TPC Benchmark™ C
Full Disclosure Report
for
IBM® @server® xSeries® 366
using
DB2® Universal Database 8.2
and
Microsoft® Windows® Server 2003
Enterprise x64 Edition

TPC-C Version 5.3

Submitted for Review
April 21, 2005

IBM®

First Edition - April 2005

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Notes

[1] GHz and MHz only measures microprocessor internal clock speed, not application performance. Many factors affect application performance.
[2] When referring to hard disk capacity, GB, or gigabyte, means one thousand million bytes. Total user-accessible capacity may be less.

Abstract

IBM Corporation conducted the TPC Benchmark™ C on the IBM® @server® xSeries® 366 configured as a client/server system. This report documents the full disclosure information required by the TPC Benchmark C Standard Specification, Revision 5.3, including the methodology used to achieve the reported results. All testing fully complied with this revision level.

The software used on the xSeries 366 system includes Microsoft® Windows® Server 2003 Enterprise x64 Edition operating system and IBM DB2 Universal Database V8.2 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.

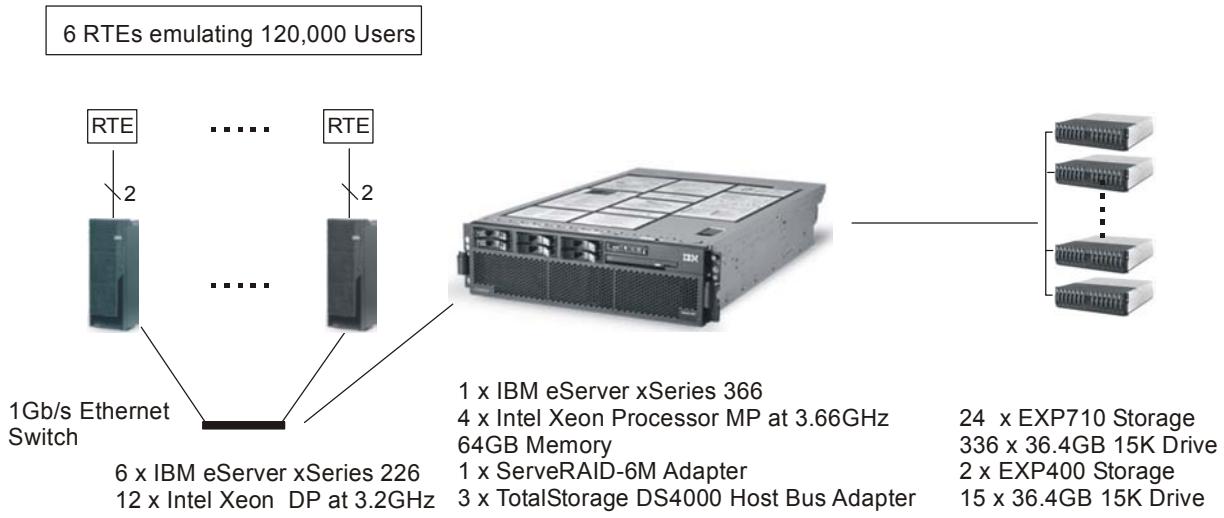
Hardware	Software	Total System Cost	tpmC	$/tpmC	Total Solution Availability Date
IBM @server xSeries 366	DB2 UDB 8.2 Microsoft Windows Server 2003 Enterprise x64 Edition	$904,617 USD	150,704	$6.00 USD	August 20, 2005

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

IBM	**IBM®@server® xSeries® 366c/s and DB2® UDB 8.2**	TPC-C Rev. 5.3 Report Date: April 21, 2005

Total System Cost	TPC-C Throughput	Price/Performance	Availability Date
$904,617 USD	**150,704 tpmC**	**$6.00 USD / tpmC**	**Aug. 20, 2005**

Database Server Processors/Cores/ Threads	Database Manager	Operating System	Other Software	Number of Users
4/4/8 64-Bit Intel® Xeon™ Processor MP at 3.66GHz	**DB2 UDB 8.2**	**Microsoft Windows® Server 2003 Enterprise x64 Edition**	**Microsoft Visual C++ 6.0 Microsoft COM+**	**120,000**



System Component	Qty	Server:	Qty	Each of Six Clients:
Processors/Cores/Threads	**4/4/8**	**Intel Xeon Processor MP at 3.66GHz/1MB L2 Cache**	**2/2/4**	**Intel Xeon DP at 3.2GHz 1MB L2 Cache**
Cache				
Memory	**16**	**4GB ECC RDIMM**	**4**	**512MB**
			2	**256MB**
Disk Controllers	**1**	**ServeRAID-6M Adapter**	**1**	**Ultra320 SCSI Interface**
Disk Drives	**351**	**36.4GB (15000 rpm)**	**1**	**36.4GB (15000 rpm)**
Total Storage		**11662GB**		

IBM Corporation	IBM @server xSeries 366 c/s with DB2 UDB 8.2	TPC-C Revision 5.3 Report Date: April 21, 2005

Description	Part Number	Third Party Brand	Pricing	Unit Price	Quantity	Extended Price	3-Yr. Maint. Price
Server Hardware							
xSeries 366 with 1 x 3.66GHz/1MB L2 Cache Intel Xeon Processor MP	8863-2RU	IBM	1	9,999	1	9,999	
xSeries 3.66GHz/1MB L2 Cache Intel Xeon Processor MP	13N0695	IBM	1	1,999	3	5,997	
8GB (2x4GB) PC2-3200 CL3 2RX4 ECC DDR2 SDRAM RDIMM	30R5145	IBM	1	17,879	8	143,032	
Active Memory™ 4-Slot Memory Expansion Card	13M7409	IBM	1	499	3	1,497	
ServeRAID-6M Ultra320 SCSI Adapter	32P0033	IBM	1	999	1	999	
E54 15" (13.8" Viewable) Color Monitor	633147N	IBM	1	139	1	139	
IBM Preferred Pro Full-Size Keyboard PS/2	31P7415	IBM	1	29	1	29	
IBM Sleek 2-Button Mouse	28L3673	IBM	1	15	1	15	
ServicePac for 3-Year 24x7x4 Support (x366)	96P2253	IBM	1	900	1		900
ServicePac for 3-Year 24x7x4 Support (Monitor)	30L9183	IBM	1	90	1		90
Discount on xSeries Hardware (15%)						24,256	
Discount on ServicePacs (20%)							198
					Subtotal	137,451	792
Server Storage							
IBM TotalStorage DS4000 Host Bus Adapter	24P0960	IBM	1	1,485	3	4,455	
IBM TotalStorage DS4500 Disk Subsystem	174290U	IBM	1	66,500	3	199,500	
IBM DS4000 Mini Hub	19K1269	IBM	1	899	6	5,394	
IBM Short Wave SFP Module	19K1271	IBM	1	499	103	51,397	
IBM 1m LC-LC Fibre Channel Cable	19K1247	IBM	1	79	48	3,792	
IBM 5m LC-LC Fibre Channel Cable	19K1248	IBM	1	129	9	1,161	
IBM TotalStorage DS4000 EXP710 Storage Exp. Unit	1740710	IBM	1	6,000	24	144,000	
IBM TotalStorage SAN Fibre Channel Switch Model H16	2005H16	IBM	1	11,755	1	11,755	
2Gbps FC 36.4GB 15K Hot-Swap HDD	06P5772	IBM	1	1,115	336	374,640	
IBM EXP400 Rack Storage Exp. Enclosure	17331RU	IBM	1	3,099	2	6,198	
36.4GB 15K Ultra320 SCSI Drive	90P1318	IBM	1	349	15	5,235	
Netfinity 4.2M Ultra2 SCSI Cable	03K9310	IBM	1	75	2	150	
IBM UPS 750TLV	21301TX	IBM	1	299	1	299	
IBM S2 42U Standard Rack	93074SX	IBM	1	1,489	3	4,467	
ServicePac for 3-Year 24x7x4 Support (EXP710)	41L2768	IBM	1	760	24		18,240
ServicePac for 3-Year 24x7x4 Support (DS4500)	96P2062	IBM	1	1,087	3		3,261
ServicePac for 3-Year 24x7x4 Support (EXP400)	41L2768	IBM	1	760	2		1,520
ServicePac for 3-Year 24x7x4 Support (Rack)	41L2760	IBM	1	300	3		900
ServicePac for 3-Year 24x7x4 Support (Switch)	29R5130	IBM	1	2,460	1		2,460
Discount on Fibre Channel Disks (30%)						112,392	
Discount on Fibre Channel Storage (20%)						84,291	
Discount on xSeries Storage (15%)						2,452	
Discount on ServicePacs (20%)							5,276
					Subtotal	613,308	21,105
Server Software							
DB2 UDB ESE 8.2 for Windows Operating Systems on 64-Bit Extended Systems - SW License and Maintenance 12 Months		IBM	1	22,608	4	90,432	
SW Maintenance Renewal - 1 Year		IBM	1	1,077	8		8,616
Microsoft Windows Server 2003 Enterprise x64 Edition*	P72-00264	Microsoft	2	2,399	1	2,399	
Microsoft Problem Resolution Services		Microsoft	2	245	1		245
					Subtotal	92,831	8,861
Client Hardware							
x226 with 3.2GHz/1MB Xeon DP, 512MB (2x256MB) Memory	8648-2AU	IBM	1	1,515	6	9,090	
3.2GHz/1MB Xeon DP Processor Upgrade	13N0673	IBM	1	799	6	4,794	
1GB (2x512MB) PC-3200 DDR2 ECC SDRAM RDIMM	73P3522	IBM	1	399	12	4,788	
36.4GB 15K Ultra320 SCSI Drive	90P1318	IBM	1	349	6	2,094	
PRO/1000 MT Dual-Port Server Adapter	73P2701	Intel	1	249	18	4,482	
E54 15" (13.8" Viewable) Color Monitor	633147N	IBM	1	139	6	834	
ServicePac for 3-Year 24x7x4 Support (x226)	96P2250	IBM	1	586	6		3,516
ServicePac for 3-Year 24x7x4 Support (Monitor)	30L9183	IBM	1	90	6		540
Discount on xSeries Hardware (15%)						3,912	
Discount on ServicePacs (20%)							811
					Subtotal	22,170	3,245
Client Software							
Microsoft Windows 2000 Server with COM+*	C11-00821	Microsoft	2	738	6	4,428	
Microsoft Visual C++ Professional 6.0	254-00170	Microsoft	2	109	1	109	
					Subtotal	4,537	
Network Components							
NETGEAR 8-Port Gigabit Ethernet Switch	GS108		3	100	3	300	
14ft Ethernet Cable (including 2 spares)			3	2	9	18	
					Subtotal	318	
					Total	870,615	34,003

Pricing: 1- IBM - To order, call 1-888-SHOP-IBM, and ask for xSeries Sales.
Volume discounts based on IBM Direct Guidance (Call 1-919-486-0818 for price verification.)
1 - IBM DB2: Bernard Spang, Director Database Market Management, spang@us.ibm.com, 914-766-1491
2 - Microsoft (*See Quote for Discounts); 3 - www.newegg.com
Audited by Bradley J. Askins of InfoSizing, Inc.

Three-Year Cost of Ownership USD:	$904,617
tpmC:	150,704
$ USD/tpmC:	$6.00

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

Numerical Quantities Summary

MQTh, Computed Maximum Qualified Throughput: **150,704 tpmC**

Response Times (in seconds)	90th Percentile	Average	Maximum
New-Order	0.30	0.20	1.58
Payment	0.40	0.30	3.45
Delivery	0.30	0.29	1.06
Stock Level	0.64	0.41	1.94
Order Status	0.30	0.23	1.72
Delivery (Deferred)	0.58	0.33	3.53
Menu	0.29	0.20	1.16

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	18.00 / 12.03	18.00 / 120.31
Payment	3.00 / 0.00	3.00 / 12.04	3.02 / 120.31
Delivery	2.00 / 0.00	2.00 / 5.04	2.00 / 50.31
Stock Level	2.00 / 0.00	2.00 / 5.04	2.00 / 50.31
Order Status	2.00 / 0.00	2.00 / 10.03	2.00 / 100.31

Test Duration	
Ramp-up time	42 minutes 30 seconds
Measurement interval	120 minutes
Number of checkpoints	NA
Checkpoint interval	NA
Number of transactions (all types) completed in measurement interval	40,239,816

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Preface

The TPC Benchmark™ C was developed by the Transaction Processing Performance Council (TPC). The TPC was founded to define transaction processing benchmarks and to disseminate objective, verifiable performance data to the industry. This full disclosure report is based on the TPC Benchmark C Standard Specification Version 5.3.

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

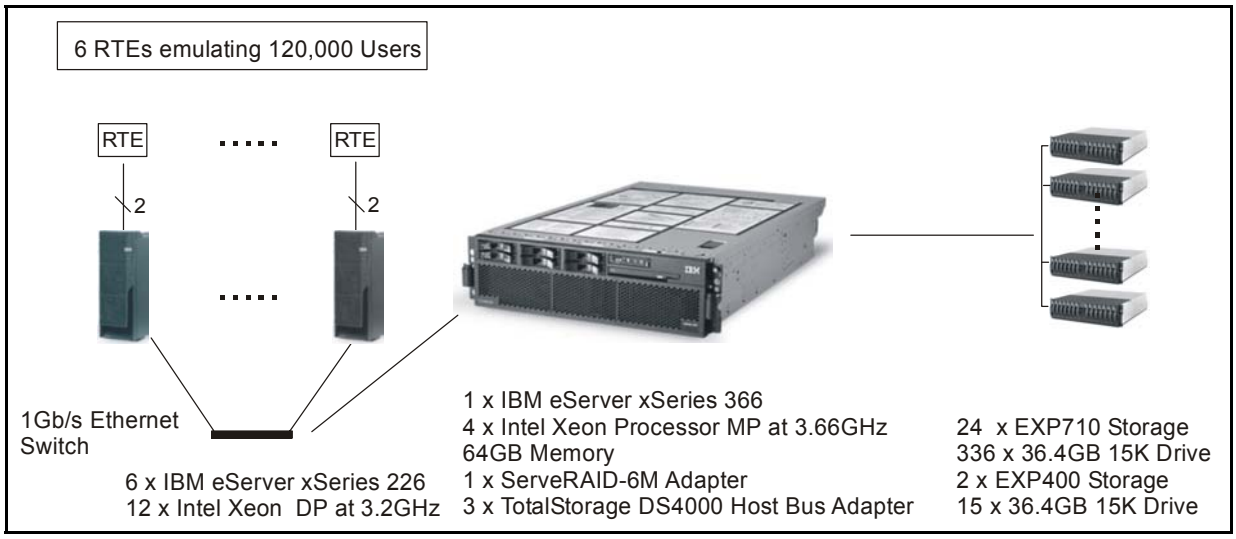
Diagrams of both measured and priced configurations must be provided, accompanied by a description of the differences.

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 an IBM proprietary RTE. Under Version 5.3, the components of the configuration being emulated by the RTE are the workstations and the Ethernet hubs. Appendix C contains a listing of the RTE scripts and inputs used in the benchmark testing.

The benchmarked configuration used six IBM eServer xSeries 226 systems, each configured with two 3.2GHz Intel Xeon processors, as the clients, which executed the terminal I/O and submitted transactions to COM+ servers, which are also running on the clients. These COM+ servers forwarded the transaction requests to the server, and returned the results to the RTE. DB2 UDB 8.2 is the DBMS executing on the server

Measured Configuration



The measured and priced configurations were identical. 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 DB2 UDB 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 DB2 UDB 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.

Only Stock, Orderline, Customer and New-order tables were horizontally partitioned into multiple tables. Stock, Orderline, Customer and New-order tables were partitioned into seven tables of 1,800 warehouses each. For each partitioned table, a view was created over all table partitions to provide full transparency of data manipulation. The rest of the tables were not partitioned.

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 226 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 366 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	59.99
Order-Status transactions using C_LAST	60.02
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 Delivery transaction was submitted to an ISAPI queue that is separate from the COM+ queue that the other transactions used. This queue is serviced by a variable amount of threads that are separate from the worker threads inside the web server. Web server threads are able to complete the on-line part of the Delivery transaction and immediately return successful queuing responses to the drivers. The threads servicing the queue are responsible for completing the deferred part of the transaction asynchronously.

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 12,000 users submitting transactions.
4. A disk containing a portion of each of the tables in the tpcc database was removed causing DB2 to report errors accessing that device.
5. The run was aborted and DB2 was stopped.
6. 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 gving SUM1.
2. This test was executed on a full scale benchmark run with 120,000 users.
3. The test continued to run for 5 minutes after all users were connected to the server.
4. One disk from the log array was removed. Since the disk was RAID-1 mirrored, DB2 continued to process transactions without interruption.
5. The test continued to run for another 5 minutes.

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. DB2 was allowed to recover.
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 12,600 warehouses and the audited run used 12,000 warehouses. The warehouses over 12,000 were deleted each time the database was restored from backups.

Table 4-1. Initial Cardinality of Tables

Table Name	Rows
Warehouse	12,600
District	126,000
Item	100,000
New Order	113,400,000
History	378,000,000
Orders	378,000,000
Customer	378,000,000
Order Line	3,780,124,350
Stock	1,260,000,000
Inactive Warehouses	600

Distribution of Tables and Logs

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

The logs are configured as a RAID-10 disk array with 14 physical disks of 36.4GB each attached via an internal ServeRAID-6M adapter.

For the database tables, there is a total of 336 disk drives. Each physical disk has a capacity of 36.4GB. A total of three Fibre Channel storage adapters connect these 336 disks.

Each disk volume, as seen by the Windows operating system, is configured as a RAID-0 disk array with 28 physical disks. There is a total of 12 such disk volumes. Each disk volume is further partitioned into 17 partitions. Each partition corresponds to a DB2 container.

Each partition within a partitioned table is made of either 2 DB2 containers (STOCK, CUSTOMER, ORDERLINE, NEWORDER) or 12 DB2 containers (the seventh partition of STOCK, CUSTOMER, ORDERLINE and NEWORDER), so that the corresponding view spans all 3 adapters (i.e., all 336 disks).

The WAREHOUSE, DISTRICT, ITEM, HISTORY and ORDER tables, which are not paritioned, are made up of 12 DB2 containers and also span all 3 adapters.

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 1 - 36.4GB EXP400 Enclosure	L: C:	237.31GB 36.4GB	Database Log OS Drive
2	28 - 36.4GB EXP710 Enclosure	C:\Containers\STK\001 C:\Containers\WAR\001 C:\Containers\DIS\001 C:\Containers\CST\001 C:\Containers\NEWA\001 C:\Containers\TM\001 C:\Containers\CSTI\001 C:\Containers\ORD\001 C:\Containers\ORDI\001 C:\Containers\OLN\001 C:\Containers\HST\001 C:\Containers\NEWB\001 C:\Containers\CST\013 C:\Containers\OLN\013 C:\Containers\NEWA\013 C:\Containers\NEWB\013 C:\Containers\CSTI\013 C:\Containers\STK\013	935.23GB	Database Backup Files
3	28 - 36.4GB EXP710 Enclosure	C:\Containers\STK\002 C:\Containers\WAR\002 C:\Containers\DIS\002 C:\Containers\CST\002 C:\Containers\NEWA\002 C:\Containers\TM\002 C:\Containers\CSTI\002 C:\Containers\ORD\002 C:\Containers\ORDI\002 C:\Containers\OLN\002 C:\Containers\HST\002 C:\Containers\NEWB\002 C:\Containers\CST\014 C:\Containers\OLN\014 C:\Containers\NEWA\014 C:\Containers\NEWB\014 C:\Containers\CSTI\014 C:\Containers\STK\014	935.23GB	Database Backup Files
4	28 - 36.4GB EXP710 Enclosure	C:\Containers\STK\003 C:\Containers\WAR\003 C:\Containers\DIS\003 C:\Containers\CST\003 C:\Containers\NEWA\003 C:\Containers\TM\003 C:\Containers\CSTI\003 C:\Containers\ORD\003 C:\Containers\ORDI\003 C:\Containers\OLN\003 C:\Containers\HST\003 C:\Containers\NEWB\003 C:\Containers\CST\015 C:\Containers\OLN\015 C:\Containers\NEWA\015 C:\Containers\NEWB\015 C:\Containers\CSTI\015 C:\Containers\STK\015	935.23GB	Database Backup Files

Disk #	Drives	Partition	Size	Use
5	28 - 36.4GB EXP710 Enclosure	C:\Containers\STK\004 C:\Containers\WAR\004 C:\Containers\DIS\004 C:\Containers\CST\004 C:\Containers\NEWA\004 C:\Containers\TM\004 C:\Containers\CSTI\004 C:\Containers\ORD\004 C:\Containers\ORDI\004 C:\Containers\OLN\004 C:\Containers\HST\004 C:\Containers\NEWB\004 C:\Containers\CST\016 C:\Containers\OLN\016 C:\Containers\NEWA\016 C:\Containers\NEWB\016 C:\Containers\CSTI\016 C:\Containers\STK\016	935.23GB	Database Backup Files
6	28 - 36.4GB EXP710 Enclosure	C:\Containers\STK\005 C:\Containers\WAR\005 C:\Containers\DIS\005 C:\Containers\CST\005 C:\Containers\NEWA\005 C:\Containers\TM\005 C:\Containers\CSTI\005 C:\Containers\ORD\005 C:\Containers\ORDI\005 C:\Containers\OLN\005 C:\Containers\HST\005 C:\Containers\NEWB\005 C:\Containers\CST\017 C:\Containers\OLN\017 C:\Containers\NEWA\017 C:\Containers\NEWB\017 C:\Containers\CSTI\017 C:\Containers\STK\017	935.23GB	Database Backup Files
7	28 - 36.4GB EXP710 Enclosure	C:\Containers\STK\006 C:\Containers\WAR\006 C:\Containers\DIS\006 C:\Containers\CST\006 C:\Containers\NEWA\006 C:\Containers\TM\006 C:\Containers\CSTI\006 C:\Containers\ORD\006 C:\Containers\ORDI\006 C:\Containers\OLN\006 C:\Containers\HST\006 C:\Containers\NEWB\006 C:\Containers\CST\018 C:\Containers\OLN\018 C:\Containers\NEWA\018 C:\Containers\NEWB\018 C:\Containers\CSTI\018 C:\Containers\STK\018	935.23GB	Database Backup Files

Disk #	Drives	Partition	Size	Use
8	28 - 36.4GB EXP710 Enclosure	C:\Containers\STK\007 C:\Containers\WAR\007 C:\Containers\DIS\007 C:\Containers\CST\007 C:\Containers\NEWA\007 C:\Containers\TM\007 C:\Containers\CSTI\007 C:\Containers\ORD\007 C:\Containers\ORDI\007 C:\Containers\OLN\007 C:\Containers\HST\007 C:\Containers\NEWB\007 C:\Containers\CST\019 C:\Containers\OLN\019 C:\Containers\NEWA\019 C:\Containers\NEWB\019 C:\Containers\CSTI\019 C:\Containers\STK\019	935.23GB	Database Backup Files
9	28 - 36.4GB EXP710 Enclosure	C:\Containers\STK\008 C:\Containers\WAR\008 C:\Containers\DIS\008 C:\Containers\CST\008 C:\Containers\NEWA\008 C:\Containers\TM\008 C:\Containers\CSTI\008 C:\Containers\ORD\008 C:\Containers\ORDI\008 C:\Containers\OLN\008 C:\Containers\HST\008 C:\Containers\NEWB\008 C:\Containers\CST\020 C:\Containers\OLN\020 C:\Containers\NEWA\020 C:\Containers\NEWB\020 C:\Containers\CSTI\020 C:\Containers\STK\020	935.23GB	Database Backup Files
10	28 - 36.4GB EXP710 Enclosure	C:\Containers\STK\009 C:\Containers\WAR\009 C:\Containers\DIS\009 C:\Containers\CST\009 C:\Containers\NEWA\009 C:\Containers\TM\009 C:\Containers\CSTI\009 C:\Containers\ORD\009 C:\Containers\ORDI\009 C:\Containers\OLN\009 C:\Containers\HST\009 C:\Containers\NEWB\009 C:\Containers\CST\021 C:\Containers\OLN\021 C:\Containers\NEWA\021 C:\Containers\NEWB\021 C:\Containers\CSTI\021 C:\Containers\STK\021	935.23GB	Database Backup Files

Disk #	Drives	Partition	Size	Use
11	28 - 36.4GB EXP710 Enclosure	C:\Containers\STK\010 C:\Containers\WAR\010 C:\Containers\DIS\010 C:\Containers\CST\010 C:\Containers\NEWA\010 C:\Containers\TM\010 C:\Containers\CSTI\010 C:\Containers\ORD\010 C:\Containers\ORDI\010 C:\Containers\OLN\010 C:\Containers\HST\010 C:\Containers\NEWB\010 C:\Containers\CST\022 C:\Containers\OLN\022 C:\Containers\NEWA\022 C:\Containers\NEWB\022 C:\Containers\CSTI\022 C:\Containers\STK\022	935.23GB	Database Backup Files
12	28 - 36.4GB EXP710 Enclosure	C:\Containers\STK\011 C:\Containers\WAR\011 C:\Containers\DIS\011 C:\Containers\CST\011 C:\Containers\NEWA\011 C:\Containers\TM\011 C:\Containers\CSTI\011 C:\Containers\ORD\011 C:\Containers\ORDI\011 C:\Containers\OLN\011 C:\Containers\HST\011 C:\Containers\NEWB\011 C:\Containers\CST\023 C:\Containers\OLN\023 C:\Containers\NEWA\023 C:\Containers\NEWB\023 C:\Containers\CSTI\023 C:\Containers\STK\023	935.23GB	Database Backup Files
13	28 - 36.4GB EXP710 Enclosure	C:\Containers\STK\012 C:\Containers\WAR\012 C:\Containers\DIS\012 C:\Containers\CST\012 C:\Containers\NEWA\012 C:\Containers\TM\012 C:\Containers\CSTI\012 C:\Containers\ORD\012 C:\Containers\ORDI\012 C:\Containers\OLN\012 C:\Containers\HST\012 C:\Containers\NEWB\012 C:\Containers\CST\024 C:\Containers\OLN\024 C:\Containers\NEWA\024 C:\Containers\NEWB\024 C:\Containers\CSTI\024 C:\Containers\STK\024	935.23GB	Database 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/1, 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.*

The database manager used for this testing was DB2 UDB 8.2, which is a relational database. DB2 remote stored procedures and embedded SQL statements were used. The DB2 stored procedures were invoked via SQL CALL statements. Both the client application and stored procedures were written in embedded C code.

Partitions/Replications Mapping

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

The Stock, Customer, Orderline and New-order tables were horizontally partitioned into multiple tables. The specifics of the distribution of partitioned and non-partitioned tables across the physical media are describe in Table 4-2. The database was not 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: 150,704 tpmC
Price per tpmC: $6.00 USD 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	0.20	1.58	0.30
Payment	0.30	3.45	0.40
Delivery	0.29	1.06	0.30
Stock Level	0.41	1.94	0.64
Order Status	0.23	1.72	0.30
Delivery (Deferred)	0.33	3.53	0.58
Menu	0.20	1.16	0.29

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	18.00 / 12.03	18.00 / 0.00	18.00/ 120.31
Payment	3.00 / 12.04	3.00 / 0.00	3.02/ 120.31
Delivery	2.00 / 5.04	2.00 / 0.00	2.00/ 50.31
Stock Level	2.00 / 5.04	2.00 / 0.00	2.00/ 50.31
Order Status	2.00 / 10.03	2.00 / 0.00	2.00/ 100.31

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

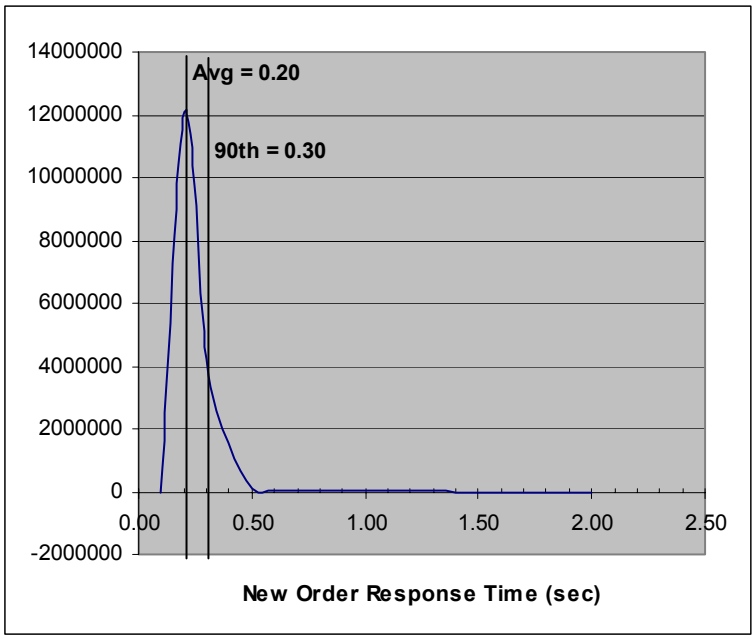


Figure 5-2. Payment Transaction - Response Time Frequency Distribution

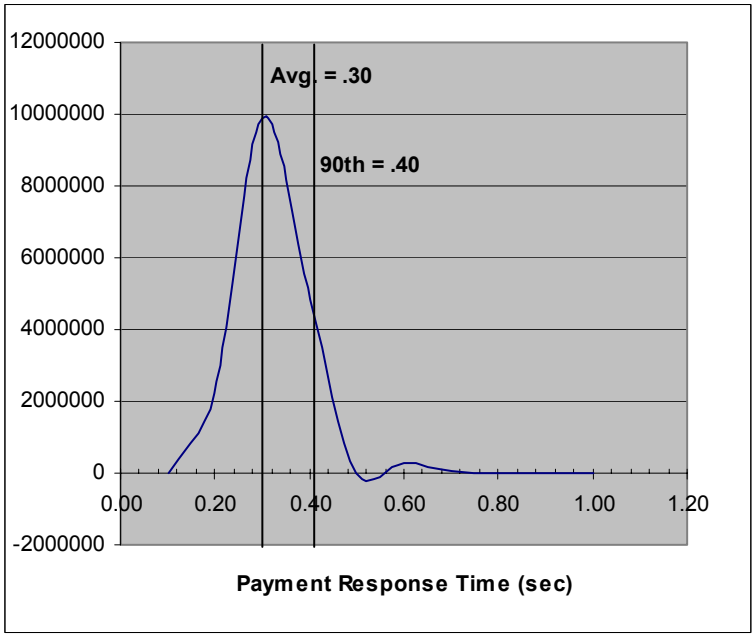


Figure 5-3. Order-Status Transaction - Response Time Frequency Distribution

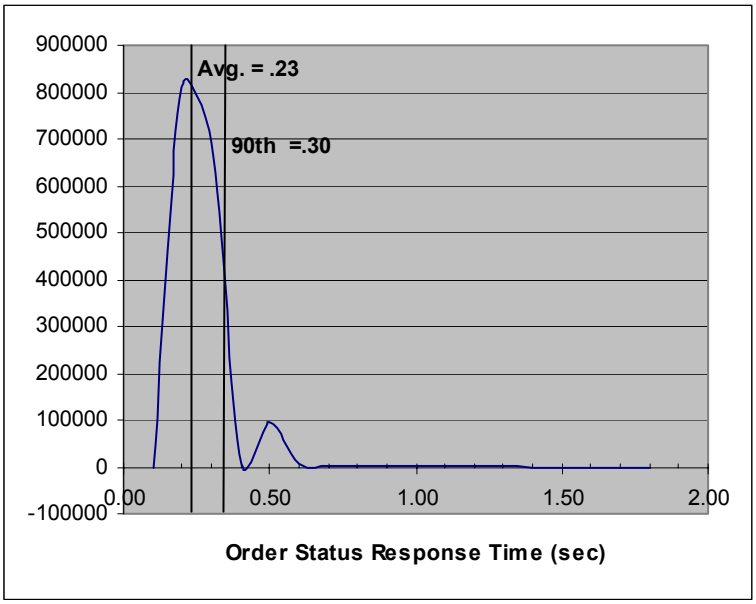


Figure 5-4. Delivery Transaction - Response Time Frequency Distribution

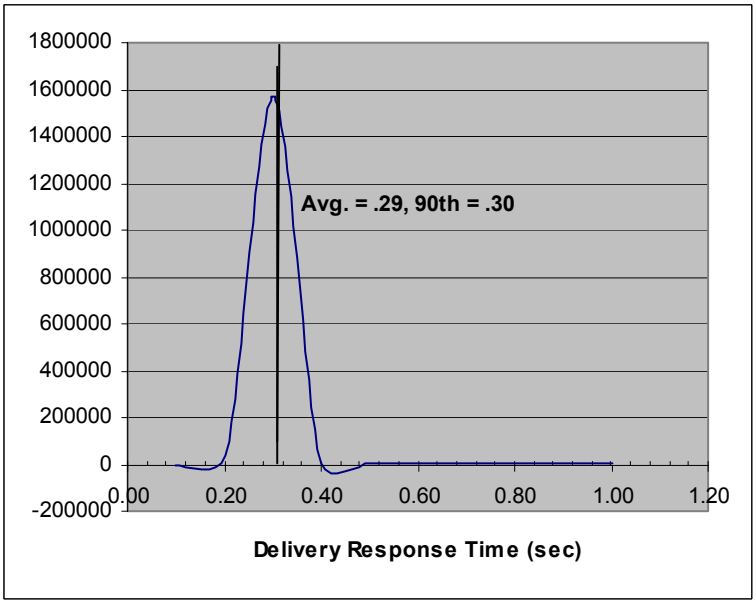
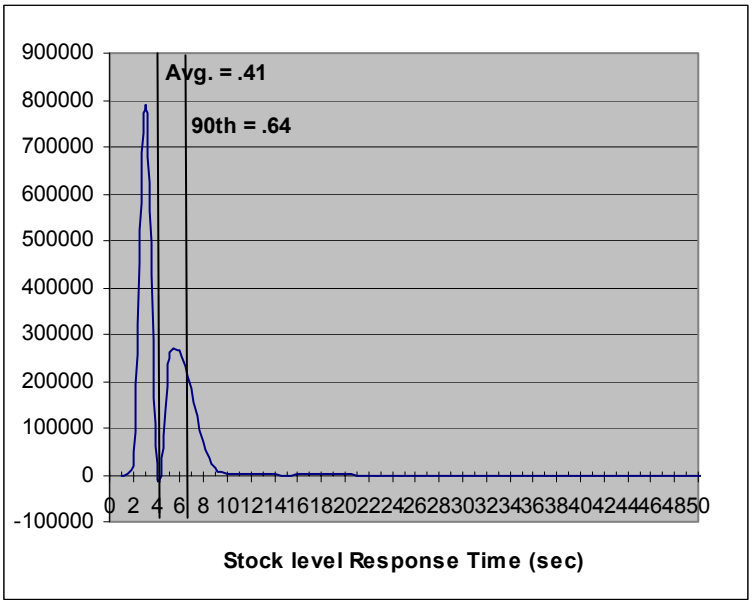


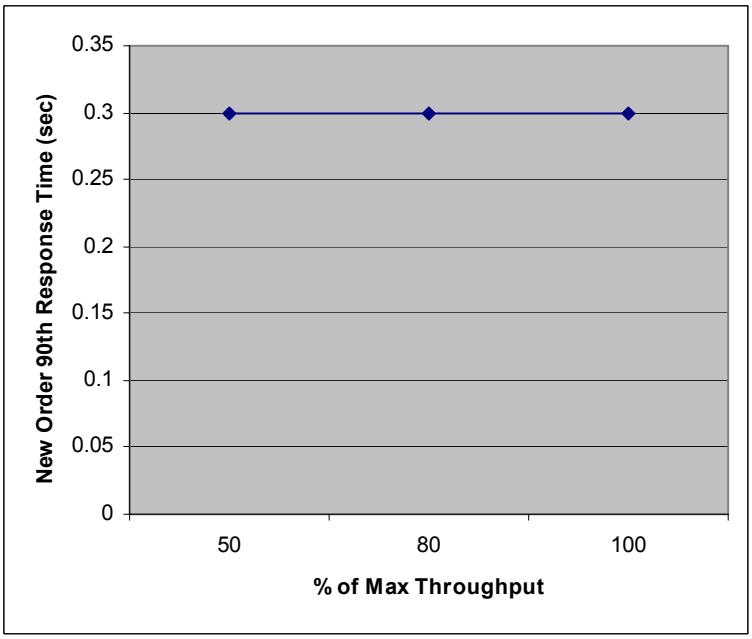
Figure 5-5. Stock-Level Transaction - Response Time Frequency Distribution



Performance Curve for Response Time vs. Throughput

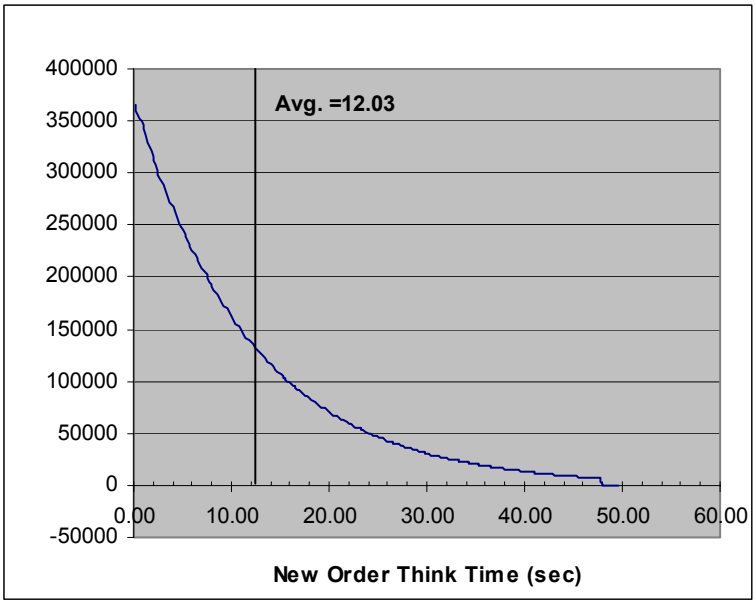
The performance curve for response time vs. throughput (see Clause 5.6.2) must be reported for the New-Order transaction.

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



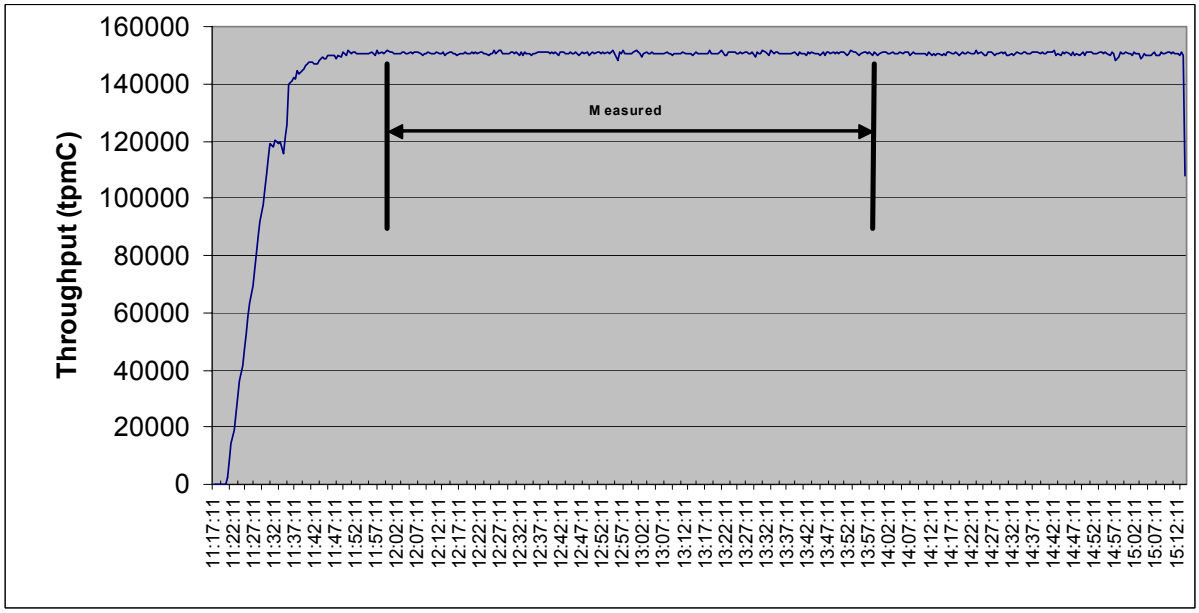
New Order Think Time Distribution

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. Each of the 4 (non-delivery) transactions is serviced by two individual programs, Internet Information Service 5.1 (IIS) and a Microsoft COM+ 1.0 Queued Component Server, used as the transaction manager (COM+). Both programs are running on the client system:

- The initial HTML 1.0 request is serviced by an ISAPI custom-written handler running on Internet Information Service 5.1(IIS). IIS is responsible for handling all HTML requests. The web server communicates to the COM+ server through a Microsoft COM+ api interface.
- COM+ communicates with the Server system over Ethernet and handles all database operations, using DB2 embedded SQL calls. When the COM+ server boots up, it creates a configurable amount of connections to the Server (listed in application settings). COM+ routes the transaction and balances the load according to the options defined in the Component Services GUI for the COM+ server application and settings in the Windows 2000 Registry. The configuration file and registry variables are listed in Appendix B.2. At the beginning, each TPC-C user sends a pair of HTML 1.0 requests submitting the its unique warehouse and district to the IIS ISAPI handler. Upon successful validation of the user's login, IIS the displays an HTML form that encapsulates the TPC-C transaction menu.

The transaction flow is described below:

1. The TPC-C user requests the transaction type's HTML form and proceeds to generate (fill in) a GET request with the required files for the transaction.
2. IIS accepts the filled-in GET request, parses, and validates all values entered by the user.
3. It then proceeds to transmit those values to the COM+ server through an transaction type-specific COM+ api interface.
4. The COM+ Pool Manager receives the request and first decides if there is a connection object in the pool available to service it. If so, the connection is used to send the transaction request to the Server. If no connection is available, the request will enter a COM+ internal queue and will be serviced by the next available connection.
5. Once the connection is available to be used, a COM+ pool thread receives the transaction and calls a TPC-C back-end DB2 client api to execute all database operations related to the transaction type. (All the transaction information entered on the HTML form is available in a data structure provided by the ISAPI caller.)
6. The transaction is committed and the DB2 back-end client returns control back to the COM pool thread.

7. COM pool thread returns control to the ISAPI caller. (All transaction results are inside the data structure that the ISAPI caller provided to the COM+ api in the parameter list.)
8 ISAPI caller returns control to the "screen application" by doing a PUT request.

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)

The RTE was given a weighted random distribution, which was not adjusted during the run. See Table 5-3.

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	59.99
Order-Status transactions using C_LAST	60.02
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.

DB2 UDB uses a write-ahead-logging protocol to guarantee recovery. This protocol uses "soft" checkpoint to write least-recently-used database pages to disk independent of transaction commit. However, enough log information to redo/undo the change to a database pages is committed to disk before the database page itself is written. This protocol, therefore, renders checkpoint unnecessary for DB2 UDB.

For a more detailed description of the general principles of the write-ahead-logging protocol, see the IBM research paper, "ARIES: A Transaction Recovery Method Supporting Fine Granularity Locking and Partial Rollbacks Using Write-Ahead Logging," by C. Mohan, Database Technology Institute, IBM Almaden Research Center.

http://portal.acm.org/citation.cfm?id=128770&coll=portal&dl=ACM&CFID=10343790&CFTOKEN=42047146

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 is IBM-developed proprietary software. 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 1Gbps. The LAN that connected the clients to the server complies with the IEEE.802.3 standard. The Ethernet LAN had a bandwidth of 1Gbps.

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 total solution as priced will be generally available August 20, 2005.

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: 150,704 tpmC
- Price per tpmC: $6.00 USD per tpmC
- Three-year cost of ownership: $904,617 USD

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 x64 Enterprise Edition
- 6 Microsoft Windows 2000 Server
- 4 DB2 UDB 8.2 (based on per-processor price)

- 3-year support for hardware components (except for components for which a minimum of 2 or 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 Bradley J. Askins of InfoSizing, Inc. The auditor's attestation letter is provided in this section.

Availability of the Full Disclosure Report

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

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

INFO SIZING

TPC TRANSACTION PROCESSING PERFORMANCE COUNCIL CERTIFIED AUDITOR

Benchmark Sponsor: Berni Schiefer
IBM DB2 Performance
8200 Warden Avenue
Markham, Ontario L6G1C7

April 21, 2005

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

Platform:	**IBM @server xSeries 366 c/s**
Operating system:	**Microsoft Windows Server 2003 Enterprise x64 Edition**
Database Manager:	**DB2 UDB 8.2**
Transaction Manager:	**Microsoft COM+**

The results were:

CPU's Speed	Memory	Disks	NewOrder 90% Response Time	**tpmC**
Server: IBM @server xSeries 366				
4 x Xeon MP (3.6GHz)	64 GB Main (1MB L2 Cache)	351 x 36.4 GB	0.30 Seconds	**150,704.91**
Clients: Six (6) IBM @server xSeries 226 (Specification for each)				
2 x Xeon DP (3.2 GHz)	2.5 GB Main (1 MB 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
- Write-ahead-logging was active during the measurement interval
- The 60 day storage requirement was correctly computed
- The system pricing was verified for major components and maintenance

Additional Audit Notes:

None.

Respectfully Yours,

François Raab, President

Bradley J. Askins, Auditor

Appendix A: Client Server Code

A.1 Client/Terminal Handler Code

makefile.config

```
#################################################################
#############
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#################################################################
##############

#
# Makefile.config - NT/Win2000 Makefile Configuration
#

# Make Configuration (MSVC)
MAKE=nmake.exe

# Compiler Configuration (MSVC).
# CFLAGS_DEBUG may be set to "-Zi -Od", "-DDEBUGIT" "-Zi -Od
-DDEBUGIT" or left blank
CC=cl.exe
CFLAGS_OS=-DSQLWINT -MT -DWIN32 -J -Zp8 -DREG_KIT_METHOD
CFLAGS_OUT=/Fo
CFLAGS_DEBUG=

# Linker Configuration (MSVC)
LD_EXEC=link.exe
LD_STORP=link.exe
LDFLAGS_EXEC=
LDFLAGS_SHLIB=/DLL
LDFLAGS_STORP=$(LDFLAGS_SHLIB) /DEF:rpctpcc.def
LDFLAGS_LIB=/LIBPATH:$(TPCC_SQLLIB)\lib /LIBPATH:"C:\Program
Files\Microsoft Visual Studio\VC98\Lib" db2api.lib winmm.lib
LDFLAGS_OUT=/OUT:

# Library Configuration
AR=lib.exe
ARFLAGS=
ARFLAGS_LIB=
ARFLAGS_OUT=/OUT:

# OS Commands
ERASE=del /F
ERASEDIR=rmdir /S
MOVE=MOVE
COPY=COPY

# OS File Extensions & Path Separator
OBJEXT=.obj
LIBEXT=.lib
SHLIBEXT=.dll
BINEXT=.exe
SLASH=\\
CMDSEP=&
```

tpccenv.bat

```
@REM
*************************************************************
**********
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@REM  All Rights Reserved.
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@REM  US Government Users Restricted Rights - Use, duplication or
@REM  disclosure restricted by GSA ADP Schedule Contract with IBM Corp.
@REM
*************************************************************
**********
@REM
@REM tpccenv.bat - Windows Environment Setup
@REM

@REM The Kit Version
set TPCC_VERSION=CK041012

@REM The DB2 Instance Name (for DB2)
set DB2INSTANCE=DB2

@REM The OS being used (i.e. "UNIX", "WINDOWS")
set PLATFORM=WINDOWS

@REM The type of make command and slash used by the OS
@REM (i.e. UNIX - "/", WINDOWS - "\")
@REM These are referenced all over the kit.
set SLASH=\
set MAKE=nmake

set TPCC_SPTYPE=SPGENERAL

set DB2VERSION=v8

@REM The schema name is typically the SQL autorization ID (or username).
@REM This is required for runstats and EEE.
set TPCC_SCHEMA=%USERNAME%

@REM DB2 EE/EEE Configuration
set DB2EDITION=EE
set DB2NODE=0
set DB2NODES=1

set HOME=C:
set TPCC_DBNAME=TPCC
set TPCC_ROOT=c:\tpcckit\tpc-c.ibm
set TPCC_SQLLIB=c:\SQLLIB
set TPCC_RUNDATA=c:\tpcckit\tpccdata

set TPCC_DEBUGDIR=c:\temp

@REM Specifies where stored procedures should be placed and if they should
@REM be fenced.
set TPCC_SPDIR=%TPCC_SQLLIB%\function
set TPCC_FENCED=NO
include/db2tpcc.h
/*********************************************************
*************
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```

```
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*****************************************************************
*************/

/*
 * db2tpcc.h - Macros and Miscellany
 */

#ifndef __DB2TPCC_H
#define __DB2TPCC_H

#include <sys/types.h>
typedef __int16 int16_t;
typedef __int32 int32_t;
typedef __int64 int64_t;

#include "lval.h"

/*
*****************************************************************
******* */
/* Transaction Return Codes (s_transtatus)                      */
/*
*****************************************************************
******* */

#define INVALID_ITEM          100
#define TRAN_OK               0
#define FATAL_SQLERROR        -1

/*
*****************************************************************
******* */
/* Definition of Unused and Bad Items                           */
/*
*****************************************************************
******* */
/* Define unused item ID to be 0. This allows the SUT to determine the     */
/* number of items in the order as required by 2.4.1.3 and 2.4.2.2 since   */
/* the assumption that any item with OL_I_ID = 0 is unused will be true.   */
/* This in turn requires that the value used for an invalid item is        */
/* equal to ITEMS + 1.                                                      */
/*
*****************************************************************
******* */

#define INVALID_ITEM_ID (2 * ITEMS) + 1
#define UNUSED_ITEM_ID 0

#define MIN_WAREHOUSE 1
#define MAX_WAREHOUSE WAREHOUSES

/*****************************************************************
************/
/* NURand Constants                                             */
/* C_C_LAST_RUN and C_C_LAST_LOAD must adhere to clause 2.1.6.
   */
/*****************************************************************
************/
#define C_C_LAST_RUN          88
#define C_C_LAST_LOAD         173
#define C_C_ID                319
#define C_OL_I_ID   3849
#define A_C_LAST    255
#define A_C_ID                1023
#define A_OL_I_ID   8191

/*****************************************************************
************/
/* Transaction Type Identifiers                                 */
/*****************************************************************
************/

#define CLIENT_SQL   0
#define NEWORD_SQL   1
#define PAYMENT_SQL  2
#define ORDSTAT_SQL  3
#define DELIVERY_SQL 4
#define STOCKLEV_SQL 5

#define SPGENERAL_PAD 3
#define SPGENERAL_ADJUST sizeof(int16_t)

struct in_neword_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  struct   in_items_struct {
    int32_t  s_OL_I_ID;
    int32_t  s_OL_SUPPLY_W_ID;
    int16_t  s_OL_QUANTITY;
    int16_t  pad1[3];
  } in_item[15];
  int64_t  s_O_ENTRY_D_time;  /* init by SUT */
  int32_t  s_C_ID;
  int32_t  s_W_ID;
  int16_t  s_D_ID;
  int16_t  s_O_OL_CNT;                    /* init by SUT */
  int16_t  s_all_local;
  int16_t  duplicate_items;
};

struct out_neword_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  struct   items_struct {
    int32_t  s_I_PRICE;
    int32_t  s_OL_AMOUNT;
    int16_t  s_S_QUANTITY;
    int16_t  pad2;
    char     s_I_NAME[25];
    char     s_brand_generic;
  } item[15];
  int64_t  s_O_ENTRY_D_time;
  int32_t  s_W_TAX;
  int32_t  s_D_TAX;
  int32_t  s_C_DISCOUNT;
  int32_t  s_total_amount;
  int32_t  s_O_ID;
  int16_t  s_O_OL_CNT;
  int16_t  s_transtatus;
  int16_t  deadlocks;
  char     s_C_LAST[17];
  char     s_C_CREDIT[3];
};

struct in_payment_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int64_t  s_H_DATE_time;       /* init by SUT */
  int64_t  s_H_AMOUNT;
```

```
  int32_t  s_W_ID;
  int32_t  s_C_W_ID;
  int32_t  s_C_ID;
  int16_t  s_C_D_ID;
  int16_t  s_D_ID;
  char     s_C_LAST[17];
};

struct out_payment_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int64_t  s_H_DATE_time;
  int64_t  s_C_SINCE_time;
  int64_t  s_C_CREDIT_LIM;
  int64_t  s_C_BALANCE;
  int32_t  s_C_DISCOUNT;
  int32_t  s_C_ID;
  int16_t  s_transtatus;
  int16_t  deadlocks;
  char     s_W_STREET_1[21];
  char     s_W_STREET_2[21];
  char     s_W_CITY[21];
  char     s_W_STATE[3];
  char     s_W_ZIP[10];
  char     s_D_STREET_1[21];
  char     s_D_STREET_2[21];
  char     s_D_CITY[21];
  char     s_D_STATE[3];
  char     s_D_ZIP[10];
  char     s_C_FIRST[17];
  char     s_C_MIDDLE[3];
  char     s_C_LAST[17];
  char     s_C_STREET_1[21];
  char     s_C_STREET_2[21];
  char     s_C_CITY[21];
  char     s_C_STATE[3];
  char     s_C_ZIP[10];
  char     s_C_PHONE[17];
  char     s_C_CREDIT[3];
  char     s_C_DATA[201];
};

struct in_ordstat_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int32_t  s_C_ID;
  int32_t  s_W_ID;
  int16_t  s_D_ID;
  int16_t  pad1[3];
  char     s_C_LAST[17];
};

struct out_ordstat_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int64_t  s_C_BALANCE;
  int64_t  s_O_ENTRY_D_time;
  int32_t  s_C_ID;
  int32_t  s_O_ID;
  int16_t  s_O_CARRIER_ID;
  int16_t  s_ol_cnt;
  int16_t  pad1[2];
  struct   oitems_struct {
    int64_t  s_OL_DELIVERY_D_time;
    int32_t  s_OL_AMOUNT;
    int32_t  s_OL_I_ID;
    int32_t  s_OL_SUPPLY_W_ID;
    int16_t  s_OL_QUANTITY;
    int16_t  pad2;
  } item[15];
  int16_t  s_transtatus;
  int16_t  deadlocks;
  char     s_C_FIRST[17];
  char     s_C_MIDDLE[3];
  char     s_C_LAST[17];
};

struct in_delivery_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int64_t  s_O_DELIVERY_D_time;          /* init by SUT */
  int32_t  s_W_ID;
  int16_t  s_O_CARRIER_ID;
};

struct out_delivery_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int32_t  s_O_ID[10];
  int16_t  s_transtatus;
  int16_t  deadlocks;
};

struct in_stocklev_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int32_t  s_threshold;
  int32_t  s_W_ID;
  int16_t  s_D_ID;
};

struct out_stocklev_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int32_t  s_low_stock;
  int16_t  s_transtatus;
  int16_t  deadlocks;
};

/*
*************************************************************
******* */
/* Transaction Prototypes                                  */
/*
*************************************************************
******* */

#ifdef __cplusplus
extern "C" {
#endif

extern int neword_sql(struct in_neword_struct*, struct out_neword_struct*);
extern int payment_sql(struct in_payment_struct*, struct out_payment_struct*);
extern int ordstat_sql(struct in_ordstat_struct*, struct out_ordstat_struct*);
extern int delivery_sql(struct in_delivery_struct*, struct out_delivery_struct*);
extern int stocklev_sql(struct in_stocklev_struct*, struct out_stocklev_struct*);

#ifdef __cplusplus
}
#endif

/*
*************************************************************
******* */
/* DB2 Connect/Disconnect & Thread Context Wrappers                */
```

```
/*
**************************************************************
******* */

#ifdef __cplusplus
extern "C" {
#endif

extern int connect_to_TM(char*);
extern int connect_to_TM_auth(char*, char*, char*);
extern int disconnect_from_TM(void);

extern int create_context(void);
extern int destroy_context(void);
extern int get_context(void**);
extern int attach_context(void*);
extern int detach_context(void*);

#ifdef __cplusplus
}
#endif

#endif // __DB2TPCC_H
```

include/tpccapp.h

```
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**************************************************************
*************/

/*
 * tpccapp.h - Application Macros
 */

#ifndef __TPCCAPP_H
#define __TPCCAPP_H

#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <time.h>

#include "sqlenv.h"
#define daricall __stdcall

#include "sqlca.h"
#include "sqlcodes.h"

#ifdef SWAP_ENDIAN
#define SWAP_BYTE(Var)  SwapEndian((void*)&Var, sizeof(Var))

/**************************************************************
***************
  FUNCTION: SwapEndian
  PURPOSE: Swap the byte order of a structure
  EXAMPLE: int I=0x12345678; SWAP_BYTE(I); I => 0x78563412;
  IMPLEMENTATION: Fold Addr in half, swap header & tail by XOR op
        e.g.: *a = 0x12 [ Addr + 0];
              *b = 0x78 [ Add + 4 - 0 - 1 = Addr+3];
              *a ^= *b;        // sets *a to 0x6A
              *b ^= *a;        // sets *b to 0x12
              *a ^= *b;        // sets *a to 0x78

          Now *a => 0x78 && *b => 0x12
**************************************************************
*************/

void SwapEndian(void *Addr, int nb)
{
  int i;
  for (i=0; i<nb/2; i++)
  {
    char *a = (char*)Addr+i;
    char *b = (char*)Addr+(nb-i-1);

    *a ^= *b;
    *b ^= *a;
    *a ^= *b;
  }
}
#endif   //SWAP_ENDIAN


/**************************************************************
************/
/* SQLCODE Macros                                            */
/**************************************************************
************/

#define DLCHK(a) \
  if (sqlca.sqlcode == SQL_RC_E911) { goto a; }

#define NACOMPCHK(last) \
  if (sqlca.sqlcode != SQL_RC_E1339) { last = -1; } \
  else { int a = ((sqlca.sqlerrmc[4] == 0x20) ? 0 : sqlca.sqlerrmc[4]-0x30); \
        int b = ((sqlca.sqlerrmc[5] == 0x20) ? 0 : sqlca.sqlerrmc[5]-0x30); \
        if (b == 0) { last = a; } else { last = a * 10 + b; } \
      }

#endif // __TPCCAPP_H
```

include/tpccdbg.h

```
/**************************************************************
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**************************************************************
*************/

/*
 * tpccdbg.h - Debugging Macros
 */

#ifndef __TPCCDBG_H
#define __TPCCDBG_H

#ifdef __cplusplus
```

```
extern "C" {
#endif

extern void sqlerror (int tranType, char *msg, char *file, int line,
                SQL_STRUCTURE sqlca *psqlca);

extern void new_debug (struct out_neword_struct *neword_ptr,
                struct in_neword_struct *in_neword_ptr,
                char *msg);
extern void pay_debug (struct out_payment_struct *payment_ptr,
                struct in_payment_struct *in_payment_ptr,
                char *msg);
extern void ord_debug (struct out_ordstat_struct *ordstat_ptr,
                struct in_ordstat_struct *in_ordstat_ptr,
                char *msg);
extern void del_debug (struct out_delivery_struct *delivery_ptr,
                struct in_delivery_struct *in_delivery_ptr,
                char *msg);
extern void stk_debug (struct out_stocklev_struct *stocklev_ptr,
                struct in_stocklev_struct *in_stocklev_ptr,
                char *msg);

extern void new_print (struct out_neword_struct *neword_ptr,
                struct in_neword_struct *in_neword_ptr,
                char *filename,
                char *msg);
extern void pay_print (struct out_payment_struct *payment_ptr,
                struct in_payment_struct *in_payment_ptr,
                char *filename,
                char *msg);
extern void ord_print (struct out_ordstat_struct *ordstat_ptr,
                struct in_ordstat_struct *in_ordstat_ptr,
                char *filename,
                char *msg);
extern void del_print (struct out_delivery_struct *delivery_ptr,
                struct in_delivery_struct *in_delivery_ptr,
                char *filename,
                char *msg);
extern void stk_print (struct out_stocklev_struct *stocklev_ptr,
                struct in_stocklev_struct *in_stocklev_ptr,
                char *filename,
                char *msg);

#ifdef __cplusplus
}
#endif

#endif // __TPCCDBG_H
```

Src.Common/Makefile

```
#################################################################
#############
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#################################################################
##############
#
# Makefile - Makefile for Src.Common
#
!include $(TPCC_ROOT)/Makefile.config
#
#################################################################
#######
# Preprocessor, Compiler and LInker Flags
#
#################################################################
#######
BND_OPTS =          GRANT PUBLIC \
                    MESSAGES $*.bnd.msg
PRP_OPTS =          BINDFILE \
                    OPTLEVEL 1 \
                    ISOLATION RR \
                    MESSAGES $*.prep.msg \
                    LEVEL $(TPCC_VERSION) \
                    NOLINEMACRO
INCLUDES =          -I$(TPCC_SQLLIB)$(SLASH)include
-I$(TPCC_ROOT)$(SLASH)include
CFLAGS =            $(CFLAGS_OS) $(CFLAGS_DEBUG) $(INCLUDES) \
                    -DSQLA_NOLINES -D$(DB2EDITION)
-D$(DB2VERSION) \
                    -D$(TPCC_SPTYPE)
UTIL_OBJ =          tpccdbg$(OBJEXT) tpccctx$(OBJEXT)
#
#################################################################
#######
# User Targets
#
#################################################################
#######
all:        connect $(UTIL_OBJ) disconnect
clean:
            - $(ERASE) *$(OBJEXT) *.bnd *.msg tpccctx.c
#
#################################################################
#######
# Helper Targets
#
#################################################################
#######
connect:
            - db2 connect to $(TPCC_DBNAME)
disconnect:
            - db2 connect reset
            - db2 terminate

rebind:
            db2 bind tpccctx.bnd $(BND_OPTS)
#
#################################################################
#######
# Build Rules
#
#################################################################
#######
.SUFFIXES:
.SUFFIXES: $(OBJEXT) .c .sqc
.sqc.c:
            @echo "Prepping $*.sqc"
            -db2 prep $*.sqc $(PRP_OPTS)
            @echo "Binding $*.bnd"
            db2 bind $*.bnd $(BND_OPTS)
#
#################################################################
#######
# Dependencies
#
#################################################################
#######
```

```
# Source
tpccdbg$(OBJEXT):   tpccdbg.c
tpccctx$(OBJEXT):   tpccctx.c
tpccmisc$(OBJEXT): tpccmisc.c
# Headers
tpccdbg.c: $(TPCC_ROOT)/include/db2tpcc.h
```

Src.Common/tpccctx.sqc

