125
<i>tpcc_com.cpp</i>	126
<i>tpcc_com.h</i>	127
<i>tpcc_com_all.cpp</i>	129
<i>tpcc_com_all.def</i>	133
<i>tpcc_com_all.dsp</i>	133
<i>tpcc_com_all.h</i>	134
<i>tpcc_com_all.idl</i>	136
<i>tpcc_com_all.rc</i>	136
<i>tpcc_com_all.rgs</i>	137
<i>tpcc_com_all.i.c</i>	138
<i>tpcc_com_all_resource.h</i>	139
<i>tpcc_com_no.rgs</i>	139
<i>tpcc_com_os.rgs</i>	140
<i>tpcc_com_pay.rgs</i>	140
<i>tpcc_com_ps.def</i>	140

<i>tpcc_com_ps.dsp</i>	140
<i>tpcc_com_ps.h</i>	142
<i>tpcc_com_ps.idl</i>	144
<i>tpcc_com_ps_i.c</i>	144
<i>tpcc_com_ps_p.c</i>	146
<i>tpcc_com_sl.rgs</i>	166
<i>tpcc_odbc.cpp</i>	166
<i>tpcc_odbc.h</i>	174
<i>trans.h</i>	175
<i>txn_base.h</i>	177
<i>txnlog.h</i>	177
<i>webclnt.dsp</i>	180
Stored Procedures	181
<i>neword.sql</i>	181
<i>payment.sql</i>	183
<i>ordstat.sql</i>	185
<i>delivery.sql</i>	186
<i>stocklev.sql</i>	187
<i>version.sql</i>	187
Appendix B: Database Design	189
Database Build	189
<i>createdb.sql</i>	189
<i>dbop1.sql</i>	190
<i>dbopt2.sql</i>	190
<i>delwh.sql</i>	191
<i>idxcuscl.sql</i>	191
<i>idxcusnc.sql</i>	191
<i>idxdiscl.sql</i>	192
<i>idxhiscl.sql</i>	192
<i>idxitmcl.sql</i>	192
<i>idxnodcl.sql</i>	192
<i>idxodlcl.sql</i>	192
<i>idxordcl.sql</i>	193
<i>idxordnc.sql</i>	193
<i>idxstkcl.sql</i>	193
<i>idxwarcl.sql</i>	193
<i>runSQLcfg.sql</i>	194
<i>sqlshutdown.sql</i>	194
<i>tables.sql</i>	194
Load Source Code	195
<i>getargs.c</i>	195
<i>random.c</i>	197
<i>strings.c</i>	199
<i>time.c</i>	201
<i>tpcc.h</i>	202
<i>tpccldr.c</i>	203
<i>tpccldr.mak</i>	226
<i>verifytpccLoad.sql</i>	228
<i>version.sql</i>	229
Appendix C: Tunable Parameters	230
Microsoft SQL Server 2000 Configuration Parameters	230
Microsoft Windows Server 2003 Enterprise Edition	231
<i>Changes to the SUT</i>	231
<i>SUT System Information Report</i>	233
ServeRAID- 6M Disk Controller Configuration Parameters	266

Client Configuration Parameters	332
<i>Microsoft Windows 2000 Client System Information Report</i>	332
<i>Microsoft Windows 2000 Client Registry Parameters</i>	356
RTE Input Parameters	360
Appendix D: 60-Day Space	367
Appendix E: Third-Party Quotations	368

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 5.2.

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.

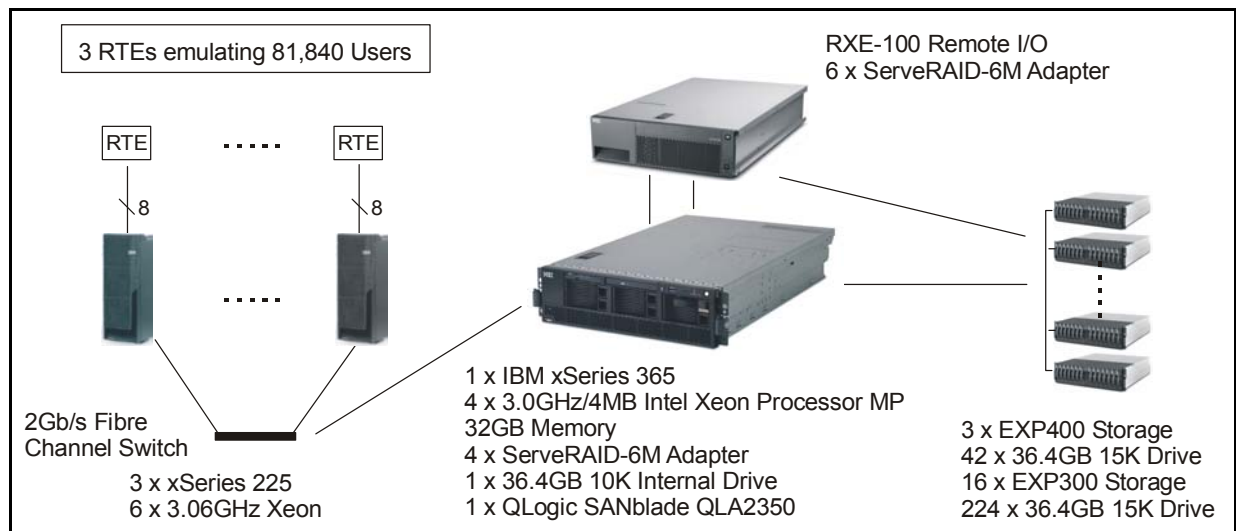
The Remote Terminal Emulator (RTE) used for these TPC Benchmark C tests is the Microsoft BenchCraft RTE. Under Version 5.0, the components of the configuration being emulated by the RTE are the workstations . Appendix C contains a listing of the RTE scripts and inputs used in the benchmark testing.

The measured configuration used three IBM xSeries 225 systems, each configured with two 3.06GHz Xeon 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
QLogic 2350 FC-VI Adapter	Server Slot 2
ServeRAID-6M	Server Slot 3
ServeRAID-6M	Server Slot 4
ServeRAID-6M	Server Slot 5
ServeRAID-6M	Server Slot 6
ServeRAID-6M	RXE-100 Slot 1
ServeRAID-6M	RXE-100 Slot 2
ServeRAID-6M	RXE-100 Slot 3
ServeRAID-6M	RXE-100 Slot 4
ServeRAID-6M	RXE-100 Slot 5
ServeRAID-6M	RXE-100 Slot 6

Measured Configuration



The measured and priced configurations were different in that disk enclosure substitution was used. A total of 19 disk enclosures was used (18 contained disks that held data, and 1 contained the disks that held the log). Each enclosure held fourteen 36.4GB 15K Ultra320 SCSI disk drives. Three of the enclosures used are the recently announced EXP400 Storage Expansion Enclosure. The other 16 enclosures are the EXP300 Storage Expansion Enclosure. Two of the EXP400 enclosures were used to hold data (logical drives Q: and R:) and the other was used to hold the log (logical drives E: and F:).

For the priced configuration, see the Executive Summary.

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 365 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	60.09
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 8,880 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 95.83% users.
3. The test continued and the system continued to run for 6 minutes 35 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 6 minutes 20 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 8,256 warehouses and the audited run used 8,184 warehouses. The warehouses over 8,184 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	8,184
District	82,560
Item	100,000
New Order	74,303,997
History	247,680,003
Orders	247,680,007
Customer	247,680,000
Order Line	2,476,795,203
Stock	825,600,000
Inactive Warehouses	72

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 EXP400 Enclosure (Priced)	E: F:	225.10GB 11.72GB (NTFS)	Logfile MDF File
2	14 - 36.4GB EXP300 Enclosure	C:\mp\c1 c:\mp\m1 G:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
3	14 - 36.4GB EXP300 Enclosure	C:\mp\c2 c:\mp\m2 H:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
4	14 - 36.4GB EXP300 Enclosure	C:\mp\c3 c:\mp\m3 I:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
5	14 - 36.4GB EXP300 Enclosure	C:\mp\c4 c:\mp\m4 J:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
6	14 - 36.4GB EXP300 Enclosure	C:\mp\c5 c:\mp\m5 K:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
7	14 - 36.4GB EXP300 Enclosure	C:\mp\c6 c:\mp\m6 L:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
8	14 - 36.4GB EXP300 Enclosure	C:\mp\c7 c:\mp\m7 M:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
9	14 - 36.4GB EXP300 Enclosure	C:\mp\c8 c:\mp\m8 N:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
10	14 - 36.4GB EXP300 Enclosure	C:\mp\c9 c:\mp\m9 O:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
11	14 - 36.4GB EXP300 Enclosure	C:\mp\c10 c:\mp\m10 P:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
12	14 - 36.4GB EXP400 Enclosure (Priced)	C:\mp\c11 c:\mp\m11 Q:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
13	14 - 36.4GB EXP400 Enclosure (Priced)	C:\mp\c12 c:\mp\m12 R:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
14	14 - 36.4GB EXP300 Enclosure	C:\mp\c13 c:\mp\m13 S:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
15	14 - 36.4GB EXP300 Enclosure	C:\mp\c14 c:\mp\m14 T:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
16	14 - 36.4GB EXP300 Enclosure	C:\mp\c15 c:\mp\m15 U:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
17	14 - 36.4GB EXP300 Enclosure	C:\mp\c16 c:\mp\m16 V:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files

18	14 - 36.4GB EXP300 Enclosure	C:\mp\c17 c:\mp\m17 W:	27.83GB 16.12GB 430.18GB (NTFS)	Customer and Stock Miscellaneous Backup files
19	14 - 36.4GB EXP300 Enclosure	C:\mp\c18 c:\mp\m18 D:	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: 102,667.42 tpmC

Price per tpmC: \$3.52 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	0.29	8.35	0.44
Payment	0.24	5.15	0.39
Delivery	0.16	1.34	0.27
Stock Level	0.82	2.42	1.08
Order Status	0.27	10.15	0.41
Delivery (Deferred)	0.13	3.63	0.18
Menu	0.16	5.82	0.27

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	18.02 / 12.06	18.00 / 0.00	18.05 / 120.52
Payment	3.02 / 12.05	3.00 / 0.00	3.05 / 120.52
Delivery	2.02 / 5.05	2.00 / 0.00	2.05 / 50.51
Stock Level	2.02 / 5.05	2.00 / 0.00	2.05 / 50.51
Order Status	2.02 / 10.06	2.00 / 0.00	2.05 / 100.52

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

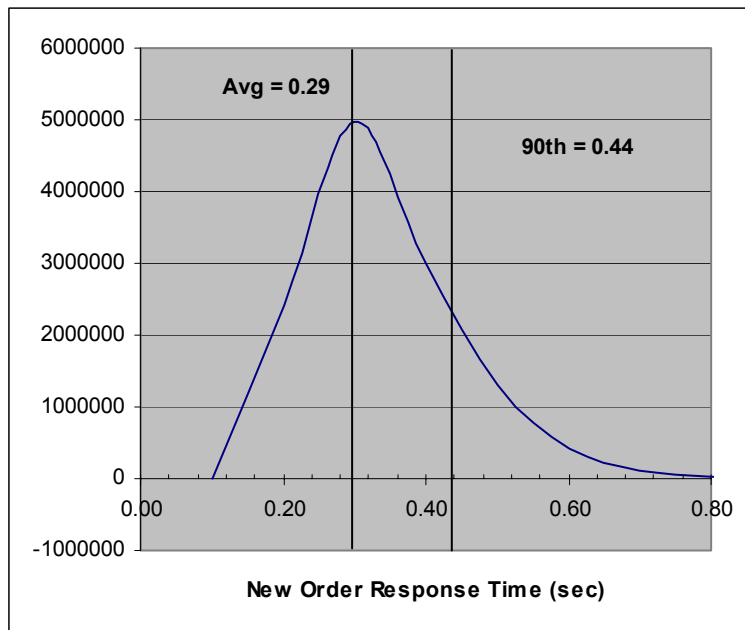


Figure 5-2. Payment Transaction - Response Time Frequency Distribution

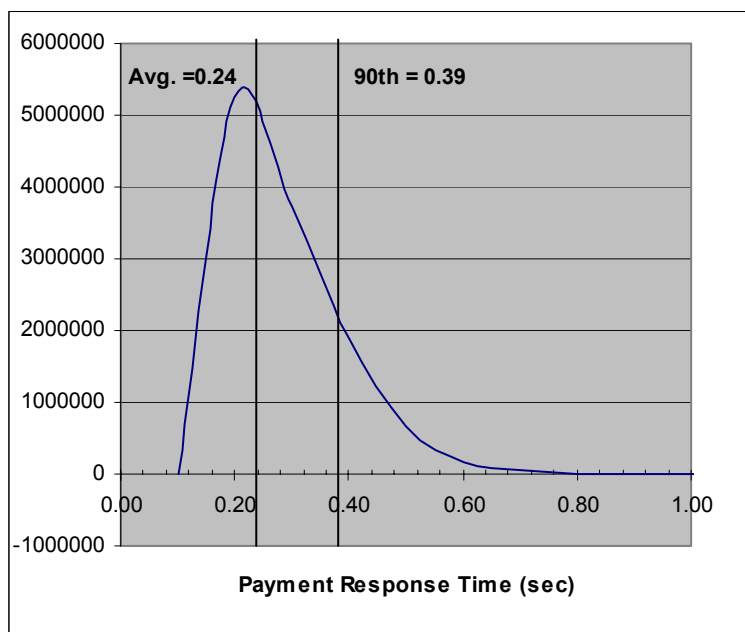


Figure 5-3. Order-Status Transaction - Response Time Frequency Distribution

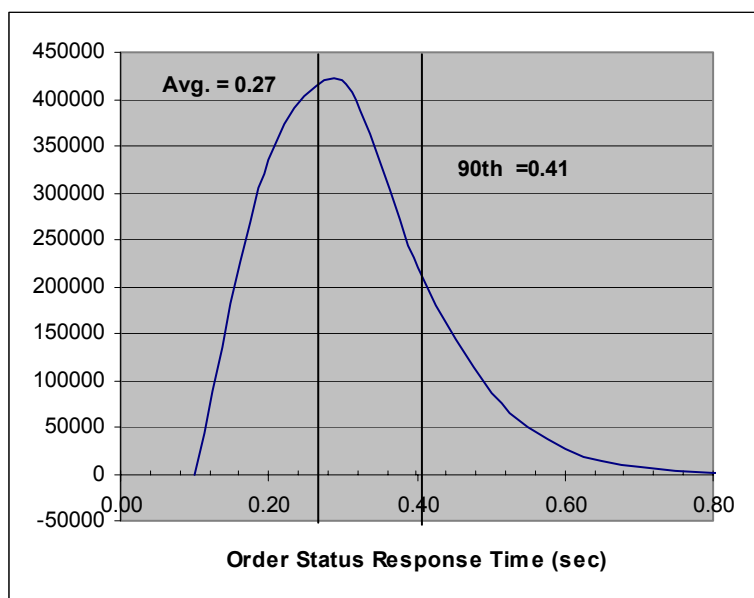


Figure 5-4. Delivery Transaction - Response Time Frequency Distribution

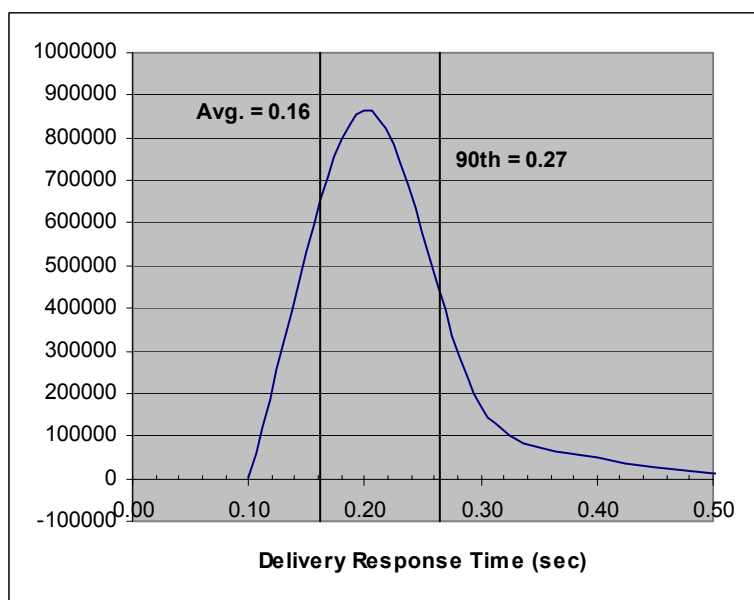
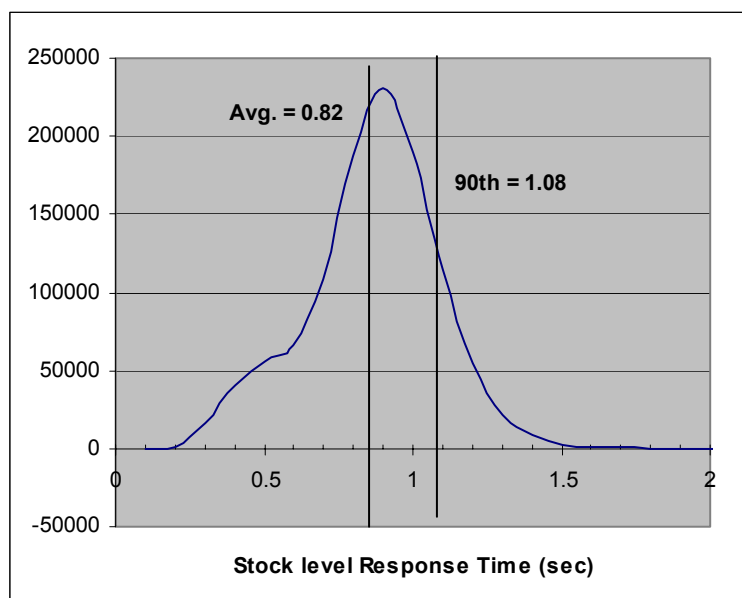


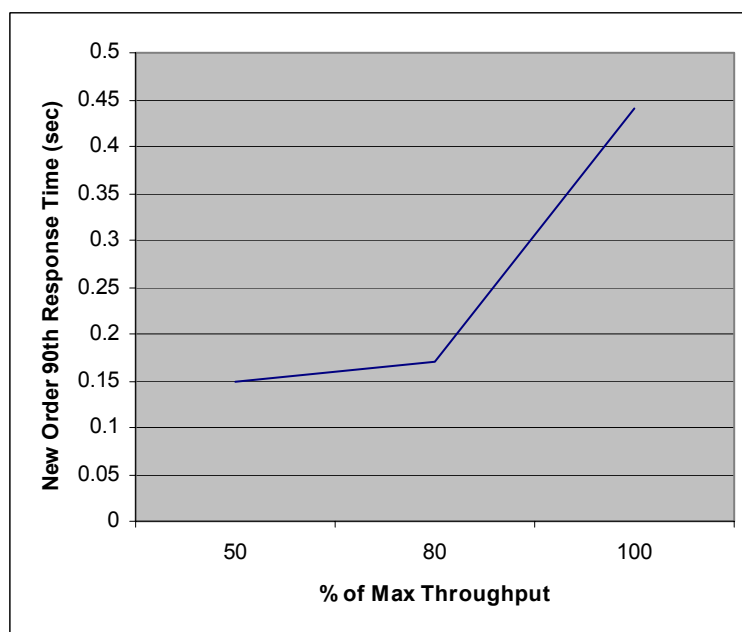
Figure 5-5. Stock-Level Transaction - Response Time Frequency Distribution



Performance Curve for Response Time vs. Throughput

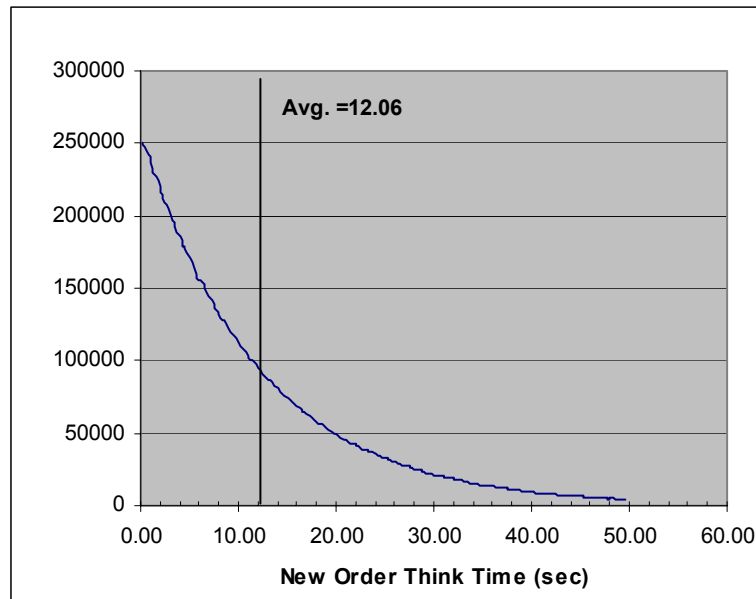
The performance curve for response time vs. throughput (see Clause 5.6.2) must be reported for the New-Order transaction.

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



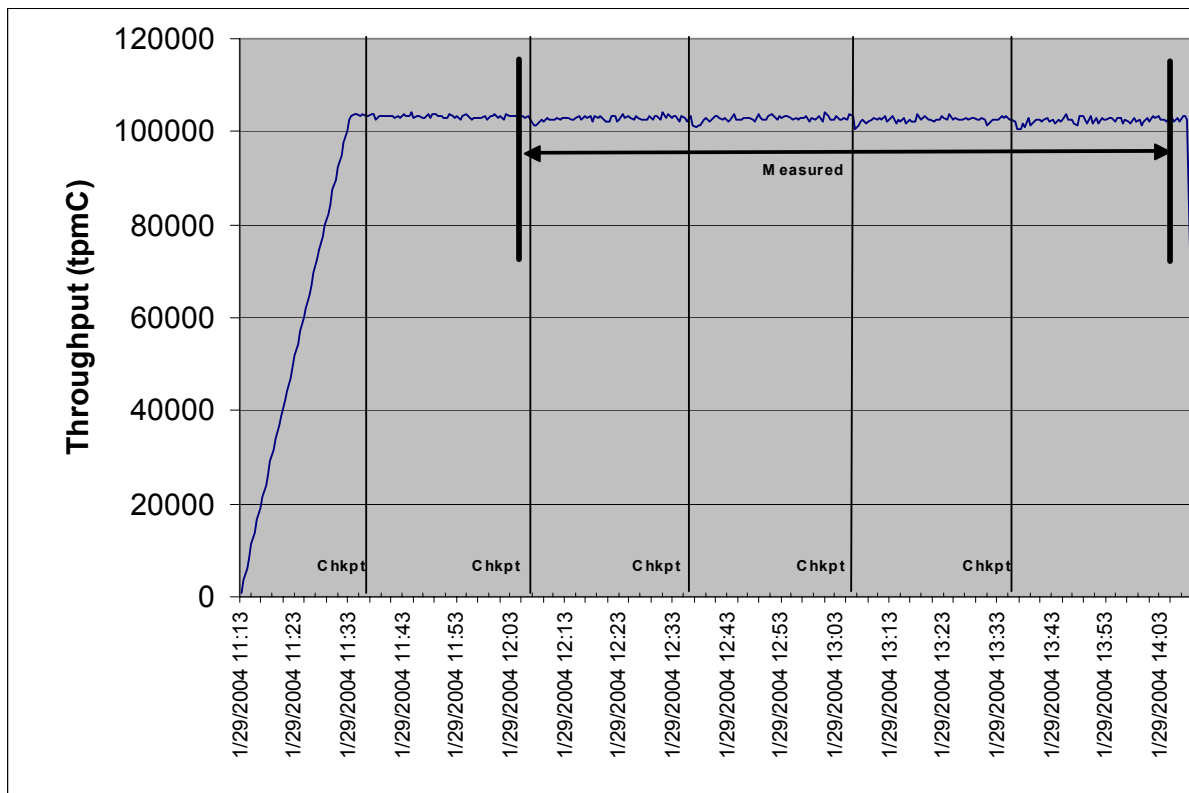
New Order Think Time Distribution

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	60.09
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 109 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	12:06:39 p.m.	28 minutes
2	12:36:36 p.m.	28 minutes
3	01:06:33 p.m.	28 minutes
4	01:36:30 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 March 31, 2004.

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: 102,667.42 tpmC
- Price per tpmC: \$3.52 per tpmC
- Three-year cost of ownership: \$361,742

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 Francois Raab 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 and Technology
 Group
 3039 Cornwallis Road
 Research Triangle Park, NC 27709

February 4, 2004

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

Platform: **IBM @server xSeries 365 c/s**
 Operating system: **Microsoft Windows Server 2003 Enterprise Edition with QFE KB834628**
 Database Manager: **Microsoft SQL Server 2000 Enterprise Edition SP3 w/QFE**
 Transaction Manager: **Microsoft COM+**

The results were:

CPU's Speed	Memory	Disks	NewOrder 90% Response Time	tpmC
Server: IBM @server xSeries 365				
4 x Xeon MP (3.0GHz)	32 GB Main (4 MB L3 Cache per processor)	266 x 36.4 GB ext. 1 x 36.4 GB int.	0.44 Seconds	102,667.42
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:

The measured configuration included (19) disk enclosures, (3) of which were model EXP400 and the remaining (16) were model EXP300. The EXP300 were substituted in the priced configuration by EXP400. Each of the (19) disk enclosures was populated with (14) 36GB disk drives of the same type. Based on the data collected and on the specifications of these two types of disk enclosures, it is my opinion that this substitution had no material impact on the results and meets the requirements of the benchmark for such substitutions.

Respectfully Yours,

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

François Raab, President

Appendix A: Source Code

Web Client Source Code

db_odbc_dll.dsp

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

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

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

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

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

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

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

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

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

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

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

```
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib 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>
```

```
#ifndef __cplusplus
extern "C" {
#endif

EXTERN_PROXY_FILE( tpcc_com_ps )

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

DLLDATA_ROUTINES( aProxyFileList, GET_DLL_CLSID )

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

/* end of generated dlldata file */

error.h

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

#pragma once

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

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

//error message structure used in ErrorText routines
typedef struct _SERRORMSG
{
int iError;
//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 recieve
HTML pages."

class CBaseErr
{
public:

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

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

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

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

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

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

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

```

```

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

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

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

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

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

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

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

    //short m_errType;
};

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

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

```

```

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

Action m_eAction;
char *m_szErrorText;

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

};

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

    CSystemErr(Action eAction, LPCTSTR
szLocation);

    CSystemErr(int iError, Action eAction,
LPCTSTR szLocation);

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

    Action m_eAction;

private:
    char m_szMsg[ERR_MSG_BUF_SIZE];
};

```

```

};

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

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

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

    int ErrorType() {return ERR_BUF_OVERFLOW;}

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

```

install.c

```

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

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

#include "resource.h"

#define WM_INITTEXT WM_USER+100

HICON hIcon;
HINSTANCE hInst;

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

// TPC-C registry settings
TPCCREGISTRYDATA Reg;

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

```

```

static int iAcceptExOutstanding;

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

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

BOOL install_com(char *szDllPath);

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

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

    hInst = hInstance;

    InitCommonControls();

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

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

    DestroyIcon(hIcon);
    return 0;
}

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

```

<pre> { HGLOBAL hRes; HRSRC hResInfo; BYTE *pSrc, *pDst; DWORD dwSize; static HFONT hFont; switch(uMsg) { case WM_INITDIALOG: hFont = CreateFont(-12, 0, 0, 0, 400, 0, 0, 0, 0, 0, 0, 0, "Arial"); SendMessage(GetDlgItem(hwnd, IDR_LICENSE1), WM_SETFONT, (LPARAM)hFont, MAKELPARAM(0, 0)); PostMessage(hwnd, WM_INITTEXT, (WPARAM)0, (LPARAM)0); return TRUE; case WM_INITTEXT: hResInfo = FindResource(hInst, hResInfo); MAKEINTRESOURCE(IDR_LICENSE1), "LICENSE"); dwSize = SizeofResource(hInst, hResInfo); hRes = LoadResource(hInst, hResInfo); pSrc = (BYTE *)LockResource(hRes); pDst = (unsigned char *)malloc(dwSize+1); if (pDst) { memcpy(pDst, pSrc, dwSize); pDst[dwSize] = 0; SetDlgItemText(hwnd, IDC_LICENSE, (const char *)pDst); } else SetDlgItemText(hwnd, IDC_LICENSE, (const char *)pSrc); return TRUE; case WM_DESTROY: DeleteObject(hFont); return TRUE; case WM_COMMAND: if (wParam == IDOK) EndDialog(hwnd, TRUE); if (wParam == IDCANCEL) EndDialog(hwnd, FALSE); default: break; } return FALSE; } BOOL CALLBACK UpdatedDlgProc(HWND hwnd, UINT uMsg, WPARAM wParam, LPARAM lParam) { switch(uMsg) { case WM_INITDIALOG: switch(lParam) { case 1: case 2: SetDlgItemText(hwnd, IDC_RESULTS, "TPC-C Web Client Installed"); break; } return TRUE; case WM_COMMAND: if (wParam == IDOK) </pre>	<pre> EndDialog(hwnd, TRUE); break; default: break; } return FALSE; } BOOL CALLBACK MainDlgProc(HWND hwnd, UINT uMsg, WPARAM wParam, LPARAM lParam) { PAINTSTRUCT ps; MEMORYSTATUS memoryStatus; OSVERSIONINFO VI; char szTmp[256]; static char szDllPath[256]; static char szExePath[256]; switch(uMsg) { case WM_INITDIALOG: GlobalMemoryStatus(&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.%2.2d.%3.3d", versionExeMS, versionExeMM, versionExeLS); SetDlgItemText(hwnd, IDC_VERSION, szTmp); SetDlgItemText(hwnd, IDC_PATH, szDllPath); </pre>
--	--

<pre> Reg.szDbServer); SetDlgItemText(hwnd, ED_DB_SERVER, Reg.szDbUser); SetDlgItemText(hwnd, ED_DB_USER_ID, SetDlgItemText(hwnd, ED_DB_PASSWORD, Reg.szDbPassword); SetDlgItemText(hwnd, ED_DB_NAME, Reg.szDbName); SetDlgItemInt(hwnd, ED_THREADS, Reg.dwNumberOfDeliveryThreads, FALSE); SetDlgItemInt(hwnd, ED_MAXCONNECTION, Reg.dwMaxConnections, FALSE); SetDlgItemInt(hwnd, ED_MAXDELIVERIES, Reg.dwMaxPendingDeliveries, FALSE); SetDlgItemInt(hwnd, ED_IIS_MAX_THREAD_POOL_LIMIT, iPoolThreadLimit, FALSE); SetDlgItemInt(hwnd, ED_IIS_THREAD_TIMEOUT, iThreadTimeout, FALSE); SetDlgItemInt(hwnd, ED_IIS_LISTEN_BACKLOG, iListenBackLog, FALSE); SetDlgItemInt(hwnd, ED_WEB_SERVICE_BACKLOG_QUEUE_SIZE, iAcceptExOutstanding, FALSE); CheckDlgButton(hwnd, IDC_DBLIB, 0); CheckDlgButton(hwnd, IDC_ODBC, 0); if (Reg.eDB_Protocol == DBLIB) CheckDlgButton(hwnd, IDC_DBLIB, 1); else CheckDlgButton(hwnd, IDC_ODBC, 1); // check OS version level for COM. Must be at least Windows 2000 VI.dwOSVersionInfoSize = sizeof(VI); GetVersionEx(&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); </pre>	<pre> 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; } 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); </pre>
--	--

```

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

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

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

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

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

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

                EndDialog(hwnd, 0);
                return;
        }

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

        UpdateDialog(hDlg);
        WriteRegistrySettings(szDllPath);

        // register com proxy stub

```

```

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

                EndDialog(hwnd, 0);
                return;
        }

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

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

                        EndDialog(hwnd, 0);
                        return;
                }

                Sleep(100);

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

                EndDialog(hwnd, rc);
                return;
        }

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

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

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

```

```

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

        RegCloseKey(hKey);
    }

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

        RegCloseKey(hKey);
    }
}

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

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

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

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

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

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

```

```

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

        RegFlushKey(hKey);
        RegCloseKey(hKey);
    }

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

        RegFlushKey(hKey);
        RegCloseKey(hKey);
    }

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

        RegFlushKey(hKey);
        RegCloseKey(hKey);
    }

    return;
}

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

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

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

```

```

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

```

```

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

```

```

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

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

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

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

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

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

    CloseHandle(hFile);

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

```

```

static int CopyFiles(HWND hDlg, char *szDllPath)

```

```

{
    BOOL                    bSvcRunning;

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

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

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

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

```

```

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

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

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

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

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

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

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

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

```



```

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

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

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

        return 1;
    }

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

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

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

        RegCloseKey(hKey);
    }

    return bRc;
}

```

```

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

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

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

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

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

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

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

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

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

    CloseServiceHandle(schService);
    return TRUE;
}

```

```

ServiceNotRunning:
    CloseServiceHandle(schService);
    return FALSE;
}

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

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

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

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

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

    CloseServiceHandle(schService);
    return TRUE;

StartWWWebErr:
    CloseServiceHandle(schService);
    return FALSE;
}

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

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

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

```

```

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

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

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

        CloseServiceHandle(schService);
        return TRUE;

StopWWWebErr:
    CloseServiceHandle(schService);
    return FALSE;
}

static void UpdateDialog(HWND hDlg)
{
    MSG msg;

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

```

install.dsp

```

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

# TARGETTYPE "Win32 (x86) Application" 0x0101

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

```

```

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

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

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir ".\Release"
# PROP BASE Intermediate_Dir ".\Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D
"_WINDOWS" /YX /c
# ADD CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D
"_WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D "NDEBUG" /win32
# ADD MTL /nologo /D "NDEBUG" /mktyplib203 /win32
# ADD BASE RSC /l 0x409 /d "NDEBUG"
# ADD RSC /l 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbc32.lib /nologo /subsystem:windows /machine:I386
# ADD LINK32 version.lib comctl32.lib kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib
uuid.lib odbcc32.lib odbc32.lib /nologo /subsystem:windows /machine:I386
/out:".bin\install.exe"

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

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

BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbc32.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 /l 0x409 /i "src"
# ADD RSC /l 0x409 /i "src" /i ".\src"
# End Source File
# Begin Source File

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

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

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

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

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

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

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

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

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

```

```
# Begin Source File

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

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

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

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

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

install.h

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

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

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

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

install.rc

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

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

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

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

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

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

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

```

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

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

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

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

```

```

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

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

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

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

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

    IDD_DIALOG4, DIALOG
    BEGIN
        LEFTMARGIN, 7
        RIGHTMARGIN, 278
        TOPMARGIN, 7
        BOTTOMMARGIN, 195
    END
END
#endif // APSTUDIO_INVOKED

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

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

2 TEXTINCLUDE DISCARDABLE

```

<pre> BEGIN "#include ""afxres.h""\r\n" "\0" END 3 TEXTINCLUDE DISCARDABLE BEGIN "\r\n" "\0" END #endif // APSTUDIO_INVOKED //////////////////////////////////// // // Icon // // Icon with lowest ID value placed first to ensure application icon // remains consistent on all systems. IDI_ICON1 ICON DISCARDABLE "icon1.ico" IDI_ICON2 ICON DISCARDABLE "icon2.ico" //////////////////////////////////// // // TPCCDLL // IDR_TPCCDLL TPCCDLL DISCARDABLE "..\\..\\isapi_dll\\bin\\tpcc.dll" #ifdef _MAC //////////////////////////////////// // // Version // VS_VERSION_INFO VERSIONINFO FILEVERSION 0,4,20,0 PRODUCTVERSION 0,4,20,0 FILEFLAGSMASK 0x3fL #ifdef _DEBUG FILEFLAGS 0x1L #else FILEFLAGS 0x0L #endif FILEOS 0x40004L FILETYPE 0x1L FILESUBTYPE 0x0L BEGIN BLOCK "StringFileInfo" BEGIN BLOCK "040904b0" BEGIN VALUE "Comments", "TPC-C Web Client Installer\0" VALUE "CompanyName", "Microsoft\0" VALUE "FileDescription", "install\0" VALUE "FileVersion", "0, 4, 20, 0\0" VALUE "InternalName", "install\0" VALUE "LegalCopyright", "Copyright © 1999\0" VALUE "OriginalFilename", "install.exe\0" VALUE "ProductName", "Microsoft install\0" VALUE "ProductVersion", "0, 4, 20, 0\0" END END BLOCK "VarFileInfo" BEGIN </pre>	<pre> 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 // </pre>
---	---

```
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,
lCountCo, lCountItf, lCountMethod;
    bool                    bTmp;
```

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

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

```
CLSCTX_INPROC_SERVER,
```

```
IID_ICOMAdminCatalog,
```

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

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

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

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

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

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

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

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

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

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

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

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

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

```
    }
    else
    {
```

```
        hr = pCatalogCollectionApp->Remove(lCount
- 1);
```

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

```
    }
```

```
}
```

```

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

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

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

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

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

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

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

        pCatalogObjectApp->Release();
        pCatalogObjectApp = NULL;

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

```


<pre> collection // save key to get the MethodsForInterface hr = pCatalogObjectItf->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(); </pre>	<pre> 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); // _printf(__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 </pre>
--	--

```

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

```

// Next default values for new objects

```

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

```

isapi_dll.dsp

```

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

```

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

CFG=isapi_dll - Win32 IceCAP

```

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

```

```

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

```

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

```

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

!ENDIF

# Begin Target

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

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

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

```

```

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

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

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

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

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

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

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

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

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

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

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

isapi_dll_resource.h

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

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

```

license.txt

END-USER LICENSE AGREEMENT FOR MICROSOFT TPC-C BENCHMARK KIT

IMPORTANT READ CAREFULLY: This Microsoft End-User License Agreement (EULA) is a legal agreement between you (either an individual or a single entity) and Microsoft Corporation for the Microsoft software product identified above, which includes computer software and may include associated media, printed materials, and online or electronic documentation (SOFTWARE PRODUCT). By installing, copying, or otherwise using the SOFTWARE PRODUCT, you agree to be bound by the terms of this EULA. If you do not agree to the terms of this Agreement, you are not authorized to use the SOFTWARE PRODUCT.

The SOFTWARE PRODUCT is protected by copyright laws and international copyright treaties, as well as other intellectual property laws and treaties. The SOFTWARE PRODUCT is licensed, not sold.

1. GRANT OF LICENSE. This EULA grants you the following rights:

Use. Microsoft grants to you the right to install and use copies of the SOFTWARE PRODUCT only in conjunction with validly licensed copies of Microsoft SQL Server and/or Microsoft Windows NT Server software. You may also make copies of the SOFTWARE PRODUCT for backup and archival purposes.

2. RESTRICTIONS.

--You must maintain all copyright notices on all copies of the SOFTWARE PRODUCT.

--You may not distribute copies of the SOFTWARE PRODUCT to third parties.

--You may not rent, lease or lend the SOFTWARE PRODUCT.

--You may not use the SOFTWARE PRODUCT or any derivative works thereof to internally test database management system software other than Microsoft SQL Server and/or operating system software other than Microsoft Windows NT.

-- You may not disclose the results of any benchmark tests using the SOFTWARE PRODUCT to any third party without Microsoft's prior written approval.

-- You may not disclose or provide the SOFTWARE PRODUCT or any derivative works thereof, or any information relating to the SOFTWARE PRODUCT (including the existence of the SOFTWARE PRODUCT or the results of use and testing or benchmark testing), to any third party without Microsoft's written permission.

3. TERMINATION. Without prejudice to any other rights, Microsoft may terminate this EULA if you fail to comply with the terms and conditions of this EULA. In such event, you must destroy all copies of the SOFTWARE PRODUCT.

4. COPYRIGHT. All title and copyrights in and to the SOFTWARE PRODUCT and any copies thereof are owned by Microsoft or its suppliers. All title and intellectual property rights in and to the content which may be accessed through use of the SOFTWARE PRODUCT is the property of the respective content owner and may be protected by applicable copyright or other intellectual property laws and treaties. This EULA grants you no rights to use such content.

5. UPGRADES. If the SOFTWARE PRODUCT is labeled as

an upgrade, you must be properly licensed to use a product identified by Microsoft as being eligible for the upgrade in order to use the SOFTWARE PRODUCT. A SOFTWARE PRODUCT labeled as an upgrade replaces and/or supplements the product that formed the basis for your eligibility for the upgrade. You may use the resulting upgraded product only in accordance with the terms of this EULA.

6. U.S. GOVERNMENT RESTRICTED RIGHTS.

The SOFTWARE PRODUCT is provided with RESTRICTED RIGHTS. Use, duplication, or disclosure by the Government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013 or subparagraphs (c)(1) and (2) of the Commercial Computer Software Restricted Rights at 48 CFR 52.227-19, as applicable. Manufacturer is Microsoft Corporation/One Microsoft Way/Redmond, WA 98052-6399.

7. EXPORT RESTRICTIONS.

You agree that you will not export or re-export the SOFTWARE PRODUCT to any country, person, entity or end user subject to U.S.A. export restrictions. Restricted countries currently include, but are not necessarily limited to Cuba, Iran, Iraq, Libya, North Korea, Syria, and the Federal Republic of Yugoslavia (Serbia and Montenegro, U.N. Protected Areas and areas of Republic of Bosnia and Herzegovina under the control of Bosnian Serb forces). You warrant and represent that neither the U.S.A. Bureau of Export Administration nor any other federal agency has suspended, revoked or denied your export privileges.

8. NO WARRANTY. ANY USE OF THE SOFTWARE PRODUCT IS AT YOUR OWN RISK. THE SOFTWARE PRODUCT IS PROVIDED FOR USE ONLY WITH MICROSOFT SQL SERVER AND/OR MICROSOFT WINDOWS NT SERVER SOFTWARE. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, MICROSOFT AND ITS SUPPLIERS DISCLAIM ALL WARRANTIES AND CONDITIONS, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NONINFRINGEMENT.

9. NO LIABILITY FOR CONSEQUENTIAL DAMAGES. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, IN NO EVENT SHALL MICROSOFT OR ITS SUPPLIERS BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT, OR CONSEQUENTIAL DAMAGES WHATSOEVER (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION, OR ANY OTHER PECUNIARY LOSS) ARISING OUT OF THE USE OF OR INABILITY TO USE THE SOFTWARE PRODUCT, EVEN IF MICROSOFT HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. BECAUSE SOME STATES AND JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

10. LIMITATION OF LIABILITY. MICROSOFT'S ENTIRE LIABILITY AND YOUR EXCLUSIVE REMEDY UNDER THIS EULA SHALL NOT EXCEED FIVE DOLLARS (US\$5.00).

11. MISCELLANEOUS

This EULA is governed by the laws of the State of Washington, U.S.A.
Should you have any questions concerning this EULA, or if you desire to contact Microsoft for any reason, please contact the Microsoft subsidiary serving your country, or write:
Microsoft Sales Information Center/One Microsoft Way/Redmond, WA 98052-6399.

Si vous avez acquis votre produit Microsoft au CANADA, la garantie limit e suivante vous concerne:

EXCLUSION DE GARANTIES. Microsoft renonce enti rement ... toute garantie pour le LOGICIEL. Le LOGICIEL et toute autre documentation s'y rapportant sont fournis   comme tels - sans aucune garantie quelle qu'elle soit, expresse ou implicite, y compris, mais ne se limitant pas aux garanties implicites de la qualit , marchande ou un usage particulier. Le risque total d' couler de l'utilisation ou de la performance du LOGICIEL est entre vos mains.

RESPONSABILIT  LIMIT E. La seule obligation de Microsoft et votre recours exclusif concernant ce contrat n'exc deront pas cinq dollars (US\$5.00).

ABSENCE DE RESPONSABILIT  POUR LES DOMMAGES INDIRECTS.

Microsoft ou ses fournisseurs ne pourront  tre tenus responsables en aucune circonstance de tout dommage quel qu'il soit (y compris mais non de fa on limitative les dommages directs ou indirects caus s par la perte de b n fices commerciaux, l'interruption des affaires, la perte d'information commerciale ou toute autre perte p cuniaire) r sultant de l'utilisation ou de l'impossibilit  d'utilisation de ce produit, et ce, m me si la soci t  Microsoft a  t  avis e de l' ventualit  de tels dommages. Certains  tats/juridictions ne permettent pas l'exclusion ou la limitation de responsabilit  relative aux dommages indirects ou cons cutifs, et la limitation ci-dessus peut ne pas s'appliquer ... votre  gard. La pr sente Convention est r gie par les lois de la province d'Ontario, Canada. Chacune des parties ... la pr sente reconna t irr vocablement la comp tence des tribunaux de la province d'Ontario et consent ... instituer tout litige qui pourrait d couler de la pr sente aupr s des tribunaux situ s dans le district judiciaire de York, province d'Ontario. Au cas o  vous auriez des questions concernant cette licence ou que vous d siriez vous mettre en rapport avec Microsoft pour quelque raison que ce soit, veuillez contacter la succursale Microsoft desservant votre pays, dont l'adresse est fournie dans ce produit, ou  crire ...: Microsoft Customer Sales and Service, One Microsoft Way, Redmond, Washington 98052 6399.

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

// IObjectConstruct
        STDMETHODCALLTYPE 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;
                                Delivery;
                                StockLevel;
                                OrderStatus;
                                PAYMENT_DATA
                                DELIVERY_DATA
                                STOCK_LEVEL_DATA
                                ORDER_STATUS_DATA
                } u;
        };

};

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

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

};

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

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

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

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

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

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

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

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

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

// ITPCC

```

```

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

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

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

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

```

Null-txns.sql

```

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

create proc tpcc_delivery          @w_id      int,
                                  @o_carrier_id  smallint

```

```

as

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

declare @delaytime varchar(30)

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

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

GO

create proc tpcc_neworder

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

        @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 = 'dzKoCOBqbc3yu',
        @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,
                                @threshold  smallint

as

declare @delaytime varchar(30)

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

select 49

GO

create proc tpcc_version
as
declare @version char(8)

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

GO

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

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

GO

```

ReadRegistry.cpp

```

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

```

```

*      4.20.000 - first version
*/

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

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

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

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

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

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

```

```

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

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

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

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

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

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

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

    RegCloseKey(hKey);

    return FALSE;
}

```

ReadRegistry.h

```

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

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

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

```

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

```

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

```

BOOL ReadTPCCRegistrySettings(TPCCREGISTRYDATA *pReg);

restore.vbs

```

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

```

```

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

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

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

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

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

            If rc = 2 Then
                wScript.Echo ""

```

```

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

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

```

runsqlcfg.vbs

```

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

```

```

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

```

```

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

```

rtetime.h

```

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

//FILE: RTETIME.H

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

```

```

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

```

setup.vbs

```

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

```

<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 "!!" </pre>	Case "1921" Case "3013" Case "3201" Case "5105" Case "5170" Case
--	--	--

wScript.Quit

End If
Flag = 0

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

End Select

Loop
Case "DatabaseType"

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

'--- set flag

Flag = 0

Do While Flag = 0

Select Case TempResponse

Case

"normal", "Normal", "NORMAL"

TempResponse = "0"

Flag = 1

Case

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

TempResponse = "1"

Flag = 1

Case Else

rc =

MsgBox ("Invalid Database Type.", 21)

If rc = 2

Then

wScript.Echo ""

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

wScript.Quit

End If
Flag = 0

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

End Select

Loop

End Select

GetUserInput = TempResponse

End Function

'--- end function

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

Dim TableArray(8)

TableArray(0) = "warehouse"

TableArray(1) = "district"

TableArray(2) = "customer"

TableArray(3) = "history"

TableArray(4) = "new_order"

TableArray(5) = "orders"

TableArray(6) = "order_line"

TableArray(7) = "item"

TableArray(8) = "stock"

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

Dim LogFileArray(21)

LogFileArray(0) = "version.log"

LogFileArray(1) = "removedb.log"

LogFileArray(2) = "createdb.log"

LogFileArray(3) = "tables.log"

LogFileArray(4) = "dbopt1.log"

LogFileArray(5) = "idxordcl.log"

LogFileArray(6) = "idxitmcl.log"

LogFileArray(7) = "idxwarcl.log"

LogFileArray(8) = "idxcuscl.log"

LogFileArray(9) = "idxnodcl.log"

LogFileArray(10) = "idxdiscl.log"

LogFileArray(11) = "idxstkcl.log"

LogFileArray(12) = "idxodlcl.log"

LogFileArray(13) = "idxcusnc.log"

LogFileArray(14) = "idxhiscl.log"

LogFileArray(15) = "idxordnc.log"

LogFileArray(16) = "bulkload.log"

LogFileArray(17) = "dbopt2.log"

LogFileArray(18) = "nurand_load.log"

LogFileArray(19) = "backupdev.log"

LogFileArray(20) = "backupdev.log"

LogFileArray(21) = "verifyload.log"

'--- open a file system object

Set fs = CreateObject("Scripting.FileSystemObject")

'--- grab the current directory value

SetupDirectory = WshShell.CurrentDirectory & "\"

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

'--- now calculate the other directories

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

ScriptDirectory = SetupDirectory & "SCRIPTS\"

LogDirectory = SetupDirectory & "LOGS\"

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

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

'--- Build Option, and Database Type

Set objArgs = wScript.Arguments

Select Case objArgs.Length

Case 0

'--- get the server name

ServerName = GetUserInput("ServerName")

'--- get the sa password

saPassword = GetUserInput("saPassword")

'--- get the number of warehouses

NumberWarehouses =

GetUserInput("NumberWarehouses")

'--- get the build option

BuildOption = GetUserInput("BuildOption")

'--- get the database type

DatabaseType = GetUserInput("DatabaseType")

Case 1

```

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

```

```

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

```

```

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

        Do While oExec.Status = 0
            wScript.Sleep 100
        Loop
        rc = CheckSQLOutput(LogDirectory & "createdb.log")
        If rc <> 0 Then
            wScript.Quit
        End If
        '--- 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")
        End If
    End If

```

```

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

```

```

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

```

```

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

```

spinlock.h

```

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

```

```

*/
#ifndef _INC_Spinlock

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

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

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

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

public:
    // Public functions.

    Spinlock( void );

    inline BOOL ClaimLock( BOOL Wait =
TRUE );

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

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

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

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

```

```

*
*****/

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

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

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

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

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

#define _INC_Spinlock

#endif

```

tm_com_dll.dsp

Microsoft Developer Studio Project File - Name="tm_com_dll" - Package Owner=<4>

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

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

CFG=tm_com_dll - Win32 Debug

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

```

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

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

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

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

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

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

```

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

!ENDIF

# Begin Target

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

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

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

tpcc.cpp

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

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

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

#include <sqltypes.h>

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

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

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

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

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

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

#define LEN_ERR_STRING 256

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

char
szMyComputerName[MAX_COMPUTERNAME_LENGTH+1];

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

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

static CRITICAL_SECTION TermCriticalSection;

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

```

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

// For deferred Delivery txns:

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

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

// configuration settings from registry
TPCCREGISTRYDATA      Reg;

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

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

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

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

```

```

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

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

            DisableThreadLibraryCalls((HMODULE)hModule);

            InitializeCriticalSection(&TermCriticalSection);

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

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

            TermInit();

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

                // get function pointer
                to wrapper for class constructor
                pCTPCC_TUXEDO_new = (TYPE_CTPCC_TUXEDO*)
GetProcAddress(hLibInstanceTm,"CTPCC_TUXEDO_new");
                if
                (pCTPCC_TUXEDO_new == NULL)
                    throw new
CWEBCLNT_ERR( ERR_GETPROCADDR_FAILED, szDllName,
GetLastError() );
            }
            else if (Reg.eTxnMon ==
ENCINA)
            {
                strcpy( szDllName,
Reg.szPath );
                strcat( szDllName,
"tpcc_encina.dll");
            }
        }
    }
}

```


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

<pre> 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; </pre>	<pre> if (hLibInstanceDb != NULL) FreeLibrary(hLibInstanceDb); 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) { </pre>
--	---

```

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

        TermDeleteAll();
        return TRUE;
    }

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

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

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

#ifdef ICECAP
    StartCAP();
#endif

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

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

```

```

                                throw new CWEBCLNT_ERR(
ERR_INVALID_TERMID );
        }

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

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

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

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

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

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

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

```

```

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

#ifdef ICECAP
    StopCAP();
#endif

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

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

    //finish up and keep connection
}

pECB->dwHttpStatusCode = 200;
return HSE_STATUS_SUCCESS_AND_KEEP_CONN;
}

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

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

    _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
*

```

<pre> * 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; </pre>	<pre> //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>" "<BIG>Microsoft TPC-C Web Client (ver 4.20)</BIG>

" " "<PRE>" "Compiled: " _DATE_ ", " _TIME_ "
" "Source: " _FILE_ " (" _TIMESTAMP_ ")
" "</PRE>" "<FORM ACTION=\"tpcc.dll\" METHOD=\"GET\">" "<INPUT TYPE=\"hidden\" NAME=\"STATUSID\" VALUE=\"0\">" </pre>
--	--

```

TYPE="hidden\" NAME="ERROR\" VALUE="0">"
"DB Server

TYPE="hidden\" NAME="FORMID\" VALUE="1">"
"DB User

TYPE="hidden\" NAME="TERMINID\" VALUE="0">"
"DB

TYPE="hidden\" NAME="SYNCDID\" VALUE="0">"
"DB Name

TYPE="hidden\" NAME="VERSION\" VALUE=""
"DB Server, Reg.szDbServer, Reg.szDbUser,
WEBCIENT_VERSION "\>"
Reg.szDbPassword, Reg.szDbName );
strcat( szBuffer, szTmp);

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>"
= <B>%s</B><BR><BR>"
    "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>"
"DB Server, Reg.szDbServer, Reg.szDbUser,
Reg.szDbPassword, Reg.szDbName );
TYPE="submit\" NAME="CMD\" VALUE="Submit\">"
"</FORM></BODY></HTML>");
}

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

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

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

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

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

```

```

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

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

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

    iNewTerm = TermAdd();

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

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

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

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

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

```

```

EnterCriticalSection(&TermCriticalSection);

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

LeaveCriticalSection(&TermCriticalSection);

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

char *CWEBCLNT_ERR::ErrorText()
{
    static SERRORMSG errorMsgs[] =
    {
        {
            ERR_COMMAND_UNDEFINED,
            "Command undefined."
        },
        {
            ERR_D_ID_INVALID,
            "Invalid District ID Must be 1 to 10."
        },
        {
            ERR_DELIVERY_CARRIER_ID_RANGE,
            "Delivery Carrier ID out of range must be 1 - 10."
        },
        {
            ERR_DELIVERY_CARRIER_INVALID,
            "Delivery Carrier ID invalid must be numeric 1 - 10."
        },
        {
            ERR_DELIVERY_MISSING_OCD_KEY,
            "Delivery missing Carrier ID key \"OCD*\"."
        },
        {
            ERR_DELIVERY_THREAD_FAILED,
            "Could not start delivery worker thread."
        },
        {
            ERR_GETPROCADDR_FAILED,
            "Could not map proc in DLL. GetProcAddr
error. DLL="
        },
        {
            ERR_HTML_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." <pre> }, { ERR_NEWORDER_CUSTOMER_KEY, "New Order missing Customer key \"CID*\"." }, { ERR_NEWORDER_DISTRICT_INVALID, "New Order District ID Invalid range 1 - 10." }, { ERR_NEWORDER_FORM_MISSING_DID, "New Order missing District key \"DID*\"." }, { ERR_NEWORDER_ITEMID_INVALID, "New Order Item Id is wrong data type, must be numeric." }, { ERR_NEWORDER_ITEMID_RANGE, "New Order Item Id is out of range. Range = 1 to 999999." }, { ERR_NEWORDER_ITEMID_WITHOUT_SUPPW, "New Order Item_Id field entered without a corresponding Supp_W." }, { ERR_NEWORDER_MISSING_IID_KEY, "New Order missing Item Id key \"IID*\"." }, { ERR_NEWORDER_MISSING_QTY_KEY, "New Order Missing Qty key \"Qty##*\"." }, { ERR_NEWORDER_MISSING_SUPPW_KEY, "New Order missing Supp_W key \"SP##*\"." }, { ERR_NEWORDER_NOITEMS_ENTERED, "New Order No order lines entered." }, { ERR_NEWORDER_QTY_INVALID, "New Order Qty invalid must be numeric range 1 - 99." }, { ERR_NEWORDER_QTY_RANGE, "New Order Qty is out of range. Range = 1 to 99." }, { ERR_NEWORDER_QTY_WITHOUT_SUPPW, "New Order Qty field entered without a corresponding Supp_W." }, { ERR_NEWORDER_SUPPW_INVALID, "New Order Supp_W invalid data type must be numeric." }, { ERR_NO_SERVER_SPECIFIED, "No Server name specified." }, { ERR_ORDERSTATUS_CID_AND_CLT, "Order Status Only Customer ID or Last Name may be entered, not both." }, { ERR_ORDERSTATUS_CID_INVALID, "Order Status Customer ID invalid, range must be numeric 1 - 3000." }, { ERR_ORDERSTATUS_CLT_RANGE, "Order Status Customer last name longer than 16 characters." }, { ERR_ORDERSTATUS_DID_INVALID, "Order Status District invalid, value must be numeric 1 - 10." }, { ERR_ORDERSTATUS_MISSING_CID_CLT, "Order Status Either Customer ID or Last Name must be entered." }, { ERR_ORDERSTATUS_MISSING_CID_KEY, "Order </pre>	<pre> Status missing Customer key \"CID*\"." }, { ERR_ORDERSTATUS_MISSING_CLT_KEY, "Order Status missing Customer Last Name key \"CLT*\"." }, { ERR_ORDERSTATUS_MISSING_DID_KEY, "Order Status missing District key \"DID*\"." }, { ERR_PAYMENT_CDI_INVALID, "Payment Customer district invalid must be numeric." }, { ERR_PAYMENT_CID_AND_CLT, "Payment Only Customer ID or Last Name may be entered, not both." }, { ERR_PAYMENT_CUSTOMER_INVALID, "Payment Customer data type invalid, must be numeric." }, { ERR_PAYMENT_CWI_INVALID, "Payment Customer Warehouse invalid, must be numeric." }, { ERR_PAYMENT_DISTRICT_INVALID, "Payment District ID is invalid, must be 1 - 10." }, { ERR_PAYMENT_HAM_INVALID, "Payment Amount invalid data type must be numeric." }, { ERR_PAYMENT_HAM_RANGE, "Payment Amount out of range, 0 - 9999.99." }, { ERR_PAYMENT_LAST_NAME_TO_LONG, "Payment Customer last name longer than 16 characters." }, { ERR_PAYMENT_MISSING_CDI_KEY, "Payment missing Customer district key \"CDI*\"." }, { ERR_PAYMENT_MISSING_CID_CLT, "Payment Either Customer ID or Last Name must be entered." }, { ERR_PAYMENT_MISSING_CID_KEY, "Payment missing Customer Key \"CID*\"." }, { ERR_PAYMENT_MISSING_CLT_KEY, "Payment missing Customer Last Name key \"CLT*\"." }, { ERR_PAYMENT_MISSING_CWI_KEY, "Payment missing Customer Warehouse key \"CWI*\"." }, { ERR_PAYMENT_MISSING_DID_KEY, "Payment missing District Key \"DID*\"." }, { ERR_PAYMENT_MISSING_HAM_KEY, "Payment missing Amount key \"HAM*\"." }, { ERR_STOCKLEVEL_MISSING_THRESHOLD_KEY, "Stock Level; missing Threshold key \"TT*\"." }, { ERR_STOCKLEVEL_THRESHOLD_INVALID, "Stock Level; Threshold value must be in the range = 1 - 99." }, { ERR_STOCKLEVEL_THRESHOLD_RANGE, "Stock Level Threshold out of range, range must be 1 - 99." }, </pre>
--	--

```

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

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

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

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

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

```

```

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

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

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

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

    *pQueryString = ptr;
    return;

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

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

```

```

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

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

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

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

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

    *pQueryString = ptr;
    return atoi(ptr0);

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

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

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

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

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

```

```

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

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

    LeaveCriticalSection(&TermCriticalSection);
}

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

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

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

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

    LeaveCriticalSection(&TermCriticalSection);
}

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

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

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

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

```

```

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

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

    LeaveCriticalSection(&TermCriticalSection);
    return iNewTerm;
}

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

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

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

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

        LeaveCriticalSection(&TermCriticalSection);
    }
}

```

```

/* FUNCTION: MakeErrorForm
*/

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

/* FUNCTION: MakeMainMenuForm
*/

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

```



```

        "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 %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\" "
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" "
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" "
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" "
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" "
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" "
        "</FORM></HTML>"
    );
}

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

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

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

```

```

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

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

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

```

```

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

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

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

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

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

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

/* FUNCTION: MakeOrderStatusForm
*

```

```

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

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

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

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

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

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

```

```

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

void ProcessNewOrderForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, char *szBuffer)
{
    PNEW_ORDER_DATA          pNewOrder;

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

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

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

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

/* FUNCTION: void ProcessPaymentForm
*
* PURPOSE:      This function gets and validates the input data from the
payment form
*           filling in the required input variables. It then
calls the SQLPayment
*           transaction, constructs the output form and
writes it back to client
*           browser.
*
* ARGUMENTS:    EXTENSION_CONTROL_BLOCK      *pECB
passed in structure pointer from inetsrv.
*           int
*           iTermId   client browser terminal id
*/

void ProcessPaymentForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, char *szBuffer)
{
    PPAYMENT_DATA pPayment;

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

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

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

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

```

```

*           form filling in the required input variables. It
then calls the
*           SQLOrderStatus transaction, constructs the
output form and writes it
*           back to client browser.
*
* ARGUMENTS:    EXTENSION_CONTROL_BLOCK      *pECB
passed in structure pointer from inetsrv.
*           int
*           iTermId   client browser terminal id
*/

void ProcessOrderStatusForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, char *szBuffer)
{
    PORDER_STATUS_DATA      pOrderStatus;

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

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

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

/* FUNCTION: ProcessDeliveryForm
*
* PURPOSE:      This function gets and validates the input data from the
delivery form
*           filling in the required input variables. It then
calls the PostDeliveryInfo
*           Api, The client is then informed that the
transaction has been posted.
*
* ARGUMENTS:    EXTENSION_CONTROL_BLOCK      *pECB
passed in structure pointer from inetsrv.
*           int
*           iTermId   client browser terminal id
*/

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

    PDELIVERY_DATA pDelivery;

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

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

    if (dwNumDeliveryThreads)

```

```

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

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

```

/* FUNCTION: ProcessStockLevelForm

* PURPOSE: This function gets and validates the input data from the
Stock Level
* form filling in the required input variables. It
then calls the
* SQLStockLevel transaction, constructs the
output form and writes it
* back to client browser.
*
* ARGUMENTS: EXTENSION_CONTROL_BLOCK *pECB
passed in structure pointer from inetsrv.
* int
iTermId client browser terminal id
*
*/

```

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

    PSTOCK_LEVEL_DATA pStockLevel;

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

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

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

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

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

```

/* FUNCTION: GetNewOrderData
*

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

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

```

void GetNewOrderData(LPSTR lpszQueryString, NEW_ORDER_DATA
*pNewOrderData)
{

```

```

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

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

```

```

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

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

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

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

```

```

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

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

    pNewOrderData->o_ol_cnt = items;
}

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

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

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

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

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

```

```

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

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

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

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

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

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

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

        _strupr( szTmp );
    }

```

```

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

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

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

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

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

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

    if ( *ptr == 0 )
        return FALSE;

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

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

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

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

tpcc.cpp

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

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

#include <sqltypes.h>

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

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

```

```

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

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

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

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

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

#define LEN_ERR_STRING 256

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

char
szMyComputerName[MAX_COMPUTERNAME_LENGTH+1];

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

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

static CRITICAL_SECTION TermCriticalSection;

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

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

// For deferred Delivery txns:

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

HANDLE hWorkerSemaphore =
INVALID_HANDLE_VALUE;

HANDLE = INVALID_HANDLE_VALUE;
HANDLE = NULL;

// configuration settings from registry
TPCCREGISTRYDATA Reg;

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

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

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

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

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

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

```

<pre> } DisableThreadLibraryCalls((HMODULE)hModule); InitializeCriticalSection(&TermCriticalSection); if (ReadTPCCRegistrySettings(&Reg)) throw new CWEBCLNT_ERR(ERR_MISSING_REGISTRY_ENTRIES); dwDelBuffSize = min(Reg.dwMaxPendingDeliveries, 10000); // min with 10000 as a sanity constraint dwNumDeliveryThreads = min(Reg.dwNumberOfDeliveryThreads, 100); // min with 100 as a sanity constraint TermInit(); // load DLL for txn monitor if (Reg.eTxnMon == TUXEDO) { strcpy(szDllName, Reg.szPath); strcat(szDllName, "tpcc_tuxedo.dll"); hLibInstanceTm = LoadLibrary(szDllName); if (hLibInstanceTm == NULL) throw new CWEBCLNT_ERR(ERR_LOADDLL_FAILED, szDllName, GetLastError()); // get function pointer to wrapper for class constructor pCTPCC_TUXEDO_new = (TYPE_CTPCC_TUXEDO*) GetProcAddress(hLibInstanceTm,"CTPCC_TUXEDO_new"); if (pCTPCC_TUXEDO_new == NULL) throw new CWEBCLNT_ERR(ERR_GETPROCADDR_FAILED, szDllName, GetLastError()); } else if (Reg.eTxnMon == ENCINA) { strcpy(szDllName, Reg.szPath); strcat(szDllName, "tpcc_encina.dll"); hLibInstanceTm = LoadLibrary(szDllName); if (hLibInstanceTm == NULL) throw new CWEBCLNT_ERR(ERR_LOADDLL_FAILED, szDllName, GetLastError()); // get function pointer to wrapper for class constructor pCTPCC_ENCINA_new = (TYPE_CTPCC_ENCINA*) GetProcAddress(hLibInstanceTm,"CTPCC_ENCINA_new"); pCTPCC_ENCINA_post_init = (TYPE_CTPCC_ENCINA*) GetProcAddress(hLibInstanceTm,"CTPCC_ENCINA_post_init"); if (pCTPCC_ENCINA_new == NULL) </pre>	<pre> throw new CWEBCLNT_ERR(ERR_GETPROCADDR_FAILED, szDllName, GetLastError()); } else if (Reg.eTxnMon == COM) { strcpy(szDllName, Reg.szPath); strcat(szDllName, "tpcc_com.dll"); hLibInstanceTm = LoadLibrary(szDllName); if (hLibInstanceTm == NULL) throw new CWEBCLNT_ERR(ERR_LOADDLL_FAILED, szDllName, GetLastError()); // get function pointer to wrapper for class constructor pCTPCC_COM_new = (TYPE_CTPCC_COM*) GetProcAddress(hLibInstanceTm,"CTPCC_COM_new"); if (pCTPCC_COM_new == NULL) throw new CWEBCLNT_ERR(ERR_GETPROCADDR_FAILED, szDllName, GetLastError()); } // load DLL for database connection if ((Reg.eTxnMon == None) (dwNumDeliveryThreads > 0)) { if (Reg.eDB_Protocol == DBLIB) { strcpy(szDllName, Reg.szPath); strcat(szDllName, "tpcc_dblib.dll"); hLibInstanceDb = LoadLibrary(szDllName); if (hLibInstanceDb == NULL) throw new CWEBCLNT_ERR(ERR_LOADDLL_FAILED, szDllName, GetLastError()); // get function pointer to wrapper for class constructor pCTPCC_DBLIB_new = (TYPE_CTPCC_DBLIB*) GetProcAddress(hLibInstanceDb,"CTPCC_DBLIB_new"); if (pCTPCC_DBLIB_new == NULL) throw new CWEBCLNT_ERR(ERR_GETPROCADDR_FAILED, szDllName, GetLastError()); } else if (Reg.eDB_Protocol == ODBC) { strcpy(szDllName, Reg.szPath); strcat(szDllName, "tpcc_odbc.dll"); </pre>
--	---

<pre> hLibInstanceDb = LoadLibrary(szDllName); if (hLibInstanceDb == NULL) throw new CWEBCLNT_ERR(ERR_LOADDLL_FAILED, szDllName, GetLastError()); // get function pointer to wrapper for class constructor pCTPCC_ODBC_new = (TYPE_CTPCC_ODBC*) GetProcAddress(hLibInstanceDb,"CTPCC_ODBC_new"); if (pCTPCC_ODBC_new == NULL) throw new CWEBCLNT_ERR(ERR_GETPROCADDR_FAILED, szDllName, GetLastError()); } } if (dwNumDeliveryThreads) { // for deferred delivery txns: hDoneEvent = CreateEvent(NULL, TRUE /* manual reset */, FALSE /* initially not signalled */, NULL); InitializeCriticalSection(&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%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 pDeliHandles = new HANDLE[dwNumDeliveryThreads]; pDelBuff = new DELIVERY_TRANSACTION[dwDelBuffSize]; // launch DeliveryWorkerThread to perform actual delivery txns for(i=0; i<dwNumDeliveryThreads; i++) { </pre>	<pre> pDeliHandles[i] = (HANDLE) _beginthread(DeliveryWorkerThread, 0, NULL); if (pDeliHandles[i] == INVALID_HANDLE_VALUE) throw new CWEBCLNT_ERR(ERR_DELIVERY_THREAD_FAILED); } } break; case DLL_PROCESS_DETACH: if (dwNumDeliveryThreads) { if (txndelilog != NULL) { //write event into txn log for STOP txndelilog->WriteCtrlRecToLog(TXN_EVENT_STOP, szMyComputerName, sizeof(szMyComputerName)); // This will do a clean shutdown of the delivery log file CTxnLog *txndelilogLocal = txndelilog; txndelilog= NULL; delete txndelilogLocal; } delete [] pDeliHandles; delete [] pDelBuff; CloseHandle(hWorkerSemaphore); CloseHandle(hDoneEvent); DeleteCriticalSection(&DelBuffCriticalSection); } DeleteCriticalSection(&TermCriticalSection); if (hLibInstanceTm != NULL) FreeLibrary(hLibInstanceTm); hLibInstanceTm = NULL; if (hLibInstanceDb != NULL) FreeLibrary(hLibInstanceDb); hLibInstanceDb = NULL; Sleep(500); break; default: /* nothing */; } } catch (CBaseErr *e) { WriteMessageToEventLog(e->ErrorText()); </pre>
---	--


```

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

    return TRUE;
}

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

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

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

    return TRUE;
}

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

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

    TermDeleteAll();
    return TRUE;
}

/* FUNCTION: HttpExtensionProc
*

```

```

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

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

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

#ifdef ICECAP
    StartCAP();
#endif

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

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

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

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

```

```

    }

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

#ifdef ICECAP
    StopCAP();
#endif

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

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

//finish up and keep connection
pECB->dwHttpStatusCode = 200;
return HSE_STATUS_SUCCESS_AND_KEEP_CONN;
}

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

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

```

```

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

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

        (VOID) DeregisterEventSource(hEventSource);
    }
}

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

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

    DELIVERY_TRANSACTION delivery;
    PDELIVERY_DATA
pDeliveryData;
    TXN_RECORD_TPCC_DELIV_DEF txnDeliRec;

    DWORD index;
    HANDLE handles[2];

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

    assert(txnDeliLog != NULL);

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

```

```

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

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

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

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

                LeaveCriticalSection(&DelBuffCriticalSection);

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

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

```

```

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

        //log txn
        txnDeliRec.TxnStatus =

ERR_SUCCESS;

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

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

        if (txnDelilog != NULL)

        txnDelilog->WriteToLog(&txnDeliRec);
    }
    catch (CBaseErr *e)
    {
        char szTmp[1024];
        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
        =
        GetLocalTime(&(pDelBuff+dwDelBuffFreeIndex)->queue);

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

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

        return bError;
    }

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

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

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

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

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

```

```

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

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

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

/* FUNCTION: void WelcomeForm
*
*/

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

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

"<B><BIG>Microsoft TPC-C Web Client (ver 4.20)</BIG></B> <BR> <BR>"
"face=\"Courier New\"><PRE>"

"__DATE__", "__TIME__" <BR>"

"__FILE__" ("__TIMESTAMP__") <BR>"

"</PRE></font>"

ACTION=\"tpcc.dll\" METHOD=\"GET\">"

TYPE=\"hidden\" NAME=\"STATUSID\" VALUE=\"0\">"

TYPE=\"hidden\" NAME=\"ERROR\" VALUE=\"0\">"

TYPE=\"hidden\" NAME=\"FORMID\" VALUE=\"1\">"

TYPE=\"hidden\" NAME=\"TERMID\" VALUE=\"0\">"

TYPE=\"hidden\" NAME=\"SYNCID\" VALUE=\"0\">"

TYPE=\"hidden\" NAME=\"VERSION\" VALUE=\"\"
WEBCLIENT_VERSION \">"

);

sprintf( szTmp, "Configuration Settings: <BR><font
face=\"Courier New\" color=\"blue\"><PRE>"

```

```

"Txn Monitor      =
<B>%s</B><BR>"
"Database protocol
= <B>%s</B><BR>"
"Max Connections
= <B>%d</B><BR>"
"# of Delivery Threads
= <B>%d</B><BR>"
"Max Pending
Deliveries = <B>%d</B><BR>"
, szTxnMonNames[Reg.eTxnMon],
szDBNames[Reg.eDB_Protocol],
Reg.dwMaxConnections,
dwNumDeliveryThreads, dwDelBuffSize );
strcat( szBuffer, szTmp);

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

if (Reg.eTxnMon == None)
    // connection options may be specified when not using a
txn monitor
    sprintf( szTmp, "Please enter your database options
for this connection:<BR>"
"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>"
"face=\"Courier New\" color=\"blue\"><PRE>"
"DB Server
= <B>%s</B><BR>"
"DB User
ID = <B>%s</B><BR>"
"DB
Password = <B>%s</B><BR>"
"DB Name
= <B>%s</B><BR>"
"</PRE></font>"
, Reg.szDbServer, Reg.szDbUser,
Reg.szDbPassword, Reg.szDbName );
strcat( szBuffer, szTmp);

```

```

        sprintf( szTmp,          "Please enter your Warehouse and District for
this session:<BR>"

                                "<font face=\"Courier

New\" color=\"blue\"><PRE>" );
        strcat( szBuffer, szTmp);
        strcat( szBuffer,      "Warehouse ID = <INPUT NAME=\"w_id\"
SIZE=4><BR>"

                                "District ID

= <INPUT NAME=\"d_id\" SIZE=2><BR>"

                                "<INPUT

TYPE=\"submit\" NAME=\"CMD\" VALUE=\"Submit\">"

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

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

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

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

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

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

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

);

    // parse district ID

```

```

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

);

    iNewTerm = TermAdd();

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

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

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

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

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

    EnterCriticalSection(&TermCriticalSection);

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

    LeaveCriticalSection(&TermCriticalSection);

    wsprintf( szBuffer,

```

```

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

char *CWEBCLNT_ERR::ErrorText()
{
    static SERRORMSG errorMsgs[] =
    {
        {
            ERR_COMMAND_UNDEFINED,
            "Command undefined."
        },
        {
            ERR_D_ID_INVALID,
            "Invalid District ID Must be 1 to 10."
        },
        {
            ERR_DELIVERY_CARRIER_ID_RANGE,
            "Delivery Carrier ID out of range must be 1 - 10."
        },
        {
            ERR_DELIVERY_CARRIER_INVALID,
            "Delivery Carrier ID invalid must be numeric 1 - 10."
        },
        {
            ERR_DELIVERY_MISSING_OCD_KEY,
            "Delivery missing Carrier ID key \"OCD*\"."
        },
        {
            ERR_DELIVERY_THREAD_FAILED,
            "Could not start delivery worker thread."
        },
        {
            ERR_GETPROCADDR_FAILED,
            "Could not map proc in DLL. GetProcAddr
error. DLL="
        },
        {
            ERR_HTML_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
 *
 *              char
 *pKey          key value to look for
 *              char
 *pValue        character array into which to place key's value
 *              int
 *iMax          maximum length of key value array.
 *              WEBERROR
 *err           error value to throw
 *
 * RETURNS:     nothing.
 *
 * ERROR:       if (the pKey value is not found) then
 *              if (err == 0)
 *                  return
 *              (empty string)
 *              else
 *                  throw
 *
 * CWEBCLNT_ERR(err)
 *
 * COMMENTS:    http keys are formatted either KEY=value& or
KEY=value\0. This DLL formats
 *              TPC-C input fields in such a
 *              manner that the keys can be extracted in the
 *              above manner.
 */

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

```



```

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

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

        *pQueryString = ptr;
        return;

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

/* FUNCTION: GetIntKeyValue
 *
 * PURPOSE:      This function parses a http formatted string for a specific
 * key value.
 *
 * ARGUMENTS:   char                *pQueryString
 *               http string from client browser
 *
 *               char
 * *pKey         key value to look for
 *               WEBERROR
 * NoKeyErr      error value to throw if key not found
 *               WEBERROR
 * NotIntErr     error value to throw if value not numeric
 *
 * RETURNS:      integer
 *
 * ERROR:        if (the pKey value is not found) then
 *               if (NoKeyErr !=
 * NO_ERR)
 *               throw
 * CWEBCLNT_ERR(err)
 *               else
 *               return 0
 *               else if (non-numeric char found)
 * then
 *               if (NotIntErr !=
 * NO_ERR) then
 *               throw
 * CWEBCLNT_ERR(err)
 *               else
 *               return 0
 *
 * COMMENTS:     http keys are formatted either KEY=value& or
 * KEY=value/0. This DLL formats
 *               TPC-C input fields in such a
 * manner that the keys can be extracted in the
 *               above manner.
 */

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

```

```

    char *ptr;

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

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

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

    *pQueryString = ptr;
    return atoi(ptr0);

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

/* FUNCTION: TermInit
 *
 * PURPOSE:      This function initializes the client terminal structure; it is
 * called when the 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=\\\"TERMIN\\\"
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=\\\"TERMIN\\\"
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=\\\"TERMIN\\\"
VALUE=\\\"%d\\\">"
        "\\<INPUT TYPE=\\\"hidden\\\" NAME=\\\"SYNCID\\\"
VALUE=\\\"%d\\\">"
        "\\<PRE><font face=\\\"Courier\\\">
Stock-Level<BR>"
        "\\Warehouse: %4.4d District: %2.2d<BR> <BR>",
        STOCK_LEVEL_FORM, iTermId,
        Term.pClientData[iTermId].iSyncId,
        Term.pClientData[iTermId].w_id,
        Term.pClientData[iTermId].d_id);

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

```

```

        " <INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Exit..\">"
        "</FORM></HTML>"
        , pStockLevelData->threshold,
pStockLevelData->low_stock);
    }
}

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

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

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

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

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

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

        strcpy( szForm+c,
            "District: <INPUT NAME=\"DID*\"
SIZE=1>
            Date:<BR>"
            "Customer: <INPUT NAME=\"CID*\"
SIZE=4> Name:
            Credit: %Disc:<BR>"
            "Order Number:
            Number of Lines:
W_tax: D_tax:<BR> <BR>"
            " Supp_W Item_Id Item Name Qty
Stock B/G Price Amount<BR>"
            " <INPUT NAME=\"SP00*\" SIZE=4>
<INPUT NAME=\"IID00*\" SIZE=6>
NAME=\"Qty00*\" SIZE=1><BR>"

```