```
/*****************************************************************
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*****************************************************************
*************/
/*
 * tpccctx.sqc - TPCC context code
 */
#include <stdlib.h>
#include <stdio.h>
#include <sqlutil.h>
#include "db2tpcc.h"
int connect_to_TM(char *in_dbname);
int connect_to_TM_auth(char *in_dbname, char *in_username, char
*in_password);
int disconnect_from_TM(void);
int create_context();
int destroy_context();
int attach_context(void*);
int detach_context(void*);
int get_context(void**);
int connect_to_TM(char *in_dbname)
{
 return connect_to_TM_auth(in_dbname, "", "");
}
int connect_to_TM_auth(char *in_dbname, char *in_username, char
*in_password)
{
  SQL_STRUCTURE sqlca  sqlca;
  int ConnectSQLCODE = 0;
  EXEC SQL BEGIN DECLARE SECTION;
  char dbname[9];
  char username[129];
  char password[15];
  EXEC SQL END DECLARE SECTION;
  SQLCODE = create_context();
  if (SQLCODE != 0) { return SQLCODE; }
  strncpy(dbname,in_dbname,8);
  if (strcmp(in_username,"") == 0)
  {
    EXEC SQL CONNECT TO :dbname IN SHARE MODE;
  } else {
    strncpy(username,in_username,128);
    strncpy(password,in_password,14);
    EXEC SQL CONNECT TO :dbname IN SHARE MODE USER :username
USING :password;
  }
  ConnectSQLCODE = SQLCODE;
  if (ConnectSQLCODE != 0)
  {
    sqlerror( CLIENT_SQL, "CONNECT", __FILE__, __LINE__, &sqlca);
    SQLCODE = destroy_context();
    if (SQLCODE != 0) { return SQLCODE; }
    return ConnectSQLCODE;
  }
  return 0;
}
int disconnect_from_TM(void)
{
  SQL_STRUCTURE sqlca  sqlca;
  int DisconnectSQLCODE = 0;
  EXEC SQL CONNECT RESET;
  DisconnectSQLCODE = SQLCODE;
  if (DisconnectSQLCODE != 0) {
    sqlerror( CLIENT_SQL, "DISCONNECT", __FILE__, __LINE__, &sqlca);
  }
  SQLCODE = destroy_context();

  if (SQLCODE != 0) { return SQLCODE; }
  if (DisconnectSQLCODE) {
    return DisconnectSQLCODE;
  }
  return 0;
}
int create_context(void)
{
  SQL_STRUCTURE sqlca sqlca;
  void *ctx;
  sqleSetTypeCtx(SQL_CTX_MULTI_MANUAL);
  sqleBeginCtx(&ctx, SQL_CTX_BEGIN_ALL, NULL, &sqlca);
  if (SQLCODE != 0) {
    sqlerror( CLIENT_SQL, "CREATE", __FILE__, __LINE__, &sqlca);
    return SQLCODE;
  }
  return 0;
}
int attach_context(void *ctx)
{
  SQL_STRUCTURE sqlca sqlca;
  sqleAttachToCtx(ctx, NULL, &sqlca);
  if (SQLCODE != 0) {
    sqlerror( CLIENT_SQL, "ATTACH", __FILE__, __LINE__, &sqlca);
    return SQLCODE;
  }
  return 0;
}

int detach_context(void *ctx)
{
  SQL_STRUCTURE sqlca sqlca;

  sqleDetachFromCtx(ctx, NULL, &sqlca);
  if (SQLCODE != 0) {
    sqlerror( CLIENT_SQL, "DETACH", __FILE__, __LINE__, &sqlca);
    return SQLCODE;
  }
  return 0;
}

int destroy_context(void)
{
  SQL_STRUCTURE sqlca sqlca;
  void *ctx;
  SQLCODE = get_context(&ctx);
  if (SQLCODE) { return SQLCODE; }
  sqleEndCtx(&ctx, SQL_CTX_END_ALL, NULL, &sqlca);
  if (SQLCODE != 0) {
```

```
    sqlerror( CLIENT_SQL, "DESTROY", __FILE__, __LINE__, &sqlca);
    return SQLCODE;
  }
  return 0;
}
int get_context(void **ctx)
{
  SQL_STRUCTURE sqlca sqlca;
  sqleGetCurrentCtx(ctx, NULL, &sqlca);
  if (SQLCODE != 0) {
    sqlerror( CLIENT_SQL, "GETCTX", __FILE__, __LINE__, &sqlca);
    return SQLCODE;
  }
  return 0;
}
```

Src.Common/tpccdbg.c

```
/*****************************************************************
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*****************************************************************
*************/
/*
 * tccdbg.c - Debugging Routines
 */
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <ctype.h>
#include <time.h>
#include "sqlca.h"
#include "sql.h"
#include "db2tpcc.h"
#include "tpccdbg.h"
#define DEBUG_FILENAME_SZ 128
#define DEBUG_PATH_SIZE 128
void        del_print();
void        new_print();
void        ord_print();
void        pay_print();
void        stk_print();
void current_tmstmp(char *buf);
static int debugInit = 0;
static char debugPath[DEBUG_PATH_SIZE] = "";
/*-----------------------------------------------------------*/
/*      InitializeDebug                                      */
/*-----------------------------------------------------------*/
__inline void InitializeDebug(void) {
  if (debugInit == 0) {
    char *p = getenv("TPCC_DEBUGDIR");
    if (p) {
      strncpy(debugPath, p, DEBUG_PATH_SIZE);
    } else {
      strcpy(debugPath, "C:\\temp");
    }
    strcat(debugPath, "\\");
  }
  debugInit = 1;
}
/*-----------------------------------------------------------*/
/*      sqlerror                                             */
/*-----------------------------------------------------------*/
void sqlerror(int tranType, char *msg, char *file, int line, SQL_STRUCTURE
sqlca *psqlca)
{
  FILE *err_fp = NULL;
  char  err_fn[DEBUG_PATH_SIZE + DEBUG_FILENAME_SZ];
  char  tranName[16];
  int j,k;
  char  timeStamp[27];
  char  errStr[512] = "";
  InitializeDebug();
  strncpy(err_fn, debugPath, DEBUG_PATH_SIZE);
  current_tmstmp(&timeStamp[0]);
  timeStamp[19] = (char)NULL;
  switch(tranType)
  {
    case NEWORD_SQL:
      // sprintf(err_fn, "%d.err.out", getpid());
      strcat(err_fn, "new.err.out");
      strcpy(tranName, "NEW_ORDER");
      break;
    case DELIVERY_SQL:
      // sprintf(err_fn, "%d.err.out", getpid());
      strcat(err_fn, "del.err.out");
      strcpy(tranName, "DELIVERY");
      break;
    case PAYMENT_SQL:
      // sprintf(err_fn, "%d.err.out", getpid());
      strcat(err_fn, "pay.err.out");
      strcpy(tranName, "PAYMENT");
      break;
    case ORDSTAT_SQL:
      // sprintf(err_fn, "%d.err.out", getpid());
      strcat(err_fn, "ord.err.out");
      strcpy(tranName, "ORDER_STAT");
      break;
    case STOCKLEV_SQL:
      //sprintf(err_fn, "%d.err.out", getpid());
      strcat(err_fn, "stk.err.out");
      strcpy(tranName, "STOCK_LVL");
      break;
    case 0:
      strcat(err_fn, "cli.err.out");
      strcpy(tranName, "CLIENT");
      break;
    default:
      return;
  }
  /* Generate Formatted Error Message */
  sqlaintp(errStr, 512, 78, psqlca);
  err_fp = fopen(err_fn, "a+");
  fprintf(err_fp, "----------------------------------------\n");
  fprintf(err_fp, "Transaction: %s (%s)\n", tranName, msg);
  fprintf(err_fp, "FILE %s (%u)\n", file, line);
  fprintf(err_fp, "SQLCODE %d ", psqlca->sqlcode);
  fprintf(err_fp, "TIME %s\n", timeStamp);
  fprintf(err_fp, "----------------------------------------\n");
  fprintf(err_fp, "%s", errStr);
  fprintf(err_fp, "----------------------------------------\n");
  if (psqlca->sqlerrmc[0] != ' ' || psqlca->sqlerrmc[1] != ' ')
  {
    fprintf(err_fp, "slerrmc:  ");
    for(j = 0; j < 5; j++)
    {
      for(k = 0; k < 16; k++) {
```

```
        int pos = j * 16 + k;
        if (pos < 70) fprintf(err_fp, "%02x ", psqlca->sqlerrmc[pos]);
        else fprintf(err_fp, "   ");
      }
      fprintf(err_fp,"   |");
      for(k = 0; k < 16; k++) {
        int pos = j * 16 + k;
        char c = ' ';
        if (pos < 70) {
          c = psqlca->sqlerrmc[pos];
          if (!isprint(c)) c = ' ';
        }
        fprintf(err_fp,"%c", c);
      }
      fprintf(err_fp,"|\n");
      if (j < 4) fprintf(err_fp,"          ");
    }
  }
  fprintf(err_fp, "sqlerrp:  ");
  for(j = 0; j < 8; j++)
    fprintf(err_fp, "%c", psqlca->sqlerrp[j]);
  fprintf(err_fp,"\n");
  fprintf(err_fp, "sqlerrd: ");
  for(j = 0; j < 6; j++)
    fprintf(err_fp, " %d", psqlca->sqlerrd[j]);
  fprintf(err_fp,"\n");
  if (psqlca->sqlwarn[0] != ' ')
  {
    fprintf(err_fp, "sqlwarn: ");
    for(j = 0; j < 8; j++)
      fprintf(err_fp, "%c ", psqlca->sqlwarn[j]);
    fprintf(err_fp,"\n");
  }
  fprintf(err_fp, "\n");
  fclose(err_fp);
}

/*-----------------------------------------------------------------*/
/* del_debug                                                       */
/*-----------------------------------------------------------------*/
void del_debug (struct out_delivery_struct *delivery_ptr,
            struct in_delivery_struct  *in_delivery,
            char *msg)
{
  char debug_fn[DEBUG_PATH_SIZE + DEBUG_FILENAME_SZ];

  InitializeDebug();
  strncpy(debug_fn, debugPath, DEBUG_PATH_SIZE);
  strcat(debug_fn, "del.debug.out");
  del_print(delivery_ptr, in_delivery, debug_fn, msg);
}
/*-----------------------------------------------------------------*/
/* del_print                                                       */
/*-----------------------------------------------------------------*/
void del_print (struct out_delivery_struct *delivery_ptr,
            struct in_delivery_struct  *in_delivery,
            char *filename,
            char *msg)
{
  FILE *debug_fp;
  char  timeStamp[27];
  int   j;
  current_tmstmp(&timeStamp[0]);
  timeStamp[19] = (char)NULL;
  if ((debug_fp = fopen(filename, "a+")) == NULL)
  {
    return;
  }
  fprintf(debug_fp,"Delivery debug information follows %s (%s)\n",
timeStamp, msg);

fprintf(debug_fp,"\n=========================================
=======\n");
  fprintf(debug_fp,"in_delivery_struct {\n");
  fprintf(debug_fp,"\ts_W_ID         = %d (%X)\n",
        in_delivery->s_W_ID, in_delivery->s_W_ID);
  fprintf(debug_fp,"\ts_O_CARRIER_ID = %d (%X)\n",
        in_delivery->s_O_CARRIER_ID, in_delivery->s_O_CARRIER_ID);
  fprintf(debug_fp,"\ts_O_DELIVERY_D = %lld (%llX)\n",
        in_delivery->s_O_DELIVERY_D_time,
in_delivery->s_O_DELIVERY_D_time);
  fprintf(debug_fp,"}\n\n");
  fprintf(debug_fp,"out_delivery_struct {\n");
  fprintf(debug_fp,"\ts_transtatus   = %d (%X)\n",
        delivery_ptr->s_transtatus,delivery_ptr->s_transtatus);
  fprintf(debug_fp,"\tdeadlocks      = %d (%X)\n",
        delivery_ptr->deadlocks,delivery_ptr->deadlocks);
  for (j = 0; j < 10; j++) {
    fprintf(debug_fp,"\t\ts_O_ID[%d]         = %d\n",
          j, delivery_ptr->s_O_ID[j]);
  }
  fprintf(debug_fp,"\t}\n}\n\n");
  fclose(debug_fp);
}

/*-----------------------------------------------------------------*/
/* new_debug                                                       */
/*-----------------------------------------------------------------*/
void new_debug (struct out_neword_struct *neword_ptr,
            struct in_neword_struct *in_neword,
            char *msg)
{
  char debug_fn[DEBUG_PATH_SIZE + DEBUG_FILENAME_SZ];

  InitializeDebug();
  strncpy(debug_fn, debugPath, DEBUG_PATH_SIZE);
  strcat(debug_fn, "new.debug.out");
  new_print(neword_ptr, in_neword, debug_fn, msg);
}
/*-----------------------------------------------------------------*/
/* new_print                                                       */
/*-----------------------------------------------------------------*/
void new_print (struct out_neword_struct *neword_ptr,
            struct in_neword_struct *in_neword,
            char *filename,
            char *msg)
{
  FILE *debug_fp;
  char  timeStamp[27];
  int   j, items;
  current_tmstmp(&timeStamp[0]);
  timeStamp[19] = (char)NULL;
  if ((debug_fp = fopen(filename, "a+")) == NULL)
  {
    return;
  }
  fprintf(debug_fp,"New order debug information follows %s (%s)\n",
timeStamp, msg);

fprintf(debug_fp,"\n=========================================
=======\n");
  fprintf(debug_fp,"in_neword_struct {\n");
  fprintf(debug_fp,"\ts_C_ID         = %d (%X)\n",
        in_neword->s_C_ID, in_neword->s_C_ID);
  fprintf(debug_fp,"\ts_W_ID         = %d (%X)\n",
        in_neword->s_W_ID, in_neword->s_W_ID);
```

```
  fprintf(debug_fp,"\ts_D_ID        = %d (%X)\n",
        in_neword->s_D_ID, in_neword->s_D_ID);
  fprintf(debug_fp,"\ts_O_OL_CNT     = %d (%X)\n",
        in_neword->s_O_OL_CNT, in_neword->s_O_OL_CNT);
  fprintf(debug_fp,"\ts_all_local    = %d (%X)\n",
        in_neword->s_all_local, in_neword->s_all_local);
  fprintf(debug_fp,"\ts_O_ENTRY_D    = %lld (%llX)\n",
        in_neword->s_O_ENTRY_D_time, in_neword->s_O_ENTRY_D_time);
// fprintf(debug_fp,"\ts_transtatus   = %d (%X)\n",
//       in_neword->s_transtatus, in_neword->s_transtatus);
// fprintf(debug_fp,"\tduplicate_items= %d (%X)\n",
//       in_neword->duplicate_items, in_neword->duplicate_items);
  fprintf(debug_fp,"\titems {\n");
  items = in_neword->s_O_OL_CNT;
  for (j=0; j<items; j++) {
    if(j != 0)
      fprintf(debug_fp,"\n");
    fprintf(debug_fp,"\t\ts_OL_I_ID[%d]        = %d (%X)\n",
          j, in_neword->in_item[j].s_OL_I_ID,
in_neword->in_item[j].s_OL_I_ID);
    fprintf(debug_fp,"\t\ts_OL_SUPPLY_W_ID[%d] = %d (%X)\n",
          j, in_neword->in_item[j].s_OL_SUPPLY_W_ID,
in_neword->in_item[j].s_OL_SUPPLY_W_ID);
    fprintf(debug_fp,"\t\ts_OL_QUANTITY[%d]    = %d (%X)\n",

          j, in_neword->in_item[j].s_OL_QUANTITY,
in_neword->in_item[j].s_OL_QUANTITY);
  }
  fprintf(debug_fp,"\t}\n}\n\n");
  fprintf(debug_fp,"out_neword_struct {\n");
  fprintf(debug_fp,"\ts_C_LAST       = %s\n",
        neword_ptr->s_C_LAST);
  fprintf(debug_fp,"\ts_C_CREDIT     = %s\n",
        neword_ptr->s_C_CREDIT);
  fprintf(debug_fp,"\ts_W_TAX        = %d\n",
        neword_ptr->s_W_TAX);
  fprintf(debug_fp,"\ts_D_TAX        = %d\n",
        neword_ptr->s_D_TAX);
  fprintf(debug_fp,"\ts_C_DISCOUNT   = %d\n",
        neword_ptr->s_C_DISCOUNT);
  fprintf(debug_fp,"\ts_O_ID         = %d (%X)\n",
        neword_ptr->s_O_ID, neword_ptr->s_O_ID);
  fprintf(debug_fp,"\ts_O_OL_CNT     = %d (%X)\n",
        neword_ptr->s_O_OL_CNT, neword_ptr->s_O_OL_CNT);
  fprintf(debug_fp,"\ts_O_ENTRY_D    = %lld (%llX)\n",
        neword_ptr->s_O_ENTRY_D_time,
neword_ptr->s_O_ENTRY_D_time);
  fprintf(debug_fp,"\ts_total_amount = %d\n",
        neword_ptr->s_total_amount);
  fprintf(debug_fp,"\ts_transtatus   = %d (%X)\n",
        neword_ptr->s_transtatus, neword_ptr->s_transtatus);
  fprintf(debug_fp,"\tdeadlocks      = %d (%X)\n",
        neword_ptr->deadlocks, neword_ptr->deadlocks);
// fprintf(debug_fp,"\ts_W_ID         = %d (%X)\n",
//       neword_ptr->s_W_ID, neword_ptr->s_W_ID);
// fprintf(debug_fp,"\ts_D_ID         = %d (%X)\n",
//       neword_ptr->s_D_ID, neword_ptr->s_D_ID);
// fprintf(debug_fp,"\ts_all_local    = %d (%X)\n",
//       neword_ptr->s_all_local, neword_ptr->s_all_local);
// fprintf(debug_fp,"\tduplicate_items= %d (%X)\n",
//       neword_ptr->duplicate_items, neword_ptr->duplicate_items);
  fprintf(debug_fp,"\titems {\n");
  items = neword_ptr->s_O_OL_CNT;
  for (j=0; j<items; j++) {
    if(j != 0)
      fprintf(debug_fp,"\n");
    fprintf(debug_fp,"\t\ts_I_NAME[%d]         = %s\n",
          j, neword_ptr->item[j].s_I_NAME);
    fprintf(debug_fp,"\t\ts_I_PRICE[%d]        = %d\n",
          j, neword_ptr->item[j].s_I_PRICE);
    fprintf(debug_fp,"\t\ts_OL_AMOUNT[%d]      = %d\n",
          j, neword_ptr->item[j].s_OL_AMOUNT);
    fprintf(debug_fp,"\t\ts_S_QUANTITY[%d]     = %d (%X)\n",
          j, neword_ptr->item[j].s_S_QUANTITY,
neword_ptr->item[j].s_S_QUANTITY);
    fprintf(debug_fp,"\t\ts_brand_generic[%d]  = %c\n",
          j, neword_ptr->item[j].s_brand_generic);
  }
  fprintf(debug_fp,"\t}\n}\n\n");
  fclose(debug_fp);
}


/*-----------------------------------------------------------*/
/* ord_debug                                                 */
/*-----------------------------------------------------------*/
void ord_debug (struct out_ordstat_struct *ordstat_ptr,
            struct in_ordstat_struct  *in_ordstat,
            char *msg)
{
  char debug_fn[DEBUG_PATH_SIZE + DEBUG_FILENAME_SZ];

  InitializeDebug();
  strncpy(debug_fn, debugPath, DEBUG_PATH_SIZE);
  strcat(debug_fn, "ord.debug.out");
  ord_print(ordstat_ptr, in_ordstat, debug_fn, msg);
}
/*-----------------------------------------------------------*/
/* ord_print                                                 */
/*-----------------------------------------------------------*/
void ord_print (struct out_ordstat_struct *ordstat_ptr,
            struct in_ordstat_struct  *in_ordstat,
            char *filename,
            char *msg)
{
  FILE *debug_fp;
  char  timeStamp[27];
  int   j, items;
  current_tmstmp(&timeStamp[0]);
  timeStamp[19] = (char)NULL;
  if ((debug_fp = fopen(filename, "a+")) == NULL)
  {
    return;
  }
  fprintf(debug_fp,"Order status debug information follows %s (%s)\n",
timeStamp, msg);

fprintf(debug_fp,"\n==========================================
=======\n");
  fprintf(debug_fp,"in_ordstat_struct {\n");
  fprintf(debug_fp,"\ts_W_ID         = %d (%X)\n",
        in_ordstat->s_W_ID, in_ordstat->s_W_ID);
  fprintf(debug_fp,"\ts_D_ID         = %d (%X)\n",
        in_ordstat->s_D_ID, in_ordstat->s_D_ID);
  fprintf(debug_fp,"\ts_C_ID         = %d (%X)\n",
        in_ordstat->s_C_ID, in_ordstat->s_C_ID);
  fprintf(debug_fp,"\ts_C_LAST       = %s\n",
        in_ordstat->s_C_LAST);

  fprintf(debug_fp,"}\n\n");
  fprintf(debug_fp,"out_ordstat_struct {\n");
  fprintf(debug_fp,"\ts_C_ID         = %d (%X)\n",
        ordstat_ptr->s_C_ID, ordstat_ptr->s_C_ID);
  fprintf(debug_fp,"\ts_C_FIRST      = %s\n",
        ordstat_ptr->s_C_FIRST);
  fprintf(debug_fp,"\ts_C_MIDDLE     = %s\n",
```

```
        ordstat_ptr->s_C_MIDDLE);
  fprintf(debug_fp,"\ts_C_LAST       = %s\n",
        ordstat_ptr->s_C_LAST);
  fprintf(debug_fp,"\ts_C_BALANCE    = %lld\n",
        ordstat_ptr->s_C_BALANCE);
  fprintf(debug_fp,"\ts_O_ID         = %d (%X)\n",
        ordstat_ptr->s_O_ID, ordstat_ptr->s_O_ID);
  fprintf(debug_fp,"\ts_O_ENTRY_D    = %lld (%llX)\n",
        ordstat_ptr->s_O_ENTRY_D_time, ordstat_ptr->s_O_ENTRY_D_time);
  fprintf(debug_fp,"\ts_O_CARRIER_ID = %d (%X)\n",
        ordstat_ptr->s_O_CARRIER_ID, ordstat_ptr->s_O_CARRIER_ID);
  fprintf(debug_fp,"\ts_ol_cnt       = %d (%X)\n",
        ordstat_ptr->s_ol_cnt, ordstat_ptr->s_ol_cnt);
  fprintf(debug_fp,"\ts_transtatus   = %d (%X)\n",
        ordstat_ptr->s_transtatus, ordstat_ptr->s_transtatus);
  fprintf(debug_fp,"\tdeadlocks      = %d (%X)\n",
        ordstat_ptr->deadlocks, ordstat_ptr->deadlocks);
  fprintf(debug_fp,"\titems {\n");
  items = ordstat_ptr->s_ol_cnt;
  for (j = 0; j < items; j++) {
    if(j != 0)
      fprintf(debug_fp,"\n");
    fprintf(debug_fp,"\t\ts_OL_SUPPLY_W_ID[%d] = %d (%X)\n",
          j, ordstat_ptr->item[j].s_OL_SUPPLY_W_ID,
ordstat_ptr->item[j].s_OL_SUPPLY_W_ID);
    fprintf(debug_fp,"\t\ts_OL_I_ID[%d]        = %d (%X)\n",
          j, ordstat_ptr->item[j].s_OL_I_ID, ordstat_ptr->item[j].s_OL_I_ID);
    fprintf(debug_fp,"\t\ts_OL_QUANTITY[%d]    = %d (%X)\n",
          j, ordstat_ptr->item[j].s_OL_QUANTITY,
ordstat_ptr->item[j].s_OL_QUANTITY);
    fprintf(debug_fp,"\t\ts_OL_AMOUNT[%d]      = %d\n",
          j, ordstat_ptr->item[j].s_OL_AMOUNT);
    fprintf(debug_fp,"\t\ts_OL_DELIVERY_D[%d]  = %lld (%llX)\n",
          j,ordstat_ptr->item[j].s_OL_DELIVERY_D_time,
          ordstat_ptr->item[j].s_OL_DELIVERY_D_time);
  }
  fprintf(debug_fp,"\t}\n}\n\n");
  fclose(debug_fp);
}

/*-----------------------------------------------------------------*/

/* pay_debug                                                       */
/*-----------------------------------------------------------------*/
void pay_debug (struct out_payment_struct *payment_ptr,
            struct in_payment_struct  *in_payment,
            char *msg)
{
  char debug_fn[DEBUG_PATH_SIZE + DEBUG_FILENAME_SZ];

  InitializeDebug();
  strncpy(debug_fn, debugPath, DEBUG_PATH_SIZE);
  strcat(debug_fn, "pay.debug.out");
  pay_print(payment_ptr, in_payment, debug_fn, msg);
}

/*-----------------------------------------------------------------*/
/* pay_print                                                       */
/*-----------------------------------------------------------------*/
void pay_print (struct out_payment_struct *payment_ptr,
            struct in_payment_struct  *in_payment,
            char *filename,
            char *msg)
{
  FILE *debug_fp;
  char  timeStamp[27];
  current_tmstmp(&timeStamp[0]);
  timeStamp[19] = (char)NULL;
  if ((debug_fp = fopen(filename, "a+")) == NULL)
  {
    return;
  }
  fprintf(debug_fp,"Payment debug information follows %s (%s)\n",
timeStamp, msg);

fprintf(debug_fp,"\n==========================================
=======\n");
  fprintf(debug_fp,"in_payment_struct {\n");
  fprintf(debug_fp,"\ts_H_AMOUNT     = %lld (%llX)\n",
        in_payment->s_H_AMOUNT, in_payment->s_H_AMOUNT);
  fprintf(debug_fp,"\ts_C_ID         = %d (%X)\n",
        in_payment->s_C_ID, in_payment->s_C_ID);
  fprintf(debug_fp,"\ts_W_ID         = %d (%X)\n",
        in_payment->s_W_ID, in_payment->s_W_ID);
  fprintf(debug_fp,"\ts_D_ID         = %d (%X)\n",
        in_payment->s_D_ID, in_payment->s_D_ID);
  fprintf(debug_fp,"\ts_C_D_ID       = %d (%X)\n",
        in_payment->s_C_D_ID, in_payment->s_C_D_ID);
  fprintf(debug_fp,"\ts_C_W_ID       = %d (%X)\n",
        in_payment->s_C_W_ID, in_payment->s_C_W_ID);
  fprintf(debug_fp,"\ts_C_LAST       = %s\n",
        in_payment->s_C_LAST);
  fprintf(debug_fp,"\ts_H_DATE       = %lld (%llX)\n",
        in_payment->s_H_DATE_time, in_payment->s_H_DATE_time);
  fprintf(debug_fp,"\n}\n\n");
  fprintf(debug_fp,"out_payment_struct {\n");
  fprintf(debug_fp,"\ts_H_DATE       = %lld (%llX)\n",
        in_payment->s_H_DATE_time, in_payment->s_H_DATE_time);
  fprintf(debug_fp,"\ts_C_CREDIT_LIM = %lld\n",
        payment_ptr->s_C_CREDIT_LIM);
  fprintf(debug_fp,"\ts_C_DISCOUNT   = %d\n",
        payment_ptr->s_C_DISCOUNT);
  fprintf(debug_fp,"\ts_C_BALANCE    = %lld\n",
        payment_ptr->s_C_BALANCE);
  fprintf(debug_fp,"\ts_C_ID         = %d (%X)\n",
        payment_ptr->s_C_ID, payment_ptr->s_C_ID);
  fprintf(debug_fp,"\ts_W_STREET_1   = %s\n",
        payment_ptr->s_W_STREET_1);
  fprintf(debug_fp,"\ts_W_STREET_2   = %s\n",
        payment_ptr->s_W_STREET_2);
  fprintf(debug_fp,"\ts_W_CITY       = %s\n",
        payment_ptr->s_W_CITY);
  fprintf(debug_fp,"\ts_W_STATE      = %s\n",
        payment_ptr->s_W_STATE);
  fprintf(debug_fp,"\ts_W_ZIP        = %s\n",
        payment_ptr->s_W_ZIP);
  fprintf(debug_fp,"\ts_D_STREET_1   = %s\n",
        payment_ptr->s_D_STREET_1);
  fprintf(debug_fp,"\ts_D_STREET_2   = %s\n",
        payment_ptr->s_D_STREET_2);
  fprintf(debug_fp,"\ts_D_CITY       = %s\n",
        payment_ptr->s_D_CITY);
  fprintf(debug_fp,"\ts_D_STATE      = %s\n",
        payment_ptr->s_D_STATE);
  fprintf(debug_fp,"\ts_D_ZIP        = %s\n",
        payment_ptr->s_D_ZIP);
  fprintf(debug_fp,"\ts_C_FIRST      = %s\n",
        payment_ptr->s_C_FIRST);
  fprintf(debug_fp,"\ts_C_MIDDLE     = %s\n",
        payment_ptr->s_C_MIDDLE);
  fprintf(debug_fp,"\ts_C_LAST       = %s\n",
        payment_ptr->s_C_LAST);
  fprintf(debug_fp,"\ts_C_STREET_1   = %s\n",
        payment_ptr->s_C_STREET_1);
  fprintf(debug_fp,"\ts_C_STREET_2   = %s\n",
        payment_ptr->s_C_STREET_2);
```

```
  fprintf(debug_fp,"\ts_C_CITY       = %s\n",
        payment_ptr->s_C_CITY);
  fprintf(debug_fp,"\ts_C_STATE      = %s\n",
        payment_ptr->s_C_STATE);
  fprintf(debug_fp,"\ts_C_ZIP        = %s\n",
        payment_ptr->s_C_ZIP);
  fprintf(debug_fp,"\ts_C_PHONE      = %s\n",
        payment_ptr->s_C_PHONE);
  fprintf(debug_fp,"\ts_C_SINCE      = %lld (%llX)\n",
        payment_ptr->s_C_SINCE_time, payment_ptr->s_C_SINCE_time);
  fprintf(debug_fp,"\ts_C_CREDIT     = %s\n",
        payment_ptr->s_C_CREDIT);
  fprintf(debug_fp,"\ts_C_DATA       = %s\n",
        payment_ptr->s_C_DATA);
  fprintf(debug_fp,"\ts_transtatus   = %d (%X)\n",
        payment_ptr->s_transtatus,payment_ptr->s_transtatus);
  fprintf(debug_fp,"\tdeadlocks      = %d (%X)\n",
        payment_ptr->deadlocks,payment_ptr->deadlocks);
  fprintf(debug_fp,"\n}\n\n");
  fclose(debug_fp);
}

/*-----------------------------------------------------------------*/
/* stk_debug                                                       */
/*-----------------------------------------------------------------*/
void stk_debug (struct out_stocklev_struct *stocklev,
            struct in_stocklev_struct  *in_stocklev,
            char *msg)
{
  char debug_fn[DEBUG_PATH_SIZE + DEBUG_FILENAME_SZ];

  InitializeDebug();
  strncpy(debug_fn, debugPath, DEBUG_PATH_SIZE);
  strcat(debug_fn, "stk.debug.out");
  stk_print(stocklev, in_stocklev, debug_fn, msg);
}
/*-----------------------------------------------------------------*/
/* stk_print                                                       */
/*-----------------------------------------------------------------*/
void stk_print (struct out_stocklev_struct *stocklev,
            struct in_stocklev_struct  *in_stocklev,
            char *filename,
            char *msg)
{
  FILE *debug_fp;
  char  timeStamp[27];
  current_tmstmp(&timeStamp[0]);
  timeStamp[19] = (char)NULL;
  if ((debug_fp = fopen(filename, "a+")) == NULL)
  {
    return;
  }
  fprintf(debug_fp,"Stock level debug information follows %s (%s)\n",
timeStamp, msg);

fprintf(debug_fp,"\n==========================================
=======\n");
  fprintf(debug_fp,"in_stocklev_struct {\n");
  fprintf(debug_fp,"\ts_W_ID         = %d (%X)\n",
        in_stocklev->s_W_ID, in_stocklev->s_W_ID);
  fprintf(debug_fp,"\ts_D_ID         = %d (%X)\n",
        in_stocklev->s_D_ID, in_stocklev->s_D_ID);
  fprintf(debug_fp,"\ts_threshold    = %d (%X)\n",
        in_stocklev->s_threshold, in_stocklev->s_threshold);
  fprintf(debug_fp,"}\n\n");
  fprintf(debug_fp,"out_stocklev_struct {\n");
  fprintf(debug_fp,"\ts_transtatus   = %d (%X)\n",
        stocklev->s_transtatus, stocklev->s_transtatus);
  fprintf(debug_fp,"\tdeadlocks      = %d (%X)\n",
        stocklev->deadlocks, stocklev->deadlocks);
  fprintf(debug_fp,"\ts_low_stock    = %d (%X)\n",
        stocklev->s_low_stock, stocklev->s_low_stock);
  fprintf(debug_fp,"}\n\n");
  fclose(debug_fp);
}
void current_tmstmp(char *buf)
{
 time_t t = time(NULL);
 strncpy(buf,ctime(&t),19);
}
```

Src.Cli/Makefile

```
##################################################################
############
## Licensed Materials - Property of IBM
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## License Agreement for Non-Warranted Sample Code.
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## disclosure restricted by GSA ADP Schedule Contract with IBM Corp.
##################################################################
#############
#
# Makefile - Makefile for Src.Cli (RTE/Driver Interface)
#
!include $(TPCC_ROOT)/Makefile.config
#
##################################################################
########
# Preprocessor, Compiler and Linker Flags
#
##################################################################
########
BND_OPTS =          GRANT PUBLIC \
                    MESSAGES $*.bnd.msg
PRP_OPTS =          BINDFILE \
                    ISOLATION RR \
                    EXPLAIN ALL \
                    MESSAGES $*.prep.msg \
                    LEVEL $(TPCC_VERSION) \
                    NOLINEMACRO
INCLUDES =          -I$(TPCC_SQLLIB)/include -I$(TPCC_ROOT)/include
CFLAGS =            $(CFLAGS_OS) $(INCLUDES) $(CFLAGS_DEBUG) \
                    $(UOPTS) -D$(DB2EDITION) -D$(DB2VERSION)
-D$(TPCC_SPTYPE)
OBJS =              $(TPCC_ROOT)/Src.Common/tpccmisc$(OBJEXT) \
                    $(TPCC_ROOT)/Src.Common/tpccdbg$(OBJEXT) \
                    $(TPCC_ROOT)/Src.Common/tpccctx$(OBJEXT) \
                    tpcccli$(OBJEXT)
LIBS =              tpcccli$(LIBEXT)
#
##################################################################
########
# User Targets
#
##################################################################
########
all:        connect $(OBJS) plan $(LIBS) disconnect
            $(AR) $(ARFLAGS) $(ARFLAGS_OUT)tpcccli$(LIBEXT)
$(OBJS) $(ARFLAGS_LIB)
            @echo "-------------------------------------------------------"
            @echo "Please copy lval.h, db2tpcc.h, and tpcccli$(LIBEXT) to"
```

```
	@echo "a place where they can be #included and linked with the"
	@echo "RTE/driver code."
	@echo "-----------------------------------------------------"
clean:
	- $(ERASE) *.msg *.bnd *.plan *$(OBJEXT) *$(LIBEXT) tpcccli.c
#
#################################################################
#######
# Helper Targets
#
#################################################################
#######
connect:
	- db2 connect to $(TPCC_DBNAME)
disconnect:
	- db2 connect reset
	- db2 terminate
plan:
	- db2exfmt -d $(TPCC_DBNAME) -e $(TPCC_SCHEMA) -s
$(TPCC_SCHEMA) -w -1 -n TPCCCLI -g -# 0 -o TPCCCLI.exfmt.plan
	- db2expln -d $(TPCC_DBNAME) -c $(TPCC_SCHEMA) -p
TPCCCLI -s 0 -g -o TPCCCLI.expln.plan
rebind:	connect
	db2 bind tpcccli.bnd $(BND_OPTS) QUERYOPT 7
#
#################################################################
#######
# Build Rules
#
#################################################################
#######
.SUFFIXES:
.SUFFIXES: $(OBJEXT) .c .sqc
tpcccli.c:
	@echo "Prepping $*.sqc"
	-db2 prep $*.sqc $(PRP_OPTS) ISOLATION RR
	@echo "Binding $*.bnd"
	db2 bind $*.bnd $(BND_OPTS) QUERYOPT 7
#
#################################################################
#######
# Dependencies
#
#################################################################
#######
# Client Library:
tpcccli$(LIBEXT):	$(OBJS)
# Source
tpcc_all_sql$(OBJEXT):		tpcc_all_sql.c
# Headers
tpcc_all_sql.c:		$(TPCC_ROOT)/include/db2tpcc.h
$(TPCC_ROOT)/include/lval.h
```

Src.Cli/tpcccli.sqc

```
/*****************************************************************
**************
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** (C) COPYRIGHT International Business Machines Corp. 1996 - 2004
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** disclosure restricted by GSA ADP Schedule Contract with IBM Corp.
*****************************************************************
**************/
/*
 * tpcccli.sqc - Client/Server code for TPCC
 */
#include <stdlib.h>
#include <errno.h>
#include "db2tpcc.h"
#include "tpccapp.h"
#include "tpccdbg.h"
#include "sqlca.h"
#include "sql.h"
#include "lval.h"
// ---------------------------------------------------------------
// New Order CLIENT
// ---------------------------------------------------------------
static int itemComparison ( const void * a , const void * b )
{
  struct in_items_struct * one = (struct in_items_struct *) a ;
  struct in_items_struct * two = (struct in_items_struct *) b ;
  // If diff item id then sort on that.
  // If real/quasi dup, then sort on warehouse id.
  if ( one->s_OL_I_ID != two->s_OL_I_ID )
  {
    return (  one->s_OL_I_ID - two->s_OL_I_ID  ) ;
  }
  else
  {
    return (  one->s_OL_SUPPLY_W_ID - two->s_OL_SUPPLY_W_ID  ) ;
  }
}
int neword_sql (  struct in_neword_struct  * in_neword
		, struct out_neword_struct * neword	)
{
  struct sqlca sqlca ;
  EXEC SQL BEGIN DECLARE SECTION;
    struct vc_new_in
    {
      short len;
      char data[ 270 ] ;
    } * pHostvarInput ;
    struct vc_new_out
    {
      short len;
      char data[ 662 ] ;
    } * pHostvarOutput ;
  EXEC SQL END DECLARE SECTION;
  int clientRc = TRAN_OK ;
  int itemIndex = 0 ;
  int actualItemIndex = 0 ;
  /* Create Timestamp */
  in_neword->s_O_ENTRY_D_time = time(NULL) ;
  // Sort the item list ; This helps eliminate duplicates anyway, and since invalid
item
  // IDs == 100001 , we will remain compliant with 2.4.2.3 Comment 1.
  // !! So DON'T sort or change the order of the items in any subsequent code,
including SQL.
  in_neword->s_all_local  = 1 ;
  for ( itemIndex = 0 ;
        itemIndex < 15 && in_neword->in_item[ itemIndex ].s_OL_I_ID !=
UNUSED_ITEM_ID ;
        itemIndex++
      )
  {
    if ( in_neword->in_item[ itemIndex ].s_OL_SUPPLY_W_ID !=
in_neword->s_W_ID )
    {
      in_neword->s_all_local = 0 ;
```

```
    }
  }
  // Pre-duplicate processing count
  in_neword->s_O_OL_CNT = itemIndex ;
  // Sort the original array
  qsort( in_neword->in_item, in_neword->s_O_OL_CNT
       , sizeof ( in_neword->in_item[ 0 ] )
       , itemComparison
      ) ;
  // Now purge the duplicates.
  actualItemIndex = -1 ;
  for ( itemIndex = 0
      ; itemIndex < in_neword->s_O_OL_CNT
      ; itemIndex++ )
  {
    // If duplicate, just increment the item entry order count
    if ( actualItemIndex >= 0
        && in_neword->in_item[ actualItemIndex ].s_OL_I_ID       ==
in_neword->in_item[ itemIndex ].s_OL_I_ID
        && in_neword->in_item[ actualItemIndex ].s_OL_SUPPLY_W_ID ==
in_neword->in_item[ itemIndex ].s_OL_SUPPLY_W_ID
      )
    {
      in_neword->in_item[ actualItemIndex ].s_OL_QUANTITY  +=
in_neword->in_item[ itemIndex ].s_OL_QUANTITY ;
    }
    else
    {
      actualItemIndex ++ ;
      in_neword->in_item[ actualItemIndex ].s_OL_I_ID       =
in_neword->in_item[ itemIndex ].s_OL_I_ID ;
      in_neword->in_item[ actualItemIndex ].s_OL_SUPPLY_W_ID =
in_neword->in_item[ itemIndex ].s_OL_SUPPLY_W_ID ;
      in_neword->in_item[ actualItemIndex ].s_OL_QUANTITY    =
in_neword->in_item[ itemIndex ].s_OL_QUANTITY ;
    }
  }
  in_neword->s_O_OL_CNT = actualItemIndex + 1 ;
  pHostvarInput      = (struct vc_new_in *) in_neword ;
  pHostvarInput->len = sizeof(struct in_neword_struct) -
SPGENERAL_ADJUST ;
  pHostvarOutput      = (struct vc_new_out *) neword;
  pHostvarOutput->len = sizeof(struct out_neword_struct) -
SPGENERAL_ADJUST ;
#ifdef DEBUGIT
  new_debug(neword, in_neword, "Client before SP call");
#endif /* DEBUGIT */
#ifdef SWAP_ENDIAN
  for (itemIndex=0; itemIndex<in_neword->s_O_OL_CNT; itemIndex++)
  {
    SWAP_BYTE(in_neword->in_item[ itemIndex ].s_OL_I_ID);
    SWAP_BYTE(in_neword->in_item[ itemIndex ].s_OL_SUPPLY_W_ID);
    SWAP_BYTE(in_neword->in_item[ itemIndex ].s_OL_QUANTITY);
  }
  SWAP_BYTE(in_neword->s_O_ENTRY_D_time);
  SWAP_BYTE(in_neword->s_C_ID);
  SWAP_BYTE(in_neword->s_W_ID);
  SWAP_BYTE(in_neword->s_D_ID);
  SWAP_BYTE(in_neword->s_O_OL_CNT);
  SWAP_BYTE(in_neword->s_all_local);
  SWAP_BYTE(in_neword->duplicate_items);
#endif  //SWAP_ENDIAN
  EXEC SQL CALL news ( :*pHostvarInput, :*pHostvarOutput );
#ifdef SWAP_ENDIAN
  SWAP_BYTE(in_neword->s_O_ENTRY_D_time);
  SWAP_BYTE(in_neword->s_C_ID);
  SWAP_BYTE(in_neword->s_W_ID);
  SWAP_BYTE(in_neword->s_D_ID);
  SWAP_BYTE(in_neword->s_O_OL_CNT);
  SWAP_BYTE(in_neword->s_all_local);
  SWAP_BYTE(in_neword->duplicate_items);
  for (itemIndex=0; itemIndex<in_neword->s_O_OL_CNT; itemIndex++)
  {
    SWAP_BYTE(in_neword->in_item[ itemIndex ].s_OL_I_ID);
    SWAP_BYTE(in_neword->in_item[ itemIndex ].s_OL_SUPPLY_W_ID);
    SWAP_BYTE(in_neword->in_item[ itemIndex ].s_OL_QUANTITY);
  }
  SWAP_BYTE(neword->s_O_ENTRY_D_time);
  SWAP_BYTE(neword->s_W_TAX);
  SWAP_BYTE(neword->s_D_TAX);
  SWAP_BYTE(neword->s_C_DISCOUNT);
  SWAP_BYTE(neword->s_total_amount);
  SWAP_BYTE(neword->s_O_ID);
  SWAP_BYTE(neword->s_O_OL_CNT);
  SWAP_BYTE(neword->s_transtatus);
  SWAP_BYTE(neword->deadlocks);
  for (itemIndex=0; itemIndex<in_neword->s_O_OL_CNT; itemIndex++)
  {
    SWAP_BYTE(neword->item[ itemIndex ].s_I_PRICE);
    SWAP_BYTE(neword->item[ itemIndex ].s_OL_AMOUNT);
    SWAP_BYTE(neword->item[ itemIndex ].s_S_QUANTITY);
  }
#endif  //SWAP_ENDIAN
  if ( sqlca.sqlcode == 0 )
  {
    double wtax = neword->s_W_TAX / 10000.0 ;
    double dtax = neword->s_D_TAX / 10000.0 ;
    double cdisc = neword->s_C_DISCOUNT / 10000.0 ;
    double factor = (1.0 - cdisc) * (1.0 + wtax + dtax) ;
    // Post process the item set, detecting any bad items , and set or count from
that.
    // Anything that could be deferered from the SP to the client has been.
    neword->s_total_amount = 0 ;
    for ( itemIndex = 0 ;
        itemIndex < in_neword->s_O_OL_CNT ; // from input , not output
        itemIndex++
      )
    {
      if ( neword->item[ itemIndex ].s_I_PRICE > 0 )  // A zero price signifies a
bad item
      {
        neword->item[ itemIndex ].s_OL_AMOUNT =  neword->item[
itemIndex ].s_I_PRICE *
                                    in_neword->in_item[ itemIndex
].s_OL_QUANTITY ;  // reference input value

        neword->s_total_amount += neword->item[ itemIndex
].s_OL_AMOUNT ;

      }
    }
    // s_total_amount gets cast implicitly to a double to do the arithmetic,
    // and then cast back to a sqlint32.
    neword->s_total_amount *= factor;
  }
  else
  {
    sqlerror( NEWORD_SQL, "NEW", __FILE__, __LINE__, &sqlca) ;
    neword->s_transtatus = FATAL_SQLERROR ;
    clientRc = FATAL_SQLERROR ;
  }
  /* Update Output Structure with Timestamp */
  neword->s_O_ENTRY_D_time = in_neword->s_O_ENTRY_D_time ;
#ifdef DEBUGIT
  new_debug(neword, in_neword, "Client after SP call");
#endif /* DEBUGIT */
```

```
  if (neword->s_transtatus <= FATAL_SQLERROR)
  {
    new_debug(neword, in_neword, "NEW failed");
    clientRc = FATAL_SQLERROR ;
  }
  if (neword->s_transtatus == INVALID_ITEM)
  {
    clientRc = INVALID_ITEM ;
  }
  return ( clientRc ) ;
}
// ---------------------------------------------------------------
// Payment CLIENT
// ---------------------------------------------------------------
int payment_sql  (   struct in_payment_struct * in_payment
                , struct out_payment_struct * payment    )
{
  struct sqlca sqlca ;
  int clientRc = TRAN_OK ;
  EXEC SQL BEGIN DECLARE SECTION;
    // Inputs
    sqlint64 h_amount ;
    sqlint32 in_c_id ;
    struct s_data_type { short len ; char data[ 16 ] ; } c_last_input ;
    sqlint32 w_id ;
    sqlint32 c_w_id ;
    short    d_id ;
    short    c_d_id ;
    sqlint64 h_date;
    // Outputs
    sqlint32 c_id ;
    sqlint64  c_credit_lim ;
    sqlint32  c_discount ;
    sqlint64  c_balance ;
    char    w_street_1 [ 20 ] , w_street_2 [ 20 ] ;
    char    w_city [ 20 ] ,     w_state [ 2 ] ,      w_zip [ 9 ] ;
    char    d_street_1 [ 20 ] , d_street_2 [ 20 ] ,  d_city [ 20 ] ;
    char    d_state [ 2 ] ,     d_zip [ 9 ] ,        c_first [ 16 ] ;
    char    c_last [ 16 ] ;
    char    c_middle [ 2 ]    , c_street_1 [ 20 ] ;
    char    c_street_2 [ 20 ] , c_city [ 20 ] ,      c_state [ 2 ] ;
    char    c_zip [ 9 ] ,      c_phone [ 16 ] ;
    char    c_credit [ 2 ] ;
    sqlint64    c_since ;
    char    c_data [ 200 ] ;
    short   c_data_indicator = 0 ;
    struct c_data_prefix_c_last_type { short len ; char data[ 28 ] ; }
c_data_prefix_c_last ;
    struct c_data_prefix_c_id_type   { short len ; char data[ 34 ] ; }
c_data_prefix_c_id ;

  EXEC SQL END DECLARE SECTION;

  // Input redirects
  #define h_amount          in_payment->s_H_AMOUNT
  #define in_c_id           in_payment->s_C_ID
  #define w_id              in_payment->s_W_ID
  #define d_id              in_payment->s_D_ID
  #define c_d_id            in_payment->s_C_D_ID
  #define c_w_id            in_payment->s_C_W_ID
  #define h_date            in_payment->s_H_DATE_time
  // Output redirects
  #define c_credit_lim      payment->s_C_CREDIT_LIM
  #define c_discount        payment->s_C_DISCOUNT
  #define c_balance         payment->s_C_BALANCE
  #define c_id              payment->s_C_ID
  #define c_last            payment->s_C_LAST
  #define c_first           payment->s_C_FIRST
  #define c_middle          payment->s_C_MIDDLE
  #define c_street_1        payment->s_C_STREET_1
  #define c_street_2        payment->s_C_STREET_2
  #define c_city            payment->s_C_CITY
  #define c_state           payment->s_C_STATE
  #define c_zip             payment->s_C_ZIP
  #define c_phone           payment->s_C_PHONE
  #define c_credit          payment->s_C_CREDIT
  #define c_since           payment->s_C_SINCE_time
  #define c_data            payment->s_C_DATA
  #define w_street_1        payment->s_W_STREET_1
  #define w_street_2        payment->s_W_STREET_2
  #define w_city            payment->s_W_CITY
  #define w_state           payment->s_W_STATE
  #define w_zip             payment->s_W_ZIP
  #define d_street_1        payment->s_D_STREET_1
  #define d_street_2        payment->s_D_STREET_2
  #define d_city            payment->s_D_CITY
  #define d_state           payment->s_D_STATE
  #define d_zip             payment->s_D_ZIP
  /* Create Timestamp */
  in_payment->s_H_DATE_time = (sqlint64) time( NULL ) ;
  payment->deadlocks = -1 ;
  payment->s_transtatus = TRAN_OK ;
  if (c_w_id == 0) { c_w_id = w_id; }
  if (c_d_id == 0) { c_d_id = d_id; }
#ifdef DEBUGIT
  pay_debug(payment, in_payment, "Client before SQL call");
#endif /* DEBUGIT */
  // Create c_data_prefix strings and copy some elements from
  // in -> out struct outside of retry_tran loop
  if ( in_c_id == 0 )
  {
    // Pre-built c_data prefix for BC does not include c_id in this instance
    // Tne strange $04.4d.%02.2d printf modifier is to print a (4,2)
    // 0-padded floating-point value -- %f won't 0-pad by default.
    c_data_prefix_c_last.len = sprintf( c_data_prefix_c_last.data, " %2.2d
%6.6d %2.2d %6.6d %04.4d.%02.2d",  c_d_id , c_w_id , d_id , w_id ,
(int)(h_amount / 100) , (int)(h_amount % 100) ) ;
    // Setup the input c_last varchar
    c_last_input.len = strlen( in_payment->s_C_LAST ) ;
    memcpy( c_last_input.data , in_payment->s_C_LAST , c_last_input.len ) ;
    // Copy to the output structure
    memcpy( payment->s_C_LAST , in_payment->s_C_LAST, sizeof(
payment->s_C_LAST ) ) ;
  } else {
    // Copy c_id to the output structure
    c_id = in_c_id ;

    // Pre-built c_data prefix for BC does include c_id in this instance
    // Tne strange $04.4d.%02.2d printf modifier is to print a (4,2)
    // 0-padded floating-point value -- %f won't 0-pad by default.
    c_data_prefix_c_id.len = sprintf( c_data_prefix_c_id.data, " %5.5d %2.2d
%6.6d %2.2d %6.6d %04.4d.%02.2d", c_id , c_d_id , c_w_id , d_id , w_id ,
(int)(h_amount / 100), (int)(h_amount % 100) ) ;
  }
retry_tran:
  payment->deadlocks ++ ;
  if ( in_c_id == 0 )
  {
      EXEC SQL BEGIN COMPOUND NOT ATOMIC STATIC
        SELECT   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_ID, 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, C_DATA
```

```
          INTO   :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_id , :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, :c_data :c_data_indicator

          FROM TABLE ( PAY_C_LAST(   :w_id
                          , :d_id
                          , :c_w_id
                          , :c_d_id
                          , :c_last_input
                          , :h_date
                          , :h_amount
                          , :c_data_prefix_c_last
                         )

                 ) AS T (   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_ID, 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, C_DATA
                       )
         ;
         COMMIT ;
       END COMPOUND ;
  }
  else
  {
       EXEC SQL BEGIN COMPOUND NOT ATOMIC STATIC
         SELECT   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_LAST, 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, C_DATA

          INTO   :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_last, :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, :c_data :c_data_indicator

          FROM TABLE ( PAY_C_ID(   :w_id
                          , :d_id
                          , :c_w_id
                          , :c_d_id
                          , :in_c_id
                          , :h_date
                          , :h_amount
                          , :c_data_prefix_c_id
                         )

                 ) AS T(   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_LAST, 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, C_DATA
                       )
         ;

         COMMIT ;
       END COMPOUND ;
  }
  /* Update Output Structure with Timestamp */
  payment->s_H_DATE_time = in_payment->s_H_DATE_time ;
#ifdef DEBUGIT
  pay_debug(payment, in_payment, "Client after SQL call");
#endif /* DEBUGIT */
  if ( sqlca.sqlcode != 0 )
  {
    DLCHK( retry_tran ) ;
    sqlerror( PAYMENT_SQL , "PAY" , __FILE__, __LINE__ , &sqlca) ;
    payment->s_transtatus = FATAL_SQLERROR ;
    clientRc = FATAL_SQLERROR ;
    pay_debug( payment, in_payment, "PAY failed" ) ;
    EXEC SQL ROLLBACK WORK ;
    if ( sqlca.sqlcode != 0 )
    {
      sqlerror( PAYMENT_SQL, "ROLLBACK FAILED", __FILE__,
__LINE__, &sqlca ) ;
    }
  }
  return ( clientRc ) ;
}
// ---------------------------------------------------------------
// Order Status CLIENT
// ---------------------------------------------------------------

int ordstat_sql  (  struct in_ordstat_struct * in_ordstat
                , struct out_ordstat_struct * ordstat)
{
  struct sqlca sqlca ;
  EXEC SQL BEGIN DECLARE SECTION;
    struct vc_ord_in
    {
      short len ;
      char data[ 42 ] ;
    } * in_ord ;
    struct vc_ord_out
    {
      short len ;
      char data[ 446 ] ;
    } * out_ord ;
  EXEC SQL END DECLARE SECTION;

  int clientRc = TRAN_OK ;
  int itemIndex = 0 ;

  in_ord      = (struct vc_ord_in *) in_ordstat ;
  in_ord->len = sizeof(struct in_ordstat_struct) - SPGENERAL_ADJUST ;
  out_ord      = (struct vc_ord_out *) ordstat ;
  out_ord->len = sizeof(struct out_ordstat_struct) - SPGENERAL_ADJUST ;
#ifdef DEBUGIT
  ord_debug(ordstat, in_ordstat, "Client before SP call");
#endif /* DEBUGIT */
#ifdef SWAP_ENDIAN
  SWAP_BYTE(in_ordstat->s_C_ID);
  SWAP_BYTE(in_ordstat->s_W_ID);
  SWAP_BYTE(in_ordstat->s_D_ID);
#endif  //SWAP_ENDIAN
  EXEC SQL CALL ords ( :*in_ord, :*out_ord ) ;

#ifdef SWAP_ENDIAN
  SWAP_BYTE(in_ordstat->s_C_ID);
```

```
  SWAP_BYTE(in_ordstat->s_W_ID);
  SWAP_BYTE(in_ordstat->s_D_ID);
  SWAP_BYTE(ordstat->s_C_BALANCE);
  SWAP_BYTE(ordstat->s_O_ENTRY_D_time);
  SWAP_BYTE(ordstat->s_C_ID);
  SWAP_BYTE(ordstat->s_O_ID);
  SWAP_BYTE(ordstat->s_O_CARRIER_ID);
  SWAP_BYTE(ordstat->s_ol_cnt);
  SWAP_BYTE(ordstat->s_transtatus);
  SWAP_BYTE(ordstat->deadlocks);
  for (itemIndex=0; itemIndex<ordstat->s_ol_cnt; itemIndex++)
  {
    SWAP_BYTE(ordstat->item[ itemIndex ].s_OL_DELIVERY_D_time);
    SWAP_BYTE(ordstat->item[ itemIndex ].s_OL_AMOUNT);
    SWAP_BYTE(ordstat->item[ itemIndex ].s_OL_I_ID);
    SWAP_BYTE(ordstat->item[ itemIndex ].s_OL_SUPPLY_W_ID);
    SWAP_BYTE(ordstat->item[ itemIndex ].s_OL_QUANTITY);
  }
#endif  //SWAP_ENDIAN
  if ( sqlca.sqlcode == 0 )
  {
    // Propogate the field we already knew into the output structure
    // 60% of the time, we already new c_last (input c_id is 0)
    if ( in_ordstat->s_C_ID == 0 )
    {
      memcpy( ordstat->s_C_LAST , in_ordstat->s_C_LAST, sizeof(
ordstat->s_C_LAST ) ) ;
    }
    else
    {
      ordstat->s_C_ID = in_ordstat->s_C_ID ;
    }
  }
  else
  {
    sqlerror( ORDSTAT_SQL, "ORD", __FILE__, __LINE__, &sqlca) ;
    ordstat->s_transtatus = FATAL_SQLERROR ;
    clientRc = FATAL_SQLERROR ;
  }
#ifdef DEBUGIT
  ord_debug(ordstat, in_ordstat, "Client after SP call");
#endif /* DEBUGIT */
  if ( ordstat->s_transtatus <= FATAL_SQLERROR )
  {
    ord_debug(ordstat, in_ordstat, "ORD failed");
    clientRc = FATAL_SQLERROR ;
  }
  return ( clientRc ) ;
}
// ---------------------------------------------------------------
// Delivery CLIENT
// ---------------------------------------------------------------
int delivery_sql (   struct in_delivery_struct  * in_delivery
                , struct out_delivery_struct * delivery      )
{
  struct sqlca sqlca ;
  EXEC SQL BEGIN DECLARE SECTION;
    struct vc_del_in
    {
      short len ;
      char data[ 22 ] ;
    } * in_del ;
    struct vc_del_out
    {
      short len;
      char data[ 50 ] ;
    } * out_del ;
  EXEC SQL END DECLARE SECTION;

  int clientRc = TRAN_OK ;
  int orderIndex = 0 ;
  /* Create Timestamp */
  in_delivery->s_O_DELIVERY_D_time = (sqlint64) time( NULL ) ;
  in_del      = (struct vc_del_in *) in_delivery ;
  in_del->len = sizeof(struct in_delivery_struct) - SPGENERAL_ADJUST;
  out_del      = (struct vc_del_out *) delivery ;
  out_del->len = sizeof(struct out_delivery_struct) - SPGENERAL_ADJUST;
#ifdef DEBUGIT
  del_debug(delivery, in_delivery, "Client before SP call");
#endif /* DEBUGIT */
#ifdef SWAP_ENDIAN
  SWAP_BYTE(in_delivery->s_O_DELIVERY_D_time);
  SWAP_BYTE(in_delivery->s_W_ID);
  SWAP_BYTE(in_delivery->s_O_CARRIER_ID);
#endif  //SWAP_ENDIAN
  EXEC SQL CALL dels ( :*in_del, :*out_del ) ;
#ifdef SWAP_ENDIAN
  SWAP_BYTE(in_delivery->s_O_DELIVERY_D_time);
  SWAP_BYTE(in_delivery->s_W_ID);
  SWAP_BYTE(in_delivery->s_O_CARRIER_ID);
  for (orderIndex=0; orderIndex<10; orderIndex++) {
   SWAP_BYTE(delivery->s_O_ID[ orderIndex ]);
  }
  SWAP_BYTE(delivery->s_transtatus);
  SWAP_BYTE(delivery->deadlocks);
#endif  //SWAP_ENDIAN
#ifdef DEBUGIT
  del_debug(delivery, in_delivery, "Client after SP call");
#endif /* DEBUGIT */
  if ( sqlca.sqlcode != 0 )
  {
    sqlerror( DELIVERY_SQL, "DEL", __FILE__, __LINE__, &sqlca) ;
    delivery->s_transtatus = FATAL_SQLERROR ;
    clientRc = FATAL_SQLERROR ;
  }
  if ( delivery->s_transtatus <= FATAL_SQLERROR )
  {
    del_debug(delivery, in_delivery, "DEL failed");
    clientRc = FATAL_SQLERROR ;
  }
  return ( clientRc ) ;
}
// ---------------------------------------------------------------
// Stock CLIENT
// ---------------------------------------------------------------
#undef w_id
#undef d_id
int stocklev_sql  (   struct in_stocklev_struct  * in_stocklev
                , struct out_stocklev_struct * stocklev      )
{
  struct sqlca sqlca ;
  int clientRc = TRAN_OK ;
  EXEC SQL BEGIN DECLARE SECTION;

    // input
    //##sqlint32   w_id ;
    //##short      d_id ;
    sqlint32       threshold ;
    // output

    sqlint32    low_stock ;
  EXEC SQL END DECLARE SECTION;
  #define w_id      in_stocklev->s_W_ID
  #define d_id      in_stocklev->s_D_ID
  #define threshold in_stocklev->s_threshold
  #define low_stock stocklev->s_low_stock
```

```
  stocklev->deadlocks = -1 ;
  stocklev->s_transtatus = TRAN_OK ;
#ifdef DEBUGIT
  stk_debug(stocklev, in_stocklev, "Client before SQL call");
#endif /* DEBUGIT */
retry_tran:
  stocklev->deadlocks ++ ;
/*
  EXEC SQL
    SELECT ITEMS_BELOW_THRESHOLD
      INTO :low_stock
      FROM TABLE( STOCK_LEVEL( :w_id, :d_id, :threshold ) ) AS T
      WITH CS;
*/

  EXEC SQL BEGIN COMPOUND NOT ATOMIC STATIC
    SELECT COUNT( S_I_ID ) INTO :low_stock
      FROM ( SELECT DISTINCT S_I_ID
             FROM ORDER_LINE , STOCK , DISTRICT
             WHERE D_W_ID = :w_id
              AND D_ID = :d_id
              AND OL_O_ID < d_next_o_id
              AND OL_O_ID >= ( d_next_o_id - 20 )
              AND OL_W_ID = D_W_ID
              AND OL_D_ID = D_ID
              AND S_I_ID = OL_I_ID
              AND S_W_ID = OL_W_ID
              AND S_QUANTITY < :threshold

           ) OLS

      WITH CS
    ;

    COMMIT ;

  END COMPOUND ;
#ifdef DEBUGIT
  stk_debug(stocklev, in_stocklev, "Client after SQL call");
#endif /* DEBUGIT */
  if ( sqlca.sqlcode != 0 )
  {
    DLCHK( retry_tran ) ;
    sqlerror( STOCKLEV_SQL , "STK" , __FILE__, __LINE__ , &sqlca);
    stocklev->s_transtatus = FATAL_SQLERROR ;
    clientRc = FATAL_SQLERROR ;
    stk_debug( stocklev, in_stocklev, "STK failed" ) ;
    EXEC SQL ROLLBACK WORK ;
    if ( sqlca.sqlcode != 0 )
    {
      sqlerror( STOCKLEV_SQL, "ROLLBACK FAILED", __FILE__,
__LINE__, &sqlca ) ;
    }
  }
  return ( clientRc ) ;
}
```

nullDB/nullDB.h

```
// The following ifdef block is the standard way of creating macros which make
exporting
// from a DLL simpler. All files within this DLL are compiled with the
NULLDB_EXPORTS
// symbol defined on the command line. this symbol should not be defined on
any project
// that uses this DLL. This way any other project whose source files include this
file see
// NULLDB_API functions as being imported from a DLL, whereas this DLL
sees symbols
// defined with this macro as being exported.
#ifdef NULLDB_EXPORTS
#define NULLDB_API __declspec(dllexport)
#else
#define NULLDB_API __declspec(dllimport)
#endif
extern NULLDB_API int dataSet;
extern "C" NULLDB_API int do_nord(struct nord_wrapper *nord,void *ctx);
extern "C" NULLDB_API int do_pymt(struct paym_wrapper *pymt,void *ctx);
extern "C" NULLDB_API int do_ords(struct ords_wrapper *ords,void *ctx);
extern "C" NULLDB_API int do_dlvy(struct dlvy_wrapper *dlvy,void *ctx);
extern "C" NULLDB_API int do_stok(struct stok_wrapper *stok,void *ctx);
extern "C" NULLDB_API int connect_db(char *dbName,void **ctx);
extern "C" NULLDB_API int disconnect_db(void *ctx);
```

nullDB/nullDB.cpp

```
// nullDB.cpp : Defines the entry point for the DLL application.
//
#include "stdafx.h"
#include "nullDB.h"
#include "..\tpccIsapi\tpcc.h"
BOOL APIENTRY DllMain( HANDLE hModule,
                       DWORD  ul_reason_for_call,
                       LPVOID lpReserved
                                                                    )
{
 switch (ul_reason_for_call)
 {
  case DLL_PROCESS_ATTACH:
  case DLL_THREAD_ATTACH:
  case DLL_THREAD_DETACH:
  case DLL_PROCESS_DETACH:
    break;
 }
 return TRUE;
}
// This is an example of an exported variable
NULLDB_API int dataSet = 0;
extern "C" NULLDB_API int connect_db(char *dbName,void **ctx)
{
 return OK;
}
extern "C" NULLDB_API int disconnect_db(void *ctx)
{
 return OK;
}
extern "C" NULLDB_API int do_nord(struct  nord_wrapper *nord,void *ctx)
{
 nord->out_nord.s_transtatus = 0;
 if (dataSet == 0)
 {
  strcpy(nord->out_nord.s_C_LAST,"NOYOLA");
  strcpy(nord->out_nord.s_C_CREDIT,"GC");
  nord->out_nord.s_W_TAX = 1694;
  nord->out_nord.s_D_TAX = 967;
  nord->out_nord.s_C_DISCOUNT = 1024;
  nord->out_nord.s_O_ID = 3013;
  nord->out_nord.s_O_OL_CNT = 4;
  nord->out_nord.s_total_amount = 32345;
  nord->out_nord.s_O_ENTRY_D_time = 1234567890;
  strcpy(nord->out_nord.item[0].s_I_NAME,"98 Toyota Supra Turbo");
  nord->in_nord.in_item[0].s_OL_I_ID = 1;
  nord->in_nord.in_item[0].s_OL_QUANTITY = 1;
  nord->in_nord.in_item[0].s_OL_SUPPLY_W_ID = 1;
  nord->out_nord.item[0].s_I_PRICE = 42000;
  nord->out_nord.item[0].s_OL_AMOUNT = 554000;
  nord->out_nord.item[0].s_S_QUANTITY = 31;
  nord->out_nord.item[0].s_brand_generic = 'G';
```

```
  strcpy(nord->out_nord.item[1].s_I_NAME,"HKS Turbo Timer");
  nord->in_nord.in_item[1].s_OL_I_ID = 1;
  nord->in_nord.in_item[1].s_OL_QUANTITY = 1;
  nord->in_nord.in_item[1].s_OL_SUPPLY_W_ID = 1;
  nord->out_nord.item[1].s_I_PRICE = 4500;
  nord->out_nord.item[1].s_OL_AMOUNT = 438100;
  nord->out_nord.item[1].s_S_QUANTITY = 57;
  nord->out_nord.item[1].s_brand_generic = 'G';
  strcpy(nord->out_nord.item[2].s_I_NAME,"TRD GEN2 Exhaust");
  nord->in_nord.in_item[2].s_OL_I_ID = 1;
  nord->in_nord.in_item[2].s_OL_QUANTITY = 1;
  nord->in_nord.in_item[2].s_OL_SUPPLY_W_ID = 1;
  nord->out_nord.item[2].s_I_PRICE = 6734;
  nord->out_nord.item[2].s_OL_AMOUNT = 47173;
  nord->out_nord.item[2].s_S_QUANTITY = 42;
  nord->out_nord.item[2].s_brand_generic = 'G';
  strcpy(nord->out_nord.item[3].s_I_NAME,"BLITZ DUAL-SOLENOID");
  nord->in_nord.in_item[3].s_OL_I_ID = 1;
  nord->in_nord.in_item[3].s_OL_QUANTITY = 1;
  nord->in_nord.in_item[3].s_OL_SUPPLY_W_ID = 1;
  nord->out_nord.item[3].s_I_PRICE = 35000;
  nord->out_nord.item[3].s_OL_AMOUNT = 12096;
  nord->out_nord.item[3].s_S_QUANTITY = 84;
  nord->out_nord.item[3].s_brand_generic = 'G';
  dataSet = 1;
}
else
{
  strcpy(nord->out_nord.s_C_LAST,"SIMPSON");
  strcpy(nord->out_nord.s_C_CREDIT,"GC");
  nord->out_nord.s_W_TAX = 913;
  nord->out_nord.s_D_TAX = 1519;
  nord->out_nord.s_C_DISCOUNT = 958;
  nord->out_nord.s_O_ID = 1410;
  nord->out_nord.s_O_OL_CNT = 9;
  nord->out_nord.s_total_amount = 12345;
  nord->out_nord.s_O_ENTRY_D_time = 1234567890;
  strcpy(nord->out_nord.item[0].s_I_NAME,"97 Toyota Supra NA");
  nord->in_nord.in_item[0].s_OL_I_ID = 1;
  nord->in_nord.in_item[0].s_OL_QUANTITY = 1;
  nord->in_nord.in_item[0].s_OL_SUPPLY_W_ID = 1;
  nord->out_nord.item[0].s_I_PRICE = 30000;
  nord->out_nord.item[0].s_OL_AMOUNT = 769600;
  nord->out_nord.item[0].s_S_QUANTITY = 97;
  nord->out_nord.item[0].s_brand_generic = 'G';
  strcpy(nord->out_nord.item[1].s_I_NAME,"98 Turbo Stereo");
  nord->in_nord.in_item[1].s_OL_I_ID = 1;
  nord->in_nord.in_item[1].s_OL_QUANTITY = 1;
  nord->in_nord.in_item[1].s_OL_SUPPLY_W_ID = 1;
  nord->out_nord.item[1].s_I_PRICE = 10001;
  nord->out_nord.item[1].s_OL_AMOUNT = 192999;
  nord->out_nord.item[1].s_S_QUANTITY = 51;
  nord->out_nord.item[1].s_brand_generic = 'G';
  strcpy(nord->out_nord.item[2].s_I_NAME,"XERD Exhaust Header");
  nord->in_nord.in_item[2].s_OL_I_ID = 1;
  nord->in_nord.in_item[2].s_OL_QUANTITY = 1;
  nord->in_nord.in_item[2].s_OL_SUPPLY_W_ID = 1;
  nord->out_nord.item[2].s_I_PRICE = 4000;
  nord->out_nord.item[2].s_OL_AMOUNT = 41670;
  nord->out_nord.item[2].s_S_QUANTITY = 14;
  nord->out_nord.item[2].s_brand_generic = 'G';
  strcpy(nord->out_nord.item[3].s_I_NAME,"LEXOL Conditioner");
  nord->in_nord.in_item[3].s_OL_I_ID = 1;
  nord->in_nord.in_item[3].s_OL_QUANTITY = 1;
  nord->in_nord.in_item[3].s_OL_SUPPLY_W_ID = 1;
  nord->out_nord.item[3].s_I_PRICE = 1400;
  nord->out_nord.item[3].s_OL_AMOUNT = 17213;
  nord->out_nord.item[3].s_S_QUANTITY = 90;
  nord->out_nord.item[3].s_brand_generic = 'G';
  strcpy(nord->out_nord.item[4].s_I_NAME,"TRD Sticker 1");
  nord->in_nord.in_item[4].s_OL_I_ID = 1;
  nord->in_nord.in_item[4].s_OL_QUANTITY = 1;
  nord->in_nord.in_item[4].s_OL_SUPPLY_W_ID = 1;
  nord->out_nord.item[4].s_I_PRICE = 1400;
  nord->out_nord.item[4].s_OL_AMOUNT = 27232;
  nord->out_nord.item[4].s_S_QUANTITY = 75;
  nord->out_nord.item[4].s_brand_generic = 'G';
  strcpy(nord->out_nord.item[5].s_I_NAME,"TRD Sticker 2");
  nord->in_nord.in_item[5].s_OL_I_ID = 1;
  nord->in_nord.in_item[5].s_OL_QUANTITY = 1;
  nord->in_nord.in_item[5].s_OL_SUPPLY_W_ID = 1;
  nord->out_nord.item[5].s_I_PRICE = 4400;
  nord->out_nord.item[5].s_OL_AMOUNT = 35808;
  nord->out_nord.item[5].s_S_QUANTITY = 22;
  nord->out_nord.item[5].s_brand_generic = 'G';
  strcpy(nord->out_nord.item[6].s_I_NAME,"TRD Sticker 3");
  nord->in_nord.in_item[6].s_OL_I_ID = 1;
  nord->in_nord.in_item[6].s_OL_QUANTITY = 1;
  nord->in_nord.in_item[6].s_OL_SUPPLY_W_ID = 1;
  nord->out_nord.item[6].s_I_PRICE = 5500;
  nord->out_nord.item[6].s_OL_AMOUNT = 44392;
  nord->out_nord.item[6].s_S_QUANTITY = 21;
  nord->out_nord.item[6].s_brand_generic = 'G';
  strcpy(nord->out_nord.item[7].s_I_NAME,"TRD Sticker 4");
  nord->in_nord.in_item[7].s_OL_I_ID = 1;
  nord->in_nord.in_item[7].s_OL_QUANTITY = 1;
  nord->in_nord.in_item[7].s_OL_SUPPLY_W_ID = 1;
  nord->out_nord.item[7].s_I_PRICE = 8300;
  nord->out_nord.item[7].s_OL_AMOUNT = 83410;
  nord->out_nord.item[7].s_S_QUANTITY = 35;
  nord->out_nord.item[7].s_brand_generic = 'G';
  strcpy(nord->out_nord.item[8].s_I_NAME,"98 Toyota OEM Bra");
  nord->in_nord.in_item[8].s_OL_I_ID = 1;
  nord->in_nord.in_item[8].s_OL_QUANTITY = 1;
  nord->in_nord.in_item[8].s_OL_SUPPLY_W_ID = 1;
  nord->out_nord.item[8].s_I_PRICE = 10000;
  nord->out_nord.item[8].s_OL_AMOUNT = 43160;
  nord->out_nord.item[8].s_S_QUANTITY = 73;
  nord->out_nord.item[8].s_brand_generic = 'G';
  dataSet = 0;
 }
 return OK;
}
extern "C"  NULLDB_API int do_pymt(struct paym_wrapper *pymt,void *ctx)
{
 pymt->out_paym.s_transtatus = 0;
 if (dataSet == 0)
 {
  pymt->out_paym.s_C_CREDIT_LIM = 5000000;

  pymt->out_paym.s_C_DISCOUNT = 1024;
  pymt->out_paym.s_C_BALANCE = 17815;
  pymt->out_paym.s_C_ID = 89;
  pymt->out_paym.s_H_DATE_time = 1234567890;
  strcpy(pymt->out_paym.s_W_STREET_1,"11501 Burnet Rd");
  strcpy(pymt->out_paym.s_W_STREET_2,"BLD 905");
  strcpy(pymt->out_paym.s_W_CITY,"Austin");
  strcpy(pymt->out_paym.s_W_STATE,"TX");
  strcpy(pymt->out_paym.s_W_ZIP,"78758");
  strcpy(pymt->out_paym.s_D_STREET_1,"11900 Hobby Horse");
  strcpy(pymt->out_paym.s_D_STREET_2,"Apt. 525");
  strcpy(pymt->out_paym.s_D_CITY,"Valley");
  strcpy(pymt->out_paym.s_D_STATE,"TX");
  strcpy(pymt->out_paym.s_D_ZIP,"78559");
  strcpy(pymt->out_paym.s_C_FIRST,"Jim");
  strcpy(pymt->out_paym.s_C_MIDDLE,"F");
```

```
   strcpy(pymt->out_paym.s_C_LAST,"Truck");
   strcpy(pymt->out_paym.s_C_STREET_1,"100 N Solis");
   strcpy(pymt->out_paym.s_C_STREET_2,"Flat 343");
   strcpy(pymt->out_paym.s_C_CITY,"Cambridge");
   strcpy(pymt->out_paym.s_C_STATE,"NY");
   strcpy(pymt->out_paym.s_C_ZIP,"785585432");
   strcpy(pymt->out_paym.s_C_PHONE,"1234567890123456");
   pymt->out_paym.s_C_SINCE_time = 0;
   strcpy(pymt->out_paym.s_C_CREDIT,"BC");

strcpy(pymt->out_paym.s_C_DATA,"XXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
X");
   dataSet = 1;
  }
  else
  {
   pymt->out_paym.s_C_CREDIT_LIM = 4000000;
   pymt->out_paym.s_C_DISCOUNT = 52400;
   pymt->out_paym.s_C_BALANCE = 14080;
   pymt->out_paym.s_C_ID = 3180;
   pymt->out_paym.s_H_DATE_time = 1234567890;
   strcpy(pymt->out_paym.s_W_STREET_1,"1201 Park Ave.");
   strcpy(pymt->out_paym.s_W_STREET_2,"Suite 432");
   strcpy(pymt->out_paym.s_W_CITY,"Denver");
   strcpy(pymt->out_paym.s_W_STATE,"CO");
   strcpy(pymt->out_paym.s_W_ZIP,"787562356");
   strcpy(pymt->out_paym.s_D_STREET_1,"3404 Garth Rd");
   strcpy(pymt->out_paym.s_D_STREET_2,"Suite 320");
   strcpy(pymt->out_paym.s_D_CITY,"Austin");
   strcpy(pymt->out_paym.s_D_STATE,"TX");
   strcpy(pymt->out_paym.s_D_ZIP,"785598767");
   strcpy(pymt->out_paym.s_C_FIRST,"John");
   strcpy(pymt->out_paym.s_C_MIDDLE,"P");
   strcpy(pymt->out_paym.s_C_LAST,"Williams");
   strcpy(pymt->out_paym.s_C_STREET_1,"North Rab Road");
   strcpy(pymt->out_paym.s_C_STREET_2,"Apt 343");
   strcpy(pymt->out_paym.s_C_CITY,"La Fiera");
   strcpy(pymt->out_paym.s_C_STATE,"TX");
   strcpy(pymt->out_paym.s_C_ZIP,"785585432");
   strcpy(pymt->out_paym.s_C_PHONE,"1234567890123456");
   pymt->out_paym.s_C_SINCE_time = 0;
   strcpy(pymt->out_paym.s_C_CREDIT,"GC");
   strcpy(pymt->out_paym.s_C_DATA,"Great Ebaye");
   dataSet = 0;
  }
  return OK;
}
extern "C"  NULLDB_API int do_ords(struct ords_wrapper *ords,void *ctx)
{
 ords->out_ords.s_transtatus = 0;
 if (dataSet == 0)
 {
  ords->out_ords.s_C_BALANCE = 100000;
  ords->out_ords.s_C_ID = 3;
  ords->out_ords.s_O_ID = 1696;
  ords->out_ords.s_O_CARRIER_ID = 9;
  ords->out_ords.s_ol_cnt = 6;
  ords->out_ords.s_O_ENTRY_D_time = 1234567890;
  strcpy(ords->out_ords.s_C_FIRST,"Homer");
  strcpy(ords->out_ords.s_C_MIDDLE,"J");
  strcpy(ords->out_ords.s_C_LAST,"Simpson");
  ords->out_ords.item[0].s_OL_AMOUNT = 30000;
  ords->out_ords.item[0].s_OL_I_ID = 23492;
  ords->out_ords.item[0].s_OL_SUPPLY_W_ID = 9;
  ords->out_ords.item[0].s_OL_QUANTITY = 5;
  ords->out_ords.item[0].s_OL_DELIVERY_D_time = 1234567890;
  ords->out_ords.item[1].s_OL_AMOUNT = 12300;
  ords->out_ords.item[1].s_OL_I_ID = 18860;
  ords->out_ords.item[1].s_OL_SUPPLY_W_ID = 9;
  ords->out_ords.item[1].s_OL_QUANTITY = 5;
  ords->out_ords.item[1].s_OL_DELIVERY_D_time = 1234567890;
  ords->out_ords.item[2].s_OL_AMOUNT = 15000;
  ords->out_ords.item[2].s_OL_I_ID = 90488;
  ords->out_ords.item[2].s_OL_SUPPLY_W_ID = 9;
  ords->out_ords.item[2].s_OL_QUANTITY = 5;
  ords->out_ords.item[2].s_OL_DELIVERY_D_time = 1234567890;
  ords->out_ords.item[3].s_OL_AMOUNT = 25000;
  ords->out_ords.item[3].s_OL_I_ID = 22741;
  ords->out_ords.item[3].s_OL_SUPPLY_W_ID = 9;
  ords->out_ords.item[3].s_OL_QUANTITY = 5;
  ords->out_ords.item[3].s_OL_DELIVERY_D_time = 1234567890;
  ords->out_ords.item[4].s_OL_AMOUNT = 20000;
  ords->out_ords.item[4].s_OL_I_ID = 92952;
  ords->out_ords.item[4].s_OL_SUPPLY_W_ID = 9;
  ords->out_ords.item[4].s_OL_QUANTITY = 5;
  ords->out_ords.item[4].s_OL_DELIVERY_D_time = 1234567890;
  ords->out_ords.item[5].s_OL_AMOUNT = 2345;
  ords->out_ords.item[5].s_OL_I_ID = 29956;
  ords->out_ords.item[5].s_OL_SUPPLY_W_ID = 9;
  ords->out_ords.item[5].s_OL_QUANTITY = 5;
  ords->out_ords.item[5].s_OL_DELIVERY_D_time = 1234567890;
  dataSet = 1;
 }
 else
 {
  ords->out_ords.s_C_BALANCE = 123000;
  ords->out_ords.s_C_ID = 856;
  ords->out_ords.s_O_ID = 418;
  ords->out_ords.s_O_CARRIER_ID = 10;
  ords->out_ords.s_ol_cnt = 5;
  strcpy(ords->out_ords.s_C_FIRST,"Erick");
  strcpy(ords->out_ords.s_C_MIDDLE,"J");
  strcpy(ords->out_ords.s_C_LAST,"Forman");
  ords->out_ords.s_O_ENTRY_D_time = 1234567890;
  ords->out_ords.item[0].s_OL_AMOUNT = 12000;
  ords->out_ords.item[0].s_OL_I_ID = 54602;
  ords->out_ords.item[0].s_OL_SUPPLY_W_ID = 10;
  ords->out_ords.item[0].s_OL_QUANTITY = 5;
  ords->out_ords.item[0].s_OL_DELIVERY_D_time = 1234567890;
  ords->out_ords.item[1].s_OL_AMOUNT = 2300;
  ords->out_ords.item[1].s_OL_I_ID = 18860;
  ords->out_ords.item[1].s_OL_SUPPLY_W_ID = 10;
  ords->out_ords.item[1].s_OL_QUANTITY = 5;
  ords->out_ords.item[1].s_OL_DELIVERY_D_time = 1234567890;
  ords->out_ords.item[2].s_OL_AMOUNT = 56009;
  ords->out_ords.item[2].s_OL_I_ID = 90488;
  ords->out_ords.item[2].s_OL_SUPPLY_W_ID = 10;
  ords->out_ords.item[2].s_OL_QUANTITY = 5;
  ords->out_ords.item[2].s_OL_DELIVERY_D_time = 1234567890;
  ords->out_ords.item[3].s_OL_AMOUNT = 98000;
  ords->out_ords.item[3].s_OL_I_ID = 22741;
  ords->out_ords.item[3].s_OL_SUPPLY_W_ID = 10;
  ords->out_ords.item[3].s_OL_QUANTITY = 5;
  ords->out_ords.item[3].s_OL_DELIVERY_D_time = 1234567890;
  ords->out_ords.item[4].s_OL_AMOUNT = 25000;
  ords->out_ords.item[4].s_OL_I_ID = 92952;
  ords->out_ords.item[4].s_OL_SUPPLY_W_ID = 10;
  ords->out_ords.item[4].s_OL_QUANTITY = 5;
  ords->out_ords.item[4].s_OL_DELIVERY_D_time = 1234567890;
  dataSet = 0;
 }
 return OK;
```

```
}
extern "C"  NULLDB_API int do_dlvy(struct dlvy_wrapper *dlvy,void *ctx)
{
  dlvy->out_dlvy.s_transtatus = 0;
  if (dataSet == 0)
  {
    dataSet = 1;
    for(int districtIndex=0;districtIndex <
DISTRICTS_PER_WAREHOUSE;districtIndex++)
      dlvy->out_dlvy.s_O_ID[districtIndex]= 2055;
  }
  else
  {
    for(int districtIndex=0;districtIndex <
DISTRICTS_PER_WAREHOUSE;districtIndex++)
      dlvy->out_dlvy.s_O_ID[districtIndex]= 2056;
    dataSet = 0;
  }
  return OK;
}

extern "C"  NULLDB_API int do_stok(struct stok_wrapper *stok,void *ctx)
{
  stok->out_stok.s_transtatus = 0;
  if (dataSet == 0)
  {
    stok->out_stok.s_low_stock = 100;
    dataSet = 1;
  }
  else
  {
    stok->out_stok.s_low_stock = 40;
    dataSet = 0;
  }
  return OK;
}
```

nullDB/stdafx.h

```
// stdafx.h : include file for standard system include files,
// or project specific include files that are used frequently, but
// are changed infrequently
//
#pragma once

#define WIN32_LEAN_AND_MEAN                    // Exclude rarely-used
stuff from Windows headers
// Windows Header Files:
#include <windows.h>
// TODO: reference additional headers your program requires here
```

nullDB/stdafx.cpp

```
// stdafx.cpp : source file that includes just the standard includes
// nullDB.pch will be the pre-compiled header
// stdafx.obj will contain the pre-compiled type information
#include "stdafx.h"
// TODO: reference any additional headers you need in STDAFX.H
// and not in this file
```

tpcclsapi/htmlPhraser.h

```
////////////////////////////////////////////////////////////////////////
// htmlPharaser.h
////////////////////////////////////////////////////////////////////////
// Class to decode a html query string
////////////////////////////////////////////////////////////////////////
#pragma once
#include <memory.h>
////////////////////////////////////////////////////////////////////////
// Definitions
////////////////////////////////////////////////////////////////////////
#define NULL                                    0
#define COMMAND_ID                              0
#define     TERM_ID                             1
#define     W_ID                                2
#define     D_ID                                3
#define C_ID                                    4
#define C_NAME                                  5
#define C_W_ID                                  6
#define C_D_ID                                  7
#define AMT_PAID                                8
#define STK_THRESHOLD                           9
#define CARRIER_NUM
10
#define ITEM_LIST_START                         11
#define ITEM_LIST_FINISH                        55
#define MAX_QUERY_ID                            55
#define MAX_FIELD_LEN                           256
#define MAX_FIELD_NUM                           56
////////////////////////////////////////////////////////////////////////
// Command Codes
////////////////////////////////////////////////////////////////////////
#define NEW_ORDER_CODE
'n'
#define PAYMENT_CODE
'p'
#define ORDER_STATUS_CODE
'o'
#define DELIVERY_CODE
'd'
#define STOCK_CODE
's'
#define EXIT_CODE
'e'
#define MENU_CODE
'm'
#define     COMMAND_LOGIN                       0
#define     COMMAND_NEW_ORDER                   1
#define     COMMAND_PAYMENT
2
#define     COMMAND_ORDER_STATUS                3
#define     COMMAND_DELIVERY                    4
#define     COMMAND_STOCK
5
#define     COMMAND_EXIT                        6
#define     COMMAND_LOGIN_RESULTS
7
#define     COMMAND_NEW_ORDER_RESULTS           8
#define     COMMAND_PAYMENT_RESULTS
9
#define     COMMAND_ORDER_STATUS_RESULTS
10
#define     COMMAND_DELIVERY_RESULTS
11
#define     COMMAND_STOCK_RESULTS
12
////////////////////////////////////////////////////////////////////////
// Class htmlPhraser
////////////////////////////////////////////////////////////////////////
class htmlPhraser
{
        // Constructors / Destructor
        public:
                htmlPhraser(char *queryString);
```

```
		~htmlPhraser()
{return;}

	// geters
	public:
		int		getCommandId();
		int validate(int txnType);

		char *	get_TERM_ID()
{return iQueryValues[TERM_ID];}
		char *	get_W_ID()
{return iQueryValues[W_ID];}
		char *	get_D_ID()
{return iQueryValues[D_ID];}
		char *	get_C_ID()
{return iQueryValues[C_ID];}
		char *	get_C_NAME()
{return iQueryValues[C_NAME];}
		char *	get_C_W_ID()
{return iQueryValues[C_W_ID];}
		char *	get_C_D_ID()
{return iQueryValues[C_D_ID];}
		char *	get_AMT_PAID()
{return iQueryValues[AMT_PAID];}
		char *	get_STK_THRESHOLD()
{return iQueryValues[STK_THRESHOLD];}
		char *	get_CARRIER_NUM()
{return iQueryValues[CARRIER_NUM];}
		char *	get_ITEM_SUPP_W(int item)	{return
iQueryValues[(ITEM_LIST_START + 0) + (item * 3)];}
		char *	get_ITEM_ITEM_NUM(int item)
{return iQueryValues[(ITEM_LIST_START + 1) + (item * 3)];}
		char *	get_ITEM_QTY(int item)
{return iQueryValues[(ITEM_LIST_START + 2) + (item * 3)];}

	// Class Functions
	private:
		char convertQueryToken(char **queryString);
	// Class Attributes
	private:
		int		iCustomerIdFlag;
		int		iCarrierNumFlag;
		int		iStockThresholdFlag;
		char
iQueryValues[MAX_FIELD_NUM][MAX_FIELD_LEN];
};
/////////////////////////////////////////////////////////////////////////////
```

tpcclsapi/resource.h

```
//{{NO_DEPENDENCIES}}
// Microsoft Visual C++ generated include file.
// Used by tpcclsapi.rc
//
#define IDS_PROJNAME 100

// Next default values for new objects
//
#ifdef APSTUDIO_INVOKED
#ifndef APSTUDIO_READONLY_SYMBOLS
#define _APS_NEXT_RESOURCE_VALUE	201
#define _APS_NEXT_COMMAND_VALUE	32768
#define _APS_NEXT_CONTROL_VALUE	201
#define _APS_NEXT_SYMED_VALUE	101
#endif
#endif
```

tpcclsapi/StdAfx.h

```
// stdafx.h : include file for standard system include files,
// or project specific include files that are used frequently, but
// are changed infrequently
//
#pragma once
#define WIN32_LEAN_AND_MEAN		// Exclude rarely-used
stuff from Windows headers
#define _ATL_CSTRING_EXPLICIT_CONSTRUCTORS	// some
CString constructors will be explicit
#define _ATL_ALL_WARNINGS
// critical error descriptions will only be shown to the user
// in debug builds. they will always be logged to the event log
#ifndef _DEBUG
#define ATL_CRITICAL_ISAPI_ERROR_LOGONLY
#endif

#ifndef _WIN32_WINNT
#define _WIN32_WINNT 0x0403
#endif
// TODO: this disables support for registering COM objects
// exported by this project since the project contains no
// COM objects or typelib. If you wish to export COM objects
// from this project, add a typelib and remove this line
#define _ATL_NO_COM_SUPPORT
#include "resource.h"
#include <atlsrvres.h>
#include <atlisapi.h>
#include <atlstencil.h>
// TODO: reference additional headers your program requires here
```

tpcclsapi/tpcc.h

```
// Common defines and structures use internally by client code
// Not to be confused with structures actually passed in transaxtions
//
// standard includes
#ifndef _COMMON_TPCC
#define _COMMON_TPCC
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <sys/timeb.h>
#include <time.h>
#include <db2tpcc.h>
#include <iostream>
#include <fstream>
#include <process.h>
#include <ios>
/////////////////////////////////////////////////////////////////////////////
// Defines
/////////////////////////////////////////////////////////////////////////////
#define		OK
0
#define		INVALID_STATUS		-1
#define		ERR
-1
#define		INVALID_COM_STATUS		-2

#define	TXN_MAX_COMMANDS		55
#define MAX_TRANSACTIONS		14
#define MAX_CMD_LENGTH		100
#define	INPUT_ITEMS		3
#define MAX_INT_BUFFER		15
#define NORD_ITEMS
15
```

```
#define ITEM_START
11
#define     ITEM_END
55
#define MAX_ITEMS
15
#define     MAX_STRING_LEN                          256
#define MAX_HTML_PAGE_LEN                           4096
#define MAX_HTML_HEADER_LEN                         512
#define DELIVERY_THREADS_NUM                100
#define DISTRICTS_PER_WAREHOUSE             10
//////////////////////////////////////////////////////////////
// Transaction Codes
//////////////////////////////////////////////////////////////
#define             TXN_LOGIN
0
#define             TXN_NEW_ORDER                           1
#define             TXN_PAYMENT
2
#define             TXN_ORDER_STATUS                        3
#define             TXN_DELIVERY                            4
#define             TXN_STOCK
5
#define             TXN_EXIT
6
#define             TXN_LOGIN_RESULTS                       7
#define             TXN_NEW_ORDER_RESULTS                   8
#define             TXN_PAYMENT_RESULTS                     9
#define             TXN_ORDER_STATUS_RESULTS        10
#define             TXN_DELIVERY_RESULTS            11
#define             TXN_STOCK_RESULTS
12
#define             CMD_NORD
"nord"
#define             CMD_PYMT
"pymt"
#define             CMD_ORDS
"ords"
#define             CMD_DLVY
"dlvy"
#define             CMD_STOK
"stok"
#define             CMD_EXIT
"exit"
#define             CMD_MENU
"menu"
#define             APP_NAME
"tpcc.html"
#define             HEADER
"Content-Type:text/html\r\nContent-Length: %d\r\nConnection:
Keep-Alive\r\n\r\n"
//////////////////////////////////////////////////////////////
// URL Commands
//////////////////////////////////////////////////////////////
#define             CMD_TXN_ID
"00"
#define             CMD_TERM_ID
"01"
#define             CMD_W_ID
"02"
#define             CMD_D_ID
"03"
#define             CMD_C_ID
"04"
#define             CMD_C_NAME
"05"
#define             CMD_C_W_ID
"06"
#define             CMD_C_D_ID
"07"
#define             CMD_AMT_PAID                    "08"

#define             CMD_STK_THRESHOLD               "09"
#define             CMD_CARRIER_NUM
"10"
#define             ITEM01_SUPP_W                   "11"
#define             ITEM01_ITEM_NUM
"12"
#define             ITEM01_OTY
"13"

#define CHAR_FILL                                   ' '
#define NUMERIC_FILL                                ' '
#define NEGITIVE_SYMBOL                             '-'
#define MONEY_SYMBOL                                '$'
#define DECIMAL_SYMBOL                              '.'
#define ZERO_SYMBOL
'0'
#define ZIP_DELIMITER                               '-'
#define PHONE_DELIMITER                             '-'
#define DATE_DELIMITER                              '-'
#define TIME_DELIMITER                              ':'
#define DEFAULT_MONEY64_LEN                         15
#define DEFAULT_MONEY32_LEN                         9
#define DEFAULT_MONEY16_LEN                         9
#define DEFAULT_NUMERIC64_LEN               15
#define DEFAULT_NUMERIC32_LEN               9
#define DEFAULT_NUMERIC16_LEN               9
#define DEFAULT_DECIMAL64_LEN               5
#define DEFAULT_DECIMAL32_LEN               5
#define DEFAULT_DECIMAL16_LEN               5
#define DEFAULT_DATETIME_LEN                19
#define DEFAULT_DATE_LEN                    11
#define DEFAULT_TIME_LEN                    8


#define DEFAULT_STRING_LEN                          25
#define DEFAULT_ZIP_LEN                             17
#define DEFAULT_PHONE_LEN                           18
//////////////////////////////////////////////////////////////////
// String Field Lengths
//////////////////////////////////////////////////////////////////
#define NAME_LEN                    24
#define LAST_NAME_LEN               16
#define FIRST_NAME_LEN              16
#define INITIALS_LEN                2
#define CREDIT_LEN                          2
#define STREET_LEN                          20
#define CITY_LEN                    20
#define STATE_LEN                   2
#define ZIP_LEN                             9
#define PHONE_LEN                           16
#define DATA_LEN                    200
#define ITEM_LIST                   15
#define ORDER_LIST                          10
//////////////////////////////////////////////////////////////////
// Type definitions
//////////////////////////////////////////////////////////////////
typedef __int8                              INT8b;
typedef __int16                             INT16b;
typedef __int32                             INT32b;
typedef __int64                             INT64b;
typedef unsigned __int8             UINT8b;
typedef unsigned __int16        UINT16b;
typedef unsigned __int32        UINT32b;
typedef unsigned __int64        UINT64b;
```

```
typedef INT16b                          sqlint16;
typedef INT32b                          sqlint32;
typedef INT64b                          sqlint64;
typedef INT16b                          int16_t;
typedef INT32b                          int32_t;
typedef INT64b                          int64_t;
typedef char                            BYTE8b;
typedef double                          DOUBLE;
typedef unsigned long           NATURAL;
//////////////////////////////////////////////////////////////////////
// Date and time values
//////////////////////////////////////////////////////////////////////
#define SECONDS_IN_DAY          86400
#define SECONDS_IN_HOUR         3600
#define SECONDS_IN_MINUTE       60
#define GMT_OFFSET                      5
#define DAYS_IN_YEAR            365
#define YEARS_IN_LEAP           4
#define START_YEAR                      1970
#define MONTHS_IN_YEAR          12
//////////////////////////////////////////////////////////////////////
// Error codes
//////////////////////////////////////////////////////////////////////
#define ERR_INVALID_TXN_TYPE                    -1
#define ERR_MISSING_W_ID                        -2
#define ERR_NON_NUMERIC_W_ID                    -3
#define ERR_MISSING_D_ID                        -4
#define     ERR_NON_NUMERIC_D_ID                -5
#define ERR_MISSING_C_ID                        -6
#define ERR_NON_NUMERIC_C_ID                    -7
#define ERR_MISSING_SUPP_W
-8
#define ERR_NON_NUMERIC_SUPP_W                  -9
#define ERR_MISSING_ITEM_NUM                    -10
#define ERR_NON_NUMERIC_ITEM_NUM                -11
#define ERR_MISSING_ITEM_OTY                    -12
#define ERR_NON_NUMERIC_ITEM_QTY                -13
#define ERR_MISSING_CLAST_NAME                  -14
#define ERR_NON_NUMERIC_CUST_W_ID               -15
#define ERR_NON_NUMERIC_CUST_D_ID               -16
#define ERR_MISSING_AMOUNT_PAID                 -17
#define ERR_NON_NUMERIC_AMOUNT_PAID             -18
#define     ERR_INVALID_D_ID                    "ERROR:
Invalid District ID. Try Again."
#define     ERR_INVALID_W_ID                    "ERROR:
Invalid Warehouse ID. Try Again."
#define ERR_INVALID_C_ID                "ERROR: Invalid
Customer ID. Try Again."
#define ERR_INVALID_SUPPLY_W_ID         "ERROR: Invalid Item
Supply Warehouse. Try Again."
#define ERR_INVALID_ITEM_NUM            "ERROR: Invalid Item
Number. Try Again."
#define ERR_INVALID_ITEM_OTY            "ERROR: Invalid Item
Qty. Try Again."
#define ERR_MISSING_C_ID_OR_CLAST       "ERROR: Must Enter
Customer Id or Customer Last Name. Try Again."
#define ERR_INVALID_PAYMENT_AMOUNT      "ERROR: Invalid
Payment Amount. Try Again."
#define ERR_INVALID_CARRIER                     "ERROR:
Invalid Carrier Number. Try Again."
#define ERR_INVALID_THRESHOLD           "ERROR: Invalid
Threshold. Try Again."
#define ERR_INVALID_C_D_ID                      "ERROR:
Invalid Customer District Id. Try Again."
#define ERR_INVALID_C_W_ID                      "ERROR:
Invalid Customer Warehouse Id. Try Again."
#define     ERR_TERMINAL_FULL                   "ERROR:
Terminal can not support user.  Terminal full."
#define ERR_C_ID_OR_CLAST_ONLY          "ERROR: Either
customer id or customer last name can be specified."
#define     ERR_UNABLE_TO_OPEN_REG
-50
#define     ERR_DLVY_THREAD_FAILED
-51
#define     ERR_DLVY_SEMAPHORE_INIT_FAILED      -52
#define     ERR_DLVY_EVENT_INIT_FAILED          -53
#define ERR_DLVY_QUEUE_EATING_TAIL              -54
#define     ERR_INVALID_USERNAME                -70
#define ERR_INVALID_PASSWORD                    -71
#define ERR_INVALID_DB_NAME
-72
#define ERR_INVALID_REGISTERY_KEY               -73
#define ERR_DB2_DLL_NOT_LOADED                  -74
#define ERR_ORACLE_DLL_NOT_LOADED               -75
#define ERR_CONNECT_ADDRESS_NOT_FOUND  -76
#define ERR_NORD_ADDRESS_NOT_FOUND              -77
#define ERR_PYMT_ADDRESS_NOT_FOUND              -78
#define ERR_ORDS_ADDRESS_NOT_FOUND              -79
#define ERR_DLVY_ADDRESS_NOT_FOUND              -80
#define ERR_STOK_ADDRESS_NOT_FOUND              -81
#define     ERR_NULL_DLL_NOT_LOADED
-82
#define     ERR_UNKNOWN_DB
-83
#define ERR_DISCONNECT_ADDRESS_NOT_FOUND -84
#define     ERR_SAVING_CONTEXT
-90
#define     ERR_DETACHING_CONTEXT               -91
#define     ERR_ATTACHING_CONTEXT               -92
#define ERR_HANDLE_IN_USE
-93
#define ERR_CONNECT_TO_TM_FAILED                -99
#define     ERR_DLVY_LOG_OPEN_FAILED            -100
#define     ERR_DLVY_QUEUE_FULL
-101
//////////////////////////////////////////////////////////////////////
// Registery Definitions
//////////////////////////////////////////////////////////////////////
#define             REGISTERY_SUB_KEY       "SOFTWARE\\TPCC"
#define             DELIVERY_THREADS
"dlvyThreads"
#define             DELIVERY_QUEUE_LEN
"dlvyQueueLen"
#define             DELIVERY_LOG_PATH
"dlvyLogPath"
#define             ERROR_LOG_FILE
"errorLogFile"
#define             HTML_TRACE_LOG_FILE
"htmlTraceLogFile"
#define             DB_NAME
"dbName"
#define             NULL_DB
"nullDB"
#define             COM_NULL_DB
"comnullDB"
#define             CLIENT_NULL_DB
"clientNullDB"
#define             NUM_USERS
"numUsers"
#define             DB_TYPE
"dbType"
#define             TXN_MONITOR
"txn_server"
```

```
#define		COMM_POOL
"comm_pool"
#define		HTML_TRACE
"htmlTrace"
#define		ISAPI_TRACE
"isapi_trace"
#define		DEFAULT_DLVY_THREADS		1
#define		DEFAULT_DLVY_QUEUE_LEN
10
#define		DEFAULT_DLVY_LOG_PATH
"c:\\inetpub\\wwwroot\\tpcc\\dlvy"
#define		DEFAULT_ERROR_LOG_FILE
"c:\\inetpub\\wwwroot\\tpcc\\errorLog.txt"
#define		DEFAULT_HTML_TRACE_LOG_FILE
"c:\\inetpub\\wwwroot\\tpcc\\htmlTrace.txt"
#define		DEFAULT_NUM_USERS
10000
#define		DEFAULT_DB_NAME
"tpcc"
//////////////////////////////////////////////////////////////////////
// Structure defines
//////////////////////////////////////////////////////////////////////
struct nord_wrapper {
	struct in_neword_struct in_nord;
	struct out_neword_struct out_nord;
};
struct paym_wrapper {
	struct in_payment_struct in_paym;
	struct out_payment_struct out_paym;
};
struct ords_wrapper {
	struct in_ordstat_struct in_ords;
	struct out_ordstat_struct out_ords;
};
struct dlvy_wrapper {
	struct in_delivery_struct in_dlvy;
	struct out_delivery_struct out_dlvy;
};
struct stok_wrapper {
	struct in_stocklev_struct in_stok;
	struct out_stocklev_struct out_stok;
};
typedef	struct
{
	int	year;
	int	month;
	int	day;
	int	hour;
	int	minute;
	int	second;
} datetime;
struct NEWORDERDATA
{
	struct	in_items_struct {
		int	s_OL_I_ID;
		int	s_OL_SUPPLY_W_ID;
		short	s_OL_QUANTITY;
	} in_item[15];
	long long	in_s_O_ENTRY_D_time;		/* init by SUT */
	int		in_s_C_ID;
	int		in_s_W_ID;
	short	in_s_D_ID;
	short	in_s_O_OL_CNT;		/* init by SUT */
	short	in_s_all_local;
	short	in_duplicate_items;
	struct	out_items_struct {
		double	s_I_PRICE;
		double	s_OL_AMOUNT;
		short	s_S_QUANTITY;
		char	s_I_NAME[25];
		char	s_brand_generic;
	} out_item[15];
	long long	out_s_O_ENTRY_D_time;
	double	out_s_W_TAX;
	double	out_s_D_TAX;
	double	out_s_C_DISCOUNT;
	double	out_s_total_amount;
	int		out_s_O_ID;
	short	out_s_O_OL_CNT;
	short	out_s_transtatus;
	short	out_deadlocks;
	char	out_s_C_LAST[17];
	char	out_s_C_CREDIT[3];
};
struct PAYMENTDATA
{
	long long	in_s_H_DATE_time;
	double	in_s_H_AMOUNT;
	int		in_s_W_ID;
	int		in_s_C_W_ID;
	int		in_s_C_ID;
	short	in_s_C_D_ID;
	short	in_s_D_ID;
	char	in_s_C_LAST[17];
	long long	out_s_H_DATE_time;
	long long	out_s_C_SINCE_time;
	double	out_s_C_CREDIT_LIM;
	double	out_s_C_BALANCE;
	double	out_s_C_DISCOUNT;
	int		out_s_C_ID;
	short	out_s_transtatus;
	short	out_deadlocks;
	char	out_s_W_STREET_1[21];
	char	out_s_W_STREET_2[21];
	char	out_s_W_CITY[21];
	char	out_s_W_STATE[3];
	char	out_s_W_ZIP[10];
	char	out_s_D_STREET_1[21];
	char	out_s_D_STREET_2[21];
	char	out_s_D_CITY[21];
	char	out_s_D_STATE[3];
	char	out_s_D_ZIP[10];
	char	out_s_C_FIRST[17];
	char	out_s_C_MIDDLE[3];
	char	out_s_C_LAST[17];
	char	out_s_C_STREET_1[21];
	char	out_s_C_STREET_2[21];
	char	out_s_C_CITY[21];
	char	out_s_C_STATE[3];
	char	out_s_C_ZIP[10];
	char	out_s_C_PHONE[17];
	char	out_s_C_CREDIT[3];
	char	out_s_C_DATA[201];
};
struct ORDERSTATUSDATA
{
	int	in_s_C_ID;
	int	in_s_W_ID;
	short	in_s_D_ID;
	char	in_s_C_LAST[17];

	double	out_s_C_BALANCE;
	long long	out_s_O_ENTRY_D_time;
	int	out_s_C_ID;
	int	out_s_O_ID;
	short	out_s_O_CARRIER_ID;
```

```
		short  out_s_ol_cnt;
		struct out_oitems_struct {
			long long  s_OL_DELIVERY_D_time;
			double   s_OL_AMOUNT;
			int   s_OL_I_ID;
			int   s_OL_SUPPLY_W_ID;
			short s_OL_QUANTITY;
		} out_item[15];
		short  out_s_transtatus;
		short  out_deadlocks;
		char   out_s_C_FIRST[17];
		char   out_s_C_MIDDLE[3];
		char   out_s_C_LAST[17];
};
struct DELIVERYDATA
{
		long long  in_s_O_DELIVERY_D_time;
		int   in_s_W_ID;
		short in_s_O_CARRIER_ID;
		int   out_s_O_ID[10];
		short out_s_transtatus;
		short outdeadlocks;
};
struct STOCKLEVELDATA
{
		int   in_s_threshold;
		int   in_s_W_ID;
		short in_s_D_ID;
		int   out_s_low_stock;
		short out_s_transtatus;
		short out_deadlocks;
};


//		MISCELLANEOUS HELPER FUNCTIONS
inline void appendText(char **string,char *text);
inline void appendText(char **string,char *text,int length,int justify);
inline void appendChar(char **string,char byte);
inline void DEBUGMSG(FILE * debugFile, char * message);
inline void appendSpaces(char **string,int spaces);
inline void calcOutDateTime(const INT64b value,datetime *timestamp);
inline int copyOutPhone(char *buffer,char *value,int len);
inline bool copyInMoney64(const char * value,INT64 *number);
inline int copyInMoney(const char *value);
inline void copyOutMoney64(char *buffer,INT64b value,unsigned int len);
inline int copyOutDateTime(char *buffer,INT64b value);
inline int copyOutDate(char *buffer,INT64b value);
inline int copyOutTime(char *buffer,INT64b value);
inline int copyOutDecimal64(char *buffer,INT64b value,unsigned int len);
inline UINT16b changeOrder16(UINT16b value);
inline UINT32b changeOrder32(UINT32b value);
inline UINT64b changeOrder64(UINT64b value);
inline INT16b changeOrder16(INT16b value);
inline INT32b changeOrder32(INT32b value);
inline INT64b changeOrder64(INT64b value);
//
// Name		: appendText
// Description	:
//		Append text to string
// Parameters	:
//		char ** - string point to append to
//		char * - text to append
// Returns	:
//		None
// Comments	:
//
inline void appendText(char **string,char *text)
{
		while(*text)
		{
			*(*string)++ = *text++;
		}
		**string='\0';
		return;
}
//
// Name		: appendText
// Description	:
//		Append text to string
// Parameters	:
//		char ** - string point to append to
//		char * - text to append
//						int - total field length including
blank spaces
//						int - justify flag
// Returns	:
//		None
// Comments	:
//						right justify
//						left justify

inline void appendText(char **string,char *text,int length,int justify)
{
		int byteCount = 0;

		if(justify)
		{
			while(*text)
			{
				*(*string)++ = *text++;
				byteCount++;
			}

			//append blank spaces if text is less than length at end
			for(byteCount;byteCount < length;byteCount++)
				*(*string)++ = ' ';
		}
		else
		{
			long long textLen = strlen(text);
			for(textLen;textLen < length;textLen++)
				*(*string)++ = ' ';
			while(*text)
				*(*string)++ = *text++;

		}
		**string='\0';
}

// Name		: appendChar
// Description	:
//			Append text to string
// Parameters	:
//			char ** - string point to append to
//			char * - text to append
// Returns		:
//			None
// Comments		:
//
inline void appendChar(char **string,char byte)
{
		*(*string)++ = byte;
		**string='\0';
		return;
}
```

```
//
// Name                    : appendSpaces
// Description             :
//                                         appends buffer spaces to result
page
// Parameters              :
//                                                     **htmlPage
//
// Returns                 :
//                                                     amount of characters
the function appened
//                                                     to the html page
// Comments                :
//
inline void appendSpaces(char **string,int spaces)
{
        for(int index=0;index<spaces;index++)
        {
                *(*string)++ = ' ';
        }
        **string='\0';
}
//
// Name                    : appendCustData
// Description             :
//                                         appends cust data buffer to result
page
// Parameters              :
//                                                     **htmlPage
//
// Returns                 :
//
//                                                     Adds a newline
character every 50 characters displayed.
// Comments                :
//
inline void appendCustData(char **string,char *text)
{
        short byteCount = 0;
        while(*text)
        {
                *(*string)++ = *text++;
                byteCount++;
                if((byteCount % 50) == 0)
                {
                        *(*string)++ = '\n';
                        *(*string)++ = ' ';     *(*string)++ = ' ';
*(*string)++ = ' ';     *(*string)++ = ' ';
                        *(*string)++ = ' ';     *(*string)++ = ' ';
*(*string)++ = ' ';     *(*string)++ = ' ';
                        *(*string)++ = ' ';     *(*string)++ = ' ';
*(*string)++ = ' ';
                }
        }
        **string='\0';
}

//
// calcOutDateTime
//
// Title                   : Calculate date & time data out of class array
// Parameters              : INT64b - date & time expressed in seconds
//                                         datetime * - timestamp
// Return Value            : None
// Comments                :
//
inline void calcOutDateTime(const INT64b value,datetime *timestamp)
{
        // fixed days in each month (FEB 29 is special case)
        static int daysInMonth[12]      =
{31,28,31,30,31,30,31,31,30,31,30,31};
        // mask out EPOC seconds
        int dateValue           = ((int) (value & 0xffffffff)) +
                                        (SECONDS_IN_DAY -
(GMT_OFFSET * SECONDS_IN_HOUR));
        int offset      = (int) (value >> 32);
        // break out the seconds
        int hms                 = dateValue % SECONDS_IN_DAY;
        int days        = dateValue / SECONDS_IN_DAY;
        int years       = (days - 1) / DAYS_IN_YEAR;
        int leaps       = years / YEARS_IN_LEAP;
        int daysUsed            = (years * DAYS_IN_YEAR) + leaps;
        // adjust the number of days to account for calculated years
        days = days - daysUsed;
        // set the starting year, month, and day
        timestamp->day                  = 1;
        timestamp->month        = 1;
        timestamp->year                 = START_YEAR + years;
        // is the current year a leap year
        int leap = !(timestamp->year % YEARS_IN_LEAP);
                // apply remaining days based on days in months
                int daysInCurrentMonth;
                while(days)
                {
                        // get days in current month
                        daysInCurrentMonth =
daysInMonth[timestamp->month - 1];
                        if(timestamp->month == 2 && leap)
                                daysInCurrentMonth =
daysInCurrentMonth + 1;

                        // days > days in current month
                        if(days > daysInCurrentMonth)
                        {
                                // increment month
                                timestamp->month += 1;
                                days = days -
daysInCurrentMonth;
                                // month exceeds months in year
                                if(timestamp->month >
MONTHS_IN_YEAR)
                                {
                                        // increment year and
reset month
                                        timestamp->year += 1;
timestamp->month = 1;
                                        // are we now on a leap
year
                                        leap =
!(timestamp->year % YEARS_IN_LEAP);
                                }
                        }
                        else
                        {
                                // set day of month to remaioning
days
                                timestamp->day = days; days = 0;
                        }
                }
                // set time values to remaining seconds
                timestamp->hour = hms / SECONDS_IN_HOUR;
                hms = hms % SECONDS_IN_HOUR;
                timestamp->minute = hms / SECONDS_IN_MINUTE;
                timestamp->second = hms % SECONDS_IN_MINUTE;
                return;
        }
```

```
//
// copyOutZip
//
// Title                : Copy zip data out of class array
// Parameters           : char * - buffer to copy zip string into
//
// Return Value         : int - Length of copy
// Comments                     :
//
inline int copyOutZip(char *buffer,char *value,int len = DEFAULT_ZIP_LEN)
{
        int index               = 0;
        int bufferPos           = 0;
        // add each digit of zip number to buffer inserting delimiter at 5
        while(value[index] && bufferPos < len)
        {
                if(index == 5)
                        buffer[bufferPos++] = ZIP_DELIMITER;
                buffer[bufferPos++] = value[index++];
        }
        // space fill to the required length
        while(bufferPos < len)
                buffer[bufferPos++] = CHAR_FILL;
        buffer[bufferPos] = NULL;
        return len;
}
//
// copyOutPhone
//
// Title                : Copy phone data out of class array
// Parameters           : char * - buffer to copy phone string into
//
// Return Value         : int - Length of copy
// Comments                     :
//
inline int copyOutPhone(char *buffer,char *value,int len =
DEFAULT_PHONE_LEN)
{
        int index               = 0;
        int bufferPos           = 0;
        // add each digit of phone number to buffer inserting delimiter before
6, 9, and 12
        while(value[index] && index < len)
        {
                switch(index)
                {
                case  6:
                case  9:
                case 12:
                        // insert delimiter
                        buffer[bufferPos++] = PHONE_DELIMITER;
                default:
                        // add phone digit to buffer
                        buffer[bufferPos++] = value[index++];
                }
        }


        // space fill to the required length
        while(bufferPos < len)
                buffer[bufferPos++] = CHAR_FILL;
        buffer[bufferPos] = '\0';
        return len;
}
//
// copyInMoney64
//
// Title                : Copy money data into class array
// Parameters           : const char * - value string
// Return Value         : INT64b integer value
// Comments                     :
//
inline bool copyInMoney64(const char * value,INT64b *number)
{
        //INT64b  number                        = 0;
        int             index                   = 0;
        int             decimal                 = 0;
        int             decimals                = 0;
        int             digitsAfterDec          = 0;
        bool    negitiveFlag            = false;
        // convert each digit to a numeric portion
        while(value[index])
        {
                // handle $ . - All the rest assumed numeric
                switch(value[index])
                {
                case MONEY_SYMBOL:
                        // ignore $ sign
                        break;
                case NEGITIVE_SYMBOL:
                        // set negitive flag
                        negitiveFlag = true;
                        break;
                case DECIMAL_SYMBOL:
                        // set decimal
                        decimal=1;
                        decimals++;
                        if(decimals >1)
                                //more than 1 decimal point found
                                return false;
                        break;
                default:
                        // adjust decimal places
                        decimal = decimal * 10;
                        // add digit to running total
                        if(value[index] >= '0' && value[index] <= '9')
                        {
                                if(decimal)
                                        if(++digitsAfterDec >
2)
                                                return false;
                                *number = (*number * 10) +
(value[index] - '0');
                        }
                        else
                        {
                                //non-numeric field inserted
                                return false;
                        }
                }
                index++;
        }

        // apply decimal where decimal not found
        if(decimal < 100)
        {
                if(decimal)
                {
                        *number *= (100 / decimal);
                }
                else
                {
                        *number *= 100;
                }
        }
        // make negitive
```

```
	if(negitiveFlag)
		*number = *number * (-1);
	return true;
}
//
// copyInMoney
//
// Title		: Convert char string money field to double
// Parameters		: const char * - value string
// Return Value		: double integer value
// Comments		:
//
inline int copyInMoney(const char *value)
{
	char buf[20];
	int i,j,decimalFound,digitsAfterDecimal=0;
	int decimal=0;
	//walk past $ if present in char string
	if(*value == '$')
		*value++;
	int len=(int)strlen(value);
	for (i=0;i<len;i++)
	{
		if(value[i] == '.')
		{
			decimalFound++;
			if(decimalFound > 1)
				return -1;
		}
		if(value[i] == '-')

		if (value[i] != '.')
		{
			if(decimal)
			{
				if(digitsAfterDecimal<2)
					digitsAfterDecimal++;
				else
					return -1;
			}
			buf[j++] = value[i];
		}
	}
	int amount = atoi(buf);
	return amount;
}

//
// copyOutMoney64
//
// Title		: Copy money data out of class array
// Parameters		: char * - buffer to copy string 64 bit money into
//
//
// Return Value		: int - Length of copy
// Comments		:
//
inline void copyOutMoney64(char *buffer,INT64b value,unsigned int len =
DEFAULT_MONEY64_LEN)
{
	unsigned int	index		= len;
	int		places
= 0;
	bool		negitiveFlag	= false;
	bool		moneyFlag	= true;
	// NULL terminate string
	buffer[index] = NULL;
	// check length > 0
//	if(!index) return len;
	// handle negitive value
	if(value < 0)
	{
		negitiveFlag = true;
		value = value * (-1);
	}
	// break off each digit from value, fill if needed
	do
	{
		if(value)
		{
			// get next digit and add to buffer
			buffer[--index] = (char) (value % 10 + '0');
			value /= 10; places++;
			if(places == 2 && index)
			{
				places++;
				buffer[--index] =
DECIMAL_SYMBOL;
			}
		}
		else
		{
			// add zeros to first place before decimal point
on (i.e. 0.00)
			if(places < 2 || places == 3)
			{
				buffer[--index] =
ZERO_SYMBOL;
			}
			else
			{
				// add the decimal point
				if(places == 2)
				{
					buffer[--index] =
DECIMAL_SYMBOL;
				}
				else
				{
					// add the negitive
indicator
					if(negitiveFlag)
					{
						negitiveFlag
= false;

buffer[--index] = NEGITIVE_SYMBOL;
					}
					else
					{
						// add the
money indicator

if(moneyFlag)
						{

moneyFlag = false;

buffer[--index] = MONEY_SYMBOL;
						}
						else
buffer[--index] = NUMERIC_FILL;
					}
				}
			}
```

```
                                        // need to trace place for decimal point and
zero fill
                                        places++;
                                }
                } while(index);
                //return len;
}
//
// copyOutDateTime
//
// Title                        : Copy date & time data out of class array
// Parameters                   : char * - buffer to copy date & time string into
//                                                         INT64b - value
// Return Value                 : int - Length of copy
// Comments                                : Fixed length
//
inline int copyOutDateTime(char *buffer,INT64b value)
{
                datetime timestamp;
                // break value into      time/date components
                calcOutDateTime(value,&timestamp);
                // put month into buffer
                *buffer++ =             (char) ((timestamp.month / 10) + '0');
                *buffer++ =             (char) ((timestamp.month % 10) + '0');
                *buffer++ =             DATE_DELIMITER;
                // put day into         buffer
                *buffer++ =             (char) ((timestamp.day / 10) + '0');
                *buffer++ =             (char) ((timestamp.day % 10) + '0');
                *buffer++ =             DATE_DELIMITER;
                // put year  into buffer
                int             year = timestamp.year;
                *buffer++ =             (char) ((year /         1000) +     '0');
year = year% 1000;
                *buffer++ =             (char) ((year /         100) + '0'); year = year
% 100;
                *buffer++ =             (char) ((year /         10)         + '0');
                *buffer++ =             (char) ((year %         10)         + '0');
                *buffer++ =             CHAR_FILL;
                // put hour  into buffer
                *buffer++ =             (char) ((timestamp.hour             / 10) +
'0');
                *buffer++ =             (char) ((timestamp.hour             % 10) +
'0');
                *buffer++ =             TIME_DELIMITER;
                // put minute into buffer
                *buffer++ =             (char) ((timestamp.minute /         10)         +
'0');
                *buffer++ =             (char) ((timestamp.minute %         10)         +
'0');
                *buffer++ =             TIME_DELIMITER;
                // put second into buffer
                *buffer++ =             (char) ((timestamp.second /         10)         +
'0');
                *buffer++ =             (char) ((timestamp.second %         10)         +
'0');
                *buffer     = NULL;   return DEFAULT_DATETIME_LEN;
}
//
// copyOutTime
//
// Title                        : Copy date data out of class array
// Parameters                   : char * - buffer to copy date string into
//                                                         INT64b - value
// Return Value                 : int - Length of copy
// Comments                                : Fixed length
//
inline int copyOutDate(char *buffer,INT64b value)
{
                datetime timestamp;
                // break value into time/date components
                calcOutDateTime(value,&timestamp);
                // put month into buffer
                *buffer++ = (char) ((timestamp.month / 10) + '0');
                *buffer++ = (char) ((timestamp.month % 10) + '0');
                *buffer++ = DATE_DELIMITER;
                // put day into buffer
                *buffer++ = (char) ((timestamp.day / 10) + '0');
                *buffer++ = (char) ((timestamp.day % 10) + '0');
                *buffer++ = DATE_DELIMITER;
                // put year into buffer
                int year = timestamp.year;
                *buffer++ = (char) ((year / 1000) + '0');       year = year % 1000;
                *buffer++ = (char) ((year / 100) + '0');        year = year % 100;
                *buffer++ = (char) ((year / 10) + '0');
                *buffer++ = (char) ((year % 10) + '0');
                *buffer++ = CHAR_FILL;
                *buffer = NULL;

                return DEFAULT_DATE_LEN;
}
//
// copyOutTime
//
// Title                        : Copy time data out of class array
// Parameters                   : char * - buffer to copy time string into
//                                                         INT64b - value
// Return Value                 : int - Length of copy
// Comments                                : Fixed length TBD
//
inline int copyOutTime(char *buffer,INT64b value)
{
                datetime timestamp;
                // break value into time/date components
                calcOutDateTime(value,&timestamp);
                // put hour into buffer
                *buffer++ = (char) ((timestamp.hour / 10) + '0');
                *buffer++ = (char) ((timestamp.hour % 10) + '0');
                *buffer++ = TIME_DELIMITER;
                // put minute into buffer
                *buffer++ = (char) ((timestamp.minute / 10) + '0');
                *buffer++ = (char) ((timestamp.minute % 10) + '0');
                *buffer++ = TIME_DELIMITER;
                // put second into buffer
                *buffer++ = (char) ((timestamp.second / 10) + '0');
                *buffer++ = (char) ((timestamp.second % 10) + '0');
                *buffer = NULL; return DEFAULT_TIME_LEN;
}
//
// copyOutDecimal64
//
// Title                        : Copy decimal data out of class array
// Parameters                   : char * - buffer to copy string 64 bit money into
//                                                         INT64b - value
//                                                         unsigned len - max number of
bytes to copy
// Return Value                 : int - Length of copy
// Comments                                :
//
inline int copyOutDecimal64(char *buffer,INT64b value,unsigned int len =
DEFAULT_DECIMAL64_LEN)
{
                unsigned int            index                           = len;
                int                                             places
= 0;
                bool                            negitiveFlag            = false;
                // NULL terminate string
```

```
	buffer[index] = NULL;
	// check length > 0
	if(!index) return len;
	// handle negitive value
	if(value < 0)
	{
		negitiveFlag = true;
		value = value * (-1);
	}
	// break off each digit from value, fill if needed
	do
	{
		if(value)
		{
			// get next digit and add to buffer
			buffer[--index] = (char) (value % 10 + '0');
			value /= 10; places++;
			if(places == 2 && index)
			{
				places++;
				buffer[--index] =
DECIMAL_SYMBOL;
			}
		}
		else
		{
			// add zeros to first place before decimal point
on (i.e. 0.00)
			if(places < 2 || places == 3)
			{
				buffer[--index] =
ZERO_SYMBOL;
			}
			else
			{
				// add the decimal point
				if(places == 2)
				{
					buffer[--index] =
DECIMAL_SYMBOL;
				}
				else
				{
					// add the negitive
indicator
					if(negitiveFlag)
					{
						negitiveFlag
= false;

buffer[--index] = NEGITIVE_SYMBOL;
					}
					else buffer[--index] =
NUMERIC_FILL;
				}
			}
			// need to trace place for decimal point and
zero fill
			places++;
		}
	} while(index);
	return len;
}
//////////////////////////////////////////////////////////////////////////////
//  Macros
//////////////////////////////////////////////////////////////////////////////
using namespace std;
#ifdef _DEBUG
		int debugFlag = 1;
#else
		int debugFlag = 0;
#endif
inline BYTE8b *debugFileName(BYTE8b *filePath)
{
		BYTE8b *fileName = filePath + strlen(filePath);
  while(fileName != filePath)
  {
			if(*fileName == '/' || *fileName == '\\' && *(fileName +
1))
				return (fileName + 1);
    fileName--;
  }
  return filePath;
}
#define DEBUGADDRESS(POINTER)	hex << (void *) POINTER << dec
#define ERRORMSG(TEXT)

\

EnterCriticalSection(&errorMutex);
\



\
errorStream
<< debugFileName(__FILE__) \
<< "|" <<
__TIMESTAMP__ << "|" << __LINE__ << "|" \
<< _getpid()
<< "|" << GetCurrentThreadId() << "|" \
<< TEXT;

\

errorStream.flush();
\

LeaveCriticalSection(&errorMutex);
#ifdef _DEBUG

#define DEBUGMSG(TEXT)

\

EnterCriticalSection(&debugMutex);
\



\



debugStream << debugFileName(__FILE__) \
<< "|" <<
__TIMESTAMP__ << "|" << __LINE__ << "|" \
<< _getpid()
<< "|" << GetCurrentThreadId() << "|" \
<< TEXT ;

\

debugStream.flush();
\

LeaveCriticalSection(&debugMutex);
```

```
        #define DEBUGSTRING(TEXT,LENGTH)
                                                                \
                                debugVarString(TEXT,LENGTH)



#else
    #define DEBUGMSG(TEXT) ;
    #define DEBUGSTRING(TEXT,LENGTH) ;