```

        " <INPUT NAME=\"SP01*\" SIZE=4>
<INPUT NAME=\"IID01*\" SIZE=6>
NAME=\"Qty01*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP02*\" SIZE=4>
<INPUT NAME=\"IID02*\" SIZE=6>
NAME=\"Qty02*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP03*\" SIZE=4>
<INPUT NAME=\"IID03*\" SIZE=6>
NAME=\"Qty03*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP04*\" SIZE=4>
<INPUT NAME=\"IID04*\" SIZE=6>
NAME=\"Qty04*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP05*\" SIZE=4>
<INPUT NAME=\"IID05*\" SIZE=6>
NAME=\"Qty05*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP06*\" SIZE=4>
<INPUT NAME=\"IID06*\" SIZE=6>
NAME=\"Qty06*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP07*\" SIZE=4>
<INPUT NAME=\"IID07*\" SIZE=6>
NAME=\"Qty07*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP08*\" SIZE=4>
<INPUT NAME=\"IID08*\" SIZE=6>
NAME=\"Qty08*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP09*\" SIZE=4>
<INPUT NAME=\"IID09*\" SIZE=6>
NAME=\"Qty09*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP10*\" SIZE=4>
<INPUT NAME=\"IID10*\" SIZE=6>
NAME=\"Qty10*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP11*\" SIZE=4>
<INPUT NAME=\"IID11*\" SIZE=6>
NAME=\"Qty11*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP12*\" SIZE=4>
<INPUT NAME=\"IID12*\" SIZE=6>
NAME=\"Qty12*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP13*\" SIZE=4>
<INPUT NAME=\"IID13*\" SIZE=6>
NAME=\"Qty13*\" SIZE=1><BR>"
        " <INPUT NAME=\"SP14*\" SIZE=4>
<INPUT NAME=\"IID14*\" SIZE=6>
NAME=\"Qty14*\" SIZE=1><BR>"
        "Execution Status:
Total:<BR>"
        "</font></PRE><HR>"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Process\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Menu\">"
        "</FORM></HTML>"
    );
    }
    else
    {
        c += sprintf(szForm+c, "Warehouse: %4.4d District:
%2.2d
Date: ",
pNewOrderData->w_id,
pNewOrderData->d_id);

        if ( bValid )
        {
            c += sprintf(szForm+c,
                "%2.2d-%2.2d-%4.4d %2.2d:%2.2d:%2.2d",
pNewOrderData->o_entry_d.day,
pNewOrderData->o_entry_d.month,
pNewOrderData->o_entry_d.year,
pNewOrderData->o_entry_d.hour,

```

```

pNewOrderData->o_entry_d.minute,
pNewOrderData->o_entry_d.second);
    }

    c += wsprintf(szForm+c, "<BR>Customer: %4.4d
Name: %-16s Credit: %2s ",
pNewOrderData->c_id,
pNewOrderData->c_last, pNewOrderData->c_credit);

    if ( bValid )
    {
        c += sprintf(szForm+c,
"%5.2f      <BR>"
"Order
Number: %8.8d Number of Lines: %2.2d      W_tax: %5.2f D_tax: %5.2f
<BR> <BR>"
" Supp_W
Item_Id Item Name          Qty Stock B/G Price  Amount<BR>",
100.0*pNewOrderData->c_discount,
pNewOrderData->o_id,
pNewOrderData->o_ol_cnt,
100.0 * pNewOrderData->w_tax,
100.0 * pNewOrderData->d_tax);

        for(i=0; i<pNewOrderData->o_ol_cnt; i++)
        {
            c += sprintf(szForm+c, " %4.4d
%6.6d %-24s %2.2d %3.3d %1.1s $%6.2f $%7.2f <BR>",
pNewOrderData->OL[i].ol_supply_w_id,
pNewOrderData->OL[i].ol_i_id,
pNewOrderData->OL[i].ol_i_name,
pNewOrderData->OL[i].ol_quantity,
pNewOrderData->OL[i].ol_stock,
pNewOrderData->OL[i].ol_brand_generic,
pNewOrderData->OL[i].ol_i_price,
pNewOrderData->OL[i].ol_amount );
        }
    }
    else
    {
        c += wsprintf(szForm+c,
"%Disc:<BR>"
"Order Number: %8.8d Number
of Lines:      W_tax:      D_tax:<BR> <BR>"
" Supp_W Item_Id Item Name
Qty Stock B/G Price  Amount<BR>"
, pNewOrderData->o_id);

        i = 0;
    }

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

    if ( bValid )

```

```

Transaction committed.
    c += sprintf(szForm+c, "Execution Status:
Total: $%8.2f ",
pNewOrderData->total_amount);

    else
    c += wsprintf(szForm+c, "Execution Status:
Total:");

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

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

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

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

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

```

```

        pPaymentData->h_date.second);
    }

    if ( bInput )
    {
        c += sprintf(szForm+c,
            "<BR> <BR>Warehouse: %4.4d"
            " District: <INPUT
NAME=\"DID*\" SIZE=1><BR> <BR> <BR> <BR> <BR>"
            "Customer: <INPUT NAME=\"CID*\"
SIZE=4>"
            "Cust-Warehouse: <INPUT NAME=\"CWI*\"
SIZE=4> "
            "Cust-District: <INPUT NAME=\"CDI*\"
SIZE=1><BR>"
            "Name: <INPUT
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:
%-20s Credit: %-2s<BR>"
            , Term.pClientData[iTermId].w_id,
            pPaymentData->w_street_1,
            pPaymentData->w_street_2,
            pPaymentData->w_city,
            pPaymentData->w_state, pPaymentData->w_zip, pPaymentData->w_zip+5,
            pPaymentData->d_city,
            pPaymentData->d_state, pPaymentData->d_zip, pPaymentData->d_zip+5,
            pPaymentData->c_id,
            pPaymentData->c_d_id,
            pPaymentData->c_first,
            pPaymentData->c_middle, pPaymentData->c_last,
            pPaymentData->c_since.day,
            pPaymentData->c_since.month, pPaymentData->c_since.year,
            pPaymentData->c_street_1,
            pPaymentData->c_credit
        );

        c += sprintf(szForm+c,
            "%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;

```

```
static char szBR[] = "<BR><BR><BR><BR><BR><BR><BR>  
<BR><BR><BR><BR><BR><BR><BR>";
```

```

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

```

```

if ( bInput )
{
    strcpy(szForm+c,
        "District: <INPUT NAME=\"DID*\"
SIZE=1><BR>"
        "Customer: <INPUT NAME=\"CID*\"
SIZE=4> Name: <INPUT NAME=\"CLT*\" SIZE=23><BR>"
        "Cust-Balance:<BR> <BR>"
        "Order-Number:      Entry-Date:
Carrier-Number:<BR>"
        "Supply-W Item-Id Qty Amount
Delivery-Date<BR> <BR> <BR> <BR> <BR>"
        " <BR> <BR> <BR> <BR> <BR> <BR>
<BR> <BR> <BR> <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\n",
            pOrderStatusData->d_id,
            pOrderStatusData->c_first,
            pOrderStatusData->c_middle, pOrderStatusData->c_last);

        c += sprintf(szForm+c, "Cust-Balance: $%9.2f<BR>"
            "<BR>",
            pOrderStatusData->c_balance);

        c += sprintf(szForm+c,
            "Order-Number: %8.8d  Entry-Date:
            %2.2d-%2.2d-%4.4d %2.2d:%2.2d:%2.2d  Carrier-Number: %2.2d<BR>"
            "Supply-W  Item-Id  Qty  Amount\n",
            pOrderStatusData->o_id,
            pOrderStatusData->o_entry_d.day,
            pOrderStatusData->o_entry_d.month,
            pOrderStatusData->o_entry_d.year,
            pOrderStatusData->o_entry_d.hour,
            pOrderStatusData->o_entry_d.minute,
            pOrderStatusData->o_entry_d.second);
    }
}

```

```
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\n",
        %2.2d    %8.2f    %2.2d-%2.2d-%4.4d<BR>",
        pOrderStatusData->OL[i].ol_supply_w_id,
        pOrderStatusData->OL[i].ol_i_id,
        pOrderStatusData->OL[i].ol_quantity,
        pOrderStatusData->OL[i].ol_amount,
        pOrderStatusData->OL[i].ol_delivery_d.day,
        pOrderStatusData->OL[i].ol_delivery_d.month,
        pOrderStatusData->OL[i].ol_delivery_d.year);
}

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

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

```

```

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

```

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

```

int      c;

c = sprintf(szForm,
            "<HTML><HEAD><TITLE>TPC-C
Delivery</TITLE></HEAD><BODY>"
            "<FORM ACTION=\"tpcc.dll\" METHOD=\"GET\">"
            "<INPUT TYPE=\"hidden\" NAME=\"STATUSID\"
VALUE=\"%d\">"
            "<INPUT TYPE=\"hidden\" NAME=\"ERROR\"
VALUE=\"%0\">"
            "<INPUT TYPE=\"hidden\" NAME=\"FORMID\"
VALUE=\"%d\">"
            "<INPUT TYPE=\"hidden\" NAME=\"TERMINID\"
VALUE=\"%d\">"

```

```

        VALUE="\"%d\">"
        "<PRE><font face=\"Courier\">"
        Delivery<BR>"
        "Warehouse: %4.4d<BR> <BR>",
        (!bInput && (pDeliveryData->exec_status_code !=
eOK)) ? ERR_TYPE_DELIVERY_POST : 0,
        DELIVERY_FORM, iTermId,
        Term.pClientData[iTermId].iSyncId, Term.pClientData[iTermId].w_id);

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

/* FUNCTION: ProcessNewOrderForm
*
* PURPOSE:      This function gets and validates the input data from the
new order form
*
*               filling in the required input variables. it then
calls the SQLNewOrder
*               transaction, constructs the output form and
writes it back to client
*               browser.
*/

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

```

```

        PNEW_ORDER_DATA
        pNewOrder;

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

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

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

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

/* FUNCTION: void ProcessPaymentForm
*
* PURPOSE:      This function gets and validates the input data from the
payment form
*
*               filling in the required input variables. It then
calls the SQLPayment
*               transaction, constructs the output form and
writes it back to client
*               browser.
*
* ARGUMENTS:    EXTENSION_CONTROL_BLOCK      *pECB
passed in structure pointer from inetsrv.
*
*               int
iTermId    client browser terminal id
*/

void ProcessPaymentForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, char *szBuffer)
{
    PPAYMENT_DATA pPayment;

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

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

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

/* FUNCTION: ProcessOrderStatusForm
*
* PURPOSE:      This function gets and validates the input data from the
Order Status
*
*               form filling in the required input variables. It
then calls the
*               SQLOrderStatus transaction, constructs the
output form and writes it
*               back to client browser.
*
* ARGUMENTS:    EXTENSION_CONTROL_BLOCK      *pECB
passed in structure pointer from inetsrv.
*
*               int
iTermId    client browser terminal id
*

```



```

*/

void ProcessOrderStatusForm(EXTENSION_CONTROL_BLOCK *pECB, int
iTermId, char *szBuffer)
{
    PORDER_STATUS_DATA    pOrderStatus;

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

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

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

/* FUNCTION: ProcessDeliveryForm
*
* PURPOSE:      This function gets and validates the input data from the
delivery form
*
*               filling in the required input variables. It then
calls the PostDeliveryInfo
*
*               Api, The client is then informed that the
transaction has been posted.
*
* ARGUMENTS:    EXTENSION_CONTROL_BLOCK    *pECB
passed in structure pointer from inetsrv.
*
*               int
iTermId    client browser terminal id
*/

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

    PDELIVERY_DATA pDelivery;

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

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

    if (dwNumDeliveryThreads)
    {
        //post delivery info
        if ( PostDeliveryInfo(pDelivery->w_id,
pDelivery->o_carrier_id ) )
            pDelivery->exec_status_code =
eDeliveryFailed;
        else
            pDelivery->exec_status_code = eOK;
    }
    else // delivery is done synchronously if no delivery threads
configured

```

```

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

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

/* FUNCTION: ProcessStockLevelForm
*
* PURPOSE:      This function gets and validates the input data from the
Stock Level
*
*               form filling in the required input variables. It
then calls the
*
*               SQLStockLevel transaction, constructs the
output form and writes it
*
*               back to client browser.
*
* ARGUMENTS:    EXTENSION_CONTROL_BLOCK    *pECB
passed in structure pointer from inetsrv.
*
*               int
iTermId    client browser terminal id
*/

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

    PSTOCK_LEVEL_DATA    pStockLevel;

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

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

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

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

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

/* FUNCTION: GetNewOrderData
*
* PURPOSE:      This function extracts and validates the new order form
data from an http command string.
*
* ARGUMENTS:    LPSTR                                lpszQueryString
client browser http command string
*
*               NEW_ORDER_DATA
*pNewOrderData    pointer to new order data structure
*/

void GetNewOrderData(LPSTR lpszQueryString, NEW_ORDER_DATA
*pNewOrderData)

```

```

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

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

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

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

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

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

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

```

```

                GetKeyValue(&ptr, szQty[i], szTmp,
sizeof(szTmp), ERR_NEWORDER_MISSING_QTY_KEY);
                if ( szTmp[0] )
                    throw new CWEBCLNT_ERR(
ERR_NEWORDER_QTY_WITHOUT_SUPPW );
            }
            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                                lpzQueryString
    client browser http command string
                                PAYMENT_DATA
    *pPaymentData    pointer to payment data structure
    */

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

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

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

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

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

            _strupr( szTmp );

```

```

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

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

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

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

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

        _strupr( szTmp );
        if ( strlen(pOrderStatusData->c_last) >
LAST_NAME_LEN )
            throw new CWEBCLNT_ERR(
ERR_ORDERSTATUS_CLT_RANGE );
        strcpy(pOrderStatusData->c_last, szTmp);
    }
    else
    {
        // parse customer id and verify that last name was NOT
entered
        if ( !IsNumeric(szTmp) )
            throw new CWEBCLNT_ERR(
ERR_ORDERSTATUS_CID_INVALID );

```

```

        pOrderStatusData->c_id = atoi(szTmp);
        GetKeyValue(&ptr, "CLT*", szTmp, sizeof(szTmp),
ERR_ORDERSTATUS_MISSING_CLT_KEY);
        if ( szTmp[0] != 0 )
            throw new CWEBCLNT_ERR(
ERR_ORDERSTATUS_CID_AND_CLT );
    }
}

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

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

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

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

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

    if ( *ptr == 0 )
        return FALSE;

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

    if ( *ptr != 0 )

```

```

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

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

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

```

tpcc.def

LIBRARY TPCC.DLL

EXPORTS

```

GetExtensionVersion @1
HttpExtensionProc @2
TerminateExtension @3

```

tpcc.h

```

//      File:          TPCC.H
//
//      Microsoft TPC-C Kit Ver. 4.41
//      Copyright Microsoft, 1996, 1997,
1998, 1999, 2000, 2001
//      Purpose:   Header file for TPC-C database loader

```

```

// Build number of TPC Benchmark Kit
#define TPCKIT_VER "4.41"

```

```

// General headers
#include <windows.h>
#include <winbase.h>
#include <stdlib.h>
#include <stdio.h>
#include <process.h>
#include <stddef.h>
#include <stdarg.h>
#include <string.h>
#include <time.h>
#include <sys\timeb.h>
#include <sys\types.h>

```

```

// ODBC headers
#include <sql.h>
#include <sqlext.h>
#include <odbc.h>

```

```

// General constants
#define MILLI 1000
#define FALSE 0
#define TRUE 1
#define UNDEF -1
#define MINPRINTASCII 32
#define MAXPRINTASCII 126

```

```

// Default environment constants
#define SERVER ""
#define DATABASE "tpcc"

```

```

#define USER "sa"
#define PASSWORD ""

// Default loader arguments
#define BATCH 10000
#define DEFLDPACKSIZE 32768
#define LOADER_RES_FILE "C:\\MSTPCC.440\\SETUP\\logs\\load.out"
#define LOG_PATH "C:\\MSTPCC.440\\SETUP\\LOGS\\";
#define LOADER_NURAND_C 123
#define DEF_STARTING_WAREHOUSE 1
#define BUILD_INDEX 1
// build both data and indexes
#define INDEX_ORDER 1
// build indexes before load
#define SCALE_DOWN 0
// build a normal scale database
#define INDEX_SCRIPT_PATH "scripts"

typedef struct
{
    char *server;
    char *database;
    char *user;
    char *password;
    BOOL tables_all;
// set if loading all tables
    BOOL table_item;
// set if loading ITEM table specifically
    BOOL table_warehouse; //
set if loading WAREHOUSE, DISTRICT, and STOCK
    BOOL table_customer;
// set if loading CUSTOMER and HISTORY
    BOOL table_orders;
// set if loading NEW-ORDER, ORDERS, ORDER-LINE
    long num_warehouses;
    long batch;
    long verbose;
    long pack_size;
    char *loader_res_file;
    char *log_path;
    char *synch_servername;
    long case_sensitivity;
    long starting_warehouse;
    long build_index;
    long index_order;
    long scale_down;
    char *index_script_path;
} TPCC_LDR_ARGS;

// String length constants
#define SERVER_NAME_LEN 20
#define DATABASE_NAME_LEN 20
#define USER_NAME_LEN 20
#define PASSWORD_LEN 20
#define TABLE_NAME_LEN 20
#define I_DATA_LEN 50
#define I_NAME_LEN 24
#define BRAND_LEN 1
#define LAST_NAME_LEN 16
#define W_NAME_LEN 10
#define ADDRESS_LEN 20
#define STATE_LEN 2
#define ZIP_LEN 9
#define S_DIST_LEN 24
#define S_DATA_LEN 50
#define D_NAME_LEN 10
#define FIRST_NAME_LEN 16

```

```

#define MIDDLE_NAME_LEN      2
#define PHONE_LEN            16
#define CREDIT_LEN           2
#define C_DATA_LEN           500
#define H_DATA_LEN           24
#define DIST_INFO_LEN        24
#define MAX_OL_NEW_ORDER_ITEMS 15
#define MAX_OL_ORDER_STATUS_ITEMS 15
#define STATUS_LEN           25
#define OL_DIST_INFO_LEN     24
#define C_SINCE_LEN

23 #define H_DATE_LEN

23 #define OL_DELIVERY_D_LEN      23
#define O_ENTRY_D_LEN           23

// Functions in random.c
void      seed();
long      irand();
double    drand();
void      WUCreate();
short     WURand();
long      RandomNumber(long lower, long upper);

// Functions in getargs.c;
void      GetArgsLoader();
void      GetArgsLoaderUsage();

// Functions in time.c
long      TimeNow();

// Functions in strings.c
void      MakeAddress();
void      LastName();
int        MakeAlphaString();
int        MakeOriginalAlphaString();
int        MakeNumberString();
int        MakeZipNumberString();
void      InitString();
void      InitAddress();
void      PaddString();

```

tpcc.rc

```

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

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

//
// 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 _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)"
            VALUE "CompanyName", "Microsoft"
            VALUE "FileDescription", "TPC-C HTML DLL Server (DBLIB)"
            VALUE "FileVersion", "0, 4, 0, 0"
            VALUE "InternalName", "tpcc"
            VALUE "LegalCopyright", "Copyright © 1997"
            VALUE "OriginalFilename", "tpcc.dll"
            VALUE "ProductName", "Microsoft tpcc"
            VALUE "ProductVersion", "0, 4, 0, 0"
        END
    END
    BLOCK "VarFileInfo"
    BEGIN
        VALUE "Translation", 0x409, 1200
    END
END

#endif // !_MAC

#ifdef APSTUDIO_INVOKED
//
// TEXTINCLUDE
//
1 TEXTINCLUDE DISCARDABLE
BEGIN
    "resource.h"
END

2 TEXTINCLUDE DISCARDABLE
BEGIN
    "#include \"afxres.h\""
    ""
END

3 TEXTINCLUDE DISCARDABLE
BEGIN
    ""
    ""
END

```

```
#endif // APSTUDIO_INVOKED
```

```
////////////////////////////////////  
//  
// Dialog  
//
```

```
IDD_DIALOG1 DIALOG DISCARDABLE 0, 0, 186, 95  
STYLE DS_MODALFRAME | WS_POPUP | WS_CAPTION |  
WS_SYSMENU  
CAPTION "Dialog"  
FONT 8, "MS Sans Serif"  
BEGIN  
    DEFPUSHBUTTON "OK",IDOK,129,7,50,14  
    PUSHBUTTON "Cancel",IDCANCEL,129,24,50,14  
END
```

```
////////////////////////////////////  
//  
// DESIGNINFO  
//
```

```
#ifndef APSTUDIO_INVOKED  
GUIDELINES DESIGNINFO DISCARDABLE  
BEGIN  
    IDD_DIALOG1, DIALOG  
    BEGIN  
        LEFTMARGIN, 7  
        RIGHTMARGIN, 179  
        TOPMARGIN, 7  
        BOTTOMMARGIN, 88  
    END  
END  
#endif // APSTUDIO_INVOKED
```

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

```
////////////////////////////////////
```

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

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

tpcc_com.cpp

```
/*      FILE:      TPCC_COM.CPP  
*      Microsoft TPC-C Kit Ver.  
4.20.000  
*      Copyright Microsoft, 1999  
*      All Rights Reserved  
*      not yet audited  
*      PURPOSE:    Source file for TPC-C COM+ class  
implementation.  
*      Contact:    Charles Levine (clevine@microsoft.com)  
*      Change history:
```

```
*      4.20.000 - first version  
*/  
  
// needed for CoInitializeEx  
#define _WIN32_WINNT 0x0400  
  
#include <windows.h>  
  
// need to declare functions for export  
#define DllDecl __declspec( dllexport )  
  
#include "..\..\common\src\trans.h" //tpckit transaction  
header contains definitions of structures specific to TPC-C  
#include "..\..\common\src\error.h"  
#include "..\..\common\src\txn_base.h"  
#include "tpcc_com.h"  
  
#include "..\..\tpcc_com_ps\src\tpcc_com_ps_i.c"  
#include "..\..\tpcc_com_all\src\tpcc_com_all_i.c"  
  
// wrapper routine for class constructor  
__declspec(dllexport) CTPCC_COM* CTPCC_COM_new(BOOL  
bSinglePool)  
{  
    return new CTPCC_COM(bSinglePool);  
}  
  
CTPCC_COM::CTPCC_COM(BOOL bSinglePool)  
{  
    HRESULT hr = NULL;  
    long lRet = 0;  
    ULONG ulTmpSize = 0;  
  
    m_pTxn = NULL;  
    m_pNewOrder = NULL;  
    m_pPayment = NULL;  
    m_pStockLevel = NULL;  
    m_pOrderStatus = NULL;  
  
    m_bSinglePool = bSinglePool;  
  
    ulTmpSize = (ULONG) sizeof(COM_DATA);  
    VariantInit(&m_vTxn);  
    m_vTxn.vt = VT_SAFEARRAY;  
  
    m_vTxn.parray = SafeArrayCreateVector(VT_UI1, ulTmpSize,  
ulTmpSize);  
    if (!m_vTxn.parray)  
        throw new CCOMERR( E_FAIL );  
  
    memset((void*)m_vTxn.parray->pvData,0,ulTmpSize);  
    m_pTxn = (COM_DATA*)m_vTxn.parray->pvData;  
  
    hr = CoInitializeEx(NULL, COINIT_MULTITHREADED);  
    if (FAILED(hr))  
    {  
        throw new CCOMERR( hr );  
    }  
  
    // create components  
    if (m_bSinglePool)  
    {  
        hr = CoCreateInstance(CLSID_TPCC, NULL,  
CLSCTX_SERVER, IID_ITPCC, (void **)&m_pNewOrder);  
        if (FAILED(hr))  
            throw new CCOMERR(hr);  
  
        // all txns will use same component
```

```

        m_pPayment = m_pNewOrder;
        m_pStockLevel = m_pNewOrder;
        m_pOrderStatus = m_pNewOrder;
    }
    else
    {
        // use different components for each txn

        hr = CoCreateInstance(CLSID_NewOrder, NULL,
CLSCTX_SERVER, IID_ITPCC, (void **)&m_pNewOrder);
        if (FAILED(hr))
            throw new CCOMERR(hr);

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

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

        hr = CoCreateInstance(CLSID_OrderStatus, NULL,
CLSCTX_SERVER, IID_ITPCC, (void **)&m_pOrderStatus);
        if (FAILED(hr))
            throw new CCOMERR(hr);
    }

    // call setcomplete to release each component back into pool
    hr = m_pNewOrder->CallSetComplete();
    if (FAILED(hr))
        throw new CCOMERR(hr);

    if (!m_bSinglePool)
    {
        hr = m_pPayment->CallSetComplete();
        if (FAILED(hr))
            throw new CCOMERR(hr);

        hr = m_pStockLevel->CallSetComplete();
        if (FAILED(hr))
            throw new CCOMERR(hr);

        hr = m_pOrderStatus->CallSetComplete();
        if (FAILED(hr))
            throw new CCOMERR(hr);
    }
}

CTPCC_COM::~CTPCC_COM()
{
    if (m_pTxn)
        SafeArrayDestroy(m_vTxn.parray);

    ReleaseInterface(m_pNewOrder);
    if (!m_bSinglePool)
    {
        ReleaseInterface(m_pPayment);
        ReleaseInterface(m_pStockLevel);
        ReleaseInterface(m_pOrderStatus);
    }
    CoUninitialize();
}

void CTPCC_COM::NewOrder()
{
    VARIANT vTxn_out;

```

```

        HRESULT hr = m_pNewOrder->NewOrder(m_vTxn, &vTxn_out);
        if (FAILED(hr))
            throw new CCOMERR( hr );
        memcpy(m_pTxn, (void
*)vTxn_out.parray->pvData, vTxn_out.parray->rgsabound[0].cElements);
        SafeArrayDestroy(vTxn_out.parray);

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

void CTPCC_COM::Payment()
{
    VARIANT vTxn_out;

    HRESULT hr = m_pPayment->Payment(m_vTxn, &vTxn_out);
    if (FAILED(hr))
        throw new CCOMERR( hr );
    memcpy(m_pTxn, (void
*)vTxn_out.parray->pvData, vTxn_out.parray->rgsabound[0].cElements);
    SafeArrayDestroy(vTxn_out.parray);

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

void CTPCC_COM::StockLevel()
{
    VARIANT vTxn_out;

    HRESULT hr = m_pStockLevel->StockLevel(m_vTxn,
&vTxn_out);
    if (FAILED(hr))
        throw new CCOMERR( hr );
    memcpy(m_pTxn, (void
*)vTxn_out.parray->pvData, vTxn_out.parray->rgsabound[0].cElements);
    SafeArrayDestroy(vTxn_out.parray);

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

void CTPCC_COM::OrderStatus()
{
    VARIANT vTxn_out;

    HRESULT hr = m_pOrderStatus->OrderStatus(m_vTxn,
&vTxn_out);
    if (FAILED(hr))
        throw new CCOMERR( hr );
    memcpy(m_pTxn, (void
*)vTxn_out.parray->pvData, vTxn_out.parray->rgsabound[0].cElements);
    SafeArrayDestroy(vTxn_out.parray);

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

tpcc_com.h

/*      FILE:      TPCC_COM.H

```

```

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

#pragma once

#include <stdio.h>
#include "..\..\tpcc_com_ps\src\tpcc_com_ps.h"

// need to declare functions for import, unless define has already been created
// by the DLL's .cpp module for export.
#ifndef DllDecl
#define DllDecl __declspec( dllimport )
#endif

class CCOMERR : public CBaseErr
{
private:
    char m_szErrorText[64];

public:
    // use this interface for genuine COM errors
    CCOMERR( HRESULT hr )
    {
        m_hr = hr;
        m_iErrorType = 0;
        m_iError = 0;
    }

    // use this interface to impersonate a non-COM error type
    CCOMERR( int iErrorType, int iError )
    {
        m_iErrorType = iErrorType;
        m_iError = iError;
        m_hr = S_OK;
    }

    int m_hr;
    int m_iErrorType;
    int m_iError;

    // A CCOMERR class can impersonate another class,
    // which happens if the error
    // was not actually a COM Services error, but was simply
    // transmitted back via COM.
    int ErrorType()
    {
        {
            if (m_iErrorType == 0)
                return ERR_TYPE_COM;
            else
                return m_iErrorType;
        }
    }

    int ErrorNum() {return m_hr;}

    char *ErrorText()
    {
        if (m_hr == S_OK)

```

```

        sprintf( m_szErrorText, "Error:
Class %d, error # %d", m_iErrorType, m_iError );
        else
            sprintf( m_szErrorText, "Error:
COM HRESULT %x", m_hr );
        return m_szErrorText;
    }
};

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

    // COM Interface pointers
    ITPCC* m_pNewOrder;
    ITPCC* m_pPayment;
    ITPCC* m_pStockLevel;
    ITPCC* m_pOrderStatus;

    struct COM_DATA
    {
        int ErrorType;
        int error;
        union
        {
            NEW_ORDER_DATA
            PAYMENT_DATA
            DELIVERY_DATA
            STOCK_LEVEL_DATA
            ORDER_STATUS_DATA

        } u;
    } *m_pTxn;

public:
    CTPCC_COM(BOOL bSinglePool);
    ~CTPCC_COM(void);

    inline PNEW_ORDER_DATA
    BuffAddr_NewOrder() { return &m_pTxn->u.NewOrder;
    };

    inline PPAYMENT_DATA
    BuffAddr_Payment() { return &m_pTxn->u.Payment; };

    inline PDELIVERY_DATA
    BuffAddr_Delivery() { return &m_pTxn->u.Delivery; };

    inline PSTOCK_LEVEL_DATA BuffAddr_StockLevel()
    { return &m_pTxn->u.StockLevel; };

    inline PORDER_STATUS_DATA
    BuffAddr_OrderStatus() { return &m_pTxn->u.OrderStatus; };

    void NewOrder()
    void Payment()
    void StockLevel()
    void OrderStatus()
    void Delivery() { throw new
    CCOMERR(E_NOTIMPL); } // not supported
};

inline void ReleaseInterface(IUnknown *pUnk)
{
    if (pUnk)

```



```

    {
        pUnk->Release();
        pUnk = NULL;
    }
}

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

typedef CTPCC_COM* (TYPE_CTPCC_COM)(BOOL);

```

Tpcc_com_all.cpp

```

/*      FILE:          TPCC_COM_ALL.CPP
 *
 *      Microsoft TPC-C Kit Ver.
 *
 *      4.20.000
 *
 *      Copyright Microsoft, 1999
 *
 *      All Rights Reserved
 *
 *
 *      Version 4.10.000 audited by
 *      Richard Gimarc, Performance Metrics, 3/17/99
 *
 *      PURPOSE:        Implementation for TPC-C Tuxedo class.
 *      Contact:  Charles Levine (clevine@microsoft.com)
 *
 *      Change history:
 *      4.20.000 - updated rev number to match kit
 */

#define STRICT
#define _WIN32_WINNT 0x0400
#define _ATL_APARTMENT_THREADED

#include <stdio.h>
#include <atlbase.h>
//You may derive a class from CComModule and use it if you want to override
//something, but do not change the name of _Module
extern CComModule _Module;

#include <atlcom.h>
#include <initguid.h>
#include <transact.h>
#include <atlimpl.cpp>
#include <comsvcs.h>

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

#include "tpcc_com_ps.h"
#include "..\..\common\src\trans.h"
//tpckit transaction header contains definitions of structures specific to TPC-C
#include "..\..\common\src\txn_base.h"
#include "..\..\common\src\error.h"
#include "..\..\common\src\ReadRegistry.h"
#include "..\db_dblib_dll\src\tpcc_dblib.h"           // DBLIB
implementation of TPC-C txns
#include "..\db_odbc_dll\src\tpcc_odbc.h"           // ODBC
implementation of TPC-C txns

#include "resource.h"
#include "tpcc_com_all.h"
#include "tpcc_com_all_i.c"
#include "Methods.h"
#include "..\..\tpcc_com_ps\src\tpcc_com_ps_i.c"
#include "..\..\common\src\ReadRegistry.cpp"

```

```

CComModule _Module;

BEGIN_OBJECT_MAP(ObjectMap)
    OBJECT_ENTRY(CLSID_TPCC, CTPCC)
    OBJECT_ENTRY(CLSID_NewOrder, CNewOrder)
    OBJECT_ENTRY(CLSID_OrderStatus, COrderStatus)
    OBJECT_ENTRY(CLSID_Payment, CPayment)
    OBJECT_ENTRY(CLSID_StockLevel, CStockLevel)
END_OBJECT_MAP()

// configuration settings from registry
TPCCREGISTRYDATA      Reg;
char
szMyComputerName[MAX_COMPUTERNAME_LENGTH+1];

static HINSTANCE hLibInstanceDb = NULL;

TYPE_CTPCC_DBLIB      *pCTPCC_DBLIB_new;
TYPE_CTPCC_ODBC       *pCTPCC_ODBC_new;

////////////////////////////////////
// DLL Entry Point

extern "C"
BOOL WINAPI DllMain(HINSTANCE hInstance, DWORD dwReason,
LPVOID /*lpReserved*/)
{
    char szDllName[128];

    try
    {
        if (dwReason == DLL_PROCESS_ATTACH)
        {
            _Module.Init(ObjectMap, hInstance);
            DisableThreadLibraryCalls(hInstance);

            DWORD dwSize =
MAX_COMPUTERNAME_LENGTH+1;
            GetComputerName(szMyComputerName,
&dwSize);

            szMyComputerName[dwSize] = 0;

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

            if (Reg.eDB_Protocol == DBLIB)
            {
                strcpy( szDllName, Reg.szPath );
                strcat( szDllName,
"tpcc_dblib.dll");

                hLibInstanceDb = LoadLibrary(
szDllName );

                if (hLibInstanceDb == NULL)
                    throw new
CCOMPONENT_ERR( ERR_LOADDLL_FAILED, szDllName,
GetLastError() );

                // get function pointer to wrapper
                for class constructor
                    pCTPCC_DBLIB_new =
(TYPE_CTPCC_DBLIB*)
GetProcAddress(hLibInstanceDb,"CTPCC_DBLIB_new");
            }
        }
    }
}

```

```

        if (pCTPCC_DBLIB_new ==
NULL)
        throw new
CCOMPONENT_ERR( ERR_GETPROCADDR_FAILED, szDllName,
GetLastError() );
    }
    else if (Reg.eDB_Protocol == ODBC)
    {
        strcpy( szDllName, Reg.szPath );
        strcat( szDllName,

"tpcc_odbc.dll");

        hLibInstanceDb = LoadLibrary(
szDllName );

        if (hLibInstanceDb == NULL)
            throw new
CCOMPONENT_ERR( ERR_LOADDLL_FAILED, szDllName,
GetLastError() );

        // get function pointer to wrapper
        for class constructor
        pCTPCC_ODBC_new =
(TYPE_CTPCC_ODBC*)
GetProcAddress(hLibInstanceDb,"CTPCC_ODBC_new");
        if (pCTPCC_ODBC_new ==
NULL)
            throw new
CCOMPONENT_ERR( ERR_GETPROCADDR_FAILED, szDllName,
GetLastError() );
    }
    else
        throw new CCOMPONENT_ERR(
ERR_UNKNOWN_DB_PROTOCOL );
    }
    else if (dwReason == DLL_PROCESS_DETACH)
        _Module.Term();

    }
    catch (CBaseErr *e)
    {
        WriteMessageToEventLog(e->ErrorText());
        delete e;
        return FALSE;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("Unhandled exception
in object DllMain"));
        return FALSE;
    }

    return TRUE;        // OK
}

////////////////////////////////////
// Used to determine whether the DLL can be unloaded by OLE

STDAPI DllCanUnloadNow(void)
{
    return (_Module.GetLockCount()==0) ? S_OK : S_FALSE;
}

////////////////////////////////////
// Returns a class factory to create an object of the requested type

STDAPI DllGetClassObject(REFCLSID rclsid, REFIID riid, LPVOID* ppv)
{
    return _Module.GetClassObject(rclsid, riid, ppv);
}

////////////////////////////////////
// DllRegisterServer - Adds entries to the system registry

STDAPI DllRegisterServer(void)
{
    // registers object, typelib and all interfaces in typelib
    return _Module.RegisterServer(TRUE);
}

////////////////////////////////////
// DllUnregisterServer - Removes entries from the system registry

STDAPI DllUnregisterServer(void)
{
    _Module.UnregisterServer();
    return S_OK;
}

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

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

    _strprintf(szMsg, TEXT("Error in COM+ TPC-C Component: "));
    lpszStrings[0] = szMsg;
    lpszStrings[1] = lpszMsg;

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

        (VOID) DeregisterEventSource(hEventSource);
    }
}

inline void ReleaseInterface(IUnknown *pUnk)
{
    if (pUnk)
    {
        pUnk->Release();
        pUnk = NULL;
    }
}

/* FUNCTION: CCOMPONENT_ERR::ErrorText
*
*/

char* CCOMPONENT_ERR::ErrorText(void)
{
    static SERRORMSG errorMsgs[] =
    {

```

<pre> { ERR_MISSING_REGISTRY_ENTRIES, "Required entries missing from registry." }, { ERR_LOADDLL_FAILED, "Load of DLL failed. DLL=" }, { ERR_GETPROCADDR_FAILED, "Could not map proc in DLL. GetProcAddr error. DLL=" }, { ERR_UNKNOWN_DB_PROTOCOL, "Unknown database protocol specified in registry." }, { 0, "" } }; char szTmp[256]; int i = 0; while (TRUE) { if (errorMsgs[i].szMsg[0] == 0) { strcpy(szTmp, "Unknown error number."); break; } if (m_Error == errorMsgs[i].iError) { strcpy(szTmp, errorMsgs[i].szMsg); break; } i++; } if (m_szTextDetail) strcat(szTmp, m_szTextDetail); if (m_SystemErr) wsprintf(szTmp+strlen(szTmp), " Error=%d", m_SystemErr); m_szErrorText = new char[strlen(szTmp)+1]; strcpy(m_szErrorText, szTmp); return m_szErrorText; } CTPCC_Common::CTPCC_Common() { m_pTxn = NULL; m_bCanBePooled = TRUE; } CTPCC_Common::~CTPCC_Common() { if (m_pTxn) delete m_pTxn; } HRESULT CTPCC_Common::CallSetComplete() { IObjectContext* pObjectContext = NULL; // get our object context HRESULT hr = CoGetObjectContext(IID_IObjectContext, (void **) &pObjectContext); pObjectContext->SetComplete(); ReleaseInterface(pObjectContext); return hr; } // </pre>	<pre> // called by the ctor activator // STMETHODIMP CTPCC_Common::Construct(IDispatch * pUnk) { // Code to access construction string, if needed later... // if (!pUnk) // return E_UNEXPECTED; // IObjectConstructString * pString = NULL; // HRESULT hr = pUnk->QueryInterface(IID_IObjectConstructString, (void **) &pString); // pString->Release(); try { if (Reg.eDB_Protocol == ODBC) m_pTxn = pCTPCC_ODBC_new(Reg.szDbServer, Reg.szDbUser, Reg.szDbPassword, szMyComputerName, Reg.szDbName); else if (Reg.eDB_Protocol == DBLIB) m_pTxn = pCTPCC_DBLIB_new(Reg.szDbServer, Reg.szDbUser, Reg.szDbPassword, szMyComputerName, Reg.szDbName); } catch (CBaseErr *e) { WriteMessageToEventLog(e->ErrorText()); delete e; return E_FAIL; } catch (...) { WriteMessageToEventLog(TEXT("Unhandled exception in object ::Construct")); return E_FAIL; } return S_OK; } HRESULT CTPCC_Common::NewOrder(VARIANT txn_in, VARIANT* txn_out) { PNEW_ORDER_DATA pNewOrder; COM_DATA *pData; try { pData = (COM_DATA*)txn_in.parray->pvData; pNewOrder = m_pTxn->BuffAddr_NewOrder(); memcpy(pNewOrder, &pData->u.NewOrder, sizeof(NEW_ORDER_DATA)); 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; </pre>
--	---

<pre> 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 (...) { </pre>	<pre> 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 (...) { </pre>
---	---

```

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

HRESULT CTPCC_Common::OrderStatus(VARIANT txn_in, VARIANT*
txn_out)
{
    PORDER_STATUS_DATA    pOrderStatus;
    COM_DATA                *pData;
    try
    {
        pData = (COM_DATA*)txn_in.parray->pvData;
        pOrderStatus = m_pTxn->BuffAddr_OrderStatus();

        memcpy(pOrderStatus, &pData->u.OrderStatus,
sizeof(ORDER_STATUS_DATA));

        m_pTxn->OrderStatus();

        VariantInit(txn_out);
        txn_out->vt = VT_SAFEARRAY;
        txn_out->parray = SafeArrayCreateVector( VT_UI1,

txn_in.parray->rgsabound->cElements,

txn_in.parray->rgsabound->cElements);
        pData = (COM_DATA*)txn_out->parray->pvData;

        memcpy( &pData->u.OrderStatus, pOrderStatus,
sizeof(ORDER_STATUS_DATA));

        pData->retval = ERR_SUCCESS;
        pData->error = 0;
        return S_OK;
    }
    catch (CBaseErr *e)
    {
        // check for lost database connection; if yes, component is
toast
        if ( ((e->ErrorType() == ERR_TYPE_DBLIB) &&
(e->ErrorNum() == 10005)) ||
((e->ErrorType() == ERR_TYPE_ODBC)
&& (e->ErrorNum() == 10054)) )
            m_bCanBePooled = FALSE;

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

```

Tpcc_com_all.def

; tpcc_com_all.def : Declares the module parameters.

```

LIBRARY    "tpcc_com_all.dll"

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

```

Tpcc_com_all.dsp

```

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

```

```

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

```

```

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

```

```

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

```

```

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

```

```

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

```

```

# ADD RSC /I 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbccp32.lib /nologo /subsystem:windows /dll /machine:I386
# ADD LINK32 ..\db_dblib_dll\bin\tpcc_dblib.lib
..\db_odbc_dll\bin\tpcc_odbc.lib kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbccp32.lib /nologo /subsystem:windows /dll /machine:I386

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "Debug"
# PROP BASE Intermediate_Dir "Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MTd /W3 /Gm /GX /ZI /Od /D "WIN32" /D
_DEBUG" /D "_WINDOWS" /YX /FD /c
# ADD CPP /nologo /MTd /W3 /Gm /GX /ZI /Od /D "WIN32" /D "_DEBUG"
/D "_WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D " _DEBUG" /mktyplib203 /o "NUL" /win32
# ADD MTL /nologo /D " _DEBUG" /mktyplib203 /o "NUL" /win32
# ADD BASE RSC /I 0x409 /d " _DEBUG"
# ADD RSC /I 0x409 /d " _DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbccp32.lib /nologo /subsystem:windows /dll /debug /machine:I386
/pdbtype:sept
# ADD LINK32 ..\db_dblib_dll\bin\tpcc_dblib.lib
..\db_odbc_dll\bin\tpcc_odbc.lib kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbccp32.lib /nologo /subsystem:windows /dll /debug /machine:I386
/pdbtype:sept

!ENDIF

# Begin Target

# Name "tpcc_com_all - Win32 Release"
# Name "tpcc_com_all - Win32 Debug"
# Begin Group "Source"

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

SOURCE=.\src\tpcc_com_all.cpp
# SUBTRACT CPP /YX
# End Source File
# Begin Source File

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

```

```

SOURCE=.\src\tpcc_com_all.idl

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

# PROP Ignore_Default_Tool 1
# Begin Custom Build - Performing MIDL step
InputPath=.\src\tpcc_com_all.idl

BuildCmds= \
        midl /Oicf /h "tpcc_com_all.h" /iid "tpcc_com_all_i.c"
"\src\tpcc_com_all.idl" /out ".\src"

"\src\tpcc_com_all.tlb" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)

"\src\tpcc_com_all.h" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)

"\src\tpcc_com_all_i.c" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)
# End Custom Build

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

# PROP Ignore_Default_Tool 1
# Begin Custom Build - Performing MIDL step
InputPath=.\src\tpcc_com_all.idl

BuildCmds= \
        midl /Oicf /h "tpcc_com_all.h" /iid "tpcc_com_all_i.c"
"\src\tpcc_com_all.idl" /out ".\src"

"\src\tpcc_com_all.tlb" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)

"\src\tpcc_com_all.h" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)

"\src\tpcc_com_all_i.c" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)
# End Custom Build

!ENDIF

# End Source File
# End Group
# Begin Group "Header"

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

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

SOURCE=.\src\resource.h
# End Source File
# End Group
# Begin Source File

SOURCE=.\src\tpcc_com_all.rc
# End Source File
# End Target
# End Project

```

Tpcc_com_all.h

```

#pragma warning( disable: 4049 ) /* more than 64k source lines */

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

/* File created by MIDL compiler version 5.03.0280 */
/* at Thu Dec 13 23:13:14 2001 */
/*
/* Compiler settings for \src\tpcc_com_all.idl:
Oicf (OptLev=i2), W1, Zp8, env=Win32 (32b run), ms_ext, c_ext
error checks: allocation ref bounds_check enum stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany), __declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@@MIDL_FILE_HEADING( )

/* verify that the <rpcndr.h> version is high enough to compile this file*/
#ifndef __REQUIRED_RPCNDR_H_VERSION__
#define __REQUIRED_RPCNDR_H_VERSION__ 440
#endif

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

#ifndef __tpcc_com_all_h__
#define __tpcc_com_all_h__

/* Forward Declarations */

#ifndef __TPCC_FWD_DEFINED__
#define __TPCC_FWD_DEFINED__

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

#endif /* __TPCC_FWD_DEFINED__ */

#ifndef __NewOrder_FWD_DEFINED__
#define __NewOrder_FWD_DEFINED__

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

#endif /* __NewOrder_FWD_DEFINED__ */

#ifndef __OrderStatus_FWD_DEFINED__
#define __OrderStatus_FWD_DEFINED__

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

#endif /* __OrderStatus_FWD_DEFINED__ */

#endif /* __tpcc_com_all_h__ */

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

#endif /* __Payment_FWD_DEFINED__ */

#ifndef __StockLevel_FWD_DEFINED__
#define __StockLevel_FWD_DEFINED__

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

#endif /* __StockLevel_FWD_DEFINED__ */

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

#ifdef __cplusplus
extern "C" {
#endif

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

/* interface __MIDL_itf_tpcc_com_all_0000 */
/* [local] */

extern RPC_IF_HANDLE __MIDL_itf_tpcc_com_all_0000_v0_0_c_ifspec;
extern RPC_IF_HANDLE __MIDL_itf_tpcc_com_all_0000_v0_0_s_ifspec;

#ifndef __TPCCLib_LIBRARY_DEFINED__
#define __TPCCLib_LIBRARY_DEFINED__

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

EXTERN_C const IID LIBID_TPCCLib;

EXTERN_C const CLSID CLSID_TPCC;

#ifdef __cplusplus
class DECLSPEC_UUID("122A3128-2520-11D3-BA71-00C04FBFE08B")
TPCC;
#endif

EXTERN_C const CLSID CLSID_NewOrder;

#ifdef __cplusplus
class DECLSPEC_UUID("975BAABF-84A7-11D2-BA47-00C04FBFE08B")
NewOrder;
#endif

```

```

EXTERN_C const CLSID CLSID_OrderStatus;

#ifdef __cplusplus

class DECLSPEC_UUID("266836AD-A50D-11D2-BA4E-00C04FBFE08B")
OrderStatus;
#endif

EXTERN_C const CLSID CLSID_Payment;

#ifdef __cplusplus

class DECLSPEC_UUID("CD02F7EF-A4FA-11D2-BA4E-00C04FBFE08B")
Payment;
#endif

EXTERN_C const CLSID CLSID_StockLevel;

#ifdef __cplusplus

class DECLSPEC_UUID("2668369E-A50D-11D2-BA4E-00C04FBFE08B")
StockLevel;
#endif
#endif /* __TPCCLib_LIBRARY_DEFINED */

/* Additional Prototypes for ALL interfaces */

/* end of Additional Prototypes */

#ifdef __cplusplus
}
#endif

#endif

```

Tpcc_com_all.idl

```

/*      FILE:          TPCC.IDL
 *
 *      Microsoft TPC-C Kit Ver.
 *      4.20.000
 *      Copyright Microsoft, 1999
 *
 *      All Rights Reserved
 *
 *      not yet audited
 *
 *      PURPOSE:        IDL source for TPCC.dll. This file is
processed by the MIDL tool to
 *                      produce the type library
(TPCC.tlb) and marshalling code.
 *
 *      Change history:
 *      4.20.000 - first version
 */

```

```

interface TPCC;
interface NewOrder;
interface OrderStatus;
interface Payment;
interface StockLevel;

```

```

import "oaidl.idl";
import "ocidl.idl";
import "..\tpcc_com_ps\src\tpcc_com_ps.idl";

```

```
[
```

```

    uuid(122A3117-2520-11D3-BA71-00C04FBFE08B),
    version(1.0),
    helpstring("TPC-C 1.0 Type Library")
]
library TPCCLib
{
    importlib("stdole32.tlb");
    importlib("stdole2.tlb");

    [
        uuid(122A3128-2520-11D3-BA71-00C04FBFE08B),
        helpstring("All Txns Class")
    ]
    coclass TPCC
    {
        [default] interface ITPCC;
    };

    [
        uuid(975BAABF-84A7-11D2-BA47-00C04FBFE08B),
        helpstring("NewOrder Class")
    ]
    coclass NewOrder
    {
        [default] interface ITPCC;
    };

    [
        uuid(266836AD-A50D-11D2-BA4E-00C04FBFE08B),
        helpstring("OrderStatus Class")
    ]
    coclass OrderStatus
    {
        [default] interface ITPCC;
    };

    [
        uuid(CD02F7EF-A4FA-11D2-BA4E-00C04FBFE08B),
        helpstring("Payment Class")
    ]
    coclass Payment
    {
        [default] interface ITPCC;
    };

    [
        uuid(2668369E-A50D-11D2-BA4E-00C04FBFE08B),
        helpstring("StockLevel Class")
    ]
    coclass StockLevel
    {
        [default] interface ITPCC;
    };
};

```

Tpcc_com_all.rc

```

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

#define APSTUDIO_READONLY_SYMBOLS

```



```

////////////////////////////////////
//
// Generated from the TEXTINCLUDE 2 resource.
//
#include "winres.h"

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

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

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

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

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

2 TEXTINCLUDE DISCARDABLE
BEGIN
    "#include \"\"winres.h\"\"\\r\\n"
    "\\0"
END

3 TEXTINCLUDE DISCARDABLE
BEGIN
    "1 TYPELIB \"tpcc_com_all.tlb\"\\r\\n"
    "\\0"
END

#endif // APSTUDIO_INVOKED

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

VS_VERSION_INFO VERSIONINFO
FILEVERSION 1,0,0,1
PRODUCTVERSION 1,0,0,1
FILEFLAGSMASK 0x3fL
#ifdef _DEBUG
FILEFLAGS 0x1L
#else
FILEFLAGS 0x0L
#endif
FILEOS 0x4L
FILETYPE 0x2L
FILESUBTYPE 0x0L
BEGIN
    BLOCK "StringFileInfo"
    BEGIN
        BLOCK "040904B0"
        BEGIN
            VALUE "CompanyName", ""0"

```

```

            VALUE "FileDescription", "tpcc_com_all Module\0"
            VALUE "FileVersion", "1, 0, 0, 1\0"
            VALUE "InternalName", "TPCCNEWORDER\0"
            VALUE "LegalCopyright", "Copyright 1997\0"
            VALUE "OriginalFilename", "tpcc_com_all.DLL\0"
            VALUE "ProductName", "tpcc_com_all Module\0"
            VALUE "ProductVersion", "1, 0, 0, 1\0"
            VALUE "OLESelfRegister", ""0"
        END
    END
    BLOCK "VarFileInfo"
    BEGIN
        VALUE "Translation", 0x409, 1200
    END
END

#endif // !_MAC

////////////////////////////////////
//
// REGISTRY
//

IDR_TPCC            REGISTRY DISCARDABLE "tpcc_com_all.rgs"
IDR_NEWORDER        REGISTRY DISCARDABLE "tpcc_com_no.rgs"
IDR_ORDERSTATUS     REGISTRY DISCARDABLE
"tpcc_com_os.rgs"
IDR_PAYMENT         REGISTRY DISCARDABLE "tpcc_com_pay.rgs"
IDR_STOCKLEVEL      REGISTRY DISCARDABLE "tpcc_com_sl.rgs"

////////////////////////////////////
//
// String Table
//

STRINGTABLE DISCARDABLE
BEGIN
    IDS_PROJNAME      "tpcc_com_all"
END

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

#ifdef APSTUDIO_INVOKED
////////////////////////////////////
//
// Generated from the TEXTINCLUDE 3 resource.
//
1 TYPELIB "tpcc_com_all.tlb"

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

```

Tpcc_com_all.rgs

```

HKCR
{
    TPCC.AllTxns.1 = s 'All Txns Class'
    {
        CLSID = s
        '{122A3128-2520-11D3-BA71-00C04FBFE08B}'
    }
    TPCC.AllTxns = s 'TPCC Class'
    {
        CurVer = s 'TPCC.AllTxns.1'
    }
    NoRemove CLSID

```

```

    {
        ForceRemove
    {122A3128-2520-11D3-BA71-00C04FBFE08B} = s 'TPCC Class'
    {
        ProgID = s 'TPCC.AllTxns.1'
        VersionIndependentProgID = s
'TPCC.AllTxns'
        InprocServer32 = s '%MODULE%'
        {
            val ThreadingModel = s 'Both'
        }
    }
}
}

```

Tpcc_com_all_i.c

```

#pragma warning( disable: 4049 ) /* more than 64k source lines */

/* this ALWAYS GENERATED file contains the IIDs and CLSIDs */

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

/* File created by MIDL compiler version 5.03.0280 */
/* at Thu Dec 13 23:13:14 2001
*/
/* Compiler settings for \src\tpcc_com_all.idl:
    Oicf (OptLev=i2), W1, Zp8, env=Win32 (32b run), ms_ext, c_ext
    error checks: allocation ref bounds_check enum stub_data
    VC __declspec() decoration level:
        __declspec(uuid()), __declspec(selectany), __declspec(novtable)
    DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@@MIDL_FILE_HEADING( )

#if !defined(_M_IA64) && !defined(_M_AXP64)

#ifdef __cplusplus
extern "C" {
#endif

#include <rpc.h>
#include <rpcndr.h>

#ifdef _MIDL_USE_GUIDDEF_

#ifndef INITGUID
#define INITGUID
#include <guiddef.h>
#undef INITGUID
#else
#include <guiddef.h>
#endif

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
    DEFINE_GUID(name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8)

#else // !_MIDL_USE_GUIDDEF_

#ifndef __IID_DEFINED__
#define __IID_DEFINED__

typedef struct _IID
{
    unsigned long x;
    unsigned short s1;

```

```

    unsigned short s2;
    unsigned char c[8];
} IID;

#endif // __IID_DEFINED__

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

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
    const type name = {l,w1,w2,{b1,b2,b3,b4,b5,b6,b7,b8}}

#endif // !_MIDL_USE_GUIDDEF_

MIDL_DEFINE_GUID(IID,
LIBID_TPCCLib,0x122A3117,0x2520,0x11D3,0xBA,0x71,0x00,0xC0,0x4F,0
xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_TPCC,0x122A3128,0x2520,0x11D3,0xBA,0x71,0x00,0xC0,0x4F,0xB
F,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_NewOrder,0x975BAABF,0x84A7,0x11D2,0xBA,0x47,0x00,0xC0,0x4
F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_OrderStatus,0x266836AD,0xA50D,0x11D2,0xBA,0x4E,0x00,0xC0,0x
4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_Payment,0xCD02F7EF,0xA4FA,0x11D2,0xBA,0x4E,0x00,0xC0,0x4F
,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_StockLevel,0x2668369E,0xA50D,0x11D2,0xBA,0x4E,0x00,0xC0,0x4
F,0xBF,0xE0,0x8B);

#undef MIDL_DEFINE_GUID

#ifdef __cplusplus
}
#endif

#endif /* !defined(_M_IA64) && !defined(_M_AXP64) */

#pragma warning( disable: 4049 ) /* more than 64k source lines */

/* this ALWAYS GENERATED file contains the IIDs and CLSIDs */

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

/* File created by MIDL compiler version 5.03.0280 */
/* at Thu Dec 13 23:13:14 2001
*/
/* Compiler settings for \src\tpcc_com_all.idl:
    Oicf (OptLev=i2), W1, Zp8, env=Win64 (32b run,appending), ms_ext, c_ext,
    robust
    error checks: allocation ref bounds_check enum stub_data
    VC __declspec() decoration level:

```

```

        __declspec(uuid()), __declspec(selectany), __declspec(novtable)
        DECLSPEC_UUID(), MIDL_INTERFACE()
    */
    //@@MIDL_FILE_HEADING( )

    #if defined(_M_IA64) || defined(_M_AXP64)

    #ifdef __cplusplus
    extern "C" {
    #endif

    #include <rpc.h>
    #include <rpcndr.h>

    #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
    #ifndef APSTUDIO_READONLY_SYMBOLS
    #define _APS_NEXT_RESOURCE_VALUE    202
    #define _APS_NEXT_COMMAND_VALUE    32768
    #define _APS_NEXT_CONTROL_VALUE    201
    #define _APS_NEXT_SYMED_VALUE      106
    #endif
    #endif

```

Tpcc_com_no.rgs

```

HKCR
{
    TPCC.NewOrder.1 = s 'NewOrder Class'
    {
        CLSID = s
        '{975BAABF-84A7-11D2-BA47-00C04FBFE08B}'
    }
    TPCC.NewOrder = s 'NewOrder Class'
    {
        CurVer = s 'TPCC.NewOrder.1'
    }
    NoRemove CLSID
    {
        ForceRemove
        {975BAABF-84A7-11D2-BA47-00C04FBFE08B} = s 'NewOrder Class'
        {
            ProgID = s 'TPCC.NewOrder.1'

```

```

        VersionIndependentProgID = s
    'TPCC.NewOrder'
        InprocServer32 = s '%MODULE%'
        {
            val ThreadingModel = s 'Both'
        }
    }
}

```

Tpcc_com_os.rgs

```

HKCR
{
    TPCC.OrderStatus.1 = s 'OrderStatus Class'
    {
        CLSID = s
        '{266836AD-A50D-11D2-BA4E-00C04FBFE08B}'
    }
    TPCC.OrderStatus = s 'OrderStatus Class'
    {
        CurVer = s 'TPCC.OrderStatus.1'
    }
    NoRemove CLSID
    {
        ForceRemove
        {266836AD-A50D-11D2-BA4E-00C04FBFE08B} = s 'OrderStatus Class'
        {
            ProgID = s 'TPCC.OrderStatus.1'
            VersionIndependentProgID = s
        }
    }
    'TPCC.OrderStatus'
        InprocServer32 = s '%MODULE%'
        {
            val ThreadingModel = s 'Both'
        }
    }
}

```

Tpcc_com_pay.rgs

```

HKCR
{
    TPCC.Payment.1 = s 'Payment Class'
    {
        CLSID = s
        '{CD02F7EF-A4FA-11D2-BA4E-00C04FBFE08B}'
    }
    TPCC.Payment = s 'Payment Class'
    {
        CurVer = s 'TPCC.Payment.1'
    }
    NoRemove CLSID
    {
        ForceRemove
        {CD02F7EF-A4FA-11D2-BA4E-00C04FBFE08B} = s 'Payment Class'
        {
            ProgID = s 'TPCC.Payment.1'
            VersionIndependentProgID = s
        }
    }
    'TPCC.Payment'
        InprocServer32 = s '%MODULE%'
        {
            val ThreadingModel = s 'Both'
        }
    }
}

```

```

}

```

Tpcc_com_ps.def

```

LIBRARY    "tpcc_com_ps"

DESCRIPTION 'Proxy/Stub DLL'

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

```

Tpcc_com_ps.dsp

```

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

# TARGETTYPE "Win32 (x86) Application" 0x0101

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

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

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "Release"
# PROP BASE Intermediate_Dir "Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""

```

```

# ADD BASE CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D
" _WINDOWS" /YX /FD /c
# ADD CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D
_WIN32_WINNT=0x0400 /D "REGISTER_PROXY_DLL" /FD /c
# SUBTRACT CPP /YX
# ADD BASE MTL /nologo /D "NDEBUG" /mktyplib203 /o "NUL" /win32
# ADD MTL /nologo /D "NDEBUG" /mktyplib203 /o "NUL" /win32
# ADD BASE RSC /I 0x409 /d "NDEBUG"
# ADD RSC /I 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbc32.lib /nologo /subsystem:windows /machine:I386
# ADD LINK32 kernel32.lib rpcndr.lib rpcns4.lib rpcrt4.lib oleaut32.lib
uuid.lib /nologo /entry:"DllMain" /subsystem:windows /dll /pdb:none
/machine:I386 /def:"\src\tpcc_com_ps.def"
# Begin Custom Build - Copying tpcc_com_ps.h
InputPath=\bin\tpcc_com_ps.dll
SOURCE="$(InputPath)"

".. \tpcc_com_all\src\tpcc_com_ps.h" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
copy \src\tpcc_com_ps.h ..\tpcc_com_all\src\

# End Custom Build

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "Debug"
# PROP BASE Intermediate_Dir "Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32" /D " _DEBUG"
/D " _WINDOWS" /YX /FD /c
# ADD CPP /nologo /ZI /Od /D "WIN32" /D " _DEBUG" /D
_WIN32_WINNT=0x0400 /D "REGISTER_PROXY_DLL" /FD /c
# ADD BASE MTL /nologo /D " _DEBUG" /mktyplib203 /o "NUL" /win32
# ADD MTL /nologo /D " _DEBUG" /mktyplib203 /o "NUL" /win32
# ADD BASE RSC /I 0x409 /d " _DEBUG"
# ADD RSC /I 0x409 /d " _DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbc32.lib /nologo /subsystem:windows /debug /machine:I386 /pdbtype:sept
# ADD LINK32 kernel32.lib rpcndr.lib rpcns4.lib rpcrt4.lib oleaut32.lib
uuid.lib /nologo /entry:"DllMain" /dll /debug /machine:IX86
/def:"\src\tpcc_com_ps.def" /pdbtype:sept
# SUBTRACT LINK32 /pdb:none
# Begin Custom Build - Copying tpcc_com_ps.h
InputPath=\bin\tpcc_com_ps.dll
SOURCE="$(InputPath)"

".. \tpcc_com_all\src\tpcc_com_ps.h" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
copy \src\tpcc_com_ps.h ..\tpcc_com_all\src\

# End Custom Build
!ENDIF

# Begin Target

# Name "tpcc_com_ps - Win32 Release"
# Name "tpcc_com_ps - Win32 Debug"
# Begin Group "Source"

# PROP Default_Filter ""
# Begin Source File

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

SOURCE=\src\tpcc_com_ps.def
# PROP Exclude_From_Build 1
# End Source File
# Begin Source File

SOURCE=\src\tpcc_com_ps.idl

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

# PROP Ignore_Default_Tool 1
# Begin Custom Build
InputPath=\src\tpcc_com_ps.idl

BuildCmds= \
midl /Oicf /h "tpcc_com_ps.h" /iid "tpcc_com_ps_i.c"
"\src\tpcc_com_ps.idl" /out ".\src"

"\src\tpcc_com_ps.h" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)

"\src\tpcc_com_ps_i.c" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)

"\src\dlldata.c" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)

"\src\tpcc_com_ps.p.c" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)
# End Custom Build

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

# PROP Ignore_Default_Tool 1
# Begin Custom Build
InputPath=\src\tpcc_com_ps.idl

BuildCmds= \
midl /Oicf /h "tpcc_com_ps.h" /iid "tpcc_com_ps_i.c"
"\src\tpcc_com_ps.idl" /out ".\src"

"\src\tpcc_com_ps.h" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)

"\src\tpcc_com_ps_i.c" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)

"\src\dlldata.c" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)

"\src\tpcc_com_ps.p.c" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)
# End Custom Build

```

```
!ENDIF
```

```
# End Source File
# Begin Source File
```

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

```
SOURCE=.\src\tpcc_com_ps_p.c
# End Source File
# End Group
# End Target
# End Project
```

Tpcc_com_ps.h

```
#pragma warning( disable: 4049 ) /* more than 64k source lines */
```

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

```
/* File created by MIDL compiler version 5.03.0280 */
/* at Thu Dec 13 23:13:08 2001
*/
/* Compiler settings for .\src\tpcc_com_ps.idl:
Oicf (OptLev=i2), W1, Zp8, env=Win32 (32b run), ms_ext, c_ext
error checks: allocation ref bounds_check enum stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany), __declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
```

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

```
/* verify that the <rpcndr.h> version is high enough to compile this file*/
#ifndef __REQUIRED_RPCNDR_H_VERSION__
#define __REQUIRED_RPCNDR_H_VERSION__ 440
#endif
```

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

```
#ifndef __RPCNDR_H_VERSION__
#error this stub requires an updated version of <rpcndr.h>
#endif // __RPCNDR_H_VERSION__
```

```
#ifndef COM_NO_WINDOWS_H
#include "windows.h"
#include "ole2.h"
#endif /*COM_NO_WINDOWS_H*/
```

```
#ifndef __tpcc_com_ps_h__
#define __tpcc_com_ps_h__
```

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

```
#ifndef __ITPCC_FWD_DEFINED__
#define __ITPCC_FWD_DEFINED__
typedef interface ITPCC ITPCC;
#endif /* __ITPCC_FWD_DEFINED__ */
```

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

```
#ifndef __cplusplus
extern "C"{
#endif
```

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

```
/* interface __MIDL_itf_tpcc_com_ps_0000 */
/* [local] */
```

```
extern RPC_IF_HANDLE __MIDL_itf_tpcc_com_ps_0000_v0_0_c_ifspec;
extern RPC_IF_HANDLE __MIDL_itf_tpcc_com_ps_0000_v0_0_s_ifspec;
```

```
#ifndef __ITPCC_INTERFACE_DEFINED__
#define __ITPCC_INTERFACE_DEFINED__
```

```
/* interface ITPCC */
/* [unique][helpstring][uuid][oleautomation][object] */
```

```
EXTERN_C const IID IID_ITPCC;
```

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

```
MIDL_INTERFACE("FEEE6AA2-84B1-11d2-BA47-00C04FBFE08B")
```

```
ITPCC : public IUnknown
```

```
{
public:
```

```
virtual HRESULT __stdcall NewOrder(
/* [in] */ VARIANT txn_in,
/* [out] */ VARIANT __RPC_FAR *txn_out) = 0;
```

```
virtual HRESULT __stdcall Payment(
/* [in] */ VARIANT txn_in,
/* [out] */ VARIANT __RPC_FAR *txn_out) = 0;
```

```
virtual HRESULT __stdcall Delivery(
/* [in] */ VARIANT txn_in,
/* [out] */ VARIANT __RPC_FAR *txn_out) = 0;
```

```
virtual HRESULT __stdcall StockLevel(
/* [in] */ VARIANT txn_in,
/* [out] */ VARIANT __RPC_FAR *txn_out) = 0;
```

```
virtual HRESULT __stdcall OrderStatus(
/* [in] */ VARIANT txn_in,
/* [out] */ VARIANT __RPC_FAR *txn_out) = 0;
```

```
virtual HRESULT __stdcall CallSetComplete( void) = 0;
```

```
};
```

```
#else /* C style interface */
```

```
typedef struct ITPCCVtbl
{
BEGIN_INTERFACE
```

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

```
ULONG ( STDMETHODCALLTYPE __RPC_FAR *AddRef )(
ITPCC __RPC_FAR * This);
```

```

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

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

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

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

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

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

HRESULT ( __stdcall __RPC_FAR *CallSetComplete )(
    ITPCC __RPC_FAR * This);

END_INTERFACE
} ITPCCVtbl;

interface ITPCC
{
    CONST_VTBL struct ITPCCVtbl __RPC_FAR *lpVtbl;
};

#ifdef COBJMACROS

#define ITPCC_QueryInterface(This,riid,ppvObject) \
    (This)->lpVtbl->QueryInterface(This,riid,ppvObject)

#define ITPCC_AddRef(This) \
    (This)->lpVtbl->AddRef(This)

#define ITPCC_Release(This) \
    (This)->lpVtbl->Release(This)

#define ITPCC_NewOrder(This,txn_in,txn_out) \
    (This)->lpVtbl->NewOrder(This,txn_in,txn_out)

#define ITPCC_Payment(This,txn_in,txn_out) \
    (This)->lpVtbl->Payment(This,txn_in,txn_out)

#define ITPCC_Delivery(This,txn_in,txn_out) \
    (This)->lpVtbl->Delivery(This,txn_in,txn_out)

#define ITPCC_StockLevel(This,txn_in,txn_out) \
    (This)->lpVtbl->StockLevel(This,txn_in,txn_out)

#define ITPCC_OrderStatus(This,txn_in,txn_out) \
    (This)->lpVtbl->OrderStatus(This,txn_in,txn_out)

#define ITPCC_CallSetComplete(This) \

```

```

(This)->lpVtbl->CallSetComplete(This)

#endif /* COBJMACROS */

#endif /* C style interface */

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

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

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

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

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

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

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

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

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

void __RPC_STUB ITPCC_OrderStatus_Stub(
    IRpcStubBuffer *This,
    IRpcChannelBuffer *_pRpcChannelBuffer,

```

```

PRPC_MESSAGE _pRpcMessage,
DWORD *_pdwStubPhase);

HRESULT __stdcall ITPCC_CallSetComplete_Proxy(
    ITPCC __RPC_FAR * This);

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

#endif /* __ITPCC_INTERFACE_DEFINED__ */

/* Additional Prototypes for ALL interfaces */

unsigned long __RPC_USER VARIANT_UserSize( unsigned long
__RPC_FAR *, unsigned long , VARIANT __RPC_FAR * );
unsigned char __RPC_FAR * __RPC_USER VARIANT_UserMarshal(
unsigned long __RPC_FAR *, unsigned char __RPC_FAR *, VARIANT
__RPC_FAR * );
unsigned char __RPC_FAR * __RPC_USER
VARIANT_UserUnmarshal(unsigned long __RPC_FAR *, unsigned char
__RPC_FAR *, VARIANT __RPC_FAR * );
void __RPC_USER VARIANT_UserFree( unsigned long
__RPC_FAR *, VARIANT __RPC_FAR * );

/* end of Additional Prototypes */

#ifdef __cplusplus
}
#endif

#endif

```

Tpcc_com_ps.idl

```

/*      FILE:          ITPCC.IDL
 *
 *      Microsoft TPC-C Kit Ver.
4.20.000
 *
 *      Copyright Microsoft, 1999
 *
 *      All Rights Reserved
 *
 *
 *      not yet audited
 *
 *
 *      PURPOSE:        Defines the interface used by TPCC. This
interface can be implemented by C++ components.
 *
 *      Change history:
 *      4.20.000 - first version
 */

// Forward declare all types defined
interface ITPCC;
import "oaidl.idl";
import "ocidl.idl";

[
    object,
    oleautomation,
    uuid(FEEE6AA2-84B1-11d2-BA47-00C04FBFE08B),
    helpstring("ITPCC Interface"),
    pointer_default(unique)
]

interface ITPCC : IUnknown

```

```

{

    HRESULT __stdcall NewOrder

    (
        [in]
        VARIANT txn_in,
        [out]
        VARIANT *txn_out
    );

    HRESULT __stdcall Payment

    (
        [in]
        VARIANT txn_in,
        [out]
        VARIANT *txn_out
    );

    HRESULT __stdcall Delivery

    (
        [in]
        VARIANT txn_in,
        [out]
        VARIANT *txn_out
    );

    HRESULT __stdcall StockLevel

    (
        [in]
        VARIANT txn_in,
        [out]
        VARIANT *txn_out
    );

    HRESULT __stdcall OrderStatus

    (
        [in]
        VARIANT txn_in,
        [out]
        VARIANT *txn_out
    );

    HRESULT __stdcall CallSetComplete

    (
        [in]
        VARIANT txn_in,
        [out]
        VARIANT *txn_out
    );

}; // interface ITPCC

```

Tpcc_com_ps.i.c

```

#pragma warning( disable: 4049 ) /* more than 64k source lines */

/* this ALWAYS GENERATED file contains the IIDs and CLSIDs */

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

/* File created by MIDL compiler version 5.03.0280 */
/* at Thu Dec 13 23:13:08 2001
 */
/* Compiler settings for .\src\tpcc_com_ps.idl:
    Oicf (OptLev=i2), W1, Zp8, env=Win32 (32b run), ms_ext, c_ext
    error checks: allocation ref bounds_check enum stub_data
    VC __declspec() decoration level:
        __declspec(uuid()), __declspec(selectany), __declspec(novtable)
    DECLSPEC_UUID(), MIDL_INTERFACE()
 */

```



```

//@@@MIDL_FILE_HEADING( )

#ifdef _M_IA64 && !defined(_M_AXP64)

#ifdef __cplusplus
extern "C"{
#endif

#include <rpc.h>
#include <rpcndr.h>

#ifdef _MIDL_USE_GUIDDEF_

#ifndef INITGUID
#define INITGUID
#include <guiddef.h>
#undef INITGUID
#else
#include <guiddef.h>
#endif

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
    DEFINE_GUID(name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8)

#else // !_MIDL_USE_GUIDDEF_

#ifndef __IID_DEFINED__
#define __IID_DEFINED__

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

#endif // __IID_DEFINED__

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

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
    const type name = {l,w1,w2,{b1,b2,b3,b4,b5,b6,b7,b8}}

#endif // !_MIDL_USE_GUIDDEF_

MIDL_DEFINE_GUID(IID,
IID_ITPCC,0xFEEE6AA2,0x84B1,0x11d2,0xBA,0x47,0x00,0xC0,0x4F,0xBF,
0xE0,0x8B);

#undef MIDL_DEFINE_GUID

#ifdef __cplusplus
}
#endif

#endif /* !defined(_M_IA64) && !defined(_M_AXP64) */

#pragma warning( disable: 4049 ) /* more than 64k source lines */

/* this ALWAYS GENERATED file contains the IIDs and CLSIDs */

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

/* File created by MIDL compiler version 5.03.0280 */
/* at Thu Dec 13 23:13:08 2001
*/
/* Compiler settings for .\src\tpcc_com_ps.idl:
    Oicf (OptLev=i2), W1, Zp8, env=Win64 (32b run,appending), ms_ext, c_ext,
    robust
    error checks: allocation ref bounds_check enum stub_data
    VC __declspec() decoration level:
        __declspec(uuid()), __declspec(selectany), __declspec(novtable)
        DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@@MIDL_FILE_HEADING( )

#ifdef _M_IA64 || defined(_M_AXP64)

#ifdef __cplusplus
extern "C"{
#endif

#include <rpc.h>
#include <rpcndr.h>

#ifdef _MIDL_USE_GUIDDEF_

#ifndef INITGUID
#define INITGUID
#include <guiddef.h>
#undef INITGUID
#else
#include <guiddef.h>
#endif

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
    DEFINE_GUID(name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8)

#else // !_MIDL_USE_GUIDDEF_

#ifndef __IID_DEFINED__
#define __IID_DEFINED__

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

#endif // __IID_DEFINED__

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

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
    const type name = {l,w1,w2,{b1,b2,b3,b4,b5,b6,b7,b8}}

#endif // !_MIDL_USE_GUIDDEF_

MIDL_DEFINE_GUID(IID,
IID_ITPCC,0xFEEE6AA2,0x84B1,0x11d2,0xBA,0x47,0x00,0xC0,0x4F,0xBF,
0xE0,0x8B);

#undef MIDL_DEFINE_GUID

```

```

#ifdef __cplusplus
}
#endif

#endif /* defined(_M_IA64) || defined(_M_AXP64) */

Tpcc_com_ps_p.c

#pragma warning( disable: 4049 ) /* more than 64k source lines */

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

/* File created by MIDL compiler version 5.03.0280 */
/* at Thu Dec 13 23:13:08 2001
*/
/* Compiler settings for .\src\tpcc_com_ps.idl:
Oicf (OptLev=i2), W1, Zp8, env=Win32 (32b run), ms_ext, c_ext
error checks: allocation ref bounds_check enum stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany), __declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@@MIDL_FILE_HEADING( )

#ifdef _M_IA64 && !defined(_M_AXP64)
#define USE_STUBLESS_PROXY

/* verify that the <rpcproxy.h> version is high enough to compile this file*/
#ifdef __REDQ_RPCPROXY_H_VERSION__
#define __REQUIRED_RPCPROXY_H_VERSION__ 440
#endif

#include "rpcproxy.h"
#ifdef __RPCPROXY_H_VERSION__
#error this stub requires an updated version of <rpcproxy.h>
#endif // __RPCPROXY_H_VERSION__

#include "tpcc_com_ps.h"

#define TYPE_FORMAT_STRING_SIZE 997
#define PROC_FORMAT_STRING_SIZE 193
#define TRANSMIT_AS_TABLE_SIZE 0
#define WIRE_MARSHAL_TABLE_SIZE 1

typedef struct _MIDL_TYPE_FORMAT_STRING
{
    short Pad;
    unsigned char Format[ TYPE_FORMAT_STRING_SIZE ];
} MIDL_TYPE_FORMAT_STRING;

typedef struct _MIDL_PROC_FORMAT_STRING
{
    short Pad;
    unsigned char Format[ PROC_FORMAT_STRING_SIZE ];
} MIDL_PROC_FORMAT_STRING;

extern const MIDL_TYPE_FORMAT_STRING __MIDL_TypeFormatString;
extern const MIDL_PROC_FORMAT_STRING __MIDL_ProcFormatString;

/* Standard interface: __MIDL_itf_tpcc_com_ps_0000, ver. 0.0,

```

```

GUID={0x00000000,0x0000,0x0000,{0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00}} */

/* Object interface: IUnknown, ver. 0.0,

GUID={0x00000000,0x0000,0x0000,{0xC0,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x46}} */

/* Object interface: ITPCC, ver. 0.0,

GUID={0xFEEE6AA2,0x84B1,0x11d2,{0xBA,0x47,0x00,0xC0,0x4F,0xBF,0xE0,0x8B}} */

extern const MIDL_STUB_DESC Object_StubDesc;

extern const MIDL_SERVER_INFO ITPCC_ServerInfo;

#pragma code_seg(".orpc")
static const unsigned short ITPCC_FormatStringOffsetTable[] =
{
    0,
    34,
    68,
    102,
    136,
    170
};

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

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

CINTERFACE_PROXY_VTABLE(9) _ITPCCProxyVtbl =
{
    &ITPCC_ProxyInfo,
    &IID_ITPCC,
    IUnknown_QueryInterface_Proxy,
    IUnknown_AddRef_Proxy,
    IUnknown_Release_Proxy ,
    (void *)-1 /* ITPCC::NewOrder */ ,
    (void *)-1 /* ITPCC::Payment */ ,
    (void *)-1 /* ITPCC::Delivery */ ,
    (void *)-1 /* ITPCC::StockLevel */ ,
    (void *)-1 /* ITPCC::OrderStatus */ ,
    (void *)-1 /* ITPCC::CallSetComplete */

```

```

};

const CInterfaceStubVtbl _ITPCCStubVtbl =
{
    &IID_ITPCC,
    &ITPCC_ServerInfo,
    9,
    0, /* pure interpreted */
    CStdStubBuffer_METHODS
};

extern const USER_MARSHAL_ROUTINE_QUADRUPLE
UserMarshalRoutines[ WIRE_MARSHAL_TABLE_SIZE ];

static const MIDL_STUB_DESC Object_StubDesc =
{
    0,
    NdrOleAllocate,
    NdrOleFree,
    0,
    0,
    0,
    0,
    0,
    0,
    __MIDL_TypeFormatString.Format,
    1, /* -error bounds_check flag */
    0x20000, /* Ndr library version */
    0,
    0x5030118, /* MIDL Version 5.3.280 */
    0,
    UserMarshalRoutines,
    0, /* notify & notify_flag routine table */
    0x1, /* MIDL flag */
    0, /* Reserved3 */
    0, /* Reserved4 */
    0 /* Reserved5 */
};

#pragma data_seg(".rdata")

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

#if !defined(__RPC_WIN32__)
#error Invalid build platform for this stub.
#endif

#if !(TARGET_IS_NT40_OR_LATER)
#error You need a Windows NT 4.0 or later to run this stub because it uses
these features:
#error -Oif or -Oicf, [wire_marshal] or [user_marshal] attribute.
#error However, your C/C++ compilation flags indicate you intend to run this
app on earlier systems.
#error This app will die there with the RPC_X_WRONG_STUB_VERSION
error.
#endif

```

```

static const MIDL_PROC_FORMAT_STRING __MIDL_ProcFormatString =
{
    0,
    {
        /* Procedure NewOrder */

        FC_AUTO_HANDLE /*
                                0x33,
                                /*
                                0x6c,
                                /* Old Flags: object,
                                Oi2 */
                                /* 2 */ NdrFcLong( 0x0 ), /* 0 */
                                /* 6 */ NdrFcShort( 0x3 ), /* 3 */
                                #ifndef _ALPHA_
                                #ifndef _PPC_
                                #if !defined(_MIPS_)
                                /* 8 */ NdrFcShort( 0x1c ), /* x86 Stack size/offset = 28 */
                                #else
                                NdrFcShort( 0x20 ), /* MIPS Stack
                                size/offset = 32 */
                                #endif
                                #else
                                NdrFcShort( 0x20 ), /* PPC Stack size/offset
                                = 32 */
                                #endif
                                #else
                                NdrFcShort( 0x28 ), /* Alpha Stack
                                size/offset = 40 */
                                #endif
                                /* 10 */ NdrFcShort( 0x0 ), /* 0 */
                                /* 12 */ NdrFcShort( 0x8 ), /* 8 */
                                /* 14 */ 0x7, /* Oi2 Flags: srv must size, clt must size, has
                                return, */
                                0x3, /* 3 */

                                /* Parameter txn_in */

                                /* 16 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */
                                #ifndef _ALPHA_
                                #ifndef _PPC_
                                #if !defined(_MIPS_)
                                /* 18 */ NdrFcShort( 0x4 ), /* x86 Stack size/offset = 4 */
                                #else
                                NdrFcShort( 0x8 ), /* MIPS Stack
                                size/offset = 8 */
                                #endif
                                #else
                                NdrFcShort( 0x8 ), /* PPC Stack size/offset
                                = 8 */
                                #endif
                                #else
                                NdrFcShort( 0x8 ), /* Alpha Stack
                                size/offset = 8 */
                                #endif
                                /* 20 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */

                                /* Parameter txn_out */

                                /* 22 */ NdrFcShort( 0x4113 ), /* Flags: must size, must free, out,
                                simple ref, srv alloc size=16 */
                                #ifndef _ALPHA_
                                #ifndef _PPC_
                                #if !defined(_MIPS_)
                                /* 24 */ NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */
                                #else
                                NdrFcShort( 0x18 ), /* MIPS Stack
                                size/offset = 24 */

```

<pre> #endif #else NdrFcShort(0x18), /* PPC Stack size/offset = 24 */ #endif #else NdrFcShort(0x18), /* Alpha Stack size/offset = 24 */ #endif /* 26 */ NdrFcShort(0x3da), /* Type Offset=986 */ /* Return value */ /* 28 */ NdrFcShort(0x70), /* Flags: out, return, base type, */ #ifndef _ALPHA_ #ifndef _PPC_ #ifndef _MIPS_ /* 30 */ NdrFcShort(0x18), /* x86 Stack size/offset = 24 */ #else NdrFcShort(0x1c), /* MIPS Stack size/offset = 28 */ #endif #else NdrFcShort(0x1c), /* PPC Stack size/offset = 28 */ #endif #else NdrFcShort(0x20), /* Alpha Stack size/offset = 32 */ #endif /* 32 */ 0x8, /* FC_LONG */ 0x0, /* 0 */ /* Procedure Payment */ /* 34 */ 0x33, /* FC_AUTO_HANDLE */ 0x6c, /* Old Flags: object, Oi2 */ /* 36 */ NdrFcLong(0x0), /* 0 */ /* 40 */ NdrFcShort(0x4), /* 4 */ #ifndef _ALPHA_ #ifndef _PPC_ #ifndef _MIPS_ /* 42 */ NdrFcShort(0x1c), /* x86 Stack size/offset = 28 */ #else NdrFcShort(0x20), /* MIPS Stack size/offset = 32 */ #endif #else NdrFcShort(0x20), /* PPC Stack size/offset = 32 */ #endif #else NdrFcShort(0x28), /* Alpha Stack size/offset = 40 */ #endif /* 44 */ NdrFcShort(0x0), /* 0 */ /* 46 */ NdrFcShort(0x8), /* 8 */ /* 48 */ 0x7, /* Oi2 Flags: srv must size, clt must size, has return, */ 0x3, /* 3 */ /* Parameter txn_in */ /* 50 */ NdrFcShort(0x8b), /* Flags: must size, must free, in, by val, */ #ifndef _ALPHA_ #ifndef _PPC_ #ifndef _MIPS_ </pre>	<pre> /* 52 */ NdrFcShort(0x4), /* x86 Stack size/offset = 4 */ #else NdrFcShort(0x8), /* MIPS Stack size/offset = 8 */ #endif #else NdrFcShort(0x8), /* PPC Stack size/offset = 8 */ #endif /* 54 */ NdrFcShort(0x3c8), /* Type Offset=968 */ /* Parameter txn_out */ /* 56 */ NdrFcShort(0x4113), /* Flags: must size, must free, out, simple ref, srv alloc size=16 */ #ifndef _ALPHA_ #ifndef _PPC_ #ifndef _MIPS_ /* 58 */ NdrFcShort(0x14), /* x86 Stack size/offset = 20 */ #else NdrFcShort(0x18), /* MIPS Stack size/offset = 24 */ #endif #else NdrFcShort(0x18), /* PPC Stack size/offset = 24 */ #endif /* 60 */ NdrFcShort(0x3da), /* Type Offset=986 */ /* Return value */ /* 62 */ NdrFcShort(0x70), /* Flags: out, return, base type, */ #ifndef _ALPHA_ #ifndef _PPC_ #ifndef _MIPS_ /* 64 */ NdrFcShort(0x18), /* x86 Stack size/offset = 24 */ #else NdrFcShort(0x1c), /* MIPS Stack size/offset = 28 */ #endif #else NdrFcShort(0x1c), /* PPC Stack size/offset = 28 */ #endif /* 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_ </pre>
---	---

```

#if !defined(_MIPS_)
/* 76 */ NdrFcShort( 0x1c ), /* x86 Stack size/offset = 28 */
#else
NdrFcShort( 0x20 ), /* MIPS Stack
size/offset = 32 */
#endif
#else
NdrFcShort( 0x20 ), /* PPC Stack size/offset
= 32 */
#endif
#else
NdrFcShort( 0x28 ), /* Alpha Stack
size/offset = 40 */
#endif
/* 78 */ NdrFcShort( 0x0 ), /* 0 */
/* 80 */ NdrFcShort( 0x8 ), /* 8 */
/* 82 */ 0x7, /* Oi2 Flags: srv must size, clt must size, has
return, */
0x3, /* 3 */

/* Parameter txn_in */

/* 84 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */
#ifndef _ALPHA_
#ifndef _PPC_
#if !defined(_MIPS_)
/* 86 */ NdrFcShort( 0x4 ), /* x86 Stack size/offset = 4 */
#else
NdrFcShort( 0x8 ), /* MIPS Stack
size/offset = 8 */
#endif
#else
NdrFcShort( 0x8 ), /* PPC Stack size/offset
= 8 */
#endif
#else
NdrFcShort( 0x8 ), /* Alpha Stack
size/offset = 8 */
#endif
/* 88 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */

/* Parameter txn_out */

/* 90 */ NdrFcShort( 0x4113 ), /* Flags: must size, must free, out,
simple ref, srv alloc size=16 */
#ifndef _ALPHA_
#ifndef _PPC_
#if !defined(_MIPS_)
/* 92 */ NdrFcShort( 0x14 ), /* x86 Stack size/offset = 20 */
#else
NdrFcShort( 0x18 ), /* MIPS Stack
size/offset = 24 */
#endif
#else
NdrFcShort( 0x18 ), /* PPC Stack size/offset
= 24 */
#endif
#else
NdrFcShort( 0x18 ), /* Alpha Stack
size/offset = 24 */
#endif
/* 94 */ NdrFcShort( 0x3da ), /* Type Offset=986 */

/* Return value */

/* 96 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifndef _ALPHA_
#ifndef _PPC_

```

```

#if !defined(_MIPS_)
/* 98 */ NdrFcShort( 0x18 ), /* x86 Stack size/offset = 24 */
#else
NdrFcShort( 0x1c ), /* MIPS Stack
size/offset = 28 */
#endif
#else
NdrFcShort( 0x1c ), /* PPC Stack size/offset
= 28 */
#endif
#else
NdrFcShort( 0x20 ), /* Alpha Stack
size/offset = 32 */
#endif
/* 100 */ 0x8, /* FC_LONG */
0x0, /* 0 */

/* Procedure StockLevel */

/* 102 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /* Old Flags: object,
Oi2 */
/* 104 */ NdrFcLong( 0x0 ), /* 0 */
/* 108 */ NdrFcShort( 0x6 ), /* 6 */
#ifndef _ALPHA_
#ifndef _PPC_
#if !defined(_MIPS_)
/* 110 */ NdrFcShort( 0x1c ), /* x86 Stack size/offset = 28 */
#else
NdrFcShort( 0x20 ), /* MIPS Stack
size/offset = 32 */
#endif
#else
NdrFcShort( 0x20 ), /* PPC Stack size/offset
= 32 */
#endif
#else
NdrFcShort( 0x28 ), /* Alpha Stack
size/offset = 40 */
#endif
/* 112 */ NdrFcShort( 0x0 ), /* 0 */
/* 114 */ NdrFcShort( 0x8 ), /* 8 */
/* 116 */ 0x7, /* Oi2 Flags: srv must size, clt must size, has
return, */
0x3, /* 3 */

/* Parameter txn_in */

/* 118 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */
#ifndef _ALPHA_
#ifndef _PPC_
#if !defined(_MIPS_)
/* 120 */ NdrFcShort( 0x4 ), /* x86 Stack size/offset = 4 */
#else
NdrFcShort( 0x8 ), /* MIPS Stack
size/offset = 8 */
#endif
#else
NdrFcShort( 0x8 ), /* PPC Stack size/offset
= 8 */
#endif
#else
NdrFcShort( 0x8 ), /* Alpha Stack
size/offset = 8 */
#endif
/* 122 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */

/* Parameter txn_out */

```

<pre> /* 124 */ NdrFcShort(0x4113), /* Flags: must size, must free, out, simple ref, srv alloc size=16 */ #ifdef _ALPHA_ #ifdef _PPC_ #if !defined(_MIPS_) /* 126 */ NdrFcShort(0x14), /* x86 Stack size/offset = 20 */ #else NdrFcShort(0x18), /* MIPS Stack size/offset = 24 */ #endif #else NdrFcShort(0x18), /* PPC Stack size/offset = 24 */ #endif #else NdrFcShort(0x18), /* Alpha Stack size/offset = 24 */ #endif /* 128 */ NdrFcShort(0x3da), /* Type Offset=986 */ /* Return value */ /* 130 */ NdrFcShort(0x70), /* Flags: out, return, base type, */ #ifdef _ALPHA_ #ifdef _PPC_ #if !defined(_MIPS_) /* 132 */ NdrFcShort(0x18), /* x86 Stack size/offset = 24 */ #else NdrFcShort(0x1c), /* MIPS Stack size/offset = 28 */ #endif #else NdrFcShort(0x1c), /* PPC Stack size/offset = 28 */ #endif #else NdrFcShort(0x20), /* Alpha Stack size/offset = 32 */ #endif /* 134 */ 0x8, /* FC_LONG */ 0x0, /* 0 */ /* Procedure OrderStatus */ /* 136 */ 0x33, /* FC_AUTO_HANDLE */ 0x6c, /* Old Flags: object, Oi2 */ /* 138 */ NdrFcLong(0x0), /* 0 */ /* 142 */ NdrFcShort(0x7), /* 7 */ #ifdef _ALPHA_ #ifdef _PPC_ #if !defined(_MIPS_) /* 144 */ NdrFcShort(0x1c), /* x86 Stack size/offset = 28 */ #else NdrFcShort(0x20), /* MIPS Stack size/offset = 32 */ #endif #else NdrFcShort(0x20), /* PPC Stack size/offset = 32 */ #endif #else NdrFcShort(0x28), /* Alpha Stack size/offset = 40 */ #endif /* 146 */ NdrFcShort(0x0), /* 0 */ /* 148 */ NdrFcShort(0x8), /* 8 */ </pre>	<pre> /* 150 */ 0x7, /* Oi2 Flags: srv must size, clt must size, has return, */ 0x3, /* 3 */ /* Parameter txn_in */ /* 152 */ NdrFcShort(0x8b), /* Flags: must size, must free, in, by val, */ #ifdef _ALPHA_ #ifdef _PPC_ #if !defined(_MIPS_) /* 154 */ NdrFcShort(0x4), /* x86 Stack size/offset = 4 */ #else NdrFcShort(0x8), /* MIPS Stack size/offset = 8 */ #endif #else NdrFcShort(0x8), /* PPC Stack size/offset = 8 */ #endif #else NdrFcShort(0x8), /* Alpha Stack size/offset = 8 */ #endif /* 156 */ NdrFcShort(0x3c8), /* Type Offset=968 */ /* Parameter txn_out */ /* 158 */ NdrFcShort(0x4113), /* Flags: must size, must free, out, simple ref, srv alloc size=16 */ #ifdef _ALPHA_ #ifdef _PPC_ #if !defined(_MIPS_) /* 160 */ NdrFcShort(0x14), /* x86 Stack size/offset = 20 */ #else NdrFcShort(0x18), /* MIPS Stack size/offset = 24 */ #endif #else NdrFcShort(0x18), /* PPC Stack size/offset = 24 */ #endif #else NdrFcShort(0x18), /* Alpha Stack size/offset = 24 */ #endif /* 162 */ NdrFcShort(0x3da), /* Type Offset=986 */ /* Return value */ /* 164 */ NdrFcShort(0x70), /* Flags: out, return, base type, */ #ifdef _ALPHA_ #ifdef _PPC_ #if !defined(_MIPS_) /* 166 */ NdrFcShort(0x18), /* x86 Stack size/offset = 24 */ #else NdrFcShort(0x1c), /* MIPS Stack size/offset = 28 */ #endif #else NdrFcShort(0x1c), /* PPC Stack size/offset = 28 */ #endif #else NdrFcShort(0x20), /* Alpha Stack size/offset = 32 */ #endif /* 168 */ 0x8, /* FC_LONG */ 0x0, /* 0 */ </pre>
---	--

```

/* Procedure CallSetComplete */

/* 170 */ 0x33, /* FC_AUTO_HANDLE */
           0x6c, /* Old Flags: object,
Oi2 */
/* 172 */ NdrFcLong( 0x0 ), /* 0 */
/* 176 */ NdrFcShort( 0x8 ), /* 8 */
#ifdef _ALPHA_
/* 178 */ NdrFcShort( 0x8 ), /* x86, MIPS, PPC Stack size/offset = 8 */
#else
           NdrFcShort( 0x10 ), /* Alpha Stack
size/offset = 16 */
#endif
/* 180 */ NdrFcShort( 0x0 ), /* 0 */
/* 182 */ NdrFcShort( 0x8 ), /* 8 */
/* 184 */ 0x4, /* Oi2 Flags: has return, */
           0x1, /* 1 */

/* Return value */

/* 186 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifdef _ALPHA_
/* 188 */ NdrFcShort( 0x4 ), /* x86, MIPS, PPC Stack size/offset = 4 */
#else
           NdrFcShort( 0x8 ), /* Alpha Stack
size/offset = 8 */
#endif
/* 190 */ 0x8, /* FC_LONG */
           0x0, /* 0 */

           0x0

};

static const MIDL_TYPE_FORMAT_STRING __MIDL_TypeFormatString =
{
    0,
    {
        NdrFcShort( 0x0 ), /* 0 */

        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 */

```

```

/* 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 */

```



```

/* 460 */ NdrFcShort( 0x4 ), /* 4 */
/* 462 */ 0x11, 0x0, /* FC_RP */
/* 464 */ NdrFcShort( 0xffffffffd4 ), /* 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( 0xffffffff50 ), /* 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( 0xffffffffe0 ), /* 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( 0xfffffffff40 ), /* 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( 0xfffffffffe0 ), /* Offset= -32 (504) */
/* 538 */
                                0x1b, /* FC_CARRAY */
                                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( 0xffffffffd4 ), /* 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_CARRAY */
                                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 */

```

/* 616 */ NdrFcShort(0x0), /* 0 */	0x4c, /*
/* 618 */ NdrFcShort(0xa), /* Offset= 10 (628) */	FC_EMBEDDED_COMPLEX */
/* 620 */ 0x8, /* FC_LONG */	/* 692 */ 0x0, /* 0 */
/* 622 */ 0x4c, /* FC_EMBEDDED_COMPLEX */	NdrFcShort(0xffffffffl), /* Offset=
0x0, /* 0 */	-15 (678) */
/* 624 */ NdrFcShort(0xffffffff8), /* Offset= -40 (584) */	0x5b, /* FC_END */
/* 626 */ 0x36, /* FC_POINTER */	0x1a, /*
0x5b, /* FC_END */	FC_BOGUS_STRUCT */
/* 628 */	0x3, /* 3 */
0x12, 0x0, /* FC_UP */	/* 698 */ NdrFcShort(0x18), /* 24 */
/* 630 */ NdrFcShort(0xffffffffe4), /* Offset= -28 (602) */	/* 700 */ NdrFcShort(0x0), /* 0 */
/* 632 */	/* 702 */ NdrFcShort(0xa), /* Offset= 10 (712) */
0x1b, /* FC_CARRY */	/* 704 */ 0x8, /* FC_LONG */
0x3, /* 3 */	0x36, /* FC_POINTER */
/* 634 */ NdrFcShort(0x4), /* 4 */	/* 706 */ 0x4c, /* FC_EMBEDDED_COMPLEX */
/* 636 */ 0x19, /* Corr desc: field pointer, FC_ULONG */	0x0, /* 0 */
0x0, /* */	/* 708 */ NdrFcShort(0xffffffffe8), /* Offset= -24 (684) */
/* 638 */ NdrFcShort(0x0), /* 0 */	/* 710 */ 0x5c, /* FC_PAD */
/* 640 */	0x5b, /* FC_END */
0x4b, /* FC_PP */	/* 712 */
0x5c, /* FC_PAD */	0x11, 0x0, /* FC_RP */
/* 642 */	/* 714 */ NdrFcShort(0xffffffff0c), /* Offset= -244 (470) */
0x48, /*	/* 716 */
FC_VARIABLE_REPEAT */	0x1b, /* FC_CARRY */
0x49, /*	0x0, /* 0 */
FC_FIXED_OFFSET */	/* 718 */ NdrFcShort(0x1), /* 1 */
/* 644 */ NdrFcShort(0x4), /* 4 */	/* 720 */ 0x19, /* Corr desc: field pointer, FC_ULONG */
/* 646 */ NdrFcShort(0x0), /* 0 */	0x0, /* */
/* 648 */ NdrFcShort(0x1), /* 1 */	/* 722 */ NdrFcShort(0x0), /* 0 */
/* 650 */ NdrFcShort(0x0), /* 0 */	/* 724 */ 0x1, /* FC_BYTE */
/* 652 */ NdrFcShort(0x0), /* 0 */	0x5b, /* FC_END */
/* 654 */ 0x12, 0x0, /* FC_UP */	/* 726 */
/* 656 */ NdrFcShort(0xffffffffd4), /* Offset= -44 (612) */	0x16, /* FC_PSTRUCT */
/* 658 */	0x3, /* 3 */
0x5b, /* FC_END */	/* 728 */ NdrFcShort(0x8), /* 8 */
/* 660 */ 0x5c, /* FC_PAD */	/* 730 */
0x5b, /* FC_END */	0x4b, /* FC_PP */
/* 662 */	0x5c, /* FC_PAD */
0x1a, /*	/* 732 */
FC_BOGUS_STRUCT */	0x46, /* FC_NO_REPEAT */
/* 664 */ NdrFcShort(0x8), /* 8 */	0x5c, /* FC_PAD */
/* 666 */ NdrFcShort(0x0), /* 0 */	/* 734 */ NdrFcShort(0x4), /* 4 */
/* 668 */ NdrFcShort(0x6), /* Offset= 6 (674) */	/* 736 */ NdrFcShort(0x4), /* 4 */
/* 670 */ 0x8, /* FC_LONG */	/* 738 */ 0x12, 0x0, /* FC_UP */
0x36, /* FC_POINTER */	/* 740 */ NdrFcShort(0xffffffffe8), /* Offset= -24 (716) */
/* 672 */ 0x5c, /* FC_PAD */	/* 742 */
0x5b, /* FC_END */	0x5b, /* FC_END */
/* 674 */	0x8, /* FC_LONG */
0x11, 0x0, /* FC_RP */	0x5b, /* FC_END */
/* 676 */ NdrFcShort(0xffffffffd4), /* Offset= -44 (632) */	/* 746 */
/* 678 */	0x1b, /* FC_CARRY */
0x1d, /* FC_SMFARRAY */	0x1, /* 1 */
0x0, /* 0 */	/* 748 */ NdrFcShort(0x2), /* 2 */
/* 680 */ NdrFcShort(0x8), /* 8 */	/* 750 */ 0x19, /* Corr desc: field pointer, FC_ULONG */
/* 682 */ 0x1, /* FC_BYTE */	0x0, /* */
0x5b, /* FC_END */	/* 752 */ NdrFcShort(0x0), /* 0 */
/* 684 */	/* 754 */ 0x6, /* FC_SHORT */
0x15, /* FC_STRUCT */	0x5b, /* FC_END */
0x3, /* 3 */	/* 756 */
/* 686 */ NdrFcShort(0x10), /* 16 */	0x16, /* FC_PSTRUCT */
/* 688 */ 0x8, /* FC_LONG */	0x3, /* 3 */
0x6, /* FC_SHORT */	/* 758 */ NdrFcShort(0x8), /* 8 */
/* 690 */ 0x6, /* FC_SHORT */	/* 760 */
	0x4b, /* FC_PP */
	0x5c, /* FC_PAD */

/* 762 */			0x46,	/* FC_NO_REPEAT */	/* 834 */	0x8,	/* FC_LONG */
			0x5c,	/* FC_PAD */		0x5b,	/* FC_END */
/* 764 */	NdrFcShort(0x4),	/* 4 */			/* 836 */		
/* 766 */	NdrFcShort(0x4),	/* 4 */				0x15,	/* FC_STRUCT */
/* 768 */	0x12, 0x0, /* FC_UP */					0x3,	/* 3 */
/* 770 */	NdrFcShort(0xffffffe8),	/* Offset= -24 (746) */			/* 838 */	NdrFcShort(0x8),	/* 8 */
/* 772 */			0x5b,	/* FC_END */	/* 840 */	0x8,	/* FC_LONG */
			0x8,	/* FC_LONG */	/* 842 */	0x5c,	/* FC_PAD */
/* 774 */	0x8,	/* FC_LONG */	0x5b,	/* FC_END */	/* 844 */		0x5b,
/* 776 */						0x1b,	/* FC_CARRAY */
			0x1b,	/* FC_CARRAY */	/* 846 */	NdrFcShort(0x8),	/* 8 */
			0x3,	/* 3 */	/* 848 */	0x7,	/* Corr desc: FC_USHORT */
/* 778 */	NdrFcShort(0x4),	/* 4 */				0x0,	/* 0 */
/* 780 */	0x19,	/* Corr desc: field pointer, FC_ULONG */			/* 850 */	NdrFcShort(0xffd8),	/* -40 */
		/* 0 */			/* 852 */	0x4c,	/* FC_EMBEDDED_COMPLEX */
/* 782 */	NdrFcShort(0x0),	/* 0 */				0x0,	/* 0 */
/* 784 */	0x8,	/* FC_LONG */			/* 854 */	NdrFcShort(0xfffffee),	/* Offset= -18 (836) */
			0x5b,	/* FC_END */	/* 856 */	0x5c,	/* FC_PAD */
/* 786 */						0x5b,	/* FC_END */
			0x16,	/* FC_PSTRUCT */	/* 858 */		0x1a,
/* 788 */	NdrFcShort(0x8),	/* 8 */	0x3,	/* 3 */			/*
/* 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 */
			0x5c,	/* FC_PAD */		0x6,	/* FC_SHORT */
/* 794 */	NdrFcShort(0x4),	/* 4 */			/* 868 */	0x38,	/* FC_ALIGNM4 */
/* 796 */	NdrFcShort(0x4),	/* 4 */				0x8,	/* FC_LONG */
/* 798 */	0x12, 0x0, /* FC_UP */				/* 870 */	0x8,	/* FC_LONG */
/* 800 */	NdrFcShort(0xffffffe8),	/* Offset= -24 (776) */				0x4c,	/*
/* 802 */			0x5b,	/* FC_END */			FC_EMBEDDED_COMPLEX */
			0x8,	/* FC_LONG */	/* 872 */	0x0,	/* 0 */
/* 804 */	0x8,	/* FC_LONG */	0x5b,	/* FC_END */			NdrFcShort(0xfffffd7),
/* 806 */							/* Offset=
			0x1b,	/* FC_CARRAY */			0x5b,
			0x7,	/* 7 */	/* 876 */		/* FC_END */
/* 808 */	NdrFcShort(0x8),	/* 8 */				0x12, 0x0, /* FC_UP */	/* FC_UP [simple_pointer] */
/* 810 */	0x19,	/* Corr desc: field pointer, FC_ULONG */			/* 878 */	NdrFcShort(0xfffffef6),	/* Offset= -266 (612) */
		/* 0 */			/* 880 */		/* FC_BYTE */
/* 812 */	NdrFcShort(0x0),	/* 0 */				0x5c,	/* FC_PAD */
/* 814 */	0xb,	/* FC_HYPER */			/* 884 */		/* FC_PAD */
			0x5b,	/* FC_END */		0x12, 0x8, /* FC_UP [simple_pointer] */	/* FC_UP [simple_pointer] */
/* 816 */					/* 886 */	0x6,	/* FC_SHORT */
			0x16,	/* FC_PSTRUCT */		0x5c,	/* FC_PAD */
			0x3,	/* 3 */	/* 888 */		/* FC_PAD */
/* 818 */	NdrFcShort(0x8),	/* 8 */			/* 890 */	0x8,	0x12, 0x8, /* FC_UP [simple_pointer] */
/* 820 */							/* FC_LONG */
			0x4b,	/* FC_PP */	/* 892 */		0x5c,
			0x5c,	/* FC_PAD */	/* 894 */	0xa,	/* FC_FLOAT */
/* 822 */					/* 896 */		0x5c,
			0x46,	/* FC_NO_REPEAT */			/* FC_PAD */
			0x5c,	/* FC_PAD */	/* 898 */	0xc,	0x12, 0x8, /* FC_UP [simple_pointer] */
/* 824 */	NdrFcShort(0x4),	/* 4 */					/* FC_DOUBLE */
/* 826 */	NdrFcShort(0x4),	/* 4 */			/* 900 */		0x5c,
/* 828 */	0x12, 0x0, /* FC_UP */						/* FC_PAD */
/* 830 */	NdrFcShort(0xffffffe8),	/* Offset= -24 (806) */					0x12, 0x0, /* FC_UP */
/* 832 */			0x5b,	/* FC_END */	/* 902 */	NdrFcShort(0xfffffd90),	/* Offset= -624 (278) */
					/* 904 */		/*

```

                                0x12, 0x10,          /* FC_UP
[pointer_deref] */
/* 906 */ NdrFcShort( 0xfffffd92 ),          /* Offset= -622 (284) */
/* 908 */
                                0x12, 0x10,          /* FC_UP
[pointer_deref] */
/* 910 */ NdrFcShort( 0xfffffda6 ),          /* Offset= -602 (308) */
/* 912 */
                                0x12, 0x10,          /* FC_UP
[pointer_deref] */
/* 914 */ NdrFcShort( 0xfffffdb4 ),          /* Offset= -588 (326) */
/* 916 */
                                0x12, 0x10,          /* FC_UP
[pointer_deref] */
/* 918 */ NdrFcShort( 0xfffffdc2 ),          /* Offset= -574 (344) */
/* 920 */
                                0x12, 0x10,          /* FC_UP
[pointer_deref] */
/* 922 */ NdrFcShort( 0x2 ),          /* Offset= 2 (924) */
/* 924 */
                                0x12, 0x0, /* FC_UP */
/* 926 */ NdrFcShort( 0x16 ),          /* Offset= 22 (948) */
/* 928 */
                                0x15,          /* FC_STRUCT */
                                0x7,          /* 7 */
/* 930 */ NdrFcShort( 0x10 ),          /* 16 */
/* 932 */ 0x6,          /* FC_SHORT */
                                0x1,          /* FC_BYTE */
/* 934 */ 0x1,          /* FC_BYTE */
                                0x38,          /* FC_ALIGNM4 */
/* 936 */ 0x8,          /* FC_LONG */
                                0x39,          /* FC_ALIGNM8 */
/* 938 */ 0xb,          /* FC_HYPER */
                                0x5b,          /* FC_END */
/* 940 */
                                0x12, 0x0, /* FC_UP */
/* 942 */ NdrFcShort( 0xfffffd2 ),          /* Offset= -14 (928) */
/* 944 */
                                0x12, 0x8, /* FC_UP [simple_pointer] */
/* 946 */ 0x2,          /* FC_CHAR */
                                0x5c,          /* FC_PAD */
/* 948 */
                                0x1a,          /*
FC_BOGUS_STRUCT */
                                0x7,          /* 7 */
/* 950 */ NdrFcShort( 0x20 ),          /* 32 */
/* 952 */ NdrFcShort( 0x0 ),          /* 0 */
/* 954 */ NdrFcShort( 0x0 ),          /* Offset= 0 (954) */
/* 956 */ 0x8,          /* FC_LONG */
                                0x8,          /* FC_LONG */
/* 958 */ 0x6,          /* FC_SHORT */
                                0x6,          /* FC_SHORT */
/* 960 */ 0x6,          /* FC_SHORT */
                                0x6,          /* FC_SHORT */
/* 962 */ 0x4c,          /* FC_EMBEDDED_COMPLEX */
                                0x0,          /* 0 */
/* 964 */ NdrFcShort( 0xfffffc42 ),          /* Offset= -958 (6) */
/* 966 */ 0x5c,          /* FC_PAD */
                                0x5b,          /* FC_END */
/* 968 */ 0xb4,          /* FC_USER_MARSHAL */
                                0x83,          /* 131 */
/* 970 */ NdrFcShort( 0x0 ),          /* 0 */
/* 972 */ NdrFcShort( 0x10 ),          /* 16 */
/* 974 */ NdrFcShort( 0x0 ),          /* 0 */
/* 976 */ NdrFcShort( 0xfffffc32 ),          /* Offset= -974 (2) */
/* 978 */
                                0x11, 0x4, /* FC_RP [allocated_on_stack] */
/* 980 */ NdrFcShort( 0x6 ),          /* Offset= 6 (986) */

/* 982 */
                                0x13, 0x0, /* FC_OP */
/* 984 */ NdrFcShort( 0xfffffddc ),          /* Offset= -36 (948) */
/* 986 */ 0xb4,          /* FC_USER_MARSHAL */
                                0x83,          /* 131 */
/* 988 */ NdrFcShort( 0x0 ),          /* 0 */
/* 990 */ NdrFcShort( 0x10 ),          /* 16 */
/* 992 */ NdrFcShort( 0x0 ),          /* 0 */
/* 994 */ NdrFcShort( 0xfffffff4 ),          /* Offset= -12 (982) */
                                0x0
                                }
                                };

const CInterfaceProxyVtbl * _tpcc_com_ps_ProxyVtblList[] =
{
    ( CInterfaceProxyVtbl *) &_ITPCCProxyVtbl,
    0
};

const CInterfaceStubVtbl * _tpcc_com_ps_StubVtblList[] =
{
    ( CInterfaceStubVtbl *) &_ITPCCStubVtbl,
    0
};

PCInterfaceName const _tpcc_com_ps_InterfaceNamesList[] =
{
    "ITPCC",
    0
};

#define _tpcc_com_ps_CHECK_IID(n) IID_GENERIC_CHECK_IID(
_tpcc_com_ps, pIID, n)

int __stdcall _tpcc_com_ps_IID_Lookup( const IID * pIID, int * pIndex )
{
    if(!_tpcc_com_ps_CHECK_IID(0))
    {
        *pIndex = 0;
        return 1;
    }

    return 0;
}

const ExtendedProxyFileInfo tpcc_com_ps_ProxyFileInfo =
{
    (PCInterfaceProxyVtblList *) &_tpcc_com_ps_ProxyVtblList,
    (PCInterfaceStubVtblList *) &_tpcc_com_ps_StubVtblList,
    (const PCInterfaceName *) &_tpcc_com_ps_InterfaceNamesList,
    0, // no delegation
    &_tpcc_com_ps_IID_Lookup,
    1,
    2,
    0, /* table of [async_uuid] interfaces */
    0, /* Filler1 */
    0, /* Filler2 */
    0 /* Filler3 */
};

#endif /* !defined(_M_IA64) && !defined(_M_AXP64) */

#pragma warning( disable: 4049 ) /* more than 64k source lines */

```

```

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

/* File created by MIDL compiler version 5.03.0280 */
/* at Thu Dec 13 23:13:08 2001
*/
/* Compiler settings for \src\tpcc_com_ps.idl:
Oicf (OptLev=i2), W1, Zp8, env=Win64 (32b run,appending), ms_ext, c_ext,
robust
error checks: allocation ref bounds_check enum stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany), __declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@MIDL_FILE_HEADING( )

#ifdef _M_IA64 || defined(_M_AXP64)
#define USE_STUBLESS_PROXY

/* verify that the <rpcproxy.h> version is high enough to compile this file*/
#ifndef __REDQ_RPCPROXY_H_VERSION__
#define __REQUIRED_RPCPROXY_H_VERSION__ 475
#endif

#include "rpcproxy.h"
#ifndef __RPCPROXY_H_VERSION__
#error this stub requires an updated version of <rpcproxy.h>
#endif // __RPCPROXY_H_VERSION__

#include "tpcc_com_ps.h"

#define TYPE_FORMAT_STRING_SIZE 979
#define PROC_FORMAT_STRING_SIZE 253
#define TRANSMIT_AS_TABLE_SIZE 0
#define WIRE_MARSHAL_TABLE_SIZE 1

typedef struct _MIDL_TYPE_FORMAT_STRING
{
    short Pad;
    unsigned char Format[ TYPE_FORMAT_STRING_SIZE ];
} MIDL_TYPE_FORMAT_STRING;

typedef struct _MIDL_PROC_FORMAT_STRING
{
    short Pad;
    unsigned char Format[ PROC_FORMAT_STRING_SIZE ];
} MIDL_PROC_FORMAT_STRING;

extern const MIDL_TYPE_FORMAT_STRING __MIDL_TypeFormatString;
extern const MIDL_PROC_FORMAT_STRING __MIDL_ProcFormatString;

/* Standard interface: __MIDL_itf_tpcc_com_ps_0000, ver. 0.0,

GUID={0x00000000,0x0000,0x0000,{0x00,0x00,0x00,0x00,0x00,0x00,0x00,0
x00}} */

/* Object interface: IUnknown, ver. 0.0,

GUID={0x00000000,0x0000,0x0000,{0xC0,0x00,0x00,0x00,0x00,0x00,0x00,
0x46}} */

```

```

/* Object interface: ITPCC, ver. 0.0,

GUID={0xFEEE6AA2,0x84B1,0x11d2,{0xBA,0x47,0x00,0xC0,0x4F,0xBF,0xE0,0x8B}} */

extern const MIDL_STUB_DESC Object_StubDesc;

extern const MIDL_SERVER_INFO ITPCC_ServerInfo;

#pragma code_seg("orpc")
static const unsigned short ITPCC_FormatStringOffsetTable[] =
{
    0,
    44,
    88,
    132,
    176,
    220
};

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

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

CINTERFACE_PROXY_VTABLE(9) _ITPCCProxyVtbl =
{
    &ITPCC_ProxyInfo,
    &IID_ITPCC,
    IUnknown_QueryInterface_Proxy,
    IUnknown_AddRef_Proxy,
    IUnknown_Release_Proxy ,
    (void *)-1 /* ITPCC::NewOrder */ ,
    (void *)-1 /* ITPCC::Payment */ ,
    (void *)-1 /* ITPCC::Delivery */ ,
    (void *)-1 /* ITPCC::StockLevel */ ,
    (void *)-1 /* ITPCC::OrderStatus */ ,
    (void *)-1 /* ITPCC::CallSetComplete */
};

const CInterfaceStubVtbl _ITPCCStubVtbl =
{
    &IID_ITPCC,
    &ITPCC_ServerInfo,
    9,
    0, /* pure interpreted */
    CStdStubBuffer_METHODS
};

```

```
extern const USER_MARSHAL_ROUTINE_QUADRUPLE
UserMarshalRoutines[ WIRE_MARSHAL_TABLE_SIZE ];
```

```
static const MIDL_STUB_DESC Object_StubDesc =
```

```
{
    0,
    NdrOleAllocate,
    NdrOleFree,
    0,
    0,
    0,
    0,
    0,
    0,
    0,
    __MIDL_TypeFormatString.Format,
    1, /* -error bounds_check flag */
    0x50002, /* Ndr library version */
    0,
    0x5030118, /* MIDL Version 5.3.280 */
    0,
    UserMarshalRoutines,
    0, /* notify & notify_flag routine table */
    0x1, /* MIDL flag */
    0, /* Reserved3 */
    0, /* Reserved4 */
    0 /* Reserved5 */
};
```

```
#pragma data_seg("rdata")
```

```
static const USER_MARSHAL_ROUTINE_QUADRUPLE
UserMarshalRoutines[ WIRE_MARSHAL_TABLE_SIZE ] =
```

```
{
    {
        VARIANT_UserSize
        ,VARIANT_UserMarshal
        ,VARIANT_UserUnmarshal
        ,VARIANT_UserFree
    }
};
```

```
#if !defined(__RPC_WIN64__)
#error Invalid build platform for this stub.
#endif
```

```
static const MIDL_PROC_FORMAT_STRING __MIDL_ProcFormatString =
```

```
{
    {
        /* Procedure NewOrder */
```

```
FC_AUTO_HANDLE */
0x33, /*
0x6c, /* Old Flags: object,
Oi2 */
/* 2 */ NdrFcLong( 0x0 ), /* 0 */
/* 6 */ NdrFcShort( 0x3 ), /* 3 */
#ifdef _ALPHA_
/* 8 */ NdrFcShort( 0x38 ), /* ia64 Stack size/offset = 56 */
#else
NdrFcShort( 0x30 ), /* xpp64 Stack
size/offset = 48 */
#endif
/* 10 */ NdrFcShort( 0x0 ), /* 0 */
```

```
/* 12 */ NdrFcShort( 0x8 ), /* 8 */
/* 14 */ 0x47, /* Oi2 Flags: srv must size, clt must size, has
return, has ext, */
0x3, /* 3 */
/* 16 */ 0xa, /* 10 */
0x7, /* Ext Flags: new corr
desc, clt corr check, srv corr check, */
/* 18 */ NdrFcShort( 0x20 ), /* 32 */
/* 20 */ NdrFcShort( 0x20 ), /* 32 */
/* 22 */ NdrFcShort( 0x0 ), /* 0 */
/* 24 */ NdrFcShort( 0x0 ), /* 0 */

/* Parameter txn_in */

/* 26 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */
#ifdef _ALPHA_
/* 28 */ NdrFcShort( 0x10 ), /* ia64 Stack size/offset = 16 */
#else
NdrFcShort( 0x8 ), /* xpp64 Stack
size/offset = 8 */
#endif
/* 30 */ NdrFcShort( 0x3b6 ), /* Type Offset=950 */

/* Parameter txn_out */

/* 32 */ NdrFcShort( 0x6113 ), /* Flags: must size, must free, out,
simple ref, srv alloc size=24 */
#ifdef _ALPHA_
/* 34 */ NdrFcShort( 0x28 ), /* ia64 Stack size/offset = 40 */
#else
NdrFcShort( 0x20 ), /* xpp64 Stack
size/offset = 32 */
#endif
/* 36 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */

/* Return value */

/* 38 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifdef _ALPHA_
/* 40 */ NdrFcShort( 0x30 ), /* ia64 Stack size/offset = 48 */
#else
NdrFcShort( 0x28 ), /* xpp64 Stack
size/offset = 40 */
#endif
/* 42 */ 0x8, /* FC_LONG */
0x0, /* 0 */

/* Procedure Payment */

/* 44 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /* Old Flags: object,
Oi2 */
/* 46 */ NdrFcLong( 0x0 ), /* 0 */
/* 50 */ NdrFcShort( 0x4 ), /* 4 */
#ifdef _ALPHA_
/* 52 */ NdrFcShort( 0x38 ), /* ia64 Stack size/offset = 56 */
#else
NdrFcShort( 0x30 ), /* xpp64 Stack
size/offset = 48 */
#endif
/* 54 */ NdrFcShort( 0x0 ), /* 0 */
/* 56 */ NdrFcShort( 0x8 ), /* 8 */
/* 58 */ 0x47, /* Oi2 Flags: srv must size, clt must size, has
return, has ext, */
0x3, /* 3 */
/* 60 */ 0xa, /* 10 */
0x7, /* Ext Flags: new corr
desc, clt corr check, srv corr check, */
```

```

/* 62 */ NdrFcShort( 0x20 ), /* 32 */
/* 64 */ NdrFcShort( 0x20 ), /* 32 */
/* 66 */ NdrFcShort( 0x0 ), /* 0 */
/* 68 */ NdrFcShort( 0x0 ), /* 0 */

/* Parameter txn_in */

/* 70 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */
#ifdef _ALPHA_
/* 72 */ NdrFcShort( 0x10 ), /* ia64 Stack size/offset = 16 */
#else
NdrFcShort( 0x8 ), /* axp64 Stack
size/offset = 8 */
#endif
/* 74 */ NdrFcShort( 0x3b6 ), /* Type Offset=950 */

/* Parameter txn_out */

/* 76 */ NdrFcShort( 0x6113 ), /* Flags: must size, must free, out,
simple ref, srv alloc size=24 */
#ifdef _ALPHA_
/* 78 */ NdrFcShort( 0x28 ), /* ia64 Stack size/offset = 40 */
#else
NdrFcShort( 0x20 ), /* axp64 Stack
size/offset = 32 */
#endif
/* 80 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */

/* Return value */

/* 82 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifdef _ALPHA_
/* 84 */ NdrFcShort( 0x30 ), /* ia64 Stack size/offset = 48 */
#else
NdrFcShort( 0x28 ), /* axp64 Stack
size/offset = 40 */
#endif
/* 86 */ 0x8, /* FC_LONG */
0x0, /* 0 */

/* Procedure Delivery */

/* 88 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /* Old Flags: object,
Oi2 */
/* 90 */ NdrFcLong( 0x0 ), /* 0 */
/* 94 */ NdrFcShort( 0x5 ), /* 5 */
#ifdef _ALPHA_
/* 96 */ NdrFcShort( 0x38 ), /* ia64 Stack size/offset = 56 */
#else
NdrFcShort( 0x30 ), /* axp64 Stack
size/offset = 48 */
#endif
/* 98 */ NdrFcShort( 0x0 ), /* 0 */
/* 100 */ NdrFcShort( 0x8 ), /* 8 */
/* 102 */ 0x47, /* Oi2 Flags: srv must size, clt must size, has
return, has ext, */
0x3, /* 3 */
/* 104 */ 0xa, /* 10 */
0x7, /* Ext Flags: new corr
desc, clt corr check, srv corr check, */
/* 106 */ NdrFcShort( 0x20 ), /* 32 */
/* 108 */ NdrFcShort( 0x20 ), /* 32 */
/* 110 */ NdrFcShort( 0x0 ), /* 0 */
/* 112 */ NdrFcShort( 0x0 ), /* 0 */

/* Parameter txn_in */

/* 114 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */
#ifdef _ALPHA_
/* 116 */ NdrFcShort( 0x10 ), /* ia64 Stack size/offset = 16 */
#else
NdrFcShort( 0x8 ), /* axp64 Stack
size/offset = 8 */
#endif
/* 118 */ NdrFcShort( 0x3b6 ), /* Type Offset=950 */

/* Parameter txn_out */

/* 120 */ NdrFcShort( 0x6113 ), /* Flags: must size, must free, out,
simple ref, srv alloc size=24 */
#ifdef _ALPHA_
/* 122 */ NdrFcShort( 0x28 ), /* ia64 Stack size/offset = 40 */
#else
NdrFcShort( 0x20 ), /* axp64 Stack
size/offset = 32 */
#endif
/* 124 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */

/* Return value */

/* 126 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifdef _ALPHA_
/* 128 */ NdrFcShort( 0x30 ), /* ia64 Stack size/offset = 48 */
#else
NdrFcShort( 0x28 ), /* axp64 Stack
size/offset = 40 */
#endif
/* 130 */ 0x8, /* FC_LONG */
0x0, /* 0 */

/* Procedure StockLevel */

/* 132 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /* Old Flags: object,
Oi2 */
/* 134 */ NdrFcLong( 0x0 ), /* 0 */
/* 138 */ NdrFcShort( 0x6 ), /* 6 */
#ifdef _ALPHA_
/* 140 */ NdrFcShort( 0x38 ), /* ia64 Stack size/offset = 56 */
#else
NdrFcShort( 0x30 ), /* axp64 Stack
size/offset = 48 */
#endif
/* 142 */ NdrFcShort( 0x0 ), /* 0 */
/* 144 */ NdrFcShort( 0x8 ), /* 8 */
/* 146 */ 0x47, /* Oi2 Flags: srv must size, clt must size, has
return, has ext, */
0x3, /* 3 */
/* 148 */ 0xa, /* 10 */
0x7, /* Ext Flags: new corr
desc, clt corr check, srv corr check, */
/* 150 */ NdrFcShort( 0x20 ), /* 32 */
/* 152 */ NdrFcShort( 0x20 ), /* 32 */
/* 154 */ NdrFcShort( 0x0 ), /* 0 */
/* 156 */ NdrFcShort( 0x0 ), /* 0 */

/* Parameter txn_in */

/* 158 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */
#ifdef _ALPHA_
/* 160 */ NdrFcShort( 0x10 ), /* ia64 Stack size/offset = 16 */
#else
NdrFcShort( 0x8 ), /* axp64 Stack
size/offset = 8 */
#endif

```

```

/* 162 */ NdrFcShort( 0x3b6 ), /* Type Offset=950 */

/* Parameter txn_out */

/* 164 */ NdrFcShort( 0x6113 ), /* Flags: must size, must free, out,
simple ref, srv alloc size=24 */
#ifdef _ALPHA_
/* 166 */ NdrFcShort( 0x28 ), /* ia64 Stack size/offset = 40 */
#else
NdrFcShort( 0x20 ), /* axp64 Stack
size/offset = 32 */
#endif
/* 168 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */

/* Return value */

/* 170 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifdef _ALPHA_
/* 172 */ NdrFcShort( 0x30 ), /* ia64 Stack size/offset = 48 */
#else
NdrFcShort( 0x28 ), /* axp64 Stack
size/offset = 40 */
#endif
/* 174 */ 0x8, /* FC_LONG */
0x0, /* 0 */

/* Procedure OrderStatus */

/* 176 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /* Old Flags: object,
Oi2 */
/* 178 */ NdrFcLong( 0x0 ), /* 0 */
/* 182 */ NdrFcShort( 0x7 ), /* 7 */
#ifdef _ALPHA_
/* 184 */ NdrFcShort( 0x38 ), /* ia64 Stack size/offset = 56 */
#else
NdrFcShort( 0x30 ), /* axp64 Stack
size/offset = 48 */
#endif
/* 186 */ NdrFcShort( 0x0 ), /* 0 */
/* 188 */ NdrFcShort( 0x8 ), /* 8 */
/* 190 */ 0x47, /* Oi2 Flags: srv must size, clt must size, has
return, has ext, */
0x3, /* 3 */
/* 192 */ 0xa, /* 10 */
0x7, /* Ext Flags: new corr
desc, clt corr check, srv corr check, */
/* 194 */ NdrFcShort( 0x20 ), /* 32 */
/* 196 */ NdrFcShort( 0x20 ), /* 32 */
/* 198 */ NdrFcShort( 0x0 ), /* 0 */
/* 200 */ NdrFcShort( 0x0 ), /* 0 */

/* Parameter txn_in */

/* 202 */ NdrFcShort( 0x8b ), /* Flags: must size, must free, in, by val, */
#ifdef _ALPHA_
/* 204 */ NdrFcShort( 0x10 ), /* ia64 Stack size/offset = 16 */
#else
NdrFcShort( 0x8 ), /* axp64 Stack
size/offset = 8 */
#endif
/* 206 */ NdrFcShort( 0x3b6 ), /* Type Offset=950 */

/* Parameter txn_out */

/* 208 */ NdrFcShort( 0x6113 ), /* Flags: must size, must free, out,
simple ref, srv alloc size=24 */
#ifdef _ALPHA_
/* 210 */ NdrFcShort( 0x28 ), /* ia64 Stack size/offset = 40 */
#else
NdrFcShort( 0x20 ), /* axp64 Stack
size/offset = 32 */
#endif
/* 212 */ NdrFcShort( 0x3c8 ), /* Type Offset=968 */

/* Return value */

/* 214 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifdef _ALPHA_
/* 216 */ NdrFcShort( 0x30 ), /* ia64 Stack size/offset = 48 */
#else
NdrFcShort( 0x28 ), /* axp64 Stack
size/offset = 40 */
#endif
/* 218 */ 0x8, /* FC_LONG */
0x0, /* 0 */

/* Procedure CallSetComplete */

/* 220 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /* Old Flags: object,
Oi2 */
/* 222 */ NdrFcLong( 0x0 ), /* 0 */
/* 226 */ NdrFcShort( 0x8 ), /* 8 */
/* 228 */ NdrFcShort( 0x10 ), /* ia64, axp64 Stack size/offset = 16 */
/* 230 */ NdrFcShort( 0x0 ), /* 0 */
/* 232 */ NdrFcShort( 0x8 ), /* 8 */
/* 234 */ 0x44, /* Oi2 Flags: has return, has ext, */
0x1, /* 1 */
/* 236 */ 0xa, /* 10 */
0x1, /* Ext Flags: new corr
desc, */
/* 238 */ NdrFcShort( 0x0 ), /* 0 */
/* 240 */ NdrFcShort( 0x0 ), /* 0 */
/* 242 */ NdrFcShort( 0x0 ), /* 0 */
/* 244 */ NdrFcShort( 0x0 ), /* 0 */

/* Return value */

/* 246 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
/* 248 */ NdrFcShort( 0x8 ), /* ia64, axp64 Stack size/offset = 8 */
/* 250 */ 0x8, /* FC_LONG */
0x0, /* 0 */
0x0

}
};

static const MIDL_TYPE_FORMAT_STRING __MIDL_TypeFormatString =
{
0,
{
NdrFcShort( 0x0 ), /* 0 */
/* 2 */
0x12, 0x0, /* FC_UP */
/* 4 */ NdrFcShort( 0x39e ), /* Offset= 926 (930) */
/* 6 */
0x2b, /*
FC_NON_ENCAPSULATED_UNION */
0x9, /* FC_ULONG */
/* 8 */ 0x7, /* Corr desc: FC_USHORT */
0x0, /* */
/* 10 */ NdrFcShort( 0xffff8 ), /* -8 */
/* 12 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 14 */ NdrFcShort( 0x2 ), /* Offset= 2 (16) */
/* 16 */ NdrFcShort( 0x10 ), /* 16 */
}
}

```



```

/* 18 */ NdrFcShort( 0x2b ), /* 43 */
/* 20 */ NdrFcLong( 0x3 ), /* 3 */
/* 24 */ NdrFcShort( 0x8008 ), /* Simple arm type: FC_LONG */
/* 26 */ NdrFcLong( 0x11 ), /* 17 */
/* 30 */ NdrFcShort( 0x8001 ), /* Simple arm type: FC_BYTE */
/* 32 */ NdrFcLong( 0x2 ), /* 2 */
/* 36 */ NdrFcShort( 0x8006 ), /* Simple arm type: FC_SHORT */
/* 38 */ NdrFcLong( 0x4 ), /* 4 */
/* 42 */ NdrFcShort( 0x800a ), /* Simple arm type: FC_FLOAT */
/* 44 */ NdrFcLong( 0x5 ), /* 5 */
/* 48 */ NdrFcShort( 0x800c ), /* Simple arm type: FC_DOUBLE */
/*
/* 50 */ NdrFcLong( 0xb ), /* 11 */
/* 54 */ NdrFcShort( 0x8006 ), /* Simple arm type: FC_SHORT */
/* 56 */ NdrFcLong( 0xa ), /* 10 */
/* 60 */ NdrFcShort( 0x8008 ), /* Simple arm type: FC_LONG */
/* 62 */ NdrFcLong( 0x6 ), /* 6 */
/* 66 */ NdrFcShort( 0xd6 ), /* Offset= 214 (280) */
/* 68 */ NdrFcLong( 0x7 ), /* 7 */
/* 72 */ NdrFcShort( 0x800c ), /* Simple arm type: FC_DOUBLE */
/*
/* 74 */ NdrFcLong( 0x8 ), /* 8 */
/* 78 */ NdrFcShort( 0xd0 ), /* Offset= 208 (286) */
/* 80 */ NdrFcLong( 0xd ), /* 13 */
/* 84 */ NdrFcShort( 0xe4 ), /* Offset= 228 (312) */
/* 86 */ NdrFcLong( 0x9 ), /* 9 */
/* 90 */ NdrFcShort( 0xf0 ), /* Offset= 240 (330) */
/* 92 */ NdrFcLong( 0x2000 ), /* 8192 */
/* 96 */ NdrFcShort( 0xfc ), /* Offset= 252 (348) */
/* 98 */ NdrFcLong( 0x24 ), /* 36 */
/* 102 */ NdrFcShort( 0x2f4 ), /* Offset= 756 (858) */
/* 104 */ NdrFcLong( 0x4024 ), /* 16420 */
/* 108 */ NdrFcShort( 0x2ee ), /* Offset= 750 (858) */
/* 110 */ NdrFcLong( 0x4011 ), /* 16401 */
/* 114 */ NdrFcShort( 0x2ec ), /* Offset= 748 (862) */
/* 116 */ NdrFcLong( 0x4002 ), /* 16386 */
/* 120 */ NdrFcShort( 0x2ea ), /* Offset= 746 (866) */
/* 122 */ NdrFcLong( 0x4003 ), /* 16387 */
/* 126 */ NdrFcShort( 0x2e8 ), /* Offset= 744 (870) */
/* 128 */ NdrFcLong( 0x4004 ), /* 16388 */
/* 132 */ NdrFcShort( 0x2e6 ), /* Offset= 742 (874) */
/* 134 */ NdrFcLong( 0x4005 ), /* 16389 */
/* 138 */ NdrFcShort( 0x2e4 ), /* Offset= 740 (878) */
/* 140 */ NdrFcLong( 0x400b ), /* 16395 */
/* 144 */ NdrFcShort( 0x2d2 ), /* Offset= 722 (866) */
/* 146 */ NdrFcLong( 0x400a ), /* 16394 */
/* 150 */ NdrFcShort( 0x2d0 ), /* Offset= 720 (870) */
/* 152 */ NdrFcLong( 0x4006 ), /* 16390 */
/* 156 */ NdrFcShort( 0x2d6 ), /* Offset= 726 (882) */
/* 158 */ NdrFcLong( 0x4007 ), /* 16391 */
/* 162 */ NdrFcShort( 0x2cc ), /* Offset= 716 (878) */
/* 164 */ NdrFcLong( 0x4008 ), /* 16392 */
/* 168 */ NdrFcShort( 0x2ce ), /* Offset= 718 (886) */
/* 170 */ NdrFcLong( 0x400d ), /* 16397 */
/* 174 */ NdrFcShort( 0x2cc ), /* Offset= 716 (890) */
/* 176 */ NdrFcLong( 0x4009 ), /* 16393 */
/* 180 */ NdrFcShort( 0x2ca ), /* Offset= 714 (894) */
/* 182 */ NdrFcLong( 0x6000 ), /* 24576 */
/* 186 */ NdrFcShort( 0x2c8 ), /* Offset= 712 (898) */
/* 188 */ NdrFcLong( 0x400c ), /* 16396 */
/* 192 */ NdrFcShort( 0x2c6 ), /* Offset= 710 (902) */
/* 194 */ NdrFcLong( 0x10 ), /* 16 */
/* 198 */ NdrFcShort( 0x8002 ), /* Simple arm type: FC_CHAR */
/* 200 */ NdrFcLong( 0x12 ), /* 18 */
/* 204 */ NdrFcShort( 0x8006 ), /* Simple arm type: FC_SHORT */
/* 206 */ NdrFcLong( 0x13 ), /* 19 */
/* 210 */ NdrFcShort( 0x8008 ), /* Simple arm type: FC_LONG */
/* 212 */ NdrFcLong( 0x16 ), /* 22 */

/* 216 */ NdrFcShort( 0x8008 ), /* Simple arm type: FC_LONG */
/* 218 */ NdrFcLong( 0x17 ), /* 23 */
/* 222 */ NdrFcShort( 0x8008 ), /* Simple arm type: FC_LONG */
/* 224 */ NdrFcLong( 0xe ), /* 14 */
/* 228 */ NdrFcShort( 0x2aa ), /* Offset= 682 (910) */
/* 230 */ NdrFcLong( 0x400e ), /* 16398 */
/* 234 */ NdrFcShort( 0x2b0 ), /* Offset= 688 (922) */
/* 236 */ NdrFcLong( 0x4010 ), /* 16400 */
/* 240 */ NdrFcShort( 0x2ae ), /* Offset= 686 (926) */
/* 242 */ NdrFcLong( 0x4012 ), /* 16402 */
/* 246 */ NdrFcShort( 0x26c ), /* Offset= 620 (866) */
/* 248 */ NdrFcLong( 0x4013 ), /* 16403 */
/* 252 */ NdrFcShort( 0x26a ), /* Offset= 618 (870) */
/* 254 */ NdrFcLong( 0x4016 ), /* 16406 */
/* 258 */ NdrFcShort( 0x264 ), /* Offset= 612 (870) */
/* 260 */ NdrFcLong( 0x4017 ), /* 16407 */
/* 264 */ NdrFcShort( 0x25e ), /* Offset= 606 (870) */
/* 266 */ NdrFcLong( 0x0 ), /* 0 */
/* 270 */ NdrFcShort( 0x0 ), /* Offset= 0 (270) */
/* 272 */ NdrFcLong( 0x1 ), /* 1 */
/* 276 */ NdrFcShort( 0x0 ), /* Offset= 0 (276) */
/* 278 */ NdrFcShort( 0xffffffff ), /* Offset= -1 (277) */
/* 280 */

0x15, /* FC_STRUCT */
0x7, /* 7 */
/* 282 */ NdrFcShort( 0x8 ), /* 8 */
/* 284 */ 0xb, /* FC_HYPER */
0x5b, /* FC_END */
/* 286 */

0x12, 0x0, /* FC_UP */
/* 288 */ NdrFcShort( 0xe ), /* Offset= 14 (302) */
/* 290 */

0x1b, /* FC_CARRAY */
0x1, /* 1 */
/* 292 */ NdrFcShort( 0x2 ), /* 2 */
/* 294 */ 0x9, /* Corr desc: FC_ULONG */
0x0, /* */
/* 296 */ NdrFcShort( 0xfffc ), /* -4 */
/* 298 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 300 */ 0x6, /* FC_SHORT */
0x5b, /* FC_END */
/* 302 */

0x17, /* FC_CSTRUCT */
0x3, /* 3 */
/* 304 */ NdrFcShort( 0x8 ), /* 8 */
/* 306 */ NdrFcShort( 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 */

```

```

                                0x5a, /*
FC_CONSTANT_IID */
/* 332 */ NdrFcLong( 0x20400 ), /* 132096 */
/* 336 */ NdrFcShort( 0x0 ), /* 0 */
/* 338 */ NdrFcShort( 0x0 ), /* 0 */
/* 340 */ 0xc0, /* 192 */

                                0x0, /* 0 */
/* 342 */ 0x0, /* 0 */
                                0x0, /* 0 */
/* 344 */ 0x0, /* 0 */
                                0x0, /* 0 */
/* 346 */ 0x0, /* 0 */
                                0x46, /* 70 */
/* 348 */

                                0x12, 0x10, /* FC_UP
[pointer_deref] */
/* 350 */ NdrFcShort( 0x2 ), /* Offset= 2 (352) */
/* 352 */

                                0x12, 0x0, /* FC_UP */
/* 354 */ NdrFcShort( 0x1e6 ), /* Offset= 486 (840) */
/* 356 */

                                0x2a, /*
FC_ENCAPSULATED_UNION */
/* 358 */ NdrFcShort( 0x20 ), /* 32 */
/* 360 */ NdrFcShort( 0xa ), /* 10 */
/* 362 */ NdrFcLong( 0x8 ), /* 8 */
/* 366 */ NdrFcShort( 0x50 ), /* Offset= 80 (446) */
/* 368 */ NdrFcLong( 0xd ), /* 13 */
/* 372 */ NdrFcShort( 0x70 ), /* Offset= 112 (484) */
/* 374 */ NdrFcLong( 0x9 ), /* 9 */
/* 378 */ NdrFcShort( 0x90 ), /* Offset= 144 (522) */
/* 380 */ NdrFcLong( 0xc ), /* 12 */
/* 384 */ NdrFcShort( 0xb0 ), /* Offset= 176 (560) */
/* 386 */ NdrFcLong( 0x24 ), /* 36 */
/* 390 */ NdrFcShort( 0x104 ), /* Offset= 260 (650) */
/* 392 */ NdrFcLong( 0x800d ), /* 32781 */
/* 396 */ NdrFcShort( 0x120 ), /* Offset= 288 (684) */
/* 398 */ NdrFcLong( 0x10 ), /* 16 */
/* 402 */ NdrFcShort( 0x13a ), /* Offset= 314 (716) */
/* 404 */ NdrFcLong( 0x2 ), /* 2 */
/* 408 */ NdrFcShort( 0x150 ), /* Offset= 336 (744) */
/* 410 */ NdrFcLong( 0x3 ), /* 3 */
/* 414 */ NdrFcShort( 0x166 ), /* Offset= 358 (772) */
/* 416 */ NdrFcLong( 0x14 ), /* 20 */
/* 420 */ NdrFcShort( 0x17c ), /* Offset= 380 (800) */
/* 422 */ NdrFcShort( 0xffffffff ), /* Offset= -1 (421) */
/* 424 */

                                0x21, /*
FC_BOGUS_ARRAY */
/* 426 */ NdrFcShort( 0x0 ), /* 0 */
/* 428 */ 0x19, /* Corr desc: field pointer, FC_ULONG */
                                0x0, /* */
/* 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 */
                                0x5b, /* FC_END */
/* 446 */

                                0x1a, /*
FC_BOGUS_STRUCT */
                                0x3, /* 3 */
/* 448 */ NdrFcShort( 0x10 ), /* 16 */

/* 450 */ NdrFcShort( 0x0 ), /* 0 */
/* 452 */ NdrFcShort( 0x6 ), /* Offset= 6 (458) */
/* 454 */ 0x8, /* FC_LONG */
                                0x39, /* FC_ALIGNM8 */
/* 456 */ 0x36, /* FC_POINTER */
                                0x5b, /* FC_END */
/* 458 */

                                0x11, 0x0, /* FC_RP */
/* 460 */ NdrFcShort( 0xffffffffdc ), /* Offset= -36 (424) */
/* 462 */

                                0x21, /*
FC_BOGUS_ARRAY */
                                0x3, /* 3 */
/* 464 */ NdrFcShort( 0x0 ), /* 0 */
/* 466 */ 0x19, /* Corr desc: field pointer, FC_ULONG */
                                0x0, /* */
/* 468 */ NdrFcShort( 0x0 ), /* 0 */
/* 470 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 472 */ NdrFcLong( 0xffffffff ), /* -1 */
/* 476 */ NdrFcShort( 0x0 ), /* Corr flags: */
/* 478 */ 0x4c, /* FC_EMBEDDED_COMPLEX */
                                0x0, /* 0 */
/* 480 */ NdrFcShort( 0xffffffff58 ), /* Offset= -168 (312) */
/* 482 */ 0x5c, /* FC_PAD */
                                0x5b, /* FC_END */
/* 484 */

                                0x1a, /*
FC_BOGUS_STRUCT */
                                0x3, /* 3 */
/* 486 */ NdrFcShort( 0x10 ), /* 16 */
/* 488 */ NdrFcShort( 0x0 ), /* 0 */
/* 490 */ NdrFcShort( 0x6 ), /* Offset= 6 (496) */
/* 492 */ 0x8, /* FC_LONG */
                                0x39, /* FC_ALIGNM8 */
/* 494 */ 0x36, /* FC_POINTER */
                                0x5b, /* FC_END */
/* 496 */

                                0x11, 0x0, /* FC_RP */
/* 498 */ NdrFcShort( 0xffffffffdc ), /* Offset= -36 (462) */
/* 500 */

                                0x21, /*
FC_BOGUS_ARRAY */
                                0x3, /* 3 */
/* 502 */ NdrFcShort( 0x0 ), /* 0 */
/* 504 */ 0x19, /* Corr desc: field pointer, FC_ULONG */
                                0x0, /* */
/* 506 */ NdrFcShort( 0x0 ), /* 0 */
/* 508 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 510 */ NdrFcLong( 0xffffffff ), /* -1 */
/* 514 */ NdrFcShort( 0x0 ), /* Corr flags: */
/* 516 */ 0x4c, /* FC_EMBEDDED_COMPLEX */
                                0x0, /* 0 */
/* 518 */ NdrFcShort( 0xffffffff44 ), /* Offset= -188 (330) */
/* 520 */ 0x5c, /* FC_PAD */
                                0x5b, /* FC_END */
/* 522 */

                                0x1a, /*
FC_BOGUS_STRUCT */
                                0x3, /* 3 */
/* 524 */ NdrFcShort( 0x10 ), /* 16 */
/* 526 */ NdrFcShort( 0x0 ), /* 0 */
/* 528 */ NdrFcShort( 0x6 ), /* Offset= 6 (534) */
/* 530 */ 0x8, /* FC_LONG */
                                0x39, /* FC_ALIGNM8 */
/* 532 */ 0x36, /* FC_POINTER */
                                0x5b, /* FC_END */
/* 534 */

                                0x11, 0x0, /* FC_RP */

```

```

/* 536 */ NdrFcShort( 0xfffffddc ), /* 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( 0xfffffddc ), /* 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( 0xffffffe0 ), /* 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( 0xffffffd8 ), /* 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( 0xfffffddc ), /* 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( 0xfffffff1 ), /* Offset=
-15 (666) */
0x5b, /* FC_END */
/* 684 */
0x1a, /*
FC_BOGUS_STRUCT */
0x3, /* 3 */
/* 686 */ NdrFcShort( 0x20 ), /* 32 */
/* 688 */ NdrFcShort( 0x0 ), /* 0 */
/* 690 */ NdrFcShort( 0xa ), /* Offset= 10 (700) */
/* 692 */ 0x8, /* FC_LONG */
0x39, /* FC_ALIGNM8 */
/* 694 */ 0x36, /* FC_POINTER */
0x4c, /*
FC_EMBEDDED_COMPLEX */

```

```

/* 696 */ 0x0, /* 0 */
/* 700 */ NdrFcShort( 0xffffffe7 ), /* Offset=
-25 (672) */
/* 702 */ 0x5b, /* FC_END */
/* 704 */ 0x11, 0x0, /* FC_RP */
/* 706 */ NdrFcShort( 0xfffff10 ), /* Offset= -240 (462) */
/* 708 */ 0x0, /* FC_CARRAY */
/* 710 */ 0x0, /* 0 */
/* 712 */ /* Corr desc: field pointer, FC_ULONG */
/* 714 */ 0x0, /* 0 */
/* 716 */ /* FC_BYTE */
/* 718 */ 0x5b, /* FC_END */
/* 720 */ 0x1a, /*
FC_BOGUS_STRUCT */
/* 722 */ 0x3, /* 3 */
/* 724 */ NdrFcShort( 0x10 ), /* 16 */
/* 726 */ NdrFcShort( 0x0 ), /* 0 */
/* 728 */ NdrFcShort( 0x6 ), /* Offset= 6 (728) */
/* 730 */ 0x8, /* FC_LONG */
/* 732 */ 0x39, /* FC_ALIGNM8 */
/* 734 */ 0x36, /* FC_POINTER */
/* 736 */ 0x5b, /* FC_END */
/* 738 */ 0x12, 0x0, /* FC_UP */
/* 740 */ NdrFcShort( 0xfffffe6 ), /* Offset= -26 (704) */
/* 742 */ 0x1b, /* FC_CARRAY */
/* 744 */ 0x1, /* 1 */
/* 746 */ /* Corr desc: field pointer, FC_ULONG */
/* 748 */ 0x0, /* 0 */
/* 750 */ /* Corr flags: early, */
/* 752 */ 0x6, /* FC_SHORT */
/* 754 */ 0x5b, /* FC_END */
/* 756 */ 0x1a, /*
FC_BOGUS_STRUCT */
/* 758 */ 0x3, /* 3 */
/* 760 */ NdrFcShort( 0x10 ), /* 16 */
/* 762 */ NdrFcShort( 0x0 ), /* 0 */
/* 764 */ NdrFcShort( 0x6 ), /* Offset= 6 (756) */
/* 766 */ 0x8, /* FC_LONG */
/* 768 */ 0x39, /* FC_ALIGNM8 */
/* 770 */ 0x36, /* FC_POINTER */
/* 772 */ 0x5b, /* FC_END */
/* 774 */ 0x12, 0x0, /* FC_UP */
/* 776 */ NdrFcShort( 0xfffffe6 ), /* Offset= -26 (732) */
/* 778 */ 0x1b, /* FC_CARRAY */
/* 780 */ 0x3, /* 3 */
/* 782 */ /* Corr desc: field pointer, FC_ULONG */
/* 784 */ 0x0, /* 0 */
/* 786 */ /* Corr flags: early, */
/* 788 */ 0x6, /* FC_SHORT */
/* 790 */ 0x5b, /* FC_END */
/* 792 */ 0x1a, /*
FC_BOGUS_STRUCT */
/* 794 */ 0x3, /* 3 */
/* 796 */ NdrFcShort( 0x10 ), /* 16 */
/* 798 */ NdrFcShort( 0x0 ), /* 0 */
/* 800 */ NdrFcShort( 0x6 ), /* Offset= 6 (784) */
/* 802 */ 0x8, /* FC_LONG */
/* 804 */ 0x39, /* FC_ALIGNM8 */
/* 806 */ 0x36, /* FC_POINTER */
/* 808 */ 0x5b, /* FC_END */
/* 810 */ 0x12, 0x0, /* FC_UP */
/* 812 */ NdrFcShort( 0xfffffe6 ), /* Offset= -26 (788) */
/* 814 */ 0x15, /* FC_STRUCT */
/* 816 */ 0x3, /* 3 */
/* 818 */ NdrFcShort( 0x8 ), /* 8 */
/* 820 */ 0x8, /* FC_LONG */
/* 822 */ 0x5c, /* FC_LONG */
/* 824 */ 0x5b, /* FC_PAD */
/* 826 */ 0x5b, /* FC_END */
/* 828 */ 0x1a, /*
FC_BOGUS_STRUCT */
/* 830 */ 0x3, /* 3 */
/* 832 */ NdrFcShort( 0x38 ), /* 56 */
/* 834 */ NdrFcShort( 0xfffffec ), /* Offset= -20 (824) */
/* 836 */ NdrFcShort( 0x0 ), /* Offset= 0 (846) */
/* 838 */ 0x6, /* FC_SHORT */
/* 840 */ 0x6, /* FC_SHORT */
/* 842 */ 0x38, /* FC_ALIGNM4 */
/* 844 */ 0x8, /* FC_LONG */
/* 846 */ 0x8, /* FC_LONG */

```

```

                                0x4c, /*
FC_EMBEDDED_COMPLEX */
/* 854 */ 0x4, /* 4 */
                                NdrFcShort( 0xfffffe0d ), /* Offset=
-499 (356) */
                                0x5b, /* FC_END */
/* 858 */
                                0x12, 0x0, /* FC_UP */
/* 860 */ NdrFcShort( 0xfffff02 ), /* Offset= -254 (606) */
/* 862 */
                                0x12, 0x8, /* FC_UP [simple_pointer] */
/* FC_BYTE */
                                0x5c, /* FC_PAD */
/* 866 */
                                0x12, 0x8, /* FC_UP [simple_pointer] */
/* FC_SHORT */
                                0x5c, /* FC_PAD */
/* 868 */ 0x6,
/* 870 */
                                0x12, 0x8, /* FC_UP [simple_pointer] */
/* FC_LONG */
                                0x5c, /* FC_PAD */
/* 872 */ 0x8,
/* 874 */
                                0x12, 0x8, /* FC_UP [simple_pointer] */
/* FC_FLOAT */
                                0x5c, /* FC_PAD */
/* 876 */ 0xa,
/* 878 */
                                0x12, 0x8, /* FC_UP [simple_pointer] */
/* FC_DOUBLE */
                                0x5c, /* FC_PAD */
/* 882 */
                                0x12, 0x0, /* FC_UP */
/* 884 */ NdrFcShort( 0xfffffda4 ), /* Offset= -604 (280) */
/* 886 */
                                0x12, 0x10, /* FC_UP
[pointer_deref] */
/* 888 */ NdrFcShort( 0xfffffda6 ), /* Offset= -602 (286) */
/* 890 */
                                0x12, 0x10, /* FC_UP
[pointer_deref] */
/* 892 */ NdrFcShort( 0xfffffdbc ), /* Offset= -580 (312) */
/* 894 */
                                0x12, 0x10, /* FC_UP
[pointer_deref] */
/* 896 */ NdrFcShort( 0xfffffdca ), /* Offset= -566 (330) */
/* 898 */
                                0x12, 0x10, /* FC_UP
[pointer_deref] */
/* 900 */ NdrFcShort( 0xfffffdd8 ), /* Offset= -552 (348) */
/* 902 */
                                0x12, 0x10, /* FC_UP
[pointer_deref] */
/* 904 */ NdrFcShort( 0x2 ), /* Offset= 2 (906) */
/* 906 */
                                0x12, 0x0, /* FC_UP */
/* 908 */ NdrFcShort( 0x16 ), /* Offset= 22 (930) */
/* 910 */
                                0x15, /* FC_STRUCT */
                                0x7, /* 7 */
/* 912 */ NdrFcShort( 0x10 ), /* 16 */
/* 914 */ 0x6, /* FC_SHORT */
                                0x1, /* FC_BYTE */
/* 916 */ 0x1, /* FC_BYTE */
                                0x38, /* FC_ALIGNM4 */
/* 918 */ 0x8, /* FC_LONG */
                                0x39, /* FC_ALIGNM8 */
/* 920 */ 0xb, /* FC_HYPER */
                                0x5b, /* FC_END */
/* 922 */

```

```

                                0x12, 0x0, /* FC_UP */
/* 924 */ NdrFcShort( 0xfffff2 ), /* Offset= -14 (910) */
/* 926 */
                                0x12, 0x8, /* FC_UP [simple_pointer] */
/* 928 */ 0x2, /* FC_CHAR */
                                0x5c, /* FC_PAD */
/* 930 */
                                0x1a, /*
FC_BOGUS_STRUCT */
                                0x7, /* 7 */
/* 932 */ NdrFcShort( 0x20 ), /* 32 */
/* 934 */ NdrFcShort( 0x0 ), /* 0 */
/* 936 */ NdrFcShort( 0x0 ), /* Offset= 0 (936) */
/* 938 */ 0x8, /* FC_LONG */
                                0x8, /* FC_LONG */
/* 940 */ 0x6, /* FC_SHORT */
                                0x6, /* FC_SHORT */
/* 942 */ 0x6, /* FC_SHORT */
                                0x6, /* FC_SHORT */
/* 944 */ 0x4c, /* FC_EMBEDDED_COMPLEX */
                                0x0, /* 0 */
/* 946 */ NdrFcShort( 0xfffffc54 ), /* Offset= -940 (6) */
/* 948 */ 0x5c, /* FC_PAD */
                                0x5b, /* FC_END */
/* 950 */ 0xb4, /* FC_USER_MARSHAL */
                                0x83, /* 131 */
/* 952 */ NdrFcShort( 0x0 ), /* 0 */
/* 954 */ NdrFcShort( 0x18 ), /* 24 */
/* 956 */ NdrFcShort( 0x0 ), /* 0 */
/* 958 */ NdrFcShort( 0xfffffc44 ), /* Offset= -956 (2) */
/* 960 */
                                0x11, 0x4, /* FC_RP [allocated_on_stack] */
/* 962 */ NdrFcShort( 0x6 ), /* Offset= 6 (968) */
/* 964 */
                                0x13, 0x0, /* FC_OP */
/* 966 */ NdrFcShort( 0xfffffcdc ), /* Offset= -36 (930) */
/* 968 */ 0xb4, /* FC_USER_MARSHAL */
                                0x83, /* 131 */
/* 970 */ NdrFcShort( 0x0 ), /* 0 */
/* 972 */ NdrFcShort( 0x18 ), /* 24 */
/* 974 */ NdrFcShort( 0x0 ), /* 0 */
/* 976 */ NdrFcShort( 0xfffffff4 ), /* Offset= -12 (964) */
                                0x0
                                }
                                };

const CInterfaceProxyVtbl * _tpcc_com_ps_ProxyVtblList[] =
{
    ( CInterfaceProxyVtbl *) &_ITPCCProxyVtbl,
    0
};

const CInterfaceStubVtbl * _tpcc_com_ps_StubVtblList[] =
{
    ( CInterfaceStubVtbl *) &_ITPCCStubVtbl,
    0
};

PCInterfaceName const _tpcc_com_ps_InterfaceNamesList[] =
{
    "ITPCC",
    0
};

#define _tpcc_com_ps_CHECK_IID(n) IID_GENERIC_CHECK_IID(
_tpcc_com_ps, piID, n)

```

```

int __stdcall _tpcc_com_ps_IID_Lookup( const IID * pIID, int * pIndex )
{
    if(!_tpcc_com_ps_CHECK_IID(0))
    {
        *pIndex = 0;
        return 1;
    }

    return 0;
}

```

```

const ExtendedProxyFileInfo tpcc_com_ps_ProxyFileInfo =
{
    (PCInterfaceProxyVtblList *) & _tpcc_com_ps_ProxyVtblList,
    (PCInterfaceStubVtblList *) & _tpcc_com_ps_StubVtblList,
    (const PCInterfaceName *) & _tpcc_com_ps_InterfaceNamesList,
    0, // no delegation
    & _tpcc_com_ps_IID_Lookup,
    1,
    2,
    0, /* table of [async_uuid] interfaces */
    0, /* Filler1 */
    0, /* Filler2 */
    0 /* Filler3 */
};

```