#endif
#endif /* _COMMON_TPCC */
```

tpccIsapi/tpccIsapi.def

```
; tpccIsapi.def : declares the module parameters for the DLL.
LIBRARY     "tpccIsapi"
EXPORTS
        HttpExtensionProc
        GetExtensionVersion
        TerminateExtension
```

tpccIsapi/tpccIsapi.hpp

```
/*
*****************************************************************
** Project          : AIX
** Component        : Performance/TPC-W Benchmark
** Name                     : tpccIsapi.hpp
** Title            : ISAPI interface for tpcc
*****************************************************************
** Copyright (c) 2001,2002 IBM Corporation
** All rights reserved
*****************************************************************
** History      :
**          Developed at IBM Austin by the AIX RS/6000
**          performance group.
**
** Comments     :
**
*****************************************************************
*/
#ifndef __tpccISAPI_hpp__
#define __tpccISAPI_hpp__
#include <windows.h>
#include <httpext.h>
#include <tpcc.h>
#include <htmlPhraser.h>
#include <iomanip>
#include <db2tpcc.h>
#include <comsvcs.h>
//////////////////////////////////////////////////////////////////
// Terminal struct
//////////////////////////////////////////////////////////////////
struct TERM_ENTRY
{
        int             terminalID;
        bool        terminalInUse;
        int             w_id;
        short       d_id;
};
//////////////////////////////////////////////////////////////////
// COM interface
//////////////////////////////////////////////////////////////////
struct COM_HANDLE
{
        Itpcc_com *comHandle;
        char            *txnBuffer;
        int                     size;
};
//////////////////////////////////////////////////////////////////
// TXN handle
//////////////////////////////////////////////////////////////////
struct      TXN_HANDLE
{
        char        htmlPage[MAX_HTML_PAGE_LEN];
        char        htmlHeader[MAX_HTML_HEADER_LEN];
        char        *urlString;
        //user data
        int             w_id;
        int             d_id;
        int             sync_id;
        int             term_id;
        int             conn_id;
        COM_HANDLE      comInterface;
};
struct DLVYQUEUEDATA
{
        int             warehouse;
        short       in_s_0_CARRIER_ID;
        struct _timeb enqueueTime;
};
//////////////////////////////////////////////////////////////////
// Definitions
//////////////////////////////////////////////////////////////////
#define             INVALID_ITEM            100
#define             HEADER
"Content-Type:text/html\r\nContent-Length: %d\r\nConnection:
Keep-Alive\r\n\r\n"
#define             TLS_NULL
0xFFFFFFFF
#define             ACCESS_TIMEOUT          3600000
                                            //One hour in milli
seconds
#define             DELIVERY_LOG_SUCCESS_STR        "--Tran %d
Queue %d.%03d Start %d.%03d\nW_ID: %d CARRIER_ID: %d
%s\nend-time: %d.%03d\n"
//////////////////////////////////////////////////////////////////
// Function Prototypes
//////////////////////////////////////////////////////////////////
int initDlvy();
int initTxnHandle(TXN_HANDLE **txnHandle);
int closeTxnHandle(TXN_HANDLE *txnHandle);
int readRegisteryValues();
int getTerminal(int terminal,TXN_HANDLE *txnHandle);
int assignTerminal(TXN_HANDLE *txnHandle);
int getDBInstance();
void doHtml(TXN_HANDLE *txnHandle);
int doLoginForm(htmlPhraser *commandBlock,TXN_HANDLE *txnHandle);
int doLoginResults(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle);
int doNewOrderForm(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle);
int doNewOrderResults(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle);
int doPaymentForm(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle);
int doPaymentResults(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle);
int doOrderStatusForm(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle);
int doOrderStatusResults(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle);
```

```
int doDeliveryForm(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle);
int doDeliveryResults(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle);
int doStockForm(htmlPhraser *commandBlock,TXN_HANDLE *txnHandle);
int doStockResults(htmlPhraser *commandBlock,TXN_HANDLE *txnHandle);
int doExit(htmlPhraser *commandBlock,TXN_HANDLE *txnHandle);
int doLoginErrorPage(char *htmlPage,char *message);
int doNewOrderErrorPage(char *htmlPage,char *message,htmlPhraser
*commandBlock,TXN_HANDLE *txnHandle);
int doPaymentErrorPage(char *htmlPage,char *message,htmlPhraser
*commandBlock,TXN_HANDLE *txnHandle);
int doOrderStatusErrorPage(char *htmlPage,char *message,htmlPhraser
*commandBlock,TXN_HANDLE *txnHandle);
int doDeliveryErrorPage(char *htmlPage,char *message,htmlPhraser
*commandBlock,TXN_HANDLE *txnHandle);
int doStockErrorPage(char *htmlPage,char *message,htmlPhraser
*commandBlock,TXN_HANDLE *txnHandle);
void dlvyThreadEntry(void *);
int  queueDlvyTxn(int warehouse, short carrier_id);
int appendButtons(char *htmlPage);
int appendItems(char *htmlPage,short itemCount,short cmdIDStart);
int appendHiddenFields(char *htmlPage,TXN_HANDLE *txnHandle);
int displayStatus(char *htmlPage,int rc);
#endif
```

tpcclsapi/htmlPhraser.cpp

```
//////////////////////////////////////////////////////////////////////
// htmlPhraser.cpp
//////////////////////////////////////////////////////////////////////
// Class implmentation of htmlPhraser.
// This class will take a query string and break it into a series
// of consituant parts
//////////////////////////////////////////////////////////////////////
#include "htmlPhraser.h"
//////////////////////////////////////////////////////////////////////
// htmlPhraser::htmlPhraser
//////////////////////////////////////////////////////////////////////
// Title       : Constructor
// Parameters          : char * query string
// Return Value        : None
// Comments            :
//////////////////////////////////////////////////////////////////////
htmlPhraser::htmlPhraser(char *queryString)
{
        // initilize query values
        iCustomerIdFlag = iCarrierNumFlag = iStockThresholdFlag = false;
        // this initilizes the query list to NULL's. This means that
        // characters being added are overwriting null characters and
        // therfore the string will be null terminated implicitly.

        memset(iQueryValues,NULL,(MAX_FIELD_NUM *
MAX_FIELD_LEN));
        // controls
        char            queryChar       = NULL;
        int             queryIndex              = -1;
        int             valueIndex      = -1;
        // process each characeter of query string
        while(*queryString)
        {
                // check for special case characters
                if(queryChar)
                {
                        // a percentage sign would indicate a token
                        if(*queryString != '%')
                        {
                                // a plus sign repersents a space
                                if(*queryString == '+')
                                {
                                        queryChar = ' ';
                                        *queryString++;
                                }
                                else queryChar = *queryString++;
                        }
                        else queryChar =
convertQueryToken(&queryString);
                }
                else queryChar = '&';
                // handle query reference (&)
                if(queryChar == '&')
                {
                        // reset value index
                        valueIndex = -1;
                        // do we have a numeric query reference
                        if(*queryString >= '0' && *queryString <=
'9')
                        {
                                // numeric query id
                                queryIndex =
                                        ((*queryString - '0') *
10) + (*(queryString + 1) - '0');

                                // walk past the two command
characters
                                queryString += 2;

                                // validate query value
                                if(queryIndex >
MAX_QUERY_ID)
                                  queryIndex = -1;
                        }
                        else queryIndex = -1;
                        // finished processing for query reference
                        continue;
                }
                // we have a query reference but need to wait until we see
'='
                // before accepting value
                if(valueIndex == -1)
                {
                        // we are waiting for '='
                        if(queryChar == '=')
                        {
                                valueIndex = 0;
                                // set query string flags
                                switch(queryIndex)
                                {
                                case C_ID:
                                        iCustomerIdFlag = true;
break;
                                case CARRIER_NUM:
                                        iCarrierNumFlag =
true; break;
                                case STK_THRESHOLD:
                                        iStockThresholdFlag =
true; break;
                                default: break;
                                }
                        }

                        // finishes looging for '='
                        continue;
                }
                // add each character to the query value
                if(queryIndex > -1 && valueIndex > -1)
```

```
                {
                        // we are processing a query value
                        if(valueIndex < MAX_FIELD_LEN)
                        {
                        // we have not exceeded max line len

iQueryValues[queryIndex][valueIndex++] = queryChar;
                        }
                        continue;
                }
        }
        return;
}
////////////////////////////////////////////////////////////////////
// htmlPhraser::getCommandId
////////////////////////////////////////////////////////////////////
// Title        : Returns the page command
// Parameters           : None
// Return Value         : int - page command
// Comments             :
////////////////////////////////////////////////////////////////////
int htmlPhraser::getCommandId()
{
        // return command numeric code
        switch(*iQueryValues[COMMAND_ID])
        {
        case NEW_ORDER_CODE:
                if(iCustomerIdFlag)
                        return
COMMAND_NEW_ORDER_RESULTS;
                else return COMMAND_NEW_ORDER;
        case PAYMENT_CODE:
                if(iCustomerIdFlag)
                        return COMMAND_PAYMENT_RESULTS;
                else return COMMAND_PAYMENT;
        case ORDER_STATUS_CODE:
                if(iCustomerIdFlag)
                        return
COMMAND_ORDER_STATUS_RESULTS;
                else return COMMAND_ORDER_STATUS;
        case DELIVERY_CODE:
                if(iCarrierNumFlag)
                        return COMMAND_DELIVERY_RESULTS;
                else return COMMAND_DELIVERY;
        case STOCK_CODE:
                if(iStockThresholdFlag)
                        return COMMAND_STOCK_RESULTS;
                else return COMMAND_STOCK;
        case MENU_CODE:
                return COMMAND_LOGIN_RESULTS;
        case EXIT_CODE:
                return COMMAND_EXIT;
        default:
                return COMMAND_LOGIN;

        };

        // should not get here
        return COMMAND_LOGIN;
}
////////////////////////////////////////////////////////////////////
// htmlPhraser::validate
////////////////////////////////////////////////////////////////////
// Title        : validate url parameter list for all txn types
// Parameters           : int - txn type
// Return Value         : int - error code
// Comments             :
////////////////////////////////////////////////////////////////////
int validate(int txnType)
{
        return 0;
}
////////////////////////////////////////////////////////////////////
// htmlPhraser::convertQueryToken
////////////////////////////////////////////////////////////////////
// Title        : Returns the page command
// Parameters           : None
// Return Value         : int - page command
// Comments             :
////////////////////////////////////////////////////////////////////
char htmlPhraser::convertQueryToken(char **queryString)
{
        char queryChar          = NULL;
        // skip over %
        (*queryString)++;
        // look at first character
        switch(**queryString)
        {
        case '2':
                {
                        // what follows?
                        (*queryString)++;
                        switch(**queryString)
                        {
                        case '1':
                                queryChar = '!';
                                break;
                        case '3':
                                queryChar = '#';
                                break;
                        case '4':
                                queryChar = '$';
                                break;
                        case '5':
                                queryChar = '%';
                                break;
                        case '6':
                                queryChar = '&';
                                break;
                        case '8':
                                queryChar = '(';
                                break;
                        case '9':
                                queryChar = ')';
                                break;
                        case 'B':
                                queryChar = '+';
                                break;
                        case 'C':
                                queryChar = ',';
                                break;
                        case 'F':
                                queryChar = '/';
                                break;
                        case ' ':
                                queryChar = ' ';
                                break;
                        }
                }
                break;
        case '3':
                {
                        // what follows?
                        (*queryString)++;
                        switch(**queryString)
```

```
                {
                case 'A':
                        queryChar = ':';
                        break;
                case 'B':
                        queryChar = ';';
                        break;
                case 'D':
                        queryChar = '=';
                        break;
                case 'F':
                        queryChar = '?';
                        break;
                case ' ':
                        queryChar = ' ';
                        break;
                }
        }
        break;
case '4':
        {
                // what follows?
                (*queryString)++;
                switch(**queryString)
                {
                case '0':
                        queryChar = '@';
                        break;
                case ' ':
                        queryChar = ' ';
                        break;
                }
        }
        break;
case '5':
        {
                // what follows?

                (*queryString)++;
                switch(**queryString)
                {
                case 'B':
                        queryChar = '[';
                        break;
                case 'D':
                        queryChar = ']';
                        break;
                case 'E':
                        queryChar = '^';
                        break;
                case ' ':
                        queryChar = ' ';
                        break;
                }
        }
        break;
case '7':
        {
                // what follows?
                (*queryString)++;
                switch(**queryString)
                {
                case 'B':
                        queryChar = '{';
                        break;
                case 'C':
                        queryChar = '|';
                        break;
                case 'D':
                        queryChar = '}';
                        break;
                case 'E':
                        queryChar = '~';
                        break;
                case ' ':
                        queryChar = ' ';
                        break;
                }
        }
        break;
case '+':
        queryChar = '+';
        break;
}
// advance pointer and return
(*queryString)++; return queryChar;
}
////////////////////////////////////////////////////////////////////////////////
```

tpccIsapi/StdAfx.cpp

```
// stdafx.cpp : source file that includes just the standard includes
//          tpccIsapi.pch will be the pre-compiled header
//          stdafx.obj will contain the pre-compiled type information
#include "stdafx.h"
// TODO: reference any additional headers you need in STDAFX.H
// and not in this file
```

tpccIsapi/tpccIsapi.cpp

```
/*
*****************************************************************
** Project          : AIX
** Component        : Performance/TPC-C Benchmark
** Name                     : tpccIsapi.cpp
** Title            : TPCC html processing
*****************************************************************
** Copyright (c) 2003 IBM Corporation
** All rights reserved
*****************************************************************
** History      :
**          Developed at IBM Austin by the AIX RS/6000
**          performance group.
**
** Comments                         :
**
*****************************************************************
*/
#include "stdafx.h"
#include "..\tpccCom\tpccCom.h"
#include "..\tpccCom\tpccCom_i.c"
#include <tpccIsapi.hpp>
// For custom assert and trace handling with WebDbg.exe
[ module(name="tpccIsapi", type="dll") ];
[ emitidl(restricted) ];
#define _WIN32_DCOM
////////////////////////////////////////////////////////////////
// Globals
////////////////////////////////////////////////////////////////
int             maxDataSize;
//max struct size of all txn(s)
int             numUsers;
//number of users that client will service.
int             dlvyQueueLen;
//static length of dlvy queue
```

```
int                     dlvyThreads;
//number of dlvy threads to create
int                     dlvyBufferFreeSlots;            //length of dlvy txn
queue
int                     dlvyBufferSlotIndex;            //index into next
avaliable slot in dlvy txn queue
int                     dlvyBufferThreadIndex;                  //thread
index into dlvy txn queue
int                     nullDB;
//null db on client(bypass com call).
int                     trace;
static DWORD                            threadLSIndex;
//isapi thread local storage index
CRITICAL_SECTION                        isapiLock;
//isapi lock
CRITICAL_SECTION                        errorLock;
//error log file lock.
CRITICAL_SECTION                        termLock;
//terminal array lock.
CRITICAL_SECTION                        dlvyQueueLock;
//dlvy queue critical section lock
HANDLE                                          dlvyThreadDone =
INVALID_HANDLE_VALUE;           //dlvy thread exit event
HANDLE                                          dlvyThreadSemaphore
= INVALID_HANDLE_VALUE;         //dlvy thread wrk to do semaphore
int
dlvyThreadID = 0;
struct DLVYQUEUEDATA    *dlvyQueue;
//dlvy queue
HANDLE                                          *dlvyThreadHandles;
//ptr to array of thread handles
TERM_ENTRY      *termArray;
                //array of terminal entries to store each users info.
int                     termNextFree;
                //next available slot in terminal array
FILE    *htmlDebug                      =       NULL;
        //html debug file
FILE    *errorLog               =       NULL;
//error file
FILE    *htmlTrace                      =       NULL;

ofstream debugStream;
ofstream errorStream;
CRITICAL_SECTION debugMutex;
CRITICAL_SECTION errorMutex;
char    dlvyLogPath[128]                = {NULL};
char    errorLogFile[128]               = {NULL};
char    htmlTraceLogFile[128]           = {NULL};
char    dbName[64]                                              = {NULL};
char    dbType[16]                                              = {NULL};
typedef INT (*CONNECT_PTR)(char *dbName,void **connectHandle);
typedef INT             (*DISCONNECT_PTR)(void *connectHandle);
typedef INT (*DLVY_FUNC_PTR)(dlvy_wrapper *dlvy,void
*connectHandle);
typedef INT (*NORD_FUNC_PTR)(nord_wrapper *nord,void
*connectHandle);
typedef INT (*PYMT_FUNC_PTR)(paym_wrapper *pymt,void
*connnectHandle);
typedef INT (*ORDS_FUNC_PTR)(ords_wrapper *ords,void *connectHandle);
typedef INT (*STOK_FUNC_PTR)(stok_wrapper *stok,void *connectHandle);
HINSTANCE               dbInstance;
CONNECT_PTR             db_connect;
DISCONNECT_PTR db_disconnect;
DLVY_FUNC_PTR   dlvyCall;

//////////////////////////////////////////////////////////////////
// Page functions arrays
//////////////////////////////////////////////////////////////////
typedef int (*pageFuncPtr) (htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle);
pageFuncPtr htmlPageFunctions[MAX_TRANSACTIONS] =
                                        {
                                                {doLoginForm},
                                                {doNewOrderForm},
                                                {doPaymentForm},
                                                {doOrderStatusForm},
                                                {doDeliveryForm},
                                                {doStockForm},
                                                {doExit},
                                                {doLoginResults},
                                                {doNewOrderResults},
                                                {doPaymentResults},
                                                {doOrderStatusResults},
                                                {doDeliveryResults},
                                                {doStockResults}
                                        };
extern "C" DWORD WINAPI
HttpExtensionProc(LPEXTENSION_CONTROL_BLOCK lpECB)
{
        struct TXN_HANDLE               *txnHandle = NULL;
        txnHandle = (TXN_HANDLE *) TlsGetValue(threadLSIndex);
        if(txnHandle == NULL)
        {
                int rc = initTxnHandle(&txnHandle);
                if (rc != OK)
                {
                        char response[256];     char htmlHeader[256];
                        sprintf(response,"ERROR: Init txnHandle
function failed.\n");
                        size_t htmlPageLen = strlen(response);
                        //add content length and keep alive header
                        sprintf(htmlHeader,HEADER,htmlPageLen);

lpECB->ServerSupportFunction(lpECB->ConnID,HSE_REQ_SEND_RESPO
NSE_HEADER,"200 OK",NULL,(DWORD*)htmlHeader);

lpECB->WriteClient(lpECB->ConnID,response,(LPDWORD)&htmlPageLen,0
);
                        return
HSE_STATUS_SUCCESS_AND_KEEP_CONN;
                }
                txnHandle = (TXN_HANDLE *)
TlsGetValue(threadLSIndex);
                if (txnHandle == NULL)
                {
                        char response[256];     char htmlHeader[256];
                        sprintf(response,"ERROR: Unable to retrieve
txnHandle from TLS.\n");
                        size_t htmlPageLen = strlen(response);
                        //add content length and keep alive header
                        sprintf(htmlHeader,HEADER,htmlPageLen);

lpECB->ServerSupportFunction(lpECB->ConnID,HSE_REQ_SEND_RESPO
NSE_HEADER,"200 OK",NULL,(DWORD*)htmlHeader);

lpECB->WriteClient(lpECB->ConnID,response,(LPDWORD)&htmlPageLen,0
);
                        return
HSE_STATUS_SUCCESS_AND_KEEP_CONN;
                }
        }
        try
        {
                txnHandle->urlString  =
(char*)lpECB->lpszQueryString;
```

```
                        DEBUGMSG("calling doHtml() w/ query string:" <<
txnHandle->urlString << endl);
                        doHtml(txnHandle);

                        size_t htmlPageLen;
                        htmlPageLen = strlen(txnHandle->htmlPage);
                        if(htmlPageLen >= 4096)
                        {
                                        ERRORMSG("WARNING:  HTML PAGE IS
>= 4096!, page size:"<<htmlPageLen<<endl);
                        }
                        //add content length and keep alive header
                        sprintf(txnHandle->htmlHeader,HEADER,htmlPageLen);
                        size_t headerLen = strlen(txnHandle->htmlHeader);
                        if(headerLen >= 256)
                        {
                                        ERRORMSG("WARNING:  HTML
HEADER IS >= 256!, header size:"<<headerLen<<endl);
                        }
                        //write response to user

lpECB->ServerSupportFunction(lpECB->ConnID,HSE_REQ_SEND_RESPO
NSE_HEADER,"200 OK",NULL,(DWORD*)txnHandle->htmlHeader);

lpECB->WriteClient(lpECB->ConnID,txnHandle->htmlPage,(LPDWORD)&ht
mlPageLen,0);
                        DEBUGMSG("HTML
PAGE-->"<<endl<<txnHandle->htmlHeader<<txnHandle->htmlPage<<endl);
            }
            catch (...)
            {
                        char response[256];
                        ZeroMemory(response,256);
                        char *ptr = response;
                        appendText(&ptr,"<HTML><BODY> Error : Unhandled
Exception </BODY></HTML>");
                        DWORD   cbResponse = sizeof(response)-1 ;
                        //write response to user

lpECB->ServerSupportFunction(lpECB->ConnID,HSE_REQ_SEND_RESPO
NSE_HEADER,"200 OK",NULL,(DWORD*)response);

lpECB->WriteClient(lpECB->ConnID,response,&cbResponse,0);
            }
   return HSE_STATUS_SUCCESS_AND_KEEP_CONN;
}
extern "C" BOOL WINAPI GetExtensionVersion(HSE_VERSION_INFO*
pVer)
{
            // Create the extension version string, and copy string to
HSE_VERSION_INFO structure.
            pVer->dwExtensionVersion =
MAKELONG(HSE_VERSION_MINOR, HSE_VERSION_MAJOR);


            // Copy description string into HSE_VERSION_INFO structure.
            strcpy(pVer->lpszExtensionDesc, "TPCC ISAPI Extension");
            // Initialze isapi critcal section
            InitializeCriticalSection(&isapiLock);
            // Initailize error log critcal section
            InitializeCriticalSection(&errorLock);
            // Initialze terminal critcal section
            InitializeCriticalSection(&termLock);
            // Initialize debug/error critcal sections
            if(debugFlag)
                        InitializeCriticalSection(&debugMutex);
            InitializeCriticalSection(&errorMutex);
            // Read registery values
            if(readRegisteryValues() != OK)
                        return(FALSE);
            // Initialize terminal array
            termArray = (TERM_ENTRY*)
calloc(numUsers,sizeof(TERM_ENTRY));
            termNextFree = 1;
            //open up error/debug streams
            errorStream.rdbuf( )->open(errorLogFile,ios::out);
            if(debugFlag)
                        debugStream.rdbuf( )->open(htmlTraceLogFile,ios::out);
            ERRORMSG("Error log file open."<<endl);
            DEBUGMSG("Loading library for dlvy txn."<<endl);
            int rc = getDBInstance();
            if (rc != OK)
            {
                        ERRORMSG("Error, unable to load database dll,
rc:"<<rc);
                        DEBUGMSG("Error, unable to load database dll,
rc:"<<rc);
                        return FALSE;
            }
            DEBUGMSG("Library loaded for dlvy txn."<<endl);
            DEBUGMSG("Calling initDlvy." <<endl);

            if(initDlvy() != OK)
                        return (FALSE);

            DEBUGMSG("Initializing TLS." << endl);

            // Initialize thread local storage index
            threadLSIndex = TlsAlloc();
            if (threadLSIndex == TLS_NULL)
            {
                        ERRORMSG("Isapi error: unable to initialize thread
local storage(TLS), rc:" << GetLastError()<<endl);
                        return(FALSE);
            }
            DEBUGMSG("sizeof out_neword_struct:   "<<sizeof(struct
out_neword_struct)<<endl);
            DEBUGMSG("sizeof  in_neword_struct:   "<<sizeof(struct
in_neword_struct)<<endl);
            DEBUGMSG("sizeof out_payment_struct:  "<<sizeof(struct
out_payment_struct)<<endl);
            DEBUGMSG("sizeof  in_payment_struct:  "<<sizeof(struct
in_payment_struct)<<endl);
            DEBUGMSG("sizeof out_ordstat_struct:  "<<sizeof(struct
out_ordstat_struct)<<endl);
            DEBUGMSG("sizeof  in_ordstat_struct:  "<<sizeof(struct
in_ordstat_struct)<<endl);
            DEBUGMSG("sizeof out_delivery_struct: "<<sizeof(struct
out_delivery_struct)<<endl);
            DEBUGMSG("sizeof  in_delivery_struct: "<<sizeof(struct
in_delivery_struct)<<endl);
            DEBUGMSG("sizeof out_stocklev_struct: "<<sizeof(struct
out_stocklev_struct)<<endl);
            DEBUGMSG("sizeof  in_stocklev_struct: "<<sizeof(struct
in_stocklev_struct)<<endl);
            //compute the max struct size for com data construct
            maxDataSize = max(maxDataSize,sizeof(nord_wrapper));
            maxDataSize = max(maxDataSize,sizeof(paym_wrapper));
            maxDataSize = max(maxDataSize,sizeof(ords_wrapper));
            maxDataSize = max(maxDataSize,sizeof(dlvy_wrapper));
            maxDataSize = max(maxDataSize,sizeof(stok_wrapper));
            maxDataSize += 10;
            DEBUGMSG("max data struct size:"<<maxDataSize <<endl);

            return true;
}
```

```
extern "C" BOOL WINAPI TerminateExtension(DWORD dwFlags)
{
	return true;
}

/*
*****************************************************************
** Name		:		initTxnHandle
** Description	:
**
Isapi thread initializes
its own com interface
**
structure.
** Parameters	:
**
TXN_HANDLE**
isapi txn handle
** Returns	:
**
int - return code
** Comments		:
**
*****************************************************************
*/
int initTxnHandle(TXN_HANDLE **txnHandle)
{
	DEBUGMSG("Inside init txn handle, getting isapiLock." << endl);
	EnterCriticalSection(&isapiLock);

	HRESULT hres = NULL;
	try
	{
		DEBUGMSG("Got ispaiLock, initializing txnHandle:
"<<DEBUGADDRESS(*txnHandle)<< endl);
		*txnHandle = (TXN_HANDLE *)
calloc(1,sizeof(TXN_HANDLE));
		if (*txnHandle == NULL)
		{
			ERRORMSG("Unable to allocated
TXN_HANDLE, rc:"<<GetLastError()<<endl);
			return ERR;
		};
		(*txnHandle)->comInterface.comHandle = NULL;
		DEBUGMSG("Initializing txnHandle com data buffer to
"<<maxDataSize<<"bytes"<<endl);
		(*txnHandle)->comInterface.txnBuffer = (char *)
CoTaskMemAlloc(maxDataSize);
		if (!((*txnHandle)->comInterface.txnBuffer))
		{
			ERRORMSG("CoTaskMemAlloc() failed of
size "<<maxDataSize<<", rc: "<<hres<<endl);
			return(ERR);
		};
		DEBUGMSG("txnHandle com data buffer initialized to "
<< maxDataSize << "bytes" <<endl);
		DEBUGMSG("Calling CoInitialize with txnHandle:
"<<DEBUGADDRESS(*txnHandle)<<endl);
		hres =
CoInitializeEx(NULL,COINIT_MULTITHREADED);
		if (FAILED(hres))
		{
			ERRORMSG("CoInitializeEx() failed, rc :
"<<hres<<endl);
			return(ERR);
		};

		struct _timeb
startTime;
		struct _timeb
endTime;
		DEBUGMSG("Calling CoCreateInstance with
txnHandle:"<<DEBUGADDRESS(*txnHandle)<< endl);
		_ftime(&startTime);
		hres =
CoCreateInstance(CLSID_tpcc_com,NULL,CLSCTX_SERVER,IID_Itpcc_co
m,(void **)&(*txnHandle)->comInterface.comHandle);
		if (FAILED(hres))
		{
			_ftime(&endTime);
			//store error code in txnHandle
			ERRORMSG("CoCreateInstance() failed,
code:"<<HRESULT_CODE(hres)<<"
facility:"<<HRESULT_FACILITY(hres)<<
			" hres:"<<hres<< " time
waiting:"<<
			((((endTime.time -
startTime.time)*1000)+
			(endTime.millitm -
startTime.millitm))/1000.0)<<endl);

			DEBUGMSG("CoCreateInstance() failed,
code:"<<HRESULT_CODE(hres)<<"
facility:"<<HRESULT_FACILITY(hres)<<
			" hres:"<<hres<< " time
waiting:"<<
			((((endTime.time -
startTime.time)*1000)+
			(endTime.millitm -
startTime.millitm))/1000.0)<<endl);

			return(ERR);
		};
		_ftime(&endTime);
		DEBUGMSG("CoCreateInstance successful.txnHande
com initialized, time waiting for object to be activated:" <<
			((((endTime.time - startTime.time)*1000)+
			(endTime.millitm -
startTime.millitm))/1000.0)<<endl);

		//call set complete to return object to pool.

(*txnHandle)->comInterface.comHandle->doSetComplete();
		//set the com buffers size
		DEBUGMSG("Setting txnHandle: " <<
DEBUGADDRESS(*txnHandle) << "com buffer size to " << maxDataSize<<
endl)
		(*txnHandle)->comInterface.size = maxDataSize;
		DEBUGMSG("txnHandle:
"<<DEBUGADDRESS(*txnHandle) <<"set to " << maxDataSize << endl);
		TlsSetValue(threadLSIndex,*txnHandle);
		DEBUGMSG("txnHandle:
"<<DEBUGADDRESS(*txnHandle) << "stored in TLS" << endl);


ZeroMemory((*txnHandle)->htmlPage,MAX_HTML_PAGE_LEN);

ZeroMemory((*txnHandle)->htmlHeader,MAX_HTML_HEADER_LEN);

		LeaveCriticalSection(&isapiLock);
		return(OK);
	}
	catch(...)
	{
		DEBUGMSG("Unhandled exeception in initTxnHandle,
unlocking isapi lock" <<endl);
		ERRORMSG("Unhandled exeception in initTxnHandle,
unlocking isapi lock" <<endl);
		LeaveCriticalSection(&isapiLock);
```

```
	};
	return ERR;
}

/*
*****************************************************************
** Name		:	getDBInstance
** Description	:
**		load db specific lib
based on dbType registery
**		value.
** Parameters	:
**
** Returns	:
**		int - return code
** Comments	:
**		This function only
exists for the dlvy threads
**		Dlvy threads hold
direct connections to the database
**		and therefore need to
know what db interface to talk to.
*****************************************************************
*/
int getDBInstance()
{
	if(nullDB)
	{
		dbInstance =
LoadLibrary("c:\\inetpub\\wwwroot\\tpcc\\nullDB.dll");
		if(dbInstance == NULL)
		{
			return ERR_NULL_DLL_NOT_LOADED;
		}
	}
	else if( (strcmp(dbType,"DB2") == 0) )
	{
		dbInstance =
LoadLibrary("c:\\inetpub\\wwwroot\\tpcc\\tpccDB2glue.dll");
		if(dbInstance == NULL)
		{
			return ERR_DB2_DLL_NOT_LOADED;
		}
	}
	else if( (strcmp(dbType,"ORACLE") == 0) )
	{
		return ERR_ORACLE_DLL_NOT_LOADED;
	}
	else
	{
		return ERR_UNKNOWN_DB;
	}
	db_connect =
(CONNECT_PTR)GetProcAddress(dbInstance,"connect_db");
	if(db_connect == NULL)
	{
		return ERR_CONNECT_ADDRESS_NOT_FOUND;
	}
	dlvyCall =
(DLVY_FUNC_PTR)GetProcAddress(dbInstance,"do_dlvy");
	if(dlvyCall == NULL)
	{
		return ERR_DLVY_ADDRESS_NOT_FOUND;
	}

	return OK;
}
/*
*****************************************************************
** Name		:	initDlvy
** Description	:
**		initialize dlvy
threads/dlvy queueu
** Parameters	:
**
** Returns	:
**		int - return code
** Comments	:
**
*****************************************************************
*/
int initDlvy()
{
	// Initialze critcal section
	InitializeCriticalSection(&dlvyQueueLock);
	//create dlvy queue
	dlvyQueue = (DLVYQUEUEDATA *)
calloc(dlvyQueueLen,sizeof(DLVYQUEUEDATA));
	dlvyThreadDone = CreateEvent(NULL,

 TRUE,		//manual reset

 FALSE,	//initially not signalled.

 NULL);
	if(dlvyThreadDone == NULL)
	{
		DEBUGMSG("Error: dlvyThreadDone handled init
failed, GetLastError:"<<GetLastError()<<endl);
		ERRORMSG("Error : dlvyThreadDone handled init
failed, GetLastError:"<<GetLastError()<<endl);

		return  ERR_DLVY_EVENT_INIT_FAILED;
	}
	//create dlvy semaphore
	dlvyThreadSemaphore =
CreateSemaphore(NULL,0,dlvyQueueLen,NULL);
	if(dlvyThreadSemaphore == NULL)
	{
		DEBUGMSG("Error: dlvyThreadSemaphore semaphore
init failed, GetLastError:"<<GetLastError()<<endl);
		ERRORMSG("Error: dlvyThreadSemaphore semaphore
init failed, GetLastError:"<<GetLastError()<<endl);
		return  ERR_DLVY_SEMAPHORE_INIT_FAILED;
	}
	//set number of free slots available in queue
	dlvyBufferFreeSlots = dlvyQueueLen;

	//index into next avaliable slot in dlvy txn queue
	dlvyBufferSlotIndex = 0;

	//thread index into dlvy txn queue
	dlvyBufferThreadIndex = 0;
	dlvyThreadHandles = new HANDLE[dlvyThreads];
	//create threads
	for(int threadCount = 0;threadCount < dlvyThreads;threadCount++)
	{
		dlvyThreadHandles[threadCount] =
(HANDLE)_beginthread(dlvyThreadEntry,0,NULL);
		if(dlvyThreadHandles[threadCount] ==
INVALID_HANDLE_VALUE)
			return ERR_DLVY_THREAD_FAILED;
	}
	return OK;
}
```

```
/*
*****************************************************************
** Name                    :       readRegisteryValues
** Description     :
**                                         initialize isapi global
variables from registery
** Parameters      :
**
** Returns         :
**                                         int - return code
** Comments                :
**
*****************************************************************
*/
int readRegisteryValues()
{
        HKEY    registeryKey;
        char    value[MAX_STRING_LEN];
        DWORD   regType;
        DWORD   regValue;
        DWORD   regValueSize = MAX_STRING_LEN;

        //open up registery key

if(RegOpenKeyEx(HKEY_LOCAL_MACHINE,REGISTERY_SUB_KEY,0,K
EY_READ,&registeryKey) != ERROR_SUCCESS)
                return ERR_UNABLE_TO_OPEN_REG;

        //get null db flag
        regValueSize = sizeof(regValue);
        if(RegQueryValueEx(registeryKey,NULL_DB,0,&regType,(BYTE
*)&regValue,&regValueSize) == ERROR_SUCCESS)
                        nullDB = regValue;
        else
                        nullDB = 0;
        //get num dlvy threads
        regValueSize = sizeof(regValue);

if(RegQueryValueEx(registeryKey,DELIVERY_THREADS,0,&regType,(BYT
E *)&regValue,&regValueSize) == ERROR_SUCCESS)
                        dlvyThreads = regValue;
        else
                        dlvyThreads =
DEFAULT_DLVY_THREADS;
        //get dlvy queue len
        regValueSize = sizeof(regValue);

if(RegQueryValueEx(registeryKey,DELIVERY_QUEUE_LEN,0,&regType,(B
YTE *)&regValue,&regValueSize) == ERROR_SUCCESS)
                        dlvyQueueLen = regValue;
        else
                        dlvyQueueLen =
DEFAULT_DLVY_QUEUE_LEN;
        //get the htmlTrace flag
        regValueSize = sizeof(regValue);

if(RegQueryValueEx(registeryKey,HTML_TRACE,0,&regType,(BYTE
*)&regValue,&regValueSize) == ERROR_SUCCESS)
                        trace = regValue;
        else
                        trace = 0;
        //get the client null db flag
        regValueSize = sizeof(regValue);
        if(RegQueryValueEx(registeryKey,NULL_DB,0,&regType,(BYTE
*)&regValue,&regValueSize) == ERROR_SUCCESS)
                        nullDB = regValue;
        else
                        nullDB = 0;
        //get the num of users
        regValueSize = sizeof(regValue);

if(RegQueryValueEx(registeryKey,NUM_USERS,0,&regType,(BYTE
*)&regValue,&regValueSize) == ERROR_SUCCESS)
                        numUsers = regValue;
        else
                        numUsers = DEFAULT_NUM_USERS;
        //get dlvy log file path
        regValueSize = sizeof(value);
        if
(RegQueryValueEx(registeryKey,DELIVERY_LOG_PATH,0,&regType,(BYT
E *) &value,&regValueSize)== ERROR_SUCCESS )
                strcpy(dlvyLogPath,value);
        else
                strcpy(dlvyLogPath,DEFAULT_DLVY_LOG_PATH);
        //get global error log file path/name
        regValueSize = sizeof(value);
        if
(RegQueryValueEx(registeryKey,ERROR_LOG_FILE,0,&regType,(BYTE *)
&value,&regValueSize)== ERROR_SUCCESS )
                strcpy(errorLogFile,value);
        else
                strcpy(errorLogFile,DEFAULT_ERROR_LOG_FILE);
        //get global error log file path/name
        regValueSize = sizeof(value);
        if
(RegQueryValueEx(registeryKey,HTML_TRACE_LOG_FILE,0,&regType,(B
YTE *) &value,&regValueSize)== ERROR_SUCCESS )
                strcpy(htmlTraceLogFile,value);
        else

strcpy(htmlTraceLogFile,DEFAULT_HTML_TRACE_LOG_FILE);
        //get db name
        regValueSize = sizeof(value);
        if (RegQueryValueEx(registeryKey,DB_NAME,0,&regType,(BYTE
*) &value,&regValueSize)== ERROR_SUCCESS )
                strcpy(dbName,value);
        else
                strcpy(dbName,DEFAULT_DB_NAME);
        //get db type
        regValueSize = sizeof(value);
        if (RegQueryValueEx(registeryKey,DB_TYPE,0,&regType,(BYTE
*) &value,&regValueSize)== ERROR_SUCCESS )
                strcpy(dbType,value);
        RegCloseKey(registeryKey);

        return OK;
}
/*
*****************************************************************
** Name                    : doLoginForm
** Description     :
**                                         HTML Login page entry point
** Parameters      :
**                                         htmlPhraser*    command
block
**                                         TXN_HANDLE*     txn handle
struct
** Returns         :
**                                         int - return code
** Comments                :
**
*****************************************************************
*/
int doLoginForm(htmlPhraser *commandBlock,TXN_HANDLE *txnHandle)
{
        DEBUGMSG("Entering doLoginForm()."<<endl);
```

```
	char *html=txnHandle->htmlPage;
	DEBUGMSG("Creating html login page"<<endl);
	//begin html page
	appendText(&html,"<HTML><HEAD><TITLE>TPC-C Client
Home Page</TITLE></HEAD>"
						"<FORM
ACTION=\""
						APP_NAME
						"\"
METHOD=\"GET\">"
						"<H2>Please
Login.</H2>"
						"<INPUT
TYPE=\"hidden\" NAME=\""
						CMD_TXN_ID
						"\" VALUE=\""
						CMD_MENU
						"\">"
						"<H3>Warehouse
<INPUT NAME=\""
						CMD_W_ID
						"\" SIZE=6>"
						" District <INPUT
NAME=\""
						CMD_D_ID
						"\" SIZE=2></H3>"
						"<INPUT
TYPE=\"submit\" VALUE=\"Submit\">"
						"</FORM>");

html+=sprintf(html,"dlvy Queue Length:%d <BR> num dlvy threads:%d <BR>
dlvy queue free slots:%d <BR> isapi queue index:%d <BR> thread queue
index:%d <BR> </BODY></HTML>\n",
					dlvyQueueLen,
					dlvyThreads,
					dlvyBufferFreeSlots,
					dlvyBufferSlotIndex,
					dlvyBufferThreadIndex);
DEBUGMSG("Html login page done"<<endl);
return OK;
}
/*
*****************************************************************
** Name			: doLoginResults
** Description		:
**				HTML Login results page entry
point
** Parameters		:
**				htmlPhraser*		command
block
**				TXN_HANDLE*		txn handle
struct
** Returns		:
**				int - return code
** Comments		:
**
*****************************************************************
*/
int doLoginResults(htmlPhraser *commandBlock,TXN_HANDLE *txnHandle)
{
	char *html=txnHandle->htmlPage;

	//validate parameters
	if( (txnHandle->w_id = atoi(commandBlock->get_W_ID())) == 0 )
	{
		doLoginErrorPage(html,ERR_INVALID_W_ID);
		return OK;
	}
	if( (txnHandle->d_id = atoi(commandBlock->get_D_ID())) == 0 )
	{
		doLoginErrorPage(html,ERR_INVALID_D_ID);
		return OK;
	}
	//store user into terminal array,
	//function will ERR if the terminal array is full
	if( assignTerminal(txnHandle) != OK)
	{
		doLoginErrorPage(html,ERR_TERMINAL_FULL);
		return OK;
	};
	appendText(&html,"<HTML><HEAD><TITLE>TPC-C Main
Menu</TITLE></HEAD>\r\n"
						"<BODY><FORM
ACTION=\""
						APP_NAME
						"\"
METHOD=\"GET\">\r\n"
						"<H3>Please Select
Transaction.</H3>\r\n");
	html+=appendButtons(html);
	html+=appendHiddenFields(html,txnHandle);
	appendText(&html,"</FORM></BODY></HTML>");
	return OK;
}
/*
*****************************************************************
** Name			: doLoginErrorPage
** Description		:
**				HTML Login page entry point
** Parameters		:
**				char *		html page
buffer
**				char *		error
message
** Returns		:
**				int - return code
** Comments		:
**
*****************************************************************
*/
int doLoginErrorPage(char *htmlPage,char *errorMessage)
{
	char *html=htmlPage;
	//begin html page
	appendText(&html,"<HTML><HEAD><TITLE>TPC-C Client
Home Page</TITLE></HEAD>"
						"<FORM
ACTION=\""
						APP_NAME
						"\"
METHOD=\"GET\">");
	appendText(&html,"<H2>Please Login.</H2>"
						"<INPUT
TYPE=\"hidden\" NAME=\""
						CMD_TXN_ID
						"\" VALUE=\""
						CMD_MENU
						"\">"
						"<H3>Warehouse
<INPUT NAME=\""
						CMD_W_ID
						"\" SIZE=6>"
						" District <INPUT
NAME=\""
						CMD_D_ID
						"\" SIZE=2></H3>"
```

```
                                                        "<INPUT
TYPE=\"submit\" VALUE=\"Submit\">"
                                                        "</FORM>");
            appendText(&html,errorMessage);
            appendText(&html,"<BODY></HTML>");
            return OK;
}

/*
**************************************************************
** Name                        : doNewOrderForm
** Description         :
**                                         HTML neworder page entry point
** Parameters          :
**                                         htmlPhraser*        command
block
**                                         TXN_HANDLE*     txn handle
struct
** Returns             :
**                                         int - return code
** Comments                    :
**
**************************************************************
*/
int doNewOrderForm(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle)
{
            char *html=txnHandle->htmlPage;
            appendText(&html,"<HTML><HEAD><TITLE>TPC-C New
Order</TITLE></HEAD>\r\n"
                                                        "<BODY><FORM
ACTION=\""
                                                        APP_NAME
                                                        "\"
METHOD=\"GET\">\r\n"

"<CENTER><H3>Please Fill In New Order Form.</H3></CENTER>\r\n"
//check if not needed
                                                        "Submit Transaction
<INPUT TYPE=\"submit\" NAME=\""
                                                        CMD_TXN_ID
                                                        "\" VALUE=\""
                                                        CMD_NORD
                                                        "\">");
            //append the hidden
            html+=appendHiddenFields(html,txnHandle);

            //int buffer for warehouse
            char buffer[15];
            appendText(&html," <PRE>"
//                                                      "       1       2       3
    4       5       6       7       8       9\r\n"
//
"1234567890123456789012345678901234567890123456789012345678901234567890123
4567890123456789012345678901234567890\r\n"
                                                        "Warehouse: ");
            appendText(&html,itoa(txnHandle->w_id,buffer,10),7,1);
            appendText(&html,"District: <INPUT NAME=\""
                                                        CMD_D_ID
                                                        "\" SIZE=1>
            Date:<BR>"
              "Customer <INPUT NAME=\""
                                                        CMD_C_ID
                                                        "\" SIZE=6>  Name:
          Credit:     %Disc.:<BR>"
                                                        "Order Number:
Number of Lines:        W_tax:      D_tax:<BR> <BR>"
//                                                      "       1       2       3
    4       5       6       7       8       9\r\n"
//
"1234567890123456789012345678901234567890123456789012345678901234567890123
4567890123456789012345678901234567890\r\n"
                                                        " Supp_W  Item_Num
Item_Name               Qty Stock  B/G  Price    Amount <BR> ");

            //append the 15 items commands
            html+=appendItems(html,NORD_ITEMS,ITEM_START);
            //seal up html page
            appendText(&html,"</PRE></BODY></HTML>");
            return OK;
}
/*
**************************************************************
** Name                        : doNewOrderResults
** Description         :
**                                         HTML neworder page entry point
** Parameters          :
**                                         htmlPhraser*        command
block
**                                         TXN_HANDLE*     txn handle
struct
** Returns             :
**                                         int - return code
** Comments                    :
**
**************************************************************
*/

int doNewOrderResults(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle)
{
            DEBUGMSG("Entered doNewOrderResults" << endl);
            char *html=txnHandle->htmlPage;
            struct nord_wrapper *nord = NULL;
            DEBUGMSG("Casting COM txnBuffer to nord struct" <<endl);
            nord = (nord_wrapper*)txnHandle->comInterface.txnBuffer;
            ZeroMemory(nord,maxDataSize);
            DEBUGMSG("COM txnBuffer initialized, validating input
parameters" << endl);

            //set warehouse,district and customer id from command block
            nord->in_nord.s_W_ID = txnHandle->w_id;
            DEBUGMSG("nord w_id:" <<  nord->in_nord.s_W_ID << endl);
            if( (nord->in_nord.s_D_ID = atoi(commandBlock->get_D_ID()) )
== 0)
            {

doNewOrderErrorPage(html,ERR_INVALID_D_ID,commandBlock,txnHandle
);
                        return OK;
            }
            DEBUGMSG("nord d_id:" <<  nord->in_nord.s_D_ID << endl);
            if((nord->in_nord.s_C_ID = atoi(commandBlock->get_C_ID()) ) ==
0)
            {

doNewOrderErrorPage(html,ERR_INVALID_C_ID,commandBlock,txnHandle
);
                        return OK;
            }
            DEBUGMSG("nord c_id:" <<  nord->in_nord.s_C_ID << endl);
            int itemCmd                                 = ITEM_START;
            short itemComplete = 0;
            char field[256] ={NULL};
            for (int itemIndex=0;itemIndex<NORD_ITEMS;itemIndex++)
```

```
		{
			//supply warehouse
			if( *(commandBlock->get_ITEM_SUPP_W(itemIndex))
)
				if (
(nord->in_nord.in_item[nord->in_nord.s_O_OL_CNT].s_OL_SUPPLY_W_ID
= atoi(commandBlock->get_ITEM_SUPP_W(itemIndex))) == 0)
				{
doNewOrderErrorPage(html,ERR_INVALID_SUPPLY_W_ID,commandBlock
,txnHandle);
					return OK;
				}
				else
					itemComplete++;
			//item number
			if(
*(commandBlock->get_ITEM_ITEM_NUM(itemIndex)) )
			{
				if(itemComplete==1)
				{
					if (
(nord->in_nord.in_item[nord->in_nord.s_O_OL_CNT].s_OL_I_ID =
atoi(commandBlock->get_ITEM_ITEM_NUM(itemIndex))) == 0)
					{
doNewOrderErrorPage(html,ERR_INVALID_ITEM_NUM,commandBlock,txn
Handle);
						return OK;
					}
					else
						itemComplete++;
				}
				//missing previous value of item supp
warehouse, flag error
				else
				{
doNewOrderErrorPage(html,ERR_INVALID_SUPPLY_W_ID,commandBlock
,txnHandle);
					return OK;
				}
			}
			else if( (itemComplete==1) ) //nothing in the command
block, check to see if the previous item value is present
			{
doNewOrderErrorPage(html,ERR_INVALID_ITEM_NUM,commandBlock,txn
Handle);
				return OK;
			}

			//item qty
			if(*(commandBlock->get_ITEM_QTY(itemIndex)))
			{
				if(itemComplete==2)
				{
					if(
(nord->in_nord.in_item[nord->in_nord.s_O_OL_CNT].s_OL_QUANTITY =
atoi(commandBlock->get_ITEM_QTY(itemIndex))) == 0)
					{
doNewOrderErrorPage(html,ERR_INVALID_ITEM_OTY,commandBlock,txn
Handle);
						return OK;
					}
					else
						itemComplete++;
				}
				//missing previous value of item number
				else if (itemComplete ==1)
				{
doNewOrderErrorPage(html,ERR_INVALID_ITEM_NUM,commandBlock,txn
Handle);
					return OK;
				}
				//missing 1st value of supp warehouse
				else
				{
doNewOrderErrorPage(html,ERR_INVALID_SUPPLY_W_ID,commandBlock
,txnHandle);
					return OK;
				}
			}
			else if(itemComplete==2)		//nothing in
the command block, check to see if the previous item values are present
			{
doNewOrderErrorPage(html,ERR_INVALID_ITEM_NUM,commandBlock,txn
Handle);
				return OK;
			}

			DEBUGMSG("nord item:" <<
nord->in_nord.s_O_OL_CNT << "SUPPLY_W_ID:" <<
nord->in_nord.in_item[nord->in_nord.s_O_OL_CNT].s_OL_SUPPLY_W_ID
<<
				" OL_I_ID:" <<
nord->in_nord.in_item[nord->in_nord.s_O_OL_CNT].s_OL_I_ID << "
OL_QUANTITY:" <<
nord->in_nord.in_item[nord->in_nord.s_O_OL_CNT].s_OL_QUANTITY
<<endl);
			if(itemComplete == 3)
				nord->in_nord.s_O_OL_CNT++;
			itemComplete=0;
		}
		DEBUGMSG("complete nord
items:"<<nord->in_nord.s_O_OL_CNT<<" initializing remaing unused items "
<< NORD_ITEMS - nord->in_nord.s_O_OL_CNT  << " to 0" <<endl);
		for(int
itemIndex=nord->in_nord.s_O_OL_CNT;itemIndex<NORD_ITEMS;itemIndex
++)
		{
nord->in_nord.in_item[itemIndex].s_OL_SUPPLY_W_ID=0;
			nord->in_nord.in_item[itemIndex].s_OL_I_ID = 0;
			nord->in_nord.in_item[itemIndex].s_OL_QUANTITY
=0;
		}
		DEBUGMSG("nord creating new order results html title page"
<<endl);
		appendText(&html,"<HTML><HEAD><TITLE>TPC-C New Order
Results</TITLE></HEAD>\r\n"
						"<BODY><FORM
ACTION=\""
						APP_NAME
						"\"
METHOD=\"GET\">\r\n");
		//append menu buttons
		html+=appendButtons(html);
		html+=appendHiddenFields(html,txnHandle);
		appendText(&html,"</FORM><CENTER><H3>New Order</H3>
<BR></CENTER>"
					"<PRE>"
```

```
//                                                  "        1        2        3
   4        5        6        7        8        9\r\n"
//
"1234567890123456789012345678901234567890123456789012345678901234567890123
4567890123456789012345678901234567890\r\n
                                                                  """);
            //assume failure
            nord->out_nord.s_transtatus = -1;
            DEBUGMSG("nord executing COM interface function" << endl);
            HRESULThres;
            try
            {
                        hres =
txnHandle->comInterface.comHandle->doNewOrder(&txnHandle->comInterfa
ce.size,(UCHAR**)&txnHandle->comInterface.txnBuffer);
            }
            catch(...)
            {
                        html+=sprintf(html,"ERROR: nord com call caused
exeception to occur.</PRE></BODY></HTML>");
                        ERRORMSG("ERROR : nord com call cause exeception
to occur,"<<endl);
                        return OK;
            }
            if(FAILED(hres))
            {
                        ERRORMSG("ERROR : nord com call failed, rc:" <<
hex  << hres);
                        DEBUGMSG("ERROR : nord com call failed, rc:" <<
hex  << hres);
                        return OK;
            }

            //com call successful, return object back to pool.
            hres = txnHandle->comInterface.comHandle->doSetComplete();
            if(FAILED(hres))
            {
                        ERRORMSG("ERROR : nord setcomplete call failed,
rc:" << hex  << hres);
                        DEBUGMSG("ERROR : nord setcomplete call failed,
rc:" << hex  << hres);
            }
            nord = (nord_wrapper *)txnHandle->comInterface.txnBuffer;
            if(FAILED(hres))
            {
                        html+=sprintf(html,"ERROR: nord com doSetComplete
failed, rc:%ld</PRE></BODY></HTML>",hres);
                        ERRORMSG("ERROR : nord com doSetComplete
failed, rc:"<<DEBUGADDRESS(hres)<<endl);
                        return OK;
            }
            DEBUGMSG("nord COM interface function successful,
s_transtatus:" << nord->out_nord.s_transtatus << endl);
            int rc = nord->out_nord.s_transtatus;
            char buffer[10];
            appendText(&html,"Warehouse:  ");
            appendText(&html,itoa(nord->in_nord.s_W_ID,buffer,10),6,1);
            appendText(&html,"District: ");
            appendText(&html,itoa(nord->in_nord.s_D_ID,buffer,10),26,1);
            appendText(&html,"Date: ");
            if(rc == OK)
            {
                        char dateTimeBuffer[50];

copyOutDateTime(dateTimeBuffer,nord->out_nord.s_O_ENTRY_D_time);
                        appendText(&html,dateTimeBuffer);
            }
            appendText(&html," <BR>"
                                    "Customer: ");
            appendText(&html,itoa(nord->in_nord.s_C_ID,buffer,10),8,1);
            appendText(&html,"Name: ");

appendText(&html,nord->out_nord.s_C_LAST,LAST_NAME_LEN+3,1);
            appendText(&html,"Credit: ");
            appendText(&html,nord->out_nord.s_C_CREDIT,5,1);


            appendText(&html,"%Disc.: ");
            if(rc == OK)
            {

html+=sprintf(html,"%2.2lf",nord->out_nord.s_C_DISCOUNT/100.0);
            }
            appendText(&html," <BR>"
                                    "Order Number: ");
            if(rc != INVALID_STATUS)

appendText(&html,itoa(nord->out_nord.s_O_ID,buffer,10),10,1);

            appendText(&html,"Number of Lines: ");

            if(rc != INVALID_STATUS)

appendText(&html,itoa(nord->out_nord.s_O_OL_CNT,buffer,10),10,1);
            appendText(&html,"W_Tax: ");
            if(rc == OK)
            {

html+=sprintf(html,"%5.2lf",nord->out_nord.s_W_TAX/100.0);
            }
            appendText(&html,"   D_Tax: ");
            if(rc == OK)
            {

html+=sprintf(html,"%5.2lf",nord->out_nord.s_D_TAX/100.0);
            }
            appendText(&html," <BR> <BR>"
//                                                  "        1        2        3        4        5        6
   7        8        9\r\n"
//
"1234567890123456789012345678901234567890123456789012345678901234567890123
4567890123456789012345678901234567890\r\n"
                                                  " Supp_W  Item_Id   Item_Name
Qty Stock  B/G  Price    Amount <BR> ");

            //display items
            if (rc == OK)
            {
                        //display valid items
                        for(int itemCount=0;itemCount <
nord->out_nord.s_O_OL_CNT;itemCount++)
                        {

appendText(&html,itoa(nord->in_nord.in_item[itemCount].s_OL_SUPPLY_W
_ID,buffer,10),8,1);

appendText(&html,itoa(nord->in_nord.in_item[itemCount].s_OL_I_ID,buffer,1
0),10,1);

appendText(&html,nord->out_nord.item[itemCount].s_I_NAME,DEFAULT_S
TRING_LEN+1,1);

appendText(&html,itoa(nord->in_nord.in_item[itemCount].s_OL_QUANTITY,
buffer,10),5,1);
```

```
appendText(&html,itoa(nord->out_nord.item[itemCount].s_S_QUANTITY,buf
fer,10),7,1);
                                html+=sprintf(html,"%c   $%-7.2lf $%-7.2lf
<BR> ",nord->out_nord.item[itemCount].s_brand_generic,
  nord->out_nord.item[itemCount].s_I_PRICE/100.0,
  nord->out_nord.item[itemCount].s_OL_AMOUNT/100.0);
                        }
                        //display blank line for remaining empty items in the
order
                        for(int lineBreaks=0;lineBreaks <
(NORD_ITEMS-nord->out_nord.s_O_OL_CNT);lineBreaks++)
                                appendText(&html," <BR>");
            }
            else
                        appendText(&html," <BR> <BR> <BR> <BR> <BR>
<BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR>");
            appendText(&html,"\r\n <BR> ");
            html+=displayStatus(html,rc);
            if(rc == OK)
                        html+=sprintf(html,"      Total:
$%.2lf",nord->out_nord.s_total_amount/100.0);
            else
                        appendText(&html,"      Total: <BR>");

            appendText(&html,"</PRE></BODY> </HTML>");
            DEBUGMSG("nord html page complete.  returing to calling
function" << endl);
            return OK;
}
/*
*****************************************************************
** Name                          : doNewOrderErrorPage
** Description          :
**                                       HTML neworder page entry point
** Parameters           :
**                                       char *                  html result
page
**                                       char *                  error
message
**                                       htmlPhraser*  command block
**                                       TXN_HANDLE*     txn handle
struct
** Returns              :
**                                       int - return code
** Comments                      :
**
*****************************************************************
*/

int doNewOrderErrorPage(char *htmlPage,char *message,htmlPhraser
*commandBlock,TXN_HANDLE *txnHandle)
{
            char *html=htmlPage;
            appendText(&html,"<HTML><HEAD><TITLE>TPC-C New
Order</TITLE></HEAD>\r\n"
                                                "<BODY><FORM
ACTION=\""
                                                APP_NAME
                                                "\"
METHOD=\"GET\">\r\n"

"<CENTER><H3>Please Fill In New Order Form.</H3></CENTER>\r\n"
                                                "Submit Transaction
<INPUT TYPE=\"submit\" NAME=\""
                                                CMD_TXN_ID
                                                "\" VALUE=\""
                                                CMD_NORD
                                                "\">");
            //append the hidden warehouse and district fields
            html+=appendHiddenFields(html,txnHandle);
            //int buffer for warehouse
            char buffer[15];
            /*appendText(&html,"<PRE>        1        2        3        4        5
6        7        8        9\r\n"

"1234567890123456789012345678901234567890123456789012345678901234567890123
4567890123456789012345678901234567890\r\n"
                                                "Warehouse: ");*/
            appendText(&html,"<PRE>Warehouse: ");
            appendText(&html,itoa(txnHandle->w_id,buffer,10),7,1);
            appendText(&html,"District: <INPUT NAME=\""
                                                CMD_D_ID
                                                "\" SIZE=1>
            Date:<BR>"
              "Customer <INPUT NAME=\""
                                                CMD_C_ID
                                                "\" SIZE=6>  Name:
          Credit:      %Disc.:<BR>"
                                                "Order Number:
Number of Lines:          W_tax:        D_tax:<BR> <BR>"
                                                //"        1        2        3
     4        5        6        7        8        9\r\n"

//"1234567890123456789012345678901234567890123456789012345678901234567890123
4567890123456789012345678901234567890\r\n"
                                                " Supp_W  Item_Num
Item_Name              Qty Stock  B/G  Price    Amount <BR> ");

            //append the 15 items commands
            html+=appendItems(html,NORD_ITEMS,ITEM_START);
            appendText(&html,message);

            //seal up html page
            appendText(&html,"</PRE></BODY></HTML>");
            return OK;
}

/*
*****************************************************************
** Name                          : doPaymentForm

** Description          :
**                                       HTML payment page entry point
** Parameters           :
**                                       htmlPhraser*          command
block
**                                       TXN_HANDLE*     txn handle
struct
** Returns              :
**                                       int - return code
** Comments                      :
**
*****************************************************************
*/
int doPaymentForm(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle)
{
            char *html=txnHandle->htmlPage;
            appendText(&html,"<HTML><HEAD><TITLE>TPC-C
Payment</TITLE></HEAD>\r\n"
                                                "<BODY><FORM
ACTION=\""
                                                APP_NAME
                                                "\"
METHOD=\"GET\">\r\n"
```

```
"<CENTER><H3>Please Fill In Payment Form.</H3></CENTER> <BR>\r\n"
                                                "Submit Transaction
<INPUT TYPE=\"submit\" NAME=\""
                                                CMD_TXN_ID
                                                "\" VALUE=\""
                                                CMD_PYMT
                                                "\">");
        html+=appendHiddenFields(html,txnHandle);
        appendText(&html,"<BR><PRE>\r\n"
                                                "Date:<BR>"
                                                "Warehouse: ");
        char buffer[15];
        appendText(&html,itoa(txnHandle->w_id,buffer,10));


        appendSpaces(&html,10);
        appendText(&html,"District: <INPUT NAME=\""
                                                CMD_D_ID
                                                "\" SIZE=1>\r\n<BR>"
                                                "<BR> <BR> <BR>"
                                                "Customer: "
                                                "<INPUT NAME=\""
                                                CMD_C_ID
                                                "\" SIZE=5>"
                                                "   "
                                                "Cust-Warehouse: "
                                                "<INPUT NAME=\""
                                                CMD_C_W_ID
                                                "\" SIZE=5>"
                                                "   "
                                                "Cust-District: "
                                                "<INPUT NAME=\""
                                                CMD_C_D_ID
                                                "\" SIZE=1><BR>"
                                                "Name:  <INPUT
NAME=\""
                                                CMD_C_NAME
                                                "\" SIZE=20>");
        appendText(&html,"                      Since: <BR>"
                                                "                        "
                                                "
Credit: <BR>"
                                                "                        "
                                                "
%Disc: <BR>"
                                                "Amount Paid:          "
                                                "<INPUT NAME=\""
                                                CMD_AMT_PAID
                                                "\" SIZE=10>"
                                                "          "
                                                "New
Cust-Balance:<BR>"
                                                "Credit Limit:<BR>
<BR>Cust-Data:<BR> <BR> <BR> <BR> </PRE>");
        return OK;
}
/*
*************************************************************
** Name                    : doPaymentResults
** Description     :
**                                HTML neworder page entry point
** Parameters      :
**                                htmlPhraser*        command
block
**                                TXN_HANDLE*     txn handle
struct
** Returns         :
**                                int - return code
** Comments                :
**
*************************************************************
*/
int doPaymentResults(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle)
{
        char *html=txnHandle->htmlPage;
        char buffer[50];
        struct paym_wrapper  *pymt = NULL;
        pymt = (paym_wrapper*)txnHandle->comInterface.txnBuffer;
        ZeroMemory(pymt,maxDataSize);

        //set login warehouse id from command block
        pymt->in_paym.s_W_ID = txnHandle->w_id;
        //set district from command block
        if( (pymt->in_paym.s_D_ID = atoi(commandBlock->get_D_ID()))
== 0)
        {
doPaymentErrorPage(html,ERR_INVALID_D_ID,commandBlock,txnHandle);
                return OK;
        }