```

#endif /* defined(_M_IA64) || defined(_M_AXP64)*/

```

Tpcc_com_sl.rgs

```

HKCR
{
    TPCC.StockLevel.1 = s 'StockLevel Class'
    {
        CLSID = s
        '{2668369E-A50D-11D2-BA4E-00C04FBFE08B}'
    }
    TPCC.StockLevel = s 'StockLevel Class'
    {
        CurVer = s 'TPCC.StockLevel.1'
    }
    NoRemove CLSID
    {
        ForceRemove
        {2668369E-A50D-11D2-BA4E-00C04FBFE08B} = s 'StockLevel Class'
        {
            ProgID = s 'TPCC.StockLevel.1'
            VersionIndependentProgID = s
            'TPCC.StockLevel'

            InprocServer32 = s '%MODULE%'
            {
                val ThreadingModel = s 'Both'
            }
        }
    }
}

```

tpcc_odbc.cpp

```

/*      FILE:      TPCC_ODBC.CPP
 *
 *      Microsoft TPC-C Kit Ver.
 *
 *      4.20.000

```

```

 *
 *      Copyright Microsoft, 1999
 *
 *      All Rights Reserved
 *
 *
 *      Version 4.10.000 audited by
 *      Richard Gimarc, Performance Metrics, 3/17/99
 *
 *      PURPOSE:      Implements ODBC calls for TPC-C txns.
 *      Contact:      Charles Levine (clevine@microsoft.com)
 *
 *      Change history:
 *      4.20.000 - updated rev number to match kit
 *      4.10.001 - not deleting error class in catch handler on
 *      deadlock retry;
 *
 *      not a functional bug, but a
 *      memory leak
 */

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

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

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

// need to declare functions for export
#define DllDecl __declspec( dllexport )

#include "..\..\common\src\error.h"
#include "..\..\common\src\trans.h"
#include "..\..\common\src\txn_base.h"
#include "tpcc_odbc.h"

// version string; must match return value from tpcc_version stored proc
const char sVersion[] = "4.10.000";

const iMaxRetries = 10; // how many retries on deadlock

const int iErrOleDbProvider = 7312;
const char sErrTimeoutExpired[] = "Timeout expired";

static SQLHENV henv = SQL_NULL_HENV;
// ODBC environment handle

BOOL WINAPI DllMain(HMODULE hModule, DWORD
ul_reason_for_call, LPVOID lpReserved)
{
    switch( ul_reason_for_call )
    {
        case DLL_PROCESS_ATTACH:
            DisableThreadLibraryCalls(hModule);
            if (
SQLAllocHandleStd(SQL_HANDLE_ENV, SQL_NULL_HANDLE, &henv)
!= SQL_SUCCESS )
                return FALSE;

                break;

        case DLL_PROCESS_DETACH:
            if (henv != NULL)
                SQLFreeEnv(henv);

                break;
    }
}

```

```

        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_SSHORT, SQL_SMALLINT, 0, 0,
&m_txn.NewOrder.ol_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SSHORT, SQL_SMALLINT, 0, 0,
&m_txn.NewOrder.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_quantity, 0, NULL) != SQL_SUCCESS
    )
        ThrowError(CODBCERR::eBindParam);

    for (int j=0; j<MAX_OL_NEW_ORDER_ITEMS; j++)
    {
        if ( SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SLONG, SQL_INTEGER, 0, 0,
&m_txn.NewOrder.OL[j].ol_i_id, 0, NULL) != SQL_SUCCESS
            || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SSHORT, SQL_SMALLINT, 0, 0,
&m_txn.NewOrder.OL[j].ol_supply_w_id, 0, NULL) != SQL_SUCCESS
            || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SSHORT, SQL_SMALLINT, 0, 0,
&m_txn.NewOrder.OL[j].ol_quantity, 0, NULL) != SQL_SUCCESS
        )
            ThrowError(CODBCERR::eBindParam);
    }

    // set the bind offset pointer
    if ( SQLSetStmtAttrW( m_hstmt,
SQL_ATTR_ROW_BIND_OFFSET_PTR, &m_BindOffset,
SQL_IS_POINTER ) != SQL_SUCCESS )
        ThrowError(CODBCERR::eSetStmtAttr);

    i = 0;
    if ( SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.NewOrder.OL[0].ol_i_name,
sizeof(m_txn.NewOrder.OL[0].ol_i_name), NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_SSHORT,
&m_txn.NewOrder.OL[0].ol_stock, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.NewOrder.OL[0].ol_brand_generic,
sizeof(m_txn.NewOrder.OL[0].ol_brand_generic), NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.NewOrder.OL[0].ol_i_price, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.NewOrder.OL[0].ol_amount, 0, NULL) != SQL_SUCCESS
    )
        ThrowError(CODBCERR::eBindCol);

    // associate the column bindings for the second result set
    if ( SQLSetStmtAttrW( m_hstmt, SQL_ATTR_APP_ROW_DESC,
m_descNewOrderCols2, SQL_IS_POINTER ) != SQL_SUCCESS )
        ThrowError(CODBCERR::eSetStmtAttr);

    i = 0;
    if ( SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.NewOrder.w_tax, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.NewOrder.d_tax, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_SLONG,
&m_txn.NewOrder.o_id, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.NewOrder.c_last, sizeof(m_txn.NewOrder.c_last), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.NewOrder.c_discount, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.NewOrder.c_credit, sizeof(m_txn.NewOrder.c_credit), NULL) !=
SQL_SUCCESS
    )
        ThrowError(CODBCERR::eBindCol);
}

```

```

        || SQLBindCol(m_hstmt, ++i,
SQL_C_TYPE_TIMESTAMP, &m_txn.NewOrder.o_entry_d, 0, NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_SLONG,
&m_no_commit_flag, 0, NULL) != SQL_SUCCESS
    )
        ThrowError(CODBCERR::eBindCol);
}

void CTPCC_ODBC::NewOrder()
{
    int
    RETCODE
    int
    i;
    rc;
    iTryCount =
0;

    // 0 1 2
    // 012345678901234567890123456789
    wchar_t szSqlTemplate[] =
L" {call tpcc_neworder(?,?,?,?,,"
    L"?,?,?,?,?,?,?,?,?,?,?,?,,"
    L"?,?,?,?,?,?,?,?,?,?,?,?,,"
    L"?,?,?,?,?,?,?,?,?,?,?,?,,?)}";

    m_hstmt = m_hstmtNewOrder;

    // associate the parameter and column bindings for this transaction
    if ( SQLSetStmtAttrW( m_hstmt, SQL_ATTR_APP_ROW_DESC,
m_descNewOrderCols1, SQL_IS_POINTER ) != SQL_SUCCESS )
        ThrowError(CODBCERR::eSetStmtAttr);

    // clip statement buffer based on number of parameters
    // fixed part is 29 chars and variable part is 6 chars per line item
    i = 29 + m_txn.NewOrder.o_ol_cnt*6;
    wcsncpy( &szSqlTemplate[i], L"");

    // check whether any order lines are for a remote warehouse
    m_txn.NewOrder.o_all_local = 1;
    for (i = 0; i < m_txn.NewOrder.o_ol_cnt; i++)
    {
        if (m_txn.NewOrder.OL[i].ol_supply_w_id !=
m_txn.NewOrder.w_id)
        {
            m_txn.NewOrder.o_all_local = 0; // at least
            one remote warehouse
            break;
        }
    }

    while (TRUE)
    {
        try
        {
            m_BindOffset = 0;
            rc = SQLExecDirectW(m_hstmt,
(SQLWCHAR*)szSqlTemplate, SQL_NTS);
            if (rc != SQL_SUCCESS && rc !=
SQL_SUCCESS_WITH_INFO)
                ThrowError(CODBCERR::eExecDirect);

            // Get order line results
            m_txn.NewOrder.total_amount = 0;
            for (i = 0; i < m_txn.NewOrder.o_ol_cnt; i++)

```

```

        {
            // set the bind offset value...
            m_BindOffset = i *
sizeof(m_txn.NewOrder.OL[0]);

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

            // move to the next resultset
            if ( SQLMoreResults(m_hstmt) ==
SQL_ERROR )
                ThrowError(CODBCERR::eMoreResults);

            m_txn.NewOrder.total_amount +=
m_txn.NewOrder.OL[i].ol_amount;
        }

        // associate the column bindings for the
second result set
        if ( SQLSetStmtAttrW( m_hstmt,
SQL_ATTR_APP_ROW_DESC, m_descNewOrderCols2, SQL_IS_POINTER
) != SQL_SUCCESS )
            ThrowError(CODBCERR::eSetStmtAttr);

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

            SQLFreeStmt(m_hstmt, SQL_CLOSE);

            if (m_no_commit_flag == 1)
            {
                m_txn.NewOrder.total_amount +=
((1 + m_txn.NewOrder.w_tax + m_txn.NewOrder.d_tax) * (1 -
m_txn.NewOrder.c_discount));

                m_txn.NewOrder.exec_status_code = eOK;
            }
            else
                m_txn.NewOrder.exec_status_code = eInvalidItem;

            break;
        }
        catch (CODBCERR *e)
        {
            if ((!e->m_bDeadLock) || (++iTryCount >
iMaxRetries))
                throw;

            // hit deadlock; backoff for increasingly longer
period
            delete e;
            Sleep(10 * iTryCount);
        }
    }

    // if (iTryCount)
    // throw new
CTPCC_ODBC_ERR(CTPCC_ODBC_ERR::ERR_RETRIED_TRANS,
iTryCount);
}

void CTPCC_ODBC::InitPaymentParams()

```

```

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

    m_hstmt = m_hstmtPayment;

    int i = 0;
    if ( SQLBindParameter(m_hstmt, ++i, SQL_PARAM_INPUT,
SQL_C_SSHORT, SQL_SMALLINT, 0, 0, &m_txn.Payment.w_id, 0, NULL)
!= SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SSHORT, SQL_SMALLINT, 0, 0,
&m_txn.Payment.c_w_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_DOUBLE, SQL_NUMERIC, 6, 2,
&m_txn.Payment.h_amount, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT, SQL_TINYINT, 0, 0,
&m_txn.Payment.d_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT, SQL_TINYINT, 0, 0,
&m_txn.Payment.c_d_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SLONG, SQL_INTEGER, 0, 0,
&m_txn.Payment.c_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_CHAR, SQL_CHAR,
sizeof(m_txn.Payment.c_last), 0, &m_txn.Payment.c_last,
sizeof(m_txn.Payment.c_last), NULL) != SQL_SUCCESS
    )
        ThrowError(CODBCERR::eBindParam);

    i = 0;
    if ( SQLBindCol(m_hstmt, ++i, SQL_C_SLONG,
&m_txn.Payment.c_id, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_last, sizeof(m_txn.Payment.c_last),
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_TYPE_TIMESTAMP, &m_txn.Payment.h_date,
0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.w_street_1, sizeof(m_txn.Payment.w_street_1), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.w_street_2, sizeof(m_txn.Payment.w_street_2), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.w_city, sizeof(m_txn.Payment.w_city),
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.w_state, sizeof(m_txn.Payment.w_state),
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.w_zip, sizeof(m_txn.Payment.w_zip),
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.d_street_1, sizeof(m_txn.Payment.d_street_1), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.d_street_2, sizeof(m_txn.Payment.d_street_2), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.d_city, sizeof(m_txn.Payment.d_city),
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.d_state, sizeof(m_txn.Payment.d_state),
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_first, sizeof(m_txn.Payment.c_first),
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_middle, sizeof(m_txn.Payment.c_middle), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_street_1, sizeof(m_txn.Payment.c_street_1), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_street_2, sizeof(m_txn.Payment.c_street_2), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_city, sizeof(m_txn.Payment.c_city),
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_state, sizeof(m_txn.Payment.c_state),
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_zip, sizeof(m_txn.Payment.c_zip),
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_phone, sizeof(m_txn.Payment.c_phone),
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_TYPE_TIMESTAMP, &m_txn.Payment.c_since,
0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_credit, sizeof(m_txn.Payment.c_credit), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.Payment.c_credit_lim, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.Payment.c_discount, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.Payment.c_balance, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_data, sizeof(m_txn.Payment.c_data),
NULL) != SQL_SUCCESS
    )
        ThrowError(CODBCERR::eBindCol);
}

void CTPCC_ODBC::Payment()
{
    RETCODE rc;
    int iTryCount = 0;

    m_hstmt = m_hstmtPayment;

    if (m_txn.Payment.c_id != 0)
        m_txn.Payment.c_last[0] = 0;

    while (TRUE)
    {
        try
        {
            rc = SQLExecDirectW(m_hstmt,
(SQLWCHAR*)" {call tpcc_payment(?,?,?,?,?,?)", SQL_NTS);
            if (rc != SQL_SUCCESS && rc !=
SQL_SUCCESS_WITH_INFO)

```

```

ThrowError(CODBCERR::eExecDirect);

        if ( SQLFetch(m_hstmt) == SQL_ERROR)

ThrowError(CODBCERR::eFetch);

        SQLFreeStmt(m_hstmt, SQL_CLOSE);

        if (m_txn.Payment.c_id == 0)
            throw new CTPCC_ODBC_ERR(
CTPCC_ODBC_ERR::ERR_INVALID_CUST );
        else
            m_txn.Payment.exec_status_code

= eOK;

        break;
    }
    catch (CODBCERR *e)
    {
        if ((!e->m_bDeadLock) || (++iTryCount >
iMaxRetries))
            throw;

        // hit deadlock; backoff for increasingly longer
        period

        delete e;
        Sleep(10 * iTryCount);
    }
}

//      if (iTryCount)
//          throw new
CTPCC_ODBC_ERR(CTPCC_ODBC_ERR::ERR_RETRIED_TRANS,
iTryCount);
}

void CTPCC_ODBC::InitOrderStatusParams()
{
    if ( SQLAllocHandle(SQL_HANDLE_STMT, m_hdbc,
&m_hstmtOrderStatus) != SQL_SUCCESS
        || SQLAllocHandle(SQL_HANDLE_DESC, m_hdbc,
&m_descOrderStatusCols1) != SQL_SUCCESS
        || SQLAllocHandle(SQL_HANDLE_DESC, m_hdbc,
&m_descOrderStatusCols2) != SQL_SUCCESS
    )
        ThrowError(CODBCERR::eAllocHandle);

    m_hstmt = m_hstmtOrderStatus;

    if ( SQLSetStmtAttrW( m_hstmt, SQL_ATTR_APP_ROW_DESC,
m_descOrderStatusCols1, SQL_IS_POINTER ) != SQL_SUCCESS )
        ThrowError(CODBCERR::eSetStmtAttr);

    int i = 0;
    if ( SQLBindParameter(m_hstmt, ++i, SQL_PARAM_INPUT,
SQL_C_SSHORT, SQL_SMALLINT, 0, 0, &m_txn.OrderStatus.w_id, 0,
NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT, SQL_TINYINT, 0, 0,
&m_txn.OrderStatus.d_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SLONG, SQL_INTEGER, 0, 0,
&m_txn.OrderStatus.c_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_CHAR, SQL_CHAR,
sizeof(m_txn.OrderStatus.c_last), 0, &m_txn.OrderStatus.c_last,
sizeof(m_txn.OrderStatus.c_last), NULL) != SQL_SUCCESS

```

```

    )
        ThrowError(CODBCERR::eBindParam);

    // configure block cursor
    if ( SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_ROW_BIND_TYPE,
(SQLPOINTER)sizeof(m_txn.OrderStatus.OL[0]), 0) != SQL_SUCCESS
        || SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_ROWS_FETCHED_PTR, &m_RowsFetched, 0) !=
SQL_SUCCESS
    )
        ThrowError(CODBCERR::eSetStmtAttr);

    i = 0;
    if ( SQLBindCol(m_hstmt, ++i, SQL_C_SSHORT,
&m_txn.OrderStatus.OL[0].ol_supply_w_id, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_SLONG,
&m_txn.OrderStatus.OL[0].ol_i_id, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_SSHORT,
&m_txn.OrderStatus.OL[0].ol_quantity, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.OrderStatus.OL[0].ol_amount, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_TYPE_TIMESTAMP, &m_txn.OrderStatus.OL[0].ol_delivery_d, 0,
NULL) != SQL_SUCCESS
    )
        ThrowError(CODBCERR::eBindCol);

    if ( SQLSetStmtAttrW( m_hstmt, SQL_ATTR_APP_ROW_DESC,
m_descOrderStatusCols2, SQL_IS_POINTER ) != SQL_SUCCESS )
        ThrowError(CODBCERR::eSetStmtAttr);

    i = 0;
    if ( SQLBindCol(m_hstmt, ++i, SQL_C_SLONG,
&m_txn.OrderStatus.c_id, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.OrderStatus.c_last, sizeof(m_txn.OrderStatus.c_last), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.OrderStatus.c_first, sizeof(m_txn.OrderStatus.c_first), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.OrderStatus.c_middle, sizeof(m_txn.OrderStatus.c_middle), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_TYPE_TIMESTAMP, &m_txn.OrderStatus.o_entry_d, 0, NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_SSHORT,
&m_txn.OrderStatus.o_carrier_id, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.OrderStatus.c_balance, 0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i, SQL_C_SLONG,
&m_txn.OrderStatus.o_id, 0, NULL) != SQL_SUCCESS
    )
        ThrowError(CODBCERR::eBindCol);
}

void CTPCC_ODBC::OrderStatus()
{
    int
iTryCount = 0;
    RETCODE

rc;

    m_hstmt = m_hstmtOrderStatus;

```

```

        if ( SQLSetStmtAttrW( m_hstmt, SQL_ATTR_APP_ROW_DESC,
m_descOrderStatusCols1, SQL_IS_POINTER ) != SQL_SUCCESS )
            ThrowError(CODBCERR::eSetStmtAttr);

        if (m_txn.OrderStatus.c_id != 0)
            m_txn.OrderStatus.c_last[0] = 0;

        while (TRUE)
        {
            try
            {
                // configure block cursor
                if ( SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_ROW_ARRAY_SIZE, (SQLPOINTER)1, 0) != SQL_SUCCESS )
                    ThrowError(CODBCERR::eSetStmtAttr);

                rc = SQLExecDirectW(m_hstmt,
(SQLWCHAR*)L" {call tpcc_orderstatus(?,?,?)}", SQL_NTS);
                if ( ((rc == SQL_SUCCESS_WITH_INFO)
&& (m_RowsFetched != 0)) || (rc == SQL_ERROR) )
                    ThrowError(CODBCERR::eExecDirect);

                // configure block cursor
                if ( SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_ROW_ARRAY_SIZE,
(SQLPOINTER)MAX_OL_ORDER_STATUS_ITEMS, 0) != SQL_SUCCESS
)
                    ThrowError(CODBCERR::eSetStmtAttr);

                rc = SQLFetchScroll( m_hstmt,
SQL_FETCH_NEXT, 0 );
                if ( ((rc == SQL_SUCCESS_WITH_INFO)
&& (m_RowsFetched != 0)) || (rc == SQL_ERROR) )
                    ThrowError(CODBCERR::eFetchScroll);

                m_txn.OrderStatus.o_ol_cnt =
(short)m_RowsFetched;

                if (m_txn.OrderStatus.o_ol_cnt != 0)
                {
                    if ( SQLSetStmtAttrW( m_hstmt,
SQL_ATTR_APP_ROW_DESC, m_descOrderStatusCols2,
SQL_IS_POINTER ) != SQL_SUCCESS )
                        ThrowError(CODBCERR::eSetStmtAttr);

                    if ( SQLMoreResults(m_hstmt) ==
SQL_ERROR )
                        ThrowError(CODBCERR::eMoreResults);

                    if ( ( rc = SQLFetch(m_hstmt)) ==
SQL_ERROR )
                        ThrowError(CODBCERR::eFetch);
                }

                SQLFreeStmt(m_hstmt, SQL_CLOSE);

                if (m_txn.OrderStatus.o_ol_cnt == 0)
                    throw new CTPCC_ODBC_ERR(
CTPCC_ODBC_ERR::ERR_NO_SUCH_ORDER );
                else if (m_txn.OrderStatus.c_id == 0 &&
m_txn.OrderStatus.c_last[0] == 0)

```

```

                    throw new CTPCC_ODBC_ERR(
CTPCC_ODBC_ERR::ERR_INVALID_CUST );
                else
                    m_txn.OrderStatus.exec_status_code = eOK;

                break;
            }
            catch (CODBCERR *e)
            {
                if ((!e->m_bDeadLock) || (++iTryCount >
iMaxRetries))
                    throw;

                // hit deadlock; backoff for increasingly longer
                period

                delete e;
                Sleep(10 * iTryCount);
            }
        }

        // if (iTryCount)
        //     throw new
CTPCC_ODBC_ERR(CTPCC_ODBC_ERR::ERR_RETRIED_TRANS,
iTryCount);
    }

    void CTPCC_ODBC::InitDeliveryParams()
    {
        if ( SQLAllocHandle(SQL_HANDLE_STMT, m_hdbc,
&m_hstmtDelivery) != SQL_SUCCESS )
            ThrowError(CODBCERR::eAllocHandle);

        m_hstmt = m_hstmtDelivery;

        int i = 0;
        if ( SQLBindParameter(m_hstmt, ++i, SQL_PARAM_INPUT,
SQL_C_SSHORT, SQL_SMALLINT, 0, 0, &m_txn.Delivery.w_id, 0, NULL)
!= SQL_SUCCESS
            || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SSHORT, SQL_SMALLINT, 0, 0,
&m_txn.Delivery.o_carrier_id, 0, NULL) != SQL_SUCCESS
        )
            ThrowError(CODBCERR::eBindParam);

        for (i=0; i<10; i++)
        {
            if ( SQLBindCol(m_hstmt, (UWORD)(i+1),
SQL_C_SLONG, &m_txn.Delivery.o_id[i], 0, NULL) != SQL_SUCCESS )
                ThrowError(CODBCERR::eBindCol);
        }
    }

    void CTPCC_ODBC::Delivery()
    {
        RETCODE rc;
        int iTryCount = 0;

        m_hstmt = m_hstmtDelivery;

        while (TRUE)
        {
            try
            {
                rc = SQLExecDirectW(m_hstmt,
(SQLWCHAR*)L" {call tpcc_delivery(?,?)}", SQL_NTS);
                if (rc != SQL_SUCCESS && rc !=
SQL_SUCCESS_WITH_INFO)

```

```

ThrowError(CODBCERR::eExecDirect);

        if ( SQLFetch(m_hstmt) == SQL_ERROR )

ThrowError(CODBCERR::eFetch);

        SQLFreeStmt(m_hstmt, SQL_CLOSE);
        m_txn.Delivery.exec_status_code = eOK;
        break;
    }
    catch (CODBCERR *e)
    {
        if ((!e->m_bDeadLock) || (++iTryCount >
iMaxRetries))

            throw;

        // hit deadlock; backoff for increasingly longer
        period

        delete e;
        Sleep(10 * iTryCount);
    }
}

//      if (iTryCount)
//          throw new
CTPCC_ODBC_ERR(CTPCC_ODBC_ERR::ERR_RETRIED_TRANS,
iTryCount);
}

```

tpcc_odbc.h

```

/*      FILE:          TPCC_ODBC.H
 *
 *      4.20.000      Microsoft TPC-C Kit Ver.
 *
 *      Copyright Microsoft, 1999
 *
 *      All Rights Reserved
 *
 *      Version 4.10.000 audited by
Richard Gimarc, Performance Metrics, 3/17/99
 *
 *      PURPOSE:      Header file for TPC-C txn class
implementation.
 *
 *      Change history:
 *
 *      4.20.000 - updated rev number to match kit
 */
#pragma once

// need to declare functions for import, unless define has already been created
// by the DLL's .cpp module for export.
#ifndef DllDecl
#define DllDecl __declspec( dllimport )
#endif

class CODBCERR : public CBaseErr
{
public:
    enum ACTION
    {
        eNone,
        eUnknown,
        eAllocConn,
        eAllocHandle,
    }

    error from SQLAllocConnect
    SQLAllocHandle
    // error from

```

```

        eConnOption,
        // error from
        SQLSetConnectOption
        eConnect,
        // error from
        SQLConnect
        eAllocStmt,
        //
        error from SQLAllocStmt
        eExecDirect,
        // error from
        SQLExecDirect
        eBindParam,
        //
        error from SQLBindParameter
        eBindCol,
        // error from
        SQLBindCol
        eFetch,
        //
        error from SQLFetch
        eFetchScroll,
        // error from
        SQLFetchScroll
        eMoreResults,
        // error from
        SQLMoreResults
        ePrepare,
        // error from
        SQLPrepare
        eExecute,
        // error from
        SQLExecute
        eSetEnvAttr,
        // error from
        SQLSetEnvAttr
        eSetStmtAttr
        // error from
        SQLSetStmtAttr
    };

    CODBCERR(void)
    {
        m_eAction = eNone;
        m_NativeError = 0;
        m_bDeadLock = FALSE;
        m_odbcerrstr = NULL;
    };

    ~CODBCERR()
    {
        if (m_odbcerrstr != NULL)
            delete [] m_odbcerrstr;
    };

    ACTION m_eAction;
    int m_NativeError;
    BOOL m_bDeadLock;
    char *m_odbcerrstr;

    int ErrorType() {return ERR_TYPE_ODBC;};
    int ErrorNum() {return m_NativeError;};
    char *ErrorText() {return m_odbcerrstr;};
};

class CTPCC_ODBC_ERR : public CBaseErr
{
public:
    enum TPCC_ODBC_ERRS
    {
        ERR_WRONG_SP_VERSION = 1,
        // "Wrong version of stored procs on database server"
        ERR_INVALID_CUST,
        // "Invalid Customer id,name."
        ERR_NO_SUCH_ORDER,
        // "No orders found for customer."
        ERR_RETRIED_TRANS,
        // "Retries before transaction succeeded."
    };
};

```

```

        CTPCC_ODBC_ERR( int iErr ) { m_erno = iErr;
m_iTryCount = 0; };

        CTPCC_ODBC_ERR( int iErr, int iTryCount ) {
m_erno = iErr; m_iTryCount = iTryCount; };

        int                m_erno;
        int                m_iTryCount;

        int ErrorType() {return ERR_TYPE_TPCC_ODBC;};
        int ErrorNum() {return m_erno;};

        char *ErrorText();
};

class DllDecl CTPCC_ODBC : public CTPCC_BASE
{
private:
    // declare variables and private functions here...
    BOOL                m_bDeadlock;
transaction was selected as deadlock victim
    int                m_MaxRetries;
// retry count on deadlock

    SQLHENV            m_henv;
// ODBC environment handle
    SQLHDBC            m_hdbc;
    SQLHSTMT            m_hstmt;
the current hstmt

    SQLHSTMT            m_hstmtNewOrder;
    SQLHSTMT            m_hstmtPayment;
    SQLHSTMT            m_hstmtDelivery;
    SQLHSTMT            m_hstmtOrderStatus;
    SQLHSTMT            m_hstmtStockLevel;

    SQLHDESC            m_descNewOrderCols1;
    SQLHDESC            m_descNewOrderCols2;
    SQLHDESC            m_descOrderStatusCols1;
    SQLHDESC            m_descOrderStatusCols2;

    // new-order specific fields
    SQLINTEGER          m_BindOffset;
    SQLINTEGER          m_RowsFetched;
    int                m_no_commit_flag;

    void ThrowError( CODBCERR::ACTION eAction );

    void InitNewOrderParams();
    void InitPaymentParams();
    void InitDeliveryParams();
    void InitStockLevelParams();
    void InitOrderStatusParams();

    union
    {
        NEW_ORDER_DATA
NewOrder;
        PAYMENT_DATA            Payment;
        DELIVERY_DATA            Delivery;
        STOCK_LEVEL_DATA        StockLevel;
        ORDER_STATUS_DATA        OrderStatus;
    } m_txn;

public:
    CTPCC_ODBC(LPCSTR szServer, LPCSTR szUser,
LPCSTR szPassword, LPCSTR szHost, LPCSTR szDatabase);
    ~CTPCC_ODBC(void);

        inline PNEW_ORDER_DATA
BuffAddr_NewOrder() { return &m_txn.NewOrder; };
        inline PPAYMENT_DATA
BuffAddr_Payment() { return &m_txn.Payment; };
        inline PDELIVERY_DATA
BuffAddr_Delivery() { return &m_txn.Delivery; };
        inline PSTOCK_LEVEL_DATA BuffAddr_StockLevel()
{ return &m_txn.StockLevel; };
        inline PORDER_STATUS_DATA
BuffAddr_OrderStatus() { return &m_txn.OrderStatus; };

        void NewOrder            ();
        void Payment            ();
        void Delivery            ();
        void StockLevel          ();
        void OrderStatus         ();
};

// wrapper routine for class constructor
extern "C" DllDecl CTPCC_ODBC* CTPCC_ODBC_new
( LPCSTR szServer, LPCSTR szUser, LPCSTR szPassword,
LPCSTR szHost, LPCSTR szDatabase );

typedef CTPCC_ODBC* (TYPE_CTPCC_ODBC)(LPCSTR, LPCSTR,
LPCSTR, LPCSTR, LPCSTR);

```

trans.h

```

/*      FILE:                TRANS.H
*
*      Microsoft TPC-C Kit Ver.
4.20.000
*
*      Copyright Microsoft, 1999
*
*      All Rights Reserved
*
*      Version 4.10.000 audited by
Richard Gimarc, Performance Metrics, 3/17/99
*
*      PURPOSE:                Header file for TPC-C structure templates.
*
*      Change history:
*      4.20.000 - updated rev number to match kit
*/
#pragma once

// String length constants
#define SERVER_NAME_LEN        20
#define DATABASE_NAME_LEN     20
#define USER_NAME_LEN         20
#define PASSWORD_LEN          20
#define TABLE_NAME_LEN       20
#define I_DATA_LEN            50
#define I_NAME_LEN             24
#define BRAND_LEN              1
#define LAST_NAME_LEN          16
#define W_NAME_LEN             10
#define ADDRESS_LEN            20
#define STATE_LEN              2
#define ZIP_LEN                 9
#define S_DIST_LEN             24
#define S_DATA_LEN             50
#define D_NAME_LEN             10
#define FIRST_NAME_LEN         16
#define MIDDLE_NAME_LEN        2

```

```

#define PHONE_LEN          16
#define DATETIME_LEN       30
#define CREDIT_LEN         2
#define C_DATA_LEN         250
#define H_DATA_LEN         24
#define DIST_INFO_LEN      24
#define MAX_OL_NEW_ORDER_ITEMS 15
#define MAX_OL_ORDER_STATUS_ITEMS 15
#define STATUS_LEN         25
#define OL_DIST_INFO_LEN   24

// TIMESTAMP_STRUCT is provided by the ODBC header file sqltypes.h, but
// is not available
// when compiling with dlib, so redefined here. Note: we are using the symbol
// "_SQLTYPES"
// (declared in sqltypes.h) as a way to determine if TIMESTAMP_STRUCT has
// been declared.
#ifndef __SQLTYPES
typedef struct
{
    short year;
    unsigned short month;
    unsigned short day;
    unsigned short hour;
    unsigned short minute;
    unsigned short second;
    unsigned long fraction;
} TIMESTAMP_STRUCT;
#endif

// possible values for exec_status_code after transaction completes
enum EXEC_STATUS
{
    eOK, // 0 "Transaction
    eInvalidItem, // 1 "Item number is not valid."
    eDeliveryFailed // 2 "Delivery Post Failed."
};

// transaction structures
typedef struct
{
    // input params
    short ol_supply_w_id;
    long ol_i_id;
    short ol_quantity;

    // output params
    char ol_i_name[I_NAME_LEN+1];
    char ol_brand_generic[BRAND_LEN+1];
    double ol_i_price;
    double ol_amount;
    short ol_stock;
} OL_NEW_ORDER_DATA;

typedef struct
{
    // input params
    short w_id;

```

```

    short d_id;
    long c_id;
    short o_ol_cnt;

    // output params
    EXEC_STATUS exec_status_code;
    char c_last[LAST_NAME_LEN+1];
    char c_credit[CREDIT_LEN+1];
    double c_discount;
    double w_tax;
    double d_tax;
    long o_id;
    short o_commit_flag;
    TIMESTAMP_STRUCT o_entry_d;
    short o_all_local;
    double total_amount;
    OL_NEW_ORDER_DATA
    OL[MAX_OL_NEW_ORDER_ITEMS];
} NEW_ORDER_DATA, *PNEW_ORDER_DATA;

typedef struct
{
    // input params
    short w_id;
    short d_id;
    long c_id;
    short c_d_id;
    short c_w_id;
    double h_amount;
    char c_last[LAST_NAME_LEN+1];

    // output params
    EXEC_STATUS exec_status_code;
    TIMESTAMP_STRUCT h_date;
    char w_street_1[ADDRESS_LEN+1];
    char w_street_2[ADDRESS_LEN+1];
    char w_city[ADDRESS_LEN+1];
    char w_state[STATE_LEN+1];
    char w_zip[ZIP_LEN+1];
    char d_street_1[ADDRESS_LEN+1];
    char d_street_2[ADDRESS_LEN+1];
    char d_city[ADDRESS_LEN+1];
    char d_state[STATE_LEN+1];
    char d_zip[ZIP_LEN+1];
    char c_first[FIRST_NAME_LEN+1];
    char c_middle[MIDDLE_NAME_LEN
+ 1];
    char c_street_1[ADDRESS_LEN+1];
    char c_street_2[ADDRESS_LEN+1];
    char c_city[ADDRESS_LEN+1];
    char c_state[STATE_LEN+1];
    char c_zip[ZIP_LEN+1];
    char c_phone[PHONE_LEN+1];
    TIMESTAMP_STRUCT c_since;
    char c_credit[CREDIT_LEN+1];
    double c_credit_lim;
    double c_discount;
    double c_balance;
    char c_data[200+1];
} PAYMENT_DATA, *PPAYMENT_DATA;

typedef struct
{
    long ol_i_id;
    short ol_supply_w_id;
    short ol_quantity;
    double ol_amount;
    TIMESTAMP_STRUCT ol_delivery_d;
} OL_ORDER_STATUS_DATA;

```



```

typedef struct
{
    // input params
    short    w_id;
    short    d_id;
    long     c_id;
    char     c_last[LAST_NAME_LEN+1];

    // output params
    EXEC_STATUS      exec_status_code;
    char             c_first[FIRST_NAME_LEN+1];
    char             c_middle[MIDDLE_NAME_LEN+1];
    double           c_balance;
    long             o_id;
    TIMESTAMP_STRUCT o_entry_d;
    short            o_carrier_id;
    OL_ORDER_STATUS_DATA
OL[MAX_OL_ORDER_STATUS_ITEMS];
    short            o_ol_cnt;
} ORDER_STATUS_DATA, *PORDER_STATUS_DATA;

```

```

typedef struct
{
    // input params
    short    w_id;
    short    o_carrier_id;

    // output params
    EXEC_STATUS      exec_status_code;
    SYSTEMTIME       queue_time;
    long             o_id[10];
} id's of delivered orders for districts 1 to 10
} DELIVERY_DATA, *PDELIVERY_DATA;

```

//This structure is used for posting delivery transactions and for writing them to the delivery server.

```

typedef struct _DELIVERY_TRANSACTION
{
    SYSTEMTIME      queue;           //time
    delivery transaction queued
    short           w_id;           //delivery
    warehouse
    short           o_carrier_id;    //carrier id
} DELIVERY_TRANSACTION;

```

```

typedef struct
{
    // input params
    short    w_id;
    short    d_id;
    short    threshold;

    // output params
    EXEC_STATUS      exec_status_code;
    long             low_stock;
} STOCK_LEVEL_DATA, *PSTOCK_LEVEL_DATA;

```

txn_base.h

```

/*      FILE:      TXN_BASE.H
*
*      4.20.000      Microsoft TPC-C Kit Ver.
*
*      Copyright Microsoft, 1999
*
*      All Rights Reserved
*
*      Version 4.10.000 audited by
Richard Gimarc, Performance Metrics, 3/17/99
*

```

```

*      PURPOSE:      Header file for TPC-C txn class
implementation.
*
*      Change history:
*      4.20.000 - updated rev number to match kit
*/

#pragma once

// need to declare functions for import, unless define has already been created
// by the DLL's .cpp module for export.
#ifdef DllDecl
#define DllDecl __declspec( dllimport )
#endif

```

```

class DllDecl CTPCC_BASE
{
public:
    CTPCC_BASE(void) {};
    virtual ~CTPCC_BASE(void) {};

    virtual PNEW_ORDER_DATA
BuffAddr_NewOrder() = 0;
    virtual PPAYMENT_DATA
BuffAddr_Payment() = 0;
    virtual PDELIVERY_DATA
BuffAddr_Delivery() = 0;
    virtual PSTOCK_LEVEL_DATA
BuffAddr_StockLevel() = 0;
    virtual PORDER_STATUS_DATA
BuffAddr_OrderStatus() = 0;

    virtual void NewOrder() = 0;
    virtual void Payment() = 0;
    virtual void Delivery() = 0;
    virtual void StockLevel() = 0;
    virtual void OrderStatus() = 0;
};

```

txnlog.h

```

/*      FILE:      TXNLOG.H
*
*      4.10.000      Microsoft TPC-C Kit Ver.
*
*      not yet audited
*
*      PURPOSE:      Header file for txn log class
*      Copyright Microsoft, 1999
*
*      All Rights Reserved
*
*/

```

```

#pragma once

typedef struct _TXN_NEWORDER
{
    BYTE    OL_Count;           //range 0 to 31
    BYTE    OL_Remote_Count;    //range 0 to 31
    WORD    c_id;
    int     o_id;
} TXN_NEWORDER;

typedef struct _TXN_PAYMENT
{
    BYTE    CustByName;
    BYTE    IsRemote;
} TXN_PAYMENT;

```

```

typedef struct _TXN_ORDERSTATUS
{
    BYTE    CustByName;
} TXN_ORDERSTATUS;

typedef union _TXN_DETAILS
{
    TXN_NEWORDER    NewOrder;
    TXN_PAYMENT      Payment;
    TXN_ORDERSTATUS OrderStatus;
} TXN_DETAILS;

// Common header for all records in txn log. The TxnType field is
// a switch which identifies the particular variant.
#define TXN_REC_TYPE_CONTROL      1

#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;
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;
    int    DeltaT2;
    int    DeltaT3;
    int    DeltaT4;
    int    RTDelay;
(ms)
    int    TxnError;
providing more detail for TxnStatus
    int    w_id;
warehouse ID
    BYTE    d_id;
district ID for this thread
    BYTE    d_id_ThisTxn;
this particular
    BYTE    TxnStatus;
txn to indicate errors
    BYTE    reserved;
    TXN_DETAILS    TxnDetails;
} TXN_RECORD_TPCC, *PTXN_RECORD_TPCC;

// TPC-C Deferred Delivery Txn Record Layout:
//
//Incorporating delivery transaction information into the above
//structure would increase the size of TXN_DETAILS from 8 to 42
bytes.
//Hence, we store delivery transaction details in a separate structure.
//
typedef struct _TXN_RECORD_TPCC_DELIV_DEF
{
    // common header; must exactly match
TXN_RECORD_HEADER
    JULIAN_TIME    TxnStartT0;
start of txn
    BYTE    TxnType;
TXN_REC_TYPE_TPCC_DELIV_DEF
    BYTE    TxnSubType;
= 0
// end of common header

    int    DeltaT4;
    int    DeltaTxnExec;
time (ms)
    int    w_id;
warehouse ID
    BYTE    TxnStatus;
txn to indicate errors
    BYTE    reserved;
    short    o_carrier_id;
// for word alignment
// carrier id

```

```

long o_id[10]; // returned delivery
transaction ids
} TXN_RECORD_TPCC_DELIV_DEF,
*PTXN_RECORD_TPCC_DELIV_DEF;

#define TXN_LOG_VERSION 2
#define TXN_DATA_START 4096 // offset in
log file where log records start
#define TXN_LOG_EYE_CATCHER "BC" // signature
bytes at the start of log file

////////////////////////////////////
// The transaction log has a header as the first 4K block.
//
typedef struct _TXN_LOG_HEADER
{
    char EyeCatcher[2]; //
signature bytes; should always be "BC"
    int LogVersion;
// set to TXN_LOG_VERSION
    JULIAN_TIME BeginTxnTS;
// timestamp of first (lowest) txn start
    JULIAN_TIME EndTxnTS;
// timestamp of last (highest) txn completion time
    int iRecCount;
// number of records in log file
    BOOL bLogSorted;
    int iFileSize;
// file size in bytes

// the record map provides a fast way to get close to a
particular timestamp in a sorted log file.
//
struct
//
{
    JULIAN_TIME TS;
// timestamp of record
    int
iPos; // byte position in file
//
}
RecMap[RecMapSize];
// #define RecMapSize 200

} TXN_LOG_HEADER, *PTXN_LOG_HEADER;

/* Header of the sorted pointers blocks in Temp file (in merging). */
typedef struct BLOCK_HEADER {
    long BlockPos;
    _int64 CurPos;
    DWORD BytesRead;
    int nRecords;
    BYTE *offset; /* offset of pointers to records in
the log file */
} BLOCK_HEADER, *PBLOCK_HEADER;

#define READ_BUFFER_SIZE 64*1024
#define WRITE_BUFFER_SIZE 8*1024

#define NUM_READ_BUFFERS 1
#define NUM_WRITE_BUFFERS 2
#define MAX_NUM_BUFFERS 2

// flags passed in to the constructor
#define TXN_LOG_WRITE 0x01

#define TXN_LOG_READ 0x02
#define TXN_LOG_SORTED 0x04
#define TXN_LOG_CRASHOPEN 0x08 // if set,
invalid headers will be tolerated; used for recovery

#define TXN_LOG_OS_ERROR 1
#define TXN_LOG_NOT_SORTED 2

#define SKIP_CTRL_RECS 1

class CTxnLog
{
private:
    DWORD iBufferSize;
// buffer allocated size
    DWORD iBytesFreeInBuffer;
// total bytes available for use in buffer
    int iNumBuffers;
// buffers in use
    int iActiveBuffer;
// indicates which buffer is active: 0 or 1
    int iIoBuffer;
// buffer for any pending IO operation
    int iFilePointer;
// position in file.
    LARGE_INTEGER iFilePointer;
// position in file.
    int iNextRec;
// when reading, ordinal value of next record

// A "save point" is remembered each time
GetNextRecord is called with a start time specified.
// The next time it is called, if start time is after the save
point, we start scanning from the
// save point. This is particularly useful in
FindBestInterval, where the log is scanned repeatedly.
    JULIAN_TIME SavePtTime;
//
    int
iSavePtFilePointer;
    LARGE_INTEGER iSavePtFilePointer;
    int
iSavePtNextRec;

    JULIAN_TIME lastTS;
// when writing sorted output, used to verify records are sorted
    BOOL bWrite;
// writing log file
    BOOL bCrashOpen;
// tolerate bad headers and consistency checks

    BOOL bLogSorted;
// is log file sorted? applies to both input and output
    JULIAN_TIME BeginTxnTS;
// timestamp of first (lowest) txn start
    JULIAN_TIME EndTxnTS;
// timestamp of last (highest) txn completion time
    int iRecCount;
// number of records in log file

    BYTE *pCurrent;
// ptr to current buffer
    BYTE
*pBuffer[MAX_NUM_BUFFERS];

    PTXN_RECORD_HEADER *TxnArray;
// transaction record pointer array for sort

    DWORD dwError;

```

```

        HANDLE                hTxnFile;
//handle to log file
        HANDLE                hMapFile;
//map file used when sorting the log
        HANDLE                hIoComplete;
//event to signify that there are no pending IOs
        HANDLE                hLogFileIo;
//event to signal the IO thread to write the inactive buffer

        Spinlock    Spin;
//spin lock to protect the txn log file buffers

        FILE                *tmpFile;
//temp file for merging sorted pieces
        PBLOCK_HEADER        tmpHeaders;
//sorted pointers block header
        BYTE
**recPointers;    //record pointer buffers for each sorted block
        PTXN_RECORD_HEADER    *recBuffers;
//record buffers for each sorted block
        int                *PointersRead;
//# of pointers processed in each block
        BOOL                *BlockAvailable;
//whether to check a particular block for jmin

        int                nBlocks;
        int                jmin;
//index (block-wise) of the lowest timestamp record
        int                iAvgRecordLen;
//average record length

        int                iSortedReturnedCount;
//keeps track of the # of sorted records returned through GetSortedRecord()

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

        void LoadBuffers(int j);
//used in sort/merge to load record buffers

    public:

        CTxnLog::CTxnLog(LPCTSTR szFileName, DWORD
dwOpts);

        ~CTxnLog(void);

        int WriteToLog(PTXN_RECORD_TPCC pTxnRcd);
        int WriteToLog(PTXN_RECORD_TPCC_DELIV_DEF
pTxnRcd);

        int WriteToLog(PTXN_RECORD_CONTROL
pCtrlRec);

        int WriteToLog(PTXN_RECORD_HEADER pCtrlRec);

        int WriteCtrlRecToLog(BYTE SubType, LPCTSTR lpStr,
DWORD dwLen);

        void CloseTransactionLogFile(void);

        PTXN_RECORD_HEADER GetNextRecord(BOOL
bSkipCtrlRecs = FALSE);
        PTXN_RECORD_HEADER
GetNextRecord(JULIAN_TIME SeekTimeT0, BOOL bSkipCtrlRecs =
FALSE);

        int Sort(void);
        PTXN_RECORD_HEADER GetSortedRecord();

```

```

        inline BOOL IsSorted(void) { return bLogSorted; };
        inline JULIAN_TIME BeginTS(void) { return
BeginTxnTS; };

        inline JULIAN_TIME EndTS(void) { return EndTxnTS;
};

        inline int RecordCount(void) { return iRecCount; };
};

class CTXNLOG_ERR : public CBaseErr
{
    public:
        enum CTXNLOG_ERRS
        {
            ERR_BAD_FILE_FORMAT,                //
            "File format is invalid."
            ERR_UNKNOWN_LOG_VERSION,            //
            "Log file version is unknown."
            ERR_BROKEN_LOG_FILE,                //
            "Log file is broken."
            ERR_LOG_NOT_SORTED,
            // "Log file is not sorted"
            ERR_INVALID_TIME_SEQ,                //
            "Internal Error: Record Time Sequence invalid."
        };

        CTXNLOG_ERR(int iErr) : CBaseErr(iErr) {};

        int ErrorType() {return ERR_TYPE_TXNLOG;};

        char *ErrorText()
        {
            static char *szMsgs[] = {
                "File format is invalid.",
                "Log file version is unknown.",
                "Log file is broken.",
                "Log file is not sorted",
                "Internal Error: Record Time
Sequence invalid.",
                ""
            };

            for(int i = 0; szMsgs[i][0]; i++)
            {
                if ( m_idMsg == i )
                    break;
            }

            return(szMsgs[i][0] ? szMsgs[i] :
ERR_UNKNOWN);
        };
};

```

webclnt.dsp

```

# Microsoft Developer Studio Project File - Name="webclnt" - Package
Owner=<4>
# Microsoft Developer Studio Generated Build File, Format Version 5.00
# ** DO NOT EDIT **

# TARGETTYPE "Win32 (x86) Application" 0x0101

CFG=webclnt - Win32 Release
!MESSAGE This is not a valid makefile. To build this project using NMAKE,
!MESSAGE use the Export Makefile command and run
!MESSAGE
!MESSAGE NMAKE /f "Webclnt.mak".
!MESSAGE

```

```

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

```

```

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

```

```

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

```

```

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

```

```

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

```

```

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

```

```

# ADD RSC /I 0x409 /d " _DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbccp32.lib /nologo /subsystem:windows /debug /machine:I386
# ADD LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbcc32.lib odbccp32.lib
/nologo /subsystem:windows /debug /machine:I386

```

```

!ENDIF

```

```

# Begin Target

```

```

# Name "webcInt - Win32 Release"
# Name "webcInt - Win32 Debug"
# End Target
# End Project

```

Stored Procedures

neword.sql

```

-- File:   NEWORD.SQL
--         Microsoft TPC-C Benchmark Kit Ver. 4.42
--         Copyright Microsoft, 2002
-- Purpose: Creates new order transaction stored procedure
--
--         Interface Level: 4.10.000

```

```

use tpcc
go

```

```

if exists ( select name from sysobjects where name = 'tpcc_neworder' )
    drop procedure tpcc_neworder
go

```

```

create proc tpcc_neworder

```

```

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

```

```

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

```

```

    @i_id2     int = 0,

```

```

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

```

```

    @i_id3     int = 0,

```

```

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

```

```

    @i_id4     int = 0,

```

```

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

```

```

    @i_id5     int = 0,

```

```

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

```

```

    @i_id6     int = 0,

```

```

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

```

```

    @i_id7     int = 0,

```

```

    @s_w_id7   int = 0, @ol_qty7   smallint = 0,

```

```

    @i_id8     int = 0,

```

```

    @s_w_id8   int = 0, @ol_qty8   smallint = 0,

```

```

    @i_id9     int = 0,

```

```

    @s_w_id9   int = 0, @ol_qty9   smallint = 0,

```

```

    @i_id10    int = 0,

```

```

    @s_w_id10  int = 0, @ol_qty10  smallint = 0,

```

```

@s_w_id11 int = 0, @ol_qty11 smallint = 0,
@s_w_id12 int = 0, @ol_qty12 smallint = 0,
@s_w_id13 int = 0, @ol_qty13 smallint = 0,
@s_w_id14 int = 0, @ol_qty14 smallint = 0,
@s_w_id15 int = 0, @ol_qty15 smallint = 0

as
declare @w_tax numeric(4,4),
        @d_tax numeric(4,4),
        @c_last char(16),
        @c_credit char(2),
        @c_discount numeric(4,4),
        @i_price numeric(5,2),
        @i_name char(24),
        @i_data char(50),
        @o_entry_d datetime,
        @remote_flag int,
        @s_quantity smallint,
        @s_data char(50),
        @s_dist char(24),
        @li_no int,
        @o_id int,
        @commit_flag tinyint,
        @li_id int,
        @li_s_w_id int,
        @li_qty smallint,
        @ol_number int,
        @c_id_local int

begin
begin transaction n

-- get district tax and next available order id and update
-- plus initialize local variables

        update district
        set @d_tax = d_tax,
            @o_id = d_next_o_id,
            d_next_o_id = d_next_o_id + 1,
            @o_entry_d = getdate(),
            @li_no = 0,
            @commit_flag = 1
        where d_w_id = @w_id and
              d_id = @d_id

-- process orderlines

        while (@li_no < @o_ol_cnt)
        begin

                select @li_no = @li_no + 1

-- set i_id, s_w_id, and qty for this lineitem

                select @li_id = case @li_no
                        when 1 then @i_id1
                        when 2 then @i_id2
                        when 3 then @i_id3
                        when 4 then @i_id4
                        when 5 then @i_id5
                        when 6 then @i_id6
                        when 7 then @i_id7
                        when 8 then @i_id8
                        when 9 then @i_id9
                        when 10 then @i_id10
                        when 11 then @i_id11
                        when 12 then @i_id12
                        when 13 then @i_id13
                        when 14 then @i_id14
                        when 15 then @i_id15
                        end,
                    @li_s_w_id = case @li_no
                        when 1 then @s_w_id1
                        when 2 then @s_w_id2
                        when 3 then @s_w_id3
                        when 4 then @s_w_id4
                        when 5 then @s_w_id5
                        when 6 then @s_w_id6
                        when 7 then @s_w_id7
                        when 8 then @s_w_id8
                        when 9 then @s_w_id9
                        when 10 then @s_w_id10
                        when 11 then @s_w_id11
                        when 12 then @s_w_id12
                        when 13 then @s_w_id13
                        when 14 then @s_w_id14
                        when 15 then @s_w_id15
                        end,
                    @li_qty = case @li_no
                        when 1 then @ol_qty1
                        when 2 then @ol_qty2
                        when 3 then @ol_qty3
                        when 4 then @ol_qty4
                        when 5 then @ol_qty5
                        when 6 then @ol_qty6
                        when 7 then @ol_qty7
                        when 8 then @ol_qty8
                        when 9 then @ol_qty9
                        when 10 then @ol_qty10
                        when 11 then @ol_qty11
                        when 12 then @ol_qty12
                        when 13 then @ol_qty13
                        when 14 then @ol_qty14
                        when 15 then @ol_qty15
                        end

-- get item data (no one updates item)

                select @i_price = i_price,
                    @i_name = i_name,
                    @i_data = i_data
                from item (tablock repeatableread)
                where i_id = @li_id

-- update stock values

                update stock
                set s_ytd = s_ytd + @li_qty,
                    @s_quantity = s_quantity - @li_qty +
                        case
                        when (s_quantity - @li_qty < 10) then 91 else 0 end,
                    s_order_cnt = s_order_cnt + 1,
                    s_remote_cnt = s_remote_cnt + case
                        when (@li_s_w_id = @w_id) then 0 else 1 end,
                    @s_data = s_data,
                    @s_dist = case @d_id

```

```

s_dist_01          when 1 then
s_dist_02          when 2 then
s_dist_03          when 3 then
s_dist_04          when 4 then
s_dist_05          when 5 then
s_dist_06          when 6 then
s_dist_07          when 7 then
s_dist_08          when 8 then
s_dist_09          when 9 then
s_dist_10          when 10 then
                    end
                    where s_i_id = @li_id and
                        s_w_id = @li_s_w_id

-- if there actually is a stock (and item) with these ids, go to work
                    if (@@rowcount > 0)
                        begin

-- insert order_line data (using data from item and stock)
                                insert into order_line values(@o_id,
                                                                @d_id,
                                                                @w_id,
                                                                @li_no,
                                                                @li_id,
                                                                @li_s_w_id,
                                                                'dec 31,
                                                                1899',
                                                                @li_qty,
                                                                @i_price
                                                                * @li_qty,
                                                                @s_dist)

-- send line-item data to client
                                select @i_name,
                                    @s_quantity,
                                    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
                    when 1 then
                    when 2 then
                    when 3 then
                    when 4 then
                    when 5 then
                    when 6 then
                    when 7 then
                    when 8 then
                    when 9 then
                    when 10 then
                    end
                    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 (repeatableread)
                where       c_last     = @c_last and
                           c_w_id     = @c_w_id and
                           c_d_id     = @c_d_id

                select      @val = (@cnt + 1) / 2
                set         rowcount @val

                select      @c_id      = c_id
                from        customer (repeatableread)
                where       c_last     = @c_last and
                           c_w_id     = @c_w_id and
                           c_d_id     = @c_d_id

                order       by c_last, c_first

                set         rowcount 0

        end

-- get customer info and update balances

                update      customer
                set          @c_balance = c_balance = c_balance
- @h_amount,
                c_payment_cnt = c_payment_cnt + 1,
                c_ytd_payment = c_ytd_payment + @h_amount,
                @c_first = c_first,
                @c_middle = c_middle,
                @c_last = c_last,
                @c_street_1 = c_street_1,
                @c_street_2 = c_street_2,
                @c_city = c_city,
                @c_state = c_state,
                @c_zip = c_zip,
                @c_phone = c_phone,
                @c_credit = c_credit,
                @c_credit_lim = c_credit_lim,
                @c_discount = c_discount,
                @c_since = c_since,
                @data = c_data,
                @c_id_local = c_id
                where       c_id      = @c_id and
                           c_w_id     = @c_w_id and
                           c_d_id     = @c_d_id

-- if customer has bad credit get some more info

                if (@c_credit = 'BC')
                begin

-- compute new info

                        select @c_data = convert(char(5),@c_id) +
                                           convert(char(4),@c_d_id) +
                                           convert(char(5),@c_w_id) +
                                           convert(char(4),@d_id) +
                                           convert(char(5),@w_id) +
                                           convert(char(19),@h_amount) +
                                           substring(@data, 1, 458)

```



```

-- update customer info

update customer
set c_data = @c_data

where c_id = @c_id and
c_w_id = @c_w_id and
c_d_id = @c_d_id

select @screen_data = substring (@c_data,1,200)

end

-- get district data and update year-to-date

update district
set d_ytd = d_ytd + @h_amount,
@d_street_1 = d_street_1,
@d_street_2 = d_street_2,
@d_city = d_city,
@d_state = d_state,
@d_zip = d_zip,
@d_name = d_name,
@d_id_local = d_id

where d_w_id = @w_id and
d_id = @d_id

-- get warehouse data and update year-to-date

update warehouse
set w_ytd = w_ytd + @h_amount,
@w_street_1 = w_street_1,
@w_street_2 = w_street_2,
@w_city = w_city,
@w_state = w_state,
@w_zip = w_zip,
@w_name = w_name,
@w_id_local = w_id

where w_id = @w_id

-- create history record

insert into history values ( @c_id_local,
                             @c_d_id,
                             @c_w_id,
                             @d_id_local,
                             @w_id_local,
                             @datetime,
                             @h_amount,
                             @w_name + ' ' +
                             @d_name)
commit tran p

-- return data to client

select @c_id,
@c_last,
@datetime,
@w_street_1,
@w_street_2,
@w_city,
@w_state,
@w_zip,
@d_street_1,
@d_street_2,
@d_city,
@d_state,

```

```

@d_zip,
@c_first,
@c_middle,
@c_street_1,
@c_street_2,
@c_city,
@c_state,
@c_zip,
@c_phone,
@c_since,
@c_credit,
@c_credit_lim,
@c_discount,
@c_balance,
@screen_data

```

go

ordstat.sql

```

-- File:  ORDSTAT.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.42
-- Copyright Microsoft, 2002
-- Purpose:  Creates order status transaction stored procedure
--
-- Interface Level: 4.10.000

```

```

use tpcc
go

```

```

if exists ( select name from sysobjects where name = 'tpcc_orderstatus' )
drop procedure tpcc_orderstatus

```

go

```

create proc tpcc_orderstatus @w_id int,
                             @d_id tinyint,
                             @c_id int,
                             @c_last char(16) = "

```

as

```

declare @c_balance numeric(12,2),
@c_first char(16),
@c_middle char(2),
@o_id int,
@o_entry_d datetime,
@o_carrier_id smallint,
@cnt smallint

```

```

begin tran o

```

```

if (@c_id = 0)
begin

```

```

-- get customer id and info using last name

```

```

select @cnt = (count(*)+1)/2
from customer (repeatableread)
where c_last = @c_last and
c_w_id = @w_id and
c_d_id = @d_id

```

```

set rowcount @cnt

```

```

select @c_id = c_id,
@c_balance = c_balance,
@c_first = c_first,

```

```

                @c_last = c_last,
                @c_middle = c_middle
from customer (repeatableread)
where c_last = @c_last and
      c_w_id = @w_id and
      c_d_id = @d_id
order by c_w_id, c_d_id, c_last, c_first

set rowcount 0

end

else

begin

-- get customer info if by id

select @c_balance = c_balance,
       @c_first = c_first,
       @c_middle = c_middle,
       @c_last = c_last
from customer (repeatableread)
where c_id = @c_id and
      c_d_id = @d_id and
      c_w_id = @w_id

select @cnt = @@rowcount

end

-- if no such customer

if (@cnt = 0)
begin
    raiserror('Customer not found',18,1)
    goto custnotfound
end

-- get order info

select @o_id = o_id,
       @o_entry_d = o_entry_d,
       @o_carrier_id = o_carrier_id
from orders (serializable)
where o_c_id = @c_id and
      o_d_id = @d_id and
      o_w_id = @w_id
order by o_id asc

-- select order lines for the current order

select ol_supply_w_id,
       ol_i_id,
       ol_quantity,
       ol_amount,
       ol_delivery_d
from order_line (repeatableread)
where ol_o_id = @o_id and
      ol_d_id = @d_id and
      ol_w_id = @w_id

custnotfound:

commit tran o

-- return data to client

select @c_id,

```

```

@c_last,
@c_first,
@c_middle,
@o_entry_d,
@o_carrier_id,
@c_balance,
@o_id

```

Go

delivery.sql

```

-- File: DELIVERY.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.42
-- Copyright Microsoft, 2002
-- Purpose: Creates delivery transaction stored procedure
--
-- Interface Level: 4.10.000

use tpcc
go

if exists (select name from sysobjects where name = 'tpcc_delivery' )
    drop procedure tpcc_delivery
go

create proc tpcc_delivery @w_id int,
                        @o_carrier_id smallint
as

declare @d_id tinyint,
        @o_id int,
        @c_id int,
        @total numeric(12,2),
        @oid1 int,
        @oid2 int,
        @oid3 int,
        @oid4 int,
        @oid5 int,
        @oid6 int,
        @oid7 int,
        @oid8 int,
        @oid9 int,
        @oid10 int

select @d_id = 0

begin tran d

    while (@d_id < 10)
    begin

        select @d_id = @d_id + 1,
               @total = 0,
               @o_id = 0

        select top 1
               @o_id = no_o_id
        from new_order (serializable uplock)
        where no_w_id = @w_id and
              no_d_id = @d_id
        order by no_o_id asc

        if (@@rowcount <> 0)
        begin

```

```

-- claim the order for this district

delete new_order
where no_w_id = @w_id and
      no_d_id = @d_id and
      no_o_id = @o_id

-- set carrier_id on this order (and get customer id)

update orders
set o_carrier_id =

@o_carrier_id,

where @c_id = o_c_id
      o_w_id = @w_id
and
      o_d_id = @d_id
and
      o_id = @o_id

-- set date in all lineitems for this order (and sum amounts)

update order_line
set ol_delivery_d = getdate(),
  @total = @total +

ol_amount
where ol_w_id = @w_id
and
      ol_d_id = @d_id
and
      ol_o_id = @o_id

-- accumulate lineitem amounts for this order into customer

update customer
set c_balance = c_balance + @total,
  c_delivery_cnt =

c_delivery_cnt + 1
where c_w_id = @w_id
and
      c_d_id = @d_id
and
      c_id = @c_id

end

select @oid1 = case @d_id when 1 then @o_id else @oid1 end,
       @oid2 = case @d_id when 2 then @o_id else @oid2 end,
       @oid3 = case @d_id when 3 then @o_id else @oid3 end,
       @oid4 = case @d_id when 4 then @o_id else @oid4 end,
       @oid5 = case @d_id when 5 then @o_id else @oid5 end,
       @oid6 = case @d_id when 6 then @o_id else @oid6 end,
       @oid7 = case @d_id when 7 then @o_id else @oid7 end,
       @oid8 = case @d_id when 8 then @o_id else @oid8 end,
       @oid9 = case @d_id when 9 then @o_id else @oid9 end,
       @oid10 = case @d_id when 10 then @o_id else @oid10 end

end

commit tran d

-- return delivery data to client

select @oid1,
       @oid2,
       @oid3,
       @oid4,
       @oid5,
       @oid6,

```

```

@oid7,
@oid8,
@oid9,
@oid10

```

Go

Stocklev.sql

```

-- File: STOCKLEV.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.42
-- Copyright Microsoft, 2002
-- Purpose: Creates stock level transaction stored procedure
--
-- Interface Level: 4.10.000

use tpcc
go

if exists (select name from sysobjects where name = 'tpcc_stocklevel' )
drop procedure tpcc_stocklevel
go

create proc tpcc_stocklevel @w_id int,
                           @d_id tinyint,
                           @threshold smallint
as

declare @o_id_low int,
        @o_id_high int

select @o_id_low = (d_next_o_id - 20),
       @o_id_high = (d_next_o_id - 1)
from district
where d_w_id = @w_id and
      d_id = @d_id

select count(distinct(s_i_id))
from stock, order_line
where ol_w_id = @w_id and
      ol_d_id = @d_id and
      ol_o_id between @o_id_low and
                  @o_id_high and
      s_w_id = ol_w_id and
      s_i_id = ol_i_id and
      s_quantity < @threshold

go

```

version.sql

```

-- File: VERSION.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.41
-- Copyright Microsoft, 2001
-- Purpose: Returns version level of TPC-C stored procs
-- Note: Always update the return value of this proc for
--       any interface changes or 'must have' bug fixes.
--
-- The value returned by this SP defines the 'interface level',
-- which must match between the stored procs and the client code.
-- The interface level may be down rev from the current kit. This
-- indicates that the interface hasn't changed since that version.

use tpcc
go

```

```
if exists ( select name from sysobjects where name = 'tpcc_version' )
    drop procedure tpcc_version
go

create proc tpcc_version
as
declare    @version char(8)

begin
    select @version = '4.10.000'
    select @version as 'Version'
end

go
```

Appendix B: Database Design

Database Build

createdb.sql

```
-- File:   CREATEDB.SQL
--        Microsoft TPC-C Benchmark Kit Ver. 4.41
--        Copyright Microsoft, 2001
-- Purpose: Creates tpcc database and backup files

use master
go

--        Create temporary table for timing

if exists ( select name from sysobjects where name = 'tpcc_timer' )
    drop table tpcc_timer
go

create table tpcc_timer
(
    start_date          char(30),
    end_date            char(30)
)

insert    into tpcc_timer values (0,0)
go

--        Store starting time

update    tpcc_timer
set       start_date = (select convert(char(30), getdate(),9))
go

-- create main database files

CREATE DATABASE tpcc
ON PRIMARY
(
    NAME          = MSSQL_tpcc_root,
    FILENAME      = 'F:\MSSQL_tpcc_root.mdf',
    SIZE          = 8MB,
    FILEGROWTH    = 0),
FILEGROUP        MSSQL_misc_fg
(
    NAME          = MSSQL_misc1,
    FILENAME      = 'C:\mp\m1\',
    SIZE          = 15000MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc2,
    FILENAME      = 'C:\mp\m2\',
    SIZE          = 15000MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc3,
    FILENAME      = 'C:\mp\m3\',
    SIZE          = 15000MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc4,
    FILENAME      = 'C:\mp\m4\',
    SIZE          = 15000MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc5,
    FILENAME      = 'C:\mp\m5\',
    SIZE          = 15000MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc6,
```

```
FILENAME        = 'C:\mp\m6\',
SIZE            = 15000MB,
FILEGROWTH      = 0),
(
    NAME          = MSSQL_misc7,
    FILENAME      = 'C:\mp\m7\',
    SIZE          = 15000MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc8,
    FILENAME      = 'C:\mp\m8\',
    SIZE          = 15000MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc9,
    FILENAME      = 'C:\mp\m9\',
    SIZE          = 15000MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc10,
    FILENAME      = 'C:\mp\m10\',
    SIZE          = 15000MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc11,
    FILENAME      = 'C:\mp\m11\',
    SIZE          = 15000MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc12,
    FILENAME      = 'C:\mp\m12\',
    SIZE          = 15000MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc13,
    FILENAME      = 'C:\mp\m13\',
    SIZE          = 15000MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc14,
    FILENAME      = 'C:\mp\m14\',
    SIZE          = 15000MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc15,
    FILENAME      = 'C:\mp\m15\',
    SIZE          = 15000MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc16,
    FILENAME      = 'C:\mp\m16\',
    SIZE          = 15000MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc17,
    FILENAME      = 'C:\mp\m17\',
    SIZE          = 15000MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_misc18,
    FILENAME      = 'C:\mp\m18\',
    SIZE          = 15000MB,
    FILEGROWTH    = 0),
FILEGROUP        MSSQL_cs_fg
(
    NAME          = MSSQL_cs1,
    FILENAME      = 'c:\mp\c1\',
    SIZE          = 27000MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_cs2,
    FILENAME      = 'c:\mp\c2\',
    SIZE          = 27000MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_cs3,
    FILENAME      = 'c:\mp\c3\',
    SIZE          = 27000MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL_cs4,
    FILENAME      = 'c:\mp\c4\',
    SIZE          = 27000MB,
```

```

( FILEGROWTH = 0),
  NAME       = MSSQL_cs5,
  FILENAME   = 'c:\mp\c5\',
  SIZE       = 27000MB,
  FILEGROWTH = 0),
( NAME       = MSSQL_cs6,
  FILENAME   = 'c:\mp\c6\',
  SIZE       = 27000MB,
  FILEGROWTH = 0),
( NAME       = MSSQL_cs7,
  FILENAME   = 'c:\mp\c7\',
  SIZE       = 27000MB,
  FILEGROWTH = 0),
( NAME       = MSSQL_cs8,
  FILENAME   = 'c:\mp\c8\',
  SIZE       = 27000MB,
  FILEGROWTH = 0),
( NAME       = MSSQL_cs9,
  FILENAME   = 'c:\mp\c9\',
  SIZE       = 27000MB,
  FILEGROWTH = 0),
( NAME       = MSSQL_cs10,
  FILENAME   = 'c:\mp\c10\',
  SIZE       = 27000MB,
  FILEGROWTH = 0),
( NAME       = MSSQL_cs11,
  FILENAME   = 'c:\mp\c11\',
  SIZE       = 27000MB,
  FILEGROWTH = 0),
( NAME       = MSSQL_cs12,
  FILENAME   = 'c:\mp\c12\',
  SIZE       = 27000MB,
  FILEGROWTH = 0),
( NAME       = MSSQL_cs13,
  FILENAME   = 'c:\mp\c13\',
  SIZE       = 27000MB,
  FILEGROWTH = 0),
( NAME       = MSSQL_cs14,
  FILENAME   = 'c:\mp\c14\',
  SIZE       = 27000MB,
  FILEGROWTH = 0),
( NAME       = MSSQL_cs15,
  FILENAME   = 'c:\mp\c15\',
  SIZE       = 27000MB,
  FILEGROWTH = 0),
( NAME       = MSSQL_cs16,
  FILENAME   = 'c:\mp\c16\',
  SIZE       = 27000MB,
  FILEGROWTH = 0),
( NAME       = MSSQL_cs17,
  FILENAME   = 'c:\mp\c17\',
  SIZE       = 27000MB,
  FILEGROWTH = 0),
( NAME       = MSSQL_cs18,
  FILENAME   = 'c:\mp\c18\',
  SIZE       = 27000MB,
  FILEGROWTH = 0)

```

```

LOG ON
( NAME       = MSSQL_tpcc_log,
  FILENAME   = 'E:',
  SIZE       = 226000MB,
  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 > 8184
go

```

```

select count(*) from warehouse
go
select * from warehouse where w_id > 8184
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 tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists ( select name from sysindexes where name = 'orders_c1' )
    drop index orders.orders_c1

create unique clustered index orders_c1 on orders(o_w_id, o_d_id, o_id)
    on MSSQL_misc_fg

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate, @enddate)

go

```

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 tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

```

```

if exists ( select name from sysindexes where name = 'orders_nc1' )
    drop index 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 tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists ( select name from sysindexes where name = 'stock_c1' )
    drop index stock.stock_c1

create unique clustered index stock_c1 on stock(s_i_id, s_w_id)
    on MSSQL_cs_fg

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate, @enddate)

go

```

idxwarcl.sql

```

-- File:  IDXWARCL.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.41
--      Copyright Microsoft, 2001
-- Purpose: Creates clustered index on warehouse table

```

```

use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

if exists ( select name from sysindexes where name = 'warehouse_c1' )
    drop index warehouse.warehouse_c1

create unique clustered index warehouse_c1 on warehouse(w_id)
    with fillfactor=100 on MSSQL_misc_fg

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate, @enddate)

```

```
go
```

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 tpcc database and issues a shutdown
--

use tpcc
go
checkpoint
go
shutdown
go
```

tables.sql

```
-- File:  TABLES.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.42
--      Copyright Microsoft, 2002
-- Purpose: Creates TPC-C tables

SET ANSI_NULL_DFLT_OFF ON
go
```

```
use tpcc
go

--
-- Remove all existing TPC-C tables
--

if exists ( select name from sysobjects where name = 'warehouse' )
    drop table warehouse
go
if exists ( select name from sysobjects where name = 'district' )
    drop table district
go
if exists ( select name from sysobjects where name = 'customer' )
    drop table customer
go
if exists ( select name from sysobjects where name = 'history' )
    drop table history
go
if exists ( select name from sysobjects where name = 'new_order' )
    drop table new_order
go
if exists ( select name from sysobjects where name = 'orders' )
    drop table orders
go
if exists ( select name from sysobjects where name = 'order_line' )
    drop table order_line
go
if exists ( select name from sysobjects where name = 'item' )
    drop table item
go
if exists ( select name from sysobjects where name = 'stock' )
    drop table stock
go

--
-- Create new tables
--

create table warehouse
(
    w_id                int,
    w_name              char(10),
    w_street_1          char(20),
    w_street_2          char(20),
    w_city              char(20),
    w_state             char(2),
    w_zip              char(9),
    w_tax              numeric(4,4),
    w_ytd              numeric(12,2)
) on MSSQL_misc_fg
go

create table district
(
    d_id                tinyint,
    d_w_id              int,
    d_name              char(10),
    d_street_1          char(20),
    d_street_2          char(20),
    d_city              char(20),
    d_state             char(2),
    d_zip              char(9),
    d_tax              numeric(4,4),
    d_ytd              numeric(12,2),
    d_next_o_id         int
) on MSSQL_misc_fg
```

```

go

create table customer
(
    c_id                int,
    c_d_id              tinyint,
    c_w_id              int,
    c_first             char(16),
    c_middle            char(2),
    c_last              char(16),
    c_street_1          char(20),
    c_street_2          char(20),
    c_city              char(20),
    c_state             char(2),
    c_zip              char(9),
    c_phone             char(16),
    c_since             datetime,
    c_credit            char(2),
    c_credit_lim        numeric(12,2),
    c_discount          numeric(4,4),
    c_balance           numeric(12,2),
    c_ytd_payment       numeric(12,2),
    c_payment_cnt       smallint,
    c_delivery_cnt      smallint,
    c_data              char(500)
) on MSSQL_cs_fg
go

create table history
(
    h_c_id              int,
    h_c_d_id            tinyint,
    h_c_w_id            int,
    h_d_id              tinyint,
    h_w_id              int,
    h_date              datetime,
    h_amount            numeric(6,2),
    h_data              char(24)
) on MSSQL_misc_fg
go

create table new_order
(
    no_o_id             int,
    no_d_id             tinyint,
    no_w_id             int
) on MSSQL_misc_fg
go

create table orders
(
    o_id                int,
    o_d_id              tinyint,
    o_w_id              int,
    o_c_id              int,
    o_entry_d           datetime,
    o_carrier_id        tinyint,
    o_ol_cnt            tinyint,
    o_all_local         tinyint
) on MSSQL_misc_fg
go

create table order_line
(
    ol_o_id             int,
    ol_d_id             tinyint,
    ol_w_id             int,
    ol_number           tinyint,

```

```

    ol_i_id            int,
    ol_supply_w_id      int,
    ol_delivery_d       datetime,
    ol_quantity         smallint,
    ol_amount           numeric(6,2),
    ol_dist_info        char(24)
) on MSSQL_misc_fg
go

create table item
(
    i_id               int,
    i_im_id            int,
    i_name             char(24),
    i_price            numeric(5,2),
    i_data             char(50)
) on MSSQL_misc_fg
go

create table stock
(
    s_i_id             int,
    s_w_id             int,
    s_quantity         smallint,
    s_dist_01          char(24),
    s_dist_02          char(24),
    s_dist_03          char(24),
    s_dist_04          char(24),
    s_dist_05          char(24),
    s_dist_06          char(24),
    s_dist_07          char(24),
    s_dist_08          char(24),
    s_dist_09          char(24),
    s_dist_10          char(24),
    s_ytd              int,
    s_order_cnt         smallint,
    s_remote_cnt        smallint,
    s_data             char(50)
) on MSSQL_cs_fg
Go

```

Load Source Code

getargs.c

```

//      File:                GETARGS.C
//
//      Microsoft TPC-C Kit Ver. 4.41
//      Copyright Microsoft, 1996, 1997,
//      1998, 1999, 2000, 2001
//      Purpose:   Source file for command line processing

// Includes
#include "tpcc.h"

//=====
//
// Function name: GetArgsLoader
//
//=====

void GetArgsLoader(int argc, char **argv, TPCCLDR_ARGS *pargs)
{
    int                i;
    char              *ptr;

```

<pre> #ifdef DEBUG printf("[%ld]DBG: Entering GetArgsLoader()\n", (int) GetCurrentThreadId()); #endif /* init args struct with some useful values */ pargs->server = SERVER; pargs->user = USER; pargs->password = PASSWORD; pargs->database = DATABASE; pargs->batch = BATCH; pargs->num_warehouses = UNDEF; pargs->tables_all = TRUE; pargs->table_item = FALSE; pargs->table_warehouse = FALSE; pargs->table_customer = FALSE; pargs->table_orders = FALSE; pargs->loader_res_file = LOADER_RES_FILE; pargs->log_path = LOG_PATH; pargs->pack_size = DEFLDPACKSIZE; pargs->starting_warehouse = DEF_STARTING_WAREHOUSE; pargs->build_index = BUILD_INDEX; pargs->index_order = INDEX_ORDER; pargs->index_script_path = INDEX_SCRIPT_PATH; pargs->scale_down = SCALE_DOWN; /* check for zero command line args */ if (argc == 1) GetArgsLoaderUsage(); for (i = 1; i < argc; ++i) { if (argv[i][0] != '.' && argv[i][0] != '/') { printf("\nUnrecognized command"); GetArgsLoaderUsage(); exit(1); } ptr = argv[i]; switch (ptr[1]) { case '?': /* Fall through */ 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': </pre>	<pre> 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 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; </pre>
--	--

```

        case 'd':
            pargs->index_script_path = ptr+2;
            break;

        default:
            GetArgsLoaderUsage();
            exit(-1);
            break;
    }

}

/* check for required args */
if (pargs->num_warehouses == UNDEF )
{
    printf("Number of Warehouses is required\n");
    exit(-2);
}

return;
}

```

```

//=====
//
// Function name: GetArgsLoaderUsage
//
//=====

```

```

void GetArgsLoaderUsage()
{

```

```

#ifdef DEBUG
    printf("[%ld]DBG: Entering GetArgsLoaderUsage()\n", (int)
    GetCurrentThreadId());
#endif

```

```

    printf("TPCCLDR:\n\n");
    printf("Parameter                      Default\n");
    printf("-----\n");
    printf("-W Number of Warehouses to Load      Required\n");
    printf("-S Server                             %s\n", SERVER);
    printf("-U Username                           %s\n", USER);
    printf("-P Password                           %s\n", PASSWORD);
    printf("-D Database                           %s\n", DATABASE);
    printf("-b Batch Size                          %ld\n", (long)
BATCH);
    printf("-p TDS packet size                     %ld\n", (long)
DEFLDPAKSIZE);
    printf("-f Loader Results Output Filename      %s\n",
LOADER_RES_FILE);
    printf("-s Starting Warehouse                  %ld\n", (long)
DEF_STARTING_WAREHOUSE);
    printf("-i Build Option (data = 0, data and index = 1) %ld\n",
(long) BUILD_INDEX);
    printf("-o Cluster Index Build Order (before = 1, after = 0) %ld\n",
(long) INDEX_ORDER);
    printf("-c Build Scaled Database (normal = 0, tiny = 1) %ld\n",
(long) SCALE_DOWN);
    printf("-d Index Script Path                    %s\n",
INDEX_SCRIPT_PATH);
    printf("-t Table to Load                       all tables\n");
    printf(" [item|warehouse|customer|orders]\n");
    printf(" Notes: \n");
    printf(" - the '-t' parameter may be included multiple times to \n");
    printf(" specify multiple tables to be loaded \n");

```

```

    printf(" - 'item' loads ITEM table \n");
    printf(" - 'warehouse' loads WAREHOUSE, DISTRICT, and STOCK
tables \n");
    printf(" - 'customer' loads CUSTOMER and HISTORY tables \n");
    printf(" - 'orders' load NEW-ORDER, ORDERS, ORDER-LINE tables
\n");

```

```

    printf("\nNote: Command line switches are case sensitive.\n");

```

```

    exit(0);
}

```

random.c

```

//      File:                RANDOM.C
//
//                        Microsoft TPC-C Kit Ver. 4.41
//                        Copyright Microsoft, 1996, 1997,
1998, 1999, 2000, 2001
//      Purpose:   Random number generation routines for database loader

```

```

// Includes
#include "tpcc.h"
#include "math.h"

```

```

// Defines
#define A      16807
#define M      2147483647
#define Q      127773 /* M div A */
#define R      2836 /* M mod A */
#define Thread __declspec(thread)

```

```

// Globals
long      Thread Seed = 0; /* thread local seed */

```

```

/*****
*****
*
*
* random -
* Implements a GOOD pseudo random number generator. This generator
*
* will/should? run the complete period before repeating.
*
* Copied from:
* Random Numbers Generators: Good Ones Are Hard to Find.
* Communications of the ACM - October 1988 Volume 31 Number 10
*
* Machine Dependencies:
* long must be 2 ^ 31 - 1 or greater.
*
*****
*****/

```

```

/*****
*****
* seed - load the Seed value used in irand and drand. Should be used before *
* first call to irand or drand.
*
*****
*****/

```

```

void seed(long val)
{
#ifdef DEBUG
    printf("[%ld]DBG: Entering seed(...)\n", (int) GetCurrentThreadId());
    printf("Old Seed %ld New Seed %ld\n", Seed, val);
#endif

```

```

if ( val < 0 )
    val = abs(val);

Seed = val;
}

/*****
*****
*
*
* irand - returns a 32 bit integer pseudo random number with a period of *
* 1 to 2 ^ 32 - 1.
*
* parameters:
* none.
*
* returns:
* 32 bit integer - defined as long ( see above ).
*
* side effects:
* seed get recomputed.
*****/

long irand()
{
    register long s; /* copy of seed */
    register long test; /* test flag */
    register long hi; /* tmp value for speed */
    register long lo; /* tmp value for speed */

#ifdef DEBUG
    printf("[%ld]DBG: Entering irand()...\n", (int) GetCurrentThreadId());
#endif

    s = Seed;
    hi = s / Q;
    lo = s % Q;

    test = A * lo - R * hi;
    if ( test > 0 )
        Seed = test;
    else
        Seed = test + M;

    return( Seed );
}

/*****
*****
*
*
* drand - returns a double pseudo random number between 0.0 and 1.0. *
* See irand.
*****/

double drand()
{
#ifdef DEBUG
    printf("[%ld]DBG: Entering drand()...\n", (int) GetCurrentThreadId());
#endif

    return( (double)irand() / 2147483647.0);
}

```

```

//=====
//
// Function : RandomNumber
//
// Description:
//=====

long RandomNumber(long lower, long upper)
{
    long rand_num;

#ifdef DEBUG
    printf("[%ld]DBG: Entering RandomNumber()...\n", (int)
GetCurrentThreadId());
#endif

    if ( upper == lower ) /* pgd 08-13-96 perf enhancement */
        return lower;

    upper++;

    if ( upper <= lower )
        rand_num = upper;
    else
        rand_num = lower + irand() % (upper - lower); /* pgd
08-13-96 perf enhancement */

#ifdef DEBUG
    printf("[%ld]DBG: RandomNumber between %ld & %ld ==> %ld\n",
(int) GetCurrentThreadId(), lower,
upper, rand_num);
#endif

    return rand_num;
}

#if 0
//Original code pgd 08/13/96

long RandomNumber(long lower,
long upper)
{
    long rand_num;

#ifdef DEBUG
    printf("[%ld]DBG: Entering RandomNumber()...\n", (int)
GetCurrentThreadId());
#endif

    upper++;

    if ((upper <= lower))
        rand_num = upper;
    else
        rand_num = lower + irand() % ((upper > lower) ? upper -
lower : upper);

#ifdef DEBUG
    printf("[%ld]DBG: RandomNumber between %ld & %ld ==> %ld\n",
(int) GetCurrentThreadId(), lower,
upper, rand_num);
#endif
}

```

```

    return rand_num;
}
#endif

//=====
// Function : NURand
//
// Description:
//=====

long NURand(int iConst,
            long x,
            long y,
            long C)
{
    long rand_num;

#ifdef DEBUG
    printf("[%d]DBG: Entering NURand(...\n", (int) GetCurrentThreadId());
#endif

    rand_num = (((RandomNumber(0,iConst) | RandomNumber(x,y)) + C) %
(y-x+1))+x;

#ifdef DEBUG
    printf("[%d]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("[%d]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("[%d]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("[%d]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 <%d> out of range
(0,999)\n", num);
        exit(-1);
    }

#ifdef DEBUG
    printf("[%d]DBG: LastName: num = [%d] ==> [%d][%d][%d]\n",
                                (int) GetCurrentThreadId(), num, num/100,
(num/10)%10, num%10);
    printf("[%d]DBG: LastName: String = %s\n", (int)
GetCurrentThreadId(), name);
#endif

    return;
}

```

<pre> } //===== // // 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,</pre>	<pre> 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));</pre>
--	---


```

        str[16] = 0;

    return 16;
}

//=====
//
// Function name: MakeZipNumberString
//
//=====
int MakeZipNumberString(int x, int y, int z, char *str)
{
    char tmp[16];

    //MakeZipNumberString is always called MakeZipNumberString(9,
    9, 9, string)

    strcpy(str, "000011111");

    itoa(RandomNumber(0, 9999), tmp, 10);
    memcpy(str, tmp, strlen(tmp));

    return 9;
}

//=====
//
// Function name: InitString
//
//=====
void InitString(char *str, int len)
{
#ifdef DEBUG
    printf("[%ld]DBG: Entering InitString()\n", (int) GetCurrentThreadId());
#endif

    memset(str, ' ', len);
    str[len] = 0;
}

//=====
//
// Function name: InitAddress
//
// Description:
//
//=====
void InitAddress(char *street_1, char *street_2, char *city, char *state, char
*zip)
{
    memset(street_1, ' ', ADDRESS_LEN+1);
    memset(street_2, ' ', ADDRESS_LEN+1);
    memset(city, ' ', ADDRESS_LEN+1);

    street_1[ADDRESS_LEN+1] = 0;
    street_2[ADDRESS_LEN+1] = 0;
    city[ADDRESS_LEN+1] = 0;

    memset(state, ' ', STATE_LEN+1);

```

```

    state[STATE_LEN+1] = 0;

    memset(zip, ' ', ZIP_LEN+1);
    zip[ZIP_LEN+1] = 0;
}

//=====
//
// Function name: PaddString
//
//=====
void PaddString(int max, char *name)
{
    int len;

    len = strlen(name);
    if ( len < max )
        memset(name+len, ' ', max - len);
    name[max] = 0;

    return;
}

time.c

// File: TIME.C
// Microsoft TPC-C Kit Ver. 4.41
// Copyright Microsoft, 1996, 1997,
1998, 1999, 2000, 2001
// Purpose: Source file for time functions

// Includes
#include "tpcc.h"

// Globals
static long start_sec;

//=====
//
// Function name: TimeNow
//
//=====
long TimeNow()
{
    long time_now;
    struct _timeb el_time;

#ifdef DEBUG
    printf("[%ld]DBG: Entering TimeNow()\n", (int) GetCurrentThreadId());
#endif

    _ftime(&el_time);

    time_now = ((el_time.time - start_sec) * 1000) + el_time.millitm;

    return time_now;
}

```

tpcc.h

```
//      File:          TPCC.H
//
//      Microsoft TPC-C Kit Ver. 4.41
//      Copyright Microsoft, 1996, 1997,
//      1998, 1999, 2000, 2001
//      Purpose:  Header file for TPC-C database loader
```

```
// Build number of TPC Benchmark Kit
#define TPCKIT_VER      "4.41"
```

```
// General headers
#include <windows.h>
#include <winbase.h>
#include <stdlib.h>
#include <stdio.h>
#include <process.h>
#include <stddef.h>
#include <stdarg.h>
#include <string.h>
#include <time.h>
#include <sys/timeb.h>
#include <sys/types.h>
```

```
// ODBC headers
#include <sql.h>
#include <sqlext.h>
#include <odbc.h>
```

```
// General constants
#define MILLI          1000
#define FALSE          0
#define TRUE           1
#define UNDEF          -1
#define MINPRINTASCII 32
#define MAXPRINTASCII 126
```

```
// Default environment constants
#define SERVER          ""
#define DATABASE        "tpcc"
#define USER            "sa"
#define PASSWORD        ""
```

```
// Default loader arguments
#define BATCH           10000
#define DEFLDPAKSIZE   32768
#define LOADER_RES_FILE "C:\\MSTPCC.440\\SETUP\\logs\\load.out"
#define LOG_PATH        "C:\\MSTPCC.440\\SETUP\\LOGS\\";
#define LOADER_NURAND_C 123
#define DEF_STARTING_WAREHOUSE 1
#define BUILD_INDEX     1
// build both data and indexes
#define INDEX_ORDER     1
// build indexes before load
#define SCALE_DOWN      0
// build a normal scale database
#define INDEX_SCRIPT_PATH "scripts"
```

```
typedef struct
{
    char          *server;
    char          *database;
    char          *user;
    char          *password;
    BOOL          tables_all;
} set if loading all tables
```

```
    BOOL          table_item;
// set if loading ITEM table specifically
    BOOL          table_warehouse; //
set if loading WAREHOUSE, DISTRICT, and STOCK
    BOOL          table_customer;
// set if loading CUSTOMER and HISTORY
    BOOL          table_orders;
// set if loading NEW-ORDER, ORDERS, ORDER-LINE
    long          num_warehouses;
    long          batch;
    long          verbose;
    long          pack_size;
    char          *loader_res_file;
    char          *log_path;
    char          *synch_servername;
    long          case_sensitivity;
    long          starting_warehouse;
    long          build_index;
    long          index_order;
    long          scale_down;
    char          *index_script_path;
} TPCCLDR_ARGS;
```

```
// String length constants
#define SERVER_NAME_LEN      20
#define DATABASE_NAME_LEN   20
#define USER_NAME_LEN       20
#define PASSWORD_LEN        20
#define TABLE_NAME_LEN    20
#define I_DATA_LEN          50
#define I_NAME_LEN          24
#define BRAND_LEN           1
#define LAST_NAME_LEN       16
#define W_NAME_LEN          10
#define ADDRESS_LEN         20
#define STATE_LEN           2
#define ZIP_LEN              9
#define S_DIST_LEN          24
#define S_DATA_LEN          50
#define D_NAME_LEN          10
#define FIRST_NAME_LEN      16
#define MIDDLE_NAME_LEN     2
#define PHONE_LEN           16
#define CREDIT_LEN          2
#define C_DATA_LEN          500
#define H_DATA_LEN          24
#define DIST_INFO_LEN       24
#define MAX_OL_NEW_ORDER_ITEMS 15
#define MAX_OL_ORDER_STATUS_ITEMS 15
#define STATUS_LEN          25
#define OL_DIST_INFO_LEN    24
#define C_SINCE_LEN         23
#define H_DATE_LEN          23
#define OL_DELIVERY_D_LEN   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
    char    c_balance;
    char    c_balance[6];
    double  c_ytd_payment;
    short   c_payment_cnt;
    short   c_delivery_cnt;
    char
    c_data[C_DATA_LEN+1];
    double  h_amount;
    char    h_data[H_DATA_LEN+1];
} CUSTOMER_STRUCT;

```

```

typedef struct
{
    char
    c_last[LAST_NAME_LEN+1];

```

```

        char
c_first[FIRST_NAME_LEN+1];
        long
    } 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
    printf("\n*
    printf("\n*");

    printf("\n*****\n\n");

    // process command line arguments

    aptr = &args;
    GetArgsLoader(argc, argv, aptr);

    // verify database and tables exist before attempting to load
    //CheckDataBase();

    printf("Build interface is ODBC.\n");

    if (aptr->build_index == 0)
        printf("Data load only - no index creation.\n");
    else
        printf("Data load and index creation.\n");

    if (aptr->index_order == 0)
        printf("Clustered indexes will be created after bulk
load.\n");
    else
        printf("Clustered indexes will be created before bulk
load.\n");

    // set database scale values
    if (aptr->scale_down == 1)
    {
        printf("*** Scaled Down Database ***\n");
        max_items = MAXITEMS_SCALE_DOWN;
        customers_per_district =
CUSTOMERS_SCALE_DOWN;
        orders_per_district = ORDERS_SCALE_DOWN;
        first_new_order = 0;
        last_new_order = 30;
    }
    else
    {
        max_items = MAXITEMS;
        customers_per_district =
CUSTOMERS_PER_DISTRICT;
        orders_per_district = ORDERS_PER_DISTRICT;
        first_new_order = 2100;
        last_new_order = 3000;
    }
}

```

<pre> } // 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, </pre>	<pre> 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) { </pre>
---	---

```

        WaitForSingleObject( hThread[i], INFINITE
    );
        CloseHandle(hThread[i]);
        hThread[i] = NULL;
    }

    main_time_end = (TimeNow() / MILLI);

    sprintf(buffer, "\nTPC-C load completed successfully in %ld minutes.\n",
        (main_time_end - main_time_start)/60);

    printf("%s", buffer);
    fprintf(fLoader, "%s", buffer);

    fclose(fLoader);

    SQLFreeEnv(henv);

    exit(0);

    return 0;
}

//=====
//
// Function name: LoadItem
//
//=====

void LoadItem()
{
    long          i_id;
    long          i_im_id;
    char          i_name[I_NAME_LEN+1];
    double        i_price;
    char          i_data[I_DATA_LEN+1];
    char          name[20];
    long          time_start;
    RETCODE       rc;
    DBINT         rcint;
    char          bcphint[128];
    char          err_log_path[256];

    // Seed with unique number
    seed(1);

    printf("Loading item table...\n");

    // if build index before load
    if ((aptr->build_index == 1) && (aptr->index_order == 1))
        BuildIndex("idxitmc1");

    InitString(i_name, I_NAME_LEN+1);
    InitString(i_data, I_DATA_LEN+1);

    sprintf(name, "%s.%s", aptr->database, "item");

    //rc = bcp_init(i_hdbc1, name, NULL, "logs\item.err", DB_IN);
    strcpy(err_log_path, aptr->log_path);
    strcat(err_log_path, "item.err");
    rc = bcp_init(i_hdbc1, name, NULL, err_log_path, DB_IN);
    if (rc != SUCCEED)
        HandleErrorDBC(i_hdbc1);

    if ((aptr->build_index == 1) && (aptr->index_order == 1))
    {
        sprintf(bcphint, "tablock, order (i_id),
ROWS_PER_BATCH = 100000");
        rc = bcp_control(i_hdbc1, BCPHINTS, (void*) bcphint);
        if (rc != SUCCEED)
            HandleErrorDBC(i_hdbc1);
    }

    rc = bcp_bind(i_hdbc1, (BYTE *) &i_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT4, 1);
    if (rc != SUCCEED)
        HandleErrorDBC(i_hdbc1);

    rc = bcp_bind(i_hdbc1, (BYTE *) &i_im_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 2);
    if (rc != SUCCEED)
        HandleErrorDBC(i_hdbc1);

    rc = bcp_bind(i_hdbc1, (BYTE *) i_name, 0, I_NAME_LEN,
NULL, 0, 0, 3);
    if (rc != SUCCEED)
        HandleErrorDBC(i_hdbc1);

    rc = bcp_bind(i_hdbc1, (BYTE *) &i_price, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 4);
    if (rc != SUCCEED)
        HandleErrorDBC(i_hdbc1);

    rc = bcp_bind(i_hdbc1, (BYTE *) i_data, 0, I_DATA_LEN, NULL,
0, 0, 5);
    if (rc != SUCCEED)
        HandleErrorDBC(i_hdbc1);

    time_start = (TimeNow() / MILLI);

    item_rows_loaded = 0;

    for (i_id = 1; i_id <= max_items; i_id++)
    {
        i_im_id = RandomNumber(1L, 10000L);

        MakeAlphaString(14, 24, I_NAME_LEN, i_name);

        i_price = ((float) RandomNumber(100L, 10000L))/100.0;

        MakeOriginalAlphaString(26, 50, I_DATA_LEN, i_data,
10);

        rc = bcp_sendrow(i_hdbc1);
        if (rc != SUCCEED)
            HandleErrorDBC(i_hdbc1);

        item_rows_loaded++;
        CheckForCommit(i_hdbc1, i_hstmt1, item_rows_loaded,
"item", &time_start);
    }

    rcint = bcp_done(i_hdbc1);
    if (rcint < 0)
        HandleErrorDBC(i_hdbc1);

    printf("Finished loading item table.\n");

    SQLFreeStmt(i_hstmt1, SQL_DROP);
    SQLDisconnect(i_hdbc1);
    SQLFreeConnect(i_hdbc1);

```

```

// if build index after load
if ((aptr->build_index == 1) && (aptr->index_order == 0))
    BuildIndex("idxitmc1");
}

//=====
//
// Function : LoadWarehouse
//
// Loads WAREHOUSE table and loads Stock and District as Warehouses are
// created
//=====

void LoadWarehouse()
{
    short    w_id;
    char     w_name[W_NAME_LEN+1];
    char     w_street_1[ADDRESS_LEN+1];
    char     w_street_2[ADDRESS_LEN+1];
    char     w_city[ADDRESS_LEN+1];
    char     w_state[STATE_LEN+1];
    char     w_zip[ZIP_LEN+1];
    double   w_tax;
    double   w_ytd;
    char     name[20];
    long     time_start;
    RETCODE  rc;
    DBINT    rcint;
    char     bcphint[128];
    char     err_log_path[256];

    // Seed with unique number
    seed(2);

    printf("Loading warehouse table...\n");

    // if build index before load...
    if ((aptr->build_index == 1) && (aptr->index_order == 1))
        BuildIndex("idxwarc1");

    InitString(w_name, W_NAME_LEN+1);
    InitAddress(w_street_1, w_street_2, w_city, w_state, w_zip);

    sprintf(name, "%s..%s", aptr->database, "warehouse");

    //rc = bcp_init(w_hdbc1, name, NULL, "logs\\whouse.err", DB_IN);

    strcpy(err_log_path, aptr->log_path);
    strcat(err_log_path, "whouse.err");
    rc = bcp_init(w_hdbc1, name, NULL, err_log_path, DB_IN);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    if ((aptr->build_index == 1) && (aptr->index_order == 1))
    {
        sprintf(bcphint, "tablock, order (w_id),
ROWS_PER_BATCH = %d", aptr->num_warehouses);
        rc = bcp_control(w_hdbc1, BCPHINTS, (void*)
bcpht);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);
    }
}

```

```

        rc = bcp_bind(w_hdbc1, (BYTE *) &w_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 1);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) w_name, 0, W_NAME_LEN,
NULL, 0, 0, 2);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) w_street_1, 0, ADDRESS_LEN,
NULL, 0, 0, 3);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) w_street_2, 0, ADDRESS_LEN,
NULL, 0, 0, 4);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) w_city, 0, ADDRESS_LEN,
NULL, 0, 0, 5);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) w_state, 0, STATE_LEN,
NULL, 0, 0, 6);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) w_zip, 0, ZIP_LEN, NULL, 0, 0,
7);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) &w_tax, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 8);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) &w_ytd, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 9);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        time_start = (TimeNow() / MILLI);

        warehouse_rows_loaded = 0;

        for (w_id = (short)aptr->starting_warehouse; w_id <=
aptr->num_warehouses; w_id++)
        {
            MakeAlphaString(6, 10, W_NAME_LEN, w_name);

            MakeAddress(w_street_1, w_street_2, w_city, w_state,
w_zip);

            w_tax = ((float) RandomNumber(0L, 2000L)) / 10000.00;

            w_ytd = 300000.00;

            rc = bcp_sendrow(w_hdbc1);
            if (rc != SUCCEED)
                HandleErrorDBC(w_hdbc1);

            warehouse_rows_loaded++;
            CheckForCommit(w_hdbc1, i_hstmt1,
warehouse_rows_loaded, "warehouse", &time_start);

```

```

    }

    rcint = bcp_done(w_hdbc1);
    if (rcint < 0)
        HandleErrorDBC(w_hdbc1);

    printf("Finished loading warehouse table.\n");

    // if build index after load...
    if ((aptr->build_index == 1) && (aptr->index_order == 0))
        BuildIndex("idxwarcl");

    stock_rows_loaded = 0;
    district_rows_loaded = 0;

    District();
    Stock();
}

//=====
//
// Function : District
//
//=====

void District()
{
    short d_id;
    short d_w_id;
    char d_name[D_NAME_LEN+1];
    char d_street_1[ADDRESS_LEN+1];
    char d_street_2[ADDRESS_LEN+1];
    char d_city[ADDRESS_LEN+1];
    char d_state[STATE_LEN+1];
    char d_zip[ZIP_LEN+1];
    double d_tax;
    double d_ytd;
    char name[20];
    long d_next_o_id;
    long time_start;
    int w_id;
    RETCODE rc;
    DBINT rcint;
    char bcphint[128];
    char err_log_path[256];

    // Seed with unique number
    seed(4);

    printf("Loading district table...\n");

    // build index before load
    if ((aptr->build_index == 1) && (aptr->index_order == 1))
        BuildIndex("idxdiscl");

    InitString(d_name, D_NAME_LEN+1);
    InitAddress(d_street_1, d_street_2, d_city, d_state, d_zip);
    sprintf(name, "%s..%s", aptr->database, "district");

    //rc = bcp_init(w_hdbc1, name, NULL, "logs\\district.err", DB_IN);
    strcpy(err_log_path, aptr->log_path);
    strcat(err_log_path, "district.err");
    rc = bcp_init(w_hdbc1, name, NULL, err_log_path, DB_IN);
    if (rc != SUCCEED)

        HandleErrorDBC(w_hdbc1);

    if ((aptr->build_index == 1) && (aptr->index_order == 1))
    {
        sprintf(bcp hint, "tablock, order (d_w_id, d_id),
ROWS_PER_BATCH = %u", (aptr->num_warehouses * 10));
        rc = bcp_control(w_hdbc1, BCPHINTS, (void*)
bcp hint);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);
    }

    rc = bcp_bind(w_hdbc1, (BYTE *) &d_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 1);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) &d_w_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 2);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) d_name, 0, D_NAME_LEN,
NULL, 0, 0, 3);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) d_street_1, 0, ADDRESS_LEN,
NULL, 0, 0, 4);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) d_street_2, 0, ADDRESS_LEN,
NULL, 0, 0, 5);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) d_city, 0, ADDRESS_LEN,
NULL, 0, 0, 6);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) d_state, 0, STATE_LEN, NULL,
0, 0, 7);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) d_zip, 0, ZIP_LEN, NULL, 0, 0,
8);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) &d_tax, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 9);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) &d_ytd, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 10);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) &d_next_o_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 11);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    d_ytd = 30000.0;

```



```

        d_next_o_id = orders_per_district+1;

        time_start = (TimeNow() / MILLI);

        for (w_id = aptr->starting_warehouse; w_id <=
aptr->num_warehouses; w_id++)
        {
            d_w_id = w_id;

            for (d_id = 1; d_id <= DISTRICT_PER_WAREHOUSE;
d_id++)
            {
                MakeAlphaString(6,10,D_NAME_LEN,
d_name);

                MakeAddress(d_street_1, d_street_2, d_city,
d_state, d_zip);

                d_tax = ((float)
RandomNumber(0L,2000L))/10000.00;

                rc = bcp_sendrow(w_hdbc1);
                if (rc != SUCCEED)
                    HandleErrorDBC(w_hdbc1);

                district_rows_loaded++;
                CheckForCommit(w_hdbc1, w_hstmt1,
district_rows_loaded, "district", &time_start);
            }

            rcint = bcp_done(w_hdbc1);
            if (rcint < 0)
                HandleErrorDBC(w_hdbc1);

            printf("Finished loading district table.\n");

            // if build index after load...
            if ((aptr->build_index == 1) && (aptr->index_order == 0))
                BuildIndex("idxdiscl");

        return;
    }

//=====
//
// Function : Stock
//
//=====

void Stock()
{
    long    s_i_id;
    short   s_w_id;
    short   s_quantity;
    char     s_dist_01[S_DIST_LEN+1];
    char     s_dist_02[S_DIST_LEN+1];
    char     s_dist_03[S_DIST_LEN+1];
    char     s_dist_04[S_DIST_LEN+1];
    char     s_dist_05[S_DIST_LEN+1];
    char     s_dist_06[S_DIST_LEN+1];
    char     s_dist_07[S_DIST_LEN+1];
    char     s_dist_08[S_DIST_LEN+1];
    char     s_dist_09[S_DIST_LEN+1];

```

```

    char     s_dist_10[S_DIST_LEN+1];
    long     s_ytd;
    short    s_order_cnt;
    short    s_remote_cnt;
    char     s_data[S_DATA_LEN+1];
    short    len;
    char      name[20];
    long      time_start;
    RETCODE   rc;
    DBINT     rcint;
    char      bcphint[128];
    char      err_log_path[256];

    // Seed with unique number
    seed(3);

    // if build index before load...
    if ((aptr->build_index == 1) && (aptr->index_order == 1))
        BuildIndex("idxstkl");

    sprintf(name, "%s..%s", aptr->database, "stock");

    //rc = bcp_init(w_hdbc1, name, NULL, "logs\\stock.err", DB_IN);
    strcpy(err_log_path,aptr->log_path);
    strcat(err_log_path,"stock.err");
    rc = bcp_init(w_hdbc1, name, NULL, err_log_path, DB_IN);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    if ((aptr->build_index == 1) && (aptr->index_order == 1))
    {
        sprintf(bcphint, "tablock, order (s_i_id, s_w_id),
ROWS_PER_BATCH = %u", (aptr->num_warehouses * 100000));
        rc = bcp_control(w_hdbc1, BCPHINTS, (void*)
bcphint);

        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);
    }

    rc = bcp_bind(w_hdbc1, (BYTE *) &s_i_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 1);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    bcp_bind(w_hdbc1, (BYTE *) &s_w_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 2);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) &s_quantity, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 3);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_01, 0, S_DIST_LEN,
NULL, 0, 0, 4);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_02, 0, S_DIST_LEN,
NULL, 0, 0, 5);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_03, 0, S_DIST_LEN,
NULL, 0, 0, 6);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

```

```

        rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_04, 0, S_DIST_LEN,
NULL, 0, 0, 7);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_05, 0, S_DIST_LEN,
NULL, 0, 0, 8);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_06, 0, S_DIST_LEN,
NULL, 0, 0, 9);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_07, 0, S_DIST_LEN,
NULL, 0, 0, 10);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_08, 0, S_DIST_LEN,
NULL, 0, 0, 11);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_09, 0, S_DIST_LEN,
NULL, 0, 0, 12);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_10, 0, S_DIST_LEN,
NULL, 0, 0, 13);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) &s_ytd, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 14);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) &s_order_cnt, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 15);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) &s_remote_cnt, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 16);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) s_data, 0, S_DATA_LEN,
NULL, 0, 0, 17);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        s_ytd = s_order_cnt = s_remote_cnt = 0;

        time_start = (TimeNow() / MILLI);

        printf("...Loading stock table\n");

        for (s_i_id=1; s_i_id <= max_items; s_i_id++)
        {

            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("idxstck1");

        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                rc_1;
        // SQLSMALLINT            recnum,
MsgLen;
        // SQLCHAR
SqlState[6], Msg[SQL_MAX_MESSAGE_LENGTH];
        // SQLINTEGER            NativeError;

        // Seed with unique number
seed(5);

printf("Loading customer and history tables...\n");

// if build index before load...
if ((aptr->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;

```

```

problem. // fix to avoid ODBC float to numeric conversion

// 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, c_hstmt1);
if (rc != SUCCEED)
    HandleErrorDBC(c_hdbc1);

customer_rows_loaded++;
CheckForCommit(c_hdbc1, c_hstmt1,
customer_rows_loaded, "customer", &customer_time_start->time_start);
}
}

```

```

//=====
//
// Function : LoadHistoryTable
//
//=====

```

```

void LoadHistoryTable(LOADER_TIME_STRUCT *history_time_start)
{
    int i;
    long c_id;
    short c_d_id;
    short c_w_id;
    double h_amount;
    char h_data[H_DATA_LEN+1];
    char h_date[H_DATE_LEN+1];
    RETCODE rc;

    rc = bcp_bind(c_hdbc2, (BYTE *) &c_id, 0, SQL_VARLEN_DATA, NULL,
0, SQLINT4, 1);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &c_d_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 2);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &c_w_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 3);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &c_d_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 4);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &c_w_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 5);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);
}

```

```

rc = bcp_bind(c_hdbc2, (BYTE *) &h_date, 0, H_DATE_LEN,
NULL, 0, SQLCHARACTER, 6);
if (rc != SUCCEED)
    HandleErrorDBC(c_hdbc2);

rc = bcp_bind(c_hdbc2, (BYTE *) &h_amount, 0, SQL_VARLEN_DATA,
NULL, 0, SQLFLT8, 7);
if (rc != SUCCEED)
    HandleErrorDBC(c_hdbc2);

rc = bcp_bind(c_hdbc2, (BYTE *) h_data, 0, H_DATA_LEN, NULL, 0, 0,
8);
if (rc != SUCCEED)
    HandleErrorDBC(c_hdbc2);

for (i = 0; i < customers_per_district; i++)
{
    c_id = customer_buf[i].c_id;
    c_d_id = customer_buf[i].c_d_id;
    c_w_id = customer_buf[i].c_w_id;
    h_amount = customer_buf[i].h_amount;
    strcpy(h_data, customer_buf[i].h_data);

    FormatDate(&h_date);

    // send to server
    rc = bcp_sendrow(c_hdbc2);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    history_rows_loaded++;
    CheckForCommit(c_hdbc2, c_hstmt2,
history_rows_loaded, "history", &history_time_start->time_start);
}
}

```

```

//=====
//
// Function : LoadOrders
//
//=====

```

```

void LoadOrders()
{
    LOADER_TIME_STRUCT orders_time_start;
    LOADER_TIME_STRUCT new_order_time_start;
    LOADER_TIME_STRUCT order_line_time_start;
    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;

OrdersBufInit();

orders_time_start.time_start = (TimeNow() / MILLI);
new_order_time_start.time_start = (TimeNow() / MILLI);
order_line_time_start.time_start = (TimeNow() / MILLI);

for (w_id = (short)aptr->starting_warehouse; w_id <=
aptr->num_warehouses; w_id++)
{
    for (d_id = 1; d_id <= DISTRICT_PER_WAREHOUSE;
d_id++)
    {
        OrdersBufLoad(d_id, w_id);

        // start parallel loading threads here...

        // start Orders table thread

        printf("...Loading Order Table for: d_id = %d,
w_id = %d\n", d_id, w_id);

        hThread[0] = CreateThread(NULL,

0,

(LPTHREAD_START_ROUTINE) LoadOrdersTable,

&orders_time_start,

0,

&dwThreadId[0]);

        if (hThread[0] == NULL)
        {
            printf("Error, failed in creating
creating thread = 0.\n");

            exit(-1);
        }

        // start NewOrder table thread

        printf("...Loading New-Order Table for: d_id
= %d, w_id = %d\n", d_id, w_id);

        hThread[1] = CreateThread(NULL,

0,

(LPTHREAD_START_ROUTINE) LoadNewOrderTable,

&new_order_time_start,

0,

&dwThreadId[1]);

```



```

        if (hThread[1] == NULL)
        {
            printf("Error, failed in creating
creating thread = 1.\n");
            exit(-1);
        }

        // start Order-Line table thread

        printf("...Loading Order-Line Table for: d_id
= %d, w_id = %d\n", d_id, w_id);

        hThread[2] = CreateThread(NULL,
0,
(LPTHREAD_START_ROUTINE) LoadOrderLineTable,
&order_line_time_start,
0,
&dwThreadId[2]);

        if (hThread[2] == NULL)
        {
            printf("Error, failed in creating
creating thread = 2.\n");
            exit(-1);
        }

        WaitForSingleObject( hThread[0], INFINITE
);
        WaitForSingleObject( hThread[1], INFINITE
);
        WaitForSingleObject( hThread[2], INFINITE
);

        if (CloseHandle(hThread[0]) == FALSE)
        {
            printf("Error, failed in closing
Orders thread handle with errno: %d\n", GetLastError());
        }

        if (CloseHandle(hThread[1]) == FALSE)
        {
            printf("Error, failed in closing
NewOrder thread handle with errno: %d\n", GetLastError());
        }

        if (CloseHandle(hThread[2]) == FALSE)
        {
            printf("Error, failed in closing
OrderLine thread handle with errno: %d\n", GetLastError());
        }
    }

    printf("Finished loading orders.\n");

    return;
}

//=====

```

```

//
// Function : OrdersBufInit
//
// Clears shared buffer for ORDERS, NEWORDER, and ORDERLINE
//
//=====

void OrdersBufInit()
{
    int i;
    int j;

    for (i=0;i<orders_per_district;i++)
    {
        orders_buf[i].o_id = 0;
        orders_buf[i].o_d_id = 0;
        orders_buf[i].o_w_id = 0;
        orders_buf[i].o_c_id = 0;
        orders_buf[i].o_carrier_id = 0;
        orders_buf[i].o_ol_cnt = 0;
        orders_buf[i].o_all_local = 0;

        for (j=0;j<=14;j++)
        {
            orders_buf[i].o_ol[j].ol = 0;
            orders_buf[i].o_ol[j].ol_i_id = 0;

            orders_buf[i].o_ol[j].ol_supply_w_id = 0;
            orders_buf[i].o_ol[j].ol_quantity = 0;
            orders_buf[i].o_ol[j].ol_amount = 0;
            strcpy(orders_buf[i].o_ol[j].ol_dist_info,"");
        }
    }
}

//=====
//
// Function : OrdersBufLoad
//
// Fills shared buffer for ORDERS, NEWORDER, and ORDERLINE
//
//=====

void OrdersBufLoad(int d_id, int w_id)
{
    int cust[ORDERS_PER_DISTRICT+1];
    long o_id;
    short ol;

    printf("...Loading Order Buffer for: d_id = %d, w_id = %d\n",
d_id, w_id);

    GetPermutation(cust, orders_per_district);

    for (o_id=0;o_id<orders_per_district;o_id++)
    {
        // Generate ORDER and NEW-ORDER data

        orders_buf[o_id].o_d_id = d_id;
        orders_buf[o_id].o_w_id = w_id;
    }
}

```

```

orders_buf[o_id].o_id = o_id+1;
orders_buf[o_id].o_c_id = cust[o_id+1];
orders_buf[o_id].o_ol_cnt = (short)RandomNumber(5L,
15L);

if (o_id < first_new_order)
{
    orders_buf[o_id].o_carrier_id =
(short)RandomNumber(1L, 10L);
    orders_buf[o_id].o_all_local = 1;
}
else
{
    orders_buf[o_id].o_carrier_id = 0;
    orders_buf[o_id].o_all_local = 1;
}

for (ol=0; ol<orders_buf[o_id].o_ol_cnt; ol++)
{
    orders_buf[o_id].o_ol[ol].ol = ol+1;
    orders_buf[o_id].o_ol[ol].ol_i_id =
RandomNumber(1L, max_items);
    orders_buf[o_id].o_ol[ol].ol_supply_w_id =
w_id;
    orders_buf[o_id].o_ol[ol].ol_quantity = 5;
    MakeAlphaString(24, 24,
OL_DIST_INFO_LEN, &orders_buf[o_id].o_ol[ol].ol_dist_info);

    // Generate ORDER-LINE data
    if (o_id < first_new_order)
    {

orders_buf[o_id].o_ol[ol].ol_amount = 0;
// Added to insure ol_delivery_d
set properly during load

FormatDate(&orders_buf[o_id].o_ol[ol].ol_delivery_d);

        }
        else
        {

orders_buf[o_id].o_ol[ol].ol_amount = RandomNumber(1,999999)/100.0;
// Added to insure ol_delivery_d
set properly during load

// odbc datetime format
strcpy(orders_buf[o_id].o_ol[ol].ol_delivery_d,"1899-12-31 00:00:00.000");

        }
    }
}

//=====
//
// Function : LoadOrdersTable
//
//=====

```

```

void LoadOrdersTable(LOADER_TIME_STRUCT *orders_time_start)
{
    int    i;
    long   o_id;
    short   o_d_id;
    short   o_w_id;

    long   o_c_id;
    short   o_carrier_id;
    short   o_ol_cnt;
    short   o_all_local;
    char    o_entry_d[O_ENTRY_D_LEN+1];
    RETCODE rc;
    DBINT   reint;

    // bind ORDER data
    rc = bcp_bind(o_hdbc1, (BYTE *) &o_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT4, 1);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_d_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 2);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_w_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 3);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_c_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT4, 4);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_entry_d, 0,
O_ENTRY_D_LEN, NULL, 0, SQLCHARACTER, 5);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_carrier_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 6);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_ol_cnt, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 7);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_all_local, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 8);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    for (i = 0; i < orders_per_district; i++)
    {
        o_id      = orders_buf[i].o_id;
        o_d_id    = orders_buf[i].o_d_id;
        o_w_id    = orders_buf[i].o_w_id;
        o_c_id    = orders_buf[i].o_c_id;
        o_carrier_id = orders_buf[i].o_carrier_id;
        o_ol_cnt  = orders_buf[i].o_ol_cnt;
        o_all_local = orders_buf[i].o_all_local;

        FormatDate(&o_entry_d);

        // send data to server
    }
}

```

```

        rc = bcp_sendrow(o_hdbc1);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc1);

        orders_rows_loaded++;
        CheckForCommit(o_hdbc1, o_hstmt1,
orders_rows_loaded, "orders", &orders_time_start->time_start);
    }

    // rcint = bcp_batch(o_hdbc1);
    // if (rcint < 0)
    //     HandleErrorDBC(o_hdbc1);

    if ((o_w_id == aptr->num_warehouses) && (o_d_id == 10))
    {
        rcint = bcp_done(o_hdbc1);
        if (rcint < 0)
            HandleErrorDBC(o_hdbc1);

        SQLFreeStmt(o_hstmt1, SQL_DROP);
        SQLDisconnect(o_hdbc1);
        SQLFreeConnect(o_hdbc1);

        // if build index after load...
        if ((aptr->build_index == 1) && (aptr->index_order ==
0))

            BuildIndex("idxordcl");

        // build non-clustered index
        if (aptr->build_index == 1)
            BuildIndex("idxordnc");
    }
}

//=====
//
// Function : LoadNewOrderTable
//
//=====

void LoadNewOrderTable(LOADER_TIME_STRUCT *new_order_time_start)
{
    int    i;
    long   o_id;
    short  o_d_id;
    short  o_w_id;
    RETCODE rc;
    DBINT  rcint;

    // Bind NEW-ORDER data

    rc = bcp_bind(o_hdbc2, (BYTE *) &o_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT4, 1);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc2);

    rc = bcp_bind(o_hdbc2, (BYTE *) &o_d_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 2);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc2);

    rc = bcp_bind(o_hdbc2, (BYTE *) &o_w_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 3);
    if (rc != SUCCEED)

```

```

        HandleErrorDBC(o_hdbc2);

    for (i = first_new_order; i < last_new_order; i++)
    {
        o_id  = orders_buf[i].o_id;
        o_d_id = orders_buf[i].o_d_id;
        o_w_id = orders_buf[i].o_w_id;

        rc = bcp_sendrow(o_hdbc2);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc2);

        new_order_rows_loaded++;
        CheckForCommit(o_hdbc2, o_hstmt2,
new_order_rows_loaded, "new_order", &new_order_time_start->time_start);
    }

    // rcint = bcp_batch(o_hdbc2);
    // if (rcint < 0)
    //     HandleErrorDBC(o_hdbc2);

    if ((o_w_id == aptr->num_warehouses) && (o_d_id == 10))
    {
        rcint = bcp_done(o_hdbc2);
        if (rcint < 0)
            HandleErrorDBC(o_hdbc2);

        SQLFreeStmt(o_hstmt2, SQL_DROP);
        SQLDisconnect(o_hdbc2);
        SQLFreeConnect(o_hdbc2);

        // if build index after load...
        if ((aptr->build_index == 1) && (aptr->index_order ==
0))

            BuildIndex("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 != SUCCEED)
            HandleErrorDBC(o_hdbc3);

        rc = bcp_bind(o_hdbc3, (BYTE *) &o_d_id, 0, SQL_VARLEN_DATA,
        NULL, 0, SQLINT2, 3);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc3);

        rc = bcp_bind(o_hdbc3, (BYTE *) &o_w_id, 0, SQL_VARLEN_DATA,
        NULL, 0, SQLINT2, 3);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc3);

        rc = bcp_bind(o_hdbc3, (BYTE *) &ol, 0, SQL_VARLEN_DATA, NULL,
        0, SQLINT4, 4);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc3);

        rc = bcp_bind(o_hdbc3, (BYTE *) &ol_i_id, 0, SQL_VARLEN_DATA,
        NULL, 0, SQLINT4, 5);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc3);

        rc = bcp_bind(o_hdbc3, (BYTE *) &ol_supply_w_id, 0,
        SQL_VARLEN_DATA, NULL, 0, SQLINT2, 6);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc3);

        rc = bcp_bind(o_hdbc3, (BYTE *) &ol_delivery_d, 0,
        OL_DELIVERY_D_LEN, NULL, 0, SQLCHARACTER, 7);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc3);

        rc = bcp_bind(o_hdbc3, (BYTE *) &ol_quantity, 0, SQL_VARLEN_DATA,
        NULL, 0, SQLINT2, 8);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc3);

        rc = bcp_bind(o_hdbc3, (BYTE *) &ol_amount, 0, SQL_VARLEN_DATA,
        NULL, 0, SQLFLT8, 9);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc3);

        rc = bcp_bind(o_hdbc3, (BYTE *) ol_dist_info, 0, DIST_INFO_LEN,
        NULL, 0, 0, 10);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc3);

        for (i = 0; i < orders_per_district; i++)
        {
            o_id = orders_buf[i].o_id;
            o_d_id = orders_buf[i].o_d_id;
            o_w_id = orders_buf[i].o_w_id;

            for (j=0; j < orders_buf[i].o_ol_cnt; j++)
            {
                ol = orders_buf[i].o_ol[j].ol;
                ol_i_id = orders_buf[i].o_ol[j].ol_i_id;
                ol_supply_w_id =
                orders_buf[i].o_ol[j].ol_supply_w_id;
                ol_quantity =
                orders_buf[i].o_ol[j].ol_quantity;
                ol_amount =
                orders_buf[i].o_ol[j].ol_amount;

                strcpy(ol_delivery_d, orders_buf[i].o_ol[j].ol_delivery_d);

```

```

                strcpy(ol_dist_info, orders_buf[i].o_ol[j].ol_dist_info);

                rc = bcp_sendrow(o_hdbc3);
                if (rc != SUCCEED)
                    HandleErrorDBC(o_hdbc3);

                order_line_rows_loaded++;
                CheckForCommit(o_hdbc3, o_hstmt3,
                order_line_rows_loaded, "order_line", &order_line_time_start->time_start);
            }
        }

        // rcint = bcp_batch(o_hdbc3);
        // if (rcint < 0)
        //     HandleErrorDBC(o_hdbc3);

        if ((o_w_id == aptr->num_warehouses) && (o_d_id == 10))
        {
            rcint = bcp_done(o_hdbc3);
            if (rcint < 0)
                HandleErrorDBC(o_hdbc3);

            SQLFreeStmt(o_hstmt3, SQL_DROP);
            SQLDisconnect(o_hdbc3);
            SQLFreeConnect(o_hdbc3);

            // if build index after load...
            if ((aptr->build_index == 1) && (aptr->index_order ==
            0))
                BuildIndex("idxodlcl");
        }
    }

    //=====
    //
    // Function : GetPermutation
    //
    //=====

void GetPermutation(int perm[], int n)
{
    int i, r, t;

    for (i=1; i<=n; i++)
        perm[i] = i;

    for (i=1; i<=n; i++)
    {
        r = RandomNumber(i,n);
        t = perm[i];
        perm[i] = perm[r];
        perm[r] = t;
    }
}

//=====
//
// Function : CheckForCommit

```

```
//
//=====
//=====

void CheckForCommit(HDBC hdbc,
                    HSTMT hstmt,
                    int rows_loaded,
                    char *table_name,
                    long *time_start)
{
    long    time_end, time_diff;
    // DBINT rcint;

    if ( !(rows_loaded % aptr->batch) )
    {
        // rcint = bcp_batch(hdbc);
        // if (rcint < 0)
        //     HandleErrorDBC(hdbc);

        time_end = (TimeNow() / MILLI);
        time_diff = time_end - *time_start;

        printf(">-> Loaded %ld rows into %s in %ld sec - Total =
%d (%.2f rps)\n",
                aptr->batch,
                table_name,
                time_diff,
                rows_loaded,
                (float) aptr->batch / (time_diff ?
time_diff : 1L));

        *time_start = time_end;
    }

    return;
}

//=====
//=====
// Function : OpenConnections
//=====
//=====

void OpenConnections()
{
    RETCODE    rc;

    char        szDriverString[300];
    char        szDriverStringOut[1024];
    SQLSMALLINT cbDriverStringOut;

    SQLAllocHandle(SQL_HANDLE_ENV, SQL_NULL_HANDLE,
&henv );

    SQLSetEnvAttr(henv, SQL_ATTR_ODBC_VERSION,
(void*)SQL_OV_ODBC3, 0);

    SQLAllocHandle(SQL_HANDLE_DBC, henv , &i_hdbc1);
    SQLAllocHandle(SQL_HANDLE_DBC, henv , &w_hdbc1);
    SQLAllocHandle(SQL_HANDLE_DBC, henv , &c_hdbc1);
    SQLAllocHandle(SQL_HANDLE_DBC, henv , &c_hdbc2);

```

```
SQLAllocHandle(SQL_HANDLE_DBC, henv , &o_hdbc1);
SQLAllocHandle(SQL_HANDLE_DBC, henv , &o_hdbc2);
SQLAllocHandle(SQL_HANDLE_DBC, henv , &o_hdbc3);

    SQLSetConnectAttr(i_hdbc1, SQL_COPT_SS_BCP, (void
*)SQL_BCP_ON, SQL_IS_INTEGER );
    SQLSetConnectAttr(w_hdbc1, SQL_COPT_SS_BCP, (void
*)SQL_BCP_ON, SQL_IS_INTEGER );
    SQLSetConnectAttr(c_hdbc1, SQL_COPT_SS_BCP, (void
*)SQL_BCP_ON, SQL_IS_INTEGER );
    SQLSetConnectAttr(c_hdbc2, SQL_COPT_SS_BCP, (void
*)SQL_BCP_ON, SQL_IS_INTEGER );
    SQLSetConnectAttr(o_hdbc1, SQL_COPT_SS_BCP, (void
*)SQL_BCP_ON, SQL_IS_INTEGER );
    SQLSetConnectAttr(o_hdbc2, SQL_COPT_SS_BCP, (void
*)SQL_BCP_ON, SQL_IS_INTEGER );
    SQLSetConnectAttr(o_hdbc3, SQL_COPT_SS_BCP, (void
*)SQL_BCP_ON, SQL_IS_INTEGER );

    // Open connections to SQL Server

    // Connection 1

    sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" ,
aptr->server,
                                aptr->user,
aptr->password,
aptr->database );

    rc = SQLSetConnectOption (i_hdbc1, SQL_PACKET_SIZE,
aptr->pack_size);
    if (rc != SUCCEED)
        HandleErrorDBC(i_hdbc1);

    rc = SQLDriverConnect ( i_hdbc1,
                                NULL,
(SQLCHAR*)&szDriverString[0] ,
                                SQL_NTS,
(SQLCHAR*)&szDriverStringOut[0],
sizeof(szDriverStringOut),
&cbDriverStringOut,
SQL_DRIVER_NOPROMPT );
    if (rc != SUCCEED)
        HandleErrorDBC(i_hdbc1);

    // Connection 2

    sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" ,
aptr->server,
                                aptr->user,
aptr->password,
aptr->database );

    rc = SQLSetConnectOption (w_hdbc1, SQL_PACKET_SIZE,
aptr->pack_size);

```

<pre> 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); </pre>	<pre> rc = SQLSetConnectOption (c_hdbc2, SQL_PACKET_SIZE, aptr->pack_size); if (rc != SUCCEED) HandleErrorDBC(c_hdbc2); rc = SQLDriverConnect (c_hdbc2, NULL, (SQLCHAR*)&szDriverString[0] , SQL_NTS, (SQLCHAR*)&szDriverStringOut[0], sizeof(szDriverStringOut), &cbDriverStringOut, SQL_DRIVER_NOPROMPT); if (rc != SUCCEED) HandleErrorDBC(c_hdbc2); // Connection 5 sprintf(szDriverString , "DRIVER={SQL Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" , aptr->server, aptr->password, aptr->database); rc = SQLSetConnectOption (o_hdbc1, SQL_PACKET_SIZE, aptr->pack_size); if (rc != SUCCEED) HandleErrorDBC(o_hdbc1); rc = SQLDriverConnect (o_hdbc1, NULL, (SQLCHAR*)&szDriverString[0] , SQL_NTS, (SQLCHAR*)&szDriverStringOut[0], sizeof(szDriverStringOut), &cbDriverStringOut, SQL_DRIVER_NOPROMPT); if (rc != SUCCEED) HandleErrorDBC(o_hdbc1); // Connection 6 sprintf(szDriverString , "DRIVER={SQL Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" , aptr->server, aptr->password, </pre>
---	---

```

aptr->database );

        rc = SQLSetConnectOption (o_hdbc2, SQL_PACKET_SIZE,
aptr->pack_size);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc2);

        rc = SQLDriverConnect ( o_hdbc2,
NULL,
(SQLCHAR*)&szDriverString[0] ,
SQL_NTS,
(SQLCHAR*)&szDriverStringOut[0],
sizeof(szDriverStringOut),
&cbDriverStringOut,
SQL_DRIVER_NOPROMPT );
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc2);

        // Connection 7

        sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" ,
aptr->server,
aptr->password,
aptr->database );

        rc = SQLSetConnectOption (o_hdbc3, SQL_PACKET_SIZE,
aptr->pack_size);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc3);

        rc = SQLDriverConnect ( o_hdbc3,
NULL,
(SQLCHAR*)&szDriverString[0] ,
SQL_NTS,
(SQLCHAR*)&szDriverStringOut[0],
sizeof(szDriverStringOut),
&cbDriverStringOut,
SQL_DRIVER_NOPROMPT );
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc3);
    }

//=====
//
// Function name: BuildIndex
//

```

```

//=====
void BuildIndex(char *index_script)
{
    char    cmd[256];

    printf("Starting index creation: %s\n",index_script);

    sprintf(cmd, "osql -S%s -U%s -P%s -e -i%s\\%s.sql > %s%s.log",
        aptr->server,
        aptr->user,
        aptr->password,
        aptr->index_script_path,
        index_script,
        aptr->log_path,
        index_script);

    system(cmd);

    printf("Finished index creation: %s\n",index_script);
}

void HandleErrorDBC (SQLHDBC hdbc1)
{
    SQLCHAR    SqlState[6],
    Msg[SQL_MAX_MESSAGE_LENGTH];
    SQLINTEGER NativeError;
    SQLSMALLINT i, MsgLen;
    SQLRETURN rc2;
    char        timebuf[128];
    char        datebuf[128];
    char        err_log_path[256];
    FILE        *fp1;

    i = 1;
    while (( rc2 = SQLGetDiagRec(SQL_HANDLE_DBC , hdbc1, i,
    SqlState , &NativeError,
    Msg, sizeof(Msg) , &MsgLen ))
    != SQL_NO_DATA )
    {
        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,"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 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_INTEGER );
    if (rc != SQL_SUCCESS)
        HandleErrorDBC(v_hdbc);

    rc = SQLDriverConnect ( v_hdbc,
                                NULL,
    (SQLCHAR*)&szDriverString[0] ,
                                SQL_NTS,
    (SQLCHAR*)&szDriverStringOut[0],
    sizeof(szDriverStringOut),
    &cbDriverStringOut,
    SQL_DRIVER_NOPROMPT );

```



```

// if the rc is SQL_ERROR, the the TPCC database probably does
not exist
if (rc == SQL_ERROR)
{
    printf("The database TPCC does not appear to exist!\n");
    printf("\nCheck LOGS\\ directory for database creation
errors.\n");

    // cleanup database connections and handles
    SQLFreeHandle(SQL_HANDLE_STMT, v_hstmt);
    SQLDisconnect(v_hdbc);
    SQLFreeHandle(SQL_HANDLE_DBC, v_hdbc);

    // since there is not a database, exit back to SETUP.CMD
    exit(1);
}

if ( SQLAllocHandle(SQL_HANDLE_STMT, v_hdbc , &v_hstmt)
!= SQL_SUCCESS )
    HandleErrorDBC(v_hdbc);

if ( SQLBindCol(v_hstmt, 1, SQL_C_ULONG, &TabCount, 0,
&TabCountInd) != SQL_SUCCESS )
    HandleErrorSTMT(v_hstmt);

// count the number of user tables from sysobjects
rc = SQLExecDirect(v_hstmt, "select count(*) from sysobjects
where xtype = 'U'", SQL_NTS);
if ((rc != SQL_SUCCESS) && (rc !=
SQL_SUCCESS_WITH_INFO))
    HandleErrorSTMT(v_hstmt);

if ( SQLFetch(v_hstmt) != SQL_SUCCESS )
    HandleErrorSTMT(v_hstmt);

// if the number of tables is less than 9, select all the user tables in
TPCC
if (TabCount != 9)
{
    SQLFreeHandle(SQL_HANDLE_STMT, v_hstmt);

    SQLAllocHandle(SQL_HANDLE_STMT, v_hdbc ,
&v_hstmt);

    if ( SQLBindCol(v_hstmt, 1, SQL_C_CHAR,
&TabName, sizeof(TabName), &TabNameInd) != SQL_SUCCESS )
        HandleErrorSTMT(v_hstmt);

    // select the list of user tables into a result set
    rc = SQLExecDirect(v_hstmt, "select * from sysobjects
where xtype = 'U'", SQL_NTS);
    if ((rc != SQL_SUCCESS) && (rc !=
SQL_SUCCESS_WITH_INFO))
        HandleErrorSTMT(v_hstmt);

    // go through the result set and set the bitmap for each
found table
    // set the bitmap to '1' if the table name is found

    while ((rc = SQLFetch(v_hstmt)) != SQL_NO_DATA)
    {
        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 't':
                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;
        }
    }
}

```

<pre> 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); </pre>	<pre> 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" </pre>
---	---

```

-@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 /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 /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 /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 /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 /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 /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_TPCCL=\\
    ".\src\tpcc.h"\\
    "\\mssql\dblib\include\sqlldb.h"\\
    "\\mssql\dblib\include\sqlfront.h"\\

"$ (INTDIR)\tpccldr.obj" : $(SOURCE) $(DEP_CPP_TPCCL) "$ (INTDIR)"
    $(CPP) $(CPP_PROJ) $(SOURCE)

# End Source File
#####
#####
# Begin Source File

SOURCE=.\src\getargs.c
DEP_CPP_GETAR=\\
    ".\src\tpcc.h"\\
    "\\mssql\dblib\include\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 " "
```

Jan 22 2004 5:09:06:210PM

(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 " "
```

Jan 22 2004 5:09:07:977PM

(1 row affected)

1> 2> 3> DBCC execution completed. If DBCC printed error messages, contact your system administrator.
Configuration option 'show advanced options' changed from 1 to 1. Run the RECONFIGURE statement to install.

```
sp_configure "show advanced",1
1> 2> reconfigure with override
1> 2> sp_configure
name                                minimum  maximum
config_value run_value
```

```
-----
affinity mask                        -2147483648 2147483647
255 255
allow updates                        0 1 0
0
awe enabled                          0 1 1
1
c2 audit mode                        0 1 0
0
cost threshold for parallelism      0 32767
5 5
Cross DB Ownership Chaining         0 1
0 0
cursor threshold                    -1 2147483647
-1 -1
default full-text language          0 2147483647
1033 1033
default language                    0 9999 0
0
fill factor (%)                     0 100 0
0
index create memory (KB)             704 2147483647
0 0
lightweight pooling                 0 1 1
1
locks                               5000 2147483647 0
0
max degree of parallelism           0 32 1
1
max server memory (MB)              4 2147483647
31500 31500
max text repl size (B)              0 2147483647
65536 65536
max worker threads                  32 32767
380 380
media retention                     0 365 0
0
min memory per query (KB)           512 2147483647
1024 1024
min server memory (MB)              0 2147483647
0 0
nested triggers                     0 1 1
1
network packet size (B)             512 65536
4096 4096
open objects                        0 2147483647 0
0
priority boost                      0 1 1
1
query governor cost limit            0 2147483647
0 0
query wait (s)                      -1 2147483647 -1
-1
recovery interval (min)             0 32767
112 112
remote access                       0 1 1
1
remote login timeout (s)            0 2147483647
0 0
remote proc trans                   0 1 0
0
remote query timeout (s)            0 2147483647
0 0
scan for startup procs              0 1 0
0
set working set size                0 1 0
0
```

show advanced options	0	1	1
1			
two digit year cutoff	1753	9999	
2049 2049			
user connections	0	32767	0
0			
user options	0	32767	0
0			

1>

Microsoft Windows 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

Installed pre-SP1 hotfix from Microsoft, KB834628, to address a data corruption problem with Windows Server 2003 when systems have greater than 4GB of memory and are running with PAE. Essentially the fix is a new PAE kernel.

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 time and cache hit ratio statistics
-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: 1/15/2004 - 1:50 PM

Value 0
Name: ClearPageFileAtShutdown
Type: REG_DWORD
Data: 0

Value 1
Name: DisablePagingExecutive
Type: REG_DWORD
Data: 0x1

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: 0xc3000

Value 9
Name: PagingFiles
Type: REG_MULTI_SZ
Data: c:\pagefile.sys 2046 4092

Value 10
Name: PhysicalAddressExtension
Type: REG_DWORD
Data: 0x1

Value 11
Name: WriteWatch
Type: REG_DWORD
Data: 0x1

Value 12
 Name: SessionViewSize
 Type: REG_DWORD
 Data: 0x30

Value 13
 Name: SessionPoolSize
 Type: REG_DWORD
 Data: 0x4

Value 14
 Name: DontVerifyRandomDrivers
 Type: REG_DWORD
 Data: 0x1

Key Name:
 HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Session
 Manager\Memory Management\PrefetchParameters
 Class Name: <NO CLASS>
 Last Write Time: 1/23/2004 - 1:33 PM

Value 0
 Name: VideoInitTime
 Type: REG_DWORD
 Data: 0x80e

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 - .igÿÿÿÿÿ

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 - .òØÿÿÿÿÿ

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: 1/15/2004 - 1:06 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: 1/23/2004 - 1:32 PM

Value 0
 Name: Tag
 Type: REG_DWORD
 Data: 0x1

Value 1
 Name: group
 Type: REG_SZ
 Data: MVIA

Value 2
 Name: start
 Type: REG_DWORD
 Data: 0x2

Value 3
 Name: type
 Type: REG_DWORD
 Data: 0x1

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: 1/23/2004 - 12:37 PM

Key Name:
 HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Ada
 pters\210000E08B0711B0

Class Name: <NO CLASS>
Last Write Time: 1/15/2004 - 3:50 PM
Value 0
Name: IPAddress
Type: REG_MULTI_SZ
Data: 192.168.230.233

Key Name:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Adapters\210000E08B0724B0
Class Name: <NO CLASS>
Last Write Time: 1/15/2004 - 4:37 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: 1/23/2004 - 12:37 PM
Value 0
Name: MaxRegisterMBytes
Type: REG_DWORD
Data: 0x200

Value 1
Name: MaxRegisterRdmaMBytes
Type: REG_DWORD
Data: 0x200

Value 2
Name: MaxCQEntries
Type: REG_DWORD
Data: 0x2000

Value 3
Name: MaxRegisterRegions
Type: REG_DWORD
Data: 0x1000

Value 4
Name: MaxVIs
Type: REG_DWORD
Data: 0x400

Value 5
Name: MaxCQs
Type: REG_DWORD
Data: 0x400

Value 6
Name: MaxTransferSize
Type: REG_DWORD
Data: 0x10000

Value 7
Name: MaxPTags
Type: REG_DWORD
Data: 0x800

Value 8
Name: IuBuffers
Type: REG_DWORD
Data: 0x100

Value 9
Name: SendDescQuota
Type: REG_DWORD
Data: 0x8

Value 10
Name: RecvDescQuota
Type: REG_DWORD
Data: 0x8

Value 11
Name: SupportPrototypeCards
Type: REG_DWORD
Data: 0x1

Value 12
Name: HostFile
Type: REG_MULTI_SZ
Data: C:\WINDOWS\system32\drivers\etc\vihosts

Key Name:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Enum
Class Name: <NO CLASS>
Last Write Time: 1/23/2004 - 1:32 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: 01/22/04 17:11:36
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 365 -[88612RZ]-
System Type	X86-based PC
Processor	x86 Family 15 Model 2 Stepping 6 GenuineIntel ~3000 Mhz
Processor	x86 Family 15 Model 2 Stepping 6 GenuineIntel ~3000 Mhz
Processor	x86 Family 15 Model 2 Stepping 6 GenuineIntel ~3000 Mhz
Processor	x86 Family 15 Model 2 Stepping 6 GenuineIntel ~3000 Mhz
Processor	x86 Family 15 Model 2 Stepping 6 GenuineIntel ~3000 Mhz
Processor	x86 Family 15 Model 2 Stepping 6 GenuineIntel ~3000 Mhz

Processor x86 Family 15 Model 2 Stepping 6 GenuineIntel ~3000 Mhz
 Processor x86 Family 15 Model 2 Stepping 6 GenuineIntel ~3000 Mhz
 BIOS Version/Date IBM -[RD20PERF1-1.01]-, 12/8/2003
 SMBIOS Version 2.3
 Windows Directory C:\WINDOWS
 System Directory C:\WINDOWS\system32
 Boot Device \Device\HarddiskVolume1
 Locale United States
 Hardware Abstraction Layer Version = "5.2.3790.0
 (srv03_rtm.030324-2048)"
 User Name\BMSERV2\Administrator
 Time Zone Eastern Standard Time
 Total Physical Memory 32,768.00 MB
 Available Physical Memory 31.52 GB
 Total Virtual Memory 65.65 GB
 Available Virtual Memory 65.05 GB
 Page File Space 33.65 GB
 Page File C:\pagefile.sys

[Hardware Resources]

[Conflicts/Sharing]

Resource Device
 Memory Address 0xF0000000-0xF7FFFFFF PCI bus
 Memory Address 0xF0000000-0xF7FFFFFF RADEON 7000 RADEON VE
 Family (Microsoft Corporation)

I/O Port 0x00000000-0x00001FFF PCI bus
 I/O Port 0x00000000-0x00001FFF Direct memory access controller

I/O Port 0x00002000-0x00002FFF PCI bus
 I/O Port 0x00002000-0x00002FFF LSI Logic 1020/1030 Ultra320
 SCSI Adapter

[DMA]

Resource Device Status
 Channel 2 Standard floppy disk controller OK
 Channel 4 Direct memory access controller OK

[Forced Hardware]

Device PNP Device ID

[I/O]

Resource	Device	Status
0x00000000-0x00001FFF	PCI bus	OK
0x00000000-0x00001FFF	Direct memory access controller	OK
0x00001800-0x000018FF	RADEON 7000 RADEON VE Family	OK
0x000003B0-0x000003BB	RADEON 7000 RADEON VE Family	OK
0x000003C0-0x000003DF	RADEON 7000 RADEON VE Family	OK
0x00000060-0x00000060	Standard 101/102-Key or Microsoft Natural	OK
PS/2 Keyboard	OK	
0x00000064-0x00000064	Standard 101/102-Key or Microsoft Natural	OK
PS/2 Keyboard	OK	
0x000003F0-0x000003F5	Standard floppy disk controller	OK
0x000003F7-0x000003F7	Standard floppy disk controller	OK
0x000003F8-0x000003FF	Communications Port (COM1)	OK
0x00000020-0x00000021	Advanced programmable interrupt controller	OK

Resource	Device	Status
0x000000A0-0x000000A1	Advanced programmable interrupt controller	OK
0x00000080-0x0000008F	Direct memory access controller	OK
0x000000C0-0x000000DF	Direct memory access controller	OK
0x00000040-0x00000043	System timer	OK
0x00000070-0x00000073	System CMOS/real time clock	OK
0x00000061-0x00000061	System speaker	OK
0x000000F0-0x000000FF	Numeric data processor	OK
0x0000002E-0x0000002F	Motherboard resources	OK
0x00000092-0x00000092	Motherboard resources	OK
0x00000093-0x0000009F	Motherboard resources	OK
0x000000A8-0x000000A9	Motherboard resources	OK
0x00000400-0x000004FE	Motherboard resources	OK
0x00000500-0x0000053F	Motherboard resources	OK
0x00000600-0x00000600	Motherboard resources	OK
0x00000800-0x00000803	Motherboard resources	OK
0x00000C00-0x00000CFE	Motherboard resources	OK
0x00000F50-0x00000F5F	Motherboard resources	OK
0x00000700-0x0000070F	Standard Dual Channel PCI IDE Controller	OK
0x000001F0-0x000001F7	Primary IDE Channel	OK
0x000003F6-0x000003F6	Primary IDE Channel	OK
0x00000170-0x00000177	Secondary IDE Channel	OK
0x00000376-0x00000376	Secondary IDE Channel	OK
0x00000A79-0x00000A79	ISAPNP Read Data Port	OK
0x00000279-0x00000279	ISAPNP Read Data Port	OK
0x00000274-0x00000277	ISAPNP Read Data Port	OK
0x00002000-0x00002FFF	PCI bus	OK
0x00002000-0x00002FFF	LSI Logic 1020/1030 Ultra320 SCSI Adapter	OK
0x00002100-0x000021FF	LSI Logic 1020/1030 Ultra320 SCSI Adapter	OK
0x00002200-0x000022FF	QLogic QLA23xx PCI Fibre Channel Adapter	OK
0x00003000-0x00003FFF	PCI bus	OK
0x00006000-0x00006FFF	PCI bus	OK
0x00005000-0x00005FFF	PCI bus	OK
0x00004000-0x00004FFF	PCI bus	OK
0x0000C000-0x0000DFFF	PCI bus	OK
0x0000A000-0x0000BFFF	PCI bus	OK
0x00008000-0x00009FFF	PCI bus	OK

[IRQs]

Resource	Device	Status
IRQ 9	Microsoft ACPI-Compliant System	OK
IRQ 22	RADEON 7000 RADEON VE Family (Microsoft Corporation)	OK
IRQ 1	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard	OK
IRQ 12	PS/2 Compatible Mouse	OK
IRQ 6	Standard floppy disk controller	OK
IRQ 4	Communications Port (COM1)	OK
IRQ 0	System timer	OK
IRQ 8	System CMOS/real time clock	OK
IRQ 13	Numeric data processor	OK
IRQ 14	Primary IDE Channel	OK
IRQ 16	Standard OpenHCD USB Host Controller	OK
IRQ 20	Broadcom NetXtreme Gigabit Ethernet	OK
IRQ 21	Broadcom NetXtreme Gigabit Ethernet #2	OK
IRQ 18	LSI Logic 1020/1030 Ultra320 SCSI Adapter	OK
IRQ 19	LSI Logic 1020/1030 Ultra320 SCSI Adapter	OK
IRQ 26	QLogic QLA23xx PCI Fibre Channel Adapter	OK
IRQ 32	IBM ServeRAID 6M Controller	OK
IRQ 68	IBM ServeRAID 6M Controller	OK
IRQ 53	IBM ServeRAID 6M Controller	OK
IRQ 36	IBM ServeRAID 6M Controller	OK
IRQ 85	IBM ServeRAID 6M Controller	OK

IRQ 89	IBM ServeRAID 6M Controller	OK
IRQ 78	IBM ServeRAID 6M Controller	OK
IRQ 82	IBM ServeRAID 6M Controller	OK
IRQ 71	IBM ServeRAID 6M Controller	OK
IRQ 75	IBM ServeRAID 6M Controller	OK

[Memory]

Resource	Device	Status
0xF0000000-0xF7FFFFFF	PCI bus	OK
0xF0000000-0xF7FFFFFF	RADEON 7000 RADEON VE Family	OK
(Microsoft Corporation)		
0xF8000000-0xFBFFFFFF	PCI bus	OK
0xFBFF0000-0xFBFFFFFF	RADEON 7000 RADEON VE Family	OK
(Microsoft Corporation)		
0xA0000-0xBFFFF	RADEON 7000 RADEON VE Family (Microsoft Corporation)	OK
0xFBFEF000-0xFBFEFFFF	Standard OpenHCD USB Host Controller	OK
0xEE000000-0xEFFFFFFF	PCI bus	OK
0xEFFF0000-0xEFFFFFFF	Broadcom NetXtreme Gigabit Ethernet	OK
0xEFFE0000-0xEFFEFFFF	Broadcom NetXtreme Gigabit Ethernet	OK
0xEFFD0000-0xEFFDFFFF	Broadcom NetXtreme Gigabit Ethernet #2	OK
0xEFFC0000-0xEFFCFFFF	Broadcom NetXtreme Gigabit Ethernet #2	OK
0xEFFB0000-0xEFFBFFFF	LSI Logic 1020/1030 Ultra320 SCSI Adapter	OK
0xEFFA0000-0xEFFAFFFF	LSI Logic 1020/1030 Ultra320 SCSI Adapter	OK
0xEFF90000-0xEFF9FFFF	LSI Logic 1020/1030 Ultra320 SCSI Adapter	OK
0xEFF80000-0xEFF8FFFF	LSI Logic 1020/1030 Ultra320 SCSI Adapter	OK
0xEFF7F000-0xEFF7FFFF	QLogic QLA23xx PCI Fibre Channel Adapter	OK
0xEC000000-0xEDFFFFFF	PCI bus	OK
0xED800000-0xEDCFFFFFFF	PCI standard PCI-to-PCI bridge	OK
0xEDC00000-0xEDC00FFF	IBM ServeRAID 6M Controller	OK
0xE6000000-0xE7FFFFFF	PCI bus	OK
0xE7800000-0xE7CFFFFF	PCI standard PCI-to-PCI bridge	OK
0xE7C00000-0xE7C00FFF	IBM ServeRAID 6M Controller	OK
0xE8000000-0xE9FFFFFF	PCI bus	OK
0xE9800000-0xE9CFFFFF	PCI standard PCI-to-PCI bridge	OK
0xE9C00000-0xE9C00FFF	IBM ServeRAID 6M Controller	OK
0xEA000000-0xEBFFFFFF	PCI bus	OK
0xEB800000-0xEBCFFFFF	PCI standard PCI-to-PCI bridge	OK
0xEBC00000-0xEBC00FFF	IBM ServeRAID 6M Controller	OK
0x0400-0x04FF	System board	OK
0x9B800-0x9FFFF	System board	OK
0xC0000-0xDFFFF	Motherboard resources	OK
0xE0000-0xFFFFF	Motherboard resources	OK
0xFE700000-0xFFFFFFF	Motherboard resources	OK
0x1000-0x9B7FF	Memory Module	OK
0x100000-0xDFFBF7FF	Memory Module	OK
0xE0000000-0xE1FFFFFF	PCI bus	OK
0xE1000000-0xE14FFFFF	PCI standard PCI-to-PCI bridge	OK
0xE1400000-0xE1400FFF	IBM ServeRAID 6M Controller	OK
0xE1800000-0xE1CFFFFF	PCI standard PCI-to-PCI bridge	OK
0xE1C00000-0xE1C00FFF	IBM ServeRAID 6M Controller	OK
0xE2000000-0xE3FFFFFF	PCI bus	OK
0xE3000000-0xE34FFFFF	PCI standard PCI-to-PCI bridge	OK
0xE3400000-0xE3400FFF	IBM ServeRAID 6M Controller	OK
0xE3800000-0xE3CFFFFF	PCI standard PCI-to-PCI bridge	OK
0xE3C00000-0xE3C00FFF	IBM ServeRAID 6M Controller	OK
0xE4000000-0xE5FFFFFF	PCI bus	OK

0xE5000000-0xE54FFFFF	PCI standard PCI-to-PCI bridge	OK
0xE5400000-0xE5400FFF	IBM ServeRAID 6M Controller	OK
0xE5800000-0xE5CFFFFF	PCI standard PCI-to-PCI bridge	OK
0xE5C00000-0xE5C00FFF	IBM ServeRAID 6M Controller	OK

[Components]

[Multimedia]

[Audio Codecs]

CODEC	Manufacturer	Description	Status	File
Version	Size	Creation Date		
c:\windows\system32\msgsm32.acm	Microsoft Corporation			
OK	C:\WINDOWS\system32\MSGSM32.ACM	5.2.3790.0		
(srv03_rtm.030324-2048)	20.50 KB (20,992 bytes)	3/25/2003 7:00 AM		
c:\windows\system32\msaud32.acm	Microsoft Corporation			
Windows Media Audio Codec	OK			
C:\WINDOWS\system32\MSAUD32.ACM	8.00.00.4487	288.00 KB (294,912 bytes)	3/25/2003 7:00 AM	
c:\windows\system32\msadp32.acm	Microsoft Corporation			
OK	C:\WINDOWS\system32\MSADP32.ACM	5.2.3790.0		
(srv03_rtm.030324-2048)	14.50 KB (14,848 bytes)	3/25/2003 7:00 AM		
c:\windows\system32\msg711.acm	Microsoft Corporation			
OK	C:\WINDOWS\system32\MSG711.ACM	5.2.3790.0		
(srv03_rtm.030324-2048)	10.00 KB (10,240 bytes)	3/25/2003 7:00 AM		
c:\windows\system32\sl_anet.acm	Sipro Lab Telecom Inc.			
Sipro Lab Telecom Audio Codec	OK			
C:\WINDOWS\system32\SL_ANET.ACM	3.02	84.00 KB (86,016 bytes)	3/25/2003 7:00 AM	
c:\windows\system32\l3codeca.acm	Fraunhofer Institut Integrierte Schaltungen IIS	Fraunhofer IIS MPEG Layer-3 Codec	OK	
C:\WINDOWS\system32\L3CODECA.ACM	1, 9, 0, 0305	284.00 KB (290,816 bytes)	3/25/2003 7:00 AM	
c:\windows\system32\msg723.acm	Microsoft Corporation			
OK	C:\WINDOWS\system32\MSG723.ACM	4.4.4000	116.00 KB (118,784 bytes)	1/15/2004 12:22 PM
c:\windows\system32\tssoft32.acm	DSP GROUP, INC.			
OK	C:\WINDOWS\system32\TSOFT32.ACM	1.01	9.50 KB (9,728 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	Manufacturer	Description	Status	File
Version	Size	Creation Date		
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\msh261.drv	Microsoft Corporation			
OK	C:\WINDOWS\system32\MSH261.DRV	4.4.4000	180.00 KB (184,320 bytes)	1/15/2004 12:22 PM
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\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\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\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	LG CD-ROM CRN-8245B
Manufacturer	(Standard CD-ROM drives)
Status	OK
Transfer Rate	Not Available
SCSI Target ID	0
PNP Device ID	
IDE\CDROM\LG_CD-ROM_CRN-8245B	_____1.16____\5
	&B130548&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	RADEON 7000 RADEON VE Family (Microsoft Corporation)
PNP Device ID	PCI\VEN_1002&DEV_5159&SUBSYS_029A1014&REV_00\3&267A616A&0&40
Adapter Type	Radeon 7000 (QY), ATI Technologies Inc. compatible
Adapter Description	RADEON 7000 RADEON VE Family (Microsoft Corporation)
Adapter RAM	8.00 MB (8,388,608 bytes)
Installed Drivers	ati2dvag.dll
Driver Version	5.1.2600.0
INF File	atiixpag.inf (ati2mtag_RV100 section)
Color Planes	1
Color Table Entries	4294967296
Resolution	1024 x 768 x 75 hertz
Bits/Pixel	32
Memory Address	0xF0000000-0xF7FFFFFF
I/O Port	0x00001800-0x000018FF
Memory Address	0xFBFF0000-0xFBFFFFFF
IRQ Channel	IRQ 22
I/O Port	0x000003B0-0x000003BB
I/O Port	0x000003C0-0x000003DF
Memory Address	0xA0000-0xBFFFF
Driver	c:\windows\system32\drivers\ati2mtag.sys (6.13.10.6153, 439.63
KB (450,176 bytes),	1/15/2004 7:13 AM)

[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&39D9D85A&0
Number of Function Keys	12
I/O Port	0x00000060-0x00000060
I/O Port	0x00000064-0x00000064
IRQ Channel	IRQ 1
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)

[Mouse]

Description	USB Human Interface Device
Name	Enhanced (101- or 102-key)
Layout	00000409
PNP Device ID	
USB\VID_04B3&PID_4001&MI_00\6&1E8AFB69&0&0000	
Number of Function Keys	12
Driver	c:\windows\system32\drivers\hidusb.sys (5.2.3790.0
(srv03_rtm.030324-2048),	11.50 KB (11,776 bytes), 3/25/2003 7:00 AM)

[Pointing Device]

Item	Value
Hardware Type	PS/2 Compatible Mouse
Number of Buttons	3
Status	OK
PNP Device ID	ACPI\PNP0F13\4&39D9D85A&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)

[USB Human Interface Device]

Hardware Type	USB Human Interface Device
Number of Buttons	3
Status	OK
PNP Device ID	
USB\VID_04B3&PID_4001&MI_01\6&1E8AFB69&0&0001	
Power Management Supported	No
Double Click Threshold	6
Handedness	Right Handed Operation
Driver	c:\windows\system32\drivers\hidusb.sys (5.2.3790.0
(srv03_rtm.030324-2048),	11.50 KB (11,776 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 1/22/2004 4:23 PM
 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_L2TPMINIPORT\0000
 Last Reset 1/22/2004 4:23 PM
 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_PPTPMINIPORT\0000
 Last Reset 1/22/2004 4:23 PM
 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\raspptp.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_PPPOEMINIPORT\0000
 Last Reset 1/22/2004 4:23 PM
 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\rasppoe.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 1/22/2004 4:23 PM
 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), 18.50 KB (18,944 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 1/22/2004 4:23 PM
 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), 96.50 KB (98,816 bytes), 3/25/2003 7:00 AM)

Name [00000007] 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_02B41014&REV_02\3&13C0B0C5
 &0&08
 Last Reset 1/22/2004 4:23 PM
 Index 7
 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:F5:02:30
 Memory Address 0xEFFF0000-0xEFFFFFFF
 Memory Address 0xEFFE0000-0xEFFFFFFF
 IRQ Channel IRQ 20
 Driver c:\windows\system32\drivers\b57xp32.sys (7.33.0.0 built by:
 WinDDK, 110.63 KB (113,280 bytes), 1/15/2004 1:21 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_02B41014&REV_02\3&13C0B0C5
 &0&09
 Last Reset 1/22/2004 4:23 PM
 Index 8
 Service Name b57w2k
 IP Address 0.0.0.0
 IP Subnet 0.0.0.0
 Default IP Gateway Not Available
 DHCP Enabled Yes
 DHCP Server
 DHCP Lease Expires Not Available
 DHCP Lease Obtained Not Available
 MAC Address 00:09:6B:F5:02:31
 Memory Address 0xEFFD0000-0xEFFDFFFF
 Memory Address 0xEFFC0000-0xEFFCFFFF
 IRQ Channel IRQ 21
 Driver c:\windows\system32\drivers\b57xp32.sys (7.33.0.0 built by:
 WinDDK, 110.63 KB (113,280 bytes), 1/15/2004 1:21 PM)

[Protocol]

Item	Value
Name	MSAFD Tcpi [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 Tcpi [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_{2364F330-3323-4751-9553-F5555EBDD803}]	
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_{2364F330-3323-4751-9553-F5555EBDD803}]	
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_{74A7CDE3-3C0C-49FD-8576-719383B7714B}]
 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_{74A7CDE3-3C0C-49FD-8576-719383B7714B}]
 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_{EBBE192C-42F8-4F6D-82A1-2CF12548AF37}]
 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_{EBBE192C-42F8-4F6D-82A1-2CF12548AF37}]
 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_{61C8F9FE-05DD-40B7-AA01-F864AE7928C5}]
 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_{61C8F9FE-05DD-40B7-AA01-F864AE7928C5}]
 DATAGRAM 2
 Connectionless Service Yes
 Guarantees Delivery No
 Guarantees Sequencing No
 Maximum Address Size 20 bytes
 Maximum Message Size 62.50 KB (64,000 bytes)
 Message Oriented Yes
 Minimum Address Size 20 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting Yes
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption No
 Supports Expedited Data No
 Supports Graceful Closing No
 Supports Guaranteed Bandwidth No
 Supports Multicasting No