        //set customer id from command block
        if( (pymt->in_paym.s_C_ID = atoi(commandBlock->get_C_ID()))
== 0)
        {
                if(*(commandBlock->get_C_NAME()) == NULL)
                {
                        //no customer id nor customer last name
specified.
doPaymentErrorPage(html,ERR_MISSING_C_ID_OR_CLAST,commandBloc
k,txnHandle);
                        return OK;
                }
                else
strcpy(pymt->in_paym.s_C_LAST,commandBlock->get_C_NAME());
        }
        else
        {
                //make sure that the user only inserted just c_id
                if(*(commandBlock->get_C_NAME()) != NULL)
                {
doPaymentErrorPage(html,ERR_C_ID_OR_CLAST_ONLY,commandBlock,tx
nHandle);
                        return OK;
                }
        }
        //get customer warehose id field
        if( (pymt->in_paym.s_C_W_ID =
atoi(commandBlock->get_C_W_ID())) == 0)
        {
doPaymentErrorPage(html,ERR_INVALID_C_W_ID,commandBlock,txnHand
le);
                return OK;
        }
        //get customer district id field
        if ( (pymt->in_paym.s_C_D_ID =
atoi(commandBlock->get_C_D_ID())) == 0)
        {
```

```
doPaymentErrorPage(html,ERR_INVALID_C_D_ID,commandBlock,txnHandl
e);
                        return OK;
            }

if(!copyInMoney64(commandBlock->get_AMT_PAID(),&pymt->in_paym.s_H
_AMOUNT))
            {

doPaymentErrorPage(html,ERR_INVALID_PAYMENT_AMOUNT,command
Block,txnHandle);
                        return OK;
            }
            appendText(&html,"<HTML><HEAD><TITLE>TPC-C Payment
Results</TITLE></HEAD>\r\n"
                                                "<BODY><FORM
ACTION=\""
                                                APP_NAME
                                                "\"
METHOD=\"GET\">\r\n");
            html+=appendButtons(html);
            html+=appendHiddenFields(html,txnHandle);

appendText(&html,"</FORM><CENTER><H3>Payment</H3></CENTER>")
;

            DEBUGMSG("Calling com entry api payment,
w_id:"<<pymt->in_paym.s_W_ID<<"
d_id:"<<pymt->in_paym.s_D_ID<<endl);
            //assume failure
            pymt->out_paym.s_transtatus = -1;
            HRESULThres;
            try
            {
                        hres =
txnHandle->comInterface.comHandle->doPayment(&txnHandle->comInterface
.size,(UCHAR**)&txnHandle->comInterface.txnBuffer);
            }
            catch(...)
            {
                        html+=sprintf(html,"ERROR: Com Payment call caused
exeception to occur.</PRE></BODY></HTML>");
                        ERRORMSG("ERROR : Com Payment call caused
exeception to occur."<<endl);
                        return OK;
            }
            if(FAILED(hres))
            {
                        html+=sprintf(html,"ERROR: pymt com call failed,
rc:%x</PRE></BODY></HTML>",hres);
                        ERRORMSG("ERROR : pymt com call failed,
rc:"<<hres<<endl);
                        return OK;
            }
            hres = txnHandle->comInterface.comHandle->doSetComplete();
            if(FAILED(hres))
            {
                        html+=sprintf(html,"ERROR: pymt com doSetComplete
failed, rc:%ld</PRE></BODY></HTML>",hres);
                        ERRORMSG("ERROR : pymt com doSetComplete
failed, rc:"<<DEBUGADDRESS(hres)<<endl);
                        return OK;
            }
            pymt = (paym_wrapper *)txnHandle->comInterface.txnBuffer;
            //get return code
            int rc = pymt->out_paym.s_transtatus;
            if( rc != OK)
            {
                        html+=displayStatus(html,rc);
                        appendText(&html,"</PRE></BODY></HTML>");
                        ERRORMSG("Payment TXN ERROR"<<endl

<<"pymt->in_paym.s_C_D_ID:"<<pymt->in_paym.s_C_D_ID<<endl

<<"pymt->in_paym.s_C_ID:"<<pymt->in_paym.s_C_ID<<endl

<<"pymt->in_paym.s_C_LAST:"<<pymt->in_paym.s_C_LAST<<endl

<<"pymt->in_paym.s_C_W_ID:"<<pymt->in_paym.s_C_W_ID<<endl

<<"pymt->in_paym.s_D_ID:"<<pymt->in_paym.s_D_ID<<endl

<<"pymt->in_paym.s_H_AMOUNT:"<<pymt->in_paym.s_H_AMOUNT<<en
dl

<<"pymt->in_paym.s_H_DATE_time:"<<pymt->in_paym.s_H_DATE_time<<
endl

<<"pymt->in_paym.s_W_ID:"<<pymt->in_paym.s_W_ID<<endl

<<"pymt->out_paym.deadlocks:"<<pymt->out_paym.deadlocks<<endl

<<"pymt->out_paym.s_C_BALANCE:"<<pymt->out_paym.s_C_BALANCE<
<endl

<<"pymt->out_paym.s_C_CITY:"<<pymt->out_paym.s_C_CITY<<endl

<<"pymt->out_paym.s_C_CREDIT:"<<pymt->out_paym.s_C_CREDIT<<endl

<<"pymt->out_paym.s_C_CREDIT_LIM:"<<pymt->out_paym.s_C_CREDIT_
LIM<<endl

<<"pymt->out_paym.s_C_DATA:"<<pymt->out_paym.s_C_DATA<<endl

<<"pymt->out_paym.s_C_DISCOUNT:"<<pymt->out_paym.s_C_DISCOUNT
<<endl

<<"pymt->out_paym.s_C_FIRST:"<<pymt->out_paym.s_C_FIRST<<endl

<<"pymt->out_paym.s_C_ID:"<<pymt->out_paym.s_C_ID<<endl

<<"pymt->out_paym.s_C_LAST:"<<pymt->out_paym.s_C_LAST<<endl

<<"pymt->out_paym.s_C_MIDDLE:"<<pymt->out_paym.s_C_MIDDLE<<end
l

<<"pymt->out_paym.s_C_PHONE:"<<pymt->out_paym.s_C_PHONE<<endl

<<"pymt->out_paym.s_C_SINCE_time:"<<pymt->out_paym.s_C_SINCE_time
<<endl

<<"pymt->out_paym.s_C_STATE:"<<pymt->out_paym.s_C_STATE<<endl

<<"pymt->out_paym.s_C_STREET_1:"<<pymt->out_paym.s_C_STREET_1<
<endl

<<"pymt->out_paym.s_C_STREET_2:"<<pymt->out_paym.s_C_STREET_2<
<endl

<<"pymt->out_paym.s_C_ZIP:"<<pymt->out_paym.s_C_ZIP<<endl

<<"pymt->out_paym.s_D_CITY:"<<pymt->out_paym.s_D_CITY<<endl

<<"pymt->out_paym.s_D_STATE:"<<pymt->out_paym.s_D_STATE<<endl
```

```
<<"pymt->out_paym.s_D_STREET_1:"<<pymt->out_paym.s_D_STREET_1<
<endl

<<"pymt->out_paym.s_D_STREET_2:"<<pymt->out_paym.s_D_STREET_2<
<endl

<<"pymt->out_paym.s_D_ZIP:"<<pymt->out_paym.s_D_ZIP<<endl

<<"pymt->out_paym.s_H_DATE_time:"<<pymt->out_paym.s_H_DATE_time
<<endl

<<"pymt->out_paym.s_transtatus:"<<pymt->out_paym.s_transtatus<<endl

<<"pymt->out_paym.s_W_CITY:"<<pymt->out_paym.s_W_CITY<<endl

<<"pymt->out_paym.s_W_STATE:"<<pymt->out_paym.s_W_STATE<<endl

<<"pymt->out_paym.s_W_STREET_1:"<<pymt->out_paym.s_W_STREET_1
<<endl

<<"pymt->out_paym.s_W_STREET_2:"<<pymt->out_paym.s_W_STREET_2
<<endl

<<"pymt->out_paym.s_W_ZIP:"<<pymt->out_paym.s_W_ZIP<<endl);
                        return OK;
            }
//          appendText(&html, "<BR><PRE>\r\n");
//          appendText(&html,"        1        2        3        4        5        6        7
    8<BR>");
//
appendText(&html,"12345678901234567890123456789012345678901234567
890123456789012345678901234567890<BR>");
            //start creating result body
            appendText(&html, "<BR><PRE>\r\n"
                                                        "Date: ");
            copyOutDateTime(buffer,pymt->out_paym.s_H_DATE_time);
            appendText(&html,buffer);
            appendText(&html, "<BR>"
               "Warehouse: ");

appendText(&html,itoa(pymt->in_paym.s_W_ID,buffer,10),6+24,1);
            appendText(&html,"District: ");
            appendText(&html,itoa(pymt->in_paym.s_D_ID,buffer,10),2,1);
            appendText(&html,"<BR>");
            //print out warehouse and district information

appendText(&html,pymt->out_paym.s_W_STREET_1,STREET_LEN+21,1);

appendText(&html,pymt->out_paym.s_D_STREET_1,STREET_LEN,1);
            appendText(&html,"<BR>");

appendText(&html,pymt->out_paym.s_W_STREET_2,STREET_LEN+21,1);

appendText(&html,pymt->out_paym.s_D_STREET_2,STREET_LEN,1);
            appendText(&html,"<BR>");
            appendText(&html,pymt->out_paym.s_W_CITY,CITY_LEN+1,1);


appendText(&html,pymt->out_paym.s_W_STATE,STATE_LEN+1,1);
            copyOutZip(buffer,pymt->out_paym.s_W_ZIP);
            appendText(&html,buffer);
            appendText(&html,pymt->out_paym.s_D_CITY,CITY_LEN+1,1);

appendText(&html,pymt->out_paym.s_D_STATE,STATE_LEN+1,1);
            copyOutZip(buffer,pymt->out_paym.s_D_ZIP);
            appendText(&html,buffer);
            //print out customer information
            appendText(&html,"<BR> <BR>Customer: ");
            appendText(&html,itoa(pymt->out_paym.s_C_ID,buffer,10),5+1,1);
            appendText(&html,"Cust-Warehouse: ");

appendText(&html,itoa(pymt->in_paym.s_C_W_ID,buffer,10),6+1,1);
            appendText(&html,"Cust-District: ");
            appendText(&html,itoa(pymt->in_paym.s_C_D_ID,buffer,10));
            //add customer information
            appendText(&html,"<BR>Name:   ");

appendText(&html,pymt->out_paym.s_C_FIRST,FIRST_NAME_LEN+1,1);

appendText(&html,pymt->out_paym.s_C_MIDDLE,INITIALS_LEN+1,1);
            DEBUGMSG("Last name:"<<pymt->out_paym.s_C_LAST<<endl);

appendText(&html,pymt->out_paym.s_C_LAST,LAST_NAME_LEN+5,1);
            appendText(&html,"Since: ");
            copyOutDateTime(buffer,pymt->out_paym.s_C_SINCE_time);
            appendText(&html,buffer);
            appendText(&html,"<BR>");
            appendSpaces(&html,8);

appendText(&html,pymt->out_paym.s_C_STREET_1,STREET_LEN+20,1);
            appendText(&html," Credit: ");
            appendText(&html,pymt->out_paym.s_C_CREDIT);
            appendText(&html,"<BR>");
            appendSpaces(&html,8);

appendText(&html,pymt->out_paym.s_C_STREET_2,STREET_LEN+21,1);
            appendText(&html,"%Disc: ");

html+=sprintf(html,"%2.2lf",pymt->out_paym.s_C_DISCOUNT/100.0);

            appendText(&html,"<BR>");
            appendSpaces(&html,8);
            appendText(&html,pymt->out_paym.s_C_CITY,CITY_LEN+1,1);


appendText(&html,pymt->out_paym.s_C_STATE,STATE_LEN+1,1);
            copyOutZip(buffer,pymt->out_paym.s_C_ZIP);
            appendText(&html,buffer,15,1);

            appendText(&html,"Phone: ");
            copyOutPhone(buffer,pymt->out_paym.s_C_PHONE);
            appendText(&html,buffer);
            appendText(&html," <BR> <BR>Amount Paid: $");

html+=sprintf(html,"%-9.2lf",pymt->in_paym.s_H_AMOUNT/100.0);

            appendText(&html," New Cust-Balance: $");

html+=sprintf(html,"%-9.2lf",pymt->out_paym.s_C_BALANCE/100.0);

            appendText(&html,"<BR>Credit Limit: $");

html+=sprintf(html,"%-9.2lf",pymt->out_paym.s_C_CREDIT_LIM/100.0);

            appendText(&html," <BR> <BR>Cust-Data: ");
            if(pymt->out_paym.s_C_CREDIT[0] == 'B' &&
pymt->out_paym.s_C_CREDIT[1] == 'C')
            {
                        appendCustData(&html,pymt->out_paym.s_C_DATA);
                        appendText(&html," <BR>");
            }
            else
                        appendText(&html," <BR> <BR> <BR>");
            html+=displayStatus(html,rc);
            appendText(&html,"</PRE></BODY></HTML>");
```

```
        return OK;
}
/*
*****************************************************************
** Name                    : doPaymentErrorPage
** Description     :
**                                 append payment error body
** Parameters      :
**                                 char *          html page
result
**                                 char *          error
message
**                                 htmlPhraser * command block
**                                 TXN_HANDLE*     txn handle
struct
** Returns         :
**                                 int - return code
** Comments                :
**
*****************************************************************
*/
int doPaymentErrorPage(char *htmlPage,char *message,htmlPhraser
*commandBlock,TXN_HANDLE *txnHandle)
{
        char *html=htmlPage;
        appendText(&html,"<HTML><HEAD><TITLE>TPC-C
Payment</TITLE></HEAD>\r\n"
                                        "<BODY><FORM
ACTION=\""
                                        APP_NAME
                                        "\"
METHOD=\"GET\">\r\n"

"<CENTER><H3>Please Fill In Payment Form.</H3></CENTER> <BR>\r\n"
                                        "Submit Transaction
<INPUT TYPE=\"submit\" NAME=\""
                                        CMD_TXN_ID
                                        "\" VALUE=\""
                                        CMD_PYMT
                                        "\">");
        html+=appendHiddenFields(html,txnHandle);
        appendText(&html,"<BR><PRE>\r\n"
                                        "Date:<BR>"
                                        "Warehouse: ");
        char buffer[15];
        appendText(&html,itoa(txnHandle->w_id,buffer,10));


        appendSpaces(&html,10);
        appendText(&html,"District: <INPUT NAME=\""
                                        CMD_D_ID
                                        "\" SIZE=1>\r\n<BR>"
                                        "<BR> <BR> <BR>
<BR>"
                                        "Customer: "
                                        "<INPUT NAME=\""
                                        CMD_C_ID
                                        "\" SIZE=5>"
                                        "  "
                                        "Cust-Warehouse: "
                                        "<INPUT NAME=\""
                                        CMD_C_W_ID
                                        "\" SIZE=6>"
                                        "  "
                                        "Cust-District: "
                                        "<INPUT NAME=\""
                                        CMD_C_D_ID
                                        "\" SIZE=1><BR>"
                                        "Name:  <INPUT
NAME=\""
                                        CMD_C_NAME
                                        "\" SIZE=20>");
        appendText(&html,"                      Since: <BR>"
                                        "                       "
                                        "
Credit: <BR>"
                                        "                       "
                                        "
%Disc: <BR>"
                                        "Amount Paid:           "
                                        "<INPUT NAME=\""
                                        CMD_AMT_PAID
                                        "\" SIZE=10>"
                                        "          "
                                        "New
Cust-Balance:<BR>"
                                        "Credit Limit:<BR>
<BR> <BR> Cust-Data:<BR> <BR> <BR> <BR> ");
        appendText(&html,message);
        appendText(&html,"</PRE>");
        return OK;
}
/*
*****************************************************************
** Name                    : doOrderStatusForm
** Description     :
**                                 HTML orderStatus page entry
point
** Parameters      :
**                                 htmlPhraser*            command
block
**                                 TXN_HANDLE*     txn handle
struct
** Returns         :
**                                 int - return code
** Comments                :
**
*****************************************************************
*/
int doOrderStatusForm(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle)
{
        char *html=txnHandle->htmlPage;
        appendText(&html,"<HTML><HEAD><TITLE>TPC-C Order
Status</TITLE></HEAD>\r\n"
                                        "<BODY><FORM
ACTION=\""
                                        APP_NAME
                                        "\"
METHOD=\"GET\">\r\n"

"<CENTER><H3>Please Fill In Order Status Form.</H3></CENTER>
<BR>\r\n"
                                        "Submit Transaction
<INPUT TYPE=\"submit\" NAME=\""
                                        CMD_TXN_ID
                                        "\" VALUE=\""
                                        CMD_ORDS
                                        "\">"
                                        "<BR> ");
        html+=appendHiddenFields(html,txnHandle);

        appendText(&html,"<PRE>\r\n"
                                        "Warehouse: ");
        char buffer[15];
        appendText(&html,itoa(txnHandle->w_id,buffer,10));
```

```
	appendText(&html,"		District: <INPUT NAME=\""
						CMD_D_ID
						"\" SIZE=1>\r\n<BR>"
						"Customer: "
						"<INPUT NAME=\""
						CMD_C_ID
						"\" SIZE=5>"
						"  "
						"Name: "
						"<INPUT NAME=\""
						CMD_C_NAME
						"\" SIZE=20><BR>"
						"Cust-Balance: <BR>"
						"Order-Number:
Entry-Date:		Carrier-Number<BR>"
						"Supply-W
Item-Num	Oty	Amount	Delivery<BR></PRE>");

	appendText(&html,"</BODY></HTML>");
	return OK;
}
/*
*****************************************************************
** Name			: doOrderStatusResults
** Description		:
**				HTML orderStatus page entry
point
** Parameters		:
**				htmlPhraser*		command
block
**				char *			html result
page
** Returns		:
**				int - return code
** Comments		:
**
*****************************************************************
*/
int doOrderStatusResults(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle)
{
	char *html=txnHandle->htmlPage;
	struct ords_wrapper	*ords = NULL;
	ords = (ords_wrapper *) txnHandle->comInterface.txnBuffer;
	ZeroMemory(ords,maxDataSize);
	//set warehouse login id from command blk
	ords->in_ords.s_W_ID = txnHandle->w_id;
	//set district login id from command blk
	if( (ords->in_ords.s_D_ID = atoi(commandBlock->get_D_ID())) ==
0)
	{

doOrderStatusErrorPage(html,ERR_INVALID_D_ID,commandBlock,txnHandl
e);
		return OK;
	}

	if( (ords->in_ords.s_C_ID = atoi(commandBlock->get_C_ID())) ==
0)
	{
		if(*(commandBlock->get_C_NAME()) == NULL)
		{
			//no customer id nor customer last name
specified.

doOrderStatusErrorPage(html,ERR_MISSING_C_ID_OR_CLAST,commandBl
ock,txnHandle);
			return OK;
		}
		else

strcpy(ords->in_ords.s_C_LAST,commandBlock->get_C_NAME());
	}
	else
	{
		//make sure that the user only inserted just c_id
		if(*(commandBlock->get_C_NAME()) != NULL)
		{

doOrderStatusErrorPage(html,ERR_C_ID_OR_CLAST_ONLY,commandBloc
k,txnHandle);
			return OK;
		}
	}
	appendText(&html,"<HTML><HEAD><TITLE>TPC-C Order
Status Results</TITLE></HEAD>\r\n"
						"<BODY><FORM
ACTION=\""
						APP_NAME
						"\"
METHOD=\"GET\">\r\n");
	html+=appendButtons(html);
	html+=appendHiddenFields(html,txnHandle);
	appendText(&html,"</FORM>");
	ords->out_ords.s_transtatus = -1;
	HRESULThres;
	try
	{
		hres =
txnHandle->comInterface.comHandle->doOrderStatus(&txnHandle->comInterf
ace.size,(UCHAR**)&txnHandle->comInterface.txnBuffer);
	}
	catch(...)
	{
		html+=sprintf(html,"ERROR: ords com call caused
exeception.</PRE></BODY></HTML>");
		return OK;
	}
	if(FAILED(hres))
	{
		html+=sprintf(html,"ERROR: ords com call failed,
rc:%x</PRE></BODY></HTML>",hres);
		ERRORMSG("ERROR : ords com call failed,
rc:"<<DEBUGADDRESS(hres));
		return OK;
	}
	hres = txnHandle->comInterface.comHandle->doSetComplete();
	if(FAILED(hres))
	{
		html+=sprintf(html,"ERROR: ords com doSetComplete
failed, rc:%ld</PRE></BODY></HTML>",hres);
		ERRORMSG("ERROR : ords com doSetComplete failed,
rc:"<<DEBUGADDRESS(hres)<<endl);
		return OK;
	}
	ords = (ords_wrapper *)txnHandle->comInterface.txnBuffer;
	int rc = ords->out_ords.s_transtatus;
	if( rc != OK)
	{
		html+=displayStatus(html,rc);
		appendText(&html,"</PRE></BODY></HTML>");
		ERRORMSG("ERROR order status"<<endl

<<"ords->in_ords.s_C_ID:"<<ords->in_ords.s_C_ID<<endl

<<"ords->in_ords.s_C_LAST:"<<ords->in_ords.s_C_LAST<<endl
```

```
<<"ords->in_ords.s_D_ID:"<<ords->in_ords.s_D_ID<<endl

<<"ords->in_ords.s_W_ID:"<<ords->in_ords.s_W_ID<<endl

<<"ords->out_ords.deadlocks:"<<ords->out_ords.deadlocks<<endl

<<"ords->out_ords.s_C_BALANCE:"<<ords->out_ords.s_C_BALANCE<<en
dl

<<"ords->out_ords.s_C_FIRST:"<<ords->out_ords.s_C_FIRST<<endl

<<"ords->out_ords.s_C_ID:"<<ords->out_ords.s_C_ID<<endl

<<"ords->out_ords.s_C_ID:"<<ords->out_ords.s_C_ID<<endl

<<"ords->out_ords.s_C_MIDDLE:"<<ords->out_ords.s_C_MIDDLE<<endl

<<"ords->out_ords.s_O_CARRIER_ID:"<<ords->out_ords.s_O_CARRIER_ID
<<endl

<<"ords->out_ords.s_O_ENTRY_D_time:"<<ords->out_ords.s_O_ENTRY_D_
time<<endl

<<"ords->out_ords.s_O_ID:"<<ords->out_ords.s_O_ID<<endl

<<"ords->out_ords.s_ol_cnt:"<<ords->out_ords.s_ol_cnt<<endl);
                        return OK;
            }
            //start creating result body

appendText(&html,"</FORM><CENTER><H3>Order-Status</H3></CENTE
R>");
            appendText(&html, "<BR><PRE>\r\nWarehouse: ");
            char buffer[50];

            appendText(&html,itoa(ords->in_ords.s_W_ID,buffer,10),6+1,1);
            appendText(&html,"District: ");
            appendText(&html,itoa(ords->in_ords.s_D_ID,buffer,10));
            appendText(&html,"<BR>"
                                                "Customer: ");
            //get customer id
            appendText(&html,itoa(ords->in_ords.s_C_ID,buffer,10),6+1,1);
            appendText(&html,"Name: ");
            //get first, middle, and last from wrapper

appendText(&html,ords->out_ords.s_C_FIRST,FIRST_NAME_LEN+1,1);

appendText(&html,ords->out_ords.s_C_MIDDLE,INITIALS_LEN+1,1);

appendText(&html,ords->out_ords.s_C_LAST,LAST_NAME_LEN+5,1);
            //get customer balance from wrapper
            appendText(&html,"\r\nCust-Balance: $");
            html+=sprintf(html,"%.2lf",ords->out_ords.s_C_BALANCE/100.0);
            //display order number, entry date, and carrier number
            appendText(&html,"<BR> <BR>"
                                                "Order-Number ");
            appendText(&html,itoa(ords->out_ords.s_O_ID,buffer,10),12,1);
            appendText(&html,"Entry-Date: ");
            copyOutDateTime(buffer,ords->out_ords.s_O_ENTRY_D_time);
            appendText(&html,buffer,22,1);
            appendText(&html,"Carrier-Number: ");

appendText(&html,itoa(ords->out_ords.s_O_CARRIER_ID,buffer,10));
            //add item title columns
            appendText(&html,"<BR>"
                                                "Supply-W     "
                                                "Item-Id    "
                                                "Qty    "
                                                "Amount     "
                                                "Delivery-Date<BR>
");
            //display items
            for (int
itemCount=0;itemCount<ords->out_ords.s_ol_cnt;itemCount++)
            {
//appendSpaces(&html,2);

                        //get supp w

appendText(&html,itoa(ords->out_ords.item[itemCount].s_OL_SUPPLY_W_I
D,buffer,10),11,1);
                        //get item num

appendText(&html,itoa(ords->out_ords.item[itemCount].s_OL_I_ID,buffer,10),
11,1);
                        //get item oty

appendText(&html,itoa(ords->out_ords.item[itemCount].s_OL_QUANTITY,bu
ffer,10),6,1);
                        //get item dollor amount

html+=sprintf(html,"$%-14.2lf",ords->out_ords.item[itemCount].s_OL_AMOU
NT/100.0);
                        //get delivery date

copyOutDate(buffer,ords->out_ords.item[itemCount].s_OL_DELIVERY_D_ti
me);
                        appendText(&html,buffer);
                        appendText(&html," <BR>  ");
            }
            //append line breaks if item count is less than 15
            for (int itemCount=0;itemCount <
(15-ords->out_ords.s_ol_cnt);itemCount++)
                        appendText(&html,"<BR> ");

            html+=displayStatus(html,rc);

            appendText(&html,"</PRE></BODY></HTML>");
            return OK;
}
/*
**************************************************************
** Name                        : doOrderStatusErrorPage
** Description         :
**                                         HTML orderStatus error page
** Parameters          :
**                                         char *                  html page
result
**                                         char *                  error
message
**                                         htmlPhraser*            command
block
**                                         TXN_HANDLE*             txn handle
** Returns             :
**                                         int - return code
** Comments                    :
**
**************************************************************
*/
int doOrderStatusErrorPage(char *htmlPage,char *message,htmlPhraser
*commandBlock,TXN_HANDLE *txnHandle)
{
            char *html=htmlPage;
            appendText(&html,"<HTML><HEAD><TITLE>TPC-C Order
Status</TITLE></HEAD>\r\n"
```

```
                                                        "<BODY><FORM
ACTION=\""
                                                        APP_NAME
                                                        "\"
METHOD=\"GET\">\r\n"

"<CENTER><H3>Please Fill In Order Status Form.</H3></CENTER>
<BR>\r\n"
                                                        "Submit Transaction
<INPUT TYPE=\"submit\" NAME=\""
                                                        CMD_TXN_ID
                                                        "\" VALUE=\""
                                                        CMD_ORDS
                                                        "\">"
                                                        "<BR> ");
        html+=appendHiddenFields(html,txnHandle);

        appendText(&html,"<PRE>\r\n"
                                                        "Warehouse: ");
        char buffer[15];
        appendText(&html,itoa(txnHandle->w_id,buffer,10));
        appendText(&html,"              District: <INPUT NAME=\""
                                                        CMD_D_ID
                                                        "\" SIZE=1>\r\n<BR>"
                                                        "Customer: "
                                                        "<INPUT NAME=\""
                                                        CMD_C_ID
                                                        "\" SIZE=5>"
                                                        "  "
                                                        "Name: "
                                                        "<INPUT NAME=\""
                                                        CMD_C_NAME
                                                        "\" SIZE=20><BR>"
                                                        "Cust-Balance: <BR>"
                                                        "Order-Number:
Entry-Date:                 Carrier-Number<BR>"
                                                        "Supply-W
Item-Num    Oty        Amount        Delivery <BR>");

        appendText(&html,message);
        appendText(&html,"</PRE></BODY></HTML>");
        return OK;
}
/*
**************************************************************
** Name                        : doDeliveryForm
** Description        :
**                                        HTML payment page entry point
** Parameters         :
**                                        htmlPhraser*          command
block
**                                        TXN_HANDLE*     txn handle
struct
** Returns            :
**                                        int - return code

** Comments                   :
**
**************************************************************
*/
int doDeliveryForm(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle)
{
        char *html=txnHandle->htmlPage;
        appendText(&html,"<HTML><HEAD><TITLE>TPC-C
Delivery</TITLE></HEAD>\r\n"
                                                        "<BODY><FORM
ACTION=\""
                                                        APP_NAME
                                                        "\"
METHOD=\"GET\">\r\n"

"<CENTER><H3>Delivery.</H3></CENTER>\r\n"
                                                        "Submit Transaction
<INPUT TYPE=\"submit\" NAME=\""
                                                        CMD_TXN_ID
                                                        "\" VALUE=\""
                                                        CMD_DLVY
                                                        "\">");
        html+=appendHiddenFields(html,txnHandle);
        appendText(&html,"<BR> <PRE>"
                                                        "Warehouse: ");
        char buffer[10];
        appendText(&html,itoa(txnHandle->w_id,buffer,10));

        appendText(&html," <BR> <BR>"
                                                        "Carrier Number: "
                                                        "<INPUT NAME=\""

CMD_CARRIER_NUM
                                                        "\" SIZE=1>"
                                                        "</FORM></PRE>");

        appendText(&html,"</BODY></HTML>");
        return OK;
}
/*
**************************************************************
** Name                        : doDeliveryResults
** Description        :
**                                        HTML payment page entry point
** Parameters         :
**                                        htmlPhraser*          command
block
**                                        TXN_HANDLE*     txn handle
** Returns            :
**                                        int - return code
** Comments                   :
**
**************************************************************
*/
int doDeliveryResults(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle)
{
        char *html = txnHandle->htmlPage;
        //declare delivery structure
        struct dlvy_wrapper                dlvy;

        //set warehouse login id from command blk
        dlvy.in_dlvy.s_W_ID = txnHandle->w_id;
        //set the carrier id from command blk
        if( (dlvy.in_dlvy.s_O_CARRIER_ID =
atoi(commandBlock->get_CARRIER_NUM())) == 0)
        {

doDeliveryErrorPage(html,ERR_INVALID_CARRIER,commandBlock,txnHan
dle);
                return OK;
        }
        //print title, add hidden fields , txn buttons
        appendText(&html,"<HTML><HEAD><TITLE>TPC-C Delivery
Results</TITLE></HEAD>\r\n<BODY><FORM ACTION=\""
                                                        APP_NAME
                                                        "\"
METHOD=\"GET\">\r\n");
        html+=appendButtons(html);
```

```
	html+=appendHiddenFields(html,txnHandle);
	appendText(&html,
"<FORM><CENTER><H3>Delivery</H3></CENTER>");
	int rc =
queueDlvyTxn(dlvy.in_dlvy.s_W_ID,dlvy.in_dlvy.s_O_CARRIER_ID);
	if( rc != OK)
	{
		html+=displayStatus(html,rc);
		appendText(&html,"</PRE></BODY></HTML>\r\n");
		ERRORMSG("ERROR: Unable to queue dlvy txn,
rc:"<<rc<<endl);
		return OK;
	}
	//start creating result body
	appendText(&html,"Warehouse: ");

	//get w_id from wrapper
	char buffer[15];
	appendText(&html,itoa(dlvy.in_dlvy.s_W_ID,buffer,10));
	appendText(&html,"<BR> <BR>Carrier Number: ");

	//get carrier_id from wrapper

appendText(&html,itoa(dlvy.in_dlvy.s_O_CARRIER_ID,buffer,10));
	appendText(&html,"<BR> <BR>Execution Status: Delivery has
been queued </PRE></BODY></HTML>");
	return OK;
}
/*
*****************************************************************
** Name                    : doDeliveryErrorPage
** Description     :
**                                     HTML payment error page entry
point
** Parameters      :
**                                     char *          html result
page
**                                     char *          error
message
**                                     htmlPhraser     command
block
**                                     TXN_HANDLE*     txn handle
**
** Returns         :
**                                     int - return code
** Comments                :
**
*****************************************************************
*/
int doDeliveryErrorPage(char *htmlPage,char *message,htmlPhraser
*commandBlock,TXN_HANDLE *txnHandle)
{
	char *html=htmlPage;
	appendText(&html,"<HTML><HEAD><TITLE>TPC-C
Delivery</TITLE></HEAD>\r\n"
                                                "<BODY><FORM
ACTION=\""
                                                APP_NAME
                                                "\"
METHOD=\"GET\">\r\n"

"<CENTER><H3>Delivery.</H3></CENTER>\r\n"
                                                "Submit Transaction
<INPUT TYPE=\"submit\" NAME=\""
                                                CMD_TXN_ID
                                                "\" VALUE=\""
                                                CMD_DLVY
                                                "\">");
	html+=appendHiddenFields(html,txnHandle);
	appendText(&html,"<BR> <PRE>"
                                                "Warehouse: ");
	char buffer[15];
	appendText(&html,itoa(txnHandle->w_id,buffer,10));

	appendText(&html," <BR> <BR>"
                                                "Carrier Number: "
                                                "<INPUT NAME=\""

CMD_CARRIER_NUM
                                                "\" SIZE=1> <BR>");
	appendText(&html,message);
	appendText(&html,"</PRE></BODY></HTML>");
	return OK;
}

/*
*****************************************************************
** Name                    : doStockForm
** Description     :
**                                     HTML stock page entry point
** Parameters      :
**                                     htmlPhraser     command
block
**                                     TXN_HANDLE*     txn handle
** Returns         :
**                                     int - return code
** Comments                :
**
*****************************************************************
*/
int doStockForm(htmlPhraser *commandBlock,TXN_HANDLE *txnHandle)
{
	char *html=txnHandle->htmlPage;
	appendText(&html,"<HTML><HEAD><TITLE>TPC-C Stock
Level</TITLE></HEAD>\r\n"
                                                "<BODY><FORM
ACTION=\""
                                                APP_NAME
                                                "\"
METHOD=\"GET\">\r\n"

"<CENTER><H3>Please Fill In Stock Form.</H3></CENTER> <BR>\r\n"
                                                "Submit Transaction
<INPUT TYPE=\"submit\" NAME=\""
                                                CMD_TXN_ID
                                                "\" VALUE=\""
                                                CMD_STOK
                                                "\">");
	html+=appendHiddenFields(html,txnHandle);
	appendText(&html,"<PRE>"
                                                "Warehouse: ");
	char buffer[15];
	appendText(&html,itoa(txnHandle->w_id,buffer,10),6+1,1);
	appendText(&html,"District: ");

	appendText(&html,itoa(txnHandle->d_id,buffer,10));
	appendText(&html," <BR> <BR>"
                                                "Stock Level
Threshold: "
                                                "<INPUT NAME=\""

CMD_STK_THRESHOLD
                                                "\" SIZE=1> <BR>
<BR>"
                                                "Low Stock: <BR>"
                                                "</PRE>");
```

```
		appendText(&html,"</FORM></BODY></HTML>");
		return OK;
}
/*
*****************************************************************
** Name                        : doStockResults
** Description          :
**                                          HTML stock page entry point
** Parameters           :
**                                          htmlPhraser*          command
block
**                                          TXN_HANDLE*     txn handle
struct
** Returns              :
**                                          int - return code
** Comments                    :
**
*****************************************************************
*/
int doStockResults(htmlPhraser *commandBlock,TXN_HANDLE *txnHandle)
{
		char *html = txnHandle->htmlPage;
		struct stok_wrapper    *stok;
		stok = (stok_wrapper*)txnHandle->comInterface.txnBuffer;
		ZeroMemory(stok,maxDataSize);
		//set warehouse login id from command blk
		stok->in_stok.s_W_ID = txnHandle->w_id;
		//set district login id from command blk
		stok->in_stok.s_D_ID = txnHandle->d_id;
		//set stock level threshold id from command blk
		if( (stok->in_stok.s_threshold =
atoi(commandBlock->get_STK_THRESHOLD())) == 0)
		{
doStockErrorPage(html,ERR_INVALID_THRESHOLD,commandBlock,txnHa
ndle);
			return OK;
		}
		//assume failure, set s_transtatus to err
		stok->out_stok.s_transtatus = INVALID_STATUS;
		//print title, add hidden fields , txn buttons
		appendText(&html,"<HTML><HEAD><TITLE>TPC-C Stock
Level Results</TITLE></HEAD>\r\n"
                                                        "<BODY><FORM
ACTION=\""
                                                        APP_NAME
                                                        "\"
METHOD=\"GET\">\r\n");
		html+=appendButtons(html);
		html+=appendHiddenFields(html,txnHandle);
		appendText(&html,"</FORM>");
		stok->out_stok.s_transtatus = -1;

		DEBUGMSG("Calling com entry api for stock call,
w_id:"<<stok->in_stok.s_W_ID<<" d_id:"<<stok->in_stok.s_D_ID<<
			" threshold:"<<stok->in_stok.s_threshold<<endl);
		HRESULThres;
		try
		{
			hres =
txnHandle->comInterface.comHandle->doStockLevel(&txnHandle->comInterfa
ce.size,(UCHAR**)&txnHandle->comInterface.txnBuffer);
		}
		catch(...)
		{
			html+=sprintf(html,"ERROR: Com Stock call caused
exeception to occur.</PRE></BODY></HTML>");
			ERRORMSG("ERROR : Com Stock call caused
exeception to occur."<<endl;)
			return OK;
		}
		if(FAILED(hres))
		{
			html+=sprintf(html,"ERROR: stok com call failed,
rc:%ld</PRE></BODY></HTML>",hres);
			ERRORMSG("ERROR : stok com call failed,
rc:"<<DEBUGADDRESS(hres)<<endl);
			return OK;
		}

		hres = txnHandle->comInterface.comHandle->doSetComplete();
		if(FAILED(hres))
		{
			html+=sprintf(html,"ERROR: stok com doSetComplete
failed, rc:%ld</PRE></BODY></HTML>",hres);
			ERRORMSG("ERROR : stok com doSetComplete failed,
rc:"<<DEBUGADDRESS(hres)<<endl);
			return OK;
		}
		stok = (stok_wrapper *)txnHandle->comInterface.txnBuffer;
		int rc = stok->out_stok.s_transtatus;
		if(rc != OK)
		{
			html+=displayStatus(html,rc);
			appendText(&html,"</PRE></BODY></HTML>");
			ERRORMSG("ERROR stok txn failed"<<endl

<<"stok->in_stok.s_D_ID:"<<stok->in_stok.s_D_ID<<endl

<<"stok->in_stok.s_threshold:"<<stok->in_stok.s_threshold<<endl

<<"stok->in_stok.s_W_ID:"<<stok->in_stok.s_W_ID<<endl

<<"stok->out_stok.deadlocks:"<<stok->out_stok.deadlocks<<endl

<<"stok->out_stok.s_low_stock:"<<stok->out_stok.s_low_stock<<endl

<<"stok->out_stok.s_transtatus:"<<stok->out_stok.s_transtatus<<endl);
			return OK;
		}
		//start creating result body

appendText(&html,"<FORM><CENTER><H3>Stock-Level</H3></CENTER
>");
		appendText(&html, "<BR><PRE>\r\n"
			"Warehouse: ");
		//get w_id from wrapper
		char buffer[10];
		appendText(&html,itoa(stok->in_stok.s_W_ID,buffer,10),6+1,1);
		appendText(&html,"District: ");
		appendText(&html,itoa(stok->in_stok.s_D_ID,buffer,10));

		appendText(&html," <BR> <BR>"
                                                        "Stock Level
Threshold: ");
		appendText(&html,itoa(stok->in_stok.s_threshold,buffer,10));
		appendText(&html," <BR> <BR>"
                                                        "Low Stock: ");
		appendText(&html,itoa(stok->out_stok.s_low_stock,buffer,10));
		appendText(&html," <BR> <BR>");
		html+=displayStatus(html,rc);
		appendText(&html,"</PRE></BODY></HTML>");
		return OK;
}
/*
```

```
*****************************************************************
** Name                    : doStockErrorPage
** Description             :
**                                 HTML stock page entry point
** Parameters              :
**                                 char *          html result
page
**                                 char *          query string
**                                 htmlPhraser     command
block
**                                 TXN_HANDLE *    handle for
this transaction
** Returns                 :
**                                 int - return code
** Comments                :
**
*****************************************************************
*/
int doStockErrorPage(char *htmlPage,char *message,htmlPhraser
*commandBlock,TXN_HANDLE *txnHandle)
{
        char *html=htmlPage;
        appendText(&html,"<HTML><HEAD><TITLE>TPC-C Stock
Level</TITLE></HEAD>\r\n"
                                "<BODY><FORM
ACTION=\""
                                APP_NAME
                                "\"
METHOD=\"GET\">\r\n"

"<CENTER><H3>Please Fill In Stock Form.</H3></CENTER> <BR>\r\n"
                                "Submit Transaction
<INPUT TYPE=\"submit\" NAME=\""
                                CMD_TXN_ID
                                "\" VALUE=\""
                                CMD_STOK
                                "\">");
        html+=appendHiddenFields(html,txnHandle);
        appendText(&html,"<PRE>"
                                "Warehouse:  ");
        char buffer[15];
        appendText(&html,itoa(txnHandle->w_id,buffer,10));
        appendSpaces(&html,2);
        appendText(&html,"District: ");
        appendText(&html,commandBlock->get_D_ID());
        appendText(&html," <BR> <BR>"
                                "Stock Level
Threshold: "
                                "<INPUT NAME=\""

CMD_STK_THRESHOLD
                                "\" SIZE=1> <BR>
<BR>"
                                "Low Stock: <BR>");
        appendText(&html,message);


        appendText(&html,"</PRE></FORM></BODY></HTML>");
        return OK;
}

/*
*****************************************************************
** Name                    : doExit
** Description             :
**                                 HTML exit page entry point
** Parameters              :
**                                 htmlPhraser*    command
block
**                                 TXN_HANDLE*     txn handle
struct
** Returns                 :
**                                 int - return code
** Comments                :
**
*****************************************************************
*/
int doExit(htmlPhraser *commandBlock,TXN_HANDLE *txnHandle)
{
        return (doLoginForm(commandBlock,txnHandle));
}
/*
*****************************************************************
** Name                    : displayStatus
** Description             :
**                                 appends status string to the html
page
** Parameters              :
**                                 char*           html page
**                                 int             rc
** Returns                 :
**                                 amount of characters the function
appened
**                                 to the html page
** Comments                :
**
*****************************************************************
*/
int displayStatus(char *htmlPage,int rc)
{
        char *html = htmlPage;
        appendText(&html,"");
        switch (rc)
        {
        case OK:
                appendText(&html,"Execution Status: Transaction
Committed",50,1);
                break;
        case INVALID_ITEM:
                appendText(&html,"Execution Status: Item number is not
valid",50,1);
                break;
        case INVALID_STATUS:
                appendText(&html,"Execution Status: ERROR: Rollback
INVALID_STATUS",50,1);
                break;
        case INVALID_COM_STATUS:
                appendText(&html,"Execution Status: ERROR: Rollback
COM FAILURE",50,1);
                break;
        case ERR_DLVY_QUEUE_FULL:
                appendText(&html,"Execution Status: ERROR: Rollback
DLVY QUEUE FULL",50,1);
                break;
        default:
                appendText(&html,"Execution Status: ERROR:
Rollback",50,1);

        };
        appendText(&html,"    ");
        return (int)(html - htmlPage);
}
/*
*****************************************************************
** Name                    : appendButtons
```

```
** Description          :
**                                        append hidden field to recognize
user after login
**
** Parameters           :
**                                        *htmlPage
html result page
**                                        *TXN_HANDLE
txn handle
** Returns              :
**                                        int
amount of characters the function appened
**
            to the html page
** Comments                        :
**
*****************************************************************
*/
int appendHiddenFields(char *htmlPage,TXN_HANDLE *txnHandle)
{
            char *html = htmlPage;
            char buffer[15];
            appendText(&html,"<INPUT TYPE=\"hidden\" NAME=\""
                                                    CMD_TERM_ID
                                                    "\" VALUE=\"");
            appendText(&html,itoa(txnHandle->term_id,buffer,10));
            appendText(&html,"\">\r\n");
            return (int)(html-htmlPage);

}
/*
*****************************************************************
** Name                           : appendButtons
** Description          :
**                                        appends buttons transaction
buttons to result page
** Parameters           :
**                                        *htmlPage
**
** Returns              :
**                                        amount of characters the function
appened
**                                        to the html page
** Comments                        :
**
*****************************************************************
*/
int appendButtons(char *htmlPage)
{
            char *html = htmlPage;
            appendText(&html,"<INPUT TYPE=\"submit\" NAME=\""
                                                    CMD_TXN_ID
                                                    "\" VALUE=\""
                                                    CMD_NORD
                                                    "\">\r\n"
                                                    "<INPUT
TYPE=\"submit\" NAME=\""
                                                    CMD_TXN_ID
                                                    "\" VALUE=\""
                                                    CMD_PYMT
                                                    "\">\r\n"
                                                    "<INPUT
TYPE=\"submit\" NAME=\""
                                                    CMD_TXN_ID
                                                    "\" VALUE=\""
                                                    CMD_ORDS
                                                    "\">\r\n"
                                                    "<INPUT
TYPE=\"submit\" NAME=\""
                                                    CMD_TXN_ID
                                                    "\" VALUE=\""
                                                    CMD_DLVY
                                                    "\">\r\n"
                                                    "<INPUT
TYPE=\"submit\" NAME=\""
                                                    CMD_TXN_ID
                                                    "\" VALUE=\""
                                                    CMD_STOK
                                                    "\">\r\n"
                                                    "<INPUT
TYPE=\"submit\" NAME=\""
                                                    CMD_TXN_ID
                                                    "\" VALUE=\""
                                                    CMD_EXIT
                                                    "\">\r\n <BR>");
            return (int)(html - htmlPage);
}
/*
*****************************************************************
** Name                           : appendItems
** Description          :
**                                        appends items to new order and
order status page
** Parameters           :
**                                        *htmlPage
            html result page
**                                        short
            items to append
**                                        short
            item CMD id start
**
** Returns              :
**                                        amount of characters the function
appened
**                                        to the html page
** Comments                        :
**
*****************************************************************
*/
int appendItems(char *htmlPage,short itemCount,short cmdIDStart)
{
            char *html = htmlPage;
            char numBuffer[MAX_INT_BUFFER];
            for(int item=0;item < itemCount;item++)
            {
                        appendText(&html,"<BR> <INPUT NAME=\"");
                        appendText(&html,itoa(cmdIDStart++,numBuffer,10));
                        appendText(&html,"\" SIZE=6> <INPUT NAME=\"");
                        appendText(&html,itoa(cmdIDStart++,numBuffer,10));
                        appendText(&html,"\" SIZE=6>
<INPUT NAME=\"");
                        appendText(&html,itoa(cmdIDStart++,numBuffer,10));
                        appendText(&html,"\" SIZE=2>\r\n");
            }

            return (int)(html - htmlPage);
}
/*
*****************************************************************
** Name                           : dlvyThreadEntry
** Description          :
**                                        dlvy thread worker entry point
** Parameters           :
**
** Returns              :
```

```
**
** Comments                    :
**                                          All dlvy threads created by
initDly enter at
**                                          this point.  They must first make a
connection
**                                          to the database, then go to sleep.
**
**                                          Main isapi threads control dlvy
worker semaphore
**                                          and signal when a dlvy txn is
queued.
**
*****************************************************************
*/
void dlvyThreadEntry(void *)
{
        int                     rc = 0;
        DEBUGMSG("dlvyThread " << GetCurrentThreadId() << " entered
dlvyThreadEntry, calling db_connect to db:" << dbName << endl);

        void *connectHandle;
        //connect to database.
        DEBUGMSG("ptr created. calling db_connect to db:" << dbName
<< endl);
        rc = db_connect(dbName,&connectHandle);

        if(rc != OK)
        {
                ERRORMSG("dlvyThread " << GetCurrentThreadId()
<<" unable to connect to database, rc:" << rc << endl);
                DEBUGMSG("dlvyThread " << GetCurrentThreadId()
<<" unable to connect to database, rc:" << rc << endl);
                return;
        }

        DEBUGMSG("dlvyThread " << GetCurrentThreadId() << " connect
to db:" << dbName << " successful" << endl);

        FILE *dlvyLog = NULL;
        char logFileName[MAX_STRING_LEN] = {NULL};

        EnterCriticalSection(&isapiLock);
        //open dlvy log file for this thread
        sprintf(logFileName,"%s\\del_%d.txt",dlvyLogPath,dlvyThreadID);
        dlvyLog = fopen(logFileName,"w");
        if(!dlvyLog)
        {
                ERRORMSG("dlvyThread " << GetCurrentThreadId()
<< " unable to open dlvy log "
                        << dlvyLogPath << "\\del_" <<
dlvyThreadID << endl);
                DEBUGMSG("dlvyThread " << GetCurrentThreadId()
<< " unable toopen dlvy log "
                        << dlvyLogPath << "\\del_" <<
dlvyThreadID << endl);
                return;
        }
        //increment the global dlvy thread id
        dlvyThreadID++;
        LeaveCriticalSection(&isapiLock);

        DEBUGMSG("dlvyThread " << GetCurrentThreadId() <<" dlvy log
file name: " << logFileName << " open." << endl);
        HANDLE  workerHandles[2];
                //handle array to store event to wait on
        struct  DLVYQUEUEDATA                   dlvyQueueData;
        //dlvy queue struct to store queued txn
        struct      dlvy_wrapper                    dlvyTxn;
        //dlvy wrapper of db2 structs
        struct  _timeb
endQueueTime;                           //time stamp to queue removal time
        struct  _timeb
endProcessTime;                         //time stamp for end process time
        char        orderIDs[MAX_STRING_LEN] = {NULL};
        //string to store oids for each district
        int                     bytesWritten =          0;
        int                     dlvyCount  =            0;
        DEBUGMSG("dlvyThread entering work loop" << endl);
        //successful, while true
        while(true)
        {
                try
                {
                        DEBUGMSG("dlvyThread initializing wait
handles" << endl);

                        //wait for both program exit AND if there is
work to do
                        workerHandles[0] = dlvyThreadDone;
                        workerHandles[1] = dlvyThreadSemaphore;
                        DEBUGMSG("dlvyThread going to sleep
waiting for wrk" << endl);
                        rc =
WaitForMultipleObjects(2,&workerHandles[0],FALSE,INFINITE);


                        DEBUGMSG("dlvyThread awake, checking
wake condition" << endl);
                        if(rc == WAIT_OBJECT_0)
                                break;
                        else if(rc == (WAIT_OBJECT_0+1) )
                        {
                                DEBUGMSG("dlvyThread awake,
wake condition of dlvyThreadSemaphore" << endl);
                        }
                        DEBUGMSG("dlvyThread trying to enter
critical section" << endl);

                        EnterCriticalSection(&dlvyQueueLock);

                        DEBUGMSG("dlvyThread entered critical
section" << endl);
                        //remove queued dlvy txn
                        dlvyQueueData.enqueueTime.time
=       dlvyQueue[dlvyBufferThreadIndex].enqueueTime.time;
                        dlvyQueueData.enqueueTime.millitm       =
dlvyQueue[dlvyBufferThreadIndex].enqueueTime.millitm;
                        dlvyQueueData.in_s_0_CARRIER_ID
=       dlvyQueue[dlvyBufferThreadIndex].in_s_0_CARRIER_ID;
                        dlvyQueueData.warehouse
        =       dlvyQueue[dlvyBufferThreadIndex].warehouse;

                        DEBUGMSG("dlvyThread removed dlvy:"
<< dlvyCount << ",w_id:" << dlvyQueueData.warehouse

<< " carrier_id:" << dlvyQueueData.in_s_0_CARRIER_ID << endl);
                        DEBUGMSG("dlvyThread removed dlvy in
queue index: " <<dlvyBufferThreadIndex<< " w_id: " <<
dlvyQueueData.warehouse

 << " carrier_id: " << dlvyQueueData.in_s_0_CARRIER_ID << endl);
                        //increment the number of free slots
                        dlvyBufferFreeSlots++;
                        //increment the thread index to next slot in
dlvy queue
```

```
dlvyBufferThreadIndex++;

DEBUGMSG("dlvyThread incremented
amount of free slots:" << dlvyBufferFreeSlots << " and thread index:" <<

dlvyBufferThreadIndex << endl);
//check if we reached the end of dlvy queue, if
so, reset back index back to 0
if(dlvyBufferThreadIndex == dlvyQueueLen)
{
DEBUGMSG("dlvyThread  reset
dlvyBufferThreadIndex to 0, current dlvyBufferThreadIndex:" <<
dlvyBufferThreadIndex
<< " free
slots:"<<dlvyBufferFreeSlots<<endl);
dlvyBufferThreadIndex=0;

}
DEBUGMSG("dlvyThread releasing critical
section" << endl);

LeaveCriticalSection(&dlvyQueueLock);
//take enqueue time
_ftime(&endQueueTime);

DEBUGMSG("dlvyThread executing txn
w_id:" << dlvyQueueData.warehouse
<< " carrier_id:" <<
dlvyQueueData.in_s_0_CARRIER_ID << endl);

//prepare to call database
dlvyTxn.in_dlvy.s_O_CARRIER_ID =
dlvyQueueData.in_s_0_CARRIER_ID;
dlvyTxn.in_dlvy.s_W_ID
=  dlvyQueueData.warehouse;
dlvyTxn.out_dlvy.s_transtatus  = -1;

//increment dlvy count
dlvyCount++;
DEBUGMSG("dlvyThread %d calling dlvy
txn" << rc << endl);
//call dvly txn
rc = dlvyCall(&dlvyTxn,connectHandle);
_ftime(&endProcessTime);
rc = dlvyTxn.out_dlvy.s_transtatus;

DEBUGMSG("dlvy txn response time:"<<
((((endProcessTime.time -
endQueueTime.time)*1000)+

(endProcessTime.millitm - endQueueTime.millitm))/1000.0)<<
"
w_id:"<<dlvyTxn.in_dlvy.s_W_ID<<" carrier:"
<<dlvyTxn.in_dlvy.s_O_CARRIER_ID<<
"
deadLocks:"<<dlvyTxn.out_dlvy.deadlocks<<" rc: "<< rc <<endl);
DEBUGMSG("dlvyThread dlvy s_transtatus:"
<< rc << endl);
if(rc == OK)
{
bytesWritten=0;
char *buffer = orderIDs;
for(int
districtIndex=0;districtIndex <
DISTRICTS_PER_WAREHOUSE;districtIndex++)
{

if(dlvyTxn.out_dlvy.s_O_ID[districtIndex] == 0)
bytesWritten
= sprintf(buffer,"\nD_ID %d had no new orders",districtIndex);
else
bytesWritten
= sprintf(buffer,"%d ",dlvyTxn.out_dlvy.s_O_ID[districtIndex]);

buffer+=bytesWritten;
}
}
else
sprintf(orderIDs,"\nDelivery
transaction failed");


fprintf(dlvyLog,DELIVERY_LOG_SUCCESS_STR,

dlvyCount,

dlvyQueueData.enqueueTime.time,

dlvyQueueData.enqueueTime.millitm,

endQueueTime.time,

endQueueTime.millitm,

dlvyQueueData.warehouse,

dlvyQueueData.in_s_0_CARRIER_ID,

orderIDs,

endProcessTime.time,

endProcessTime.millitm);

fflush(dlvyLog);
}
catch(...)
{
ERRORMSG("ERROR: Unhandled
exception in dlvy thread. Thread exiting"<<endl);
fprintf(dlvyLog,"ERROR: Unhandled
exception in dlvy thread %ld. Thread exiting.\n",GetCurrentThreadId());
fflush(dlvyLog);
LeaveCriticalSection(&dlvyQueueLock);
}
}//end while true
}
/*
*****************************************************************
** Name : queueDlvyTxn
** Description :
**  function queues dlvy txn in dlvy
queue
** Parameters :
**  int  warehouse
**  short  carrier
** Returns :
**  int  error code
** Comments :
**  Function will queue
dlvy txn if 2 points are true
**  1) We have room in our
dlvy buffer
**  2) We writing over the
end of the queue
**
```

```
*****************************************************************
*/
int queueDlvyTxn(int warehouse, short carrier_id)
{
	DEBUGMSG("Taking lock to queue dlvy txn.");
	EnterCriticalSection(&dlvyQueueLock);
	DEBUGMSG("Lock aquired to queue dlvy txn");
	if(dlvyBufferFreeSlots)
	{
		DEBUGMSG("Checking if we are inserting at tail of
dlvy queue."<<endl);
		if( dlvyBufferSlotIndex == (dlvyBufferThreadIndex-1))
		{
			ERRORMSG("Error dlvy queue inserting
over unserviced queued dlvy txn."<<endl);
			DEBUGMSG("Error dlvy queue inserting
over unserviced queued dlvy txn."<<endl);
			LeaveCriticalSection(&dlvyQueueLock);
			return
ERR_DLVY_QUEUE_EATING_TAIL;
		}
		DEBUGMSG("free slots dlvy
queue:"<<dlvyBufferFreeSlots<<" inserting txn in slot: "
<<dlvyBufferSlotIndex<<
			"w_id: "<<warehouse<<" carrier:
"<<carrier_id<<endl);
		dlvyQueue[dlvyBufferSlotIndex].warehouse =
warehouse;
		dlvyQueue[dlvyBufferSlotIndex].in_s_0_CARRIER_ID
= carrier_id;

_ftime(&dlvyQueue[dlvyBufferSlotIndex].enqueueTime);
		//decrement the number of free slots in the buffer
		dlvyBufferFreeSlots--;

		//increment the index to the next dlvy queue slot.
		dlvyBufferSlotIndex++;

		DEBUGMSG("dlvy txn queued, slots available in
queue:"<<dlvyBufferFreeSlots<<" queue slot index:"<<dlvyBufferSlotIndex
			<<"w_id:"<<warehouse<<"
carrier:"<<carrier_id<<endl);
		DEBUGMSG("dlvy txn queued, slots available in queue:
"<<dlvyBufferFreeSlots<<" queue slot index: "<<dlvyBufferSlotIndex
			<<" w_id: "<<warehouse<<"
carrier: "<<carrier_id<<endl);
		if(dlvyBufferSlotIndex == dlvyQueueLen)
		{
			DEBUGMSG("queue slot index hit end of
queue, reset to 0, current index:"<<dlvyBufferSlotIndex<<" free
slots:"<<dlvyBufferFreeSlots<<endl);
			dlvyBufferSlotIndex=0;
		}
	}
	else
	{
		//no slots available in dlvy buffer, release critcal section
and return an nord->in_nord.in_item
		LeaveCriticalSection(&dlvyQueueLock);
		ERRORMSG("dlvy queue buffer full, increase the dlvy
queue length."<<endl);
		return ERR_DLVY_QUEUE_FULL;
	}
	LeaveCriticalSection(&dlvyQueueLock);
	//release semaphore to wake thread that there is work
	ReleaseSemaphore(dlvyThreadSemaphore,1,NULL);
	return OK;
}
```

```
/*
*****************************************************************
** Name		: doHtml
** Description	:
**		HTML processing page entry
point
** Parameters	:
**		txn handle
** Returns	:
**		int - return code
** Comments	:
**

*****************************************************************
*/
void doHtml(TXN_HANDLE *txnHandle)
{
	DEBUGMSG("Entered doHtml(), parsing query string:"<<
txnHandle->urlString << " into command block"<< endl);
	htmlPhraser		commandBlock(txnHandle->urlString);
	DEBUGMSG("Query string parsed.  command:"<<
commandBlock.getCommandId() << " user's terminal id:" <<
commandBlock.get_TERM_ID() << endl);

	int terminalID = atoi(commandBlock.get_TERM_ID());
	int commandID = commandBlock.getCommandId();
	DEBUGMSG("User sent in a terimal id:"<<terminalID<<", checking
to see if user has logged in before"<<endl);
	if(terminalID > 0)
	{
		DEBUGMSG("Terminal id > 0, user has logged in
already, terminalID:"<<terminalID<<" retrieving warehouse district
pair"<<endl);
		if(getTerminal(terminalID,txnHandle) != OK)
			return;
		DEBUGMSG("User had valid terminal id, user's login
warehouse:"<<txnHandle->w_id<<" district:"<<txnHandle->d_id<<endl);
	}
	else
	{
		DEBUGMSG("User did not submit a terminal id or valid
terminal id, ensure that the user is trying to log in."<<endl);
		if( (commandID != TXN_LOGIN) && (commandID !=
TXN_LOGIN_RESULTS) )
		{
			DEBUGMSG("ERROR : User has not logged
in."<<endl);
			ERRORMSG("ERROR : User has not logged
in."<<endl);
			sprintf(txnHandle->htmlPage,"ERROR: User
has not logged in or did not submit a valid terminal.");
			return;
		}
		DEBUGMSG("User is in process of logging in,
commandID:"<<commandID<<endl);
	}
	DEBUGMSG("Calling html page
function:"<<commandBlock.getCommandId()<<endl);
	int rc =
htmlPageFunctions[commandBlock.getCommandId()](&commandBlock,txnHa
ndle);
	DEBUGMSG("Return from html page
function:"<<commandBlock.getCommandId()<<endl);
	return;
}
/*
*****************************************************************
```

```
** Name                          : getTerminal
** Description          :
**                                          retrieves terminal information
based on terminal id
** Parameters           :
**                                          int
terminal id
**                                          TERM_HANDLE*   txn handle
** Returns              :
**                                          int - return code
** Comments                       :
**
*****************************************************************
*/
int getTerminal(int terminal,TXN_HANDLE *txnHandle)
{
        //check to see if terminal id is out of range
        if(terminal >= numUsers)
        {
                //terminal id not valid.
                sprintf(txnHandle->htmlPage,"ERROR: Client does not
support more than %d users, terminal id:%d",numUsers,terminal);
                ERRORMSG("ERROR : Client does not support more
than "<<numUsers<<" users, terminal id:"<<terminal<<endl);
                return ERR;
        }
        //check if terminal id is points to a not in use terminal
        if(!(termArray+terminal)->terminalInUse)
        {
                sprintf(txnHandle->htmlPage,"ERROR: Terminal id
given points to a not in use terminal.");
                ERRORMSG("ERROR :  Terminal id given points to a
not in use terminal."<<endl);
                return ERR;
        }
        DEBUGMSG("Storing terminal warehouse, district , and initial term
id for user:"<<terminal<<endl);
        //assign terminal values to txn_handle
        txnHandle->d_id = termArray[terminal].d_id;
        txnHandle->w_id = termArray[terminal].w_id;
        txnHandle->term_id = termArray[terminal].terminalID;
        DEBUGMSG("Users terminal:"<<terminal<<", stored
warehouse:"<<txnHandle->w_id<<
                                " district:"<<txnHandle->d_id<<" termialID
stored:"<<txnHandle->term_id<<endl);
        return OK;
}
/*
*****************************************************************
** Name                          : assignTerminal
** Description          :
**                                          assigns terminal index to user
** Parameters           :
**                                          TERM_HANDLE*   txn handle
** Returns              :
**                                          int - return code
** Comments                       :
**
*****************************************************************
*/
int assignTerminal(TXN_HANDLE *txnHandle)
{
        EnterCriticalSection(&termLock);

        //check if terminal array is full.
        if(termNextFree == numUsers)
        {
                LeaveCriticalSection(&termLock);
                return ERR;
        }

        DEBUGMSG("Storing user warehouse:"<<txnHandle->w_id<<"
district:"<< txnHandle->d_id<<
                                " in terminal slot:"<<termNextFree<<endl);
        //store users w_id and d_id
        termArray[termNextFree].d_id = txnHandle->d_id;
        termArray[termNextFree].w_id = txnHandle->w_id;

        //set terminal slot to be in use
        termArray[termNextFree].terminalInUse = true;
        termArray[termNextFree].terminalID = termNextFree;
        //in txn handle, set the terminal id
        txnHandle->term_id = termNextFree;

        //increment to next free terminal.
        termNextFree++;
        DEBUGMSG("User warehouse:"<<txnHandle->w_id<<"
district:"<< txnHandle->d_id <<
                        " stored in terminal slot:"<<txnHandle->term_id<<" next
terminal free:"<<termNextFree<<endl);
        LeaveCriticalSection(&termLock);
        return OK;
}
```

A.2 Client Transaction Code

Makefile.config

```
#################################################################
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#################################################################
#############

#
# Makefile.config - NT/Win2000 Makefile Configuration
#

# Make Configuration (MSVC)
MAKE=nmake.exe

# Compiler Configuration (MSVC).
# CFLAGS_DEBUG may be set to "-Zi -Od", "-DDEBUGIT" "-Zi -Od
-DDEBUGIT" or left blank
CC=cl.exe
CFLAGS_OS=-DSQLWINT -MT -GS- -DWIN64 -J -Zp8
-DREG_KIT_METHOD
CFLAGS_OUT=/Fo
CFLAGS_DEBUG=