[WinSock]

Item	Value
File	c:\windows\system32\winsock.dll
Size	2.80 KB (2,864 bytes)
Version	3.10

File	c:\windows\system32\wssock32.dll
Size	22.00 KB (22,528 bytes)
Version	5.2.3790.0 (srv03_rtm.030324-2048)

[Ports]

[Serial]

Item	Value
Name	Communications Port (COM1)
Status	OK
PNP Device ID	ACPI\PNP0501\1
Maximum Input Buffer Size	0
Maximum Output Buffer Size	No
Settable Baud Rate	Yes
Settable Data Bits	Yes
Settable Flow Control	Yes
Settable Parity	Yes
Settable Parity Check	Yes
Settable Stop Bits	Yes
Settable RLSD	Yes
Supports RLSD	Yes
Supports 16 Bit Mode	No
Supports Special Characters	No
Baud Rate	9600
Bits/Byte	8
Stop Bits	1
Parity	None
Busy	No
Abort Read/Write on Error	No
Binary Mode Enabled	Yes
Continue XMit on XOff	No
CTS Outflow Control	No
Discard NULL Bytes	No
DSR Outflow Control	0
DSR Sensitivity	0
DTR Flow Control Type	Enable
EOF Character	0
Error Replace Character	0
Error Replacement Enabled	No
Event Character	0
Parity Check Enabled	No
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
I/O Port	0x000003F8-0x000003FF
IRQ Channel	IRQ 4
Driver	c:\windows\system32\drivers\serial.sys (5.2.3790.0 (srv03_rtm.030324-2048), 76.00 KB (77,824 bytes), 3/25/2003 7:00 AM)

[Parallel]

Item	Value
------	-------

[Storage]

[Drives]

Item	Value
Drive A:	
Description	3 1/2 Inch Floppy Drive
Drive C:	
Description	Local Fixed Disk
Compressed	No
File System	NTFS
Size	33.90 GB (36,396,830,720 bytes)
Free Space	26.51 GB (28,461,961,216 bytes)
Volume Name	C_DRIVE

Volume Serial Number	080DDD90
----------------------	----------

Drive D:	
Description	Local Fixed Disk
Compressed	No
File System	NTFS
Size	430.18 GB (461,899,804,672 bytes)
Free Space	430.10 GB (461,818,077,184 bytes)
Volume Name	D_DRIVE
Volume Serial Number	485860E3

Drive E:	
Description	Local Fixed Disk
Compressed	Not Available
File System	Not Available
Size	Not Available
Free Space	Not Available
Volume Name	Not Available
Volume Serial Number	Not Available

Drive F:	
Description	Local Fixed Disk
Compressed	No
File System	NTFS
Size	11.72 GB (12,582,891,520 bytes)
Free Space	11.65 GB (12,508,618,752 bytes)
Volume Name	F_DRIVE
Volume Serial Number	F0FE9079

Drive G:	
Description	Local Fixed Disk
Compressed	No
File System	NTFS
Size	430.18 GB (461,899,804,672 bytes)
Free Space	278.13 GB (298,639,577,088 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	278.13 GB (298,639,577,088 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	278.13 GB (298,639,577,088 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	278.13 GB (298,639,577,088 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 278.13 GB (298,639,577,088 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 277.35 GB (297,800,998,912 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 278.13 GB (298,639,577,088 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 278.13 GB (298,639,577,088 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 277.85 GB (298,335,358,976 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 277.85 GB (298,335,358,976 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 277.85 GB (298,335,358,976 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 277.85 GB (298,335,424,512 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 277.85 GB (298,335,358,976 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 277.85 GB (298,335,358,976 bytes)
 Volume Name T_DRIVE
 Volume Serial Number 5C75B9A2

Drive U:
 Description Local Fixed Disk
 Compressed No
 File System NTFS
 Size 430.18 GB (461,899,804,672 bytes)
 Free Space 277.85 GB (298,335,358,976 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 277.85 GB (298,335,428,608 bytes)
 Volume Name V_DRIVE
 Volume Serial Number 00488427

Drive W:
 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 W_DRIVE
 Volume Serial Number 54B2E6F2

Drive X:
 Description Network Connection
 Provider Name \\fssrv\hdrive

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	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 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 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 #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 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 #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 14
 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 #18, Partition #0
 Partition Size 27.83 GB (29,886,496,768 bytes)
 Partition Starting Offset 2,113,536 bytes
 Partition Disk #18, Partition #1
 Partition Size 16.12 GB (17,303,584,768 bytes)
 Partition Starting Offset 29,888,626,688 bytes
 Partition Disk #18, 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 14
 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 #19, Partition #0
 Partition Size 27.83 GB (29,886,496,768 bytes)
 Partition Starting Offset 2,113,536 bytes
 Partition Disk #19, Partition #1
 Partition Size 16.12 GB (17,303,584,768 bytes)
 Partition Starting Offset 29,888,626,688 bytes
 Partition Disk #19, 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 #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 7
 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 #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 2
 SCSI Bus 0
 SCSI Logical Unit 0
 SCSI Port 8
 SCSI Target ID 0
 Sectors/Track 32
 Size 237.30 GB (254,801,870,848 bytes)
 Total Cylinders 121,499

Total Sectors 497,659,904
 Total Tracks 15,551,872
 Tracks/Cylinder 128
 Partition Disk #7, Partition #0
 Partition Size 225.10 GB (241,698,848,768 bytes)
 Partition Starting Offset 2,113,536 bytes
 Partition Disk #7, Partition #1
 Partition Size 11.72 GB (12,582,895,616 bytes)
 Partition Starting Offset 241,700,978,688 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 5
 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 #1, Partition #0
 Partition Size 27.83 GB (29,886,496,768 bytes)
 Partition Starting Offset 2,113,536 bytes
 Partition Disk #1, Partition #1
 Partition Size 16.12 GB (17,303,584,768 bytes)
 Partition Starting Offset 29,888,626,688 bytes
 Partition Disk #1, 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 5
 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 #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 9
 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 #8, Partition #0
 Partition Size 27.83 GB (29,886,496,768 bytes)
 Partition Starting Offset 2,113,536 bytes
 Partition Disk #8, Partition #1
 Partition Size 16.12 GB (17,303,584,768 bytes)
 Partition Starting Offset 29,888,626,688 bytes
 Partition Disk #8, 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 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 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 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
 Partition Disk #10, 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 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 #11, Partition #0
 Partition Size 27.83 GB (29,886,496,768 bytes)
 Partition Starting Offset 2,113,536 bytes
 Partition Disk #11, Partition #1
 Partition Size 16.12 GB (17,303,584,768 bytes)
 Partition Starting Offset 29,888,626,688 bytes
 Partition Disk #11, 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 ST336607LC FN 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 4
 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 33.90 GB (36,396,831,744 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_10001000&REV_08\3&13C0B0C5&0&10
I/O Port	0x00002000-0x00002FFF
Memory Address	0xEFFB0000-0xEFFBFFFF
Memory Address	0xEFFA0000-0xEFFAFFFF
IRQ Channel	IRQ 18
Driver	c:\windows\system32\drivers\symmpi.sys (1.09.06.00 built by: WinDDK, 33.50 KB (34,304 bytes), 1/15/2004 1:00 PM)

Item	Value
Name	LSI Logic 1020/1030 Ultra320 SCSI Adapter
Manufacturer	LSI Logic
Status	OK
PNP Device ID	PCI\VEN_1000&DEV_0030&SUBSYS_10001000&REV_08\3&13C0B0C5&0&11
I/O Port	0x00002100-0x000021FF
Memory Address	0xEFF90000-0xEFF9FFFF
Memory Address	0xEFF80000-0xEFF8FFFF

IRQ Channel IRQ 19
Driver c:\windows\system32\drivers\symmpi.sys (1.09.06.00 built by:
WinDDK, 33.50 KB (34,304 bytes), 1/15/2004 1:00 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&13C0B0C5&
0&40
I/O Port 0x00002200-0x000022FF
Memory Address 0xEFF7F000-0xEFF7FFFF
IRQ Channel IRQ 26
Driver c:\windows\system32\drivers\ql2300.sys (8.2.0 Beta 10 (W2K VI),
431.38 KB (441,733 bytes), 1/16/2004 10:09 AM)

Name IBM ServeRAID 6M Controller
Manufacturer IBM Corporation
Status OK
PNP Device ID
PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&1AA00164&
0&4040
Memory Address 0xEDC00000-0xEDC00FFF
IRQ Channel IRQ 32
Driver c:\windows\system32\drivers\nfrd6m.sys (6.06.07 built by:
WinDDK, 29.50 KB (30,208 bytes), 1/15/2004 1:01 PM)

Name IBM ServeRAID 6M Controller
Manufacturer IBM Corporation
Status OK
PNP Device ID
PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&16056E07&0
&4040
Memory Address 0xE7C00000-0xE7C00FFF
IRQ Channel IRQ 68
Driver c:\windows\system32\drivers\nfrd6m.sys (6.06.07 built by:
WinDDK, 29.50 KB (30,208 bytes), 1/15/2004 1:01 PM)

Name IBM ServeRAID 6M Controller
Manufacturer IBM Corporation
Status OK
PNP Device ID
PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&3827E28B&
0&4040
Memory Address 0xE9C00000-0xE9C00FFF
IRQ Channel IRQ 53
Driver c:\windows\system32\drivers\nfrd6m.sys (6.06.07 built by:
WinDDK, 29.50 KB (30,208 bytes), 1/15/2004 1:01 PM)

Name IBM ServeRAID 6M Controller
Manufacturer IBM Corporation
Status OK
PNP Device ID
PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&15C019C6&
0&4040
Memory Address 0xEBC00000-0xEBC00FFF
IRQ Channel IRQ 36
Driver c:\windows\system32\drivers\nfrd6m.sys (6.06.07 built by:
WinDDK, 29.50 KB (30,208 bytes), 1/15/2004 1:01 PM)

Name IBM ServeRAID 6M Controller
Manufacturer IBM Corporation
Status OK
PNP Device ID
PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&6924BCD&0
&4008
Memory Address 0xE1400000-0xE1400FFF
IRQ Channel IRQ 85

Driver c:\windows\system32\drivers\nfrd6m.sys (6.06.07 built by:
WinDDK, 29.50 KB (30,208 bytes), 1/15/2004 1:01 PM)

Name IBM ServeRAID 6M Controller
Manufacturer IBM Corporation
Status OK
PNP Device ID
PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&2794536D&0
&4010
Memory Address 0xE1C00000-0xE1C00FFF
IRQ Channel IRQ 89
Driver c:\windows\system32\drivers\nfrd6m.sys (6.06.07 built by:
WinDDK, 29.50 KB (30,208 bytes), 1/15/2004 1:01 PM)

Name IBM ServeRAID 6M Controller
Manufacturer IBM Corporation
Status OK
PNP Device ID
PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&29C8B970&
0&4008
Memory Address 0xE3400000-0xE3400FFF
IRQ Channel IRQ 78
Driver c:\windows\system32\drivers\nfrd6m.sys (6.06.07 built by:
WinDDK, 29.50 KB (30,208 bytes), 1/15/2004 1:01 PM)

Name IBM ServeRAID 6M Controller
Manufacturer IBM Corporation
Status OK
PNP Device ID
PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&ABFB6BF&
0&4010
Memory Address 0xE3C00000-0xE3C00FFF
IRQ Channel IRQ 82
Driver c:\windows\system32\drivers\nfrd6m.sys (6.06.07 built by:
WinDDK, 29.50 KB (30,208 bytes), 1/15/2004 1:01 PM)

Name IBM ServeRAID 6M Controller
Manufacturer IBM Corporation
Status OK
PNP Device ID
PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&394CB993&
0&4008
Memory Address 0xE5400000-0xE5400FFF
IRQ Channel IRQ 71
Driver c:\windows\system32\drivers\nfrd6m.sys (6.06.07 built by:
WinDDK, 29.50 KB (30,208 bytes), 1/15/2004 1:01 PM)

Name IBM ServeRAID 6M Controller
Manufacturer IBM Corporation
Status OK
PNP Device ID
PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&1A43B6E2&
0&4010
Memory Address 0xE5C00000-0xE5C00FFF
IRQ Channel IRQ 75
Driver c:\windows\system32\drivers\nfrd6m.sys (6.06.07 built by:
WinDDK, 29.50 KB (30,208 bytes), 1/15/2004 1:01 PM)

[IDE]

Item	Value
Name	Standard Dual Channel PCI IDE Controller
Manufacturer	(Standard IDE ATA/ATAPI controllers)
Status	OK
PNP Device ID	
PCI\VEN_1166&DEV_0213&SUBSYS_02121014&REV_A0\3&267A616A& 0&79	
I/O Port	0x00000700-0x0000070F

Driver c:\windows\system32\drivers\pciide.sys (5.2.3790.0
(srv03_rtm.030324-2048), 5.50 KB (5,632 bytes), 3/25/2003 7:00 AM)

Name Primary IDE Channel
Manufacturer (Standard IDE ATA/ATAPI controllers)
Status OK
PNP Device ID PCI\IDE\IDECHANNEL\4&1D22FEAC&0&0
I/O Port 0x000001F0-0x000001F7
I/O Port 0x000003F6-0x000003F6
IRQ Channel IRQ 14
Driver c:\windows\system32\drivers\ataapi.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 PCI\IDE\IDECHANNEL\4&1D22FEAC&0&1
I/O Port 0x00000170-0x00000177
I/O Port 0x00000376-0x00000376
Driver c:\windows\system32\drivers\ataapi.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

[USB]

Device PNP Device ID
Standard OpenHCD USB Host Controller
PCI\VEN_1166&DEV_0221&SUBSYS_02B41014&REV_05\3&267A616A&0&7A
USB Root Hub USB\ROOT_HUB\4&1AAA84E&0
USB Composite Device USB\VID_04B3&PID_4001\00096B9E35A3
USB Human Interface Device
USB\VID_04B3&PID_4001&MI_00\6&1E8AFB69&0&0000
HID Keyboard Device
HID\VID_04B3&PID_4001&MI_00\7&29112AD2&0&0000
USB Human Interface Device
USB\VID_04B3&PID_4001&MI_01\6&1E8AFB69&0&0001
HID-compliant mouse
HID\VID_04B3&PID_4001&MI_01\7&473957&0&0000
USB Human Interface Device
USB\VID_04B3&PID_4001&MI_02\6&1E8AFB69&0&0002
HID-compliant device
HID\VID_04B3&PID_4001&MI_02\7&180AC59C&0&0000

[Software Environment]

[System Drivers]

Name	Description	File	Type	Started	Start Mode
State	Status	Error Control	Accept Pause		Accept Stop
abiosdsk	Abiosdsk	Not Available	Kernel Driver	No	No
Disabled	Stopped	OK	Ignore	No	No
acpi	Microsoft ACPI Driver				
c:\windows\system32\drivers\acpi.sys			Kernel Driver	Yes	
Boot	Running	OK	Normal	Yes	
acpiec	ACPIEC	c:\windows\system32\drivers\acpiec.sys			Kernel
Driver	No	Disabled	Stopped	OK	Normal
No					No

adpu160m	adpu160m	Not Available	Kernel Driver	No	
Disabled	Stopped	OK	Normal	No	No
adpu320	adpu320	Not Available	Kernel Driver	No	
Disabled	Stopped	OK	Normal	No	No
afcnt	afcnt	Not Available	Kernel Driver	No	
Disabled	Stopped	OK	Normal	No	No
afd	AFD Networking Support Environment				
c:\windows\system32\drivers\afd.sys			Kernel Driver	Yes	
Auto	Running	OK	Normal	No	Yes
aha154x	Aha154x	Not Available	Kernel Driver	No	
Disabled	Stopped	OK	Normal	No	No
aic78u2	aic78u2	Not Available	Kernel Driver	No	
Disabled	Stopped	OK	Normal	No	No
aic78xx	aic78xx	Not Available	Kernel Driver	No	
Disabled	Stopped	OK	Normal	No	No
aliide	Alilide	Not Available	Kernel Driver	No	
Disabled	Stopped	OK	Normal	No	No
asynmac	RAS Asynchronous Media Driver				
c:\windows\system32\drivers\asynmac.sys			Kernel Driver	No	
Manual	Stopped	OK	Normal	No	No
atapi	Standard IDE/ESDI Hard Disk Controller				
c:\windows\system32\drivers\ataapi.sys			Kernel Driver	Yes	
Boot	Running	OK	Normal	No	Yes
atdisk	Atdisk	Not Available	Kernel Driver	No	
Disabled	Stopped	OK	Ignore	No	No
ati2mtag	ati2mtag	c:\windows\system32\drivers\ati2mtag.sys	Kernel		
Driver	Yes	Manual	Running	OK	Ignore
Yes					No
atmarpc	ATM ARP Client Protocol				
c:\windows\system32\drivers\atmarpc.sys			Kernel Driver	No	
Manual	Stopped	OK	Normal	No	No
audstub	Audio Stub Driver	c:\windows\system32\drivers\audstub.sys			
Kernel Driver	Yes	Manual	Running	OK	Normal
No	Yes				
b57w2k	Broadcom NetXtreme Gigabit Ethernet				
c:\windows\system32\drivers\b57xp32.sys			Kernel Driver	Yes	
Manual	Running	OK	Normal	No	Yes
beep	Beep	c:\windows\system32\drivers\beep.sys	Kernel		
Driver	Yes	System	Running	OK	Normal
Yes					No
cbidf2k	cbidf2k	c:\windows\system32\drivers\cbidf2k.sys	Kernel		
Driver	No	Disabled	Stopped	OK	Normal
No					No
cd20xrnt	cd20xrnt	Not Available	Kernel Driver	No	
Disabled	Stopped	OK	Normal	No	No
cdfs	Cdfs	c:\windows\system32\drivers\cdfs.sys			File System
Driver	Yes	Disabled	Running	OK	Normal
Yes					No
cdrom	CD-ROM Driver				
c:\windows\system32\drivers\cdrom.sys					
Kernel Driver	Yes	System	Running	OK	Normal
No	Yes				
changer	Changer	Not Available	Kernel Driver	No	
System	Stopped	OK	Ignore	No	No
clusdisk	Cluster Disk Driver	c:\windows\system32\drivers\clusdisk.sys			
Kernel Driver	No	Disabled	Stopped	OK	Normal
No	No				
cmdide	CmdIde	Not Available	Kernel Driver	No	
Disabled	Stopped	OK	Normal	No	No
cpqarray	Cpqarray	Not Available	Kernel Driver	No	
Disabled	Stopped	OK	Normal	No	No
cpqarray2	cpqarray2	Not Available	Kernel Driver	No	
Disabled	Stopped	OK	Normal	No	No
cpqcissm	cpqcissm	Not Available	Kernel Driver	No	
Disabled	Stopped	OK	Normal	No	No
cpqfcalm	cpqfcalm	Not Available	Kernel Driver	No	
Disabled	Stopped	OK	Normal	No	No

credisk	CRC Disk Filter Driver							intelide	IntelIde	Not Available	Kernel Driver	No
c:\windows\system32\drivers\credisk.sys				Kernel Driver	Yes			Disabled	Stopped	OK	Normal	No
Boot	Running	OK	Normal	No	Yes			ipfilterdriver	IP Traffic Filter Driver			
dac960nt	dac960nt	Not Available		Kernel Driver	No			c:\windows\system32\drivers\ipfltdrv.sys		Kernel Driver	No	
Disabled	Stopped	OK	Normal	No	No			Manual	Stopped	OK	Normal	No
dellcerc	dellcerc	Not Available		Kernel Driver	No			ipinip	IP in IP Tunnel Driver	c:\windows\system32\drivers\ipinip.sys		
Disabled	Stopped	OK	Normal	No	No			Kernel Driver	No	Manual	Stopped	OK
dfsdriver	DfsDriver	c:\windows\system32\drivers\dfs.sys		File System	No			No	No			
Driver	Yes	Boot	Running	OK	Normal			ipnat	IP Network Address Translator			
Yes								c:\windows\system32\drivers\ipnat.sys		Kernel Driver	No	
disk	Disk Driver			c:\windows\system32\drivers\disk.sys				Manual	Stopped	OK	Normal	No
Kernel Driver	Yes	Boot	Running	OK	Normal			ipsec	IPSEC driver	c:\windows\system32\drivers\ipsec.sys		
No	Yes							Kernel Driver	Yes	System	Running	OK
dmboot	dmboot	c:\windows\system32\drivers\dmboot.sys		Kernel	No			No	Yes			
Driver	No	Disabled	Stopped	OK	Normal			ipsraidn	ipsraidn	Not Available	Kernel Driver	No
No								Disabled	Stopped	OK	Normal	No
dmio	Logical Disk Manager Driver							isapnp	PnP ISA/EISA Bus Driver			
c:\windows\system32\drivers\dmio.sys				Kernel Driver	Yes			c:\windows\system32\drivers\isapnp.sys		Kernel Driver	Yes	
Boot	Running	OK	Normal	No	Yes			Boot	Running	OK	Critical	No
dmload	dmload	c:\windows\system32\drivers\dmload.sys		Kernel	No			kbdclass	Keyboard Class Driver			
Driver	Yes	Boot	Running	OK	Normal			c:\windows\system32\drivers\kbdclass.sys		Kernel Driver	Yes	
Yes								System	Running	OK	Normal	Yes
dpti2o	dpti2o	Not Available		Kernel Driver	No			kbdhid	Keyboard HID Driver	c:\windows\system32\drivers\kbdhid.sys		
Disabled	Stopped	OK	Normal	No	No			Kernel Driver	Yes	System	Running	OK
fastfat	Fastfat	c:\windows\system32\drivers\fastfat.sys		File System	No			No	Yes			
Driver	Yes	Disabled	Running	OK	Normal			ksecdd	KSecDD	c:\windows\system32\drivers\ksecdd.sys	Kernel	
Yes								Driver	Yes	Boot	Running	OK
fdc	Floppy Disk Controller Driver							Yes			Normal	No
c:\windows\system32\drivers\fdc.sys				Kernel Driver	Yes			Ip6nds35	Ip6nds35	Not Available	Kernel Driver	No
Manual	Running	OK	Normal	No	Yes			Disabled	Stopped	OK	Normal	No
fips	Fips	c:\windows\system32\drivers\fips.sys		Kernel	No			mnmdd	mnmdd	c:\windows\system32\drivers\mnmdd.sys	Kernel	
Driver	Yes	System	Running	OK	Normal			Driver	Yes	System	Running	OK
Yes								Yes			Ignore	No
flpydisk	Floppy Disk Driver	c:\windows\system32\drivers\flpydisk.sys						modem	Modem	c:\windows\system32\drivers\modem.sys	Kernel	
Kernel Driver	Yes	Manual	Running	OK	Normal			Driver	No	Manual	Stopped	OK
No	Yes							No			Ignore	No
ftdisk	Volume Manager Driver							mouclass	Mouse Class Driver	c:\windows\system32\drivers\mouclass.sys		
c:\windows\system32\drivers\ftdisk.sys				Kernel Driver	Yes			Kernel Driver	Yes	System	Running	OK
Boot	Running	OK	Normal	No	Yes			No	Yes			
gpc	Generic Packet Classifier							mouhid	Mouse HID Driver	c:\windows\system32\drivers\mouhid.sys		
c:\windows\system32\drivers\msgpc.sys				Kernel Driver	Yes			Kernel Driver	Yes	Manual	Running	OK
Manual	Running	OK	Normal	No	Yes			No	Yes			Ignore
hidusb	Microsoft HID Class Driver							mountmgr	Mount Point Manager	c:\windows\system32\drivers\mountmgr.sys		
c:\windows\system32\drivers\hidusb.sys				Kernel Driver	Yes			Kernel Driver	Yes	Boot	Running	OK
Manual	Running	OK	Ignore	No	Yes			No	Yes			Normal
hpn	hpn	Not Available		Kernel Driver	No			mrraid35x	mrraid35x	Not Available	Kernel Driver	No
Disabled	Stopped	OK	Normal	No	No			Disabled	Stopped	OK	Normal	No
hpt3xx	hpt3xx	Not Available		Kernel Driver	No			mrxdav	WebDav Client Redirector			
Disabled	Stopped	OK	Normal	No	No			c:\windows\system32\drivers\mrxdav.sys		File System Driver	No	
http	HTTP	c:\windows\system32\drivers\http.sys		Kernel	No			Manual	Stopped	OK	Normal	No
Driver	No	Manual	Stopped	OK	Normal			mrxsmb	MRXSMB	c:\windows\system32\drivers\mrxsmb.sys	File System	
No								Driver	Yes	System	Running	OK
i2omgmt	i2omgmt	Not Available		Kernel Driver	No			Yes			Normal	No
System	Stopped	OK	Normal	No	No			msfs	Msfs	c:\windows\system32\drivers\msfs.sys	File System	
i2omp	i2omp	Not Available		Kernel Driver	No			Driver	Yes	System	Running	OK
Disabled	Stopped	OK	Normal	No	No			Yes			Normal	No
i8042prt	i8042 Keyboard and PS/2 Mouse Port Driver							mup	Mup	c:\windows\system32\drivers\mup.sys	File System	
c:\windows\system32\drivers\i8042prt.sys				Kernel Driver	Yes			Driver	Yes	Boot	Running	OK
System	Running	OK	Normal	No	Yes			Yes			Normal	No
ibmhp	IBMHPA	c:\windows\system32\drivers\ibmhp.sys		Kernel	No			ndis	NDIS System Driver	c:\windows\system32\drivers\ndis.sys		
Driver	Yes	Manual	Running	OK	Normal			Kernel Driver	Yes	Boot	Running	OK
Yes								No	Yes			Normal
iirsp	iirsp	Not Available		Kernel Driver	No			ndistapi	Remote Access NDIS TAPI Driver			
Disabled	Stopped	OK	Normal	No	No			c:\windows\system32\drivers\ndistapi.sys		Kernel Driver	Yes	
imapi	CD-Burning Filter Driver							Manual	Running	OK	Normal	No
c:\windows\system32\drivers\imapi.sys				Kernel Driver	No			ndisuio	NDIS Usermode I/O Protocol			
System	Stopped	OK	Normal	No	No			c:\windows\system32\drivers\ndisuio.sys		Kernel Driver	Yes	
								Manual	Running	OK	Normal	No

ndiswan	Remote Access NDIS WAN Driver							ql1080	ql1080	Not Available	Kernel Driver	No
c:\windows\system32\drivers\ndiswan.sys	Kernel Driver	Yes						Disabled	Stopped	OK	Normal	No
Manual	Running	OK	Normal	No	Yes			ql10wnt	ql10wnt	Not Available	Kernel Driver	No
ndproxy	NDIS Proxy		c:\windows\system32\drivers\ndproxy.sys					Disabled	Stopped	OK	Normal	No
Kernel Driver	Yes	Manual	Running	OK	Normal			ql12160	ql12160	Not Available	Kernel Driver	No
No	Yes							Disabled	Stopped	OK	Normal	No
netbios	NetBIOS Interface		c:\windows\system32\drivers\netbios.sys					ql1240	ql1240	Not Available	Kernel Driver	No
File System Driver	Yes	System	Running	OK	Normal			Disabled	Stopped	OK	Normal	No
No	Yes							ql1280	ql1280	Not Available	Kernel Driver	No
netbt	NetBios over Tcpip		c:\windows\system32\drivers\netbt.sys					Disabled	Stopped	OK	Normal	No
Kernel Driver	Yes	System	Running	OK	Normal			ql2100	ql2100	Not Available	Kernel Driver	No
No	Yes							Disabled	Stopped	OK	Normal	No
nfrd6m	IBM ServeRAID 6M Device Driver							ql2200	ql2200	Not Available	Kernel Driver	No
c:\windows\system32\drivers\nfrd6m.sys	Kernel Driver	Yes						Disabled	Stopped	OK	Normal	No
Boot	Running	OK	Normal	No	Yes			ql2300	ql2300	c:\windows\system32\drivers\ql2300.sys	Kernel	No
nfrd6mpf	IBM ServeRAID 6M Performance Driver							Driver	Yes	Boot	Running	OK
c:\windows\system32\drivers\nfrd6mpf.sys	Kernel Driver	Yes						Yes				
Boot	Running	OK	Normal	No	Yes			qlvika	qlvika	c:\windows\system32\drivers\qlvika.sys	Kernel	No
nfrd960	nfrd960	Not Available	Kernel Driver	No				Driver	Yes	Auto	Running	OK
Disabled	Stopped	OK	Normal	No	No			Yes				
npfs	Npfs		c:\windows\system32\drivers\npfs.sys					rasacd	Remote Access Auto Connection Driver			
Driver	Yes	System	Running	OK	Normal	No		c:\windows\system32\drivers\rasacd.sys	Kernel Driver	Yes		
Yes								System	Running	OK	Normal	No
ntfs	Ntfs		c:\windows\system32\drivers\ntfs.sys					rasl2tp	WAN Miniport (L2TP)			
Driver	Yes	Disabled	Running	OK	Normal	No		c:\windows\system32\drivers\rasl2tp.sys	Kernel Driver	Yes		
Yes								Manual	Running	OK	Normal	No
null	Null		c:\windows\system32\drivers\null.sys					rasppoe	Remote Access PPPOE Driver			
Driver	Yes	System	Running	OK	Normal	No		c:\windows\system32\drivers\rasppoe.sys	Kernel Driver	Yes		
Yes								Manual	Running	OK	Normal	No
parport	Parport		c:\windows\system32\drivers\parport.sys					raspti	Direct Parallel	c:\windows\system32\drivers\raspti.sys		
Driver	No	Manual	Stopped	OK	Ignore	No		Kernel Driver	Yes	Manual	Running	OK
No								No	Yes			
partmgr	Partition Manager		c:\windows\system32\drivers\partmgr.sys					rdbss	Rdbss	c:\windows\system32\drivers\rdbss.sys	File System	No
Kernel Driver	Yes	Boot	Running	OK	Normal			Driver	Yes	System	Running	OK
No	Yes							Yes				
pci	PCI Bus Driver		c:\windows\system32\drivers\pci.sys					rdpcdd	RDPCDD	c:\windows\system32\drivers\rdpcdd.sys	Kernel	No
Kernel Driver	Yes	Boot	Running	OK	Critical			Driver	Yes	System	Running	OK
No	Yes							Yes				
pciide	PCIIde		c:\windows\system32\drivers\pciide.sys					rdpdr	Terminal Server Device Redirector Driver			
Driver	Yes	Boot	Running	OK	Normal	No		c:\windows\system32\drivers\rdpdr.sys	Kernel Driver	Yes		
Yes								Manual	Running	OK	Normal	No
pcmcia	Pcmcia		c:\windows\system32\drivers\pcmcia.sys					rdpwd	RDPWD	c:\windows\system32\drivers\rdpwd.sys	Kernel	No
Driver	No	Disabled	Stopped	OK	Normal	No		Driver	No	Manual	Stopped	OK
No								No				
pdcomp	PDCOMP	Not Available	Kernel Driver	No				redbook	Digital CD Audio Playback Filter Driver			
Manual	Stopped	OK	Ignore	No	No			c:\windows\system32\drivers\redbook.sys	Kernel Driver	Yes		
pdframe	PDFRAME		Not Available	Kernel Driver				System	Running	OK	Normal	No
No	Manual	Stopped	OK	Ignore	No	No		secdrv	Secdrv	c:\windows\system32\drivers\secdrv.sys	Kernel	No
pdreli	PDRELI	Not Available	Kernel Driver	No				Driver	No	Manual	Stopped	OK
Manual	Stopped	OK	Ignore	No	No			No				
pdrframe	PDRFRAME		Not Available	Kernel Driver				serenum	Serenum Filter Driver	c:\windows\system32\drivers\serenum.sys		
No	Manual	Stopped	OK	Ignore	No	No		Kernel Driver	Yes	Manual	Running	OK
perc2	perc2	Not Available	Kernel Driver	No				No	Yes			
Disabled	Stopped	OK	Normal	No	No			serial	Serial port driver	c:\windows\system32\drivers\serial.sys		
perc2hib	perc2hib	Not Available	Kernel Driver	No				Kernel Driver	Yes	System	Running	OK
Disabled	Stopped	OK	Normal	No	No			No	Yes			
pnpmem	Microsoft Memory Module Driver							sfloppy	Sfloppy	c:\windows\system32\drivers\sfloppy.sys	Kernel	No
c:\windows\system32\drivers\pnpmem.sys	Kernel Driver	Yes						Driver	No	System	Stopped	OK
Manual	Running	OK	Normal	No	Yes			No				
pptpminiport	WAN Miniport (PPTP)							simbad	Simbad	Not Available	Kernel Driver	No
c:\windows\system32\drivers\rasppptp.sys	Kernel Driver	Yes						Disabled	Stopped	OK	Normal	No
Manual	Running	OK	Normal	No	Yes			sparrow	Sparrow	Not Available	Kernel Driver	No
processor	Processor Driver		c:\windows\system32\drivers\processr.sys					Disabled	Stopped	OK	Normal	No
Kernel Driver	Yes	Manual	Running	OK	Normal			srv	Srv	c:\windows\system32\drivers\srv.sys	File System	No
No	Yes							Driver	Yes	Manual	Running	OK
ptilink	Direct Parallel Link Driver							Yes				
c:\windows\system32\drivers\ptilink.sys	Kernel Driver	Yes										
Manual	Running	OK	Normal	No	Yes							

Communications Port Yes	PORTS	5.2.3790.0	10/1/2002	(Standard port types) mspports.inf	Not Available	ACPI\PNP0501\1
Advanced programmable interrupt controller	Yes	SYSTEM	5.2.3790.0	10/1/2002 (Standard system devices)	machine.inf	Not Available
Available	ACPI\PNP0003\4&39D9D85A&0					
Direct memory access controller	Yes	SYSTEM	5.2.3790.0	10/1/2002 (Standard system devices)	machine.inf	Not Available
ACPI\PNP0200\4&39D9D85A&0						
System timer	Yes	SYSTEM	5.2.3790.0	10/1/2002 (Standard system devices)	machine.inf	Not Available
ACPI\PNP0100\4&39D9D85A&0						
System CMOS/real time clock	Yes	SYSTEM	5.2.3790.0	10/1/2002 (Standard system devices)	machine.inf	Not Available
ACPI\PNP0B00\4&39D9D85A&0						
System speaker	Yes	SYSTEM	5.2.3790.0	10/1/2002 (Standard system devices)	machine.inf	Not Available
ACPI\PNP0800\4&39D9D85A&0						
Numeric data processor	Yes	SYSTEM	5.2.3790.0	10/1/2002 (Standard system devices)	machine.inf	Not Available
ACPI\PNP0C04\4&39D9D85A&0						
Motherboard resources	Yes	SYSTEM	5.2.3790.0	10/1/2002 (Standard system devices)	machine.inf	Not Available
ACPI\PNP0C02\4						
Standard Dual Channel PCI IDE Controller	Yes	HDC	5.2.3790.0	10/1/2002 (Standard IDE ATA/ATAPI controllers)	mshdc.inf	Not Available
Available	PCI\VEN_1166&DEV_0213&SUBSYS_02121014&REV_A0\3&267A616A&0&79					
Primary IDE Channel	Yes	HDC	5.2.3790.0	10/1/2002 (Standard IDE ATA/ATAPI controllers)	mshdc.inf	Not Available
PCI\IDE\IDECHANNEL\4&1D22FEAC&0&0						
CD-ROM Drive	Yes	CDROM	5.2.3790.0	10/1/2002 (Standard CD-ROM drives)	cdrom.inf	Not Available
IDE\CDROM\LG_CD-ROM_CRN-8245B			1.16			\5
&B130548&0&0.0.0						
Secondary IDE Channel	Yes	HDC	5.2.3790.0	10/1/2002 (Standard IDE ATA/ATAPI controllers)	mshdc.inf	Not Available
PCI\IDE\IDECHANNEL\4&1D22FEAC&0&1						
Standard OpenHCD USB Host Controller	Yes	USB	5.2.3790.0	10/1/2002 (Standard USB Host Controller)	usbport.inf	Not Available
Available	PCI\VEN_1166&DEV_0221&SUBSYS_02B41014&REV_05\3&267A616A&0&7A					
USB Root Hub	Yes	USB	5.2.3790.0	10/1/2002 (Standard USB Host Controller)	usbport.inf	Not Available
USB\ROOT_HUB\4&1AAA84E&0						
USB Composite Device	Yes	USB	5.2.3790.0	10/1/2002 (Standard USB Host Controller)	usb.inf	Not Available
USB\VID_04B3&PID_4001\00096B9E35A3						
USB Human Interface Device	Yes	HIDCLASS	5.2.3790.0	10/1/2002 (Standard system devices)	input.inf	Not Available
USB\VID_04B3&PID_4001&MI_00\6&1E8AFB69&0&0000						
HID Keyboard Device	Yes	KEYBOARD	5.2.3790.0	10/1/2002 (Standard keyboards)	keyboard.inf	Not Available
HID\VID_04B3&PID_4001&MI_00\7&29112AD2&0&0000						
USB Human Interface Device	Yes	HIDCLASS	5.2.3790.0	10/1/2002 (Standard system devices)	input.inf	Not Available
USB\VID_04B3&PID_4001&MI_01\6&1E8AFB69&0&0001						
HID-compliant mouse	Yes	MOUSE	5.2.3790.0	10/1/2002	Microsoft msmouse.inf	Not Available
HID\VID_04B3&PID_4001&MI_01\7&473957&0&0000						
USB Human Interface Device	Yes	HIDCLASS	5.2.3790.0	10/1/2002 (Standard system devices)	input.inf	Not Available
USB\VID_04B3&PID_4001&MI_02\6&1E8AFB69&0&0002						
HID-compliant device	Yes	HIDCLASS	5.2.3790.0	10/1/2002 (Standard system devices)	input.inf	Not Available
HID\VID_04B3&PID_4001&MI_02\7&180AC59C&0&0000						
Serverworks Champion CSB6 - SouthBridge 6 LPC	Yes	SYSTEM	5.2.3790.0	10/1/2002	ServerWorks (RCC)	machine.inf
Available	PCI\VEN_1166&DEV_0227&SUBSYS_00000000&REV_00\3&267A616A&0&7B					
ISAPNP Read Data Port	Yes	SYSTEM	5.2.3790.0	10/1/2002 (Standard system devices)	machine.inf	Not Available
ISAPNP\READDATAPORT\0						
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
Available	PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_05\3&13C0B0C5&0&00					
Broadcom NetXtreme Gigabit Ethernet	Yes	NET	7.33.0.0	10/16/2003	Broadcom oem0.inf	Not Available
PCI\VEN_14E4&DEV_1648&SUBSYS_02B41014&REV_02\3&13C0B0C5&0&08						
Broadcom NetXtreme Gigabit Ethernet	Yes	NET	7.33.0.0	10/16/2003	Broadcom oem0.inf	Not Available
Available	PCI\VEN_14E4&DEV_1648&SUBSYS_02B41014&REV_02\3&13C0B0C5&0&09					
LSI Logic 1020/1030 Ultra320 SCSI Adapter	Yes					
SCSIADAPTER	1.9.6.0	5/23/2003	LSI Logic	oem2.inf	Not Available	
Available	PCI\VEN_1000&DEV_0030&SUBSYS_10001000&REV_08\3&13C0B0C5&0&10					
LSI Logic 1020/1030 Ultra320 SCSI Adapter	Yes					
SCSIADAPTER	1.9.6.0	5/23/2003	LSI Logic	oem2.inf	Not Available	
Available	PCI\VEN_1000&DEV_0030&SUBSYS_10001000&REV_08\3&13C0B0C5&0&11					
Disk drive	Yes	DISKDRIVE	5.2.3790.0	10/1/2002 (Standard disk drives)	disk.inf	Not Available
SCSI\DISK&VEN_IBM-ESXS&PROD_ST336607LC						
&198676A3&0&000						
SCSI Processor Device	Yes	SYSTEM	5.2.3790.0	10/1/2002		
IBM	scsidev.inf	Not Available				
SCSI\PROCESSOR&VEN_IBM&PROD_32P0032A_S320_1&REV_1\4&198676A3&0&080						
QLogic QLA23xx PCI Fibre Channel Adapter	No					
SCSIADAPTER	8.2.0.0	10/22/2002	QLogic	oem4.inf	Not Available	
Available	PCI\VEN_1077&DEV_2312&SUBSYS_010C1077&REV_02\3&13C0B0C5&0&40					
Qlogic processor device	Yes	SYSTEM	5.2.3790.0	10/1/2002		
QLOGIC	scsidev.inf	Not Available				
SCSI\PROCESSOR&VEN_QLOGIC&PROD_PSEUDO_LUN&REV_4&22F21A83&0&07F0						
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
Available	PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_05\3&1070020&0&00					
PCI standard PCI-to-PCI bridge	Yes	SYSTEM	5.2.3790.0	10/1/2002 (Standard system devices)	machine.inf	Not Available
Available	PCI\VEN_1014&DEV_01A7&SUBSYS_00000000&REV_02\3&1070020&0&40					
IBM ServeRAID 6M Controller	No	SCSIADAPTER	6.6.7.0	10/22/2003	IBM Corporation	oem3.inf
Available	PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&1AA00164&0&4040					
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_6.06\5&34B934D7&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_6.06\5&34B934D7&0&010

SCSI Processor Device	Yes	SYSTEM	5.2.3790.0	10/1/2002
-----------------------	-----	--------	------------	-----------

IBM scsdev.inf Not Available

SCSI\PROCESSOR&VEN_IBM&PROD_EXP300___S160&REV_D014\5&34B934D7&0&1F0

SCSI Processor Device	Yes	SYSTEM	5.2.3790.0	10/1/2002
-----------------------	-----	--------	------------	-----------

IBM scsdev.inf Not Available

SCSI\PROCESSOR&VEN_IBM&PROD_EXP300___S160&REV_D014\5&34B934D7&0&2F0

IBM Dummy Device	Yes	SYSTEM	5.2.3790.0	10/1/2002
------------------	-----	--------	------------	-----------

IBM scsdev.inf Not Available

SCSI\BRIDGE&VEN_IBM&PROD_DUMMY_DEVICE&REV_6.06\5&34B934D7&0&300

PCI bus	Yes	SYSTEM	5.2.3790.0	10/1/2002	(Standard system devices)
	machine.inf				Not Available
					ACPI\PNP0A03\3
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&29E81982&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&29E81982&0&40

IBM ServeRAID 6M Controller	No	SCSIADAPTER	6.6.7.0	10/22/2003
-----------------------------	----	-------------	---------	------------

IBM Corporation oem3.inf Not Available

PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&16056E07&0&4040

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_6.06\5&2C62206E&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_6.06\5&2C62206E&0&010

SCSI Processor Device	Yes	SYSTEM	5.2.3790.0	10/1/2002
-----------------------	-----	--------	------------	-----------

IBM scsdev.inf Not Available

SCSI\PROCESSOR&VEN_IBM&PROD_EXP400___S320&REV_D110\5&2C62206E&0&1F0

SCSI Processor Device	Yes	SYSTEM	5.2.3790.0	10/1/2002
-----------------------	-----	--------	------------	-----------

IBM scsdev.inf Not Available

SCSI\PROCESSOR&VEN_IBM&PROD_EXP400___S320&REV_D110\5&2C62206E&0&2F0

IBM Dummy Device	Yes	SYSTEM	5.2.3790.0	10/1/2002
------------------	-----	--------	------------	-----------

IBM scsdev.inf Not Available

SCSI\BRIDGE&VEN_IBM&PROD_DUMMY_DEVICE&REV_6.06\5&2C62206E&0&300

PCI bus	Yes	SYSTEM	5.2.3790.0	10/1/2002	(Standard system devices)
	machine.inf				Not Available
					ACPI\PNP0A03\4
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

PCI\VEN_1014&DEV_01A7&SUBSYS_00000000&REV_02\3&172E68DD&0&40

IBM ServeRAID 6M Controller	No	SCSIADAPTER	6.6.7.0	10/22/2003
-----------------------------	----	-------------	---------	------------

IBM Corporation oem3.inf Not Available

PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&3827E28B&0&4040

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_6.06\5&3932506E&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_6.06\5&3932506E&0&010

SCSI Processor Device	Yes	SYSTEM	5.2.3790.0	10/1/2002
-----------------------	-----	--------	------------	-----------

IBM scsdev.inf Not Available

SCSI\PROCESSOR&VEN_IBM&PROD_EXP300___S160&REV_D014\5&3932506E&0&1F0

SCSI Processor Device	Yes	SYSTEM	5.2.3790.0	10/1/2002
-----------------------	-----	--------	------------	-----------

IBM scsdev.inf Not Available

SCSI\PROCESSOR&VEN_IBM&PROD_EXP300___S160&REV_D014\5&3932506E&0&2F0

IBM Dummy Device	Yes	SYSTEM	5.2.3790.0	10/1/2002
------------------	-----	--------	------------	-----------

IBM scsdev.inf Not Available

SCSI\BRIDGE&VEN_IBM&PROD_DUMMY_DEVICE&REV_6.06\5&3932506E&0&300

PCI bus	Yes	SYSTEM	5.2.3790.0	10/1/2002	(Standard system devices)
	machine.inf				Not Available
					ACPI\PNP0A03\5
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&474B838&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&474B838&0&40

IBM ServeRAID 6M Controller	No	SCSIADAPTER	6.6.7.0	10/22/2003
-----------------------------	----	-------------	---------	------------

IBM Corporation oem3.inf Not Available

PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&15C019C6&0&4040

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_6.06\5&1BBD53DD&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_6.06\5&1BBD53DD&0&010

SCSI Processor Device	Yes	SYSTEM	5.2.3790.0	10/1/2002
-----------------------	-----	--------	------------	-----------

IBM scsdev.inf Not Available

SCSI\PROCESSOR&VEN_IBM&PROD_EXP300___S160&REV_D014\5&1BBD53DD&0&1F0

SCSI Processor Device	Yes	SYSTEM	5.2.3790.0	10/1/2002
-----------------------	-----	--------	------------	-----------

IBM scsdev.inf Not Available

SCSI\PROCESSOR&VEN_IBM&PROD_EXP300___S160&REV_D014\5&1BBD53DD&0&2F0

IBM Dummy Device	Yes	SYSTEM	5.2.3790.0	10/1/2002
------------------	-----	--------	------------	-----------

IBM scsdev.inf Not Available

SCSI\BRIDGE&VEN_IBM&PROD_DUMMY_DEVICE&REV_6.06\5&1BBD53DD&0&300

Motherboard resources	Yes	SYSTEM	5.2.3790.0	10/1/2002
-----------------------	-----	--------	------------	-----------

(Standard system devices) machine.inf Not Available

ACPI\PNP0C02\0

System board	Yes	SYSTEM	5.2.3790.0	10/1/2002
--------------	-----	--------	------------	-----------

(Standard system devices) machine.inf Not Available

ACPI\PNP0C01\1

Motherboard resources	Yes	SYSTEM	5.2.3790.0	10/1/2002
-----------------------	-----	--------	------------	-----------

(Standard system devices) machine.inf Not Available

ACPI\PNP0C02\5

IBM Active PCI Device	Yes	SYSTEM	5.1.1.1	2/7/2003
-----------------------	-----	--------	---------	----------

IBM Corporation oem1.inf Not Available

ACPI\IBM37D4\2&DABA3FF&0

Memory Module	Yes	MEMORY	5.2.3790.0	10/1/2002	Microsoft
memory.inf	Not Available				ACPI\PNP0C80\80
Memory Module	Yes	MEMORY	5.2.3790.0	10/1/2002	Microsoft
memory.inf	Not Available				ACPI\PNP0C80\81
Memory Module	Yes	MEMORY	5.2.3790.0	10/1/2002	Microsoft
memory.inf	Not Available				ACPI\PNP0C80\82
Memory Module	Yes	MEMORY	5.2.3790.0	10/1/2002	Microsoft
memory.inf	Not Available				ACPI\PNP0C80\83

Memory Module	Yes	MEMORY5.2.3790.0	10/1/2002	Microsoft	SCSI\PROCESSOR&VEN_IBM&PROD_EXP300___S160&REV_D014\5&2
memory.inf	Not Available	ACPI\PNP0C80\84			BDB5467&0&2F0
Memory Module	Yes	MEMORY5.2.3790.0	10/1/2002	Microsoft	IBM Dummy Device
memory.inf	Not Available	ACPI\PNP0C80\85			scsidev.inf
Memory Module	Yes	MEMORY5.2.3790.0	10/1/2002	Microsoft	SCSI\BRIDGE&VEN_IBM&PROD_DUMMY_DEVICE&REV_6.06\5&2BD
memory.inf	Not Available	ACPI\PNP0C80\86			B5467&0&300
Memory Module	Yes	MEMORY5.2.3790.0	10/1/2002	Microsoft	PCI bus
memory.inf	Not Available	ACPI\PNP0C80\87			Yes
ACPI Fixed Feature Button	Yes	SYSTEM	5.2.3790.0	10/1/2002	SYSTEM
(Standard system devices)	machine.inf				5.2.3790.0
ACPI\FIXEDBUTTON\2&DABA3FF&0					10/1/2002
PCI bus	Yes	SYSTEM	5.2.3790.0	10/1/2002	(Standard system
devices)	machine.inf	Not Available			devices)
PCI standard host CPU bridge	Yes	SYSTEM	5.2.3790.0	10/1/2002	machine.inf
(Standard system devices)	machine.inf				Not Available
PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_03\3&E44F86D&0					PCI\VEN_1014&DEV_0302&SUBSYS_00000000&REV_03\3&20FEA912&
&00					0&00
PCI standard PCI-to-PCI bridge	Yes	SYSTEM	5.2.3790.0	10/1/2002	PCI standard PCI-to-PCI bridge
(Standard system devices)	machine.inf				Yes
PCI\VEN_1014&DEV_01A7&SUBSYS_00000000&REV_02\3&E44F86D&0					SYSTEM
&08					5.2.3790.0
IBM ServeRAID 6M Controller	No	SCSIADAPTER	6.6.7.0		10/1/2002
10/22/2003	IBM Corporation	oem3.inf	Not Available		(Standard system devices)
PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&6924BCD&0					machine.inf
&4008					Not Available
Disk drive	Yes	DISKDRIVE	5.2.3790.0	10/1/2002	PCI\VEN_1014&DEV_01A7&SUBSYS_00000000&REV_02\3&20FEA912&
disk drives)	disk.inf	Not Available			0&08
SCSI\DISK&VEN_IBM&PROD_SERVERAID&REV_6.06\5&2A9B2238&0					IBM ServerRAID 6M Controller
&000					No
Disk drive	Yes	DISKDRIVE	5.2.3790.0	10/1/2002	SCSIADAPTER
disk drives)	disk.inf	Not Available			6.6.7.0
SCSI\DISK&VEN_IBM&PROD_SERVERAID&REV_6.06\5&2A9B2238&0					10/22/2003
&010					IBM Corporation
SCSI Processor Device	Yes	SYSTEM	5.2.3790.0	10/1/2002	oem3.inf
IBM	scsidev.inf	Not Available			Not Available
SCSI\PROCESSOR&VEN_IBM&PROD_EXP300___S160&REV_D014\5&2					PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&6924BCD&0
A9B2238&0&1F0					&4008
SCSI Processor Device	Yes	SYSTEM	5.2.3790.0	10/1/2002	Disk drive
IBM	scsidev.inf	Not Available			Yes
SCSI\PROCESSOR&VEN_IBM&PROD_EXP300___S160&REV_D014\5&2					DISKDRIVE
A9B2238&0&2F0					5.2.3790.0
IBM Dummy Device	Yes	SYSTEM	5.2.3790.0	10/1/2002	10/1/2002
scsidev.inf	Not Available				(Standard
SCSI\BRIDGE&VEN_IBM&PROD_DUMMY_DEVICE&REV_6.06\5&2A9					disk drives)
B2238&0&300					disk.inf
PCI standard PCI-to-PCI bridge	Yes	SYSTEM	5.2.3790.0	10/1/2002	Not Available
(Standard system devices)	machine.inf				SCSI\DISK&VEN_IBM&PROD_SERVERAID&REV_6.06\5&2A9B2238&0
PCI\VEN_1014&DEV_01A7&SUBSYS_00000000&REV_02\3&E44F86D&0					&000
&10					SCSI\DISK&VEN_IBM&PROD_SERVERAID&REV_6.06\5&2A9B2238&0
IBM ServeRAID 6M Controller	No	SCSIADAPTER	6.6.7.0		&010
10/22/2003	IBM Corporation	oem3.inf	Not Available		SCSI Processor Device
PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&2794536D&0					Yes
&4010					SYSTEM
Disk drive	Yes	DISKDRIVE	5.2.3790.0	10/1/2002	5.2.3790.0
disk drives)	disk.inf	Not Available			10/1/2002
SCSI\DISK&VEN_IBM&PROD_SERVERAID&REV_6.06\5&2BDB5467&0					(Standard
&000					disk drives)
Disk drive	Yes	DISKDRIVE	5.2.3790.0	10/1/2002	disk.inf
disk drives)	disk.inf	Not Available			Not Available
SCSI\DISK&VEN_IBM&PROD_SERVERAID&REV_6.06\5&2BDB5467&0					SCSI\DISK&VEN_IBM&PROD_SERVERAID&REV_6.06\5&2BDB5467&0
&010					&000
SCSI Processor Device	Yes	SYSTEM	5.2.3790.0	10/1/2002	Disk drive
IBM	scsidev.inf	Not Available			Yes
SCSI\PROCESSOR&VEN_IBM&PROD_EXP300___S160&REV_D014\5&2					DISKDRIVE
BDB5467&0&1F0					5.2.3790.0
SCSI Processor Device	Yes	SYSTEM	5.2.3790.0	10/1/2002	10/1/2002
IBM	scsidev.inf	Not Available			(Standard
SCSI\PROCESSOR&VEN_IBM&PROD_EXP300___S160&REV_D014\5&2					disk drives)
BDB5467&0&1F0					disk.inf
SCSI Processor Device	Yes	SYSTEM	5.2.3790.0	10/1/2002	Not Available
IBM	scsidev.inf	Not Available			SCSI\DISK&VEN_IBM&PROD_SERVERAID&REV_6.06\5&86FA6CB&0
SCSI\PROCESSOR&VEN_IBM&PROD_EXP300___S160&REV_D014\5&8					&000
6FA6CB&0&1F0					Disk drive
SCSI Processor Device	Yes	SYSTEM	5.2.3790.0	10/1/2002	Yes
IBM	scsidev.inf	Not Available			DISKDRIVE
SCSI\PROCESSOR&VEN_IBM&PROD_EXP300___S160&REV_D014\5&8					5.2.3790.0
6FA6CB&0&2F0					10/1/2002
IBM Dummy Device	Yes	SYSTEM	5.2.3790.0	10/1/2002	(Standard
scsidev.inf	Not Available				disk drives)
SCSI\BRIDGE&VEN_IBM&PROD_DUMMY_DEVICE&REV_6.06\5&86F					disk.inf
A6CB&0&300					Not Available

PCI bus	Yes	SYSTEM	5.2.3790.0	10/1/2002	(Standard system devices)	machine.inf	Not Available	ACPI\PNP0A03\8
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&33B859B7&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&33B859B7&0&08
IBM ServeRAID 6M Controller	No	SCSIADAPTER	6.6.7.0	10/22/2003	IBM Corporation	oem3.inf	Not Available	PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&394CB993&0&4008
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_6.06\5&347FB43A&0&000
SCSI Processor Device	Yes	SYSTEM	5.2.3790.0	10/1/2002	IBM	scsidev.inf	Not Available	SCSI\PROCESSOR&VEN_IBM&PROD_EXP400___S320&REV_D110\5&347FB43A&0&1F0
SCSI Processor Device	Yes	SYSTEM	5.2.3790.0	10/1/2002	IBM	scsidev.inf	Not Available	SCSI\PROCESSOR&VEN_IBM&PROD_EXP400___S320&REV_D110\5&347FB43A&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_6.06\5&347FB43A&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&33B859B7&0&10
IBM ServeRAID 6M Controller	No	SCSIADAPTER	6.6.7.0	10/22/2003	IBM Corporation	oem3.inf	Not Available	PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&1A43B6E2&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_6.06\5&2B75F477&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_6.06\5&2B75F477&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&2B75F477&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&2B75F477&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_6.06\5&2B75F477&0&300
Motherboard resources	Yes	SYSTEM	5.2.3790.0	10/1/2002	(Standard system devices)	machine.inf	Not Available	ACPI\PNP0C02\2
Logical Disk Manager	Yes	SYSTEM	5.2.3790.0	10/1/2002	(Standard system devices)	machine.inf	Not Available	ROOT\DMIO\0000
Volume Manager	Yes	SYSTEM	5.2.3790.0	10/1/2002	(Standard system devices)	machine.inf	Not Available	ROOT\FTDISK\0000
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE85008500OFFSET7E00LENGTH8796B9400
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519FBOFFSET204000LENGTH6F55FC000
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519FBOFFSET6F5804000LENGTH4075FC000
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519FDOFFSET204000LENGTH6F55FC000
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519FDOFFSET6F5804000LENGTH4075FC000
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519FDOFFSETAFCE04000LENGTH6B8B5FC000
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATUREA7D6522COFFSET204000LENGTH6F55FC000
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATUREA7D6522COFFSET6F5804000LENGTH4075FC000
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATUREA7D6522COFFSETAFCE04000LENGTH6B8B5FC000
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATUREA7D6522FOFFSET204000LENGTH6F55FC000
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATUREA7D6522FOFFSET6F5804000LENGTH4075FC000
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATUREA7D6522FOFFSETAFCE04000LENGTH6B8B5FC000
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519F3OFFSET204000LENGTH6F55FC000
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519F3OFFSETAFCE04000LENGTH6B8B5FC000
Generic volume	Yes	VOLUME	5.2.3790.0	10/1/2002	Microsoft	volume.inf	Not Available	STORAGE\VOLUME\1&30A96598&0&SIGNATUREA7D6522FOFFSET204000LENGTH6F55FC000

Generic volume	Yes	VOLUME 5.2.3790.0	10/1/2002	Microsoft	NDProxy	Not Available	LEGACYDRIVER	Not Available
volume.inf	Not Available				Not Available	Not Available	Not Available	Not
STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519E6OFFSET204000LENGTH6F5FC000					Available	ROOT\LEGACY_NDPROXY\0000		
Generic volume	Yes	VOLUME 5.2.3790.0	10/1/2002	Microsoft	NetBios over Tcpip	Not Available	LEGACYDRIVER	Not
volume.inf	Not Available				Available	Not Available	Not Available	Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519E6OFFSET6F5804000LENGTH4075FC000					Not Available	ROOT\LEGACY_NETBT\0000		
Generic volume	Yes	VOLUME 5.2.3790.0	10/1/2002	Microsoft	Null	Not Available	LEGACYDRIVER	Not Available
volume.inf	Not Available				Not Available	Not Available	Not Available	Not
STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519E6OFFSETAFC000LENGTH6B8B5FC000					Available	ROOT\LEGACY_NULL\0000		
Generic volume	Yes	VOLUME 5.2.3790.0	10/1/2002	Microsoft	Partition Manager	Not Available	LEGACYDRIVER	Not
volume.inf	Not Available				Available	Not Available	Not Available	Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519F9OFFSET6F5804000LENGTH6F5FC000					Not Available	ROOT\LEGACY_PARTMGR\0000		
Generic volume	Yes	VOLUME 5.2.3790.0	10/1/2002	Microsoft	qlvika	Not Available	LEGACYDRIVER	Not Available
volume.inf	Not Available				Not Available	Not Available	Not Available	Not
STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519F9OFFSET204000LENGTH6F5FC000					Available	ROOT\LEGACY_QLVIKA\0000		
Generic volume	Yes	VOLUME 5.2.3790.0	10/1/2002	Microsoft	Remote Access Auto Connection Driver		Not Available	
volume.inf	Not Available				LEGACYDRIVER	Not Available	Not Available	Not
STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519F9OFFSET6F5804000LENGTH4075FC000					Available	Not Available	Not Available	
Generic volume	Yes	VOLUME 5.2.3790.0	10/1/2002	Microsoft	ROOT\LEGACY_RASACD\0000			
volume.inf	Not Available				RDPCDD	Not Available	LEGACYDRIVER	Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE5E0519F9OFFSETAFC000LENGTH6B8B5FC000					Not Available	Not Available	Not Available	Not
AFD Networking Support Environment				Not Available	Available	ROOT\LEGACY_RDPCCD\0000		
LEGACYDRIVER	Not Available			Not Available	TCP/IP Protocol Driver		Not Available	LEGACYDRIVER
Available	Not Available			Not Available	Not Available	Not Available	Not Available	Not
ROOT\LEGACY_AFD\0000					Available	Not Available	ROOT\LEGACY_TCPIP\0000	
Beep	Not Available			LEGACYDRIVER	VGA Display Controller.		Not Available	LEGACYDRIVER
Not Available	Not Available			Not Available	Not Available	Not Available	Not Available	Not
Available	ROOT\LEGACY_BEEP\0000				Available	Not Available	ROOT\LEGACY_VGASAVE\0000	
CRC Disk Filter Driver				Not Available	volsnap	Not Available	LEGACYDRIVER	Not Available
Not Available	Not Available			Not Available	Not Available	Not Available	Not Available	Not
Available	Not Available			ROOT\LEGACY_CRCDISK\0000	Available	ROOT\LEGACY_VOLSNA\0000		
dmboot	Not Available			LEGACYDRIVER	Remote Access IP ARP Driver		Not Available	LEGACYDRIVER
Not Available	Not Available			Not Available	Not Available	Not Available	Not Available	Not
Available	ROOT\LEGACY_DMBOOT\0000				Available	Not Available	ROOT\LEGACY_WANARP\0000	
dmload	Not Available			LEGACYDRIVER	Audio Codecs	Yes	MEDIA	5.2.3790.0 10/1/2002 (Standard system devices)
Not Available	Not Available			Not Available	system devices)	wave.inf	Not Available	
Available	ROOT\LEGACY_DMLOAD\0000				ROOT\MEDIA\MS_MMCM			
Fips	Not Available			LEGACYDRIVER	Legacy Audio Drivers	Yes	MEDIA	5.2.3790.0 10/1/2002 (Standard system devices)
Not Available	Not Available			Not Available	system devices)	wave.inf	Not Available	
Available	ROOT\LEGACY_FIPS\0000				ROOT\MEDIA\MS_MMDRV			
Generic Packet Classifier				Not Available	Media Control Devices	Yes	MEDIA	5.2.3790.0 10/1/2002 (Standard system devices)
Not Available	Not Available			Not Available	(Standard system devices)	wave.inf	Not Available	
Available	Not Available			ROOT\LEGACY_GPC\0000	ROOT\MEDIA\MS_MMMCI			
IPSEC driver				LEGACYDRIVER	Legacy Video Capture Devices	Yes	MEDIA	5.2.3790.0 10/1/2002 (Standard system devices)
Not Available	Not Available			Not Available	(Standard system devices)	wave.inf	Not Available	
Available	ROOT\LEGACY_IPSEC\0000				ROOT\MEDIA\MS_MMVCD			
ksecdd	Not Available			LEGACYDRIVER	Video Codecs	Yes	MEDIA	5.2.3790.0 10/1/2002 (Standard system devices)
Not Available	Not Available			Not Available	system devices)	wave.inf	Not Available	
Available	ROOT\LEGACY_KSECDD\0000				ROOT\MEDIA\MS_MMVID			
mnmd	Not Available			LEGACYDRIVER	WAN Miniport (L2TP)	Yes	NET	5.2.3790.0 10/1/2002
Not Available	Not Available			Not Available	Microsoft netrasa.inf	Not Available		
Available	ROOT\LEGACY_MNMDD\0000				ROOT\MS_L2TPMINIPORT\0000			
mountmgr	Not Available			LEGACYDRIVER	WAN Miniport (IP)	Yes	NET	5.2.3790.0 10/1/2002
Not Available	Not Available			Not Available	netrasa.inf	Not Available	ROOT\MS_NDISWANIP\0000	
Available	ROOT\LEGACY_MOUNTMGR\0000				WAN Miniport (PPPOE)	Yes	NET	5.2.3790.0 10/1/2002
NDIS System Driver				LEGACYDRIVER	Microsoft netrasa.inf	Not Available		
Available	Not Available			Not Available	ROOT\MS_PPPOEMINIPORT\0000			
Not Available	ROOT\LEGACY_NDIS\0000				WAN Miniport (PPTP)	Yes	NET	5.2.3790.0 10/1/2002
Remote Access NDIS TAPI Driver				Not Available	Microsoft netrasa.inf	Not Available		
LEGACYDRIVER	Not Available			Not Available	ROOT\MS_PPTPMINIPORT\0000			
Available	Not Available			Not Available	Direct Parallel	Yes	NET	5.2.3790.0 10/1/2002
ROOT\LEGACY_NDISTAPI\0000					netrasa.inf	Not Available	ROOT\MS_PTMINIPORT\0000	
NDIS Usermode I/O Protocol				LEGACYDRIVER	Terminal Server Device Redirector		Yes	SYSTEM
Not Available	Not Available			Not Available	10/1/2002 (Standard system devices)		machine.inf	Not
Available	Not Available			ROOT\LEGACY_NDISUIO\0000	Available	ROOT\RDPPDR\0000		
					Terminal Server Keyboard Driver		Yes	SYSTEM
					10/1/2002 (Standard system devices)		machine.inf	Not
					Available	ROOT\RD\KBD\0000		

Terminal Server Mouse Driver (Standard system devices)	Yes	SYSTEM	5.2.3790.0	10/1/2002	system	Not Available	4	8	0	1413120
ROOT\RD\MOU\0000	machine.inf		Not Available		Not Available	Not Available		Not Available		Not
Plug and Play Software Device Enumerator (Standard system devices)	Yes	SYSTEM	5.2.3790.0	10/1/2002	smss.exe	Not Available	400	11	204800	1413120
Available ROOT\SYSTEM\0000	machine.inf		Not		1/22/2004 4:24 PM	Not Available		Not Available		Not
Microcode Update Device (Standard system devices)	Yes	SYSTEM	5.2.3790.0	10/1/2002	Available					
ROOT\SYSTEM\0001	machine.inf		Not Available		csrss.exe	Not Available	584	13	Not Available	
					Not Available	1/22/2004 4:24 PM		Not Available		Not
					Available	Not Available				
					winlogon.exe	c:\windows\system32\winlogon.exe				608
					13	204800	1413120	1/22/2004 4:24 PM	5.2.3790.0	
					(srv03_rtm.030324-2048)		536.50 KB (549,376 bytes)			3/25/2003
					7:00 AM					
					services.exe	c:\windows\system32\services.exe				652
					204800	1413120	1/22/2004 4:24 PM	5.2.3790.0		9
					(srv03_rtm.030324-2048)		102.00 KB (104,448 bytes)			3/25/2003
					7:00 AM					
					lsass.exe	c:\windows\system32\lsass.exe	664	9	204800	
					1413120	1/22/2004 4:24 PM	5.2.3790.0	(srv03_rtm.030324-2048)		
					13.00 KB (13,312 bytes)			3/25/2003 7:00 AM		
					svchost.exe	c:\windows\system32\svchost.exe				836
					204800	1413120	1/22/2004 4:24 PM	5.2.3790.0		8
					(srv03_rtm.030324-2048)		13.00 KB (13,312 bytes)			3/25/2003
					7:00 AM					
					svchost.exe	c:\windows\system32\svchost.exe				864
					204800	1413120	1/22/2004 4:24 PM	5.2.3790.0		8
					(srv03_rtm.030324-2048)		13.00 KB (13,312 bytes)			3/25/2003
					7:00 AM					
					svchost.exe	Not Available	1020	8	Not	
					Available	Not Available	1/22/2004 4:25 PM		Not Available	
					Not Available	Not Available				
					svchost.exe	Not Available	1068	8	Not	
					Available	Not Available	1/22/2004 4:25 PM		Not Available	
					Not Available	Not Available				
					svchost.exe	c:\windows\system32\svchost.exe				1080
					204800	1413120	1/22/2004 4:25 PM	5.2.3790.0		8
					(srv03_rtm.030324-2048)		13.00 KB (13,312 bytes)			3/25/2003
					7:00 AM					
					spoolsv.exe	c:\windows\system32\spoolsv.exe				1268
					204800	1413120	1/22/2004 4:25 PM	5.2.3790.0		8
					(srv03_rtm.030324-2048)		55.00 KB (56,320 bytes)			3/25/2003
					7:00 AM					
					msdtc.exe	Not Available	1300	8	Not Available	
					Not Available	1/22/2004 4:25 PM		Not Available		Not
					Available	Not Available				
					ibmhpasv.exe	c:\windows\system32\ibmhpasv.exe				1528
					204800	1413120	1/22/2004 4:25 PM	5.1.1.1	14.50 KB (14,848 bytes)	8
					bytes)	1/15/2004 1:00 PM				
					svchost.exe	Not Available	1628	8	Not	
					Available	Not Available	1/22/2004 4:25 PM		Not Available	
					Not Available	Not Available				
					dfssvc.exe	c:\windows\system32\dfssvc.exe	1768	8	204800	
					1413120	1/22/2004 4:25 PM	5.2.3790.0	(srv03_rtm.030324-2048)		
					130.50 KB (133,632 bytes)			3/25/2003 7:00 AM		
					explorer.exe	c:\windows\explorer.exe				1988
					204800	1413120	1/22/2004 4:25 PM	6.00.3790.0		8
					(srv03_rtm.030324-2048)		1,008.50 KB (1,032,704 bytes)			3/25/2003
					7:00 AM					
					wmiprvse.exe	Not Available	192	8	Not	
					Available	Not Available	1/22/2004 4:25 PM		Not Available	
					Not Available	Not Available				
					wpabaln.exe	c:\windows\system32\wpabaln.exe				1004
					204800	1413120	1/22/2004 4:27 PM	5.2.3790.0		8
					(srv03_rtm.030324-2048)		31.00 KB (31,744 bytes)			3/25/2003
					7:00 AM					
					cmd.exe	c:\windows\system32\cmd.exe	1944	8	204800	
					1413120	1/22/2004 4:28 PM	5.2.3790.0	(srv03_rtm.030324-2048)		
					374.00 KB (382,976 bytes)			3/25/2003 7:00 AM		

[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:\batfiles;c:\tools;c:\tools\util;C:\Program Files\Microsoft SQL Server\80\Tools\BINN	
PATHEXT	.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH	<SYSTEM>
PROCESSOR_ARCHITECTURE	x86	<SYSTEM>
PROCESSOR_IDENTIFIER	x86 Family 15 Model 2 Stepping 6,	
GenuineIntel		<SYSTEM>
PROCESSOR_LEVEL	15	<SYSTEM>
PROCESSOR_REVISION	0206	<SYSTEM>
TEMP	%SystemRoot%\TEMP	<SYSTEM>
TMP	%SystemRoot%\TEMP	<SYSTEM>
windir	%SystemRoot%	<SYSTEM>
TEMP	%USERPROFILE%\Local Settings\Temp	NT
AUTHORITY\SYSTEM		
TMP	%USERPROFILE%\Local Settings\Temp	NT
AUTHORITY\SYSTEM		
TEMP	%USERPROFILE%\Local Settings\Temp	NT
AUTHORITY\LOCAL SERVICE		
TMP	%USERPROFILE%\Local Settings\Temp	NT
AUTHORITY\LOCAL SERVICE		
TEMP	%USERPROFILE%\Local Settings\Temp	NT
AUTHORITY\NETWORK SERVICE		
TMP	%USERPROFILE%\Local Settings\Temp	NT
AUTHORITY\NETWORK SERVICE		
TEMP	%USERPROFILE%\Local Settings\Temp	
IBMSERV2\Administrator		
TMP	%USERPROFILE%\Local Settings\Temp	
IBMSERV2\Administrator		

[Print Jobs]

Document Size	Owner	Notify	Status	Time Submitted
Start Time	Until Time	Elapsed Time	Pages Printed	Job ID
Priority	Parameters	Driver	Print Processor	Host Print Queue
Data Type	Name			

[Network Connections]