# Linker Configuration (MSVC)
LD_EXEC=link.exe
LD_STORP=link.exe
LDFLAGS_EXEC=
LDFLAGS_SHLIB=/DLL
LDFLAGS_STORP=$(LDFLAGS_SHLIB) /DEF:rpctpcc.def
```

```
LDFLAGS_LIB=/LIBPATH:$(TPCC_SQLLIB)\lib
/LIBPATH:"C:\MsSDKx64\Lib\AMD64" db2api.lib WinMM.lib
LDFLAGS_OUT=/OUT:

# Library Configuration
AR=lib.exe
ARFLAGS=
ARFLAGS_LIB=
ARFLAGS_OUT=/OUT:

# OS Commands
ERASE=del /F
ERASEDIR=rmdir /S
MOVE=MOVE
COPY=COPY

# OS File Extensions & Path Separator
OBJEXT=.obj
LIBEXT=.lib
SHLIBEXT=.dll
BINEXT=.exe
SLASH=\\
CMDSEP=&
```

tpccenv.bat

```
@REM
*****************************************************************
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@REM
*****************************************************************
***********
@REM
@REM tpccenv.bat - Windows Environment Setup
@REM

@REM The Kit Version
set TPCC_VERSION=CK041012

@REM The DB2 Instance Name (for DB2)
set DB2INSTANCE=DB2

@REM The OS being used (i.e. "UNIX", "WINDOWS")
set PLATFORM=WINDOWS

@REM The type of make command and slash used by the OS
@REM (i.e. UNIX - "/", WINDOWS - "\")
@REM These are referenced all over the kit.
set SLASH=\
set MAKE=nmake


set TPCC_SPTYPE=SPGENERAL

set DB2VERSION=v8

@REM The schema name is typically the SQL autorization ID (or username).
@REM This is required for runstats and EEE.
set TPCC_SCHEMA=%USERNAME%

@REM DB2 EE/EEE Configuration
set DB2EDITION=EE
set DB2NODE=0
set DB2NODES=1

@REM TPCC General Configuration
set HOME=C
set TPCC_DBNAME=TPCC
set TPCC_ROOT=c:\tpcckit\tpc-c.ibm
set TPCC_SQLLIB=c:\SQLLIB
set TPCC_RUNDATA=c:\tpcckit\tpccdata

@REM TPCC Debug Configuration
set TPCC_DEBUGDIR=c:\temp

@REM Specifies where stored procedures should be placed and if they should
@REM be fenced.
set TPCC_SPDIR=%TPCC_SQLLIB%\function
set TPCC_FENCED=NO
```

include/db2tpcc.h

```
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*************************************************************
*************/
/*
 * db2tpcc.h - Macros and Miscellany
 */
#ifndef __DB2TPCC_H
#define __DB2TPCC_H
#include <sys/types.h>
#include "lval.h"
/*
*************************************************************
******* */
/* Transaction Return Codes (s_transtatus)                  */
/*
*************************************************************
******* */
#define INVALID_ITEM          100
#define TRAN_OK               0
#define FATAL_SQLERROR        -1
/*
*************************************************************
******* */
/* Definition of Unused and Bad Items                       */
/*
*************************************************************
******* */
/* Define unused item ID to be 0. This allows the SUT to determine the    */
/* number of items in the order as required by 2.4.1.3 and 2.4.2.2 since  */
/* the assumption that any item with OL_I_ID = 0 is unused will be true.  */
/* This in turn requires that the value used for an invalid item is       */
```

```
/* equal to ITEMS + 1.                                  */
/*
*****************************************************************
******* */
#define INVALID_ITEM_ID (2 * ITEMS) + 1
#define UNUSED_ITEM_ID 0
#define MIN_WAREHOUSE 1
#define MAX_WAREHOUSE WAREHOUSES
/*****************************************************************
************/
/* NURand Constants                                     */
/* C_C_LAST_RUN and C_C_LAST_LOAD must adhere to clause 2.1.6.
   */
/* Analysis indicates that a C_LAST delta of 85 is optimal.             */
/*****************************************************************
************/
#define C_C_LAST_RUN          88
#define C_C_LAST_LOAD         173
#define C_C_ID                319
#define C_OL_I_ID   3849
#define A_C_LAST   255
#define A_C_ID                1023
#define A_OL_I_ID   8191
/*****************************************************************
************/
/* Transaction Type Identifiers                         */
/*****************************************************************
************/
#define CLIENT_SQL   0
#define NEWORD_SQL   1
#define PAYMENT_SQL  2
#define ORDSTAT_SQL  3
#define DELIVERY_SQL 4
#define STOCKLEV_SQL 5
#define SPGENERAL_PAD 3
#define SPGENERAL_ADJUST sizeof(int16_t)
struct in_neword_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  struct   in_items_struct {
    int32_t  s_OL_I_ID;
    int32_t  s_OL_SUPPLY_W_ID;
    int16_t  s_OL_QUANTITY;
    int16_t  pad1[3];
  } in_item[15];
  int64_t  s_O_ENTRY_D_time;  /* init by SUT */
  int32_t  s_C_ID;
  int32_t  s_W_ID;
  int16_t  s_D_ID;
  int16_t  s_O_OL_CNT;                    /* init by SUT */
  int16_t  s_all_local;
  int16_t  duplicate_items;
};
struct out_neword_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  struct   items_struct {
    int32_t  s_I_PRICE;
    int32_t  s_OL_AMOUNT;
    int16_t  s_S_QUANTITY;
    int16_t  pad2;
    char     s_I_NAME[25];
    char     s_brand_generic;
  } item[15];
  int64_t  s_O_ENTRY_D_time;
  int32_t  s_W_TAX;
  int32_t  s_D_TAX;
  int32_t  s_C_DISCOUNT;
  int32_t  s_total_amount;
  int32_t  s_O_ID;
  int16_t  s_O_OL_CNT;
  int16_t  s_transtatus;
  int16_t  deadlocks;
  char     s_C_LAST[17];
  char     s_C_CREDIT[3];
};
struct in_payment_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int64_t  s_H_DATE_time;        /* init by SUT */
  int64_t  s_H_AMOUNT;
  int32_t  s_W_ID;
  int32_t  s_C_W_ID;
  int32_t  s_C_ID;
  int16_t  s_C_D_ID;
  int16_t  s_D_ID;
  char     s_C_LAST[17];
};
struct out_payment_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int64_t  s_H_DATE_time;
  int64_t  s_C_SINCE_time;
  int64_t  s_C_CREDIT_LIM;
  int64_t  s_C_BALANCE;
  int32_t  s_C_DISCOUNT;
  int32_t  s_C_ID;
  int16_t  s_transtatus;
  int16_t  deadlocks;
  char     s_W_STREET_1[21];
  char     s_W_STREET_2[21];
  char     s_W_CITY[21];
  char     s_W_STATE[3];
  char     s_W_ZIP[10];
  char     s_D_STREET_1[21];
  char     s_D_STREET_2[21];
  char     s_D_CITY[21];
  char     s_D_STATE[3];
  char     s_D_ZIP[10];
  char     s_C_FIRST[17];
  char     s_C_MIDDLE[3];
  char     s_C_LAST[17];
  char     s_C_STREET_1[21];
  char     s_C_STREET_2[21];
  char     s_C_CITY[21];
  char     s_C_STATE[3];
  char     s_C_ZIP[10];
  char     s_C_PHONE[17];
  char     s_C_CREDIT[3];
  char     s_C_DATA[201];
};
struct in_ordstat_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int32_t  s_C_ID;
  int32_t  s_W_ID;
  int16_t  s_D_ID;
  int16_t  pad1[3];
  char     s_C_LAST[17];
};
struct out_ordstat_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int64_t  s_C_BALANCE;
  int64_t  s_O_ENTRY_D_time;
  int32_t  s_C_ID;
```

```
  int32_t  s_O_ID;
  int16_t  s_O_CARRIER_ID;
  int16_t  s_ol_cnt;
  int16_t  pad1[2];
  struct   oitems_struct {
    int64_t  s_OL_DELIVERY_D_time;
    int32_t  s_OL_AMOUNT;
    int32_t  s_OL_I_ID;
    int32_t  s_OL_SUPPLY_W_ID;
    int16_t  s_OL_QUANTITY;
    int16_t  pad2;
  } item[15];
  int16_t  s_transtatus;
  int16_t  deadlocks;
  char     s_C_FIRST[17];
  char     s_C_MIDDLE[3];
  char     s_C_LAST[17];
};
struct in_delivery_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int64_t  s_O_DELIVERY_D_time;          /* init by SUT */
  int32_t  s_W_ID;
  int16_t  s_O_CARRIER_ID;
};
struct out_delivery_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int32_t  s_O_ID[10];
  int16_t  s_transtatus;
  int16_t  deadlocks;
};
struct in_stocklev_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int32_t  s_threshold;
  int32_t  s_W_ID;
  int16_t  s_D_ID;
};
struct out_stocklev_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int32_t  s_low_stock;
  int16_t  s_transtatus;
  int16_t  deadlocks;
};
/*
****************************************************************
******* */
/* Transaction Prototypes                                       */
/*
****************************************************************
******* */
#ifdef __cplusplus
extern "C" {
#endif
extern int neword_sql(struct in_neword_struct*, struct out_neword_struct*);
extern int payment_sql(struct in_payment_struct*, struct out_payment_struct*);
extern int ordstat_sql(struct in_ordstat_struct*, struct out_ordstat_struct*);
extern int delivery_sql(struct in_delivery_struct*, struct out_delivery_struct*);
extern int stocklev_sql(struct in_stocklev_struct*, struct out_stocklev_struct*);
#ifdef __cplusplus
}
#endif
/*
****************************************************************
******* */
/* DB2 Connect/Disconnect & Thread Context Wrappers             */
/*
****************************************************************
******* */
#ifdef __cplusplus
extern "C" {
#endif
extern int connect_to_TM(char*);
extern int connect_to_TM_auth(char*, char*, char*);
extern int disconnect_from_TM(void);

#ifdef __cplusplus
}
#endif
#endif // __DB2TPCC_H
```

include/lval.h

```
#ifndef __LVAL_H
#define __LVAL_H
#define WAREHOUSES 12600
#define DISTRICTS_PER_WAREHOUSE 10
#define CUSTOMERS_PER_DISTRICT 3000
#define ITEMS 100000
#define STOCK_PER_WAREHOUSE 100000
#define MIN_OL_PER_ORDER 5
#define MAX_OL_PER_ORDER 15
#define NU_ORDERS_PER_DISTRICT 900
#endif // __LVAL_H
```

include/tpccapp.h

```
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************************************************************
*************/
/*
 * tpccapp.h - Application Macros
 */
#ifndef __TPCCAPP_H
#define __TPCCAPP_H
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <string.h>
#include <time.h>
#define daricall
#include "sqlca.h"
#include "sqlcodes.h"
#ifdef SWAP_ENDIAN
#define SWAP_BYTE(Var)  SwapEndian((void*)&Var, sizeof(Var))
/************************************************************
**************
  FUNCTION: SwapEndian
  PURPOSE: Swap the byte order of a structure
  EXAMPLE: int I=0x12345678; SWAP_BYTE(I); I => 0x78563412;
  IMPLEMENTATION: Fold Addr in half, swap header & tail by XOR op
```

```
        e.g.: *a = 0x12 [ Addr + 0];
              *b = 0x78 [ Add + 4 - 0 - 1 = Addr+3];
              *a ^= *b;        // sets *a to 0x6A
              *b ^= *a;        // sets *b to 0x12
              *a ^= *b;        // sets *a to 0x78
         Now *a => 0x78 && *b => 0x12
*****************************************************************
**************/
void SwapEndian(void *Addr, int nb)
{
  int i;
  for (i=0; i<nb/2; i++)
  {
    char *a = (char*)Addr+i;
    char *b = (char*)Addr+(nb-i-1);
    *a ^= *b;
    *b ^= *a;
    *a ^= *b;
  }
}
#endif   //SWAP_ENDIAN

/*****************************************************************
*************/
/* SQLCODE Macros                                              */
/*****************************************************************
************/
#define DLCHK(a) \
  if (sqlca.sqlcode == SQL_RC_E911) { goto a; }
#define NACOMPCHK(last) \
  if (sqlca.sqlcode != SQL_RC_E1339) { last = -1; } \
  else { int a = ((sqlca.sqlerrmc[4] == 0x20) ? 0 : sqlca.sqlerrmc[4]-0x30); \
        int b = ((sqlca.sqlerrmc[5] == 0x20) ? 0 : sqlca.sqlerrmc[5]-0x30); \
        if (b == 0) { last = a; } else { last = a * 10 + b; } \
       }
#endif // __TPCCAPP_H
```

include/tpccdbg.h

```
/*****************************************************************
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*****************************************************************
*************/
/*
 * tpccdbg.h - Debugging Macros
 */
#ifndef __TPCCDBG_H
#define __TPCCDBG_H
#ifdef __cplusplus
extern "C" {
#endif
extern void new_debug (struct out_neword_struct *neword_ptr,
                struct in_neword_struct *in_neword_ptr,
                char *msg);
extern void pay_debug (struct out_payment_struct *payment_ptr,
                struct in_payment_struct *in_payment_ptr,
                char *msg);
extern void ord_debug (struct out_ordstat_struct *ordstat_ptr,
                struct in_ordstat_struct *in_ordstat_ptr,
                char *msg);
extern void del_debug (struct out_delivery_struct *delivery_ptr,
                struct in_delivery_struct *in_delivery_ptr,
                char *msg);
extern void stk_debug (struct out_stocklev_struct *stocklev_ptr,
                struct in_stocklev_struct *in_stocklev_ptr,
                char *msg);
extern void new_print (struct out_neword_struct *neword_ptr,
                struct in_neword_struct *in_neword_ptr,
                char *filename,
                char *msg);
extern void pay_print (struct out_payment_struct *payment_ptr,
                struct in_payment_struct *in_payment_ptr,
                char *filename,
                char *msg);
extern void ord_print (struct out_ordstat_struct *ordstat_ptr,
                struct in_ordstat_struct *in_ordstat_ptr,
                char *filename,
                char *msg);
extern void del_print (struct out_delivery_struct *delivery_ptr,
                struct in_delivery_struct *in_delivery_ptr,
                char *filename,
                char *msg);
extern void stk_print (struct out_stocklev_struct *stocklev_ptr,
                struct in_stocklev_struct *in_stocklev_ptr,
                char *filename,
                char *msg);
#ifdef __cplusplus
}
#endif
#endif // __TPCCDBG_H
```

Src.Common/Makefile

```
#################################################################
############
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#################################################################
#############

#
# Makefile - Makefile for Src.Common
#

!include $(TPCC_ROOT)/Makefile.config

#
#################################################################
########
# Preprocessor, Compiler and LInker Flags
#
#################################################################
########

BND_OPTS =          GRANT PUBLIC \
                    MESSAGES $*.bnd.msg
PRP_OPTS =          BINDFILE \
                    OPTLEVEL 1 \
```

```
                        ISOLATION RR \
                        MESSAGES $*.prep.msg \
                        LEVEL $(TPCC_VERSION) \
                        NOLINEMACRO

INCLUDES =              -I$(TPCC_SQLLIB)$(SLASH)include
-I$(TPCC_ROOT)$(SLASH)include

CFLAGS =                $(CFLAGS_OS) $(CFLAGS_DEBUG) $(INCLUDES) \
                        -DSQLA_NOLINES -D$(DB2EDITION)
-D$(DB2VERSION) \
                        -D$(TPCC_SPTYPE)

UTIL_OBJ =              tpccmisc$(OBJEXT) tpccdbg$(OBJEXT)
tpccctx$(OBJEXT)

#
##################################################################
########
# User Targets
#
##################################################################
########

all:            connect $(UTIL_OBJ) disconnect

clean:
                - $(ERASE) *$(OBJEXT) *.bnd *.msg tpccctx.c

#
##################################################################
########
# Helper Targets
#
##################################################################
########

connect:
                - db2 connect to $(TPCC_DBNAME)

disconnect:
                - db2 connect reset
                - db2 terminate

rebind:
                db2 bind tpccctx.bnd $(BND_OPTS)

#
##################################################################
########
# Build Rules
#
##################################################################
########

.SUFFIXES:
.SUFFIXES: $(OBJEXT) .c .sqc

.sqc.c:
                @echo "Prepping $*.sqc"
                -db2 prep $*.sqc $(PRP_OPTS)
                @echo "Binding $*.bnd"
                db2 bind $*.bnd $(BND_OPTS)

#
##################################################################
########
# Dependencies
#
##################################################################
########

# Source
tpccdbg$(OBJEXT):   tpccdbg.c
tpccctx$(OBJEXT):   tpccctx.c
tpccmisc$(OBJEXT): tpccmisc.c

# Headers
tpccdbg.c: $(TPCC_ROOT)/include/db2tpcc.h
```

Src.Common/tpccctx.sqc

```
/*****************************************************************
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*****************************************************************
*************/
/*
 * tpccctx.sqc - TPCC context code
 */
#include <stdlib.h>
#include <stdio.h>
#include <sqlutil.h>
#include "db2tpcc.h"
int connect_to_TM(char *in_dbname);
int connect_to_TM_auth(char *in_dbname, char *in_username, char
*in_password);
int disconnect_from_TM(void);
int connect_to_TM(char *in_dbname)
{
  return connect_to_TM_auth(in_dbname, "", "");
}
int connect_to_TM_auth(char *in_dbname, char *in_username, char
*in_password)
{
   SQL_STRUCTURE sqlca  sqlca;
   int ConnectSQLCODE = 0;
   EXEC SQL BEGIN DECLARE SECTION;
   char dbname[9];
   char username[129];
   char password[15];
   EXEC SQL END DECLARE SECTION;
   strncpy(dbname,in_dbname,8);
   if (strcmp(in_username,"") == 0)
   {
     EXEC SQL CONNECT TO :dbname IN SHARE MODE;
   } else {
     strncpy(username,in_username,128);
     strncpy(password,in_password,14);
     EXEC SQL CONNECT TO :dbname IN SHARE MODE USER :username
USING :password;
   }
   ConnectSQLCODE = SQLCODE;
   if (ConnectSQLCODE != 0)
   {
     sqlerror( CLIENT_SQL, "CONNECT", __FILE__, __LINE__, &sqlca);
     return ConnectSQLCODE;
```

```
  }
  return 0;
}
int disconnect_from_TM(void)
{
  SQL_STRUCTURE sqlca  sqlca;
  int DisconnectSQLCODE = 0;
  EXEC SQL CONNECT RESET;
  DisconnectSQLCODE = SQLCODE;
  if (DisconnectSQLCODE != 0) {
    sqlerror( CLIENT_SQL, "DISCONNECT", __FILE__, __LINE__, &sqlca);
  }
  if (DisconnectSQLCODE) {
    return DisconnectSQLCODE;
  }
  return 0;
}
```

Src.Common/tpccdbg.c

```
/*****************************************************************
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*****************************************************************
*************/
/*
 * tccdbg.c - Debugging Routines
 */
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <ctype.h>
#include <time.h>
#include "sqlca.h"
#include "sql.h"
#include "db2tpcc.h"
#include "tpccdbg.h"
#define DEBUG_FILENAME_SZ 128
#define DEBUG_PATH_SIZE 128
void        del_print();
void        new_print();
void        ord_print();
void        pay_print();
void        stk_print();
void current_tmstmp(char *buf);
static int debugInit = 0;
static char debugPath[DEBUG_PATH_SIZE] = "";
/*-----------------------------------------------------------*/
/*      InitializeDebug                                      */
/*-----------------------------------------------------------*/
__inline void InitializeDebug(void) {
  if (debugInit == 0) {
    char *p = getenv("TPCC_DEBUGDIR");
    if (p) {
      strncpy(debugPath, p, DEBUG_PATH_SIZE);
    } else {
      strcpy(debugPath, "/tmp");
    }
    strcat(debugPath, "/");
  }
  debugInit = 1;
}
/*-----------------------------------------------------------*/
/*      sqlerror                                             */
/*-----------------------------------------------------------*/
void sqlerror(int tranType, char *msg, char *file, int line, SQL_STRUCTURE
sqlca *psqlca)
{
  FILE *err_fp = NULL;
  char  err_fn[DEBUG_PATH_SIZE + DEBUG_FILENAME_SZ];
  char  tranName[16];
  int j,k;
  char  timeStamp[27];
  char  errStr[512] = "";
  InitializeDebug();
  strncpy(err_fn, debugPath, DEBUG_PATH_SIZE);
  current_tmstmp(&timeStamp[0]);
  timeStamp[19] = (char)NULL;
  switch(tranType)
  {
    case NEWORD_SQL:
      // sprintf(err_fn, "%d.err.out", getpid());
      strcat(err_fn, "new.err.out");
      strcpy(tranName, "NEW_ORDER");
      break;
    case DELIVERY_SQL:
      // sprintf(err_fn, "%d.err.out", getpid());
      strcat(err_fn, "del.err.out");
      strcpy(tranName, "DELIVERY");
      break;
    case PAYMENT_SQL:
      // sprintf(err_fn, "%d.err.out", getpid());
      strcat(err_fn, "pay.err.out");
      strcpy(tranName, "PAYMENT");
      break;
    case ORDSTAT_SQL:
      // sprintf(err_fn, "%d.err.out", getpid());
      strcat(err_fn, "ord.err.out");
      strcpy(tranName, "ORDER_STAT");
      break;
    case STOCKLEV_SQL:
      //sprintf(err_fn, "%d.err.out", getpid());
      strcat(err_fn, "stk.err.out");
      strcpy(tranName, "STOCK_LVL");
      break;
    case 0:
      strcat(err_fn, "cli.err.out");
      strcpy(tranName, "CLIENT");
      break;
    default:
      return;
  }
  /* Generate Formatted Error Message */
  sqlaintp(errStr, 512, 78, psqlca);
  err_fp = fopen(err_fn, "a+");
  fprintf(err_fp, "----------------------------------------\n");
  fprintf(err_fp, "Transaction: %s (%s)\n", tranName, msg);
  fprintf(err_fp, "FILE %s (%u)\n", file, line);
  fprintf(err_fp, "SQLCODE %d ", psqlca->sqlcode);
  fprintf(err_fp, "PID %d ", getpid());
  fprintf(err_fp, "TIME %s\n", timeStamp);
  fprintf(err_fp, "----------------------------------------\n");
  fprintf(err_fp, "%s", errStr);
  fprintf(err_fp, "----------------------------------------\n");
  if (psqlca->sqlerrmc[0] != ' ' || psqlca->sqlerrmc[1] != ' ')
  {
    fprintf(err_fp, "slerrmc:  ");
    for(j = 0; j < 5; j++)
```

```
    {
      for(k = 0; k < 16; k++) {
        int pos = j * 16 + k;
        if (pos < 70) fprintf(err_fp, "%02x ", psqlca->sqlerrmc[pos]);
        else fprintf(err_fp, "   ");
      }
      fprintf(err_fp,"   |");
      for(k = 0; k < 16; k++) {
        int pos = j * 16 + k;
        char c = ' ';
        if (pos < 70) {
          c = psqlca->sqlerrmc[pos];
          if (!isprint(c)) c = ' ';
        }
        fprintf(err_fp,"%c", c);
      }
      fprintf(err_fp,"|\n");
      if (j < 4) fprintf(err_fp,"          ");
    }
  }
  fprintf(err_fp, "sqlerrp:  ");
  for(j = 0; j < 8; j++)
    fprintf(err_fp, "%c", psqlca->sqlerrp[j]);
  fprintf(err_fp,"\n");
  fprintf(err_fp, "sqlerrd: ");
  for(j = 0; j < 6; j++)
    fprintf(err_fp, " %d", psqlca->sqlerrd[j]);
  fprintf(err_fp,"\n");
  if (psqlca->sqlwarn[0] != ' ')
  {
    fprintf(err_fp, "sqlwarn: ");
    for(j = 0; j < 8; j++)
      fprintf(err_fp, "%c ", psqlca->sqlwarn[j]);
    fprintf(err_fp,"\n");
  }
  fprintf(err_fp, "\n");
  fclose(err_fp);
}

/*-----------------------------------------------------------*/
/* del_debug                                                 */
/*-----------------------------------------------------------*/
void del_debug (struct out_delivery_struct *delivery_ptr,
            struct in_delivery_struct  *in_delivery,
            char *msg)
{
  char debug_fn[DEBUG_PATH_SIZE + DEBUG_FILENAME_SZ];

  InitializeDebug();
  strncpy(debug_fn, debugPath, DEBUG_PATH_SIZE);
  strcat(debug_fn, "del.debug.out");
  del_print(delivery_ptr, in_delivery, debug_fn, msg);
}
/*-----------------------------------------------------------*/
/* del_print                                                 */
/*-----------------------------------------------------------*/
void del_print (struct out_delivery_struct *delivery_ptr,
            struct in_delivery_struct  *in_delivery,
            char *filename,
            char *msg)
{
  FILE *debug_fp;
  char  timeStamp[27];
  int   j;
  current_tmstmp(&timeStamp[0]);
  timeStamp[19] = (char)NULL;
  if ((debug_fp = fopen(filename, "a+")) == NULL)
  {
    return;
  }
  fprintf(debug_fp,"Delivery debug information follows %s (%s)\n",
timeStamp, msg);
  fprintf(debug_fp, " PID %d ", getpid());

fprintf(debug_fp,"\n=========================================
=======\n");
  fprintf(debug_fp,"in_delivery_struct {\n");
  fprintf(debug_fp,"\ts_W_ID         = %d (%X)\n",
        in_delivery->s_W_ID, in_delivery->s_W_ID);
  fprintf(debug_fp,"\ts_O_CARRIER_ID = %d (%X)\n",
        in_delivery->s_O_CARRIER_ID, in_delivery->s_O_CARRIER_ID);
  fprintf(debug_fp,"\ts_O_DELIVERY_D = %lld (%llX)\n",
        in_delivery->s_O_DELIVERY_D_time,
in_delivery->s_O_DELIVERY_D_time);
  fprintf(debug_fp,"}\n\n");
  fprintf(debug_fp,"out_delivery_struct {\n");
  fprintf(debug_fp,"\ts_transtatus   = %d (%X)\n",
        delivery_ptr->s_transtatus,delivery_ptr->s_transtatus);
  fprintf(debug_fp,"\tdeadlocks      = %d (%X)\n",
        delivery_ptr->deadlocks,delivery_ptr->deadlocks);
  for (j = 0; j < 10; j++) {
    fprintf(debug_fp,"\t\ts_O_ID[%d]         = %d\n",
          j, delivery_ptr->s_O_ID[j]);
  }
  fprintf(debug_fp,"\t}\n}\n\n");
  fclose(debug_fp);
}

/*-----------------------------------------------------------*/
/* new_debug                                                 */
/*-----------------------------------------------------------*/
void new_debug (struct out_neword_struct *neword_ptr,
            struct in_neword_struct *in_neword,
            char *msg)
{
  char debug_fn[DEBUG_PATH_SIZE + DEBUG_FILENAME_SZ];

  InitializeDebug();
  strncpy(debug_fn, debugPath, DEBUG_PATH_SIZE);
  strcat(debug_fn, "new.debug.out");
  new_print(neword_ptr, in_neword, debug_fn, msg);
}
/*-----------------------------------------------------------*/
/* new_print                                                 */
/*-----------------------------------------------------------*/
void new_print (struct out_neword_struct *neword_ptr,
            struct in_neword_struct *in_neword,
            char *filename,
            char *msg)
{
  FILE *debug_fp;
  char  timeStamp[27];
  int   j, items;
  current_tmstmp(&timeStamp[0]);
  timeStamp[19] = (char)NULL;
  if ((debug_fp = fopen(filename, "a+")) == NULL)
  {
    return;
  }
  fprintf(debug_fp,"New order debug information follows %s (%s)\n",
timeStamp, msg);
  fprintf(debug_fp, " PID %d ", getpid());

fprintf(debug_fp,"\n=========================================
=======\n");
  fprintf(debug_fp,"in_neword_struct {\n");
```

```
  fprintf(debug_fp,"\ts_C_ID        = %d (%X)\n",
        in_neword->s_C_ID, in_neword->s_C_ID);
  fprintf(debug_fp,"\ts_W_ID        = %d (%X)\n",
        in_neword->s_W_ID, in_neword->s_W_ID);
  fprintf(debug_fp,"\ts_D_ID        = %d (%X)\n",
        in_neword->s_D_ID, in_neword->s_D_ID);
  fprintf(debug_fp,"\ts_O_OL_CNT     = %d (%X)\n",
        in_neword->s_O_OL_CNT, in_neword->s_O_OL_CNT);
  fprintf(debug_fp,"\ts_all_local    = %d (%X)\n",
        in_neword->s_all_local, in_neword->s_all_local);
  fprintf(debug_fp,"\ts_O_ENTRY_D    = %lld (%llX)\n",
        in_neword->s_O_ENTRY_D_time, in_neword->s_O_ENTRY_D_time);
// fprintf(debug_fp,"\ts_transtatus   = %d (%X)\n",
//       in_neword->s_transtatus, in_neword->s_transtatus);
// fprintf(debug_fp,"\tduplicate_items= %d (%X)\n",
//       in_neword->duplicate_items, in_neword->duplicate_items);
  fprintf(debug_fp,"\titems {\n");
  items = in_neword->s_O_OL_CNT;
  for (j=0; j<items; j++) {
    if(j != 0)
      fprintf(debug_fp,"\n");
    fprintf(debug_fp,"\t\ts_OL_I_ID[%d]        = %d (%X)\n",
          j, in_neword->in_item[j].s_OL_I_ID,
in_neword->in_item[j].s_OL_I_ID);
    fprintf(debug_fp,"\t\ts_OL_SUPPLY_W_ID[%d] = %d (%X)\n",
          j, in_neword->in_item[j].s_OL_SUPPLY_W_ID,
in_neword->in_item[j].s_OL_SUPPLY_W_ID);
    fprintf(debug_fp,"\t\ts_OL_QUANTITY[%d]    = %d (%X)\n",
          j, in_neword->in_item[j].s_OL_QUANTITY,
in_neword->in_item[j].s_OL_QUANTITY);
  }
  fprintf(debug_fp,"\t}\n}\n\n");
  fprintf(debug_fp,"out_neword_struct {\n");
  fprintf(debug_fp,"\ts_C_LAST       = %s\n",
        neword_ptr->s_C_LAST);
  fprintf(debug_fp,"\ts_C_CREDIT     = %s\n",
        neword_ptr->s_C_CREDIT);
  fprintf(debug_fp,"\ts_W_TAX        = %d\n",
        neword_ptr->s_W_TAX);
  fprintf(debug_fp,"\ts_D_TAX        = %d\n",
        neword_ptr->s_D_TAX);
  fprintf(debug_fp,"\ts_C_DISCOUNT   = %d\n",
        neword_ptr->s_C_DISCOUNT);
  fprintf(debug_fp,"\ts_O_ID         = %d (%X)\n",
        neword_ptr->s_O_ID, neword_ptr->s_O_ID);
  fprintf(debug_fp,"\ts_O_OL_CNT     = %d (%X)\n",
        neword_ptr->s_O_OL_CNT, neword_ptr->s_O_OL_CNT);
  fprintf(debug_fp,"\ts_O_ENTRY_D    = %lld (%llX)\n",
        neword_ptr->s_O_ENTRY_D_time,
neword_ptr->s_O_ENTRY_D_time);
  fprintf(debug_fp,"\ts_total_amount = %d\n",
        neword_ptr->s_total_amount);
  fprintf(debug_fp,"\ts_transtatus   = %d (%X)\n",
        neword_ptr->s_transtatus, neword_ptr->s_transtatus);
  fprintf(debug_fp,"\tdeadlocks      = %d (%X)\n",
        neword_ptr->deadlocks, neword_ptr->deadlocks);
// fprintf(debug_fp,"\ts_W_ID         = %d (%X)\n",
//       neword_ptr->s_W_ID, neword_ptr->s_W_ID);
// fprintf(debug_fp,"\ts_D_ID         = %d (%X)\n",
//       neword_ptr->s_D_ID, neword_ptr->s_D_ID);
// fprintf(debug_fp,"\ts_all_local    = %d (%X)\n",
//       neword_ptr->s_all_local, neword_ptr->s_all_local);
// fprintf(debug_fp,"\tduplicate_items= %d (%X)\n",
//       neword_ptr->duplicate_items, neword_ptr->duplicate_items);
  fprintf(debug_fp,"\titems {\n");
  items = neword_ptr->s_O_OL_CNT;
  for (j=0; j<items; j++) {
    if(j != 0)
      fprintf(debug_fp,"\n");
    fprintf(debug_fp,"\t\ts_I_NAME[%d]         = %s\n",
          j, neword_ptr->item[j].s_I_NAME);
    fprintf(debug_fp,"\t\ts_I_PRICE[%d]        = %d\n",
          j, neword_ptr->item[j].s_I_PRICE);
    fprintf(debug_fp,"\t\ts_OL_AMOUNT[%d]      = %d\n",
          j, neword_ptr->item[j].s_OL_AMOUNT);
    fprintf(debug_fp,"\t\ts_S_QUANTITY[%d]     = %d (%X)\n",
          j, neword_ptr->item[j].s_S_QUANTITY,
neword_ptr->item[j].s_S_QUANTITY);
    fprintf(debug_fp,"\t\ts_brand_generic[%d]  = %c\n",
          j, neword_ptr->item[j].s_brand_generic);
  }
  fprintf(debug_fp,"\t}\n}\n\n");
  fclose(debug_fp);
}


/*-----------------------------------------------------------*/
/* ord_debug                                                 */
/*-----------------------------------------------------------*/
void ord_debug (struct out_ordstat_struct *ordstat_ptr,
            struct in_ordstat_struct  *in_ordstat,
            char *msg)
{
  char debug_fn[DEBUG_PATH_SIZE + DEBUG_FILENAME_SZ];

  InitializeDebug();
  strncpy(debug_fn, debugPath, DEBUG_PATH_SIZE);
  strcat(debug_fn, "ord.debug.out");
  ord_print(ordstat_ptr, in_ordstat, debug_fn, msg);
}
/*-----------------------------------------------------------*/
/* ord_print                                                 */
/*-----------------------------------------------------------*/
void ord_print (struct out_ordstat_struct *ordstat_ptr,
            struct in_ordstat_struct  *in_ordstat,
            char *filename,
            char *msg)
{
  FILE *debug_fp;
  char  timeStamp[27];
  int   j, items;
  current_tmstmp(&timeStamp[0]);
  timeStamp[19] = (char)NULL;
  if ((debug_fp = fopen(filename, "a+")) == NULL)
  {
    return;
  }
  fprintf(debug_fp,"Order status debug information follows %s (%s)\n",
timeStamp, msg);
  fprintf(debug_fp, " PID %d ", getpid());

fprintf(debug_fp,"\n==========================================
=======\n");
  fprintf(debug_fp,"in_ordstat_struct {\n");
  fprintf(debug_fp,"\ts_W_ID         = %d (%X)\n",
        in_ordstat->s_W_ID, in_ordstat->s_W_ID);
  fprintf(debug_fp,"\ts_D_ID         = %d (%X)\n",
        in_ordstat->s_D_ID, in_ordstat->s_D_ID);
  fprintf(debug_fp,"\ts_C_ID         = %d (%X)\n",
        in_ordstat->s_C_ID, in_ordstat->s_C_ID);
  fprintf(debug_fp,"\ts_C_LAST       = %s\n",
        in_ordstat->s_C_LAST);
  fprintf(debug_fp,"}\n\n");
  fprintf(debug_fp,"out_ordstat_struct {\n");
  fprintf(debug_fp,"\ts_C_ID         = %d (%X)\n",
        ordstat_ptr->s_C_ID, ordstat_ptr->s_C_ID);
```

```
  fprintf(debug_fp,"\ts_C_FIRST      = %s\n",
        ordstat_ptr->s_C_FIRST);
  fprintf(debug_fp,"\ts_C_MIDDLE     = %s\n",
        ordstat_ptr->s_C_MIDDLE);
  fprintf(debug_fp,"\ts_C_LAST       = %s\n",
        ordstat_ptr->s_C_LAST);
  fprintf(debug_fp,"\ts_C_BALANCE    = %lld\n",
        ordstat_ptr->s_C_BALANCE);
  fprintf(debug_fp,"\ts_O_ID         = %d (%X)\n",
        ordstat_ptr->s_O_ID, ordstat_ptr->s_O_ID);
  fprintf(debug_fp,"\ts_O_ENTRY_D    = %lld (%llX)\n",
        ordstat_ptr->s_O_ENTRY_D_time, ordstat_ptr->s_O_ENTRY_D_time);
  fprintf(debug_fp,"\ts_O_CARRIER_ID = %d (%X)\n",
        ordstat_ptr->s_O_CARRIER_ID, ordstat_ptr->s_O_CARRIER_ID);
  fprintf(debug_fp,"\ts_ol_cnt       = %d (%X)\n",
        ordstat_ptr->s_ol_cnt, ordstat_ptr->s_ol_cnt);
  fprintf(debug_fp,"\ts_transtatus   = %d (%X)\n",
        ordstat_ptr->s_transtatus, ordstat_ptr->s_transtatus);
  fprintf(debug_fp,"\tdeadlocks      = %d (%X)\n",
        ordstat_ptr->deadlocks, ordstat_ptr->deadlocks);
  fprintf(debug_fp,"\titems  {\n");
  items = ordstat_ptr->s_ol_cnt;
  for (j = 0; j < items; j++) {
    if(j != 0)
      fprintf(debug_fp,"\n");
    fprintf(debug_fp,"\t\ts_OL_SUPPLY_W_ID[%d] = %d (%X)\n",
          j, ordstat_ptr->item[j].s_OL_SUPPLY_W_ID,
ordstat_ptr->item[j].s_OL_SUPPLY_W_ID);
    fprintf(debug_fp,"\t\ts_OL_I_ID[%d]        = %d (%X)\n",
          j, ordstat_ptr->item[j].s_OL_I_ID, ordstat_ptr->item[j].s_OL_I_ID);
    fprintf(debug_fp,"\t\ts_OL_QUANTITY[%d]    = %d (%X)\n",
          j, ordstat_ptr->item[j].s_OL_QUANTITY,
ordstat_ptr->item[j].s_OL_QUANTITY);
    fprintf(debug_fp,"\t\ts_OL_AMOUNT[%d]      = %d\n",
          j, ordstat_ptr->item[j].s_OL_AMOUNT);
    fprintf(debug_fp,"\t\ts_OL_DELIVERY_D[%d]  = %lld (%llX)\n",
          j,ordstat_ptr->item[j].s_OL_DELIVERY_D_time,
          ordstat_ptr->item[j].s_OL_DELIVERY_D_time);
  }
  fprintf(debug_fp,"\t}\n}\n\n");
  fclose(debug_fp);
}

/*-----------------------------------------------------------------*/
/* pay_debug                                                       */
/*-----------------------------------------------------------------*/
void pay_debug (struct out_payment_struct *payment_ptr,
            struct in_payment_struct  *in_payment,
            char *msg)
{
  char debug_fn[DEBUG_PATH_SIZE + DEBUG_FILENAME_SZ];

  InitializeDebug();
  strncpy(debug_fn, debugPath, DEBUG_PATH_SIZE);
  strcat(debug_fn, "pay.debug.out");
  pay_print(payment_ptr, in_payment, debug_fn, msg);
}
/*-----------------------------------------------------------------*/
/* pay_print                                                       */
/*-----------------------------------------------------------------*/
void pay_print (struct out_payment_struct *payment_ptr,
            struct in_payment_struct  *in_payment,
            char *filename,
            char *msg)
{
  FILE *debug_fp;
  char  timeStamp[27];
  current_tmstmp(&timeStamp[0]);
  timeStamp[19] = (char)NULL;
  if ((debug_fp = fopen(filename, "a+")) == NULL)
  {
    return;
  }
  fprintf(debug_fp,"Payment debug information follows %s (%s)\n",
timeStamp, msg);
  fprintf(debug_fp, " PID %d ", getpid());

fprintf(debug_fp,"\n=========================================
=======\n");
  fprintf(debug_fp,"in_payment_struct  {\n");
  fprintf(debug_fp,"\ts_H_AMOUNT     = %lld (%llX)\n",
        in_payment->s_H_AMOUNT, in_payment->s_H_AMOUNT);
  fprintf(debug_fp,"\ts_C_ID         = %d (%X)\n",
        in_payment->s_C_ID, in_payment->s_C_ID);
  fprintf(debug_fp,"\ts_W_ID         = %d (%X)\n",
        in_payment->s_W_ID, in_payment->s_W_ID);
  fprintf(debug_fp,"\ts_D_ID         = %d (%X)\n",
        in_payment->s_D_ID, in_payment->s_D_ID);
  fprintf(debug_fp,"\ts_C_D_ID       = %d (%X)\n",
        in_payment->s_C_D_ID, in_payment->s_C_D_ID);
  fprintf(debug_fp,"\ts_C_W_ID       = %d (%X)\n",
        in_payment->s_C_W_ID, in_payment->s_C_W_ID);
  fprintf(debug_fp,"\ts_C_LAST       = %s\n",
        in_payment->s_C_LAST);
  fprintf(debug_fp,"\ts_H_DATE       = %lld (%llX)\n",
        in_payment->s_H_DATE_time, in_payment->s_H_DATE_time);
  fprintf(debug_fp,"\n}\n\n");
  fprintf(debug_fp,"out_payment_struct  {\n");
  fprintf(debug_fp,"\ts_H_DATE       = %lld (%llX)\n",
        in_payment->s_H_DATE_time, in_payment->s_H_DATE_time);
  fprintf(debug_fp,"\ts_C_CREDIT_LIM = %lld\n",
        payment_ptr->s_C_CREDIT_LIM);
  fprintf(debug_fp,"\ts_C_DISCOUNT   = %d\n",
        payment_ptr->s_C_DISCOUNT);
  fprintf(debug_fp,"\ts_C_BALANCE    = %lld\n",
        payment_ptr->s_C_BALANCE);
  fprintf(debug_fp,"\ts_C_ID         = %d (%X)\n",
        payment_ptr->s_C_ID, payment_ptr->s_C_ID);
  fprintf(debug_fp,"\ts_W_STREET_1   = %s\n",
        payment_ptr->s_W_STREET_1);
  fprintf(debug_fp,"\ts_W_STREET_2   = %s\n",
        payment_ptr->s_W_STREET_2);
  fprintf(debug_fp,"\ts_W_CITY       = %s\n",
        payment_ptr->s_W_CITY);
  fprintf(debug_fp,"\ts_W_STATE      = %s\n",
        payment_ptr->s_W_STATE);
  fprintf(debug_fp,"\ts_W_ZIP        = %s\n",
        payment_ptr->s_W_ZIP);
  fprintf(debug_fp,"\ts_D_STREET_1   = %s\n",
        payment_ptr->s_D_STREET_1);
  fprintf(debug_fp,"\ts_D_STREET_2   = %s\n",
        payment_ptr->s_D_STREET_2);
  fprintf(debug_fp,"\ts_D_CITY       = %s\n",
        payment_ptr->s_D_CITY);
  fprintf(debug_fp,"\ts_D_STATE      = %s\n",
        payment_ptr->s_D_STATE);
  fprintf(debug_fp,"\ts_D_ZIP        = %s\n",
        payment_ptr->s_D_ZIP);
  fprintf(debug_fp,"\ts_C_FIRST      = %s\n",
        payment_ptr->s_C_FIRST);
  fprintf(debug_fp,"\ts_C_MIDDLE     = %s\n",
        payment_ptr->s_C_MIDDLE);
  fprintf(debug_fp,"\ts_C_LAST       = %s\n",
        payment_ptr->s_C_LAST);
  fprintf(debug_fp,"\ts_C_STREET_1   = %s\n",
        payment_ptr->s_C_STREET_1);
```

```
  fprintf(debug_fp,"\ts_C_STREET_2   = %s\n",
        payment_ptr->s_C_STREET_2);
  fprintf(debug_fp,"\ts_C_CITY       = %s\n",
        payment_ptr->s_C_CITY);
  fprintf(debug_fp,"\ts_C_STATE      = %s\n",
        payment_ptr->s_C_STATE);
  fprintf(debug_fp,"\ts_C_ZIP        = %s\n",
        payment_ptr->s_C_ZIP);
  fprintf(debug_fp,"\ts_C_PHONE      = %s\n",
        payment_ptr->s_C_PHONE);
  fprintf(debug_fp,"\ts_C_SINCE      = %lld (%llX)\n",
        payment_ptr->s_C_SINCE_time, payment_ptr->s_C_SINCE_time);
  fprintf(debug_fp,"\ts_C_CREDIT     = %s\n",
        payment_ptr->s_C_CREDIT);
  fprintf(debug_fp,"\ts_C_DATA       = %s\n",
        payment_ptr->s_C_DATA);
  fprintf(debug_fp,"\ts_transtatus   = %d (%X)\n",
        payment_ptr->s_transtatus,payment_ptr->s_transtatus);
  fprintf(debug_fp,"\tdeadlocks      = %d (%X)\n",
        payment_ptr->deadlocks,payment_ptr->deadlocks);
  fprintf(debug_fp,"\n}\n\n");
  fclose(debug_fp);
}

/*-----------------------------------------------------------*/
/* stk_debug                                                 */
/*-----------------------------------------------------------*/
void stk_debug (struct out_stocklev_struct *stocklev,
            struct in_stocklev_struct  *in_stocklev,
            char *msg)
{
  char debug_fn[DEBUG_PATH_SIZE + DEBUG_FILENAME_SZ];

  InitializeDebug();
  strncpy(debug_fn, debugPath, DEBUG_PATH_SIZE);
  strcat(debug_fn, "stk.debug.out");
  stk_print(stocklev, in_stocklev, debug_fn, msg);
}
/*-----------------------------------------------------------*/
/* stk_print                                                 */
/*-----------------------------------------------------------*/
void stk_print (struct out_stocklev_struct *stocklev,
            struct in_stocklev_struct  *in_stocklev,
            char *filename,
            char *msg)
{
  FILE *debug_fp;
  char  timeStamp[27];
  current_tmstmp(&timeStamp[0]);
  timeStamp[19] = (char)NULL;
  if ((debug_fp = fopen(filename, "a+")) == NULL)
  {
    return;
  }
  fprintf(debug_fp,"Stock level debug information follows %s (%s)\n",
timeStamp, msg);
  fprintf(debug_fp, " PID %d ", getpid());

fprintf(debug_fp,"\n=========================================
=======\n");
  fprintf(debug_fp,"in_stocklev_struct  {\n");
  fprintf(debug_fp,"\ts_W_ID         = %d (%X)\n",
        in_stocklev->s_W_ID, in_stocklev->s_W_ID);
  fprintf(debug_fp,"\ts_D_ID         = %d (%X)\n",
        in_stocklev->s_D_ID, in_stocklev->s_D_ID);
  fprintf(debug_fp,"\ts_threshold    = %d (%X)\n",
        in_stocklev->s_threshold, in_stocklev->s_threshold);
  fprintf(debug_fp,"}\n\n");
  fprintf(debug_fp,"out_stocklev_struct  {\n");
  fprintf(debug_fp,"\ts_transtatus   = %d (%X)\n",
        stocklev->s_transtatus, stocklev->s_transtatus);
  fprintf(debug_fp,"\tdeadlocks      = %d (%X)\n",
        stocklev->deadlocks, stocklev->deadlocks);
  fprintf(debug_fp,"\ts_low_stock    = %d (%X)\n",
        stocklev->s_low_stock, stocklev->s_low_stock);
  fprintf(debug_fp,"}\n\n");
  fclose(debug_fp);
}
void current_tmstmp(char *buf)
{
 time_t t = time(NULL);
 strncpy(buf,ctime(&t),19);
}
```

Src.Common/tpccmisc.c

```
/*************************************************************
*************
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*************************************************************
*************/
/*
 * tpccmisc.c - Miscellaneous routines
 */
#include <stdlib.h>
#include <sys/types.h>
#include <sys/time.h>
double current_time_ms(void);
double current_time(void);

/* Current time in SECONDS, precision SECONDS */
double current_time(void)
{
 /* use time() to get seconds */
 return(time(NULL));
}
/* Current time in SECONDS, precision MILLISECONDS */
double current_time_ms(void)
{
  /* gettimeofday() returns seconds and microseconds */
  /* convert to fractional seconds */
 struct timeval t;
 gettimeofday(&t,NULL);
 return (t.tv_sec + (double)t.tv_usec/(1000*1000));
}
```

Src.Srv/Makefile

```
#############################################################
#############
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##
```

```
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##################################################################
##############

#
# Makefile - Makefile for Src.Srv
#

!include $(TPCC_ROOT)/Makefile.config

#
##################################################################
########
# Preprocessor, Compiler and Linker Flags
#
##################################################################
########

BND_OPTS =          GRANT PUBLIC \
                    MESSAGES $*.bnd.msg
PRP_OPTS =          BINDFILE \
                    EXPLAIN ALL \
                    MESSAGES $*.prep.msg

INCLUDES =      -I$(TPCC_SQLLIB)$(SLASH)include
-I$(TPCC_ROOT)$(SLASH)include

CFLAGS =            $(CFLAGS_OS) $(INCLUDES) $(CFLAGS_DEBUG) \
                    -D$(DB2EDITION) -D$(DB2VERSION) \
                    -DSQLA_NOLINES -DLINT_ARGS

LDFLAGS =           $(LDFLAGS_STORP) $(LDFLAGS_LIB)

#
##################################################################
########
# File Collections
#
##################################################################
########

STORED_PROCS = new ord del

UTIL_OBJ =          $(TPCC_ROOT)/Src.Common/tpccmisc$(OBJEXT) \
                    $(TPCC_ROOT)/Src.Common/tpccdbg$(OBJEXT)

DLL =               rpctpcc$(SHLIBEXT)

#
##################################################################
########
# User Targets
#
##################################################################
########

all:        connect explain catalog $(DLL) install plan disconnect

clean:      connect uncatalog unexplain disconnect
            - $(ERASE) $(TPCC_SPDIR)$(SLASH)rpctpcc$(SHLIBEXT)
            - $(ERASE) *.bnd *.msg *.out *$(OBJEXT) $(DLL) tpcc_all_sql.c
            - $(ERASE) TPCC_ALL.*.plan

#
##################################################################
########
# Helper Targets
#
##################################################################
########

catalog:    uncatalog
            - perl $(TPCC_ROOT)$(SLASH)utils$(SLASH)genproc.pl
$(STORED_PROCS)
            - db2 -tvf cat-proc.ddl +o -z cat-proc.out
            - db2 -td$$ -vf cat-func.ddl +o -z cat-func.out

uncatalog:
            - perl $(TPCC_ROOT)$(SLASH)utils$(SLASH)genproc.pl
$(STORED_PROCS)
            - db2 -td$$ -vf uncat-func.ddl +o -z uncat-func.out
            - db2 -tvf uncat-proc.ddl +o -z uncat-proc.out

explain:
            - perl $(TPCC_ROOT)$(SLASH)utils$(SLASH)fixup_explain.pl
            - db2 -tvf
$(TPCC_ROOT)$(SLASH)utils$(SLASH)EXPLAIN.DDL +o -z EXPLAIN.out

unexplain:
            - db2 -tvf
$(TPCC_ROOT)$(SLASH)utils$(SLASH)UNEXPLAIN.DDL +o -z
UNEXPLAIN.out

connect:
            - db2 connect to $(TPCC_DBNAME)

disconnect:
            - db2 connect reset
            - db2 terminate

# This (environment) variable is used by db2expln
DB2EXPLN_BUFFER=3000000

plan:
            - db2exfmt -d $(TPCC_DBNAME) -e $(TPCC_SCHEMA) -s
$(TPCC_SCHEMA) -w -1 -n TPCC_ALL -g -# 0 -o TPCC_ALL.exfmt.plan
            - db2expln -d $(TPCC_DBNAME) -c $(TPCC_SCHEMA) -p
TPCC_ALL -s 0 -g -o TPCC_ALL.expln.plan

rebind:     connect catalog
            db2 bind tpcc_all_sql.bnd $(BND_OPTS) QUERYOPT 7

#
##################################################################
########
# Install Targets
#
##################################################################
########

install:    $(DLL)
            - mkdir $(TPCC_SPDIR)
            $(COPY) $(DLL) $(TPCC_SPDIR)

#
##################################################################
########
# Build Rules
#
##################################################################
########

.SUFFIXES: $(OBJEXT) .c .sqc

# d230437mte: QUERYOPT 7 required for UNION ALL
```

```
# Only stock needs CS , and that can be specified on the SELECT statement
tpcc_all_sql.c:
        @echo "Prepping $*.sqc"
        -db2 prep $*.sqc $(PRP_OPTS) ISOLATION RR
        @echo "Binding $*.bnd"
        db2 bind $*.bnd $(BND_OPTS) QUERYOPT 7

# Stored procedures are built in a special way

tpcc_all_sql$(OBJEXT):
        $(CC) -c tpcc_all_sql.c $(CFLAGS) -D$(TPCC_SPTYPE)
$(CFLAGS_OUT)$@

$(DLL): $(UTIL_OBJ) tpcc_all_sql$(OBJEXT)
        $(LD_STORP) $(LDFLAGS) $(UTIL_OBJ)
tpcc_all_sql$(OBJEXT) $(LDFLAGS_OUT)$@

#
##################################################################
########
# Dependencies
#
##################################################################
########

# Executables (Stored Procedures)
$(DLL): $(UTIL_OBJ) tpcc_all_sql$(OBJEXT)

# Source
tpcc_all_sql$(OBJEXT): tpcc_all_sql.c

# Headers
tpcc_all_sql.c:         $(TPCC_ROOT)/include/db2tpcc.h
```

Src.Srv/cat-func.ddl

```
-----------------------------------------------------------------------
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-----------------------------------------------------------------------
--
-- cat-func.ddl - Create table functions
--
--
-- DELIVERY
--
CREATE FUNCTION DEL(   W_ID          INTEGER
                     , D_ID          SMALLINT
                     , CARRIER_ID    SMALLINT
                     , DELIVERY_D    BIGINT
                    )
RETURNS TABLE ( O_ID INTEGER )
SPECIFIC DELIVERY
MODIFIES SQL DATA DETERMINISTIC NO EXTERNAL ACTION
LANGUAGE SQL
VAR: BEGIN ATOMIC
  DECLARE O_ID   INTEGER ;
  DECLARE C_ID   INTEGER ;
  DECLARE AMOUNT INTEGER ;
  /* Delete the order from new order table */
  SET VAR.O_ID = ( SELECT NO_O_ID
                   FROM OLD TABLE ( DELETE
                                    FROM ( SELECT NO_O_ID
                                           FROM NEW_ORDER
                                           WHERE NO_W_ID = DEL.W_ID
                                             AND NO_D_ID = DEL.D_ID
                                           ORDER BY NO_O_ID ASC
                                           FETCH FIRST 1 ROW ONLY
                                         ) AS NEW_ORDER
                                  ) AS D
                 )
  ;
  /* Update the order as delivered and retrieve the customer id */
  SET VAR.C_ID = ( SELECT O_C_ID
                   FROM OLD TABLE ( UPDATE ORDERS
                                    SET O_CARRIER_ID = DEL.CARRIER_ID
                                    WHERE O_W_ID = DEL.W_ID
                                      AND O_D_ID = DEL.D_ID
                                      AND O_ID   = VAR.O_ID
                                  ) AS U
                 )
  ;
  SET VAR.AMOUNT = ( SELECT SUM( OL_AMOUNT )
                     FROM OLD TABLE ( UPDATE ORDER_LINE
                                      SET OL_DELIVERY_D = DEL.DELIVERY_D
                                      WHERE OL_W_ID = DEL.W_ID
                                        AND OL_D_ID = DEL.D_ID
                                        AND OL_O_ID = VAR.O_ID
                                    ) AS U
                   )
  ;
  /* Charge the customer */
  UPDATE CUSTOMER
    SET   C_BALANCE      = C_BALANCE + VAR.AMOUNT
        , C_DELIVERY_CNT = C_DELIVERY_CNT + SMALLINT( 1 )
   WHERE C_W_ID = DEL.W_ID
     AND C_D_ID = DEL.D_ID
     AND C_ID   = VAR.C_ID
  ;
  /* Return the order id to the caller (or NULL) */
  RETURN VALUES VAR.O_ID ;
END
$

--
-- ORDER STATUS
--
CREATE FUNCTION ORD_C_LAST(   W_ID INTEGER
                            , D_ID SMALLINT
                            , C_LAST VARCHAR(16)
                           )
RETURNS TABLE(   O_ID        INTEGER
               , O_CARRIER_ID SMALLINT
               , O_ENTRY_D    BIGINT
               , C_BALANCE    BIGINT
               , C_FIRST      VARCHAR(16)
               , C_MIDDLE     CHAR(2)
               , C_ID         INTEGER
              )
SPECIFIC ORD_C_LAST
READS SQL DATA NO EXTERNAL ACTION DETERMINISTIC
LANGUAGE SQL
VAR: BEGIN ATOMIC
  DECLARE C_BALANCE    BIGINT ;
  DECLARE C_FIRST      VARCHAR(16) ;
  DECLARE C_MIDDLE     CHAR(2) ;
  DECLARE C_ID         INTEGER ;
```

```
 DECLARE O_ID        INTEGER;
 DECLARE O_CARRIER_ID SMALLINT;
 DECLARE O_ENTRY_D    BIGINT;
 /* Retrieve the Customer information */
 SET ( C_BALANCE, C_FIRST, C_MIDDLE, C_ID )
  = ( SELECT  C_BALANCE, C_FIRST, C_MIDDLE , C_ID
      FROM ( SELECT   C_ID
                   , C_BALANCE
                   , C_FIRST
                   , C_MIDDLE
                   , COUNT(*) OVER() AS COUNT
                   , ROWNUMBER() OVER (ORDER BY C_FIRST) AS NUM
             FROM CUSTOMER
             WHERE C_W_ID = ORD_C_LAST.W_ID
              AND C_D_ID = ORD_C_LAST.D_ID
              AND C_LAST = ORD_C_LAST.C_LAST
          ) AS V1
      WHERE NUM = (COUNT + BIGINT( 1 ) ) / BIGINT( 2 )
    )
 ;
/* Take advantage of the index to fetch the first row (and hence max(o_id) ) */
 SET ( O_ID , O_CARRIER_ID , O_ENTRY_D )
  =    ( SELECT   O_ID
             , O_CARRIER_ID
             , O_ENTRY_D
         FROM ORDERS
         WHERE O_W_ID = ORD_C_LAST.W_ID
          AND O_D_ID = ORD_C_LAST.D_ID
          AND O_C_ID = VAR.C_ID
         ORDER BY O_ID DESC
         FETCH FIRST 1 ROW ONLY
      )
 ;

 RETURN VALUES (   VAR.O_ID
             , VAR.O_CARRIER_ID
             , VAR.O_ENTRY_D
             , VAR.C_BALANCE
             , VAR.C_FIRST
             , VAR.C_MIDDLE
             , VAR.C_ID
            )
 ;

END $
CREATE FUNCTION ORD_C_ID(   W_ID INTEGER
                    , D_ID SMALLINT
                    , C_ID INTEGER
                   )
RETURNS TABLE(   O_ID        INTEGER
           , O_CARRIER_ID SMALLINT
           , O_ENTRY_D    BIGINT
           , C_BALANCE    BIGINT
           , C_FIRST      VARCHAR(16)
           , C_MIDDLE     CHAR(2)
           , C_LAST       VARCHAR(16)
          )
SPECIFIC ORD_C_ID
READS SQL DATA NO EXTERNAL ACTION DETERMINISTIC
LANGUAGE SQL
VAR: BEGIN ATOMIC
 DECLARE C_BALANCE    BIGINT ;
 DECLARE C_FIRST      VARCHAR(16) ;
 DECLARE C_MIDDLE     CHAR(2) ;
 DECLARE C_LAST       VARCHAR(16) ;
 DECLARE O_ID        INTEGER;
 DECLARE O_CARRIER_ID SMALLINT;
 DECLARE O_ENTRY_D    BIGINT;
 /* Retrieve the Customer information */
 SET ( C_BALANCE, C_FIRST, C_MIDDLE, C_LAST )
  = ( SELECT  C_BALANCE, C_FIRST, C_MIDDLE, C_LAST
      FROM CUSTOMER
      WHERE C_ID   = ORD_C_ID.C_ID
       AND C_W_ID = ORD_C_ID.W_ID
       AND C_D_ID = ORD_C_ID.D_ID
    )
 ;
 SET (O_ID, O_CARRIER_ID, O_ENTRY_D)
  =    ( SELECT   O_ID
             , O_CARRIER_ID
             , O_ENTRY_D
         FROM ORDERS
             WHERE O_W_ID = ORD_C_ID.W_ID
              AND O_D_ID = ORD_C_ID.D_ID
              AND O_C_ID = ORD_C_ID.C_ID
         ORDER BY O_ID DESC
         FETCH FIRST 1 ROW ONLY
      )
 ;
 RETURN VALUES (   VAR.O_ID
             , VAR.O_CARRIER_ID
             , VAR.O_ENTRY_D
             , VAR.C_BALANCE
             , VAR.C_FIRST
             , VAR.C_MIDDLE
             , VAR.C_LAST
            ) ;
END $

--
-- PAYMENT
--
CREATE FUNCTION PAY_C_LAST(  W_ID INTEGER
                    , D_ID SMALLINT
                    , C_W_ID INTEGER
                    , C_D_ID SMALLINT
                    , C_LAST VARCHAR(16)
                    , H_DATE BIGINT
                    , H_AMOUNT BIGINT
                    , BAD_CREDIT_PREFIX VARCHAR(28)
                   )
RETURNS TABLE(   W_STREET_1 CHAR(20)
           , W_STREET_2 CHAR(20)
           , W_CITY CHAR(20)
           , W_STATE CHAR(2)
           , W_ZIP CHAR(9)
           , D_STREET_1 CHAR(20)
           , D_STREET_2 CHAR(20)
           , D_CITY CHAR(20)
           , D_STATE CHAR(2)
           , D_ZIP CHAR(9)
           , C_ID INTEGER
           , C_FIRST VARCHAR(16)
           , C_MIDDLE CHAR(2)
           , C_STREET_1 VARCHAR(20)
           , C_STREET_2 VARCHAR(20)
           , C_CITY VARCHAR(20)
           , C_STATE CHAR(2)
           , C_ZIP CHAR(9)
           , C_PHONE CHAR(16)
           , C_SINCE BIGINT
           , C_CREDIT CHAR(2)
           , C_CREDIT_LIM BIGINT
           , C_DISCOUNT INTEGER
           , C_BALANCE BIGINT
           , C_DATA CHAR(200)
```