Local Name	Remote Name	Type	Status	User Name
X:	\\fsserv\hdrive	Disk	Current Connection	
IBMSERV2\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		Not Available
Not Available		Not Available			

helpctr.exe	c:\windows\pchealth\helpctr\binaries\helpctr.exe	164	8			ws2_32	5.2.3790.0 (srv03_rtm.030324-2048)	87.50 KB (89,600 bytes)	3/25/2003 7:00 AM	Microsoft Corporation
204800	1413120	1/22/2004 5:10 PM	5.2.3790.0			c:\windows\system32\ws2_32.dll				
(srv03_rtm.030324-2048)		764.00 KB (782,336 bytes)	1/15/2004 12:22 PM			ws2help	5.2.3790.0 (srv03_rtm.030324-2048)	19.50 KB (19,968 bytes)	3/25/2003 7:00 AM	Microsoft Corporation
helpsvc.exe	c:\windows\pchealth\helpctr\binaries\helpsvc.exe					c:\windows\system32\ws2help.dll				
1132	8	204800	1413120	1/22/2004 5:10 PM	5.2.3790.0	psapi	5.2.3790.0 (srv03_rtm.030324-2048)	21.50 KB (22,016 bytes)	3/25/2003 7:00 AM	Microsoft Corporation
(srv03_rtm.030324-2048)		720.00 KB (737,280 bytes)	1/15/2004 12:22 PM			c:\windows\system32\psapi.dll				
wmiprvse.exe	Not Available	1140	8	Not Available		version	5.2.3790.0 (srv03_rtm.030324-2048)	17.00 KB (17,408 bytes)	3/25/2003 7:00 AM	Microsoft Corporation
Available	Not Available	1/22/2004 5:10 PM	Not Available			c:\windows\system32\version.dll				
Not Available	Not Available					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
[Loaded Modules]						c:\windows\system32\setupapi.dll				
Name	Version	Size	File Date	Manufacturer	Path	msgina	5.2.3790.0 (srv03_rtm.030324-2048)	1.14 MB (1,191,936 bytes)	3/25/2003 7:00 AM	Microsoft Corporation
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	c:\windows\system32\msgina.dll				
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	shsvcs	6.00.3790.0 (srv03_rtm.030324-2048)	121.50 KB (124,416 bytes)	3/25/2003 7:00 AM	Microsoft Corporation
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	c:\windows\system32\shsvcs.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	shlwapi	6.00.3790.0 (srv03_rtm.030324-2048)	281.00 KB (287,744 bytes)	3/25/2003 7:00 AM	Microsoft Corporation
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	c:\windows\system32\shlwapi.dll				
rpcrt4	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\rpcrt4.dll	sfc	5.2.3790.0 (srv03_rtm.030324-2048)	4.50 KB (4,608 bytes)	3/25/2003 7:00 AM	Microsoft Corporation
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\rpcrt4.dll	c:\windows\system32\sfc.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\user32.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
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\gdi32.dll	c:\windows\system32\sfc_os.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\userenv.dll	wintrust	5.131.3790.0 (srv03_rtm.030324-2048)	161.50 KB (165,376 bytes)	3/25/2003 7:00 AM	Microsoft Corporation
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\nddeapi.dll	c:\windows\system32\wintrust.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\crypt32.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
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\msasn1.dll	c:\windows\system32\ole32.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\secur32.dll	imagehlp	5.2.3790.0 (srv03_rtm.030324-2048)	142.50 KB (145,920 bytes)	3/25/2003 7:00 AM	Microsoft Corporation
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\winsta.dll	c:\windows\system32\imagehlp.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\netapi32.dll	comctl32	6.0 (srv03_rtm.030324-2048)	907.00 KB (928,768 bytes)	1/15/2004 7:05 AM	Microsoft Corporation
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\profmap.dll	c:\windows\winsxs\x86_microsoft.windows.common-controls_6595b64144ccf1df_6.0.100.0_x-ww_8417450b\comctl32.dll				
					c:\windows\system32\regapi.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)	1/15/2004 7:05 AM	Microsoft Corporation	c:\windows\winsxs\x86_microsoft.windows.common-controls_6595b64144ccf1df_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
adslsdp	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\adslsdp.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)	1/15/2004 12:19 PM	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
scserv	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\scserv.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
msprvs	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\msprvs.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
wlbcctl	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\wlbcctl.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
rpcss	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\rpcss.dll
termsrv	5.2.3790.0 (srv03_rtm.030324-2048)	216.50 KB (221,696 bytes)	1/15/2004 12:19 PM	Microsoft Corporation	c:\windows\system32\termsrv.dll
icaapi	5.2.3790.0 (srv03_rtm.030324-2048)	10.50 KB (10,752 bytes)	1/15/2004 12:19 PM	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
rastls	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\rastls.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)	1/15/2004 12:22 PM	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)	1/15/2004 12:23 PM	Microsoft Corporation	c:\windows\pchealth\helpctr\binaries\pchsvc.dll
srsvsc	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\srsvsc.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)	1/15/2004 12:19 PM	Microsoft Corporation	c:\windows\system32\wbem\wmisvc.dll
comsvcs	2001.12.4720.0 (srv03_rtm.030324-2048)	1.14 MB (1,199,616 bytes)	1/15/2004 12:19 PM	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
hnetcfg	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\hnetcfg.dll
wininet	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\wininet.dll

wbemcomn	5.2.3790.0 (srv03_rtm.030324-2048)	211.50 KB (216,576 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	winmr	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\wbem\wbemcomn.dll					c:\windows\system32\winmr.dll				
wbemcore	5.2.3790.0 (srv03_rtm.030324-2048)	457.00 KB (467,968 bytes)	1/15/2004 12:19 PM	Microsoft Corporation	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\wbem\wbemcore.dll					c:\windows\system32\wshqos.dll				
esscli	5.2.3790.0 (srv03_rtm.030324-2048)	235.50 KB (241,152 bytes)	1/15/2004 12:19 PM	Microsoft Corporation	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\wbem\esscli.dll					c:\windows\system32\win32spl.dll				
fastprox	5.2.3790.0 (srv03_rtm.030324-2048)	443.00 KB (453,632 bytes)	1/15/2004 12:19 PM	Microsoft Corporation	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\wbem\fastprox.dll					c:\windows\system32\netrap.dll				
wbemsvc	5.2.3790.0 (srv03_rtm.030324-2048)	42.50 KB (43,520 bytes)	1/15/2004 12:19 PM	Microsoft Corporation	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\wbem\wbemsvc.dll					c:\windows\system32\inetpp.dll				
wmiutils	5.2.3790.0 (srv03_rtm.030324-2048)	90.50 KB (92,672 bytes)	1/15/2004 12:19 PM	Microsoft Corporation	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\wbem\wmiutils.dll					c:\windows\system32\icmp.dll				
repdrvfs	5.2.3790.0 (srv03_rtm.030324-2048)	165.00 KB (168,960 bytes)	1/15/2004 12:19 PM	Microsoft Corporation	ibmhpasv	5.1.1.1	14.50 KB (14,848 bytes)	1/15/2004 1:00 PM	IBM Corporation
c:\windows\system32\wbem\repdrvfs.dll					c:\windows\system32\ibmhpasv.exe				
wmiprvsd	5.2.3790.0 (srv03_rtm.030324-2048)	405.50 KB (415,232 bytes)	1/15/2004 12:19 PM	Microsoft Corporation	dfssvc	5.2.3790.0 (srv03_rtm.030324-2048)	130.50 KB (133,632 bytes)	3/25/2003 7:00 AM	Microsoft Corporation
c:\windows\system32\wbem\wmiprvsd.dll					c:\windows\system32\dfssvc.exe				
wbemess	5.2.3790.0 (srv03_rtm.030324-2048)	256.50 KB (262,656 bytes)	1/15/2004 12:19 PM	Microsoft Corporation	resutils	5.2.3790.0 (srv03_rtm.030324-2048)	59.00 KB (60,416 bytes)	3/25/2003 7:00 AM	Microsoft Corporation
c:\windows\system32\wbem\wbemess.dll					c:\windows\system32\resutils.dll				
rasdlg	5.2.3790.0 (srv03_rtm.030324-2048)	642.00 KB (657,408 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	mfc42u	6.05.3014.0	960.00 KB (983,040 bytes)	3/25/2003 7:00 AM	Microsoft Corporation
c:\windows\system32\rasdlg.dll					c:\windows\system32\mfc42u.dll				
rasadhlp	5.2.3790.0 (srv03_rtm.030324-2048)	6.50 KB (6,656 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	wsock32	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\rasadhlp.dll					c:\windows\system32\wsock32.dll				
ncprov	5.2.3790.0 (srv03_rtm.030324-2048)	43.00 KB (44,032 bytes)	1/15/2004 12:19 PM	Microsoft Corporation	explorer	6.00.3790.0 (srv03_rtm.030324-2048)	1,008.50 KB (1,032,704 bytes)	3/25/2003 7:00 AM	Microsoft Corporation
c:\windows\system32\ncprov.dll					c:\windows\explorer.exe				
spoolsv	5.2.3790.0 (srv03_rtm.030324-2048)	55.00 KB (56,320 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	browseui	6.00.3790.0 (srv03_rtm.030324-2048)	1.01 MB (1,057,280 bytes)	3/25/2003 7:00 AM	Microsoft Corporation
c:\windows\system32\spoolsv.exe					c:\windows\system32\browseui.dll				
spoolss	5.2.3790.0 (srv03_rtm.030324-2048)	79.00 KB (80,896 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	shdocvw	6.00.3790.0 (srv03_rtm.030324-2048)	1.33 MB (1,393,664 bytes)	3/25/2003 7:00 AM	Microsoft Corporation
c:\windows\system32\spoolss.dll					c:\windows\system32\shdocvw.dll				
localspl	5.2.3790.0 (srv03_rtm.030324-2048)	304.50 KB (311,808 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	apphelp	5.2.3790.0 (srv03_rtm.030324-2048)	122.00 KB (124,928 bytes)	3/25/2003 7:00 AM	Microsoft Corporation
c:\windows\system32\localspl.dll					c:\windows\system32\apphelp.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	themeui	6.00.3790.0 (srv03_rtm.030324-2048)	360.50 KB (369,152 bytes)	3/25/2003 7:00 AM	Microsoft Corporation
c:\windows\system32\cnbjmon.dll					c:\windows\system32\themeui.dll				
pjlmon	5.2.3790.0 (srv03_rtm.030324-2048)	15.00 KB (15,360 bytes)	3/24/2003 8:49 PM	Microsoft Corporation	msimg32	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\pjlmon.dll					c:\windows\system32\msimg32.dll				
tcpmon	5.2.3790.0 (srv03_rtm.030324-2048)	44.00 KB (45,056 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	linkinfo	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\tcpmon.dll					c:\windows\system32\linkinfo.dll				
mgmtapi	5.2.3790.0 (srv03_rtm.030324-2048)	14.00 KB (14,336 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	ntshrui	6.00.3790.0 (srv03_rtm.030324-2048)	136.00 KB (139,264 bytes)	3/25/2003 7:00 AM	Microsoft Corporation
c:\windows\system32\mgmtapi.dll					c:\windows\system32\ntshrui.dll				
snmpapi	5.2.3790.0 (srv03_rtm.030324-2048)	17.50 KB (17,920 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	urlmon	6.00.3790.0 (srv03_rtm.030324-2048)	501.50 KB (513,536 bytes)	3/25/2003 7:00 AM	Microsoft Corporation
c:\windows\system32\snmpapi.dll					c:\windows\system32\urlmon.dll				
wsnmp32	5.2.3790.0 (srv03_rtm.030324-2048)	39.50 KB (40,448 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	webcheck	6.00.3790.0 (srv03_rtm.030324-2048)	261.50 KB (267,776 bytes)	3/25/2003 7:00 AM	Microsoft Corporation
c:\windows\system32\wsnmp32.dll					c:\windows\system32\webcheck.dll				
usbmon	5.2.3790.0 (srv03_rtm.030324-2048)	17.00 KB (17,408 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	stobject	5.2.3790.0 (srv03_rtm.030324-2048)	117.50 KB (120,320 bytes)	3/25/2003 7:00 AM	Microsoft Corporation
c:\windows\system32\usbmon.dll					c:\windows\system32\stobject.dll				
					batmeter	6.00.3790.0 (srv03_rtm.030324-2048)	28.50 KB (29,184 bytes)	3/25/2003 7:00 AM	Microsoft Corporation
					c:\windows\system32\batmeter.dll				

powrprof	6.00.3790.0 (srv03_rtm.030324-2048)	14.50 KB (14,848 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\powrprof.dll
printui	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\printui.dll
cfgmgr32	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\cfgmgr32.dll
drprov	5.2.3790.0 (srv03_rtm.030324-2048)	12.50 KB (12,800 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\drprov.dll
ntlanman	5.2.3790.0 (srv03_rtm.030324-2048)	41.00 KB (41,984 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\ntlanman.dll
netui0	5.2.3790.0 (srv03_rtm.030324-2048)	75.50 KB (77,312 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\netui0.dll
netui1	5.2.3790.0 (srv03_rtm.030324-2048)	184.00 KB (188,416 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\netui1.dll
davclnt	5.2.3790.0 (srv03_rtm.030324-2048)	23.50 KB (24,064 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\davclnt.dll
browsecl	6.00.3790.0 (srv03_rtm.030324-2048)	62.00 KB (63,488 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\browsecl.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
zipfldr	6.00.3790.0 (srv03_rtm.030324-2048)	316.00 KB (323,584 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\zipfldr.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
actxprxy	6.00.3790.0 (srv03_rtm.030324-2048)	95.00 KB (97,280 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\actxprxy.dll
diskcopy	6.00.3790.0 (srv03_rtm.030324-2048)	1.43 MB (1,503,744 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\diskcopy.dll
dskquoui	5.2.3790.0 (srv03_rtm.030324-2048)	145.00 KB (148,480 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\dskquoui.dll
dskquota	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\dskquota.dll
wpabaln	5.2.3790.0 (srv03_rtm.030324-2048)	31.00 KB (31,744 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\wpabaln.exe
cmd	5.2.3790.0 (srv03_rtm.030324-2048)	374.00 KB (382,976 bytes)	3/25/2003 7:00 AM	Microsoft Corporation	c:\windows\system32\cmd.exe
helpctr	5.2.3790.0 (srv03_rtm.030324-2048)	764.00 KB (782,336 bytes)	1/15/2004 12:22 PM	Microsoft Corporation	c:\windows\pchealth\helpctr\binaries\helpctr.exe
hcappres	5.2.3790.0 (srv03_rtm.030324-2048)	6.50 KB (6,656 bytes)	1/15/2004 12:22 PM	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)	1/15/2004 12:23 PM	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
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
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
mshtmlmed	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\mshtmlmed.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)	1/15/2004 12:22 PM	Microsoft Corporation	c:\windows\pchealth\helpctr\binaries\msinfo.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
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)	1/15/2004 12:19 PM	Microsoft Corporation	c:\windows\system32\wbem\wbemprox.dll
helpsvc	5.2.3790.0 (srv03_rtm.030324-2048)	720.00 KB (737,280 bytes)	1/15/2004 12:22 PM	Microsoft Corporation	c:\windows\pchealth\helpctr\binaries\helpsvc.exe

[Services]

Display Name	Name	State	Start Mode	Service Type
Path	Error Control	Start Name	Tag ID	
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		MSSQLSERVER	MSSQLSERVER	Stopped	Manual	Own
Own Process	c:\windows\system32\dlhst.exe				Process	c:\progra~1\micro~1\msql\bin\sqlservr.exe			Normal
/processid:{02d4b3f1-fd88-11d1-960d-00805fc79235}		Normal			LocalSystem	0			
Cryptographic Services	CryptSvc	Running	Auto	Share	MSSQLServerADHelper	MSSQLServerADHelper	Stopped		
Process	c:\windows\system32\svchost.exe -k netsvcs	Normal			Manual	Own Process	c:\program files\microsoft sql		
LocalSystem	0				server\80\tools\bin\sqladhlp.exe	Normal	LocalSystem	0	
Distributed File System	Dfs	Running	Auto	Own	Network DDE	NetDDE	Stopped	Disabled	Share Process
Process	c:\windows\system32\dfsrv.exe	Normal	LocalSystem	0	c:\windows\system32\netdde.exe	Normal	LocalSystem	0	
DHCP Client	Dhcp	Running	Auto	Share Process	Network DDE DSDMNetDDEdsdm		Stopped	Disabled	Share
c:\windows\system32\svchost.exe -k networkservice		Normal	NT		Process	c:\windows\system32\netdde.exe	Normal	LocalSystem	0
AUTHORITY\NetworkService	0				Net Logon Netlogon	Stopped	Manual	Share Process	
Logical Disk Manager Administrative Service			dmadmin	Stopped	c:\windows\system32\lsass.exe	Normal	LocalSystem	0	
Manual	Share Process	c:\windows\system32\dmadmin.exe /com			Network Connections Netman	Running	Manual	Share Process	
Normal	LocalSystem	0			c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0	
Logical Disk Managerdmserver	Running	Auto	Share Process		Network Location Awareness (NLA)	Nla	Running	Manual	
c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0		Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal		
DNS Client	Dnscache	Running	Auto	Share Process	LocalSystem	0			
c:\windows\system32\svchost.exe -k networkservice		Normal	NT		File Replication	NtFrs	Stopped	Manual	Own Process
AUTHORITY\NetworkService	0				c:\windows\system32\ntfrs.exe	Ignore	LocalSystem	0	
Error Reporting Service	ERSvc	Stopped	Manual	Share	NT LM Security Support Provider		NtLmSsp	Stopped	Manual
Process	c:\windows\system32\svchost.exe -k winerr	Ignore			Share Process	c:\windows\system32\lsass.exe	Normal		
LocalSystem	0				LocalSystem	0			
Event Log Eventlog	Running	Auto	Share Process		Removable Storage	NtmsSvc	Stopped	Manual	Share Process
c:\windows\system32\services.exe		Normal	LocalSystem	0	c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0	
COM+ Event System EventSystem	Running	Manual	Share		Plug and Play	PlugPlay	Running	Auto	Share Process
Process	c:\windows\system32\svchost.exe -k netsvcs	Normal			c:\windows\system32\services.exe		Normal	LocalSystem	0
LocalSystem	0				IPSEC Services	PolicyAgent	Running	Auto	Share
Help and Support helpsvc	Running	Auto	Share Process		Process	c:\windows\system32\lsass.exe	Normal	LocalSystem	0
c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0		Protected Storage	ProtectedStorage	Running	Auto	Share
Human Interface Device Access HidServ	Stopped	Disabled	Share		Process	c:\windows\system32\lsass.exe	Normal	LocalSystem	0
Process	c:\windows\system32\svchost.exe -k netsvcs	Normal			Remote Access Auto Connection Manager	RasAuto	Stopped	Manual	
LocalSystem	0				Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal		
HTTP SSLHTTPFilter	Stopped	Manual	Share Process		LocalSystem	0			
c:\windows\system32\lsass.exe	Normal	LocalSystem	0		Remote Access Connection Manager	RasMan	Stopped	Manual	
IBM Active PCI Alert Service IBMHPS	Running	Auto	Own		Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal		
Process	c:\windows\system32\ibmhpasv.exe	Normal			LocalSystem	0			
LocalSystem	0				Remote Desktop Help Session Manager	RDSessMgr	Stopped		
IMAPI CD-Burning COM Service	ImapiService	Stopped			Manual	Own Process	c:\windows\system32\sessmgr.exe		
Disabled	Own Process	c:\windows\system32\imapi.exe	Normal		Normal	LocalSystem	0		
LocalSystem	0				Routing and Remote Access	RemoteAccess	Stopped	Disabled	
Intersite Messaging IsmServ	Stopped	Disabled	Own Process		Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal		
c:\windows\system32\ismserv.exe		Normal	LocalSystem	0	LocalSystem	0			
Kerberos Key Distribution Center	kdc	Stopped	Disabled		Remote Registry	RemoteRegistry	Running	Auto	Share
Share Process	c:\windows\system32\lsass.exe	Normal			Process	c:\windows\system32\svchost.exe -k regsvc	Normal	NT	
LocalSystem	0				AUTHORITY\LocalService	0			
Server lanmanserver	Running	Auto	Share Process		Remote Procedure Call (RPC) Locator	RpcLocator	Stopped		
c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0		Manual	Own Process	c:\windows\system32\locator.exe	Normal	
Workstation lanmanworkstation	Running	Auto	Share		NT AUTHORITY\NetworkService	0			
Process	c:\windows\system32\svchost.exe -k netsvcs	Normal			Remote Procedure Call (RPC)	RpcSs	Running	Auto	Share
LocalSystem	0				Process	c:\windows\system32\svchost -k rpss	Normal		
License Logging LicenseService	Stopped	Disabled	Own		LocalSystem	0			
Process	c:\windows\system32\llsrrv.exe	Normal	NT		Resultant Set of Policy Provider	RSOPProv	Stopped	Manual	Share
AUTHORITY\NetworkService	0				Process	c:\windows\system32\rsopprov.exe	Normal		
TCP/IP NetBIOS Helper	LmHosts	Running	Auto	Share	LocalSystem	0			
Process	c:\windows\system32\svchost.exe -k localservice	Normal			Special Administration Console Helper	sacsvr	Stopped	Manual	
NT AUTHORITY\LocalService	0				Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal		
Messenger Messenger	Stopped	Disabled	Share Process		LocalSystem	0			
c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0		Security Accounts Manager	SamSs	Running	Auto	Share
NetMeeting Remote Desktop Sharing mnmsrvc	Stopped	Disabled			Process	c:\windows\system32\lsass.exe	Normal	LocalSystem	0
Own Process	c:\windows\system32\mnmsrvc.exe	Normal			Smart Card	SCardSvr	Stopped	Manual	Share Process
LocalSystem	0				c:\windows\system32\scardsvr.exe		Ignore	NT	
Distributed Transaction Coordinator	MSDTC	Running	Auto		AUTHORITY\LocalService	0			
Own Process	c:\windows\system32\msdtc.exe	Normal	NT		Task Scheduler	Schedule	Running	Auto	Share Process
AUTHORITY\NetworkService	0				c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0	
Windows Installer MSIServer	Stopped	Manual	Share Process		Secondary Logon seclogon	Running	Auto	Share Process	
c:\windows\system32\msiexec.exe /v	Normal	LocalSystem	0		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\microso~1\msql\bin\sqlagent.exe			
Normal	LocalSystem	0			
Windows Image Acquisition (WIA)		stisvc	Stopped	Disabled	
Share Process	c:\windows\system32\svchost.exe -k imgs	Normal			
NT AUTHORITY\LocalService	0				
Microsoft Software Shadow Copy Provider	swprv	Stopped	Manual		
Own Process	c:\windows\system32\svchost.exe -k swprv	Normal			
LocalSystem	0				
Performance Logs and Alerts	SysmonLog	Stopped	Manual		
Own Process	c:\windows\system32\smlogsvc.exe	Normal			
NT Authority\NetworkService	0				
Telephony TapiSrv	Stopped	Manual	Share Process		
c:\windows\system32\svchost.exe -k tapisrv	Normal		LocalSystem	0	
Terminal Services	TermService	Running	Manual	Share	
Process	c:\windows\system32\svchost.exe -k termsvcs	Normal			
LocalSystem	0				
Themes	Themes	Stopped	Disabled	Share Process	
c:\windows\system32\svchost.exe -k netsvcs	Normal		LocalSystem	0	
Telnet	TlntSvr	Stopped	Disabled	Own Process	
c:\windows\system32\tlntsvr.exe	Normal		NT AUTHORITY\LocalService	0	
Distributed Link Tracking Server	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	wuauclt	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				
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	
Shortcut to sync	shortcut to sync	time\lnk			
IBMSERV2\Administrator		Startup			
desktop	desktop.ini	DEFAULT		Startup	
desktop	desktop.ini	All Users	Common	Startup	

[OLE Registration]

Object Local Server
 Sound (OLE2) sndrec32.exe
 Media Clip mplay32.exe
 Video Clip mplay32.exe /avi
 MIDI Sequence mplay32.exe /mid
 Sound Not Available
 Media Clip Not Available
 WordPad Document "%programfiles%\windows nt\accessories\wordpad.exe"
 Windows Media Services DRM Storage object Not Available
 Bitmap Image mspaint.exe

[Windows Error Reporting]

Time Type Details

[Internet Settings]

[Internet Explorer]

[Following are sub-categories of this main category]

[Summary]

Item Value
 Version 6.0.3790.0
 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

[File Versions]

File	Version	Size	Date	Path	Company
actxprxy.dll	6.0.3790.0	95 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
advpack.dll	6.0.3790.0	94 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
asctrls.ocx	6.0.3790.0	90 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
browseui.dll	6.0.3790.0	62 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
browseui.dll	6.0.3790.0	1,033 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
cdview.dll	6.0.3790.0	144 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
comctl32.dll	5.82.3790.0	561 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
dxtrans.dll	6.3.3790.0	198 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
dxtrans.dll	6.3.3790.0	344 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
iecont.dll	<File Missing>	Not Available	Not Available	Not Available	Not Available
iecont.dll	<File Missing>	Not Available	Not Available	Not Available	Not Available
iedkcs32.dll	16.0.3790.0	300 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
iepeers.dll	6.0.3790.0	230 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
iesetup.dll	6.0.3790.0	59 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation

ieuinit.inf	Not Available	20 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Not Available
ieexplore.exe	6.0.3790.0	90 KB	3/25/2003 7:00:00 AM	C:\Program Files\Internet Explorer	Microsoft Corporation
imgutil.dll	5.2.3790.0	35 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
inetctl.cpl	6.0.3790.0	303 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
inetctl.dll	6.0.3790.0	109 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
inseng.dll	6.0.3790.0	72 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
mlang.dll	6.0.3790.0	570 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
msencode.dll	2002.10.4.0	112 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Not Available
mshta.exe	6.0.3790.0	26 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
mshtml.dll	6.0.3790.0	2,848 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
mshtml.tlb	6.0.3790.0	1,319 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
mshtml.dll	6.0.3790.0	444 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
mshtml.dll	6.0.3790.0	55 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
msident.dll	6.0.3790.0	47 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
msident.dll	6.0.3790.0	15 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
msieftp.dll	6.0.3790.0	230 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
msrating.dll	6.0.3790.0	132 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
mstime.dll	6.0.3790.0	491 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
occache.dll	6.0.3790.0	89 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
proctexe.ocx	6.3.3790.0	78 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Intel Corporation
sendmail.dll	6.0.3790.0	52 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
shdoclc.dll	6.0.3790.0	589 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
shdocvw.dll	6.0.3790.0	1,361 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
shfolder.dll	6.0.3790.0	23 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
shlwapi.dll	6.0.3790.0	281 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
tdc.ocx	1.3.0.3130	58 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
url.dll	6.0.3790.0	36 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
urlmon.dll	6.0.3790.0	502 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
webcheck.dll	6.0.3790.0	262 KB	3/25/2003 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
wininet.dll	6.0.3790.0	609 KB	3/25/2003 7:00:00 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

ServeRAID- 6M Disk Controller Configuration Parameters

January 22, 2004 5:30:05 PM EST

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.....5.03.09.00
Firmware version.....1.03.06.00
Device driver version.....1.09.06.00
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.....ST336607LC
FRU part number.....32P0729
Serial number.....3JA0G8HD
Firmware level.....B25F
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.....32P0032a S320
Firmware level.....1
Channel.....1
SCSI ID.....8

End of the configuration information for controller 1

Configuration information for controller 2

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.....3
BIOS version.....6.11.07
Firmware version.....6.10.80
Device driver version.....6.06.07
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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B

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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....3HX17EVS
Firmware level.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B

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.....B85B
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.....B85B
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.....3HX17EVS
Firmware level.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....1R0240Y316
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 2

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.....30B7EA1E
Part number.....02R0988
Physical slot.....8
BIOS version.....6.11.07
Firmware version.....6.10.80
Device driver version.....6.06.07
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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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

<pre> Firmware level.....B85B 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.....B85B 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.....B85B 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.....B85B 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.....B85B 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 </pre>	<pre> 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.....B85B 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.....B85B 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.....B85B 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.....B85B Channel.....2 SCSI ID.....3 Size.....34715 MB State.....Online Array letter.....B </pre>
---	---

PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX174V3
Firmware level.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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 3
-----

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.....30B7EA1C
Part number.....02R0988
Physical slot.....6
BIOS version.....6.11.07
Firmware version.....6.10.80
Device driver version.....6.06.07
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....Ultra160 SCSI
 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.....B85B
 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.....B85B
 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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
 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.....B85B
 Channel.....1
 SCSI ID.....14
 Size.....34715 MB
 State.....Online
 Array letter.....A
 PFA error.....No

 Type.....Enclosure
 Vendor.....IBM
 Product or model number.....EXP400
 Serial number.....23B1428
 Firmware level.....D110
 FRU type.....MIDPLANE
 FRU vendor.....IBM
 FRU date of manufacture.....12/2003
 FRU part number.....59P4865
 FRU serial number.....13CP0TE
 FRU type.....CARD
 FRU vendor.....IBM
 FRU date of manufacture.....12/2003
 FRU part number.....59P4866
 FRU serial number.....1R0433CP0TC
 FRU type.....Power
 FRU vendor.....IBM
 FRU date of manufacture.....12/2003
 FRU part number.....14J0665
 FRU serial number.....1R0453CP0TA
 FRU type.....Power
 FRU vendor.....IBM
 FRU date of manufacture.....12/2003
 FRU part number.....14J0665
 FRU serial number.....1R0453CP0T9
 FRU type.....CARD
 FRU vendor.....IBM
 FRU date of manufacture.....12/2003
 FRU part number.....59P4869
 FRU serial number.....1R0443CP0TB
 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.....Ultra160 SCSI
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
Channel.....2
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....B
PFA error.....No

Type.....Enclosure
Vendor.....IBM
Product or model number.....EXP400
Serial number.....23B1180
Firmware level.....D110
FRU type.....MIDPLANE
FRU vendor.....IBM
FRU date of manufacture.....12/2003
FRU part number.....59P4865
FRU serial number.....13CG058
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....12/2003
FRU part number.....59P4866
FRU serial number.....1R0433CG056
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....07/2003
FRU part number.....59P4866
FRU serial number.....1R043379008
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....12/2003

FRU part number.....14J0665
 FRU serial number.....1R0453CG053
 FRU type.....Power
 FRU vendor.....IBM
 FRU date of manufacture.....12/2003
 FRU part number.....14J0665
 FRU serial number.....1R0453CG054
 FRU type.....CARD
 FRU vendor.....IBM
 FRU date of manufacture.....12/2003
 FRU part number.....59P4869
 FRU serial number.....1R0443CG055
 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

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.....30B7EA2B
 Part number.....02R0988
 Physical slot.....7
 BIOS version.....6.11.07
 Firmware version.....6.10.80
 Device driver version.....6.06.07
 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.....B85B
 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.....B85B
 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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....Ultra160 SCSI
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
 Channel.....1
 SCSI ID.....6
 Size.....34715 MB
 State.....Online
 Array letter.....G
 PFA error.....No

 Type.....Enclosure
 Vendor.....IBM
 Product or model number.....EXP400
 Serial number.....23B1427
 Firmware level.....D110
 FRU type.....MIDPLANE
 FRU vendor.....IBM
 FRU date of manufacture.....12/2003
 FRU part number.....59P4865
 FRU serial number.....13CP0T8
 FRU type.....CARD
 FRU vendor.....IBM
 FRU date of manufacture.....12/2003
 FRU part number.....59P4866
 FRU serial number.....1R0433CP0T6
 FRU type.....Power
 FRU vendor.....IBM
 FRU date of manufacture.....12/2003
 FRU part number.....14J0665
 FRU serial number.....1R0453CP0T4
 FRU type.....Power
 FRU vendor.....IBM
 FRU date of manufacture.....12/2003
 FRU part number.....14J0665
 FRU serial number.....1R0453CP0T3
 FRU type.....CARD
 FRU vendor.....IBM
 FRU date of manufacture.....12/2003
 FRU part number.....59P4869
 FRU serial number.....1R0443CP0T5
 FRU type.....CARD
 FRU vendor.....IBM
 FRU date of manufacture.....12/2003
 FRU part number.....59P4866
 FRU serial number.....1R0433CP0T6
 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.....Ultra160 SCSI
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
Channel.....2
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....G
PFA error.....No

Type.....Enclosure
Vendor.....IBM
Product or model number.....EXP400
Serial number.....23B1427
Firmware level.....D110
FRU type.....MIDPLANE
FRU vendor.....IBM
FRU date of manufacture.....12/2003
FRU part number.....59P4865
FRU serial number.....13CP0T8
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....07/2003
FRU part number.....59P4866
FRU serial number.....1R04337B343
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....12/2003
FRU part number.....14J0665
FRU serial number.....1R0453CP0T4
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....12/2003
FRU part number.....14J0665
FRU serial number.....1R0453CP0T3
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....12/2003
FRU part number.....59P4869
FRU serial number.....1R0443CP0T5
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....07/2003
FRU part number.....59P4866
FRU serial number.....1R04337B343
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

Configuration information for controller 6

Controller type.....ServeRAID-6M

SCSI backend type.....AIC-7902
SCSI backend revision.....16
Controller FRU.....02R0998
Battery FRU.....02R0986
Serial number.....30B7EA05
Part number.....02R0988
Physical slot.....5
BIOS version.....6.11.07
Firmware version.....6.10.80
Device driver version.....6.06.07
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....3HX17NQ
Firmware level.....B85B

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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
 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.....B85B
 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.....3HX17VEB
 Firmware level.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
 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.....B85B
 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.....1R0KC09V207
 FRU type.....Power
 FRU vendor.....IBM
 FRU date of manufacture.....09/2000
 FRU part number.....07K5985
 FRU serial number.....1R0KC09V201
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B

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.....B85B
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.....B85B
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.....B85B
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.....3HX17VEB
Firmware level.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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 6

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.....20B757BC
 Part number.....32P0033
 Physical slot.....10
 BIOS version.....6.11.07
 Firmware version.....6.10.80
 Device driver version.....6.06.07
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B

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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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 7

Configuration information for controller 8

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.....4
BIOS version.....6.11.07
Firmware version.....6.10.80
Device driver version.....6.06.07
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
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.....3HX17NSV
Firmware level.....B85B
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.....B85B
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.....B85B
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 8

Configuration information for controller 9

Controller type.....ServeRAID-6M
SCSI backend type.....AIC-7902
SCSI backend revision.....16
Controller FRU.....02R0985
Battery FRU.....02R0986
Serial number.....00B772D3
Part number.....32P0033
Physical slot.....9
BIOS version.....6.11.07
Firmware version.....6.10.80
Device driver version.....6.06.07
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.....Extended
 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.....11/24/2003
 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.....3HX17H8P
 Firmware level.....B85B
 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.....3HX17NBF
 Firmware level.....B85B
 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.....3HX17V82
 Firmware level.....B85B
 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.....3HX17WYH
 Firmware level.....B85B
 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.....3HX17PP1
 Firmware level.....B85B
 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.....3HX17RBY
 Firmware level.....B85B
 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.....3HX17VBT
 Firmware level.....B85B
 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.....3HX17V46
 Firmware level.....B85B
 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.....3HX16FXA
Firmware level.....B85B
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.....3HX17N64
Firmware level.....B85B
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.....3HX17NDF
Firmware level.....B85B
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.....3HX17N7T
Firmware level.....B85B
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.....3HX17MZC
Firmware level.....B85B
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.....3HX17N11
Firmware level.....B85B
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.....11/24/2003
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.....3HX17RC4
Firmware level.....B85B
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.....3HX17N1Q
Firmware level.....B85B
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.....3HX17NAT
Firmware level.....B85B
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.....3HX17N89
Firmware level.....B85B
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.....3HX17WDV
Firmware level.....B85B
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.....3HX17TZ3
Firmware level.....B85B
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.....3HX17E4D
Firmware level.....B85B
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.....3HX17WG0
Firmware level.....B85B
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.....3HX17G5K
Firmware level.....B85B
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.....3HX16HE1
Firmware level.....B85B
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.....3HX17GBW
Firmware level.....B85B
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.....3HX17N9Q
Firmware level.....B85B
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.....3HX15SXW
Firmware level.....B85B
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.....3HX17V4M
Firmware level.....B85B
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.....3HX17H8P
Firmware level.....B85B
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.....3HX17NBF
Firmware level.....B85B
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.....3HX17V82
Firmware level.....B85B
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.....3HX17WYH
Firmware level.....B85B

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.....3HX17PP1
Firmware level.....B85B
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.....3HX17RBY
Firmware level.....B85B
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.....3HX17VBT
Firmware level.....B85B
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.....3HX17V46
Firmware level.....B85B
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.....3HX16FXA
Firmware level.....B85B
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.....3HX17N64
Firmware level.....B85B
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.....3HX17NDF
Firmware level.....B85B
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.....3HX17N7T
Firmware level.....B85B
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.....3HX17MZC
Firmware level.....B85B
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.....3HX17N11
Firmware level.....B85B
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.....6807295
Firmware level.....D014
FRU type.....MIDPLANE
FRU vendor.....IBM
FRU date of manufacture.....11/2000
FRU part number.....19K1239
FRU serial number.....6807295
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1171
FRU serial number.....1R0230AB252
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1171
FRU serial number.....1R0230AB251
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....07K5985
FRU serial number.....1R0KC0A7359
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....07K5985
FRU serial number.....1R0KC0A7357
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1173
FRU serial number.....1R0220AA915
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....10/2000
FRU part number.....19K1172
FRU serial number.....1R0240A4014
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.....3HX17RC4
Firmware level.....B85B
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.....3HX17N1Q
Firmware level.....B85B
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.....3HX17NAT
Firmware level.....B85B
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.....3HX17N89
Firmware level.....B85B
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.....3HX17WDV
Firmware level.....B85B
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.....3HX17TZ3
Firmware level.....B85B
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.....3HX17E4D
Firmware level.....B85B
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.....3HX17WG0
Firmware level.....B85B
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.....3HX17G5K
Firmware level.....B85B
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.....3HX16HE1
Firmware level.....B85B
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.....3HX17GBW
Firmware level.....B85B
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.....3HX17N9Q
 Firmware level.....B85B
 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.....3HX15SXW
 Firmware level.....B85B
 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.....3HX17V4M
 Firmware level.....B85B
 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.....6807163
 Firmware level.....D014
 FRU type.....MIDPLANE
 FRU vendor.....IBM
 FRU date of manufacture.....11/2000
 FRU part number.....19K1239
 FRU serial number.....6807163
 FRU type.....CARD
 FRU vendor.....IBM
 FRU date of manufacture.....10/2000
 FRU part number.....19K1171
 FRU serial number.....1R0230AA950
 FRU type.....CARD
 FRU vendor.....IBM
 FRU date of manufacture.....10/2000
 FRU part number.....19K1171
 FRU serial number.....1R0230AA951
 FRU type.....Power
 FRU vendor.....IBM
 FRU date of manufacture.....10/2000
 FRU part number.....07K5985
 FRU serial number.....1R0KC0A7250
 FRU type.....Power
 FRU vendor.....IBM
 FRU date of manufacture.....10/2000
 FRU part number.....07K5985
 FRU serial number.....1R0KC0A7190
 FRU type.....CARD
 FRU vendor.....IBM
 FRU date of manufacture.....10/2000

FRU part number.....19K1173
 FRU serial number.....1R0220AA853
 FRU type.....CARD
 FRU vendor.....IBM
 FRU date of manufacture.....10/2000
 FRU part number.....19K1172
 FRU serial number.....1R0240AA570
 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

Configuration information for controller 10

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.....11
 BIOS version.....6.11.07
 Firmware version.....6.10.80
 Device driver version.....6.06.07
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B
 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.....B85B

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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....19K1171
FRU serial number.....1R02309M959
FRU type.....Power
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 10

Configuration information for controller 11

Controller type.....ServeRAID-6M
SCSI backend type.....AIC-7902
SCSI backend revision.....16
Controller FRU.....02R0985
Battery FRU.....02R0986
Serial number.....30B7EA10
Part number.....32P0033
Physical slot.....12
BIOS version.....6.11.07
Firmware version.....6.10.80
Device driver version.....6.06.07
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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.....B85B
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 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: 01/22/2004 05:14:32 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 NameVCLIENT10\Administrator
 Time ZoneEastern Standard Time
 Total Physical Memory 2,096,604 KB
 Available Physical Memory 1,871,172 KB
 Total Virtual Memory5,609,004 KB
 Available Virtual Memory 5,305,564 KB
 Page File Space 3,512,400 KB
 Page File C:\pagefile.sys

[Hardware Resources]

[Following are sub-categories of this main category]

[Conflicts/Sharing]

Resource Device
 No conflicted/shared resources

[DMA]

Channel	Device	Status
4	Direct memory access controller	OK
2	Standard floppy disk controller	OK

[Forced Hardware]

Device PNP Device ID
 No Forced Hardware

[I/O]

Address Range	Device	Status
0x0000-0x0CF7	PCI bus	OK
0x0000-0x0CF7	Direct memory access controller	OK
0x0D00-0x40B7	PCI bus	OK
0x40B9-0xFFFF	PCI bus	OK
0x7000-0xBFFF	Intel(R) E7000 Series Hub Interface B PCI-to-PCI Bridge	
- 2553	OK	
0x7000-0xBFFF	Intel(R) P64H2 PCI to PCI Bridge - 1460	OK
0x7000-0xBFFF	PCI standard PCI-to-PCI bridge	OK
0x7000-0xBFFF	Intel(R) PRO/100 S Dual Port Server Adapter	
OK		
0xA000-0xBFFF	Intel(R) P64H2 PCI to PCI Bridge - 1460	OK
0xA000-0xBFFF	DEC 21154 PCI to PCI bridge	OK
0xA000-0xBFFF	Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet	
Adapter	OK	
0xB000-0xB0FF	QLogic QLA23xx PCI Fibre Channel Adapter	
OK		
0xA400-0xA4FF	Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet	
Adapter #2OK		
0xA800-0xA8FF	Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet	
Adapter #3OK		
0xAC00-0xACFF	Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet	
Adapter #4OK		
0x7400-0x743F	Intel(R) PRO/100 S Dual Port Server Adapter #2	
OK		
0x8000-0x8FFF	PCI standard PCI-to-PCI bridge	OK
0x8000-0x8FFF	Intel(R) PRO/100 S Dual Port Server Adapter #3	
OK		

0x8400-0x843F OK	Intel(R) PRO/100 S Dual Port Server Adapter #4		24	Intel(R) PRO/100 S Dual Port Server Adapter	
0x9000-0x90FF OK	LSI Logic 1020/1030 Ultra320 SCSI Adapter		25	Intel(R) PRO/100 S Dual Port Server Adapter #2	
0x9400-0x94FF OK	LSI Logic 1020/1030 Ultra320 SCSI Adapter		28	Intel(R) PRO/100 S Dual Port Server Adapter #3	
0xD400-0xD41F - 24C2 OK	Intel(R) 82801DB/DBM USB Universal Host Controller		29	Intel(R) PRO/100 S Dual Port Server Adapter #4	
0xD000-0xD01F - 24C4 OK	Intel(R) 82801DB/DBM USB Universal Host Controller		32	LSI Logic 1020/1030 Ultra320 SCSI Adapter	
0xC000-0xC0FF	RAGE XL PCI	OK	33	LSI Logic 1020/1030 Ultra320 SCSI Adapter	
0x03B0-0x03BB	RAGE XL PCI	OK	16	Intel(R) 82801DB/DBM USB Universal Host Controller - 24C2	
0x03C0-0x03DF	RAGE XL PCI	OK	19	Intel(R) 82801DB/DBM USB Universal Host Controller - 24C4	
0x0A79-0x0A79	ISAPNP Read Data Port	OK	23	Intel PCI to USB Enhanced Host Controller	
0x0279-0x0279	ISAPNP Read Data Port	OK	22	RAGE XL PCI	
0x0274-0x0277	ISAPNP Read Data Port	OK	8	System CMOS/real time clock	
0x0010-0x001F	Motherboard resources	OK	13	Numeric data processor	
0x0022-0x003F	Motherboard resources	OK	6	Standard floppy disk controller	
0x0044-0x005F	Motherboard resources	OK	4	Communications Port (COM1)	
0x0062-0x0063	Motherboard resources	OK	3	Communications Port (COM2)	
0x0065-0x006F	Motherboard resources	OK	12	PS/2 Compatible Mouse	
0x0074-0x007F	Motherboard resources	OK	1	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard	
0x0091-0x0093	Motherboard resources	OK	14	Primary IDE Channel	
0x00A2-0x00BF	Motherboard resources	OK	15	Secondary IDE Channel	
0x00E0-0x00EF	Motherboard resources	OK	5	Intel(R) 82801DB/DBM SMBus Controller - 24C3	
0x04D0-0x04D1	Motherboard resources	OK	17	SoundMAX Integrated Digital Audio	
0x0800-0x087F	Motherboard resources	OK	[Memory]		
0x0020-0x0021	Programmable interrupt controller	OK	Range	Device	Status
0x00A0-0x00A1	Programmable interrupt controller	OK	0xC8000-0xCBFFF	System board	OK
0x0080-0x0090	Direct memory access controller	OK	0xCE200-0xCFFFF	System board	OK
0x0094-0x009F	Direct memory access controller	OK	0xF0000-0xFBFFF	System board	OK
0x00C0-0x00DF	Direct memory access controller	OK	0xFC000-0xFFFFF	System board	OK
0x0040-0x0043	System timer	OK	0x7FFF0000-0x7FFFFFFF	System board	OK
0x0070-0x0073	System CMOS/real time clock	OK	0x0000-0x9FFFF	System board	OK
0x0061-0x0061	System speaker	OK	0x100000-0x7FEFFFFF	System board	OK
0x00F0-0x00FF	Numeric data processor	OK	0xFEC00000-0xFECFFFFFFF	System board	OK
0x03F2-0x03F5	Standard floppy disk controller	OK	0xFEE00000-0xFEEFFFFFFF	System board	OK
0x03F7-0x03F7	Standard floppy disk controller	OK	0xFFB00000-0xFFB7FFFF	System board	OK
0x03F8-0x03FF	Communications Port (COM1)	OK	0xFFF00000-0xFFFFFFF	System board	OK
0x02F8-0x02FF	Communications Port (COM2)	OK	0xE0000-0xEFFFF	System board	OK
0x0378-0x037F	Printer Port (LPT1)	OK	0xFFB80000-0xFFBFFFFFFF	Intel(r) 82802 Firmware Hub Device	OK
0x0060-0x0060	Standard 101/102-Key or Microsoft Natural PS/2		0xA0000-0xBFFFF	PCI bus	OK
Keyboard OK			0xA0000-0xBFFFF	RAGE XL PCI	OK
0x0064-0x0064	Standard 101/102-Key or Microsoft Natural PS/2		0xC0000-0xDFFFF	PCI bus	OK
Keyboard OK			0x80000000-0xFEBFFFFFFF	PCI bus	OK
0xF000-0xF00F	Intel(R) 82801DB Ultra ATA Storage Controller - 24CB		0xEC000000-0xEFFFFFFF	Intel(R) E7000 Series Processor to AGP	
0x01F0-0x01F7	Primary IDE Channel	OK	Controller - 2552 OK		
0x03F6-0x03F6	Primary IDE Channel	OK	0xE8000000-0xEBFFFFFFF	Intel(R) E7000 Series Processor to AGP	
0x0170-0x0177	Secondary IDE Channel	OK	Controller - 2552 OK		
0x0376-0x0376	Secondary IDE Channel	OK	0xF0000000-0xF6FFFFFFF	Intel(R) E7000 Series Hub Interface B	
0x5000-0x501F	Intel(R) 82801DB/DBM SMBus Controller - 24C3		PCI-to-PCI Bridge - 2553	OK	
OK			0xF0000000-0xF6FFFFFFF	Intel(R) P64H2 PCI to PCI Bridge - 1460	
0xDC00-0xDCFF	SoundMAX Integrated Digital Audio	OK	OK		
0xE000-0xE03F	SoundMAX Integrated Digital Audio	OK	0xF6001000-0xF6001FFF	Intel(R) P64H2 I/O Advanced Programmable	
0x4000-0x40BF	Motherboard resources	OK	Interrupt Controller - 1461	OK	
0x40B8-0x40B8	Not Available	OK	0xF3000000-0xF300FFFF	Broadcom NetXtreme Gigabit Ethernet	
[IRQs]			OK		
IRQ Number	Device		0xF3010000-0xF3010FFF	QLogic QLA23xx PCI Fibre Channel Adapter	
9	Microsoft ACPI-Compliant System		OK		
48	Broadcom NetXtreme Gigabit Ethernet		0xF1000000-0xF2FFFFFFF	DEC 21154 PCI to PCI bridge	OK
52	QLogic QLA23xx PCI Fibre Channel Adapter		0xF2000000-0xF207FFFF	Adaptec ANA62044 64-bit 4 port PCI Fast	
56	Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter		Ethernet Adapter OK		
57	Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter #2		0xF2080000-0xF20FFFFFFF	Adaptec ANA62044 64-bit 4 port PCI Fast	
58	Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter #3		Ethernet Adapter #2 OK		
59	Adaptec ANA62044 64-bit 4 port PCI Fast Ethernet Adapter #4		0xF2100000-0xF217FFFF	Adaptec ANA62044 64-bit 4 port PCI Fast	
			Ethernet Adapter #3 OK		
			0xF2180000-0xF21FFFFFFF	Adaptec ANA62044 64-bit 4 port PCI Fast	
			Ethernet Adapter #4 OK		
			0xF6000000-0xF6000FFF	Intel(R) P64H2 I/O Advanced Programmable	
			Interrupt Controller - 1461	OK	

0xF4000000-0xF5FFFFFF	Intel(R) P64H2 PCI to PCI Bridge - 1460	c:\winnt\system32\tssoft32.acm	DSP GROUP, INC.	OK
OK		C:\WINNT\System32\TSSOFT32.ACM	1.01	9.27 KB (9,488 bytes)
0xF5100000-0xF51FFFFFF	PCI standard PCI-to-PCI bridge	OK		12/7/1999 7:00:00 AM
0xF5100000-0xF51FFFFFF	Intel(R) PRO/100 S Dual Port Server Adapter	c:\winnt\system32\iac25_32.ax	Intel Corporation	Indeo® audio software
OK		C:\WINNT\System32\IAC25_32.AX	2.05.53	195.00 KB
0xF5141000-0xF5141FFF	Intel(R) PRO/100 S Dual Port Server Adapter	(199,680 bytes)	12/7/1999 7:00:00 AM	
OK		c:\winnt\system32\lhacm.acm	Microsoft Corporation	
0xF5140000-0xF5140FFF	Intel(R) PRO/100 S Dual Port Server Adapter	OK	C:\WINNT\System32\LHACM.ACM	4.4.3385 33.27 KB
#2 OK		(34,064 bytes)	2/12/2003 12:55:58 PM	
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				
0xF5041000-0xF5041FFF	Intel(R) PRO/100 S Dual Port Server Adapter			
#3 OK				
0xF5040000-0xF5040FFF	Intel(R) PRO/100 S Dual Port Server Adapter			
#4 OK				
0xF5020000-0xF503FFFF	Intel(R) PRO/100 S Dual Port Server Adapter			
#4 OK				
0xF5210000-0xF521FFFF	LSI Logic 1020/1030 Ultra320 SCSI Adapter			
OK				
0xF5200000-0xF520FFFF	LSI Logic 1020/1030 Ultra320 SCSI Adapter			
OK				
0xF5220000-0xF522FFFF	LSI Logic 1020/1030 Ultra320 SCSI Adapter			
OK				
0xF5230000-0xF523FFFF	LSI Logic 1020/1030 Ultra320 SCSI Adapter			
OK				
0xFA000000-0xFA0003FF	Intel PCI to USB Enhanced Host Controller			
OK				
0xF7000000-0xF7FFFFFF	RAGE XL PCI	OK		
0xF9000000-0xF9000FFF	RAGE XL PCI	OK		
0xFEBFFC00-0xFEBFFFFFF	Intel(R) 82801DB Ultra ATA Storage			
Controller - 24CB	OK			
0xFA001000-0xFA0011FF	SoundMAX Integrated Digital Audio			
OK				
0xFA002000-0xFA0020FF	SoundMAX Integrated Digital Audio			
OK				

[Components]

[Following are sub-categories of this main category]

[Multimedia]

[Following are sub-categories of this main category]

[Audio Codecs]

Codec	Manufacturer	Description	Status	File
Version	Size	Creation Date		
c:\winnt\system32\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\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			
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\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\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\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\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\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			
[Video Codecs]				
Codec	Manufacturer	Description	Status	File
Version	Size	Creation Date		
c:\winnt\system32\ir50_32.dll	Intel Corporation	Indeo® video 5.10		
OK	C:\WINNT\System32\IR50_32.DLL	R.5.10.15.2.55		
737.50 KB (755,200 bytes)	12/7/1999 7:00:00 AM			
c:\winnt\system32\msyuv.dll	Microsoft Corporation			
OK	C:\WINNT\System32\MSYUV.DLL	5.00.2134.1		
14.77 KB (15,120 bytes)	2/12/2003 2:09:29 PM			
c:\winnt\system32\msh261.drv	Microsoft Corporation			
OK	C:\WINNT\System32\MSH261.DRV	4.4.3385	163.77 KB	
(167,696 bytes)	2/12/2003 12:55:58 PM			
c:\winnt\system32\msh263.drv	Microsoft Corporation			
OK	C:\WINNT\System32\MSH263.DRV	4.4.3385	252.27 KB	
(258,320 bytes)	2/12/2003 12:55:39 PM			
c:\winnt\system32\msvidc32.dll	Microsoft Corporation			
OK	C:\WINNT\System32\MSVIDC32.DLL	5.00.2134.1		
27.27 KB (27,920 bytes)	12/7/1999 7:00:00 AM			
c:\winnt\system32\msrle32.dll	Microsoft Corporation			
OK	C:\WINNT\System32\MSRLE32.DLL	5.00.2134.1		
10.77 KB (11,024 bytes)	12/7/1999 7:00:00 AM			
c:\winnt\system32\ir32_32.dll	Intel(R) Corporation	OK		
C:\WINNT\System32\IR32_32.DLL	Not Available	194.50 KB		
(199,168 bytes)	12/7/1999 7:00:00 AM			
c:\winnt\system32\iccvld.dll	Radius Inc.	OK		
C:\WINNT\System32\ICCVLD.DLL	1.10.0.6	108.00 KB (110,592 bytes)		
12/7/1999 7:00:00 AM				

[CD-ROM]

Item	Value
Drive	Z:
Description	CD-ROM Drive
Media Loaded	False
Media Type	CD-ROM
Name	HL-DT-ST CD-ROM GCR-8480B
Manufacturer	(Standard CD-ROM drives)
Status	OK
Transfer Rate	Not Available
SCSI Target ID	0
PNP Device ID	
IDE\CDROMHL-DT-ST_CD-ROM_GCR-8480B	1.02 \
5&74A80B&0&0.0.0	

[Sound Device]

Item	Value
Name	SoundMAX Integrated Digital Audio
Status	OK
PNP Device ID	
PCI\VEN_8086&DEV_24C5&SUBSYS_027A1014&REV_02\3&13C0B0C5&0&FD	
IRQ Number	17
I/O Port	0xDC00-0xDCFF
I/O Port	0xE000-0xE03F
Memory Range	0xFA001000-0xFA0011FF

Memory Range 0xFA002000-0xFA0020FF
Driver c:\winnt\system32\drivers\smwdm.sys (552932, PRE-RELEASE)

[Display]

Item	Value
Name	RAGE XL PCI
PNP Device ID	PCI\VEN_1002&DEV_4752&SUBSYS_02401014&REV_27\4&1A671D0C&0&08F0
Adapter Type	ATI RAGE XL PCI (B41), ATI Technologies Inc. compatible
Adapter Description	RAGE XL PCI
Adapter RAM	8.00 MB (8,388,608 bytes)
Installed Drivers	ati2drad.dll
Driver Version	5.00.2195.5005
INF File	oem1.inf (ati2mpad section)
Color Planes	1
Color Table Entries	65536
Resolution	1024 x 768 x 85 hertz
Bits/Pixel	16

[Infrared]

Item	Value
No infrared devices	

[Input]

[Following are sub-categories of this main category]

[Keyboard]

Item	Value
Description	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
Name	Enhanced (101- or 102-key)
Layout	00000409
PNP Device ID	ACPI\PNP0303\4&323CF337&0
NumberOfFunctionKeys	12

[Pointing Device]

Item	Value
Hardware Type	PS/2 Compatible Mouse
Number of Buttons	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	1/22/2004 11:20:48 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	1/22/2004 11:20:48 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	1/22/2004 11:20:48 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\rasppptp.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_PTMINIPOINT\0000
Last Reset	1/22/2004 11:20:48 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 1/22/2004 11:20:48 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 1/22/2004 11:20:48 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 1/22/2004 11:20:48 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 1/22/2004 11:20:48 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 1/22/2004 11:20:48 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 1/22/2004 11:20:48 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 1/22/2004 11:20:48 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 1/22/2004 11:20:48 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 1/22/2004 11:20:48 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 1/22/2004 11:20:48 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

Name RSVP TCP Service Provider
 ConnectionlessService False
 GuaranteesDelivery True
 GuaranteesSequencing True
 MaximumAddressSize 16 bytes
 MaximumMessageSize 0 bytes
 MessageOriented False
 MinimumAddressSize 16 bytes
 PseudoStreamOriented False
 SupportsBroadcasting False
 SupportsConnectData False
 SupportsDisconnectData False
 SupportsEncryption True
 SupportsExpeditedData True
 SupportsGracefulClosing True
 SupportsGuaranteedBandwidth False
 SupportsMulticasting False

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{C5A9DCD8-47C5-437F-A456-3998B708852F}]
 SEQPACKET 14
 ConnectionlessService False
 GuaranteesDelivery True
 GuaranteesSequencing True
 MaximumAddressSize 20 bytes
 MaximumMessageSize 64000 bytes
 MessageOriented True
 MinimumAddressSize 20 bytes
 PseudoStreamOriented False
 SupportsBroadcasting False
 SupportsConnectData False
 SupportsDisconnectData False
 SupportsEncryption False
 SupportsExpeditedData False
 SupportsGracefulClosing False
 SupportsGuaranteedBandwidth False
 SupportsMulticasting False

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{C5A9DCD8-47C5-437F-A456-3998B708852F}]
 DATAGRAM 14
 ConnectionlessService True

GuaranteesDelivery False
 GuaranteesSequencing False
 MaximumAddressSize 20 bytes
 MaximumMessageSize 64000 bytes
 MessageOriented True
 MinimumAddressSize 20 bytes
 PseudoStreamOriented False
 SupportsBroadcasting True
 SupportsConnectData False
 SupportsDisconnectData False
 SupportsEncryption False
 SupportsExpeditedData False
 SupportsGracefulClosing False
 SupportsGuaranteedBandwidth False
 SupportsMulticasting False

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{7342D553-7C2A-4066-9070-1B50781771D5}]
 SEQPACKET 11
 ConnectionlessService False
 GuaranteesDelivery True
 GuaranteesSequencing True
 MaximumAddressSize 20 bytes
 MaximumMessageSize 64000 bytes
 MessageOriented True
 MinimumAddressSize 20 bytes
 PseudoStreamOriented False
 SupportsBroadcasting False
 SupportsConnectData False
 SupportsDisconnectData False
 SupportsEncryption False
 SupportsExpeditedData False
 SupportsGracefulClosing False
 SupportsGuaranteedBandwidth False
 SupportsMulticasting False

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{7342D553-7C2A-4066-9070-1B50781771D5}]
 DATAGRAM 11
 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_{4A2A9C9A-DDD8-4FED-BF81-B957B71EB0BE}]
 SEQPACKET 4
 ConnectionlessService False
 GuaranteesDelivery True
 GuaranteesSequencing True
 MaximumAddressSize 20 bytes
 MaximumMessageSize 64000 bytes
 MessageOriented True
 MinimumAddressSize 20 bytes
 PseudoStreamOriented False
 SupportsBroadcasting False

SupportsConnectData False
 SupportsDisconnectData False
 SupportsEncryption False
 SupportsExpeditedData False
 SupportsGracefulClosing False
 SupportsGuaranteedBandwidth False
 SupportsMulticasting False

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{4A2A9C9A-DDD8-4FED-BF81-B957B71EB0BE}]
 DATAGRAM 4
 ConnectionlessService True
 GuaranteesDelivery False
 GuaranteesSequencing False
 MaximumAddressSize 20 bytes
 MaximumMessageSize 64000 bytes
 MessageOriented True
 MinimumAddressSize20 bytes
 PseudoStreamOriented False
 SupportsBroadcasting True
 SupportsConnectData False
 SupportsDisconnectData False
 SupportsEncryption False
 SupportsExpeditedData False
 SupportsGracefulClosing False
 SupportsGuaranteedBandwidth False
 SupportsMulticasting False

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{04626D60-9758-487A-8A9E-33BA956B6C94}]
 SEQUENCE 3
 ConnectionlessService False
 GuaranteesDelivery True
 GuaranteesSequencing True
 MaximumAddressSize 20 bytes
 MaximumMessageSize 64000 bytes
 MessageOriented True
 MinimumAddressSize20 bytes
 PseudoStreamOriented False
 SupportsBroadcasting False
 SupportsConnectData False
 SupportsDisconnectData False
 SupportsEncryption False
 SupportsExpeditedData False
 SupportsGracefulClosing False
 SupportsGuaranteedBandwidth False
 SupportsMulticasting False

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{04626D60-9758-487A-8A9E-33BA956B6C94}]
 DATAGRAM 3
 ConnectionlessService True
 GuaranteesDelivery False
 GuaranteesSequencing False
 MaximumAddressSize 20 bytes
 MaximumMessageSize 64000 bytes
 MessageOriented True
 MinimumAddressSize20 bytes
 PseudoStreamOriented False
 SupportsBroadcasting True
 SupportsConnectData False
 SupportsDisconnectData False
 SupportsEncryption False
 SupportsExpeditedData False
 SupportsGracefulClosing False
 SupportsGuaranteedBandwidth False
 SupportsMulticasting False

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{9580B244-281D-49A2-868D-2DB50DC4BB14}]
 SEQUENCE 13
 ConnectionlessService False
 GuaranteesDelivery True
 GuaranteesSequencing True
 MaximumAddressSize 20 bytes
 MaximumMessageSize 64000 bytes
 MessageOriented True
 MinimumAddressSize20 bytes
 PseudoStreamOriented False
 SupportsBroadcasting False
 SupportsConnectData False
 SupportsDisconnectData False
 SupportsEncryption False
 SupportsExpeditedData False
 SupportsGracefulClosing False
 SupportsGuaranteedBandwidth False
 SupportsMulticasting False

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{9580B244-281D-49A2-868D-2DB50DC4BB14}]
 DATAGRAM 13
 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_{F37FFD50-F485-4FB7-A01E-55B193228DED}]
 SEQUENCE 6
 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_{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
 MinimumAddressSize 20 bytes
 PseudoStreamOriented False
 SupportsBroadcasting True
 SupportsConnectData False
 SupportsDisconnectData False
 SupportsEncryption False
 SupportsExpeditedData False
 SupportsGracefulClosing False
 SupportsGuaranteedBandwidth False
 SupportsMulticasting False

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{E4642D43-676A-4938-B902-1D94A9E14871}]
 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}]
 SEQUENCE 2

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_{7A1A1C49-720E-4C27-ADCC-2C8703574F7C}]
 DATAGRAM 2

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

[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 28.81 GB (30,929,498,112 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

[SCSI]

Item	Value
Name	QLogic QLA23xx PCI Fibre Channel Adapter
Caption	QLogic QLA23xx PCI Fibre Channel Adapter
Driver	ql2300
Status	OK
PNP Device ID	PCI\VEN_1077&DEV_2312&SUBSYS_010C1077&REV_02\5&121CC7C2&0&10E810
Device ID	PCI\VEN_1077&DEV_2312&SUBSYS_010C1077&REV_02\5&121CC7C2&0&10E810
Device Map	Not Available
Index	Not Available
Max Number Controlled	Not Available
IRQ Number	52
I/O Port	0xB000-0xB0FF
Driver	c:\winnt\system32\drivers\ql2300.sys (441733, 8.2.0 Beta 10 (W2K VI))

Name	LSI Logic 1020/1030 Ultra320 SCSI Adapter
Caption	LSI Logic 1020/1030 Ultra320 SCSI Adapter
Driver	SYMMPI
Status	OK
PNP Device ID	PCI\VEN_1000&DEV_0030&SUBSYS_10001014&REV_07\5&21593F33&0&18F810
Device ID	PCI\VEN_1000&DEV_0030&SUBSYS_10001014&REV_07\5&21593F33&0&18F810
Device Map	Not Available
Index	Not Available
Max Number Controlled	Not Available
IRQ Number	32
I/O Port	0x9000-0x90FF
Driver	c:\winnt\system32\drivers\symmpi.sys (38512, 1.08.22.00)

Name	LSI Logic 1020/1030 Ultra320 SCSI Adapter
Caption	LSI Logic 1020/1030 Ultra320 SCSI Adapter

Driver SYMMPI
 Status OK
 PNP Device ID
 PCI\VEN_1000&DEV_0030&SUBSYS_10001014&REV_07\5&21593F33&0
 &19F810
 Device ID
 PCI\VEN_1000&DEV_0030&SUBSYS_10001014&REV_07\5&21593F33&0
 &19F810
 Device Map Not Available
 Index Not Available
 Max Number Controlled Not Available
 IRQ Number 33
 I/O Port 0x9400-0x94FF
 Driver c:\winnt\system32\drivers\symmpi.sys (38512, 1.08.22.00)

[Printing]

Name Port Name Server Name
 No printing information

[Problem Devices]

Device	PNP Device ID	Error Code
Not Available	ACPI\IBM37D6\2&DABA3FF&0	28
Not Available	ACPI\ASF0001\2&DABA3FF&0	28

[USB]

Device PNP Device ID
 Intel(R) 82801DB/DBM USB Universal Host Controller - 24C2
 PCI\VEN_8086&DEV_24C2&SUBSYS_027A1014&REV_02\3&13C0B0C5
 &0&E8
 USB Root Hub USB\ROOT_HUB\4&BF47197&0
 Intel(R) 82801DB/DBM USB Universal Host Controller - 24C4
 PCI\VEN_8086&DEV_24C4&SUBSYS_027A1014&REV_02\3&13C0B0C5
 &0&E9
 USB Root Hub USB\ROOT_HUB\4&31A3CFF4&0
 Intel PCI to USB Enhanced Host Controller
 PCI\VEN_8086&DEV_24CD&SUBSYS_027A1014&REV_02\3&13C0B0C5
 &0&EF
 USB 2.0 Root Hub USB\ROOT_HUB20\4&E58626F&0

[Software Environment]

[Following are sub-categories of this main category]

[Drivers]

Name	Description	File	Type	Started	Start Mode
State	Status	Error Control	Accept Pause	Accept Stop	
abiosdsk	Abiosdsk	Not Available	Kernel Driver	False	
Disabled	Stopped	OK	Ignore	False	False
abp480n5	abp480n5	Not Available	Kernel Driver	False	
Disabled	Stopped	OK	Normal	False	False
acpi	Microsoft ACPI Driver	c:\winnt\system32\drivers\acpi.sys	Kernel Driver	True	Boot
Kernel Driver	True	Boot	Running	OK	Normal
False	True				
acpiec	ACPIEC	c:\winnt\system32\drivers\acpiec.sys	Kernel Driver	False	
Driver	False	Disabled	Stopped	OK	Normal
False					
adptsf	Adaptec DuraLAN PCI Ethernet/Fast Ethernet driver for Windows	c:\winnt\system32\drivers\adptsf50.sys	Kernel Driver	True	Manual
2000	c:\winnt\system32\drivers\adptsf50.sys		Kernel Driver	True	Manual
True	Manual	Running	OK	Normal	False
adpu160m	adpu160m	Not Available	Kernel Driver	False	
Disabled	Stopped	OK	Normal	False	False

aeaudio	aeaudio	c:\winnt\system32\drivers\aeaudio.sys	Kernel Driver	True	Manual	Running	OK	Normal	False
True									
afd	AFD Networking Support Environment	c:\winnt\system32\drivers\afd.sys	Kernel Driver	True	Auto	Running	OK	Normal	False
True									
agp440	Intel AGP Bus Filter	c:\winnt\system32\drivers\agp440.sys	Kernel Driver	True	Boot	Running	OK	Normal	False
False	True								
aha154x	Aha154x	Not Available	Kernel Driver	False					
Disabled	Stopped	OK	Normal	False	False				
aic116x	aic116x	Not Available	Kernel Driver	False					
Disabled	Stopped	OK	Normal	False	False				
aic78u2	aic78u2	Not Available	Kernel Driver	False					
Disabled	Stopped	OK	Normal	False	False				
aic78xx	aic78xx	Not Available	Kernel Driver	False					
Disabled	Stopped	OK	Normal	False	False				
ami0nt	ami0nt	Not Available	Kernel Driver	False					
Disabled	Stopped	OK	Normal	False	False				
amsint	amsint	Not Available	Kernel Driver	False					
Disabled	Stopped	OK	Normal	False	False				
asc	asc	Not Available	Kernel Driver	False					
Disabled	Stopped	OK	Normal	False	False				
asc3350p	asc3350p	Not Available	Kernel Driver	False					
Disabled	Stopped	OK	Normal	False	False				
asc3550	asc3550	Not Available	Kernel Driver	False					
Disabled	Stopped	OK	Normal	False	False				
asynmac	RAS Asynchronous Media Driver	c:\winnt\system32\drivers\asynmac.sys	Kernel Driver	False					
Manual	Stopped	OK	Normal	False	False				
atapi	Standard IDE/ESDI Hard Disk Controller	c:\winnt\system32\drivers\atapi.sys	Kernel Driver	True					
Boot	Running	OK	Normal	False	True				
atdisk	Atdisk	Not Available	Kernel Driver	False					
Disabled	Stopped	OK	Ignore	False	False				
ati2mpad	ati2mpad	c:\winnt\system32\drivers\ati2mpad.sys	Kernel Driver	False					
Driver	True	Manual	Running	OK	Ignore				
True									
atirage3	atirage3	c:\winnt\system32\drivers\atimpab.sys	Kernel Driver	False					
Driver	False	Manual	Stopped	OK	Ignore				
False									
atmarpc	ATM ARP Client Protocol	c:\winnt\system32\drivers\atmarpc.sys	Kernel Driver	False					
Manual	Stopped	OK	Normal	False	False				
audstub	Audio Stub Driver	c:\winnt\system32\drivers\audstub.sys	Kernel Driver	True	Manual	Running	OK	Normal	
False	True								
b57w2k	Broadcom NetXtreme Gigabit Ethernet	c:\winnt\system32\drivers\b57w2k.sys	Kernel Driver	True					
Manual	Running	OK	Normal	False	True				
beep	Beep	c:\winnt\system32\drivers\beep.sys	Kernel Driver	True					
Driver	True	System	Running	OK	Normal				
True									
buslogic	BusLogic	Not Available	Kernel Driver	False					
Disabled	Stopped	OK	Normal	False	False				
cd20xrnt	cd20xrnt	Not Available	Kernel Driver	False					
Disabled	Stopped	OK	Normal	False	False				
cdaudio	Cdaudio	c:\winnt\system32\drivers\cdaudio.sys	Kernel Driver	False					
Driver	False	System	Stopped	OK	Ignore				
False									
cdfs	Cdfs	c:\winnt\system32\drivers\cdfs.sys	File System	True					
Driver	True	Disabled	Running	OK	Normal				
True									
cdrom	CD-ROM Driver	c:\winnt\system32\drivers\cdrom.sys	Kernel Driver	True	System	Running	OK	Normal	
False	True								
changer	Changer	Not Available	Kernel Driver	False					
System	Stopped	OK	Ignore	False	False				

cpqarray	Cpqarray	Not Available	Kernel Driver	False	ipfilterdriver	IP Traffic Filter Driver			
Disabled	Stopped	OK	Normal	False	False	c:\winnt\system32\drivers\ipfltdrv.sys	Kernel Driver	False	
cpqarry2	cpqarry2	Not Available	Kernel Driver	False	Manual	Stopped	OK	Normal	False
Disabled	Stopped	OK	Normal	False	False	False	Manual	Stopped	OK
cpqfcalm	cpqfcalm	Not Available	Kernel Driver	False	Kernel Driver	False	Manual	Stopped	OK
Disabled	Stopped	OK	Normal	False	False	False	Manual	Stopped	OK
cpqfws2e	cpqfws2e	Not Available	Kernel Driver	False	False	False	Manual	Stopped	OK
Disabled	Stopped	OK	Normal	False	False	False	Manual	Stopped	OK
dac960nt	dac960nt	Not Available	Kernel Driver	False	Kernel Driver	False	Manual	Stopped	OK
Disabled	Stopped	OK	Normal	False	False	False	Manual	Stopped	OK
deckzpsx	deckzpsx	Not Available	Kernel Driver	False	Kernel Driver	True	Manual	Running	OK
Disabled	Stopped	OK	Normal	False	False	False	Manual	Running	OK
dfsdriver	DfsDriver	c:\winnt\system32\drivers\dfs.sys	File System Driver	True	ipsraidn	ipsraidn	Not Available	Kernel Driver	False
True	Boot	Running	OK	Normal	Disabled	Stopped	OK	Normal	False
disk	Disk Driver	c:\winnt\system32\drivers\disk.sys	Kernel Driver	True	irenum	IR Enumerator Service	c:\winnt\system32\drivers\irenum.sys	Kernel Driver	False
Kernel Driver	True	Boot	Running	OK	Manual	Stopped	OK	Normal	False
False	True	Boot	Running	OK	isapnp	PnP ISA/EISA Bus Driver	c:\winnt\system32\drivers\isapnp.sys	Kernel Driver	True
diskperf	Diskperf	c:\winnt\system32\drivers\diskperf.sys	Kernel Driver	True	Boot	Running	OK	Critical	False
Driver	True	Boot	Running	OK	kbdcass	Keyboard Class Driver	c:\winnt\system32\drivers\kbdcass.sys	Kernel Driver	True
True	True	Boot	Running	OK	System	Running	OK	Normal	False
dmboot	dmboot	c:\winnt\system32\drivers\dmboot.sys	Kernel Driver	False	kmixer	Microsoft Kernel Wave Audio Mixer	c:\winnt\system32\drivers\kmixer.sys	Kernel Driver	False
Driver	False	Disabled	Stopped	OK	Manual	Stopped	OK	Normal	False
False	False	Disabled	Stopped	OK	ksecdd	KSecDD	c:\winnt\system32\drivers\ksecdd.sys	Kernel Driver	False
dmio	Logical Disk Manager Driver	c:\winnt\system32\drivers\dmio.sys	Kernel Driver	True	Driver	True	Boot	Running	OK
c:\winnt\system32\drivers\dmio.sys	Kernel Driver	True	Boot	Running	True	True	Boot	Running	OK
Boot	Running	OK	Normal	False	lbrtdc	lbrtdc	Not Available	Kernel Driver	False
dmload	dmload	c:\winnt\system32\drivers\dmload.sys	Kernel Driver	False	System	Stopped	OK	Ignore	False
Driver	True	Boot	Running	OK	lp6nds35	lp6nds35	Not Available	Kernel Driver	False
True	True	Boot	Running	OK	Disabled	Stopped	OK	Normal	False
dmusic	Microsoft DirectMusic SW Synth (WDM)	c:\winnt\system32\drivers\dmusic.sys	Kernel Driver	False	mnmd	mnmd	c:\winnt\system32\drivers\mnmd.sys	Kernel Driver	False
c:\winnt\system32\drivers\dmusic.sys	Kernel Driver	False	Manual	Stopped	OK	Normal	False	False	Kernel
Manual	Stopped	OK	Normal	False	Driver	True	System	Running	OK
e100b	Intel(R) PRO Adapter Driver	c:\winnt\system32\drivers\e100b5.sys	Kernel Driver	True	True	True	System	Running	OK
Manual	Running	OK	Normal	False	modem	Modem	c:\winnt\system32\drivers\modem.sys	Kernel Driver	False
efs	EFS	c:\winnt\system32\drivers\efs.sys	File System Driver	True	Driver	False	Manual	Stopped	OK
True	Disabled	Running	OK	Normal	False	False	Manual	Stopped	OK
fastfat	Fastfat	c:\winnt\system32\drivers\fastfat.sys	File System Driver	True	mouclass	Mouse Class Driver	c:\winnt\system32\drivers\mouclass.sys	Kernel Driver	Normal
Driver	True	Disabled	Running	OK	Kernel Driver	True	System	Running	OK
True	True	Disabled	Running	OK	False	True	System	Running	OK
fd16_700	Fd16_700	Not Available	Kernel Driver	False	mountmgr	MountMgr	c:\winnt\system32\drivers\mountmgr.sys	Kernel Driver	False
Disabled	Stopped	OK	Normal	False	Driver	True	Boot	Running	OK
fdc	Floppy Disk Controller Driver	c:\winnt\system32\drivers\fdc.sys	Kernel Driver	True	True	True	Boot	Running	OK
Kernel Driver	True	True	Manual	Running	mraid35x	mraid35x	Not Available	Kernel Driver	False
False	True	True	Manual	Running	Disabled	Stopped	OK	Normal	False
fips	Fips	c:\winnt\system32\drivers\fips.sys	Kernel Driver	False	mrxsmb	MRXSMB	c:\winnt\system32\drivers\mrxsmb.sys	File System Driver	False
Driver	True	Auto	Running	OK	Driver	True	System	Running	OK
True	True	Auto	Running	OK	True	True	System	Running	OK
fireport	fireport	Not Available	Kernel Driver	False	msfs	Msfs	c:\winnt\system32\drivers\msfs.sys	File System Driver	False
Disabled	Stopped	OK	Normal	False	Driver	True	System	Running	OK
flashpnt	flashpnt	Not Available	Kernel Driver	False	True	True	System	Running	OK
Disabled	Stopped	OK	Normal	False	mskssrv	Microsoft Streaming Service Proxy	c:\winnt\system32\drivers\mskssrv.sys	Kernel Driver	False
flpydisk	Floppy Disk Driver	c:\winnt\system32\drivers\flpydisk.sys	Kernel Driver	True	Manual	Stopped	OK	Normal	False
Kernel Driver	True	True	Manual	Running	mspclock	Microsoft Streaming Clock Proxy	c:\winnt\system32\drivers\mspclock.sys	Kernel Driver	False
False	True	True	Manual	Running	Manual	Stopped	OK	Normal	False
ftdisk	Volume Manager Driver	c:\winnt\system32\drivers\ftdisk.sys	Kernel Driver	True	mspqm	Microsoft Streaming Quality Manager Proxy	c:\winnt\system32\drivers\mspqm.sys	Kernel Driver	False
c:\winnt\system32\drivers\ftdisk.sys	Kernel Driver	True	Boot	Running	Manual	Stopped	OK	Normal	False
Boot	Running	OK	Normal	False	True	True	Boot	Running	OK
gpc	Generic Packet Classifier	c:\winnt\system32\drivers\msgpc.sys	Kernel Driver	True	mup	Mup	c:\winnt\system32\drivers\mup.sys	File System Driver	False
c:\winnt\system32\drivers\msgpc.sys	Kernel Driver	True	Manual	Running	Driver	True	Boot	Running	OK
Manual	Running	OK	Normal	False	True	True	Boot	Running	OK
i8042prt	i8042 Keyboard and PS/2 Mouse Port Driver	c:\winnt\system32\drivers\i8042prt.sys	Kernel Driver	True	ncrc710	Nrc710	Not Available	Kernel Driver	False
c:\winnt\system32\drivers\i8042prt.sys	Kernel Driver	True	System	Running	Disabled	Stopped	OK	Normal	False
System	Running	OK	Normal	False	False	False	OK	Normal	False
ini910u	ini910u	Not Available	Kernel Driver	False	False	False	OK	Normal	False
Disabled	Stopped	OK	Normal	False	False	False	OK	Normal	False
intellide	Intellide	Not Available	Kernel Driver	False	False	False	OK	Normal	False
Disabled	Stopped	OK	Normal	False	False	False	OK	Normal	False

ndis	NDIS System Driver	c:\winnt\system32\drivers\ndis.sys					
Kernel Driver	True	Boot	Running	OK	Normal		
False	True						
ndistapi	Remote Access NDIS TAPI Driver						
c:\winnt\system32\drivers\ndistapi.sys					Kernel Driver	True	
Manual	Running	OK	Normal	False	True		
ndiswan	Remote Access NDIS WAN Driver						
c:\winnt\system32\drivers\ndiswan.sys					Kernel Driver	True	
Manual	Running	OK	Normal	False	True		
ndproxy	NDIS Proxy	c:\winnt\system32\drivers\ndproxy.sys					
Kernel Driver	True	Manual	Running	OK	Normal		
False	True						
netbios	NetBIOS Interface	c:\winnt\system32\drivers\netbios.sys					
File System Driver	True	System	Running	OK	Normal		
False	True						
netbt	NetBios over Tcpip	c:\winnt\system32\drivers\netbt.sys					
Kernel Driver	True	System	Running	OK	Normal		
False	True						
netdetect	NetDetect	c:\winnt\system32\drivers\netdetect.sys				Kernel	
Driver	False	Manual	Stopped	OK	Normal	False	
False							
npfs	Npfs	c:\winnt\system32\drivers\npfs.sys				File System	
Driver	True	System	Running	OK	Normal	False	
True							
ntfs	Ntfs	c:\winnt\system32\drivers\ntfs.sys				File System	
Driver	True	Disabled	Running	OK	Normal	False	
True							
null	Null	c:\winnt\system32\drivers\null.sys				Kernel	
Driver	True	System	Running	OK	Normal	False	
True							
nwlkflt	IPX Traffic Filter Driver						
c:\winnt\system32\drivers\nwlkflt.sys					Kernel Driver	False	
Manual	Stopped	OK	Normal	False	False		
nwlkfwfwd	IPX Traffic Forwarder Driver						
c:\winnt\system32\drivers\nwlkfwfwd.sys					Kernel Driver	False	
Manual	Stopped	OK	Normal	False	False		
parallel	Parallel class driver	c:\winnt\system32\drivers\parallel.sys					
Kernel Driver	True	Manual	Running	OK	Normal		
False	True						
parport	Parallel port driver	c:\winnt\system32\drivers\parport.sys					
Kernel Driver	True	System	Running	OK	Ignore		
False	True						
partmgr	PartMgr	c:\winnt\system32\drivers\partmgr.sys				Kernel	
Driver	True	Boot	Running	OK	Normal	False	
True							
parvdm	ParVdm	c:\winnt\system32\drivers\parvdm.sys				Kernel	
Driver	True	Auto	Running	OK	Ignore	False	
True							
pci	PCI Bus Driver	c:\winnt\system32\drivers\pci.sys				Kernel	
Driver	True	Boot	Running	OK	Critical	False	
True							
pcidump	PCIDump	Not Available			Kernel Driver	False	
System	Stopped	OK	Ignore	False	False		
pciide	PCIIde	c:\winnt\system32\drivers\pciide.sys				Kernel	
Driver	True	Boot	Running	OK	Normal	False	
True							
pcmcia	Pcmcia	c:\winnt\system32\drivers\pcmcia.sys				Kernel	
Driver	False	Disabled	Stopped	OK	Normal	False	
False							
pdcomp	PDCOMP	Not Available			Kernel Driver	False	
Manual	Stopped	OK	Ignore	False	False		
pdframe	PDFRAME	Not Available			Kernel Driver		
False	Manual	Stopped	OK	Ignore	False	False	
pdreli	PDRELI	Not Available			Kernel Driver	False	
Manual	Stopped	OK	Ignore	False	False		
pdframe	PDRFRAME	Not Available			Kernel Driver		
False	Manual	Stopped	OK	Ignore	False	False	
pptpminiport	WAN Miniport (PPTP)						
c:\winnt\system32\drivers\rasppptp.sys					Kernel Driver	True	
Manual	Running	OK	Normal	False	True		
ptilink	Direct Parallel Link Driver						
c:\winnt\system32\drivers\ptilink.sys					Kernel Driver	True	
Manual	Running	OK	Normal	False	True		
ql1080	ql1080	Not Available			Kernel Driver	False	
Disabled	Stopped	OK	Normal	False	False		
ql10wnt	ql10wnt	Not Available			Kernel Driver	False	
Disabled	Stopped	OK	Normal	False	False		
ql1240	ql1240	Not Available			Kernel Driver	False	
Disabled	Stopped	OK	Normal	False	False		
ql2100	ql2100	Not Available			Kernel Driver	False	
Disabled	Stopped	OK	Normal	False	False		
ql2300	ql2300	c:\winnt\system32\drivers\ql2300.sys			Kernel		
Driver	True	Boot	Running	OK	Normal	False	
True							
ql2300vi	ql2300vi	c:\winnt\system32\drivers\ql2300vi.sys			Kernel		
Driver	True	Boot	Running	OK	Normal	False	
True							
qlvika	qlvika	c:\winnt\system32\drivers\qlvika.sys			Kernel		
Driver	True	Auto	Running	OK	Normal	False	
True							
rasacd	Remote Access Auto Connection Driver						
c:\winnt\system32\drivers\rasacd.sys					Kernel Driver	True	
System	Running	OK	Normal	False	True		
rasl2tp	WAN Miniport (L2TP)						
c:\winnt\system32\drivers\rasl2tp.sys					Kernel Driver	True	
Manual	Running	OK	Normal	False	True		
raspti	Direct Parallel	c:\winnt\system32\drivers\raspti.sys					
Kernel Driver	True	Manual	Running	OK	Normal		
False	True						
rca	Microsoft Streaming Network Raw Channel Access						
c:\winnt\system32\drivers\rca.sys					Kernel Driver	False	Manual
Stopped	OK	Normal	False	False			
rdbss	Rdbss	c:\winnt\system32\drivers\rdbss.sys				File System	
Driver	True	System	Running	OK	Normal	False	
True							
rdpwd	RDPWD	c:\winnt\system32\drivers\rdpwd.sys				Kernel	
Driver	False	Manual	Stopped	OK	Ignore	False	
False							
redbook	Digital CD Audio Playback Filter Driver						
c:\winnt\system32\drivers\redbook.sys					Kernel Driver	False	
System	Stopped	OK	Normal	False	False		
serenum	Serenum Filter Driver	c:\winnt\system32\drivers\serenum.sys					
Kernel Driver	True	Manual	Running	OK	Normal		
False	True						
serial	Serial port driver	c:\winnt\system32\drivers\serial.sys					
Kernel Driver	True	System	Running	OK	Ignore		
False	True						
sfloppy	Sfloppy	c:\winnt\system32\drivers\sfloppy.sys				Kernel	
Driver	False	System	Stopped	OK	Ignore	False	
False							
sglfb	sglfb	Not Available			Kernel Driver	False	
System	Stopped	OK	Normal	False	False		
simbad	Simbad	Not Available			Kernel Driver	False	
Disabled	Stopped	OK	Normal	False	False		
smwdm	smwdm	c:\winnt\system32\drivers\smwdm.sys				Kernel	
Driver	True	Manual	Running	OK	Normal	False	
True							
sparrow	Sparrow	Not Available			Kernel Driver	False	
Disabled	Stopped	OK	Normal	False	False		
spud	Special Purpose Utility Driver	c:\winnt\system32\drivers\spud.sys					
Kernel Driver	True	Manual	Running	OK	Normal		
False	True						
srv	Srv	c:\winnt\system32\drivers\srv.sys			File System Driver		
True	Manual	Running	OK	Normal	False	True	

swenum	Software Bus Driver	c:\winnt\system32\drivers\swenum.sys	Kernel Driver	True	Manual	Running	OK	Normal
False	True							
swmidi	Microsoft Kernel GS Wavetable Synthesizer	c:\winnt\system32\drivers\swmidi.sys	Kernel Driver	False				
Manual	Stopped	OK	Normal	False	False			
symc810	symc810	Not Available	Kernel Driver	False				
Disabled	Stopped	OK	Normal	False	False			
symc8xx	symc8xx	Not Available	Kernel Driver	False				
Disabled	Stopped	OK	Normal	False	False			
symmpi	symmpi	c:\winnt\system32\drivers\symmpi.sys	Kernel Driver	True	Boot	Running	OK	Normal
True								
sym_hi	sym_hi	Not Available	Kernel Driver	False				
Disabled	Stopped	OK	Normal	False	False			
sysaudio	Microsoft System Audio Device	c:\winnt\system32\drivers\sysaudio.sys	Kernel Driver	True				
Manual	Running	OK	Normal	False	True			
tcpip	TCP/IP Protocol Driver	c:\winnt\system32\drivers\tcpip.sys	Kernel Driver	True	System	Running	OK	Normal
False	True							
tdasync	TDASYNC	c:\winnt\system32\drivers\tdasync.sys	Kernel Driver	False	Manual	Stopped	OK	Ignore
False	False							
tdipx	TDIPX	c:\winnt\system32\drivers\tdipx.sys	Kernel Driver	False	Manual	Stopped	OK	Ignore
Driver	False							
False								
tdnetb	TDNETB	c:\winnt\system32\drivers\tdnetb.sys	Kernel Driver	False	Manual	Stopped	OK	Ignore
Driver	False							
False								
tdpipe	TDPIPE	c:\winnt\system32\drivers\tdpipe.sys	Kernel Driver	False	Manual	Stopped	OK	Ignore
Driver	False							
False								
tdspx	TDSPX	c:\winnt\system32\drivers\tdspx.sys	Kernel Driver	False	Manual	Stopped	OK	Ignore
Driver	False							
False								
tdtcp	TDTCP	c:\winnt\system32\drivers\tdtcp.sys	Kernel Driver	False	Manual	Stopped	OK	Ignore
Driver	False							
False								
termdd	Terminal Device Driver	c:\winnt\system32\drivers\termdd.sys	Kernel Driver	False				
Disabled	Stopped	OK	Normal	False	False			
tga	tga	Not Available	Kernel Driver	False				
System	Stopped	OK	Ignore	False	False			
udfs	Udfs	c:\winnt\system32\drivers\udfs.sys	File System 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				
Driver	True	System	Running	OK	Ignore			
True								

wanarp	Remote Access IP ARP Driver	c:\winnt\system32\drivers\wanarp.sys	Kernel Driver	True
Manual	Running	OK	Normal	False
wdica	WDICA	Not Available	Kernel Driver	False
Manual	Stopped	OK	Ignore	False
wdmaud	Microsoft WINMM WDM Audio Compatibility Driver	c:\winnt\system32\drivers\wdmaud.sys	Kernel Driver	True
Manual	Running	OK	Normal	False

[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
No network connections information				

[Running Tasks]

Name	Path	Process ID	Priority	Min Working Set	Max
Working Set		Start Time	Version	Size	File Date
system idle process	Not Available	0	0	0	Not
Available	Not Available	Not Available	Unknown	Unknown	Unknown
Unknown					
system	Not Available	8	8	0	1413120
Not Available		Unknown	Unknown	Unknown	
smss.exe	c:\winnt\system32\smss.exe	176	11	204800	
1413120	1/22/2004 4:21:22 PM	5.00.2195.5382		44.77 KB	
(45,840 bytes)	12/7/1999 7:00:00 AM				

csrss.exe	Not Available	200	13	Not Available	traffic.dll	5.00.2139.1	30.77 KB (31,504 bytes)	12/7/1999
Not Available	1/22/2004 4:21:24 PM			Unknown	7:00:00 AM	Microsoft Corporation		
Unknown					c:\winnt\system32\traffic.dll			
winlogon.exe	c:\winnt\system32\winlogon.exe	196	13		rsvp.exe	5.00.2167.1	172.77 KB (176,912 bytes)	12/7/1999
204800	1413120 1/22/2004 4:21:25 PM	5.00.2195.5386			7:00:00 AM	Microsoft Corporation		
174.77 KB (178,960 bytes)	3/6/2003 1:54:15 PM				c:\winnt\system32\rsvp.exe			
services.exe	c:\winnt\system32\services.exe	248	9		wbemprox.dll	1.50.1085.0045	40.08 KB (41,040 bytes)	
204800	1413120 1/22/2004 4:21:26 PM	5.00.2195.3940			3/6/2003 1:54:18 PM	Microsoft Corporation		
86.77 KB (88,848 bytes)	12/7/1999 7:00:00 AM				c:\winnt\system32\wbem\wbemprox.dll			
lsass.exe	c:\winnt\system32\lsass.exe	260	9	204800	mlang.dll	6.00.2800.1106	561.50 KB (574,976 bytes)	8/29/2002
1413120	1/22/2004 4:21:26 PM	5.00.2195.5430	32.77 KB		8:14:40 AM	Microsoft Corporation		
(33,552 bytes)	12/7/1999 7:00:00 AM				c:\winnt\system32\mlang.dll			
svchost.exe	c:\winnt\system32\svchost.exe	436	8		cabinet.dll	5.00.2147.1	54.77 KB (56,080 bytes)	12/7/1999
204800	1413120 1/22/2004 4:21:28 PM	5.00.2134.1			7:00:00 AM	Microsoft Corporation		
7.77 KB (7,952 bytes)	12/7/1999 7:00:00 AM				c:\winnt\system32\cabinet.dll			
spoolsv.exe	c:\winnt\system32\spoolsv.exe	464	8		msinfo32.dll	5.00.2195.4601	312.27 KB (319,760 bytes)	
204800	1413120 1/22/2004 4:21:28 PM	5.00.2195.4299			3/6/2003 1:54:19 PM	Microsoft Corporation	c:\program	
44.27 KB (45,328 bytes)	2/12/2003 7:39:06 AM				files\common files\microsoft shared\msinfo\msinfo32.dll			
msdtc.exe	c:\winnt\system32\msdtc.exe	492	8	204800	mmcmdmgr.dll	5.00.2195.5352	816.27 KB (835,856 bytes)	
1413120	1/22/2004 4:21:28 PM	1999.9.3421.3	6.77 KB		3/6/2003 1:54:04 PM	Microsoft Corporation		
(6,928 bytes)	2/12/2003 7:52:40 AM				c:\winnt\system32\mmcmdmgr.dll			
svchost.exe	c:\winnt\system32\svchost.exe	656	8		mmc.exe	5.00.2195.4933	589.27 KB (603,408 bytes)	3/6/2003
204800	1413120 1/22/2004 4:21:29 PM	5.00.2134.1			1:54:04 PM	Microsoft Corporation		
7.77 KB (7,952 bytes)	12/7/1999 7:00:00 AM				c:\winnt\system32\mmc.exe			
llssrv.exe	c:\winnt\system32\llssrv.exe	680	9	204800	tapisrv.dll	5.00.2195.5227	169.27 KB (173,328 bytes)	3/6/2003
1413120	1/22/2004 4:21:29 PM	5.00.2195.4907	81.27 KB		1:54:14 PM	Microsoft Corporation		
(83,216 bytes)	7/22/2002 1:05:04 PM				c:\winnt\system32\tapisrv.dll			
regsvc.exe	c:\winnt\system32\regsvc.exe	780	8	204800	dfssvc.exe	5.00.2195.3649	88.27 KB (90,384 bytes)	3/6/2003
1413120	1/22/2004 4:21:30 PM	5.00.2195.3649	65.27 KB		1:53:59 PM	Microsoft Corporation		
(66,832 bytes)	3/6/2003 1:54:11 PM				c:\winnt\system32\dfssvc.exe			
rsys.exe	Not Available	888	8	Not Available	iislog.dll	5.00.0984	75.27 KB (77,072 bytes)	3/6/2003 1:54:26 PM
Not Available	1/22/2004 4:21:31 PM			Unknown	Microsoft Corporation	c:\winnt\system32\inetsrv\iislog.dll		
Unknown					ntfsdrv.dll	5.00.0984	37.27 KB (38,160 bytes)	3/6/2003 1:54:26 PM
explorer.exe	c:\winnt\explorer.exe	1000	8	204800	Microsoft Corporation	c:\winnt\system32\inetsrv\ntfsdrv.dll		
1413120	1/22/2004 4:21:38 PM	5.00.3502.5321	237.27 KB		ntlsapi.dll	5.00.2195.4907	6.77 KB (6,928 bytes)	12/7/1999 7:00:00 AM
(242,960 bytes)	3/6/2003 1:54:16 PM				Microsoft Corporation	c:\winnt\system32\ntlsapi.dll		
mstask.exe	c:\winnt\system32\mstask.exe	1048	8	204800	httpext.dll	5.00.0984	240.27 KB (246,032 bytes)	3/6/2003 1:54:26 PM
1413120	1/22/2004 4:21:50 PM	4.71.2195.1	115.77 KB		Microsoft Corporation	c:\winnt\system32\inetsrv\httpext.dll		
(118,544 bytes)	3/6/2003 1:54:07 PM				aqueue.dll	5.00.0984	313.77 KB (321,296 bytes)	3/6/2003 1:54:21 PM
tcpsvcs.exe	c:\winnt\system32\tcpsvcs.exe	1080	8		Microsoft Corporation	c:\winnt\system32\inetsrv\aqueue.dll		
204800	1413120 1/22/2004 4:21:50 PM	5.00.2134.1			rpcproxy.dll	5.00.2195.5419	16.27 KB (16,656 bytes)	
24.77 KB (25,360 bytes)	12/7/1999 7:00:00 AM				3/6/2003 1:54:22 PM	Microsoft Corporation		
winmgmt.exe	c:\winnt\system32\wbem\winmgmt.exe	1108	8		c:\winnt\system32\rpcproxy\rpcproxy.dll			
204800	1413120 1/22/2004 4:21:50 PM	1.50.1085.0070			fpexedll.dll	4.0.2.5526	20.06 KB (20,541 bytes)	3/6/2003
192.08 KB (196,685 bytes)	3/6/2003 1:54:18 PM				1:54:21 PM	Microsoft Corporation	c:\program	
svchost.exe	c:\winnt\system32\svchost.exe	1140	8		files\common files\microsoft shared\web server extensions\40\bin\fpexedll.dll			
204800	1413120 1/22/2004 4:21:50 PM	5.00.2134.1			md5filt.dll	5.00.0984	32.77 KB (33,552 bytes)	3/6/2003 1:54:26 PM
7.77 KB (7,952 bytes)	12/7/1999 7:00:00 AM				Microsoft Corporation	c:\winnt\system32\inetsrv\md5filt.dll		
inetinfo.exe	c:\winnt\system32\inetsrv\inetinfo.exe	1152	8		gzip.dll	5.00.0984	30.27 KB (30,992 bytes)	3/6/2003 1:54:26 PM
204800	1413120 1/22/2004 4:21:50 PM	5.00.0984	14.27 KB		Microsoft Corporation	c:\winnt\system32\inetsrv\gzip.dll		
(14,608 bytes)	3/6/2003 1:54:26 PM				compfilt.dll	5.00.0984	22.77 KB (23,312 bytes)	3/6/2003
dfssvc.exe	c:\winnt\system32\dfssvc.exe	1260	8	204800	1:54:25 PM	Microsoft Corporation		
1413120	1/22/2004 4:21:58 PM	5.00.2195.3649	88.27 KB		c:\winnt\system32\inetsrv\compfilt.dll			
(90,384 bytes)	3/6/2003 1:53:59 PM				seo.dll	5.00.0984	229.27 KB (234,768 bytes)	3/6/2003 1:54:26 PM
svchost.exe	c:\winnt\system32\svchost.exe	1444	8		Microsoft Corporation	c:\winnt\system32\inetsrv\seo.dll		
204800	1413120 1/22/2004 4:23:57 PM	5.00.2134.1			sspifilt.dll	5.00.0984	42.77 KB (43,792 bytes)	3/6/2003 1:54:27 PM
7.77 KB (7,952 bytes)	12/7/1999 7:00:00 AM				Microsoft Corporation	c:\winnt\system32\inetsrv\sspifilt.dll		
mmc.exe	c:\winnt\system32\mmc.exe	1176	8	204800	iscomlog.dll	5.00.0984	24.27 KB (24,848 bytes)	3/6/2003
1413120	1/22/2004 5:12:59 PM	5.00.2195.4933	589.27 KB		1:54:26 PM	Microsoft Corporation		
(603,408 bytes)	3/6/2003 1:54:04 PM				c:\winnt\system32\inetsrv\iscomlog.dll			
rsvp.exe	c:\winnt\system32\rsvp.exe	1272	8	204800	lonsint.dll	5.00.0984	11.77 KB (12,048 bytes)	3/6/2003 1:54:26 PM
1413120	1/22/2004 5:14:19 PM	5.00.2167.1	172.77 KB		Microsoft Corporation	c:\winnt\system32\inetsrv\lonsint.dll		
(176,912 bytes)	12/7/1999 7:00:00 AM				inetsloc.dll	5.00.0984	20.27 KB (20,752 bytes)	3/6/2003 1:54:02 PM
					Microsoft Corporation	c:\winnt\system32\inetsrv\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		

[Loaded Modules]

Name Version Size File Date Manufacturer Path

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\inetrv\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\inetrv\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\inetrv\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\inetrv\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\inetrv\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\inetrv\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\inetrv\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\inetrv\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\inetrv\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\inetrv\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\inetrv\iisadmin.dll
rpcref.dll	5.00.0984	4.27 KB (4,368 bytes)	3/6/2003 1:54:26 PM	Microsoft Corporation	c:\winnt\system32\inetrv\rpcref.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\inetrv\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
utildll.dll	5.00.2153.1	25.77 KB (26,384 bytes)	12/7/1999 7:00:00 AM	Microsoft Corporation	c:\winnt\system32\utildll.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
wbemsvcdll.dll	1.50.1085.0007	40.07 KB (41,036 bytes)	3/6/2003 1:54:18 PM	Microsoft Corporation	c:\winnt\system32\wbem\wbemsvcdll.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		
llsrv.exe	5.00.2195.4907	81.27 KB (83,216 bytes)	7/22/2002 1:05:04 PM
Microsoft Corporation	c:\winnt\system32\llsrv.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\iaslpr.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\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			
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\oledb32.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			
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			
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			

msjet40.dll 4.00.6218.0	1.43 MB (1,503,504 bytes)	3/6/2003	win32spl.dll 5.00.2195.5201	92.27 KB (94,480 bytes)	
1:54:06 PM Microsoft Corporation			12/7/1999 7:00:00 AM Microsoft Corporation		
c:\winnt\system32\msjet40.dll			c:\winnt\system32\win32spl.dll		
msjetoledb40.dll 4.00.5919.0	340.27 KB (348,432 bytes)		usbmon.dll 5.00.2195.4299	11.27 KB (11,536 bytes)	3/6/2003
3/6/2003 1:54:06 PM Microsoft Corporation			1:54:14 PM Microsoft Corporation		
c:\winnt\system32\msjetoledb40.dll			c:\winnt\system32\usbmon.dll		
iasrad.dll 5.00.2195.4841	94.77 KB (97,040 bytes)	3/6/2003	tcpmon.dll 5.00.2195.4299	40.77 KB (41,744 bytes)	3/6/2003
1:54:01 PM Microsoft Corporation			1:54:14 PM Microsoft Corporation		
c:\winnt\system32\iasrad.dll			c:\winnt\system32\tcpmon.dll		
iassam.dll 5.00.2195.5427	98.27 KB (100,624 bytes)	3/6/2003	pijmon.dll 5.00.2165.1	12.77 KB (13,072 bytes)	11/30/1999
1:54:01 PM Microsoft Corporation			6:39:36 PM Microsoft Corporation		
c:\winnt\system32\iassam.dll			c:\winnt\system32\pijmon.dll		
iasads.dll 5.00.2195.5080	73.77 KB (75,536 bytes)	3/6/2003	cnbjmon.dll 5.00.2134.1	43.77 KB (44,816 bytes)	
1:54:01 PM Microsoft Corporation			11/30/1999 6:38:48 PM Microsoft Corporation		
c:\winnt\system32\iasads.dll			c:\winnt\system32\cnbjmon.dll		
iaspolcy.dll 5.00.2134.1	25.27 KB (25,872 bytes)		localspl.dll 5.00.2195.5423	250.27 KB (256,272 bytes)	12/7/1999
12/7/1999 7:00:00 AM Microsoft Corporation			7:00:00 AM Microsoft Corporation		
c:\winnt\system32\iaspolcy.dll			c:\winnt\system32\localspl.dll		
iassvcs.dll 5.00.2195.4916	58.77 KB (60,176 bytes)	3/6/2003	spoolss.dll 5.00.2195.5400	61.77 KB (63,248 bytes)	2/12/2003
1:54:01 PM Microsoft Corporation			7:39:06 AM Microsoft Corporation		
c:\winnt\system32\iassvcs.dll			c:\winnt\system32\spoolss.dll		
iasdo.dll 5.00.2195.4115	263.27 KB (269,584 bytes)	3/6/2003	spoolsv.exe 5.00.2195.4299	44.27 KB (45,328 bytes)	
1:54:01 PM Microsoft Corporation			2/12/2003 7:39:06 AM Microsoft Corporation		
c:\winnt\system32\iasdo.dll			c:\winnt\system32\spoolsv.exe		
ntmssvc.dll 5.00.2195.5254	391.77 KB (401,168 bytes)		rpcss.dll 5.00.2195.5429	231.27 KB (236,816 bytes)	3/6/2003
3/6/2003 1:54:09 PM Microsoft Corporation			1:54:11 PM Microsoft Corporation		
c:\winnt\system32\ntmssvc.dll			c:\winnt\system32\rpcss.dll		
ias.dll 5.00.2134.1	7.27 KB (7,440 bytes)	12/7/1999 7:00:00 AM	svchost.exe 5.00.2134.1	7.77 KB (7,952 bytes)	12/7/1999
Microsoft Corporation			7:00:00 AM Microsoft Corporation		
c:\winnt\system32\ias.dll			c:\winnt\system32\svchost.exe		
es.dll 2000.2.3497.0	225.27 KB (230,672 bytes)	3/6/2003	dssenh.dll 5.00.2195.3665	142.77 KB (146,192 bytes)	3/6/2003
1:54:00 PM Microsoft Corporation			1:54:23 PM Microsoft Corporation		
c:\winnt\system32\es.dll			c:\winnt\system32\dssenh.dll		
mtxoci.dll 2000.2.3497.0	103.77 KB (106,256 bytes)	3/6/2003	oakley.dll 5.00.2195.5326	382.27 KB (391,440 bytes)	3/6/2003
1:54:08 PM Microsoft Corporation			1:54:09 PM Microsoft Corporation		
c:\winnt\system32\mtxoci.dll			c:\winnt\system32\oakley.dll		
resutils.dll 5.00.2195.5339	39.77 KB (40,720 bytes)	3/6/2003	mfc42u.dll 6.00.8665.0	972.05 KB (995,384 bytes)	12/7/1999
1:54:11 PM Microsoft Corporation			7:00:00 AM Microsoft Corporation		
c:\winnt\system32\resutils.dll			c:\winnt\system32\mfc42u.dll		
clusapi.dll 5.00.2195.4678	54.27 KB (55,568 bytes)	3/6/2003	polagent.dll 5.00.2195.5428	94.77 KB (97,040 bytes)	
1:53:57 PM Microsoft Corporation			3/6/2003 1:54:10 PM Microsoft Corporation		
c:\winnt\system32\clusapi.dll			c:\winnt\system32\polagent.dll		
msvcpx50.dll 5.00.7051	552.50 KB (565,760 bytes)	12/7/1999	scecli.dll 5.00.2195.4874	109.27 KB (111,888 bytes)	3/6/2003
7:00:00 AM Microsoft Corporation			1:54:12 PM Microsoft Corporation		
c:\winnt\system32\msvcpx50.dll			c:\winnt\system32\scecli.dll		
xolehlp.dll 1999.9.3421.3	17.27 KB (17,680 bytes)	2/12/2003	atl.dll 3.00.9435	73.06 KB (74,810 bytes)	3/6/2003 1:53:55 PM
7:52:40 AM Microsoft Corporation			Microsoft Corporation		
c:\winnt\system32\xolehlp.dll			c:\winnt\system32\atl.dll		
msdtclog.dll 2000.2.3497.0	86.77 KB (88,848 bytes)		certcli.dll 5.00.2195.3649	130.27 KB (133,392 bytes)	3/6/2003
3/6/2003 1:54:04 PM Microsoft Corporation			1:53:56 PM Microsoft Corporation		
c:\winnt\system32\msdtclog.dll			c:\winnt\system32\certcli.dll		
mtxclu.dll 2000.2.3497.0	51.27 KB (52,496 bytes)	3/6/2003	esent.dll 6.0.3940.25	1.09 MB (1,137,936 bytes)	3/6/2003
1:54:08 PM Microsoft Corporation			1:54:00 PM Microsoft Corporation		
c:\winnt\system32\mtxclu.dll			c:\winnt\system32\esent.dll		
msdtcprx.dll 2000.2.3497.0	683.77 KB (700,176 bytes)		ntdsatq.dll 5.00.2195.5246	31.27 KB (32,016 bytes)	3/6/2003
3/6/2003 1:54:04 PM Microsoft Corporation			1:54:08 PM Microsoft Corporation		
c:\winnt\system32\msdtcprx.dll			c:\winnt\system32\ntdsatq.dll		
txfaux.dll 2000.2.3497.0	383.27 KB (392,464 bytes)	3/6/2003	ntdsa.dll 5.00.2195.5438	1002.27 KB (1,026,320 bytes)	3/6/2003
1:54:14 PM Microsoft Corporation			1:54:08 PM Microsoft Corporation		
c:\winnt\system32\txfaux.dll			c:\winnt\system32\ntdsa.dll		
msdctm.dll 2000.2.3497.0	1.08 MB (1,128,208 bytes)		kdcsvc.dll 5.00.2195.5246	141.77 KB (145,168 bytes)	3/6/2003
3/6/2003 1:54:05 PM Microsoft Corporation			1:54:03 PM Microsoft Corporation		
c:\winnt\system32\msdctm.dll			c:\winnt\system32\kdcsvc.dll		
msdte.exe 1999.9.3421.3	6.77 KB (6,928 bytes)	2/12/2003 7:52:40 AM	sfmapi.dll 5.00.2134.1	38.77 KB (39,696 bytes)	12/7/1999
Microsoft Corporation			7:00:00 AM Microsoft Corporation		
c:\winnt\system32\msdte.exe			c:\winnt\system32\sfmapi.dll		
inetpp.dll 5.00.2195.4299	64.27 KB (65,808 bytes)	3/6/2003	rassfm.dll 5.00.2195.4874	21.27 KB (21,776 bytes)	3/6/2003
1:54:02 PM Microsoft Corporation			1:54:11 PM Microsoft Corporation		
c:\winnt\system32\inetpp.dll			c:\winnt\system32\rassfm.dll		

rsabase.dll 5.00.2195.3839 128.27 KB (131,344 bytes) 7/22/2002 1:05:04 PM Microsoft Corporation	cryptdll.dll 5.00.2135.1 41.27 KB (42,256 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation
c:\winnt\system32\rsabase.dll	c:\winnt\system32\cryptdll.dll
schannel.dll 5.00.2195.5284 139.27 KB (142,608 bytes) 5/4/2001 1:05:02 PM Microsoft Corporation	wkssvc.dll 5.00.2195.4874 95.27 KB (97,552 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation
c:\winnt\system32\schannel.dll	c:\winnt\system32\wkssvc.dll
netlogon.dll 5.00.2195.5400 362.77 KB (371,472 bytes) 3/6/2003 1:54:08 PM Microsoft Corporation	srsvcs.dll 5.00.2195.5400 81.77 KB (83,728 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation
c:\winnt\system32\netlogon.dll	c:\winnt\system32\srsvcs.dll
kerberos.dll 5.00.2195.5246 202.77 KB (207,632 bytes) 3/6/2003 1:54:03 PM Microsoft Corporation	cfgmgr32.dll 5.00.2134.1 16.77 KB (17,168 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation
c:\winnt\system32\kerberos.dll	c:\winnt\system32\cfgmgr32.dll
msprvs.dll 5.00.2154.1 41.50 KB (42,496 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation	dmserver.dll 2195.3649.297.3 12.27 KB (12,560 bytes) 3/6/2003 1:53:59 PM VERITAS Software Corp.
c:\winnt\system32\msprvs.dll	c:\winnt\system32\dmserver.dll
samsrv.dll 5.00.2195.5201 374.27 KB (383,248 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation	winsta.dll 5.00.2195.4655 36.77 KB (37,648 bytes) 3/6/2003 1:54:15 PM Microsoft Corporation
c:\winnt\system32\samsrv.dll	c:\winnt\system32\winsta.dll
lsasrv.dll 5.00.2195.5430 500.27 KB (512,272 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation	lmhsvc.dll 5.00.2195.4874 9.77 KB (10,000 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation
c:\winnt\system32\lsasrv.dll	c:\winnt\system32\lmhsvc.dll
lsass.exe 5.00.2195.5430 32.77 KB (33,552 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation	dnssrslvr.dll 5.00.2195.5354 89.77 KB (91,920 bytes) 3/6/2003 1:53:59 PM Microsoft Corporation
c:\winnt\system32\lsass.exe	c:\winnt\system32\dnssrslvr.dll
wmicore.dll 5.00.2195.3649 72.27 KB (74,000 bytes) 3/6/2003 1:54:15 PM Microsoft Corporation	tapi32.dll 5.00.2182.1 123.27 KB (126,224 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation
c:\winnt\system32\wmicore.dll	c:\winnt\system32\tapi32.dll
rasadhlp.dll 5.00.2168.1 7.27 KB (7,440 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation	rasman.dll 5.00.2195.5292 54.77 KB (56,080 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation
c:\winnt\system32\rasadhlp.dll	c:\winnt\system32\rasman.dll
winnr.dll 5.00.2160.1 18.77 KB (19,216 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation	rasapi32.dll 5.00.2195.5438 191.77 KB (196,368 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation
c:\winnt\system32\winnr.dll	c:\winnt\system32\rasapi32.dll
wshtcpip.dll 5.00.2195.4874 17.27 KB (17,680 bytes) 3/6/2003 1:54:16 PM Microsoft Corporation	rtutils.dll 5.00.2168.1 43.77 KB (44,816 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation
c:\winnt\system32\wshtcpip.dll	c:\winnt\system32\rtutils.dll
msafd.dll 5.00.2195.4874 103.27 KB (105,744 bytes) 3/6/2003 1:54:04 PM Microsoft Corporation	adslsdp.dll 5.00.2195.5400 127.77 KB (130,832 bytes) 3/6/2003 1:53:55 PM Microsoft Corporation
c:\winnt\system32\msafd.dll	c:\winnt\system32\adslsdp.dll
mswsock.dll 5.00.2195.4874 62.77 KB (64,272 bytes) 3/6/2003 1:54:07 PM Microsoft Corporation	activeds.dll 5.00.2195.5312 175.27 KB (179,472 bytes) 3/6/2003 1:53:53 PM Microsoft Corporation
c:\winnt\system32\mswsock.dll	c:\winnt\system32\activeds.dll
msgsvc.dll 5.00.2195.4874 34.77 KB (35,600 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation	mprapi.dll 5.00.2181.1 79.27 KB (81,168 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation
c:\winnt\system32\msgsvc.dll	c:\winnt\system32\mprapi.dll
browser.dll 5.00.2195.4874 48.77 KB (49,936 bytes) 3/6/2003 1:53:55 PM Microsoft Corporation	iphlpapi.dll 5.00.2195.2 68.27 KB (69,904 bytes) 3/6/2003 1:54:02 PM Microsoft Corporation
c:\winnt\system32\browser.dll	c:\winnt\system32\iphlpapi.dll
alrsvc.dll 5.00.2134.1 17.77 KB (18,192 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation	icmp.dll 5.00.2134.1 7.27 KB (7,440 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation
c:\winnt\system32\alrsvc.dll	c:\winnt\system32\icmp.dll
trkwks.dll 5.00.2195.4874 88.77 KB (90,896 bytes) 3/6/2003 1:54:14 PM Microsoft Corporation	dhcpcsvc.dll 5.00.2195.4874 87.77 KB (89,872 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation
c:\winnt\system32\trkwks.dll	c:\winnt\system32\dhcpcsvc.dll
seclogon.dll 5.00.2195.5201 17.27 KB (17,680 bytes) 3/6/2003 1:54:12 PM Microsoft Corporation	eventlog.dll 5.00.2195.5336 44.27 KB (45,328 bytes) 3/6/2003 1:54:00 PM Microsoft Corporation
c:\winnt\system32\seclogon.dll	c:\winnt\system32\eventlog.dll
nr20.dll 5.00.2195.4874 35.77 KB (36,624 bytes) 3/6/2003 1:54:11 PM Microsoft Corporation	ntdsapi.dll 5.00.2195.4827 56.27 KB (57,616 bytes) 3/6/2003 1:54:08 PM Microsoft Corporation
c:\winnt\system32\nr20.dll	c:\winnt\system32\ntdsapi.dll
psbase.dll 5.00.2195.4822 111.77 KB (114,448 bytes) 3/6/2003 1:54:10 PM Microsoft Corporation	scsersv.dll 5.00.2195.5316 242.77 KB (248,592 bytes) 3/6/2003 1:54:12 PM Microsoft Corporation
c:\winnt\system32\psbase.dll	c:\winnt\system32\scsersv.dll
cryptsvc.dll 5.00.2195.4368 73.27 KB (75,024 bytes) 3/6/2003 1:53:58 PM Microsoft Corporation	umpnpgm.dll 5.00.2182.1 86.27 KB (88,336 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation
c:\winnt\system32\cryptsvc.dll	c:\winnt\system32\umpnpgm.dll
	services.exe 5.00.2195.3940 86.77 KB (88,848 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation
	c:\winnt\system32\services.exe

msv1_0.dll 5.00.2195.4745	112.27 KB (114,960 bytes)	12/7/1999	shlwapi.dll 6.00.2800.1106	386.00 KB (395,264 bytes)	8/29/2002
7:00:00 AM Microsoft Corporation			8:14:40 AM Microsoft Corporation		
c:\winnt\system32\msv1_0.dll			c:\winnt\system32\shlwapi.dll		
clbcatq.dll 2000.2.3497.0	497.77 KB (509,712 bytes)	3/6/2003	shell32.dll 5.00.3502.5436	2.26 MB (2,374,416 bytes)	3/6/2003
1:53:57 PM Microsoft Corporation			1:54:12 PM Microsoft Corporation		
c:\winnt\system32\clbcatq.dll			c:\winnt\system32\shell32.dll		
oleaut32.dll 2.40.4518	612.27 KB (626,960 bytes)	12/7/1999	msgina.dll 5.00.2195.4733	324.77 KB (332,560 bytes)	12/7/1999
7:00:00 AM Microsoft Corporation			7:00:00 AM Microsoft Corporation		
c:\winnt\system32\oleaut32.dll			c:\winnt\system32\msgina.dll		
cscui.dll 5.00.2195.4104	233.77 KB (239,376 bytes)	3/6/2003	wsock32.dll 5.00.2195.4874	21.27 KB (21,776 bytes)	
1:53:58 PM Microsoft Corporation			3/6/2003 1:54:16 PM Microsoft Corporation		
c:\winnt\system32\cscui.dll			c:\winnt\system32\wsock32.dll		
winspool.drv 5.00.2195.5225	111.27 KB (113,936 bytes)		dnsapi.dll 5.00.2195.5354	131.27 KB (134,416 bytes)	3/6/2003
12/7/1999 7:00:00 AM Microsoft Corporation			1:53:59 PM Microsoft Corporation		
c:\winnt\system32\winspool.drv			c:\winnt\system32\dnsapi.dll		
winscard.dll 5.00.2134.1	77.27 KB (79,120 bytes)		wldap32.dll 5.00.2195.5400	158.77 KB (162,576 bytes)	
12/7/1999 7:00:00 AM Microsoft Corporation			3/6/2003 1:54:15 PM Microsoft Corporation		
c:\winnt\system32\winscard.dll			c:\winnt\system32\wldap32.dll		
wlnotify.dll 5.00.2195.5377	54.27 KB (55,568 bytes)		ws2help.dll 5.00.2134.1	17.77 KB (18,192 bytes)	
3/6/2003 1:54:15 PM Microsoft Corporation			12/7/1999 7:00:00 AM Microsoft Corporation		
c:\winnt\system32\wlnotify.dll			c:\winnt\system32\ws2help.dll		
cscdll.dll 5.00.2195.5434	98.77 KB (101,136 bytes)	3/6/2003	ws2_32.dll 5.00.2195.4874	66.77 KB (68,368 bytes)	3/6/2003
1:53:58 PM Microsoft Corporation			1:54:15 PM Microsoft Corporation		
c:\winnt\system32\cscdll.dll			c:\winnt\system32\ws2_32.dll		
lz32.dll 5.00.2134.1	9.77 KB (10,000 bytes)	12/7/1999	samlib.dll 5.00.2195.4827	49.77 KB (50,960 bytes)	12/7/1999
7:00:00 AM Microsoft Corporation			7:00:00 AM Microsoft Corporation		
c:\winnt\system32\lz32.dll			c:\winnt\system32\samlib.dll		
version.dll 5.00.2134.1	15.77 KB (16,144 bytes)	12/7/1999	netrap.dll 5.00.2134.1	11.27 KB (11,536 bytes)	12/7/1999
7:00:00 AM Microsoft Corporation			7:00:00 AM Microsoft Corporation		
c:\winnt\system32\version.dll			c:\winnt\system32\netrap.dll		
wdmaud.drv 5.00.2195.3649	21.27 KB (21,776 bytes)		netapi32.dll 5.00.2195.5427	305.27 KB (312,592 bytes)	
3/6/2003 1:54:15 PM Microsoft Corporation			3/6/2003 1:54:08 PM Microsoft Corporation		
c:\winnt\system32\wdmaud.drv			c:\winnt\system32\netapi32.dll		
rsaenh.dll 5.00.2195.3839	130.77 KB (133,904 bytes)	3/6/2003	profmap.dll 5.00.2181.1	29.27 KB (29,968 bytes)	
1:54:23 PM Microsoft Corporation			12/7/1999 7:00:00 AM Microsoft Corporation		
c:\winnt\system32\rsaenh.dll			c:\winnt\system32\profmap.dll		
mscat32.dll 5.131.2134.1	7.77 KB (7,952 bytes)	12/7/1999	secur32.dll 5.00.2195.4587	47.27 KB (48,400 bytes)	3/6/2003
7:00:00 AM Microsoft Corporation			1:54:12 PM Microsoft Corporation		
c:\winnt\system32\mscat32.dll			c:\winnt\system32\secur32.dll		
ole32.dll 5.00.2195.5400	968.27 KB (991,504 bytes)	3/6/2003	sfc.dll 5.00.2195.3649	92.11 KB (94,320 bytes)	3/6/2003
1:54:09 PM Microsoft Corporation			1:54:12 PM Microsoft Corporation		
c:\winnt\system32\ole32.dll			c:\winnt\system32\sfc.dll		
imagehlp.dll 5.00.2195.5242	125.77 KB (128,784 bytes)		nddeapi.dll 5.00.2195.4509	15.77 KB (16,144 bytes)	3/6/2003
5/4/2001 1:05:02 PM Microsoft Corporation			1:54:08 PM Microsoft Corporation		
c:\winnt\system32\imagehlp.dll			c:\winnt\system32\nddeapi.dll		
msasn1.dll 5.00.2195.4067	51.27 KB (52,496 bytes)	12/7/1999	userenv.dll 5.00.2195.5425	363.77 KB (372,496 bytes)	12/7/1999
7:00:00 AM Microsoft Corporation			7:00:00 AM Microsoft Corporation		
c:\winnt\system32\msasn1.dll			c:\winnt\system32\userenv.dll		
crypt32.dll 5.131.2195.4558	464.27 KB (475,408 bytes)	3/6/2003	user32.dll 5.00.2195.4314	395.77 KB (405,264 bytes)	12/7/1999
1:53:57 PM Microsoft Corporation			7:00:00 AM Microsoft Corporation		
c:\winnt\system32\crypt32.dll			c:\winnt\system32\user32.dll		
wintrust.dll 5.131.2195.3775	162.27 KB (166,160 bytes)		gdi32.dll 5.00.2195.5252	228.77 KB (234,256 bytes)	12/7/1999
3/6/2003 1:54:15 PM Microsoft Corporation			7:00:00 AM Microsoft Corporation		
c:\winnt\system32\wintrust.dll			c:\winnt\system32\gdi32.dll		
setupapi.dll 5.00.2195.5400	553.77 KB (567,056 bytes)		rpert4.dll 5.00.2195.5419	440.27 KB (450,832 bytes)	3/6/2003
12/7/1999 7:00:00 AM Microsoft Corporation			1:54:11 PM Microsoft Corporation		
c:\winnt\system32\setupapi.dll			c:\winnt\system32\rpert4.dll		
winmm.dll 5.00.2161.1	184.77 KB (189,200 bytes)	12/7/1999	advapi32.dll 5.00.2195.5385	358.77 KB (367,376 bytes)	
7:00:00 AM Microsoft Corporation			12/7/1999 7:00:00 AM Microsoft Corporation		
c:\winnt\system32\winmm.dll			c:\winnt\system32\advapi32.dll		
mpr.dll 5.00.2195.3649	53.77 KB (55,056 bytes)	3/6/2003	kernel32.dll 5.00.2195.5400	716.77 KB (733,968 bytes)	
1:54:04 PM Microsoft Corporation			12/7/1999 7:00:00 AM Microsoft Corporation		
c:\winnt\system32\mpr.dll			c:\winnt\system32\kernel32.dll		
comctl32.dll 5.81	517.27 KB (529,680 bytes)	8/29/2002	msvcrt.dll 6.10.9359.0	284.05 KB (290,869 bytes)	7/22/2002
8:14:40 AM Microsoft Corporation			1:05:04 PM Microsoft Corporation		
c:\winnt\system32\comctl32.dll			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
 sfcdll.dll 5.00.2195.5426 951.27 KB (974,096 bytes) 3/6/2003
 1:54:12 PM Microsoft Corporation
 c:\winnt\system32\sfcdll.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	Running	Start Name	Tag ID
Alert	Alert	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
Share Process c:\winnt\system32\svchost.exe -k bitsgroup	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\dfsrv.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
Manual Share Process c:\winnt\system32\dmadmin.exe /com	Normal	LocalSystem	0	
Logical Disk Manager	dmserver	Running	Auto	Share Process
c:\winnt\system32\services.exe	Normal	LocalSystem	0	
DNS Client	Dnscache	Running	Auto	Share Process
c:\winnt\system32\services.exe	Normal	LocalSystem	0	
Event Log	Eventlog	Running	Auto	Share Process
c:\winnt\system32\services.exe	Normal	LocalSystem	0	
COM+ Event System	EventSystem	Running	Manual	Share
Process c:\winnt\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0	
Fax Service	Fax	Stopped	Manual	Own Process
c:\winnt\system32\faxsvc.exe	Normal	LocalSystem	0	
Internet Authentication Service	IAS	Running	Auto	Share
Process c:\winnt\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0	
IIS Admin Service	IISADMIN	Running	Auto	Share
Process c:\winnt\system32\inetrv\inetinfo.exe	Normal	LocalSystem	0	
Intersite Messaging	IsmServ	Stopped	Disabled	Own Process
c:\winnt\system32\ismserv.exe	Normal	LocalSystem	0	
Kerberos Key Distribution Center	kdc	Stopped	Disabled	Share Process
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
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
c:\winnt\system32\msiexec.exe /v	Normal	LocalSystem	0
Network DDE	NetDDE	Stopped	Manual
c:\winnt\system32\netdde.exe	Normal	LocalSystem	0
Network DDE DSDM	NetDDEdsdm	Stopped	Manual
Process c:\winnt\system32\netdde.exe	Normal	LocalSystem	0
Net Logon	Netlogon	Stopped	Manual
c:\winnt\system32\lsass.exe	Normal	LocalSystem	0
Network Connections	Netman	Running	Manual
c:\winnt\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0
File Replication	NtFrs	Stopped	Manual
c:\winnt\system32\ntfrs.exe	Ignore	LocalSystem	0
NT LM Security Support Provider	NtLmSsp	Stopped	Manual
Share Process c:\winnt\system32\lsass.exe	Normal	LocalSystem	0
Removable Storage	NtmsSvc	Running	Auto
c:\winnt\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0
Plug and Play	PlugPlay	Running	Auto
c:\winnt\system32\services.exe	Normal	LocalSystem	0
IPSEC Policy Agent	PolicyAgent	Running	Auto
Process c:\winnt\system32\lsass.exe	Normal	LocalSystem	0
Protected Storage	ProtectedStorage	Running	Auto
Process c:\winnt\system32\services.exe	Normal	LocalSystem	0
Remote Access Auto Connection Manager	RasAuto	Stopped	Manual
Share Process c:\winnt\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0
Remote Access Connection Manager	RasMan	Stopped	Manual
Share Process c:\winnt\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0
Routing and Remote Access	RemoteAccess	Stopped	Disabled
Share Process c:\winnt\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0
Remote Registry Service	RemoteRegistry	Running	Auto
Own Process c:\winnt\system32\regsvc.exe	Normal	LocalSystem	0
Remote Command Service	RMSYS	Running	Auto
Process c:\program files\benchmark\rsys.exe	Normal	LocalSystem	0
Administrator	0		
Remote Procedure Call (RPC) Locator	RpcLocator	Stopped	Manual
Manual Own Process c:\winnt\system32\locator.exe	Normal	LocalSystem	0
Remote Procedure Call (RPC)	RpcSs	Running	Auto
Process c:\winnt\system32\svchost -k rps	Normal	LocalSystem	0
QoS RSVP	RSVP	Running	Manual
c:\winnt\system32\rsvp.exe -s	Normal	LocalSystem	0
Security Accounts Manager	SamSs	Running	Auto
Process c:\winnt\system32\lsass.exe	Normal	LocalSystem	0
Smart Card Helper	SCardDrv	Stopped	Manual
c:\winnt\system32\scardsvr.exe	Ignore	LocalSystem	0
Smart Card	SCardSvr	Stopped	Manual
c:\winnt\system32\scardsvr.exe	Ignore	LocalSystem	0
Task Scheduler	Schedule	Running	Auto
c:\winnt\system32\mstask.exe	Normal	LocalSystem	0
RunAs Service	seclogon	Running	Auto
c:\winnt\system32\services.exe	Ignore	LocalSystem	0
System Event Notification	SENS	Running	Auto
Process c:\winnt\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0

Internet Connection Sharing	SharedAccess	Stopped	Manual
Share Process	c:\winnt\system32\svchost.exe -k netsvcs	Normal	
LocalSystem	0		
Simple TCP/IP Services	SimpTcp	Running	Auto
Process	c:\winnt\system32\tcpsvcs.exe	Normal	LocalSystem
Simple Mail Transport Protocol (SMTP)	SMTPSVC	Running	
Auto	Share Process	c:\winnt\system32\inetsrv\inetinfo.exe	
Normal	LocalSystem	0	
Print Spooler	Spooler	Running	Auto
c:\winnt\system32\spoolsv.exe	Normal	LocalSystem	0
Performance Logs and Alerts	SysmonLog	Stopped	Manual
Own Process	c:\winnt\system32\smlogsvc.exe	Normal	
LocalSystem	0		
Telephony TapiSrv	Running	Manual	Share Process
c:\winnt\system32\svchost.exe -k tapisrv	Normal	LocalSystem	0
Terminal Services	TermService	Stopped	Disabled
Process	c:\winnt\system32\termsrv.exe	Normal	LocalSystem
Telnet	TlntSvr	Stopped	Manual
c:\winnt\system32\tlntsvr.exe	Normal	LocalSystem	0
Distributed Link Tracking Server	TrkSvr	Stopped	Manual
Process	c:\winnt\system32\services.exe	Normal	LocalSystem
Distributed Link Tracking Client	TrkWks	Running	Auto
Process	c:\winnt\system32\services.exe	Normal	LocalSystem
Uninterruptible Power Supply	UPS	Stopped	Manual
Process	c:\winnt\system32\ups.exe	Normal	LocalSystem
Utility Manager	UtilMan	Stopped	Manual
c:\winnt\system32\utilman.exe	Normal	LocalSystem	0
Windows Time	W32Time	Stopped	Manual
c:\winnt\system32\services.exe	Normal	LocalSystem	0
World Wide Web Publishing Service	W3SVC	Running	Auto
Share Process	c:\winnt\system32\inetsrv\inetinfo.exe	Normal	
LocalSystem	0		
Windows Management Instrumentation	WinMgmt	Running	Auto
Own Process	c:\winnt\system32\wbem\winmgmt.exe	Ignore	
LocalSystem	0		
Windows Management Instrumentation Driver Extensions			Wmi
Running	Manual	Share Process	c:\winnt\system32\services.exe
Normal	LocalSystem	0	
Automatic Updates	wuauerv	Running	Auto
c:\winnt\system32\svchost.exe -k wugroup	Normal	LocalSystem	0

[Program Groups]

Group Name	Name	User Name
Accessories	Default User:Accessories	Default User
Accessories\Accessibility	Default User:Accessories\Accessibility	Default User
Accessories\Entertainment	Default User:Accessories\Entertainment	Default User
Accessories\System Tools	Default User:Accessories\System Tools	Default User
Startup	Default User:Startup	Default User
Accessories	All Users:Accessories	All Users
Accessories\Accessibility	All Users:Accessories\Accessibility	All Users
Accessories\Communications	All Users:Accessories\Communications	All Users
Accessories\Entertainment	All Users:Accessories\Entertainment	All Users
Accessories\Games	All Users:Accessories\Games	All Users
Accessories\System Tools	All Users:Accessories\System Tools	All Users
Administrative Tools	All Users:Administrative Tools	All Users
Microsoft SQL Server	All Users:Microsoft SQL Server	All Users
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 12:05:04 PM	C:\WINNT\system32	Microsoft Corporation

advpack.dll	6.0.2800.1106	89 KB	8/29/2002 7:14:40 AM	vbscript.dll	5.6.0.7426	452 KB	2/26/2002 3:58:06 PM
C:\WINNT\system32	Microsoft Corporation			C:\WINNT\system32	Microsoft Corporation		
browsecl.dll	6.0.2800.1106	62 KB	8/29/2002 7:14:40 AM	webcheck.dll	6.0.2800.1106	252 KB	8/29/2002 7:14:40 AM
C:\WINNT\system32	Microsoft Corporation			C:\WINNT\system32	Microsoft Corporation		
browseui.dll	6.0.2800.1106	1002 KB	8/29/2002 7:14:40 AM	win.com	5.0.2134.1	24 KB	12/7/1999 7:00:00 AM
C:\WINNT\system32	Microsoft Corporation			C:\WINNT\system32	Microsoft Corporation		
ckcnv.exe	5.0.2189.1	9 KB	12/7/1999 7:00:00 AM	wininet.dll	6.0.2800.1106	572 KB	8/29/2002 7:14:40 AM
C:\WINNT\system32	Microsoft Corporation			C:\WINNT\system32	Microsoft Corporation		
comctl32.dll	5.81.4916.400	517 KB	8/29/2002 7:14:40 AM	winsock.dll	3.10.0.103	3 KB	12/7/1999 7:00:00 AM
C:\WINNT\system32	Microsoft Corporation			C:\WINNT\system32	Microsoft Corporation		
crypt32.dll	5.131.2195.4558	464 KB	7/22/2002 12:05:04 PM	wintrust.dll	5.131.2195.3775	162 KB	7/22/2002 12:05:04 PM
C:\WINNT\system32	Microsoft Corporation			C:\WINNT\system32	Microsoft Corporation		
enhsg.dll	File not present	Not Available	Not Available	wsock.vxd	File not present	Not Available	Not Available
Not Available				Not Available			
iemigrat.dll	File not present	Not Available	Not	wsock32.dll	5.0.2195.4874	21 KB	7/22/2002 12:05:04 PM
Available	Not Available			C:\WINNT\system32	Microsoft Corporation		
iesetup.dll	6.0.2800.1106	57 KB	8/29/2002 7:14:40 AM	wsock32n.dll	File not present	Not Available	Not
C:\WINNT\system32	Microsoft Corporation			Available	Not Available		
iexplore.exe	6.0.2800.1106	89 KB	8/29/2002 7:14:40 AM				
C:\Program Files\Internet Explorer	Microsoft Corporation			[Connectivity]			
imagehlp.dll	5.0.2195.5242	126 KB	7/22/2002 12:05:04 PM	Item	Value		
C:\WINNT\system32	Microsoft Corporation			Connection Preference	Never dial		
inseng.dll	6.0.2800.1106	68 KB	8/29/2002 7:14:40 AM	EnableHttp1.1	1		
C:\WINNT\system32	Microsoft Corporation			ProxyHttp1.1	0		
jobexec.dll	5.0.0.1	47 KB	12/7/1999 7:00:00 AM				
C:\WINNT\system32	Microsoft Corporation			LAN Settings			
jscript.dll	5.6.0.6626	576 KB	6/26/2001 4:36:02 PM				
C:\WINNT\system32	Microsoft Corporation			AutoConfigProxy	wininet.dll		
jsproxy.dll	6.0.2800.1106	12 KB	8/29/2002 7:14:40 AM	AutoProxyDetectMode	Disabled		
C:\WINNT\system32	Microsoft Corporation			AutoConfigURL			
mshtml.dll	6.0.2800.1106	2722 KB	8/29/2002 7:14:40 AM	Proxy	Disabled		
C:\WINNT\system32	Microsoft Corporation			ProxyServer			
msjava.dll	5.0.3805.0	924 KB	7/22/2002 12:05:04 PM	ProxyOverride			
C:\WINNT\system32	Microsoft Corporation						
msoss.dll	File not present	Not Available	Not Available	[Cache]			
Not Available							
msxml.dll	8.0.6730.0	494 KB	7/22/2002 12:05:04 PM	[Following are sub-categories of this main category]			
C:\WINNT\system32	Microsoft Corporation						
occache.dll	6.0.2800.1106	86 KB	8/29/2002 7:14:40 AM	[Summary]			
C:\WINNT\system32	Microsoft Corporation			Item	Value		
ole32.dll	5.0.2195.5400	968 KB	7/22/2002 12:05:04 PM	Page Refresh Type	Automatic		
C:\WINNT\system32	Microsoft Corporation			Temporary Internet Files Folder	C:\Documents and		
oleaut32.dll	2.40.4518.0	612 KB	7/22/2002 12:05:04 PM	Settings\Administrator\Local Settings\Temporary Internet Files			
C:\WINNT\system32	Microsoft Corporation			Total Disk Space	34710 MB		
olepro32.dll	5.0.4518.0	160 KB	7/22/2002 12:05:04 PM	Available Disk Space	29496 MB		
C:\WINNT\system32	Microsoft Corporation			Maximum Cache Size	541 MB		
rsabase.dll	5.0.2195.3839	128 KB	7/22/2002 12:05:04 PM	Available Cache Size	542 MB		
C:\WINNT\system32	Microsoft Corporation						
rsaenh.dll	5.0.2195.3839	131 KB	7/22/2002 12:05:04 PM	[List of Objects]			
C:\WINNT\system32	Microsoft Corporation			Program File	Status	Version	CodeBase
rasapi32.dll	5.0.2195.5438	192 KB	7/22/2002 12:05:04 PM	No cached object information available			
C:\WINNT\system32	Microsoft Corporation						
rsasig.dll	File not present	Not Available	Not Available	[Content]			
Not Available							
schannel.dll	5.1.2195.0	139 KB	7/22/2002 12:05:04 PM	[Following are sub-categories of this main category]			
C:\WINNT\system32	Microsoft Corporation						
shdoc401.dll	File not present	Not Available	Not	[Summary]			
Available	Not Available			Item	Value		
shdocvw.dll	6.0.2800.1106	1307 KB	8/29/2002 7:14:40 AM	Content Advisor	Disabled		
C:\WINNT\system32	Microsoft Corporation						
shell32.dll	5.0.3502.5436	2319 KB	7/22/2002 12:05:04 PM	[Personal Certificates]			
C:\WINNT\system32	Microsoft Corporation			Issued To	Issued By	Validity	Signature Algorithm
shlwapi.dll	6.0.2800.1106	386 KB	8/29/2002 7:14:40 AM				
C:\WINNT\system32	Microsoft Corporation						
url.dll	6.0.2800.1106	104 KB	8/29/2002 7:14:40 AM				
C:\WINNT\system32	Microsoft Corporation						
urlmon.dll	6.0.2800.1106	472 KB	8/29/2002 7:14:40 AM				
C:\WINNT\system32	Microsoft Corporation						

<pre>[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\ADCLaunch\RDSServer.DataFactory]</pre> <pre>[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\Script Map]</pre> <pre>[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\Virtual Roots] "/"="c:\inetpub\wwwroot,,205" "/Scripts"="c:\inetpub\scripts,,1" "/IISHelp"="c:\winnt\help\iishelp,,1" "/IISAdmin"="C:\WINNT\System32\inetsrv\iisadmin,,1" "/IISSamples"="c:\inetpub\iissamples,,1" "/MSADC"="c:\program files\common files\system\msadc,,1" "/_vti_bin"="C:\Program Files\Common Files\Microsoft Shared\Web Server Extensions\40\isapi,,1" "/Rpc"="C:\WINNT\System32\RpcProxy,,1" "/Printers"="C:\WINNT\web\printers,,201"</pre> <pre>[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</pre> <pre>[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Security] "Security"=hex:01,00,14,80,a0,00,00,00,ac,00,00,00,14,00,00,00,30,00,00,00,02,\ 00,1c,00,01,00,00,00,02,80,14,00,ff,01,0f,00,01,01,00,00,00,00,01,00,00,\ 00,00,02,00,70,00,04,00,00,00,00,00,18,00,fd,01,02,00,01,01,00,00,00,00,\ 05,12,00,00,00,74,00,6f,00,00,00,1c,00,ff,01,0f,00,01,02,00,00,00,00,05,\ 20,00,00,00,20,02,00,00,72,00,73,00,00,00,18,00,8d,01,02,00,01,01,00,00,00,\ 00,00,05,0b,00,00,00,20,02,00,00,00,00,1c,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</pre> <pre>[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Enum] "0"="Root\LEGACY_W3SVC\0000" "Count"=dword:00000001 "NextInstance"=dword:00000001</pre> <pre>[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika] "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</pre> <pre>[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Adapters]</pre>	<pre>[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</pre> <pre>[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</pre> <pre>[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Parameters] "MaxRegisterMBytes"=dword:00000200 "MaxRegisterRdmaMBytes"=dword:00000200 "MaxCQEntries"=dword:00002000 "MaxRegisterRegions"=dword:00001000 "MaxVIs"=dword:00000400 "MaxCQs"=dword:00000400 "MaxTransferSize"=dword:00010000 "MaxPTags"=dword:00000800 "IuBuffers"=dword:00000100 "SendDescQuota"=dword:00000008 "RecvDescQuota"=dword:00000008 "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,\ 0,\ 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</pre> <pre>[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,\ 05,12,00,00,00,61,67,65,72,00,00,1c,00,ff,01,0f,00,01,02,00,00,00,00,05,\ 20,00,00,00,20,02,00,00,00,00,00,00,18,00,8d,01,02,00,01,01,00,00,00,\ 00,00,05,0b,00,00,00,20,02,00,00,00,00,1c,00,fd,01,02,00,01,02,00,00,00,\ 00,05,20,00,00,00,23,02,00,00,00,00,00,01,01,00,00,00,00,05,12,00,00,\ 00,01,01,00,00,00,00,05,12,00,00,00</pre> <pre>[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\qlvika\Enum] "0"="Root\LEGACY_QLVIKA\0000" "Count"=dword:00000001 "NextInstance"=dword:00000001</pre> <pre>[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</pre> <pre>[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\InetInfo\Performance] "Library"="infectrs.dll" "Open"="OpenINFOPerformanceData" "Close"="CloseINFOPerformanceData" "Collect"="CollectINFOPerformanceData"</pre>
---	---

"WbemAdapFileTime"=hex:00,a0,13,ec,a1,31,c2,01
"WbemAdapFileSize"=dword:00002510
"WbemAdapStatus"=dword:00000000
"Last Counter"=dword:00000bfe
"Last Help"=dword:00000bff
"First Counter"=dword:00000bbe
"First Help"=dword:00000bbf
"Library Validation
Code"=hex:6a,e3,97,6e,30,e4,c2,01,10,25,00,00,00,00,00,00

[HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\TPCC]
"Path"="C:\\Inetpub\\wwwroot\\"
"NumberOfDeliveryThreads"=dword:00000014
"MaxConnections"=dword:0000abe0
"MaxPendingDeliveries"=dword:00001130
"DB_Protocol"="ODBC"
"TxnMonitor"="COM"
"DbServer"="ibmserv2"
"DbName"="tpcc"
"DbUser"="sa"
"DbPassword"=""
"COM_SinglePool"="YES"

Client 3

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC]
"Type"=dword:00000020
"Start"=dword:00000002
"ErrorControl"=dword:00000001
"ImagePath"=hex(2):43,00,3a,00,5c,00,57,00,49,00,4e,00,4e,00,54,00,5c,00,53,00,\\
79,00,73,00,74,00,65,00,6d,00,33,00,32,00,5c,00,69,00,6e,00,65,00,74,00,73,\\
00,72,00,76,00,5c,00,69,00,6e,00,65,00,74,00,69,00,6e,00,66,00,6f,00,2e,00,\\
65,00,78,00,65,00,00,00
"DisplayName"="World Wide Web Publishing Service"
"DependOnService"=hex(7):49,00,49,00,53,00,41,00,44,00,4d,00,49,00,4e,00,0
0,00,\\
00,00
"DependOnGroup"=hex(7):00,00
"ObjectName"="LocalSystem"
"Description"="Provides Web connectivity and administration through the
Internet Information Services snap-in."
"FailureActions"=hex:ff,ff,ff,ff,00,00,00,00,00,00,00,00,03,00,00,00,f8,fa,0f,\\
00,00

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\ASP]
"NOTE"="This is for backward compatibility only."

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\ASP\Parameters]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters]
"MajorVersion"=dword:00000005
"MinorVersion"=dword:00000000
"InstallPath"="C:\\WINNT\\System32\\inetsrv"
"CertMapList"="C:\\WINNT\\System32\\inetsrv\\iisrmap.dll"
"AccessDeniedMessage"="Error: Access is Denied."
"Filter DLLs"=""
"LogFileDirectory"="C:\\WINNT\\System32\\LogFiles"
"AcceptExOutstanding"=dword:00000028

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\ADCLaunch]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\ADCLaunch\AdvancedDataFactory]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\ADCLaunch\RDSServer.DataFactory]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\Script Map]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\Virtual Roots]
"/"="c:\\inetpub\\wwwroot,,205"
"/Scripts"="c:\\inetpub\\scripts,,1"
"/IISHelp"="c:\\winnt\\help\\iishelp,,1"
"/IISAdmin"="C:\\WINNT\\System32\\inetsrv\\iisadmin,,1"
"/IISSamples"="c:\\inetpub\\iissamples,,1"
"/MSADC"="c:\\program files\\common files\\system\\msadc,,1"
"/_vti_bin"="C:\\Program Files\\Common Files\\Microsoft Shared\\Web Server
Extensions\\40\\isapi,,1"
"/Rpc"="C:\\WINNT\\System32\\RpcProxy,,1"
"/Printers"="C:\\WINNT\\web\\printers,,201"

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Performance]
"Library"="w3ctrs.dll"
"Open"="OpenW3PerformanceData"
"Close"="CloseW3PerformanceData"
"Collect"="CollectW3PerformanceData"
"Last Counter"=dword:00000b76
"Last Help"=dword:00000b77
"First Counter"=dword:00000ad4
"First Help"=dword:00000ad5
"Library Validation Code"=hex:94,ef,ff,ac,30,e4,c2,01,10,1d,00,00,00,00,00,00
"WbemAdapFileTime"=hex:00,a0,13,ec,a1,31,c2,01
"WbemAdapFileSize"=dword:00001d10
"WbemAdapStatus"=dword:00000000

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Security]
"Security"=hex:01,00,14,80,a0,00,00,00,ac,00,00,00,14,00,00,00,30,00,00,00,0
2,\\
00,1c,00,01,00,00,00,02,80,14,00,ff,01,0f,00,01,01,00,00,00,00,00,01,00,00,\\
00,00,02,00,70,00,04,00,00,00,00,00,18,00,fd,01,02,00,01,01,00,00,00,00,00,\\
05,12,00,00,00,74,00,6f,00,00,00,1c,00,ff,01,0f,00,01,02,00,00,00,00,00,05,\\
20,00,00,00,20,02,00,00,72,00,73,00,00,00,18,00,8d,01,02,00,01,01,00,00,00,\\
00,00,05,0b,00,00,00,20,02,00,00,00,00,1c,00,fd,01,02,00,01,02,00,00,00,00,\\
00,05,20,00,00,00,23,02,00,00,72,00,73,00,01,01,00,00,00,00,00,05,12,00,00,\\
00,01,01,00,00,00,00,00,05,12,00,00,00

[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"=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\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,00,64,00,72,00,69,00,76,00,65,00,72,00,73,00,5c,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,00,01,02,00,00,00,00,00,05,20,00,00,00,20,02,00,00,00,00,00,00,00,00,18,00,8d,01,02,00,01,01,00,00,00,00,00,05,0b,00,00,00,20,02,00,00,00,00,1c,00,fd,01,02,00,01,02,00,00,00,00,00,05,20,00,00,00,23,02,00,00,00,00,00,01,01,00,00,00,00,00,05,12,00,00,00,01,01,00,00,00,00,00,05,12,00,00,00

[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:00000014
"MaxConnections"=dword:0000abe0
"MaxPendingDeliveries"=dword:00001130
"DB_Protocol"="ODBC"
"TxnMonitor"="COM"
"DbServer"="ibmserv2"
"DbName"="tpcc"
"DbUser"="sa"
"DbPassword"=""
"COM_SinglePool"="YES"

RTE Input Parameters

Profile: 8184x3x8x3410
File Path: C:\Program Files\BenchCraft\8184x3x8x3410.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: 3410
Pipe Name: DRIVER14723953
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3410
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: 3410
Pipe Name: DRIVER24872015
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3410
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: 3410
Pipe Name: DRIVER34966171
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3410
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: 3410
Pipe Name: DRIVER45012500
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3410
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: 3410
Pipe Name: DRIVER55066765
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3410
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: 3410
Pipe Name: DRIVER65126187
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3410
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: 3410

Pipe Name: DRIVER75175640
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3410
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: 3410
Pipe Name: DRIVER85211109
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3410
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: 3410
Pipe Name: DRIVER95259171
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3410
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: 3410
Pipe Name: DRIVER105308218
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3410
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: 3410
Pipe Name: DRIVER115358203
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3410

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: 3410
Pipe Name: DRIVER125397734
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3410
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: 3410
Pipe Name: DRIVER135452671
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3410
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: 3410
Pipe Name: DRIVER145492328
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3410
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: 3410
Pipe Name: DRIVER155552765
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3410
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: 3410
Pipe Name: DRIVER165598015
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3410
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: 3410
Pipe Name: DRIVER4367196046
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3410
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: 3410
Pipe Name: DRIVER4467244484
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3410
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: 3410
Pipe Name: DRIVER4567282265
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3410
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 0

Name: v40d
Description: v40d
Directory: c:\rtelogs\v40d.log
Machine: vrte40

Parameter Set: PARAM2
Index: 1250000000
Seed: 4678
Configured Users: 3410
Pipe Name: DRIVER4667357593
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3410
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 1

Name: v40e
Description: v40e
Directory: c:\rtelogs\v40e.log
Machine: vrte40
Parameter Set: PARAM2
Index: 1312500000
Seed: 4678
Configured Users: 3410
Pipe Name: DRIVER4767405796
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3410
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 0

Name: v40f
Description: v40f
Directory: c:\rtelogs\v40f.log
Machine: vrte40
Parameter Set: PARAM2
Index: 1375000000
Seed: 4678
Configured Users: 3410
Pipe Name: DRIVER4867450406
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3410
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 1

Name: v40g
Description: v40g
Directory: c:\rtelogs\v40g.log
Machine: vrte40
Parameter Set: PARAM2
Index: 1437500000
Seed: 4678
Configured Users: 3410
Pipe Name: DRIVER4967505484
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3410
Concurrency Rate: 10
CLIENT_NURAND: 233
CPU: 0

Name: v40h
Description: v40h
Directory: c:\rtelogs\v40h.log
Machine: vrte40
Parameter Set: PARAM2
Index: 1500000000
Seed: 4678
Configured Users: 3410

Pipe Name: DRIVER5067590062
Connect Rate: 1000
Start Rate: 0
Max. Concurrency: 3410
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: 1365 - 1705
w_id Min Warehouse: 1
w_id Max Warehouse: 8184
Scale: Normal
User Count: 3410
District id: 1
Scale Down: No

Driver Engine: v10f
IIS Server: vclient10f
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 1706 - 2046
w_id Min Warehouse: 1
w_id Max Warehouse: 8184
Scale: Normal
User Count: 3410
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 - 341
w_id Min Warehouse: 1
w_id Max Warehouse: 8184
Scale: Normal
User Count: 3410
District id: 1
Scale Down: No

Driver Engine: v10b
IIS Server: vclient10b
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 342 - 682
w_id Min Warehouse: 1
w_id Max Warehouse: 8184
Scale: Normal
User Count: 3410
District id: 1
Scale Down: No

Driver Engine: v10c
IIS Server: vclient10c

SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 683 - 1023
w_id Min Warehouse: 1
w_id Max Warehouse: 8184
Scale: Normal
User Count: 3410
District id: 1
Scale Down: No

Driver Engine: v10d
IIS Server: vclient10d
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 1024 - 1364
w_id Min Warehouse: 1
w_id Max Warehouse: 8184
Scale: Normal
User Count: 3410
District id: 1
Scale Down: No

Driver Engine: v10g
IIS Server: vclient10g
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 2047 - 2387
w_id Min Warehouse: 1
w_id Max Warehouse: 8184
Scale: Normal
User Count: 3410
District id: 1
Scale Down: No

Driver Engine: v10h
IIS Server: vclient10h
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 2388 - 2728
w_id Min Warehouse: 1
w_id Max Warehouse: 8184
Scale: Normal
User Count: 3410
District id: 1
Scale Down: No

Driver Engine: v20a
IIS Server: vclient20a
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 2729 - 3069
w_id Min Warehouse: 1
w_id Max Warehouse: 8184
Scale: Normal
User Count: 3410
District id: 1
Scale Down: No

Driver Engine: v20b
IIS Server: vclient20b
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 3070 - 3410
w_id Min Warehouse: 1
w_id Max Warehouse: 8184
Scale: Normal
User Count: 3410
District id: 1
Scale Down: No

Driver Engine: v20c
IIS Server: vclient20c
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 3411 - 3751
w_id Min Warehouse: 1
w_id Max Warehouse: 8184
Scale: Normal
User Count: 3410
District id: 1
Scale Down: No

Driver Engine: v20d
IIS Server: vclient20d
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 3752 - 4092
w_id Min Warehouse: 1
w_id Max Warehouse: 8184
Scale: Normal
User Count: 3410
District id: 1
Scale Down: No

Driver Engine: v20e
IIS Server: vclient20e
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 4093 - 4433
w_id Min Warehouse: 1
w_id Max Warehouse: 8184
Scale: Normal
User Count: 3410
District id: 1
Scale Down: No

Driver Engine: v20f
IIS Server: vclient20f
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 4434 - 4774
w_id Min Warehouse: 1
w_id Max Warehouse: 8184
Scale: Normal
User Count: 3410
District id: 1

Scale Down: No

Driver Engine: v20g
IIS Server: vclient20g
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 4775 - 5115
w_id Min Warehouse: 1
w_id Max Warehouse: 8184
Scale: Normal
User Count: 3410
District id: 1
Scale Down: No

Driver Engine: v20h
IIS Server: vclient20h
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 5116 - 5456
w_id Min Warehouse: 1
w_id Max Warehouse: 8184
Scale: Normal
User Count: 3410
District id: 1
Scale Down: No

Driver Engine: v40a
IIS Server: vclient40a
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 5457 - 5797
w_id Min Warehouse: 1
w_id Max Warehouse: 8184
Scale: Normal
User Count: 3410
District id: 1
Scale Down: No

Driver Engine: v40b
IIS Server: vclient40b
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 5798 - 6138
w_id Min Warehouse: 1
w_id Max Warehouse: 8184
Scale: Normal
User Count: 3410
District id: 1
Scale Down: No

Driver Engine: v40c
IIS Server: vclient40c
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 6139 - 6479
w_id Min Warehouse: 1
w_id Max Warehouse: 8184
Scale: Normal

User Count: 3410
District id: 1
Scale Down: No

Driver Engine: v40d
IIS Server: vclient40d
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 6480 - 6820
w_id Min Warehouse: 1
w_id Max Warehouse: 8184
Scale: Normal
User Count: 3410
District id: 1
Scale Down: No

Driver Engine: v40e
IIS Server: vclient40e
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 6821 - 7161
w_id Min Warehouse: 1
w_id Max Warehouse: 8184
Scale: Normal
User Count: 3410
District id: 1
Scale Down: No

Driver Engine: v40f
IIS Server: vclient40f
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 7162 - 7502
w_id Min Warehouse: 1
w_id Max Warehouse: 8184
Scale: Normal
User Count: 3410
District id: 1
Scale Down: No

Driver Engine: v40g
IIS Server: vclient40g
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 7503 - 7843
w_id Min Warehouse: 1
w_id Max Warehouse: 8184
Scale: Normal
User Count: 3410
District id: 1
Scale Down: No

Driver Engine: v40h
IIS Server: vclient40h
SQL Server: ibmserv2
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 7844 - 8184
w_id Min Warehouse: 1

w_id Max Warehouse: 8184
 Scale: Normal
 User Count: 3410
 District id: 1
 Scale Down: No

Number of Parameter Sets: 2

		~Default					
		Default Parameter Set					
		Txn	Think	Key	RT	RT	Menu
		Weight	Time	Time	Delay	Fence	Delay
		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	Think	Key	RT	RT	Menu
		Weight	Time	Time	Delay	Fence	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	8,184				tpmC	102,667.42
Table	Rows	Data KB	Index KB	Extra 5% KB	8HR Space	Total Space KB
Warehouse	8,184	888	144	51.60		1,083.60
District	82,560	9,304	176	474.00		9,954.00
Item	100,000	9,528	168	484.80		10,180.80
New-Order	74,303,997	1,323,936	3,416		660,480.00	1,987,832.00
History	247,680,003	14,786,888	57,472		2,979,534.98	17,823,894.98
Orders	247,680,007	8,087,536	3,945,424		2,415,235.50	14,448,195.50
Customer	247,680,000	180,130,912	11,240,920	9,568,591.60		200,940,423.60
Order-Line	2,476,795,203	165,119,712	390,800		33,220,991.69	198,731,503.69
Stock	825,600,000	264,192,000	559,272	13,237,563.60		277,988,835.60
Totals		633,660,704	16,197,792	22,807,165.60	39,276,242.17	711,941,903.77
Segment	LogDev Cnt.	Segment Size	Needed	Overhead		Not Needed
misc	18	15,360,000	233,012,645	2,330,126		(219,982,771.02)
big	18	27,648,000	478,929,259	4,789,293		(456,070,551.79)
master, msdb,model	1	13,312	13,312			-
tpcc_root	1	8,192	8,192			-
tempdb	1	8,704	8,704			-
Totals		43,038,208.00	711,972,111.77	7,119,419.04		(676,053,322.81)
Dynamic Space	187,994,136.00	Sum of Data for Order, Order-Line and History				
Static Space	491,790,944.64	Data + Index + 5% Space + Overhead - Dynamic Space				
Free Space	39,306,450.17	Total Segment Size - Dynamic Space - Static Space - Not needed				
Daily Growth	37,733,866.90	(Dynamic Space/W * 62.5)* tpmC				
Daily Spread	(17,294,350.18)	Free Space - 1.5 * Daily Growth (Zero If Negative)				
60-Day Space (KB)	2,755,822,958.51	Static Space + 60 (Daily Growth + Daily Spread)				
60-Day Space (GB)	2,628.16	60-Day Space in GB (Excludes OS,Paging and RDBMS Logs)				
Available (GB)	8,543.14	Total storage configured and available for database, minus logs, in RAID-0 configuration.				
Log File Storage Requirement						
Log Size (MB)	226,000.00	Total Size of Log File				
% Log Used	36.1616	% of Log File Used During Entire Run				
Total N-O Txn	17,674,398.00	Total Count of New-Order Transactions during Entire Run				
Log / N-O Txn	4.73	KB of Log per New-Order Transaction				
8 Hour Log (GB)	222.53	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)	2,628.16		252	36.4GB	8,543.14	8,543.14
					Total DB	8,543.14
8hr Log (RAID-1)	222.53		14	36.4GB	474.62	237.31
					Total Log	237.31
OS, SQL Server	4.00		1	36.4GB	33.90	33.90
Total Space	2,854.69		267		9,051.67	8,814.36

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 # : 4W365_030104
DATE: Mar. 1, 2004

IBM x365 Configuration

Part No.	Description	Qty	List Price		Compsat Discounted Price	
			(per unit)	(quantity x unit price)	(per unit)	(quantity x unit price)
			US Dollar	US Dollar	US Dollar	US Dollar
x365 SERVER						
88626RX	x365, 2xXeon MP 3.0GHz/400MHz, 4MB, 2GB, O/Bay, 2x1050W p/s, Rack	1	\$17,159.00	\$17,159.00	\$14,413.56	\$14,413.56
96P2253	3 YR onsite repair 24x7x4 hour (x365)	1	\$1,000.00	\$1,000.00	\$880.00	\$880.00
13N0710	3.0GHz/4MB Xeon Processor Upgrade	2	\$6,325.00	\$12,650.00	\$5,313.00	\$10,626.00
33L5040	2GB PC2100 DDR ECC SDRAM RDIMM	16	\$2,399.00	\$38,384.00	\$2,015.16	\$32,242.56
73P9710	Memory Upgrade Card	1	\$999.00	\$999.00	\$839.16	\$839.16
32P0726	IBM 36.4GB 10K Ultra320 SCSI Hot-Swap SL HDD	1	\$275.00	\$275.00	\$231.00	\$231.00
03K9311	4.2M Ultra2 SCSI Cable	20	\$105.00	\$2,100.00	\$88.20	\$1,764.00
32P0033	IBM ServeRAID-6M Ultra320 SCSI Adapter	10	\$999.00	\$9,990.00	\$839.16	\$8,391.60
QLA2350BK	Qlogic SANBlade QLA2350 FC-VI Adapter	3	\$1,995.00	\$5,985.00	\$1,795.50	\$5,386.50
633147N	E54 15" Colour Monitor (Stealth Grey)/MPRII	1	\$119.00	\$119.00	\$99.96	\$99.96
30L9183	3 YR onsite exch. 24x7x4 hour (E54 Monitor)	1	\$90.00	\$90.00	\$79.20	\$79.20
31P7415	IBM Preferred Pro Full-size Keyboard PS/2	1	\$29.00	\$29.00	\$24.36	\$24.36
28L3673	IBM Sleek 2-Button Mouse	1	\$14.95	\$14.95	\$12.56	\$12.56
EXP400(s)						
17331RX	IBM EXP400 Storage Expansion Enclosure	19	\$3,099.00	\$58,881.00	\$2,603.16	\$49,460.04
41L2768	3 YR onsite repair 24x7x4 hour (EXP400)	19	\$760.00	\$14,440.00	\$668.80	\$12,707.20
86841RX	IBM RXE-100 Remote Expansion Enclosure	1	\$4,569.00	\$4,569.00	\$3,837.96	\$3,837.96
96P2469	3 YR onsite repair 24x7x4 hour (RXE-100)	1	\$1,330.00	\$1,330.00	\$1,170.40	\$1,170.40
32P0734	IBM 36.4GB 15K Hot-Swap SCSI HDD	266	\$495.00	\$131,670.00	\$415.80	\$110,602.80
RACK and OPTIONS						
9306421	NetBAY42 SX Standard Expansion Rack Cabinet - includes Perforated front door	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	\$147.84	\$295.68
34L3477	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
0034B0X	IBM NetBAY Tape Expansion Enclosure	1	\$849.00	\$849.00	\$713.16	\$713.16
3534F08	SAN Fibre Channel 8-Port Switch	1	\$5,250.00	\$5,250.00	\$4,410.00	\$4,410.00
19K1248	IBM 5M LC-LC Fibre Channel Cable	4	\$129.00	\$516.00	\$108.36	\$433.44
41L2756	3 YR onsite repair 24x7x4 hour (NetBAY Tape Enclosure)	1	\$120.00	\$120.00	\$105.60	\$105.60
96P1994	3 YR onsite repair 24x7x4 hour (SAN Switch)	1	\$2,300.00	\$2,300.00	\$2,024.00	\$2,024.00
x225 SERVER(s)						
864762X	x225, Intel Xeon 3.06GHz/533MHz, 512KB, 256MB, 1x36GB, 1x425W p/s, Tower	3	\$1,775.00	\$5,325.00	\$1,491.00	\$4,473.00
96P2250	3 YR onsite repair 24x7x4 hour (x225)	3	\$1,000.00	\$3,000.00	\$880.00	\$2,640.00
24P8122	3.06GHz/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	\$275.00	\$3,300.00	\$231.00	\$2,772.00
31P6401	NetXtreme 1000T Dual-Port Ethernet Adapter	6	\$269.00	\$1,614.00	\$225.96	\$1,355.76
ANA64044	Adaptec Quartet64 4-Port Adapter	3	\$550.00	\$1,650.00	\$495.00	\$1,485.00
QLA2350-BK	QLogic SANBlade 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	\$99.96	\$299.88
30L9183	3 YR onsite exch. 24x7x4 hour (E54 Monitor)	3	\$90.00	\$270.00	\$79.20	\$237.60
TOTAL =				\$337,229.95	TOTAL =	\$285,005.80

25330 Telegraph Road / Suite 200 Raleigh Officentre / Southfield, Michigan 48034
Phone: 248-223-1020 / Fax: 248-223-1026 / www.compsat.com

NOTE:

- This quote may include Compsat Technology consulting and configuration charges.
- Mfg. pricing is out of our control and could change without notice.
- Pricing good for 30 Days from date quoted.

Microsoft Corporation
One Microsoft Way
Redmond, WA 98052-6399

Tel 425 882 8080
Fax 425 936 7329
<http://www.microsoft.com/>

Microsoft

February 3, 2004

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 Discount Schedule: Open Program Level C 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 Discount Schedule: Open Program - No Level 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 Discount Schedule: Open Program - No Level 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.