```
          )
SPECIFIC PAY_C_LAST
MODIFIES SQL DATA DETERMINISTIC NO EXTERNAL ACTION
LANGUAGE SQL
VAR: BEGIN ATOMIC
  DECLARE  W_NAME CHAR(10) ;
  DECLARE  D_NAME CHAR(10) ;
  DECLARE  W_STREET_1 CHAR(20) ;
  DECLARE  W_STREET_2 CHAR(20) ;
  DECLARE  W_CITY CHAR(20) ;
  DECLARE  W_STATE CHAR(2) ;
  DECLARE  W_ZIP CHAR(9) ;
  DECLARE  D_STREET_1 CHAR(20) ;
  DECLARE  D_STREET_2 CHAR(20) ;
  DECLARE  D_CITY CHAR(20) ;
  DECLARE  D_STATE CHAR(2) ;
  DECLARE  D_ZIP CHAR(9) ;
  DECLARE  C_ID INTEGER ;
  DECLARE  C_FIRST VARCHAR(16) ;
  DECLARE  C_MIDDLE CHAR(2) ;
  DECLARE  C_STREET_1 VARCHAR(20) ;
  DECLARE  C_STREET_2 VARCHAR(20) ;
  DECLARE  C_CITY VARCHAR(20) ;
  DECLARE  C_STATE CHAR(2) ;
  DECLARE  C_ZIP CHAR(9) ;
  DECLARE  C_PHONE CHAR(16) ;
  DECLARE  C_SINCE BIGINT ;
  DECLARE  C_CREDIT CHAR(2) ;
  DECLARE  C_CREDIT_LIM BIGINT ;
  DECLARE  C_DISCOUNT INTEGER ;
  DECLARE  C_BALANCE BIGINT ;
  DECLARE  C_DATA CHAR(200) ;
  /* Update District and retieve its data */
  SET ( D_NAME, D_STREET_1, D_STREET_2, D_CITY, D_STATE,
D_ZIP)
    =  ( SELECT   D_NAME, D_STREET_1, D_STREET_2, D_CITY,
D_STATE, D_ZIP
         FROM OLD TABLE ( UPDATE DISTRICT
                          SET D_YTD = D_YTD + PAY_C_LAST.H_AMOUNT
                         WHERE D_W_ID = PAY_C_LAST.W_ID
                          AND D_ID   = PAY_C_LAST.D_ID
                       ) AS U
     )
  ;
  /* Determine the C_ID */
  SET ( C_ID )
    = ( SELECT C_ID
        FROM ( SELECT   C_ID
                     , COUNT(*) OVER() AS COUNT
                     , ROWNUMBER() OVER (ORDER BY C_FIRST) AS NUM
               FROM CUSTOMER
               WHERE C_LAST = PAY_C_LAST.C_LAST
                 AND C_W_ID = PAY_C_LAST.C_W_ID
                 AND C_D_ID = PAY_C_LAST.C_D_ID
             ) AS T
        WHERE NUM = (COUNT + BIGINT( 1 ) ) / BIGINT( 2 )
     )
  ;

  /* Update the middle customer */
  SET (   C_ID, 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, C_DATA )
    = ( SELECT   C_ID, 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
            , CASE WHEN C_CREDIT = 'BC' THEN SUBSTR(C_DATA, 1,
200) ELSE NULL END AS C_DATA
        FROM NEW TABLE ( UPDATE CUSTOMER
                         SET   C_BALANCE     = C_BALANCE -
PAY_C_LAST.H_AMOUNT
                             , C_YTD_PAYMENT = C_YTD_PAYMENT +
PAY_C_LAST.H_AMOUNT
                             , C_PAYMENT_CNT = C_PAYMENT_CNT +
SMALLINT( 1 )
                             , C_DATA = CASE WHEN C_CREDIT = 'BC'
                                        THEN    CHAR( C_ID )          -- 11 bytes long
                                           || BAD_CREDIT_PREFIX       -- 28 bytes
long
                                           || SUBSTR( C_DATA, 1, 461 ) -- 461 + 39 =
500
                                        ELSE C_DATA
                                      END
                        WHERE C_W_ID = PAY_C_LAST.C_W_ID
                          AND C_D_ID = PAY_C_LAST.C_D_ID
                          AND C_ID   = VAR.C_ID
                      ) AS U
     )
  ;
  /* Update the warehouse */
  SET ( W_NAME, W_STREET_1, W_STREET_2, W_CITY, W_STATE,
W_ZIP )
    = ( SELECT W_NAME, W_STREET_1, W_STREET_2, W_CITY,
W_STATE,  W_ZIP
        FROM OLD TABLE ( UPDATE WAREHOUSE
                         SET W_YTD = W_YTD + PAY_C_LAST.H_AMOUNT
                        WHERE W_ID = PAY_C_LAST.W_ID
                      ) AS U
     )
  ;
  /* Finally insert into the warehouse */
  INSERT
    INTO HISTORY ( H_C_ID, H_C_D_ID, H_C_W_ID, H_D_ID, H_W_ID,
H_DATA, H_DATE, H_AMOUNT )
    VALUES (   VAR.C_ID
             , PAY_C_LAST.C_D_ID
             , PAY_C_LAST.C_W_ID
             , PAY_C_LAST.D_ID
             , PAY_C_LAST.W_ID
             , VAR.W_NAME || CHAR( '    ', 4 )  || VAR.D_NAME
             , PAY_C_LAST.H_DATE
             , PAY_C_LAST.H_AMOUNT
           )
  ;
  /* Done - return the collected data */
  RETURN VALUES (   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_ID, 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, C_DATA
               )
  ;
END
$
CREATE FUNCTION PAY_C_ID(  W_ID INTEGER
                , D_ID SMALLINT
                , C_W_ID INTEGER
                , C_D_ID SMALLINT
                , C_ID INTEGER
                , H_DATE BIGINT
                , H_AMOUNT BIGINT
                , BAD_CREDIT_PREFIX VARCHAR(34)
```

```
            )
RETURNS TABLE(   W_STREET_1 CHAR(20)
           , W_STREET_2 CHAR(20)
           , W_CITY CHAR(20)
           , W_STATE CHAR(2)
           , W_ZIP CHAR(9)
           , D_STREET_1 CHAR(20)
           , D_STREET_2 CHAR(20)
           , D_CITY CHAR(20)
           , D_STATE CHAR(2)
           , D_ZIP CHAR(9)
           , C_LAST VARCHAR(16)
           , C_FIRST VARCHAR(16)
           , C_MIDDLE CHAR(2)
           , C_STREET_1 VARCHAR(20)
           , C_STREET_2 VARCHAR(20)
           , C_CITY VARCHAR(20)
           , C_STATE CHAR(2)
           , C_ZIP CHAR(9)
           , C_PHONE CHAR(16)
           , C_SINCE BIGINT
           , C_CREDIT CHAR(2)
           , C_CREDIT_LIM BIGINT
           , C_DISCOUNT INTEGER
           , C_BALANCE BIGINT
           , C_DATA CHAR(200)
         )
SPECIFIC PAY_C_ID
MODIFIES SQL DATA DETERMINISTIC NO EXTERNAL ACTION
LANGUAGE SQL
VAR: BEGIN ATOMIC
  DECLARE  W_NAME CHAR(10) ;
  DECLARE  D_NAME CHAR(10) ;
  DECLARE  W_STREET_1 CHAR(20) ;
  DECLARE  W_STREET_2 CHAR(20) ;
  DECLARE  W_CITY CHAR(20) ;
  DECLARE  W_STATE CHAR(2) ;
  DECLARE  W_ZIP CHAR(9) ;
  DECLARE  D_STREET_1 CHAR(20) ;
  DECLARE  D_STREET_2 CHAR(20) ;
  DECLARE  D_CITY CHAR(20) ;
  DECLARE  D_STATE CHAR(2) ;
  DECLARE  D_ZIP CHAR(9) ;
  DECLARE  C_LAST VARCHAR(16) ;
  DECLARE  C_FIRST VARCHAR(16) ;
  DECLARE  C_MIDDLE CHAR(2) ;
  DECLARE  C_STREET_1 VARCHAR(20) ;
  DECLARE  C_STREET_2 VARCHAR(20) ;
  DECLARE  C_CITY VARCHAR(20) ;
  DECLARE  C_STATE CHAR(2) ;
  DECLARE  C_ZIP CHAR(9) ;
  DECLARE  C_PHONE CHAR(16) ;
  DECLARE  C_SINCE BIGINT ;
  DECLARE  C_CREDIT CHAR(2) ;
  DECLARE  C_CREDIT_LIM BIGINT ;
  DECLARE  C_DISCOUNT INTEGER ;
  DECLARE  C_BALANCE BIGINT ;
  DECLARE  C_DATA CHAR(200) ;

  /* Update District and retieve its data */
  SET ( D_NAME, D_STREET_1, D_STREET_2, D_CITY, D_STATE, D_ZIP
)
    =  ( SELECT   D_NAME, D_STREET_1, D_STREET_2, D_CITY,
D_STATE, D_ZIP
        FROM OLD TABLE ( UPDATE DISTRICT
                      SET D_YTD = D_YTD + PAY_C_ID.H_AMOUNT
                     WHERE D_W_ID = PAY_C_ID.W_ID
                      AND D_ID   = PAY_C_ID.D_ID
                    ) AS U
     )
  ;
  /* Update the middle customer */
  SET (   C_LAST, 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, C_DATA )
    = ( SELECT   C_LAST, 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
           , CASE WHEN C_CREDIT = 'BC' THEN SUBSTR(C_DATA, 1,
200) ELSE NULL END AS C_DATA
        FROM NEW TABLE ( UPDATE CUSTOMER
                      SET   C_BALANCE     = C_BALANCE -
PAY_C_ID.H_AMOUNT
                          , C_YTD_PAYMENT = C_YTD_PAYMENT +
PAY_C_ID.H_AMOUNT
                          , C_PAYMENT_CNT = C_PAYMENT_CNT +
SMALLINT( 1 )
                          , C_DATA = CASE WHEN C_CREDIT = 'BC'
                                       THEN    BAD_CREDIT_PREFIX        -- 34
bytes long
                                          || SUBSTR( C_DATA, 1, 466 ) -- 466 + 34 =
500 bytes
                                       ELSE C_DATA
                                     END
                     WHERE C_W_ID = PAY_C_ID.C_W_ID
                      AND C_D_ID = PAY_C_ID.C_D_ID
                      AND C_ID   = PAY_C_ID.C_ID
                    ) AS U
     )
  ;
  /* Update the warehouse */
  SET ( W_NAME, W_STREET_1, W_STREET_2, W_CITY, W_STATE,
W_ZIP )
    = ( SELECT W_NAME, W_STREET_1, W_STREET_2, W_CITY,
W_STATE,  W_ZIP
        FROM OLD TABLE ( UPDATE WAREHOUSE
                      SET W_YTD = W_YTD + PAY_C_ID.H_AMOUNT
                     WHERE W_ID = PAY_C_ID.W_ID
                    ) AS U
     )
  ;
  /* Finally insert into the warehouse */
  INSERT
    INTO HISTORY ( H_C_ID, H_C_D_ID, H_C_W_ID, H_D_ID, H_W_ID,
H_DATA, H_DATE, H_AMOUNT )
    VALUES (   PAY_C_ID.C_ID
           , PAY_C_ID.C_D_ID
           , PAY_C_ID.C_W_ID
           , PAY_C_ID.D_ID
           , PAY_C_ID.W_ID
           , VAR.W_NAME || CHAR( '    ', 4 ) || VAR.D_NAME
           , PAY_C_ID.H_DATE
           , PAY_C_ID.H_AMOUNT
          )
  ;
  /* Done - return the collected data */
  RETURN VALUES (   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_LAST, 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, C_DATA
```

```
            )
  ;
END
$
--
-- NEW ORDER
--
CREATE FUNCTION NEW_OL_ALL(   I_ID      INT
                    , I_QTY     SMALLINT
                    , W_ID      INT
                    , SUPP_W_ID INT
                    , O_ID      INT
                    , D_ID      SMALLINT
                   )
RETURNS TABLE(   I_PRICE       INTEGER
           , I_NAME       CHAR(24)
           , I_DATA       VARCHAR(50)
           , OL_DIST_INFO  CHAR(24)
           , S_DATA       VARCHAR(50)
           , S_QUANTITY    SMALLINT
          )
SPECIFIC NEW_OL_ALL
MODIFIES SQL DATA DETERMINISTIC NO EXTERNAL ACTION
LANGUAGE SQL
VAR: BEGIN ATOMIC
 DECLARE I_PRICE       INTEGER  ;
 DECLARE I_NAME        CHAR(24)  ;
 DECLARE I_DATA        VARCHAR(50)  ;
 DECLARE OL_DIST_INFO  CHAR(24)  ;
 DECLARE S_DATA        VARCHAR(50)  ;
 DECLARE S_QUANTITY    SMALLINT  ;

 SET   ( I_PRICE , I_NAME , I_DATA )
  =  ( SELECT
            I_PRICE
           , I_NAME
           , I_DATA
       FROM ITEM
       WHERE ITEM.I_ID = NEW_OL_ALL.I_ID
    ) ;
  SET ( OL_DIST_INFO , S_DATA , S_QUANTITY )
   = ( SELECT   OL_DIST_INFO
           , S_DATA
           , S_QUANTITY
       FROM NEW TABLE (    UPDATE STOCK
                   INCLUDE (  OL_DIST_INFO CHAR( 24 )  )
                     SET S_QUANTITY = CASE WHEN S_QUANTITY -
NEW_OL_ALL.I_QTY >= 10
                                  THEN S_QUANTITY -
NEW_OL_ALL.I_QTY
                                  ELSE S_QUANTITY -
NEW_OL_ALL.I_QTY + 91
                              END
                              , S_ORDER_CNT = S_ORDER_CNT +
SMALLINT( 1 )
                              , S_YTD = S_YTD + NEW_OL_ALL.I_QTY
                              , S_REMOTE_CNT = CASE WHEN
NEW_OL_ALL.SUPP_W_ID = NEW_OL_ALL.W_ID
                                          THEN S_REMOTE_CNT
                                          ELSE S_REMOTE_CNT +
SMALLINT( 1 )
                                       END
                              , OL_DIST_INFO = CASE D_ID WHEN
SMALLINT(  1 )  THEN S_DIST_01
                                          WHEN SMALLINT(  2 )
THEN S_DIST_02
                                          WHEN SMALLINT(  3 )
THEN S_DIST_03
                                          WHEN SMALLINT(  4 )
THEN S_DIST_04
                                          WHEN SMALLINT(  5 )
THEN S_DIST_05
                                          WHEN SMALLINT(  6 )
THEN S_DIST_06
                                          WHEN SMALLINT(  7 )
THEN S_DIST_07
                                          WHEN SMALLINT(  8 )
THEN S_DIST_08
                                          WHEN SMALLINT(  9 )
THEN S_DIST_09
                                          WHEN SMALLINT( 10 )
THEN S_DIST_10
                                       END
                     WHERE S_I_ID = NEW_OL_ALL.I_ID
                      AND S_W_ID = NEW_OL_ALL.SUPP_W_ID
                  ) AS U
     )
   ;
   RETURN VALUES(   VAR.I_PRICE
              , VAR.I_NAME
              , VAR.I_DATA
              , VAR.OL_DIST_INFO
              , VAR.S_DATA
              , VAR.S_QUANTITY
            )
   ;
END
$
CREATE FUNCTION NEW_OL_LOCAL(   I_ID      INT
                    , I_QTY     SMALLINT
                    , W_ID      INT
                    , O_ID      INT
                    , D_ID      SMALLINT
                   )
RETURNS TABLE(   I_PRICE       INTEGER
           , I_NAME       CHAR(24)
           , I_DATA       VARCHAR(50)
           , OL_DIST_INFO  CHAR(24)
           , S_DATA       VARCHAR(50)
           , S_QUANTITY    SMALLINT
          )
SPECIFIC NEW_OL_LOCAL
MODIFIES SQL DATA DETERMINISTIC NO EXTERNAL ACTION
LANGUAGE SQL
VAR: BEGIN ATOMIC
 DECLARE I_PRICE       INTEGER  ;
 DECLARE I_NAME        CHAR(24)  ;
 DECLARE I_DATA        VARCHAR(50)  ;
 DECLARE OL_DIST_INFO  CHAR(24)  ;
 DECLARE S_DATA        VARCHAR(50)  ;
 DECLARE S_QUANTITY    SMALLINT  ;

 SET   ( I_PRICE , I_NAME , I_DATA )
  =  ( SELECT
            I_PRICE
           , I_NAME
           , I_DATA
       FROM ITEM
       WHERE ITEM.I_ID = NEW_OL_LOCAL.I_ID
    ) ;
  SET ( OL_DIST_INFO , S_DATA , S_QUANTITY )
   = ( SELECT   OL_DIST_INFO
           , S_DATA
           , S_QUANTITY
       FROM NEW TABLE (    UPDATE STOCK
                   INCLUDE (  OL_DIST_INFO CHAR( 24 )  )
```

```
                    SET S_QUANTITY = CASE WHEN S_QUANTITY -
NEW_OL_LOCAL.I_QTY >= 10
                              THEN S_QUANTITY -
NEW_OL_LOCAL.I_QTY
                              ELSE S_QUANTITY -
NEW_OL_LOCAL.I_QTY + 91
                          END
                          , S_ORDER_CNT = S_ORDER_CNT +
SMALLINT( 1 )
                          , S_YTD = S_YTD +
NEW_OL_LOCAL.I_QTY
                          , OL_DIST_INFO = CASE D_ID WHEN
SMALLINT(  1 )  THEN S_DIST_01
                                    WHEN SMALLINT(  2 )
THEN S_DIST_02
                                    WHEN SMALLINT(  3 )
THEN S_DIST_03
                                    WHEN SMALLINT(  4 )
THEN S_DIST_04
                                    WHEN SMALLINT(  5 )
THEN S_DIST_05
                                    WHEN SMALLINT(  6 )
THEN S_DIST_06
                                    WHEN SMALLINT(  7 )
THEN S_DIST_07
                                    WHEN SMALLINT(  8 )
THEN S_DIST_08
                                    WHEN SMALLINT(  9 )
THEN S_DIST_09
                                    WHEN SMALLINT( 10 )
THEN S_DIST_10
                              END
                  WHERE S_I_ID = NEW_OL_LOCAL.I_ID
                   AND S_W_ID = NEW_OL_LOCAL.W_ID
                ) AS U
     )
  ;
  RETURN VALUES(   VAR.I_PRICE
             , VAR.I_NAME
             , VAR.I_DATA
             , VAR.OL_DIST_INFO
             , VAR.S_DATA
             , VAR.S_QUANTITY
            )
  ;
END
$


CREATE FUNCTION NEW_WH (   O_ID       INTEGER
                 , W_ID       INTEGER
                 , D_ID       SMALLINT
                 , C_ID       INTEGER
                 , O_ENTRY_D   BIGINT
                 , O_OL_CNT    SMALLINT
                 , O_ALL_LOCAL SMALLINT
                )
RETURNS TABLE (   W_TAX      INTEGER
           , C_DISCOUNT  INTEGER
           , C_LAST      VARCHAR(16)
           , C_CREDIT    CHAR(2)
          )
SPECIFIC NEW_WH
MODIFIES SQL DATA DETERMINISTIC NO EXTERNAL ACTION
LANGUAGE SQL
VAR: BEGIN ATOMIC
 DECLARE C_DISCOUNT  INTEGER ;
 DECLARE C_LAST      VARCHAR(16) ;
 DECLARE C_CREDIT    CHAR(2) ;
 DECLARE W_TAX       INTEGER ;
 INSERT
  INTO NEW_ORDER ( NO_O_ID, NO_D_ID, NO_W_ID )
       VALUES (   O_ID
                , D_ID
                , W_ID
              )
 ;

 INSERT
  INTO ORDERS ( O_C_ID, O_ENTRY_D, O_CARRIER_ID, O_OL_CNT,
O_ALL_LOCAL, O_ID, O_W_ID, O_D_ID )
      VALUES (   C_ID
               , O_ENTRY_D
               , 0
               , O_OL_CNT
               , O_ALL_LOCAL
               , O_ID
               , W_ID
               , D_ID
             )
 ;
 SET ( C_DISCOUNT, C_LAST, C_CREDIT )
  =  ( SELECT  C_DISCOUNT, C_LAST, C_CREDIT
       FROM  CUSTOMER
       WHERE  C_ID = NEW_WH.C_ID
        AND  C_W_ID = W_ID
        AND  C_D_ID = D_ID
    )
 ;

 SET W_TAX
  =    ( SELECT W_TAX
         FROM WAREHOUSE
         WHERE W_ID = NEW_WH.W_ID
       )
 ;
 RETURN VALUES ( W_TAX , C_DISCOUNT , C_LAST , C_CREDIT ) ;
END
$
```

Src.Srv/cat-proc.ddl

```
CREATE PROCEDURE news
                (in new_in   varchar(270) FOR BIT DATA,
                 out new_out varchar(662) FOR BIT DATA)
                LANGUAGE C
                PARAMETER STYLE GENERAL
                EXTERNAL NAME 'c:\SQLLIB\function\\rpctpcc!news'
                not fenced;

CREATE PROCEDURE ords
                (in ord_in   varchar(42) FOR BIT DATA,
                 out ord_out varchar(446) FOR BIT DATA)
                LANGUAGE C
                PARAMETER STYLE GENERAL
                EXTERNAL NAME 'c:\SQLLIB\function\\rpctpcc!ords'
                not fenced;

CREATE PROCEDURE dels
                (in del_in   varchar(22) FOR BIT DATA,
                 out del_out varchar(50) FOR BIT DATA)
                LANGUAGE C
                PARAMETER STYLE GENERAL
                EXTERNAL NAME 'c:\SQLLIB\function\\rpctpcc!dels'
                not fenced;
```

Src.Srv/tpcc_all_sql.sqc

```
/*****************************************************************
**************
** Licensed Materials - Property of IBM
**
** Governed under the terms of the International
** License Agreement for Non-Warranted Sample Code.
**
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** disclosure restricted by GSA ADP Schedule Contract with IBM Corp.
*****************************************************************
**************/
/*
 * tpcc_all_sql.sqc - Client/Server code for TPCC
 */
#include <stdlib.h>
#include <errno.h>
#include "db2tpcc.h"
#include "tpccapp.h"
#include "tpccdbg.h"
#include "sqlca.h"
#include "sql.h"
#include "lval.h"
// ---------------------------------------------------------------
// New Order  SERVER
// ---------------------------------------------------------------
int  static is_ORIGINAL( char *string, short length ) ;
SQL_API_RC new_order_internal( char *pin, char *pout )
{
  struct out_neword_struct *neword;
  struct in_neword_struct  *in_neword;
  struct sqlca sqlca ;
  int     fbadItemDetected = 0 ;
  EXEC SQL BEGIN DECLARE SECTION;
    char    c_last [ 16 ] ;
    char    c_credit [ 2 ] ;
    sqlint32  c_discount ;
    sqlint32  dist_tax ;
    sqlint32  ware_tax ;
    sqlint32   w_id ;
    short     d_id ;
    sqlint32   c_id ;
    sqlint32   next_o_id ;
    short     s_quantity ;
    sqlint32   supply_w_id ;
    short   inputItemCount ;
    char    stockDistrictInformation [ 24 ];
    char    item_name[ 24 ] ;
    sqlint64 o_entry_d ;

    short   allLocal ;

    sqlint32    item_price ;


    struct i_data_type { short len ; char data[ 50 ] ; } i_data ;
    struct s_data_type { short len ; char data[ 50 ] ; } s_data ;
    sqlint32    id0, id1, id2,  id3,  id4,  id5,  id6,  id7;
    sqlint32    id8, id9, id10, id11, id12, id13, id14;
    sqlint32   supply_w_id0,  supply_w_id1, supply_w_id2,  supply_w_id3;
    sqlint32   supply_w_id4,  supply_w_id5, supply_w_id6,  supply_w_id7;
    sqlint32   supply_w_id8,  supply_w_id9, supply_w_id10,  supply_w_id11;
    sqlint32   supply_w_id12,  supply_w_id13, supply_w_id14;
    short   ol_quantity0,  ol_quantity1, ol_quantity2,  ol_quantity3;
    short   ol_quantity4,  ol_quantity5, ol_quantity6,  ol_quantity7;
    short   ol_quantity8,  ol_quantity9, ol_quantity10,  ol_quantity11;
    short   ol_quantity12,  ol_quantity13, ol_quantity14;

  EXEC SQL END DECLARE SECTION;
  int      storedProcRc ;
  int      inputItemArrayIndex ;
  char    stockDistrictInformationArray [15][25];
  #define stockDistrictInformation  stockDistrictInformationArray[
inputItemArrayIndex ]
  // Redirected input fields
  #define w_id in_neword->s_W_ID
  #define d_id in_neword->s_D_ID
  #define c_id in_neword->s_C_ID
  #define o_entry_d in_neword->s_O_ENTRY_D_time
  #define inputItemCount in_neword->s_O_OL_CNT
  #define allLocal in_neword->s_all_local
  // Redirected output fields
  #define  c_last       neword->s_C_LAST
  #define  c_credit     neword->s_C_CREDIT
  #define  c_discount   neword->s_C_DISCOUNT
  #define  ware_tax     neword->s_W_TAX
  #define  dist_tax     neword->s_D_TAX
  #define  s_quantity   neword->item[ inputItemArrayIndex ].s_S_QUANTITY
  // This output field becomes an input field to order_line


  #define next_o_id neword->s_O_ID

  #define  item_name    neword->item[ inputItemArrayIndex ].s_I_NAME
  // item_price holds the integer version of this value. If the return structure was
  // an integer this would not be necessary.
  sqlint32    i_priceArray[ 15 ] ;
  #define  item_price   i_priceArray[ inputItemArrayIndex ]
  // Handle the generic/brand distinction
  struct  i_data_type i_dataArray[ 15 ] ;
  struct  s_data_type s_dataArray[ 15 ] ;
  #define  i_data       i_dataArray[ inputItemArrayIndex ]
  #define  s_data       s_dataArray[ inputItemArrayIndex ]

  // Redirect hostvars to input structure
  #define  id0  in_neword->in_item[0].s_OL_I_ID
  #define  id1  in_neword->in_item[1].s_OL_I_ID
  #define  id2  in_neword->in_item[2].s_OL_I_ID
  #define  id3  in_neword->in_item[3].s_OL_I_ID
  #define  id4  in_neword->in_item[4].s_OL_I_ID
  #define  id5  in_neword->in_item[5].s_OL_I_ID
  #define  id6  in_neword->in_item[6].s_OL_I_ID
  #define  id7  in_neword->in_item[7].s_OL_I_ID
  #define  id8  in_neword->in_item[8].s_OL_I_ID
  #define  id9  in_neword->in_item[9].s_OL_I_ID
  #define  id10 in_neword->in_item[10].s_OL_I_ID
  #define  id11 in_neword->in_item[11].s_OL_I_ID
  #define  id12 in_neword->in_item[12].s_OL_I_ID
  #define  id13 in_neword->in_item[13].s_OL_I_ID
  #define  id14 in_neword->in_item[14].s_OL_I_ID
  #define ol_quantity0  in_neword->in_item[  0 ].s_OL_QUANTITY
  #define ol_quantity1  in_neword->in_item[  1 ].s_OL_QUANTITY
  #define ol_quantity2  in_neword->in_item[  2 ].s_OL_QUANTITY
  #define ol_quantity3  in_neword->in_item[  3 ].s_OL_QUANTITY
  #define ol_quantity4  in_neword->in_item[  4 ].s_OL_QUANTITY
  #define ol_quantity5  in_neword->in_item[  5 ].s_OL_QUANTITY
  #define ol_quantity6  in_neword->in_item[  6 ].s_OL_QUANTITY
  #define ol_quantity7  in_neword->in_item[  7 ].s_OL_QUANTITY
  #define ol_quantity8  in_neword->in_item[  8 ].s_OL_QUANTITY
  #define ol_quantity9  in_neword->in_item[  9 ].s_OL_QUANTITY
  #define ol_quantity10 in_neword->in_item[ 10 ].s_OL_QUANTITY
  #define ol_quantity11 in_neword->in_item[ 11 ].s_OL_QUANTITY
```

```
#define ol_quantity12 in_neword->in_item[ 12 ].s_OL_QUANTITY
#define ol_quantity13 in_neword->in_item[ 13 ].s_OL_QUANTITY
#define ol_quantity14 in_neword->in_item[ 14 ].s_OL_QUANTITY
#define supply_w_id0  in_neword->in_item[  0 ].s_OL_SUPPLY_W_ID
#define supply_w_id1  in_neword->in_item[  1 ].s_OL_SUPPLY_W_ID
#define supply_w_id2  in_neword->in_item[  2 ].s_OL_SUPPLY_W_ID
#define supply_w_id3  in_neword->in_item[  3 ].s_OL_SUPPLY_W_ID
#define supply_w_id4  in_neword->in_item[  4 ].s_OL_SUPPLY_W_ID
#define supply_w_id5  in_neword->in_item[  5 ].s_OL_SUPPLY_W_ID
#define supply_w_id6  in_neword->in_item[  6 ].s_OL_SUPPLY_W_ID
#define supply_w_id7  in_neword->in_item[  7 ].s_OL_SUPPLY_W_ID
#define supply_w_id8  in_neword->in_item[  8 ].s_OL_SUPPLY_W_ID
#define supply_w_id9  in_neword->in_item[  9 ].s_OL_SUPPLY_W_ID
#define supply_w_id10 in_neword->in_item[ 10 ].s_OL_SUPPLY_W_ID
#define supply_w_id11 in_neword->in_item[ 11 ].s_OL_SUPPLY_W_ID
#define supply_w_id12 in_neword->in_item[ 12 ].s_OL_SUPPLY_W_ID
#define supply_w_id13 in_neword->in_item[ 13 ].s_OL_SUPPLY_W_ID
#define supply_w_id14 in_neword->in_item[ 14 ].s_OL_SUPPLY_W_ID
EXEC SQL DECLARE ISOL_Remote_1 CURSOR FOR
  WITH DATA AS (  SELECT  O_ID
            , D_ID
            , W_ID
            , OL_NUMBER
            , I_ID
            , I_SUPPLY_W_ID
            , 0 AS OL_DELIVERY_D
            , I_QTY
            , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
            , OL_DIST_INFO
            , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY
                    FROM ( SELECT   :next_o_id as O_ID
                                , :w_id AS W_ID
                                , :d_id as D_ID
                                , OL_NUMBER
                                , I_ID
                                , I_SUPPLY_W_ID
                                , I_QTY
                            FROM  Table( VALUES
                                    ( SMALLINT( 1 )        , :id0  , :ol_quantity0
 , :supply_w_id0  )
                                  ) AS X ( OL_NUMBER , I_ID  , I_QTY
, I_SUPPLY_W_ID  )
                            ) AS ITEMLIST
                          , TABLE( NEW_OL_ALL(   I_ID
                                    , I_QTY
                                    , W_ID
                                    , I_SUPPLY_W_ID
                                    , O_ID
                                    , D_ID
                                    )
                            ) AS NEW_OL_ALL
                        WHERE NEW_OL_ALL.I_PRICE IS NOT NULL
            )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                (   OL_O_ID
                  , OL_D_ID
                  , OL_W_ID
                  , OL_NUMBER
                  , OL_I_ID
                  , OL_SUPPLY_W_ID
                  , OL_DELIVERY_D
                  , OL_QUANTITY
                  , OL_AMOUNT
                  , OL_DIST_INFO
                )
                INCLUDE (   I_PRICE    INTEGER
                          , I_NAME     CHAR(24)
                          , I_DATA     VARCHAR(50)
                          , S_DATA     VARCHAR(50)
                          , S_QUANTITY SMALLINT )
                        SELECT   O_ID
                              , D_ID
                              , W_ID
                              , OL_NUMBER
                              , I_ID
                              , I_SUPPLY_W_ID
                              , OL_DELIVERY_D
                              , I_QTY

                              , TOTAL_PRICE
                              , OL_DIST_INFO
                              , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                        FROM DATA
                ) AS INS
  ;
  EXEC SQL DECLARE ISOL_Remote_2 CURSOR FOR
    WITH DATA AS (  SELECT  O_ID
            , D_ID
            , W_ID
            , OL_NUMBER
            , I_ID
            , I_SUPPLY_W_ID
            , 0 AS OL_DELIVERY_D
            , I_QTY
            , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
            , OL_DIST_INFO
            , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY
                    FROM ( SELECT   :next_o_id as O_ID
                                , :w_id AS W_ID
                                , :d_id as D_ID
                                , OL_NUMBER
                                , I_ID
                                , I_SUPPLY_W_ID
                                , I_QTY
                            FROM  Table( VALUES
                                    ( SMALLINT( 1 )        , :id0  , :ol_quantity0
 , :supply_w_id0  )
                                  , ( SMALLINT( 2 )        , :id1  , :ol_quantity1
 , :supply_w_id1  )
                                  ) AS X ( OL_NUMBER , I_ID  , I_QTY
, I_SUPPLY_W_ID  )
                            ) AS ITEMLIST
                          , TABLE( NEW_OL_ALL(   I_ID
                                    , I_QTY
                                    , W_ID
                                    , I_SUPPLY_W_ID
                                    , O_ID
                                    , D_ID
                                    )
                            ) AS NEW_OL_ALL
                        WHERE NEW_OL_ALL.I_PRICE IS NOT NULL
            )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                (   OL_O_ID
                  , OL_D_ID
                  , OL_W_ID
                  , OL_NUMBER
                  , OL_I_ID
                  , OL_SUPPLY_W_ID
```

```
                , OL_DELIVERY_D
                , OL_QUANTITY
                , OL_AMOUNT
                , OL_DIST_INFO
               )
               INCLUDE (   I_PRICE    INTEGER
                      , I_NAME     CHAR(24)
                      , I_DATA     VARCHAR(50)
                      , S_DATA     VARCHAR(50)
                      , S_QUANTITY SMALLINT )
                     SELECT   O_ID
                          , D_ID
                          , W_ID
                          , OL_NUMBER
                          , I_ID
                          , I_SUPPLY_W_ID
                          , OL_DELIVERY_D
                          , I_QTY
                          , TOTAL_PRICE
                          , OL_DIST_INFO
                          , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                     FROM DATA
              ) AS INS
  ;
  EXEC SQL DECLARE ISOL_Remote_3 CURSOR FOR
    WITH DATA AS (  SELECT  O_ID
             , D_ID
             , W_ID
             , OL_NUMBER
             , I_ID
             , I_SUPPLY_W_ID
             , 0 AS OL_DELIVERY_D
             , I_QTY
             , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
             , OL_DIST_INFO
             , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY
                     FROM ( SELECT   :next_o_id as O_ID
                                , :w_id AS W_ID
                                , :d_id as D_ID
                                , OL_NUMBER
                                , I_ID
                                , I_SUPPLY_W_ID
                                , I_QTY
                            FROM  Table( VALUES
                                   (  SMALLINT( 1 )        , :id0  , :ol_quantity0
, :supply_w_id0  )
                                   , (  SMALLINT( 2 )        , :id1  , :ol_quantity1
, :supply_w_id1  )
                                   , (  SMALLINT( 3 )        , :id2  , :ol_quantity2
, :supply_w_id2  )
                                   ) AS X ( OL_NUMBER , I_ID  , I_QTY
, I_SUPPLY_W_ID  )
                            ) AS ITEMLIST
                          , TABLE( NEW_OL_ALL(   I_ID
                                   , I_QTY
                                   , W_ID
                                   , I_SUPPLY_W_ID
                                   , O_ID
                                   , D_ID
                                   )
                            ) AS NEW_OL_ALL
                        WHERE NEW_OL_ALL.I_PRICE IS NOT NULL
             )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                (   OL_O_ID
                  , OL_D_ID
                  , OL_W_ID
                  , OL_NUMBER
                  , OL_I_ID
                  , OL_SUPPLY_W_ID
                  , OL_DELIVERY_D
                  , OL_QUANTITY
                  , OL_AMOUNT
                  , OL_DIST_INFO
                )
                INCLUDE (   I_PRICE    INTEGER
                      , I_NAME     CHAR(24)
                      , I_DATA     VARCHAR(50)
                      , S_DATA     VARCHAR(50)
                      , S_QUANTITY SMALLINT )
                     SELECT   O_ID
                          , D_ID
                          , W_ID
                          , OL_NUMBER
                          , I_ID
                          , I_SUPPLY_W_ID
                          , OL_DELIVERY_D
                          , I_QTY
                          , TOTAL_PRICE
                          , OL_DIST_INFO
                          , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                     FROM DATA
              ) AS INS
  ;
  EXEC SQL DECLARE ISOL_Remote_4 CURSOR FOR
    WITH DATA AS (  SELECT  O_ID
             , D_ID
             , W_ID
             , OL_NUMBER
             , I_ID
             , I_SUPPLY_W_ID
             , 0 AS OL_DELIVERY_D
             , I_QTY
             , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
             , OL_DIST_INFO
             , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY
                     FROM ( SELECT   :next_o_id as O_ID
                                , :w_id AS W_ID
                                , :d_id as D_ID
                                , OL_NUMBER
                                , I_ID
                                , I_SUPPLY_W_ID
                                , I_QTY
                            FROM  Table( VALUES
                                   (  SMALLINT( 1 )        , :id0  , :ol_quantity0
, :supply_w_id0  )
                                   , (  SMALLINT( 2 )        , :id1  , :ol_quantity1
, :supply_w_id1  )
                                   , (  SMALLINT( 3 )        , :id2  , :ol_quantity2
, :supply_w_id2  )
                                   , (  SMALLINT( 4 )        , :id3  , :ol_quantity3
, :supply_w_id3  )
                                   ) AS X ( OL_NUMBER , I_ID  , I_QTY
, I_SUPPLY_W_ID  )
                            ) AS ITEMLIST
                          , TABLE( NEW_OL_ALL(   I_ID
                                   , I_QTY
                                   , W_ID
                                   , I_SUPPLY_W_ID
                                   , O_ID
                                   , D_ID
```

```
                                )
                            ) AS NEW_OL_ALL
                        WHERE NEW_OL_ALL.I_PRICE IS NOT NULL
            )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                (   OL_O_ID
                  , OL_D_ID
                  , OL_W_ID
                  , OL_NUMBER
                  , OL_I_ID
                  , OL_SUPPLY_W_ID
                  , OL_DELIVERY_D
                  , OL_QUANTITY
                  , OL_AMOUNT
                  , OL_DIST_INFO
                )
                INCLUDE (   I_PRICE    INTEGER
                          , I_NAME     CHAR(24)
                          , I_DATA     VARCHAR(50)
                          , S_DATA     VARCHAR(50)
                          , S_QUANTITY SMALLINT )
                        SELECT   O_ID
                            , D_ID
                            , W_ID
                            , OL_NUMBER
                            , I_ID
                            , I_SUPPLY_W_ID
                            , OL_DELIVERY_D
                            , I_QTY
                            , TOTAL_PRICE
                            , OL_DIST_INFO
                            , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                        FROM DATA
                ) AS INS
  ;
  EXEC SQL DECLARE ISOL_Remote_5 CURSOR FOR
    WITH DATA AS (  SELECT  O_ID
              , D_ID
              , W_ID
              , OL_NUMBER
              , I_ID
              , I_SUPPLY_W_ID
              , 0 AS OL_DELIVERY_D
              , I_QTY
              , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
              , OL_DIST_INFO
              , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY
                        FROM ( SELECT   :next_o_id as O_ID
                                  , :w_id AS W_ID
                                  , :d_id as D_ID
                                  , OL_NUMBER
                                  , I_ID
                                  , I_SUPPLY_W_ID
                                  , I_QTY
                              FROM  Table( VALUES
                                    ( SMALLINT( 1 )        , :id0  , :ol_quantity0
, :supply_w_id0  )
                                    , ( SMALLINT( 2 )        , :id1  , :ol_quantity1
, :supply_w_id1  )
                                    , ( SMALLINT( 3 )        , :id2  , :ol_quantity2
, :supply_w_id2  )
                                    , ( SMALLINT( 4 )        , :id3  , :ol_quantity3
, :supply_w_id3  )
                                    , ( SMALLINT( 5 )        , :id4  , :ol_quantity4
, :supply_w_id4  )
                                    ) AS X ( OL_NUMBER , I_ID  , I_QTY
, I_SUPPLY_W_ID  )
                              ) AS ITEMLIST
                            , TABLE( NEW_OL_ALL(   I_ID
                                    , I_QTY
                                    , W_ID
                                    , I_SUPPLY_W_ID
                                    , O_ID
                                    , D_ID
                                    )
                            ) AS NEW_OL_ALL
                        WHERE NEW_OL_ALL.I_PRICE IS NOT NULL
            )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                (   OL_O_ID
                  , OL_D_ID
                  , OL_W_ID
                  , OL_NUMBER
                  , OL_I_ID
                  , OL_SUPPLY_W_ID
                  , OL_DELIVERY_D
                  , OL_QUANTITY
                  , OL_AMOUNT
                  , OL_DIST_INFO
                )
                INCLUDE (   I_PRICE    INTEGER
                          , I_NAME     CHAR(24)
                          , I_DATA     VARCHAR(50)
                          , S_DATA     VARCHAR(50)
                          , S_QUANTITY SMALLINT )
                        SELECT   O_ID
                            , D_ID
                            , W_ID
                            , OL_NUMBER
                            , I_ID
                            , I_SUPPLY_W_ID
                            , OL_DELIVERY_D
                            , I_QTY
                            , TOTAL_PRICE
                            , OL_DIST_INFO
                            , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                        FROM DATA
                ) AS INS
  ;
  EXEC SQL DECLARE ISOL_Remote_6 CURSOR FOR
    WITH DATA AS (  SELECT  O_ID
              , D_ID
              , W_ID
              , OL_NUMBER
              , I_ID
              , I_SUPPLY_W_ID
              , 0 AS OL_DELIVERY_D
              , I_QTY
              , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
              , OL_DIST_INFO
              , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY
                        FROM ( SELECT   :next_o_id as O_ID
                                  , :w_id AS W_ID
                                  , :d_id as D_ID
                                  , OL_NUMBER
                                  , I_ID
                                  , I_SUPPLY_W_ID
```

```
                                , I_QTY
                              FROM  Table( VALUES
                                     ( SMALLINT( 1 )        , :id0  , :ol_quantity0
 , :supply_w_id0  )
                                     , ( SMALLINT( 2 )        , :id1  , :ol_quantity1
 , :supply_w_id1  )
                                     , ( SMALLINT( 3 )        , :id2  , :ol_quantity2
 , :supply_w_id2  )
                                     , ( SMALLINT( 4 )        , :id3  , :ol_quantity3
 , :supply_w_id3  )
                                     , ( SMALLINT( 5 )        , :id4  , :ol_quantity4
 , :supply_w_id4  )
                                     , ( SMALLINT( 6 )        , :id5  , :ol_quantity5
 , :supply_w_id5  )
                                     ) AS X ( OL_NUMBER , I_ID  , I_QTY
, I_SUPPLY_W_ID  )
                            ) AS ITEMLIST
                          , TABLE( NEW_OL_ALL(   I_ID
                                    , I_QTY
                                    , W_ID
                                    , I_SUPPLY_W_ID
                                    , O_ID
                                    , D_ID
                                    )
                            ) AS NEW_OL_ALL
                        WHERE NEW_OL_ALL.I_PRICE IS NOT NULL
                )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                  (   OL_O_ID
                    , OL_D_ID
                    , OL_W_ID
                    , OL_NUMBER
                    , OL_I_ID
                    , OL_SUPPLY_W_ID
                    , OL_DELIVERY_D
                    , OL_QUANTITY
                    , OL_AMOUNT
                    , OL_DIST_INFO
                  )
                  INCLUDE (   I_PRICE    INTEGER
                            , I_NAME     CHAR(24)
                            , I_DATA     VARCHAR(50)
                            , S_DATA     VARCHAR(50)
                            , S_QUANTITY SMALLINT )
                          SELECT   O_ID
                              , D_ID
                              , W_ID
                              , OL_NUMBER
                              , I_ID
                              , I_SUPPLY_W_ID
                              , OL_DELIVERY_D
                              , I_QTY
                              , TOTAL_PRICE
                              , OL_DIST_INFO
                              , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                          FROM DATA
                  ) AS INS
  ;
  EXEC SQL DECLARE ISOL_Remote_7 CURSOR FOR
    WITH DATA AS (  SELECT  O_ID
                  , D_ID
                  , W_ID
                  , OL_NUMBER
                  , I_ID
                  , I_SUPPLY_W_ID
                  , 0 AS OL_DELIVERY_D
                  , I_QTY
                  , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
                  , OL_DIST_INFO
                  , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY
                        FROM ( SELECT   :next_o_id as O_ID
                                , :w_id AS W_ID
                                , :d_id as D_ID
                                , OL_NUMBER
                                , I_ID
                                , I_SUPPLY_W_ID
                                , I_QTY
                              FROM  Table( VALUES
                                     ( SMALLINT( 1 )        , :id0  , :ol_quantity0
 , :supply_w_id0  )
                                     , ( SMALLINT( 2 )        , :id1  , :ol_quantity1
 , :supply_w_id1  )
                                     , ( SMALLINT( 3 )        , :id2  , :ol_quantity2
 , :supply_w_id2  )
                                     , ( SMALLINT( 4 )        , :id3  , :ol_quantity3
 , :supply_w_id3  )
                                     , ( SMALLINT( 5 )        , :id4  , :ol_quantity4
 , :supply_w_id4  )
                                     , ( SMALLINT( 6 )        , :id5  , :ol_quantity5
 , :supply_w_id5  )
                                     , ( SMALLINT( 7 )        , :id6  , :ol_quantity6
 , :supply_w_id6  )
                                     ) AS X ( OL_NUMBER , I_ID  , I_QTY
, I_SUPPLY_W_ID  )
                            ) AS ITEMLIST
                          , TABLE( NEW_OL_ALL(   I_ID
                                    , I_QTY
                                    , W_ID
                                    , I_SUPPLY_W_ID
                                    , O_ID
                                    , D_ID
                                    )
                            ) AS NEW_OL_ALL
                        WHERE NEW_OL_ALL.I_PRICE IS NOT NULL
                )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                  (   OL_O_ID
                    , OL_D_ID
                    , OL_W_ID
                    , OL_NUMBER
                    , OL_I_ID
                    , OL_SUPPLY_W_ID
                    , OL_DELIVERY_D
                    , OL_QUANTITY
                    , OL_AMOUNT
                    , OL_DIST_INFO
                  )
                  INCLUDE (   I_PRICE    INTEGER
                            , I_NAME     CHAR(24)
                            , I_DATA     VARCHAR(50)
                            , S_DATA     VARCHAR(50)
                            , S_QUANTITY SMALLINT )
                          SELECT   O_ID
                              , D_ID
                              , W_ID
                              , OL_NUMBER
                              , I_ID
                              , I_SUPPLY_W_ID
                              , OL_DELIVERY_D
```

```
                        , I_QTY
                        , TOTAL_PRICE
                        , OL_DIST_INFO
                        , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                    FROM DATA


              ) AS INS
  ;
  EXEC SQL DECLARE ISOL_Remote_8 CURSOR FOR
    WITH DATA AS (  SELECT  O_ID
              , D_ID
              , W_ID
              , OL_NUMBER
              , I_ID
              , I_SUPPLY_W_ID
              , 0 AS OL_DELIVERY_D
              , I_QTY
              , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
              , OL_DIST_INFO
              , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY
                      FROM ( SELECT   :next_o_id as O_ID
                                , :w_id AS W_ID
                                , :d_id as D_ID
                                , OL_NUMBER
                                , I_ID
                                , I_SUPPLY_W_ID
                                , I_QTY
                            FROM  Table( VALUES
                                    ( SMALLINT( 1 )        , :id0  , :ol_quantity0
, :supply_w_id0  )
                                    , ( SMALLINT( 2 )        , :id1  , :ol_quantity1
, :supply_w_id1  )
                                    , ( SMALLINT( 3 )        , :id2  , :ol_quantity2
, :supply_w_id2  )
                                    , ( SMALLINT( 4 )        , :id3  , :ol_quantity3
, :supply_w_id3  )
                                    , ( SMALLINT( 5 )        , :id4  , :ol_quantity4
, :supply_w_id4  )
                                    , ( SMALLINT( 6 )        , :id5  , :ol_quantity5
, :supply_w_id5  )
                                    , ( SMALLINT( 7 )        , :id6  , :ol_quantity6
, :supply_w_id6  )
                                    , ( SMALLINT( 8 )        , :id7  , :ol_quantity7
, :supply_w_id7  )
                                    ) AS X ( OL_NUMBER , I_ID  , I_QTY
, I_SUPPLY_W_ID  )
                            ) AS ITEMLIST
                        , TABLE( NEW_OL_ALL(   I_ID
                                  , I_QTY
                                  , W_ID
                                  , I_SUPPLY_W_ID
                                  , O_ID
                                  , D_ID
                                  )
                            ) AS NEW_OL_ALL
                        WHERE NEW_OL_ALL.I_PRICE IS NOT NULL
              )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                (   OL_O_ID
                  , OL_D_ID
                  , OL_W_ID
                  , OL_NUMBER
                  , OL_I_ID
                  , OL_SUPPLY_W_ID
                  , OL_DELIVERY_D
                  , OL_QUANTITY
                  , OL_AMOUNT
                  , OL_DIST_INFO
                )
                INCLUDE (   I_PRICE    INTEGER
                          , I_NAME     CHAR(24)
                          , I_DATA     VARCHAR(50)
                          , S_DATA     VARCHAR(50)
                          , S_QUANTITY SMALLINT )
                        SELECT   O_ID
                              , D_ID
                              , W_ID
                              , OL_NUMBER
                              , I_ID
                              , I_SUPPLY_W_ID
                              , OL_DELIVERY_D
                              , I_QTY
                              , TOTAL_PRICE
                              , OL_DIST_INFO
                              , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                        FROM DATA
                ) AS INS
  ;
  EXEC SQL DECLARE ISOL_Remote_9 CURSOR FOR
    WITH DATA AS (  SELECT  O_ID
              , D_ID
              , W_ID
              , OL_NUMBER
              , I_ID
              , I_SUPPLY_W_ID
              , 0 AS OL_DELIVERY_D
              , I_QTY
              , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
              , OL_DIST_INFO
              , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY
                      FROM ( SELECT   :next_o_id as O_ID
                                , :w_id AS W_ID
                                , :d_id as D_ID
                                , OL_NUMBER
                                , I_ID
                                , I_SUPPLY_W_ID
                                , I_QTY
                            FROM  Table( VALUES
                                    ( SMALLINT( 1 )        , :id0  , :ol_quantity0
, :supply_w_id0  )
                                    , ( SMALLINT( 2 )        , :id1  , :ol_quantity1
, :supply_w_id1  )
                                    , ( SMALLINT( 3 )        , :id2  , :ol_quantity2
, :supply_w_id2  )
                                    , ( SMALLINT( 4 )        , :id3  , :ol_quantity3
, :supply_w_id3  )
                                    , ( SMALLINT( 5 )        , :id4  , :ol_quantity4
, :supply_w_id4  )
                                    , ( SMALLINT( 6 )        , :id5  , :ol_quantity5
, :supply_w_id5  )
                                    , ( SMALLINT( 7 )        , :id6  , :ol_quantity6
, :supply_w_id6  )
                                    , ( SMALLINT( 8 )        , :id7  , :ol_quantity7
, :supply_w_id7  )
                                    , ( SMALLINT( 9 )        , :id8  , :ol_quantity8
, :supply_w_id8  )
                                    ) AS X ( OL_NUMBER , I_ID  , I_QTY
, I_SUPPLY_W_ID  )
                            ) AS ITEMLIST
                        , TABLE( NEW_OL_ALL(   I_ID
```

```
                                , I_QTY
                                , W_ID
                                , I_SUPPLY_W_ID
                                , O_ID
                                , D_ID
                                )
                        ) AS NEW_OL_ALL
                    WHERE NEW_OL_ALL.I_PRICE IS NOT NULL
            )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                ( OL_O_ID
                , OL_D_ID
                , OL_W_ID
                , OL_NUMBER
                , OL_I_ID
                , OL_SUPPLY_W_ID
                , OL_DELIVERY_D
                , OL_QUANTITY
                , OL_AMOUNT
                , OL_DIST_INFO
                )
                INCLUDE ( I_PRICE    INTEGER
                        , I_NAME     CHAR(24)
                        , I_DATA     VARCHAR(50)
                        , S_DATA     VARCHAR(50)
                        , S_QUANTITY SMALLINT )
                    SELECT  O_ID
                        , D_ID
                        , W_ID
                        , OL_NUMBER
                        , I_ID
                        , I_SUPPLY_W_ID
                        , OL_DELIVERY_D
                        , I_QTY
                        , TOTAL_PRICE
                        , OL_DIST_INFO
                        , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                    FROM DATA
                ) AS INS
  ;
  EXEC SQL DECLARE ISOL_Remote_10 CURSOR FOR
    WITH DATA AS ( SELECT  O_ID
            , D_ID
            , W_ID
            , OL_NUMBER
            , I_ID
            , I_SUPPLY_W_ID
            , 0 AS OL_DELIVERY_D
            , I_QTY
            , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
            , OL_DIST_INFO
            , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY
                FROM ( SELECT  :next_o_id as O_ID
                        , :w_id AS W_ID
                        , :d_id as D_ID
                        , OL_NUMBER
                        , I_ID
                        , I_SUPPLY_W_ID
                        , I_QTY
                    FROM  Table( VALUES
                        ( SMALLINT( 1 )       , :id0  , :ol_quantity0
, :supply_w_id0  )
                        , ( SMALLINT( 2 )       , :id1  , :ol_quantity1
, :supply_w_id1  )
                        , ( SMALLINT( 3 )       , :id2  , :ol_quantity2
, :supply_w_id2  )
                        , ( SMALLINT( 4 )       , :id3  , :ol_quantity3
, :supply_w_id3  )
                        , ( SMALLINT( 5 )       , :id4  , :ol_quantity4
, :supply_w_id4  )
                        , ( SMALLINT( 6 )       , :id5  , :ol_quantity5
, :supply_w_id5  )
                        , ( SMALLINT( 7 )       , :id6  , :ol_quantity6
, :supply_w_id6  )
                        , ( SMALLINT( 8 )       , :id7  , :ol_quantity7
, :supply_w_id7  )
                        , ( SMALLINT( 9 )       , :id8  , :ol_quantity8
, :supply_w_id8  )
                        , ( SMALLINT( 10 )       , :id9  ,
:ol_quantity9  , :supply_w_id9  )
                        ) AS X ( OL_NUMBER , I_ID  , I_QTY
, I_SUPPLY_W_ID  )
                    ) AS ITEMLIST
                    , TABLE( NEW_OL_ALL(  I_ID
                        , I_QTY
                        , W_ID
                        , I_SUPPLY_W_ID
                        , O_ID
                        , D_ID
                        )
                    ) AS NEW_OL_ALL
                WHERE NEW_OL_ALL.I_PRICE IS NOT NULL
            )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                ( OL_O_ID
                , OL_D_ID
                , OL_W_ID
                , OL_NUMBER
                , OL_I_ID
                , OL_SUPPLY_W_ID
                , OL_DELIVERY_D
                , OL_QUANTITY
                , OL_AMOUNT
                , OL_DIST_INFO
                )
                INCLUDE ( I_PRICE    INTEGER
                        , I_NAME     CHAR(24)
                        , I_DATA     VARCHAR(50)
                        , S_DATA     VARCHAR(50)
                        , S_QUANTITY SMALLINT )
                    SELECT  O_ID
                        , D_ID
                        , W_ID
                        , OL_NUMBER
                        , I_ID
                        , I_SUPPLY_W_ID
                        , OL_DELIVERY_D
                        , I_QTY
                        , TOTAL_PRICE
                        , OL_DIST_INFO
                        , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                    FROM DATA
                ) AS INS
  ;
  EXEC SQL DECLARE ISOL_Remote_11 CURSOR FOR
    WITH DATA AS ( SELECT  O_ID
            , D_ID
            , W_ID
```

```
            , OL_NUMBER
            , I_ID
            , I_SUPPLY_W_ID
            , 0 AS OL_DELIVERY_D
            , I_QTY
            , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
            , OL_DIST_INFO
            , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY
                    FROM ( SELECT   :next_o_id as O_ID
                                , :w_id AS W_ID
                                , :d_id as D_ID
                                , OL_NUMBER
                                , I_ID
                                , I_SUPPLY_W_ID
                                , I_QTY
                            FROM  Table( VALUES
                                    ( SMALLINT( 1 )        , :id0  , :ol_quantity0
, :supply_w_id0  )
                                    , ( SMALLINT( 2 )        , :id1  , :ol_quantity1
, :supply_w_id1  )
                                    , ( SMALLINT( 3 )        , :id2  , :ol_quantity2
, :supply_w_id2  )
                                    , ( SMALLINT( 4 )        , :id3  , :ol_quantity3
, :supply_w_id3  )
                                    , ( SMALLINT( 5 )        , :id4  , :ol_quantity4
, :supply_w_id4  )
                                    , ( SMALLINT( 6 )        , :id5  , :ol_quantity5
, :supply_w_id5  )
                                    , ( SMALLINT( 7 )        , :id6  , :ol_quantity6
, :supply_w_id6  )
                                    , ( SMALLINT( 8 )        , :id7  , :ol_quantity7
, :supply_w_id7  )
                                    , ( SMALLINT( 9 )        , :id8  , :ol_quantity8
, :supply_w_id8  )
                                    , ( SMALLINT( 10 )        , :id9  ,
:ol_quantity9  , :supply_w_id9   )
                                    , ( SMALLINT( 11 )        , :id10 ,
:ol_quantity10 , :supply_w_id10  )
                                    ) AS X ( OL_NUMBER , I_ID  , I_QTY
, I_SUPPLY_W_ID  )
                            ) AS ITEMLIST
                          , TABLE( NEW_OL_ALL(   I_ID
                                    , I_QTY
                                    , W_ID
                                    , I_SUPPLY_W_ID
                                    , O_ID
                                    , D_ID
                                    )
                            ) AS NEW_OL_ALL
                        WHERE NEW_OL_ALL.I_PRICE IS NOT NULL
            )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                (   OL_O_ID
                  , OL_D_ID
                  , OL_W_ID
                  , OL_NUMBER
                  , OL_I_ID
                  , OL_SUPPLY_W_ID
                  , OL_DELIVERY_D
                  , OL_QUANTITY
                  , OL_AMOUNT
                  , OL_DIST_INFO
                )
                INCLUDE (   I_PRICE    INTEGER
                          , I_NAME     CHAR(24)
                          , I_DATA     VARCHAR(50)
                          , S_DATA     VARCHAR(50)
                          , S_QUANTITY SMALLINT )
                        SELECT   O_ID
                              , D_ID
                              , W_ID
                              , OL_NUMBER
                              , I_ID
                              , I_SUPPLY_W_ID
                              , OL_DELIVERY_D
                              , I_QTY
                              , TOTAL_PRICE
                              , OL_DIST_INFO
                              , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                        FROM DATA
                ) AS INS
  ;
  EXEC SQL DECLARE ISOL_Remote_12 CURSOR FOR
    WITH DATA AS (  SELECT  O_ID
            , D_ID
            , W_ID
            , OL_NUMBER
            , I_ID
            , I_SUPPLY_W_ID
            , 0 AS OL_DELIVERY_D
            , I_QTY
            , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
            , OL_DIST_INFO
            , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY
                    FROM ( SELECT   :next_o_id as O_ID
                                , :w_id AS W_ID
                                , :d_id as D_ID
                                , OL_NUMBER
                                , I_ID
                                , I_SUPPLY_W_ID
                                , I_QTY
                            FROM  Table( VALUES
                                    ( SMALLINT( 1 )        , :id0  , :ol_quantity0
, :supply_w_id0  )
                                    , ( SMALLINT( 2 )        , :id1  , :ol_quantity1
, :supply_w_id1  )
                                    , ( SMALLINT( 3 )        , :id2  , :ol_quantity2
, :supply_w_id2  )
                                    , ( SMALLINT( 4 )        , :id3  , :ol_quantity3
, :supply_w_id3  )
                                    , ( SMALLINT( 5 )        , :id4  , :ol_quantity4
, :supply_w_id4  )
                                    , ( SMALLINT( 6 )        , :id5  , :ol_quantity5
, :supply_w_id5  )
                                    , ( SMALLINT( 7 )        , :id6  , :ol_quantity6
, :supply_w_id6  )
                                    , ( SMALLINT( 8 )        , :id7  , :ol_quantity7
, :supply_w_id7  )
                                    , ( SMALLINT( 9 )        , :id8  , :ol_quantity8
, :supply_w_id8  )
                                    , ( SMALLINT( 10 )        , :id9  ,
:ol_quantity9  , :supply_w_id9   )
                                    , ( SMALLINT( 11 )        , :id10 ,
:ol_quantity10 , :supply_w_id10  )
                                    , ( SMALLINT( 12 )        , :id11 ,
:ol_quantity11 , :supply_w_id11  )
                                    ) AS X ( OL_NUMBER , I_ID  , I_QTY
, I_SUPPLY_W_ID  )
                            ) AS ITEMLIST
                          , TABLE( NEW_OL_ALL(   I_ID
                                    , I_QTY
                                    , W_ID
```

```
                                    , I_SUPPLY_W_ID
                                    , O_ID
                                    , D_ID
                                    )
                            ) AS NEW_OL_ALL
                        WHERE NEW_OL_ALL.I_PRICE IS NOT NULL
                )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                ( OL_O_ID
                  , OL_D_ID
                  , OL_W_ID
                  , OL_NUMBER
                  , OL_I_ID
                  , OL_SUPPLY_W_ID
                  , OL_DELIVERY_D
                  , OL_QUANTITY
                  , OL_AMOUNT
                  , OL_DIST_INFO
                )
                INCLUDE ( I_PRICE    INTEGER
                        , I_NAME     CHAR(24)
                        , I_DATA     VARCHAR(50)
                        , S_DATA     VARCHAR(50)
                        , S_QUANTITY SMALLINT )
                      SELECT  O_ID
                          , D_ID
                          , W_ID
                          , OL_NUMBER
                          , I_ID
                          , I_SUPPLY_W_ID
                          , OL_DELIVERY_D
                          , I_QTY
                          , TOTAL_PRICE
                          , OL_DIST_INFO
                          , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                      FROM DATA
                ) AS INS
  ;
  EXEC SQL DECLARE ISOL_Remote_13 CURSOR FOR
    WITH DATA AS ( SELECT  O_ID
              , D_ID
              , W_ID
              , OL_NUMBER
              , I_ID
              , I_SUPPLY_W_ID
              , 0 AS OL_DELIVERY_D
              , I_QTY
              , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
              , OL_DIST_INFO
              , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY
                      FROM ( SELECT  :next_o_id as O_ID
                                  , :w_id AS W_ID
                                  , :d_id as D_ID
                                  , OL_NUMBER
                                  , I_ID
                                  , I_SUPPLY_W_ID
                                  , I_QTY
                              FROM  Table( VALUES
                                      ( SMALLINT( 1 )       , :id0  , :ol_quantity0
, :supply_w_id0  )
                                      , ( SMALLINT( 2 )       , :id1  , :ol_quantity1
, :supply_w_id1  )
                                      , ( SMALLINT( 3 )       , :id2  , :ol_quantity2
, :supply_w_id2  )
                                      , ( SMALLINT( 4 )       , :id3  , :ol_quantity3
, :supply_w_id3  )
                                      , ( SMALLINT( 5 )       , :id4  , :ol_quantity4
, :supply_w_id4  )
                                      , ( SMALLINT( 6 )       , :id5  , :ol_quantity5
, :supply_w_id5  )
                                      , ( SMALLINT( 7 )       , :id6  , :ol_quantity6
, :supply_w_id6  )
                                      , ( SMALLINT( 8 )       , :id7  , :ol_quantity7
, :supply_w_id7  )
                                      , ( SMALLINT( 9 )       , :id8  , :ol_quantity8
, :supply_w_id8  )
                                      , ( SMALLINT( 10 )       , :id9  ,
:ol_quantity9  , :supply_w_id9  )
                                      , ( SMALLINT( 11 )       , :id10 ,
:ol_quantity10 , :supply_w_id10  )
                                      , ( SMALLINT( 12 )       , :id11 ,
:ol_quantity11 , :supply_w_id11  )
                                      , ( SMALLINT( 13 )       , :id12 ,
:ol_quantity12 , :supply_w_id12  )
                                      ) AS X ( OL_NUMBER , I_ID  , I_QTY
, I_SUPPLY_W_ID  )
                            ) AS ITEMLIST
                          , TABLE( NEW_OL_ALL(  I_ID
                                    , I_QTY
                                    , W_ID
                                    , I_SUPPLY_W_ID
                                    , O_ID
                                    , D_ID
                                    )
                            ) AS NEW_OL_ALL
                        WHERE NEW_OL_ALL.I_PRICE IS NOT NULL
                )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                ( OL_O_ID
                  , OL_D_ID
                  , OL_W_ID
                  , OL_NUMBER
                  , OL_I_ID
                  , OL_SUPPLY_W_ID
                  , OL_DELIVERY_D
                  , OL_QUANTITY
                  , OL_AMOUNT
                  , OL_DIST_INFO
                )
                INCLUDE ( I_PRICE    INTEGER
                        , I_NAME     CHAR(24)
                        , I_DATA     VARCHAR(50)
                        , S_DATA     VARCHAR(50)
                        , S_QUANTITY SMALLINT )
                      SELECT  O_ID
                          , D_ID
                          , W_ID
                          , OL_NUMBER
                          , I_ID
                          , I_SUPPLY_W_ID
                          , OL_DELIVERY_D
                          , I_QTY
                          , TOTAL_PRICE
                          , OL_DIST_INFO
                          , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                      FROM DATA
                ) AS INS
  ;
```

```
EXEC SQL DECLARE ISOL_Remote_14 CURSOR FOR
  WITH DATA AS (  SELECT  O_ID
            , D_ID
            , W_ID
            , OL_NUMBER
            , I_ID
            , I_SUPPLY_W_ID
            , 0 AS OL_DELIVERY_D
            , I_QTY
            , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
            , OL_DIST_INFO
            , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY
                    FROM ( SELECT   :next_o_id as O_ID
                                , :w_id AS W_ID
                                , :d_id as D_ID
                                , OL_NUMBER
                                , I_ID
                                , I_SUPPLY_W_ID
                                , I_QTY
                            FROM  Table( VALUES
                                    ( SMALLINT( 1 )        , :id0  , :ol_quantity0
, :supply_w_id0  )
                                    , ( SMALLINT( 2 )        , :id1  , :ol_quantity1
, :supply_w_id1  )
                                    , ( SMALLINT( 3 )        , :id2  , :ol_quantity2
, :supply_w_id2  )
                                    , ( SMALLINT( 4 )        , :id3  , :ol_quantity3
, :supply_w_id3  )
                                    , ( SMALLINT( 5 )        , :id4  , :ol_quantity4
, :supply_w_id4  )
                                    , ( SMALLINT( 6 )        , :id5  , :ol_quantity5
, :supply_w_id5  )
                                    , ( SMALLINT( 7 )        , :id6  , :ol_quantity6
, :supply_w_id6  )
                                    , ( SMALLINT( 8 )        , :id7  , :ol_quantity7
, :supply_w_id7  )
                                    , ( SMALLINT( 9 )        , :id8  , :ol_quantity8
, :supply_w_id8  )
                                    , ( SMALLINT( 10 )        , :id9  ,
:ol_quantity9  , :supply_w_id9   )
                                    , ( SMALLINT( 11 )        , :id10 ,
:ol_quantity10 , :supply_w_id10  )
                                    , ( SMALLINT( 12 )        , :id11 ,
:ol_quantity11 , :supply_w_id11  )
                                    , ( SMALLINT( 13 )        , :id12 ,
:ol_quantity12 , :supply_w_id12  )
                                    , ( SMALLINT( 14 )        , :id13 ,
:ol_quantity13 , :supply_w_id13  )
                                    ) AS X ( OL_NUMBER , I_ID  , I_QTY
, I_SUPPLY_W_ID  )
                          ) AS ITEMLIST
                        , TABLE( NEW_OL_ALL(   I_ID
                                    , I_QTY
                                    , W_ID
                                    , I_SUPPLY_W_ID
                                    , O_ID
                                    , D_ID
                                    )
                            ) AS NEW_OL_ALL
                      WHERE NEW_OL_ALL.I_PRICE IS NOT NULL
          )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                (   OL_O_ID
                  , OL_D_ID
                  , OL_W_ID
                  , OL_NUMBER
                  , OL_I_ID
                  , OL_SUPPLY_W_ID
                  , OL_DELIVERY_D
                  , OL_QUANTITY
                  , OL_AMOUNT
                  , OL_DIST_INFO
                )
                INCLUDE (   I_PRICE    INTEGER
                          , I_NAME     CHAR(24)
                          , I_DATA     VARCHAR(50)
                          , S_DATA     VARCHAR(50)
                          , S_QUANTITY SMALLINT )
                        SELECT   O_ID
                          , D_ID
                          , W_ID
                          , OL_NUMBER
                          , I_ID
                          , I_SUPPLY_W_ID
                          , OL_DELIVERY_D
                          , I_QTY
                          , TOTAL_PRICE
                          , OL_DIST_INFO
                          , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                        FROM DATA
              ) AS INS
  ;
  EXEC SQL DECLARE ISOL_Remote_15 CURSOR FOR
    WITH DATA AS (  SELECT  O_ID
            , D_ID
            , W_ID
            , OL_NUMBER
            , I_ID
            , I_SUPPLY_W_ID
            , 0 AS OL_DELIVERY_D
            , I_QTY
            , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
            , OL_DIST_INFO
            , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY
                    FROM ( SELECT   :next_o_id as O_ID
                                , :w_id AS W_ID
                                , :d_id as D_ID
                                , OL_NUMBER
                                , I_ID
                                , I_SUPPLY_W_ID
                                , I_QTY
                            FROM  Table( VALUES
                                    ( SMALLINT( 1 )        , :id0  , :ol_quantity0
, :supply_w_id0  )
                                    , ( SMALLINT( 2 )        , :id1  , :ol_quantity1
, :supply_w_id1  )
                                    , ( SMALLINT( 3 )        , :id2  , :ol_quantity2
, :supply_w_id2  )
                                    , ( SMALLINT( 4 )        , :id3  , :ol_quantity3
, :supply_w_id3  )
                                    , ( SMALLINT( 5 )        , :id4  , :ol_quantity4
, :supply_w_id4  )
                                    , ( SMALLINT( 6 )        , :id5  , :ol_quantity5
, :supply_w_id5  )
                                    , ( SMALLINT( 7 )        , :id6  , :ol_quantity6
, :supply_w_id6  )
                                    , ( SMALLINT( 8 )        , :id7  , :ol_quantity7
, :supply_w_id7  )
                                    , ( SMALLINT( 9 )        , :id8  , :ol_quantity8
, :supply_w_id8  )
                                    , ( SMALLINT( 10 )        , :id9  ,
:ol_quantity9  , :supply_w_id9   )
```

```
                                , ( SMALLINT( 11 )       , :id10 ,
:ol_quantity10 , :supply_w_id10  )
                                , ( SMALLINT( 12 )       , :id11 ,
:ol_quantity11 , :supply_w_id11  )
                                , ( SMALLINT( 13 )       , :id12 ,
:ol_quantity12 , :supply_w_id12  )
                                , ( SMALLINT( 14 )       , :id13 ,
:ol_quantity13 , :supply_w_id13  )
                                , ( SMALLINT( 15 )       , :id14 ,
:ol_quantity14 , :supply_w_id14  )
                                ) AS X ( OL_NUMBER , I_ID  , I_QTY
, I_SUPPLY_W_ID  )
                            ) AS ITEMLIST
                          , TABLE( NEW_OL_ALL(   I_ID
                                  , I_QTY
                                  , W_ID
                                  , I_SUPPLY_W_ID
                                  , O_ID
                                  , D_ID
                                  )
                            ) AS NEW_OL_ALL
                        WHERE NEW_OL_ALL.I_PRICE IS NOT NULL
            )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                (   OL_O_ID
                  , OL_D_ID
                  , OL_W_ID
                  , OL_NUMBER
                  , OL_I_ID
                  , OL_SUPPLY_W_ID
                  , OL_DELIVERY_D
                  , OL_QUANTITY
                  , OL_AMOUNT
                  , OL_DIST_INFO
                )
                INCLUDE (   I_PRICE    INTEGER
                          , I_NAME     CHAR(24)
                          , I_DATA     VARCHAR(50)
                          , S_DATA     VARCHAR(50)
                          , S_QUANTITY SMALLINT )
                        SELECT   O_ID
                              , D_ID
                              , W_ID
                              , OL_NUMBER
                              , I_ID
                              , I_SUPPLY_W_ID
                              , OL_DELIVERY_D
                              , I_QTY
                              , TOTAL_PRICE
                              , OL_DIST_INFO
                              , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                        FROM DATA
                ) AS INS
  ;
  EXEC SQL DECLARE ISOL_Local_1 CURSOR FOR

    WITH DATA AS (  SELECT  O_ID
                  , D_ID
                  , W_ID
                  , OL_NUMBER
                  , I_ID
                  , W_ID AS I_SUPPLY_W_ID
                  , 0 AS OL_DELIVERY_D
                  , I_QTY
                  , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
                  , OL_DIST_INFO
                  , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY
                        FROM ( SELECT   :next_o_id as O_ID
                                      , :w_id AS W_ID

                                      , :d_id as D_ID
                                      , OL_NUMBER
                                      , I_ID
                                      , I_QTY
                                FROM  Table( VALUES
                                        ( SMALLINT( 1 )  , :id0  , :ol_quantity0  )
                                      ) AS X ( OL_NUMBER , I_ID  , I_QTY
)
                            ) AS ITEMLIST
                          , TABLE( NEW_OL_LOCAL(   I_ID
                                  , I_QTY
                                  , W_ID
                                  , O_ID
                                  , D_ID
                                  )
                            ) AS NEW_OL_LOCAL
                        WHERE NEW_OL_LOCAL.I_PRICE IS NOT NULL
            )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                (   OL_O_ID
                  , OL_D_ID
                  , OL_W_ID
                  , OL_NUMBER
                  , OL_I_ID
                  , OL_SUPPLY_W_ID
                  , OL_DELIVERY_D
                  , OL_QUANTITY
                  , OL_AMOUNT
                  , OL_DIST_INFO
                )
                INCLUDE (   I_PRICE    INTEGER
                          , I_NAME     CHAR(24)
                          , I_DATA     VARCHAR(50)
                          , S_DATA     VARCHAR(50)
                          , S_QUANTITY SMALLINT )
                        SELECT   O_ID
                              , D_ID
                              , W_ID
                              , OL_NUMBER
                              , I_ID
                              , I_SUPPLY_W_ID
                              , OL_DELIVERY_D
                              , I_QTY
                              , TOTAL_PRICE
                              , OL_DIST_INFO
                              , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                        FROM DATA
                ) AS INS
  ;
  EXEC SQL DECLARE ISOL_Local_2 CURSOR FOR

    WITH DATA AS (  SELECT  O_ID
                  , D_ID

                  , W_ID
                  , OL_NUMBER
                  , I_ID
                  , W_ID AS I_SUPPLY_W_ID
```

```
            , 0 AS OL_DELIVERY_D
            , I_QTY
            , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
            , OL_DIST_INFO
            , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY
                    FROM ( SELECT   :next_o_id as O_ID
                                  , :w_id AS W_ID
                                  , :d_id as D_ID
                                  , OL_NUMBER
                                  , I_ID
                                  , I_QTY
                              FROM  Table( VALUES
                                     ( SMALLINT( 1 )  , :id0  , :ol_quantity0  )
                                    , ( SMALLINT( 2 )  , :id1  , :ol_quantity1  )
                                    ) AS X ( OL_NUMBER , I_ID  , I_QTY
)
                          ) AS ITEMLIST
                        , TABLE( NEW_OL_LOCAL(   I_ID
                                               , I_QTY
                                               , W_ID
                                               , O_ID
                                               , D_ID
                                               )
                              ) AS NEW_OL_LOCAL
                      WHERE NEW_OL_LOCAL.I_PRICE IS NOT NULL
            )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                 (   OL_O_ID
                   , OL_D_ID
                   , OL_W_ID
                   , OL_NUMBER
                   , OL_I_ID
                   , OL_SUPPLY_W_ID
                   , OL_DELIVERY_D
                   , OL_QUANTITY
                   , OL_AMOUNT
                   , OL_DIST_INFO
                 )
                 INCLUDE (   I_PRICE    INTEGER
                         , I_NAME     CHAR(24)
                         , I_DATA     VARCHAR(50)
                         , S_DATA     VARCHAR(50)
                         , S_QUANTITY SMALLINT )
                       SELECT   O_ID
                            , D_ID
                            , W_ID
                            , OL_NUMBER
                            , I_ID
                            , I_SUPPLY_W_ID
                            , OL_DELIVERY_D
                            , I_QTY
                            , TOTAL_PRICE
                            , OL_DIST_INFO
                            , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                       FROM DATA
               ) AS INS
  ;
  EXEC SQL DECLARE ISOL_Local_3 CURSOR FOR

    WITH DATA AS (  SELECT  O_ID
            , D_ID
            , W_ID
            , OL_NUMBER
            , I_ID
            , W_ID AS I_SUPPLY_W_ID
            , 0 AS OL_DELIVERY_D
            , I_QTY
            , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
            , OL_DIST_INFO
            , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY

                    FROM ( SELECT   :next_o_id as O_ID
                                  , :w_id AS W_ID
                                  , :d_id as D_ID
                                  , OL_NUMBER
                                  , I_ID
                                  , I_QTY
                              FROM  Table( VALUES
                                     ( SMALLINT( 1 )  , :id0  , :ol_quantity0  )
                                    , ( SMALLINT( 2 )  , :id1  , :ol_quantity1  )
                                    , ( SMALLINT( 3 )  , :id2  , :ol_quantity2  )
                                    ) AS X ( OL_NUMBER , I_ID  , I_QTY
)
                          ) AS ITEMLIST
                        , TABLE( NEW_OL_LOCAL(   I_ID
                                               , I_QTY
                                               , W_ID
                                               , O_ID
                                               , D_ID
                                               )
                              ) AS NEW_OL_LOCAL
                      WHERE NEW_OL_LOCAL.I_PRICE IS NOT NULL
            )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                 (   OL_O_ID
                   , OL_D_ID
                   , OL_W_ID
                   , OL_NUMBER
                   , OL_I_ID
                   , OL_SUPPLY_W_ID
                   , OL_DELIVERY_D
                   , OL_QUANTITY
                   , OL_AMOUNT
                   , OL_DIST_INFO
                 )
                 INCLUDE (   I_PRICE    INTEGER
                         , I_NAME     CHAR(24)
                         , I_DATA     VARCHAR(50)
                         , S_DATA     VARCHAR(50)
                         , S_QUANTITY SMALLINT )
                       SELECT   O_ID
                            , D_ID
                            , W_ID
                            , OL_NUMBER
                            , I_ID
                            , I_SUPPLY_W_ID
                            , OL_DELIVERY_D
                            , I_QTY
                            , TOTAL_PRICE
                            , OL_DIST_INFO
                            , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                       FROM DATA
               ) AS INS
  ;
  EXEC SQL DECLARE ISOL_Local_4 CURSOR FOR

    WITH DATA AS (  SELECT  O_ID
            , D_ID
```

```
            , W_ID
            , OL_NUMBER
            , I_ID
            , W_ID AS I_SUPPLY_W_ID
            , 0 AS OL_DELIVERY_D
            , I_QTY
            , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
            , OL_DIST_INFO
            , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY

                    FROM ( SELECT   :next_o_id as O_ID
                                , :w_id AS W_ID
                                , :d_id as D_ID
                                , OL_NUMBER
                                , I_ID
                                , I_QTY
                            FROM  Table( VALUES
                                    ( SMALLINT( 1 ) , :id0  , :ol_quantity0  )
                                    , ( SMALLINT( 2 ) , :id1  , :ol_quantity1  )
                                    , ( SMALLINT( 3 ) , :id2  , :ol_quantity2  )
                                    , ( SMALLINT( 4 ) , :id3  , :ol_quantity3  )
                                    ) AS X ( OL_NUMBER , I_ID  , I_QTY
)
                        ) AS ITEMLIST
                      , TABLE( NEW_OL_LOCAL(   I_ID
                                    , I_QTY
                                    , W_ID
                                    , O_ID
                                    , D_ID
                                    )
                            ) AS NEW_OL_LOCAL
                        WHERE NEW_OL_LOCAL.I_PRICE IS NOT NULL
            )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                (   OL_O_ID
                  , OL_D_ID
                  , OL_W_ID
                  , OL_NUMBER
                  , OL_I_ID
                  , OL_SUPPLY_W_ID
                  , OL_DELIVERY_D
                  , OL_QUANTITY
                  , OL_AMOUNT
                  , OL_DIST_INFO
                )
                INCLUDE (   I_PRICE    INTEGER
                        , I_NAME     CHAR(24)
                        , I_DATA     VARCHAR(50)
                        , S_DATA     VARCHAR(50)
                        , S_QUANTITY SMALLINT )
                      SELECT   O_ID
                          , D_ID
                          , W_ID
                          , OL_NUMBER
                          , I_ID
                          , I_SUPPLY_W_ID
                          , OL_DELIVERY_D
                          , I_QTY
                          , TOTAL_PRICE
                          , OL_DIST_INFO
                          , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                      FROM DATA
              ) AS INS
  ;
```

```
  EXEC SQL DECLARE ISOL_Local_5 CURSOR FOR

    WITH DATA AS (  SELECT  O_ID
            , D_ID
            , W_ID
            , OL_NUMBER
            , I_ID
            , W_ID AS I_SUPPLY_W_ID

            , 0 AS OL_DELIVERY_D
            , I_QTY
            , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
            , OL_DIST_INFO
            , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY

                    FROM ( SELECT   :next_o_id as O_ID
                                , :w_id AS W_ID
                                , :d_id as D_ID
                                , OL_NUMBER
                                , I_ID
                                , I_QTY
                            FROM  Table( VALUES
                                    ( SMALLINT( 1 ) , :id0  , :ol_quantity0  )
                                    , ( SMALLINT( 2 ) , :id1  , :ol_quantity1  )
                                    , ( SMALLINT( 3 ) , :id2  , :ol_quantity2  )
                                    , ( SMALLINT( 4 ) , :id3  , :ol_quantity3  )
                                    , ( SMALLINT( 5 ) , :id4  , :ol_quantity4  )
                                    ) AS X ( OL_NUMBER , I_ID  , I_QTY
)
                        ) AS ITEMLIST
                      , TABLE( NEW_OL_LOCAL(   I_ID
                                    , I_QTY
                                    , W_ID
                                    , O_ID
                                    , D_ID
                                    )
                            ) AS NEW_OL_LOCAL
                        WHERE NEW_OL_LOCAL.I_PRICE IS NOT NULL
            )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                (   OL_O_ID
                  , OL_D_ID
                  , OL_W_ID
                  , OL_NUMBER
                  , OL_I_ID
                  , OL_SUPPLY_W_ID
                  , OL_DELIVERY_D
                  , OL_QUANTITY
                  , OL_AMOUNT
                  , OL_DIST_INFO
                )
                INCLUDE (   I_PRICE    INTEGER
                        , I_NAME     CHAR(24)
                        , I_DATA     VARCHAR(50)
                        , S_DATA     VARCHAR(50)
                        , S_QUANTITY SMALLINT )
                      SELECT   O_ID
                          , D_ID
                          , W_ID
                          , OL_NUMBER
                          , I_ID
                          , I_SUPPLY_W_ID
                          , OL_DELIVERY_D
                          , I_QTY
                          , TOTAL_PRICE
```

```
                        , OL_DIST_INFO
                        , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                    FROM DATA
                ) AS INS
  ;
  EXEC SQL DECLARE ISOL_Local_6 CURSOR FOR

    WITH DATA AS (  SELECT  O_ID
              , D_ID
              , W_ID
              , OL_NUMBER
              , I_ID
              , W_ID AS I_SUPPLY_W_ID
              , 0 AS OL_DELIVERY_D
              , I_QTY
              , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
              , OL_DIST_INFO
              , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY

                    FROM ( SELECT   :next_o_id as O_ID
                            , :w_id AS W_ID
                            , :d_id as D_ID
                            , OL_NUMBER
                            , I_ID
                            , I_QTY
                        FROM  Table( VALUES
                                ( SMALLINT( 1 )  , :id0  , :ol_quantity0  )
                               , ( SMALLINT( 2 )  , :id1  , :ol_quantity1  )
                               , ( SMALLINT( 3 )  , :id2  , :ol_quantity2  )
                               , ( SMALLINT( 4 )  , :id3  , :ol_quantity3  )
                               , ( SMALLINT( 5 )  , :id4  , :ol_quantity4  )
                               , ( SMALLINT( 6 )  , :id5  , :ol_quantity5  )
                               ) AS X ( OL_NUMBER , I_ID  , I_QTY
)
                    ) AS ITEMLIST
                  , TABLE( NEW_OL_LOCAL(   I_ID
                                  , I_QTY
                                  , W_ID
                                  , O_ID
                                  , D_ID
                                  )
                        ) AS NEW_OL_LOCAL
                    WHERE NEW_OL_LOCAL.I_PRICE IS NOT NULL
            )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                (   OL_O_ID
                  , OL_D_ID
                  , OL_W_ID
                  , OL_NUMBER
                  , OL_I_ID
                  , OL_SUPPLY_W_ID
                  , OL_DELIVERY_D
                  , OL_QUANTITY
                  , OL_AMOUNT
                  , OL_DIST_INFO
                )
                INCLUDE (   I_PRICE    INTEGER
                        , I_NAME     CHAR(24)
                        , I_DATA     VARCHAR(50)
                        , S_DATA     VARCHAR(50)
                        , S_QUANTITY SMALLINT )
                      SELECT   O_ID
                        , D_ID
                        , W_ID
                        , OL_NUMBER
                        , I_ID
                        , I_SUPPLY_W_ID
                        , OL_DELIVERY_D
                        , I_QTY
                        , TOTAL_PRICE
                        , OL_DIST_INFO
                        , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                    FROM DATA
                ) AS INS
  ;
  EXEC SQL DECLARE ISOL_Local_7 CURSOR FOR

    WITH DATA AS (  SELECT  O_ID
              , D_ID
              , W_ID
              , OL_NUMBER
              , I_ID
              , W_ID AS I_SUPPLY_W_ID
              , 0 AS OL_DELIVERY_D
              , I_QTY
              , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
              , OL_DIST_INFO
              , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY

                    FROM ( SELECT   :next_o_id as O_ID
                            , :w_id AS W_ID
                            , :d_id as D_ID
                            , OL_NUMBER
                            , I_ID
                            , I_QTY
                        FROM  Table( VALUES
                                ( SMALLINT( 1 )  , :id0  , :ol_quantity0  )
                               , ( SMALLINT( 2 )  , :id1  , :ol_quantity1  )
                               , ( SMALLINT( 3 )  , :id2  , :ol_quantity2  )
                               , ( SMALLINT( 4 )  , :id3  , :ol_quantity3  )
                               , ( SMALLINT( 5 )  , :id4  , :ol_quantity4  )
                               , ( SMALLINT( 6 )  , :id5  , :ol_quantity5  )
                               , ( SMALLINT( 7 )  , :id6  , :ol_quantity6  )
                               ) AS X ( OL_NUMBER , I_ID  , I_QTY
)
                    ) AS ITEMLIST
                  , TABLE( NEW_OL_LOCAL(   I_ID
                                  , I_QTY
                                  , W_ID
                                  , O_ID
                                  , D_ID
                                  )
                        ) AS NEW_OL_LOCAL
                    WHERE NEW_OL_LOCAL.I_PRICE IS NOT NULL
            )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                (   OL_O_ID
                  , OL_D_ID
                  , OL_W_ID
                  , OL_NUMBER
                  , OL_I_ID
                  , OL_SUPPLY_W_ID
                  , OL_DELIVERY_D
                  , OL_QUANTITY
                  , OL_AMOUNT
                  , OL_DIST_INFO
                )
                INCLUDE (   I_PRICE    INTEGER
```

```
                    , I_NAME     CHAR(24)
                    , I_DATA     VARCHAR(50)
                    , S_DATA     VARCHAR(50)
                    , S_QUANTITY SMALLINT )
                  SELECT   O_ID
                       , D_ID
                       , W_ID
                       , OL_NUMBER
                       , I_ID
                       , I_SUPPLY_W_ID
                       , OL_DELIVERY_D
                       , I_QTY
                       , TOTAL_PRICE
                       , OL_DIST_INFO
                       , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                  FROM DATA
              ) AS INS
  ;
  EXEC SQL DECLARE ISOL_Local_8 CURSOR FOR

    WITH DATA AS (  SELECT  O_ID
              , D_ID
              , W_ID
              , OL_NUMBER
              , I_ID
              , W_ID AS I_SUPPLY_W_ID
              , 0 AS OL_DELIVERY_D
              , I_QTY
              , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
              , OL_DIST_INFO
              , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY

                    FROM ( SELECT   :next_o_id as O_ID
                             , :w_id AS W_ID
                             , :d_id as D_ID
                             , OL_NUMBER
                             , I_ID
                             , I_QTY
                          FROM  Table( VALUES
                                  (  SMALLINT( 1 )  , :id0  , :ol_quantity0  )
                                 , (  SMALLINT( 2 )  , :id1  , :ol_quantity1  )
                                 , (  SMALLINT( 3 )  , :id2  , :ol_quantity2  )
                                 , (  SMALLINT( 4 )  , :id3  , :ol_quantity3  )
                                 , (  SMALLINT( 5 )  , :id4  , :ol_quantity4  )
                                 , (  SMALLINT( 6 )  , :id5  , :ol_quantity5  )
                                 , (  SMALLINT( 7 )  , :id6  , :ol_quantity6  )
                                 , (  SMALLINT( 8 )  , :id7  , :ol_quantity7  )
                                 ) AS X ( OL_NUMBER , I_ID  , I_QTY
)
                        ) AS ITEMLIST
                      , TABLE( NEW_OL_LOCAL(   I_ID
                                  , I_QTY
                                  , W_ID
                                  , O_ID
                                  , D_ID
                                  )
                          ) AS NEW_OL_LOCAL
                    WHERE NEW_OL_LOCAL.I_PRICE IS NOT NULL
            )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
              (   OL_O_ID
              , OL_D_ID
              , OL_W_ID
              , OL_NUMBER
              , OL_I_ID
              , OL_SUPPLY_W_ID
              , OL_DELIVERY_D
              , OL_QUANTITY
              , OL_AMOUNT
              , OL_DIST_INFO
              )
              INCLUDE (   I_PRICE    INTEGER
                     , I_NAME     CHAR(24)
                     , I_DATA     VARCHAR(50)
                     , S_DATA     VARCHAR(50)
                     , S_QUANTITY SMALLINT )
                   SELECT   O_ID
                       , D_ID
                       , W_ID
                       , OL_NUMBER
                       , I_ID
                       , I_SUPPLY_W_ID
                       , OL_DELIVERY_D
                       , I_QTY
                       , TOTAL_PRICE

                       , OL_DIST_INFO
                       , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                   FROM DATA
              ) AS INS
  ;
  EXEC SQL DECLARE ISOL_Local_9 CURSOR FOR

    WITH DATA AS (  SELECT  O_ID
              , D_ID
              , W_ID
              , OL_NUMBER
              , I_ID
              , W_ID AS I_SUPPLY_W_ID
              , 0 AS OL_DELIVERY_D
              , I_QTY
              , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
              , OL_DIST_INFO
              , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY

                    FROM ( SELECT   :next_o_id as O_ID
                             , :w_id AS W_ID
                             , :d_id as D_ID
                             , OL_NUMBER
                             , I_ID
                             , I_QTY
                          FROM  Table( VALUES
                                  (  SMALLINT( 1 )  , :id0  , :ol_quantity0  )
                                 , (  SMALLINT( 2 )  , :id1  , :ol_quantity1  )
                                 , (  SMALLINT( 3 )  , :id2  , :ol_quantity2  )
                                 , (  SMALLINT( 4 )  , :id3  , :ol_quantity3  )
                                 , (  SMALLINT( 5 )  , :id4  , :ol_quantity4  )
                                 , (  SMALLINT( 6 )  , :id5  , :ol_quantity5  )
                                 , (  SMALLINT( 7 )  , :id6  , :ol_quantity6  )
                                 , (  SMALLINT( 8 )  , :id7  , :ol_quantity7  )
                                 , (  SMALLINT( 9 )  , :id8  , :ol_quantity8  )
                                 ) AS X ( OL_NUMBER , I_ID  , I_QTY
)
                        ) AS ITEMLIST
                      , TABLE( NEW_OL_LOCAL(   I_ID
                                  , I_QTY
                                  , W_ID
                                  , O_ID
                                  , D_ID
                                  )
                          ) AS NEW_OL_LOCAL
```

```
                    WHERE NEW_OL_LOCAL.I_PRICE IS NOT NULL
            )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                (   OL_O_ID
                  , OL_D_ID
                  , OL_W_ID
                  , OL_NUMBER
                  , OL_I_ID
                  , OL_SUPPLY_W_ID
                  , OL_DELIVERY_D
                  , OL_QUANTITY
                  , OL_AMOUNT
                  , OL_DIST_INFO
                )
                INCLUDE (   I_PRICE    INTEGER
                        , I_NAME     CHAR(24)
                        , I_DATA     VARCHAR(50)
                        , S_DATA     VARCHAR(50)
                        , S_QUANTITY SMALLINT )
                      SELECT   O_ID
                           , D_ID
                           , W_ID
                           , OL_NUMBER
                           , I_ID
                           , I_SUPPLY_W_ID
                           , OL_DELIVERY_D
                           , I_QTY
                           , TOTAL_PRICE
                           , OL_DIST_INFO
                           , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                      FROM DATA
                ) AS INS
  ;
  EXEC SQL DECLARE ISOL_Local_10 CURSOR FOR

    WITH DATA AS (  SELECT  O_ID
              , D_ID
              , W_ID
              , OL_NUMBER
              , I_ID
              , W_ID AS I_SUPPLY_W_ID
              , 0 AS OL_DELIVERY_D
              , I_QTY
              , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
              , OL_DIST_INFO
              , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY

                      FROM ( SELECT   :next_o_id as O_ID
                                , :w_id AS W_ID
                                , :d_id as D_ID
                                , OL_NUMBER
                                , I_ID
                                , I_QTY
                            FROM  Table( VALUES
                                    ( SMALLINT( 1 )  , :id0  , :ol_quantity0  )
                                  , ( SMALLINT( 2 )  , :id1  , :ol_quantity1  )
                                  , ( SMALLINT( 3 )  , :id2  , :ol_quantity2  )
                                  , ( SMALLINT( 4 )  , :id3  , :ol_quantity3  )
                                  , ( SMALLINT( 5 )  , :id4  , :ol_quantity4  )
                                  , ( SMALLINT( 6 )  , :id5  , :ol_quantity5  )
                                  , ( SMALLINT( 7 )  , :id6  , :ol_quantity6  )
                                  , ( SMALLINT( 8 )  , :id7  , :ol_quantity7  )
                                  , ( SMALLINT( 9 )  , :id8  , :ol_quantity8  )
                                  , ( SMALLINT( 10 ) , :id9  , :ol_quantity9  )
                                  ) AS X ( OL_NUMBER , I_ID  , I_QTY
)
                            ) AS ITEMLIST
                          , TABLE( NEW_OL_LOCAL(   I_ID
                                                 , I_QTY
                                                 , W_ID
                                                 , O_ID
                                                 , D_ID
                                                 )
                            ) AS NEW_OL_LOCAL
                        WHERE NEW_OL_LOCAL.I_PRICE IS NOT NULL
            )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                (   OL_O_ID
                  , OL_D_ID
                  , OL_W_ID
                  , OL_NUMBER
                  , OL_I_ID
                  , OL_SUPPLY_W_ID
                  , OL_DELIVERY_D
                  , OL_QUANTITY
                  , OL_AMOUNT
                  , OL_DIST_INFO
                )
                INCLUDE (   I_PRICE    INTEGER
                        , I_NAME     CHAR(24)
                        , I_DATA     VARCHAR(50)
                        , S_DATA     VARCHAR(50)
                        , S_QUANTITY SMALLINT )
                      SELECT   O_ID
                           , D_ID
                           , W_ID
                           , OL_NUMBER
                           , I_ID
                           , I_SUPPLY_W_ID
                           , OL_DELIVERY_D
                           , I_QTY
                           , TOTAL_PRICE
                           , OL_DIST_INFO
                           , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                      FROM DATA
                ) AS INS
  ;
  EXEC SQL DECLARE ISOL_Local_11 CURSOR FOR

    WITH DATA AS (  SELECT  O_ID
              , D_ID
              , W_ID
              , OL_NUMBER
              , I_ID
              , W_ID AS I_SUPPLY_W_ID
              , 0 AS OL_DELIVERY_D
              , I_QTY
              , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
              , OL_DIST_INFO
              , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY
                      FROM ( SELECT   :next_o_id as O_ID
                                , :w_id AS W_ID
                                , :d_id as D_ID
                                , OL_NUMBER
                                , I_ID
                                , I_QTY
                            FROM  Table( VALUES
                                    ( SMALLINT( 1 )  , :id0  , :ol_quantity0  )
```

```
                                , ( SMALLINT( 2 )  , :id1  , :ol_quantity1  )
                                , ( SMALLINT( 3 )  , :id2  , :ol_quantity2  )
                                , ( SMALLINT( 4 )  , :id3  , :ol_quantity3  )
                                , ( SMALLINT( 5 )  , :id4  , :ol_quantity4  )
                                , ( SMALLINT( 6 )  , :id5  , :ol_quantity5  )
                                , ( SMALLINT( 7 )  , :id6  , :ol_quantity6  )
                                , ( SMALLINT( 8 )  , :id7  , :ol_quantity7  )
                                , ( SMALLINT( 9 )  , :id8  , :ol_quantity8  )
                                , ( SMALLINT( 10 ) , :id9  , :ol_quantity9  )
                                , ( SMALLINT( 11 ) , :id10 , :ol_quantity10 )
                                ) AS X ( OL_NUMBER , I_ID  , I_QTY
)
                            ) AS ITEMLIST
                          , TABLE( NEW_OL_LOCAL(   I_ID
                                  , I_QTY
                                  , W_ID
                                  , O_ID
                                  , D_ID
                                  )
                              ) AS NEW_OL_LOCAL
                        WHERE NEW_OL_LOCAL.I_PRICE IS NOT NULL
            )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                (   OL_O_ID
                  , OL_D_ID
                  , OL_W_ID
                  , OL_NUMBER
                  , OL_I_ID
                  , OL_SUPPLY_W_ID
                  , OL_DELIVERY_D
                  , OL_QUANTITY
                  , OL_AMOUNT
                  , OL_DIST_INFO
                )
                INCLUDE (   I_PRICE    INTEGER
                          , I_NAME     CHAR(24)
                          , I_DATA     VARCHAR(50)
                          , S_DATA     VARCHAR(50)
                          , S_QUANTITY SMALLINT )
                        SELECT   O_ID
                              , D_ID
                              , W_ID
                              , OL_NUMBER
                              , I_ID
                              , I_SUPPLY_W_ID
                              , OL_DELIVERY_D
                              , I_QTY
                              , TOTAL_PRICE
                              , OL_DIST_INFO
                              , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                        FROM DATA
                ) AS INS
  ;
  EXEC SQL DECLARE ISOL_Local_12 CURSOR FOR
    WITH DATA AS (  SELECT  O_ID
              , D_ID
              , W_ID
              , OL_NUMBER
              , I_ID
              , W_ID AS I_SUPPLY_W_ID
              , 0 AS OL_DELIVERY_D
              , I_QTY
              , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
              , OL_DIST_INFO
              , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY

                    FROM ( SELECT   :next_o_id as O_ID
                              , :w_id AS W_ID
                              , :d_id as D_ID
                              , OL_NUMBER
                              , I_ID
                              , I_QTY
                          FROM  Table( VALUES
                                  ( SMALLINT( 1 )  , :id0  , :ol_quantity0  )
                                  , ( SMALLINT( 2 )  , :id1  , :ol_quantity1  )
                                  , ( SMALLINT( 3 )  , :id2  , :ol_quantity2  )
                                  , ( SMALLINT( 4 )  , :id3  , :ol_quantity3  )
                                  , ( SMALLINT( 5 )  , :id4  , :ol_quantity4  )
                                  , ( SMALLINT( 6 )  , :id5  , :ol_quantity5  )
                                  , ( SMALLINT( 7 )  , :id6  , :ol_quantity6  )
                                  , ( SMALLINT( 8 )  , :id7  , :ol_quantity7  )
                                  , ( SMALLINT( 9 )  , :id8  , :ol_quantity8  )
                                  , ( SMALLINT( 10 ) , :id9  , :ol_quantity9  )
                                  , ( SMALLINT( 11 ) , :id10 , :ol_quantity10 )
                                  , ( SMALLINT( 12 ) , :id11 , :ol_quantity11 )
                                  ) AS X ( OL_NUMBER , I_ID  , I_QTY
)
                            ) AS ITEMLIST
                          , TABLE( NEW_OL_LOCAL(   I_ID
                                  , I_QTY
                                  , W_ID
                                  , O_ID
                                  , D_ID
                                  )
                              ) AS NEW_OL_LOCAL
                        WHERE NEW_OL_LOCAL.I_PRICE IS NOT NULL
            )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                (   OL_O_ID
                  , OL_D_ID
                  , OL_W_ID
                  , OL_NUMBER
                  , OL_I_ID
                  , OL_SUPPLY_W_ID
                  , OL_DELIVERY_D
                  , OL_QUANTITY
                  , OL_AMOUNT
                  , OL_DIST_INFO
                )
                INCLUDE (   I_PRICE    INTEGER
                          , I_NAME     CHAR(24)
                          , I_DATA     VARCHAR(50)
                          , S_DATA     VARCHAR(50)
                          , S_QUANTITY SMALLINT )
                        SELECT   O_ID
                              , D_ID
                              , W_ID

                              , OL_NUMBER
                              , I_ID
                              , I_SUPPLY_W_ID
                              , OL_DELIVERY_D
                              , I_QTY
                              , TOTAL_PRICE
                              , OL_DIST_INFO
                              , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                        FROM DATA
                ) AS INS
```

```
;
EXEC SQL DECLARE ISOL_Local_13 CURSOR FOR
  WITH DATA AS (  SELECT  O_ID
            , D_ID
            , W_ID
            , OL_NUMBER
            , I_ID
            , W_ID AS I_SUPPLY_W_ID
            , 0 AS OL_DELIVERY_D
            , I_QTY
            , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
            , OL_DIST_INFO
            , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY

                  FROM ( SELECT   :next_o_id as O_ID
                           , :w_id AS W_ID
                           , :d_id as D_ID
                           , OL_NUMBER
                           , I_ID
                           , I_QTY
                        FROM  Table( VALUES
                                 ( SMALLINT( 1 )  , :id0  , :ol_quantity0  )
                                , ( SMALLINT( 2 )  , :id1  , :ol_quantity1  )
                                , ( SMALLINT( 3 )  , :id2  , :ol_quantity2  )
                                , ( SMALLINT( 4 )  , :id3  , :ol_quantity3  )
                                , ( SMALLINT( 5 )  , :id4  , :ol_quantity4  )
                                , ( SMALLINT( 6 )  , :id5  , :ol_quantity5  )
                                , ( SMALLINT( 7 )  , :id6  , :ol_quantity6  )
                                , ( SMALLINT( 8 )  , :id7  , :ol_quantity7  )
                                , ( SMALLINT( 9 )  , :id8  , :ol_quantity8  )
                                , ( SMALLINT( 10 ) , :id9  , :ol_quantity9  )
                                , ( SMALLINT( 11 ) , :id10 , :ol_quantity10 )
                                , ( SMALLINT( 12 ) , :id11 , :ol_quantity11 )
                                , ( SMALLINT( 13 ) , :id12 , :ol_quantity12 )
                                ) AS X ( OL_NUMBER , I_ID  , I_QTY
)
                  ) AS ITEMLIST
                , TABLE( NEW_OL_LOCAL(   I_ID
                                , I_QTY
                                , W_ID
                                , O_ID
                                , D_ID
                                )
                  ) AS NEW_OL_LOCAL
                WHERE NEW_OL_LOCAL.I_PRICE IS NOT NULL
            )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
     FROM NEW TABLE ( INSERT INTO ORDER_LINE
              (   OL_O_ID
               , OL_D_ID
               , OL_W_ID
               , OL_NUMBER
               , OL_I_ID
               , OL_SUPPLY_W_ID
               , OL_DELIVERY_D
               , OL_QUANTITY
               , OL_AMOUNT
               , OL_DIST_INFO
              )
              INCLUDE (   I_PRICE    INTEGER
                     , I_NAME     CHAR(24)
                     , I_DATA     VARCHAR(50)
                     , S_DATA     VARCHAR(50)
                     , S_QUANTITY SMALLINT )
                   SELECT   O_ID
                        , D_ID
                        , W_ID
                        , OL_NUMBER
                        , I_ID
                        , I_SUPPLY_W_ID
                        , OL_DELIVERY_D
                        , I_QTY
                        , TOTAL_PRICE
                        , OL_DIST_INFO
                        , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                     FROM DATA
                ) AS INS
;
EXEC SQL DECLARE ISOL_Local_14 CURSOR FOR

  WITH DATA AS (  SELECT  O_ID
            , D_ID
            , W_ID
            , OL_NUMBER
            , I_ID
            , W_ID AS I_SUPPLY_W_ID
            , 0 AS OL_DELIVERY_D
            , I_QTY
            , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
            , OL_DIST_INFO
            , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY

                  FROM ( SELECT   :next_o_id as O_ID
                           , :w_id AS W_ID
                           , :d_id as D_ID
                           , OL_NUMBER
                           , I_ID
                           , I_QTY
                        FROM  Table( VALUES
                                 ( SMALLINT( 1 )  , :id0  , :ol_quantity0  )
                                , ( SMALLINT( 2 )  , :id1  , :ol_quantity1  )
                                , ( SMALLINT( 3 )  , :id2  , :ol_quantity2  )
                                , ( SMALLINT( 4 )  , :id3  , :ol_quantity3  )
                                , ( SMALLINT( 5 )  , :id4  , :ol_quantity4  )
                                , ( SMALLINT( 6 )  , :id5  , :ol_quantity5  )
                                , ( SMALLINT( 7 )  , :id6  , :ol_quantity6  )
                                , ( SMALLINT( 8 )  , :id7  , :ol_quantity7  )
                                , ( SMALLINT( 9 )  , :id8  , :ol_quantity8  )
                                , ( SMALLINT( 10 ) , :id9  , :ol_quantity9  )
                                , ( SMALLINT( 11 ) , :id10 , :ol_quantity10 )
                                , ( SMALLINT( 12 ) , :id11 , :ol_quantity11 )
                                , ( SMALLINT( 13 ) , :id12 , :ol_quantity12 )
                                , ( SMALLINT( 14 ) , :id13 , :ol_quantity13 )
                                ) AS X ( OL_NUMBER , I_ID  , I_QTY
)
                  ) AS ITEMLIST
                , TABLE( NEW_OL_LOCAL(   I_ID
                                , I_QTY
                                , W_ID
                                , O_ID
                                , D_ID
                                )
                  ) AS NEW_OL_LOCAL
                WHERE NEW_OL_LOCAL.I_PRICE IS NOT NULL
            )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
     FROM NEW TABLE ( INSERT INTO ORDER_LINE
              (   OL_O_ID
               , OL_D_ID
               , OL_W_ID
               , OL_NUMBER
```

```
                , OL_I_ID
                , OL_SUPPLY_W_ID
                , OL_DELIVERY_D
                , OL_QUANTITY
                , OL_AMOUNT
                , OL_DIST_INFO
               )
               INCLUDE (   I_PRICE    INTEGER
                        , I_NAME     CHAR(24)
                        , I_DATA     VARCHAR(50)
                        , S_DATA     VARCHAR(50)
                        , S_QUANTITY SMALLINT )
                      SELECT   O_ID
                           , D_ID
                           , W_ID
                           , OL_NUMBER
                           , I_ID
                           , I_SUPPLY_W_ID
                           , OL_DELIVERY_D
                           , I_QTY
                           , TOTAL_PRICE
                           , OL_DIST_INFO
                           , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                      FROM DATA
               ) AS INS
  ;
  EXEC SQL DECLARE ISOL_Local_15 CURSOR FOR

    WITH DATA AS (  SELECT  O_ID
             , D_ID
             , W_ID
             , OL_NUMBER
             , I_ID
             , W_ID AS I_SUPPLY_W_ID
             , 0 AS OL_DELIVERY_D
             , I_QTY
             , ( I_PRICE * I_QTY ) AS TOTAL_PRICE
             , OL_DIST_INFO
             , I_PRICE, I_NAME, I_DATA, S_DATA, S_QUANTITY

                    FROM ( SELECT   :next_o_id as O_ID
                                 , :w_id AS W_ID
                                 , :d_id as D_ID
                                 , OL_NUMBER
                                 , I_ID
                                 , I_QTY
                          FROM  Table( VALUES
                                    ( SMALLINT( 1 )  , :id0  , :ol_quantity0  )
                                   , ( SMALLINT( 2 )  , :id1  , :ol_quantity1  )
                                   , ( SMALLINT( 3 )  , :id2  , :ol_quantity2  )
                                   , ( SMALLINT( 4 )  , :id3  , :ol_quantity3  )
                                   , ( SMALLINT( 5 )  , :id4  , :ol_quantity4  )
                                   , ( SMALLINT( 6 )  , :id5  , :ol_quantity5  )
                                   , ( SMALLINT( 7 )  , :id6  , :ol_quantity6  )
                                   , ( SMALLINT( 8 )  , :id7  , :ol_quantity7  )
                                   , ( SMALLINT( 9 )  , :id8  , :ol_quantity8  )
                                   , ( SMALLINT( 10 ) , :id9  , :ol_quantity9  )
                                   , ( SMALLINT( 11 ) , :id10 , :ol_quantity10 )
                                   , ( SMALLINT( 12 ) , :id11 , :ol_quantity11 )
                                   , ( SMALLINT( 13 ) , :id12 , :ol_quantity12 )
                                   , ( SMALLINT( 14 ) , :id13 , :ol_quantity13 )
                                   , ( SMALLINT( 15 ) , :id14 , :ol_quantity14 )
                                   ) AS X ( OL_NUMBER , I_ID  , I_QTY
)
                          ) AS ITEMLIST
                        , TABLE( NEW_OL_LOCAL(   I_ID
                                               , I_QTY
                                               , W_ID
                                               , O_ID
                                               , D_ID
                                               )
                                ) AS NEW_OL_LOCAL
                          WHERE NEW_OL_LOCAL.I_PRICE IS NOT NULL
                )

    SELECT I_PRICE , I_NAME , I_DATA , OL_DIST_INFO , S_DATA ,
S_QUANTITY
      FROM NEW TABLE ( INSERT INTO ORDER_LINE
                  (   OL_O_ID
                    , OL_D_ID
                    , OL_W_ID
                    , OL_NUMBER
                    , OL_I_ID
                    , OL_SUPPLY_W_ID
                    , OL_DELIVERY_D
                    , OL_QUANTITY
                    , OL_AMOUNT
                    , OL_DIST_INFO
                  )
                  INCLUDE (   I_PRICE    INTEGER
                           , I_NAME     CHAR(24)
                           , I_DATA     VARCHAR(50)
                           , S_DATA     VARCHAR(50)
                           , S_QUANTITY SMALLINT )

                        SELECT   O_ID
                           , D_ID
                           , W_ID
                           , OL_NUMBER
                           , I_ID
                           , I_SUPPLY_W_ID
                           , OL_DELIVERY_D
                           , I_QTY
                           , TOTAL_PRICE
                           , OL_DIST_INFO
                           , I_PRICE, I_NAME, I_DATA, S_DATA,
S_QUANTITY
                        FROM DATA
                  ) AS INS
  ;
  // Start processing
  in_neword = (struct in_neword_struct *)  pin ;
  neword    = (struct out_neword_struct *) pout ;
#ifdef DEBUGIT
  new_debug( neword, in_neword, "SP upon entry");
#endif
  // Using I_PRICE == 0 as a flag to the client that the ITEM was not fetched
(hence bad).
  for ( inputItemArrayIndex = 0 ; inputItemArrayIndex <
in_neword->s_O_OL_CNT ; inputItemArrayIndex++ )
  {
    i_priceArray[ inputItemArrayIndex ] = 0 ;
  }
  neword->deadlocks = -1 ;
 retry_tran:

  neword->deadlocks++ ;
  EXEC SQL
    SELECT D_TAX, D_NEXT_O_ID  INTO :dist_tax , :next_o_id
      FROM OLD TABLE ( UPDATE DISTRICT
                         SET  D_NEXT_O_ID = D_NEXT_O_ID + 1
                       WHERE D_W_ID = :w_id
                         AND D_ID = :d_id
                  ) AS OT
  ;
```

```
  if ( sqlca.sqlcode != 0 )
  {
   DLCHK( retry_tran );
   sqlerror( NEWORD_SQL, "DISTRICT", __FILE__, __LINE__, &sqlca ) ;
   goto ferror;
  }
  // Invalid I_ID will give a +100, now that we've changed the cursor definitions
  // to include a 'WHERE I_PRICE NOT NULL' clause.
  #define NEW_CURSOR_OPEN_ERROR                                    \
  {                                                                \
    if( sqlca.sqlcode != 0    )                                    \
    {                                                              \
      goto sql_error ;                                             \
    }                                                              \
  }
  #define NEW_CURSOR_ERROR                                         \
  {                                                                \
    if( sqlca.sqlcode == 0    )                                    \
    {                                                              \
      neword->s_O_OL_CNT ++ ;                                      \
    }                                                              \
    else                                                           \
    if( sqlca.sqlcode == +100 )                                    \
    {                                                              \
      break ;                                                      \
    }                                                              \
    else                                                           \
      goto sql_error ;                                             \
  }
  if ( allLocal )
  {
    switch( inputItemCount )
    {
      case 1:
        EXEC SQL OPEN ISOL_Local_1 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Local_1  INTO :item_price, :item_name,
:i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 2:
        EXEC SQL OPEN ISOL_Local_2 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Local_2  INTO :item_price, :item_name,
:i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 3:
        EXEC SQL OPEN ISOL_Local_3 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Local_3  INTO :item_price, :item_name,
:i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 4:
        EXEC SQL OPEN ISOL_Local_4 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Local_4  INTO :item_price, :item_name,
:i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 5:
        EXEC SQL OPEN ISOL_Local_5 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Local_5  INTO :item_price, :item_name,
:i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 6:
        EXEC SQL OPEN ISOL_Local_6 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Local_6  INTO :item_price, :item_name,
:i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 7:
        EXEC SQL OPEN ISOL_Local_7 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Local_7  INTO :item_price, :item_name,
:i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 8:
        EXEC SQL OPEN ISOL_Local_8 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Local_8  INTO :item_price, :item_name,
:i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 9:
        EXEC SQL OPEN ISOL_Local_9 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Local_9  INTO :item_price, :item_name,
:i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 10:
        EXEC SQL OPEN ISOL_Local_10 ;
        NEW_CURSOR_OPEN_ERROR
```

```
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Local_10  INTO :item_price, :item_name,
:i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 11:
        EXEC SQL OPEN ISOL_Local_11 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Local_11  INTO :item_price, :item_name,
:i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 12:
        EXEC SQL OPEN ISOL_Local_12 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Local_12  INTO :item_price, :item_name,
:i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 13:
        EXEC SQL OPEN ISOL_Local_13 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Local_13  INTO :item_price, :item_name,
:i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 14:
        EXEC SQL OPEN ISOL_Local_14 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Local_14  INTO :item_price, :item_name,
:i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 15:
        EXEC SQL OPEN ISOL_Local_15 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Local_15  INTO :item_price, :item_name,
:i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;

      default:
        sqlerror(NEWORD_SQL, "Default switch on local
orderline/stock/index", __FILE__, __LINE__, &sqlca );
        goto ferror;
    }
  }
  else
  {
    switch( inputItemCount )
    {
      case 1:
        EXEC SQL OPEN ISOL_Remote_1 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Remote_1  INTO :item_price, :item_name,
:i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 2:
        EXEC SQL OPEN ISOL_Remote_2 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Remote_2  INTO :item_price, :item_name,
:i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 3:
        EXEC SQL OPEN ISOL_Remote_3 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Remote_3  INTO :item_price, :item_name,
:i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 4:
        EXEC SQL OPEN ISOL_Remote_4 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Remote_4  INTO :item_price, :item_name,
:i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 5:
        EXEC SQL OPEN ISOL_Remote_5 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Remote_5  INTO :item_price, :item_name,
:i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 6:
        EXEC SQL OPEN ISOL_Remote_6 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
```

```
          EXEC SQL FETCH ISOL_Remote_6  INTO :item_price, :item_name,
:i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 7:
        EXEC SQL OPEN ISOL_Remote_7 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Remote_7  INTO :item_price, :item_name,
:i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 8:
        EXEC SQL OPEN ISOL_Remote_8 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Remote_8  INTO :item_price, :item_name,
:i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 9:
        EXEC SQL OPEN ISOL_Remote_9 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Remote_9  INTO :item_price, :item_name,
:i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 10:
        EXEC SQL OPEN ISOL_Remote_10 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Remote_10  INTO :item_price,
:item_name, :i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 11:
        EXEC SQL OPEN ISOL_Remote_11 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Remote_11  INTO :item_price,
:item_name, :i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 12:
        EXEC SQL OPEN ISOL_Remote_12 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Remote_12  INTO :item_price,
:item_name, :i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 13:
        EXEC SQL OPEN ISOL_Remote_13 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Remote_13  INTO :item_price,
:item_name, :i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 14:
        EXEC SQL OPEN ISOL_Remote_14 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Remote_14  INTO :item_price,
:item_name, :i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;
      case 15:
        EXEC SQL OPEN ISOL_Remote_15 ;
        NEW_CURSOR_OPEN_ERROR
        for ( inputItemArrayIndex = 0 ; inputItemArrayIndex < inputItemCount ;
inputItemArrayIndex++ )
        {
          EXEC SQL FETCH ISOL_Remote_15  INTO :item_price,
:item_name, :i_data, :stockDistrictInformation , :s_data , :s_quantity ;
          NEW_CURSOR_ERROR
        }
        break ;

      default:
        sqlerror(NEWORD_SQL, "Default switch on remote
orderline/stock/index", __FILE__, __LINE__, &sqlca);
        goto ferror;
    }
  }
  for ( inputItemArrayIndex = 0 ;
        inputItemArrayIndex < in_neword->s_O_OL_CNT  // from input
      && i_priceArray[ inputItemArrayIndex ] != 0 ;
      inputItemArrayIndex++ )
  {
    // s_I_NAME, and s_S_QUANTITY already set as output host variables
    neword->item[ inputItemArrayIndex ].s_I_PRICE = i_priceArray[
inputItemArrayIndex ] ;

    if (    is_ORIGINAL( s_dataArray[ inputItemArrayIndex ].data,
s_dataArray[ inputItemArrayIndex ].len )
        && is_ORIGINAL( i_dataArray[ inputItemArrayIndex ].data,
i_dataArray[ inputItemArrayIndex ].len )    )
    {
      neword->item[ inputItemArrayIndex ].s_brand_generic = 'B';
    }
    else
    {
      neword->item[ inputItemArrayIndex ].s_brand_generic = 'G';
    }
  }
  EXEC SQL
    SELECT W_TAX, C_DISCOUNT, C_LAST, C_CREDIT
      INTO :ware_tax, :c_discount, :c_last, :c_credit
```

```
      FROM TABLE ( NEW_WH (   :next_o_id
                            , :w_id
                            , :d_id
                            , :c_id
                            , :o_entry_d
                            , :inputItemCount
                            , :allLocal
                           )
                 ) AS NEW_WH_TABLE
  ;
  if ( sqlca.sqlcode == 0 )
  {
    if ( neword->s_O_OL_CNT == in_neword->s_O_OL_CNT  )
    {
      neword->s_transtatus = TRAN_OK ;
      EXEC SQL COMMIT;

      if( sqlca.sqlcode != 0 )
      {
        sqlerror(NEWORD_SQL, "COMMIT", __FILE__, __LINE__ , &sqlca )
;
        goto ferror;
      }
    }
    else
    {
      neword->s_transtatus = INVALID_ITEM ;

      EXEC SQL ROLLBACK WORK ;

      if ( sqlca.sqlcode != 0 )
      {
        neword->s_transtatus = FATAL_SQLERROR;
        sqlerror(NEWORD_SQL, "ROLLBACK FAILED (INVALID ITEM)",
__FILE__, __LINE__ , &sqlca);
        // no point in ferror
      }
    }
  }
  else
  {
    DLCHK( retry_tran );
    sqlerror( NEWORD_SQL, "NEW_WH", __FILE__, __LINE__ , &sqlca);
    goto ferror;
  }
  /*-----------------------------------------------*/
  /*  Return to client                             */
  /*-----------------------------------------------*/
mexit:
  if ( sqlca.sqlcode >= 0 )
  {
    storedProcRc = SQLZ_HOLD_PROC ;
  }
  else
  {
    storedProcRc = SQLZ_DISCONNECT_PROC ;
  }
#ifdef DEBUGIT
  new_debug( neword, in_neword, "SP prior to return");
#endif
  return ( storedProcRc ) ;
sql_error:
  {
    char tempstr[ 4096 ] ;
    DLCHK( retry_tran ) ;
    sprintf( tempstr, "inputItemCount=%d, :next_o_id=%d, :d_id=%d,
:w_id=%d", inputItemCount, next_o_id, d_id, w_id ) ;
    sqlerror( NEWORD_SQL, tempstr , __FILE__, __LINE__, &sqlca ) ;
  }
ferror:
  neword->s_transtatus = FATAL_SQLERROR;
  EXEC SQL ROLLBACK WORK;
  if ( sqlca.sqlcode != 0 )
  {
    sqlerror( NEWORD_SQL, "ROLLBACK FAILED", __FILE__, __LINE__
, &sqlca ) ;
  }

  goto mexit ;
}
/*
** A little function to search for the string "ORIGINAL" given a string and
** it's length
*/
static unsigned char  skip[256] = {8,8,8,8,8,8,8,8,8,8,  /*0-9*/
                        8,8,8,8,8,8,8,8,8,8,  /*10-19*/
                        8,8,8,8,8,8,8,8,8,8,  /*20-29*/
                        8,8,8,8,8,8,8,8,8,8,  /*30-39*/
                        8,8,8,8,8,8,8,8,8,8,  /*40-49*/
                        8,8,8,8,8,8,8,8,8,8,  /*50-59*/
                        8,8,8,8,8,1,8,8,8,8,  /*60-69*/
                        8,4,8,3,8,8,0,8,2,7,  /*70-79*/
                        8,8,6,8,8,8,8,8,8,8,  /*80-89*/
                        8,8,8,8,8,8,8,8,8,8,  /*90-99*/
                        8,8,8,8,8,8,8,8,8,8,  /*100-109*/
                        8,8,8,8,8,8,8,8,8,8,  /*110-119*/
                        8,8,8,8,8,8,8,8,8,8,  /*120-129*/
                        8,8,8,8,8,8,8,8,8,8,  /*130-139*/
                        8,8,8,8,8,8,8,8,8,8,  /*140-149*/
                        8,8,8,8,8,8,8,8,8,8,  /*150-159*/
                        8,8,8,8,8,8,8,8,8,8,  /*160-169*/
                        8,8,8,8,8,8,8,8,8,8,  /*170-179*/
                        8,8,8,8,8,8,8,8,8,8,  /*180-189*/
                        8,8,8,8,8,8,8,8,8,8,  /*190-199*/
                        8,8,8,8,8,8,8,8,8,8,  /*200-209*/
                        8,8,8,8,8,8,8,8,8,8,  /*210-219*/
                        8,8,8,8,8,8,8,8,8,8,  /*220-229*/
                        8,8,8,8,8,8,8,8,8,8,  /*230-239*/
                        8,8,8,8,8,8,8,8,8,8,  /*240-249*/
                        8,8,8,8,8};           /*250-254*/
static int is_ORIGINAL( char *string, short length )
{
 char          *cur_string;
 char          *end_string;
 unsigned char   *skips;
 int           skip_dist;
 int           result = 0;
 cur_string = string+7;
 end_string = string + length;
 skips = skip;
 while (cur_string < end_string)
   {
    skip_dist = skips[*cur_string];
    while ( (skip_dist > 0) && (cur_string < end_string) )
      {
       skip_dist = skips[*(cur_string += skip_dist)];
      }
    if (cur_string >= end_string)
      goto exit;
    if ( cur_string[-4] != 'G' )
      goto noMatch;
    if ( memcmp( cur_string-7, "ORIGINAL", 8 ) == 0 )
      {
       result = 1;
       goto exit;
      }
```

```
noMatch:
     cur_string += 8;
   } /* end while */
exit:
  return ( result ) ;
}
// ---------------------------------------------------------------
// Order Status SERVER
// ---------------------------------------------------------------
#undef w_id
#undef d_id
#undef c_id_input
#undef o_id
#undef o_entry_d
#undef o_carrier_d
#undef c_id
#undef c_first
#undef c_middle
#undef c_last
#undef c_balance
SQL_API_RC order_status_internal( char *pin, char *pout )
{
  struct in_ordstat_struct  * in_ordstat = (struct in_ordstat_struct *) pin ;
  struct out_ordstat_struct * ordstat = (struct out_ordstat_struct *) pout ;
  struct sqlca sqlca ;
  EXEC SQL BEGIN DECLARE SECTION;
    // From input values
    //##sqlint32   w_id ;
    //##short      d_id;
    sqlint32   c_id_input ;
    struct s_data_type { short len ; char data[ 16 ] ; } c_last_input ;
    // From queries
    // From initial query
    sqlint32   o_id ;
    //##sqlint32   c_id ;
    short      o_carrier_id ;
    //##sqlint64   o_entry_d ;
    char   c_first[ 16 ] ;
    char   c_middle[ 2 ] ;
    //##char   c_last[ 16 ] ;
    sqlint64 c_balance ;
    // From cursor
    sqlint32   ol_i_id ;
    sqlint32   ol_supply_w_id ;
    short      ol_quantity ;
    sqlint32   ol_amount ;
    sqlint64   ol_delivery_d ;
  EXEC SQL END DECLARE SECTION;
  // NOTE: this varchar would normally live inside the declare section
  // but this package already delcared the same field higher up.  Need the field
  // within this scope though.
  //##struct s_data_type { short len ; char data[ 16 ] ; } c_last_input ;
  int     storedProcRc ;
  int     itemArrayIndex = 0 ;
  #define w_id              in_ordstat->s_W_ID ;
  #define d_id              in_ordstat->s_D_ID ;
  #define c_id_input        in_ordstat->s_C_ID
  #define o_id              ordstat->s_O_ID
  #define o_entry_d         ordstat->s_O_ENTRY_D_time
  #define o_carrier_id      ordstat->s_O_CARRIER_ID
  #define c_id              ordstat->s_C_ID
  #define c_first           ordstat->s_C_FIRST
  #define c_middle          ordstat->s_C_MIDDLE
  #define c_last            ordstat->s_C_LAST
  #define c_balance         ordstat->s_C_BALANCE
  EXEC SQL DECLARE read_orderline_cur CURSOR FOR
     SELECT OL_I_ID, OL_SUPPLY_W_ID, OL_QUANTITY,
OL_AMOUNT, OL_DELIVERY_D
       FROM ORDER_LINE
       WHERE OL_W_ID = :w_id
         AND OL_D_ID = :d_id
         AND OL_O_ID = :o_id
       FOR FETCH ONLY ;
  ordstat->deadlocks = -1 ;
#ifdef DEBUGIT
  ord_debug(ordstat, in_ordstat, "SP upon entry");
#endif
retry_tran:
  ordstat->deadlocks ++ ;
  if ( c_id_input == 0 )
  {
    c_last_input.len = strlen( in_ordstat->s_C_LAST ) ;
    memcpy( c_last_input.data , in_ordstat->s_C_LAST , c_last_input.len ) ;
    EXEC SQL
      SELECT O_ID, O_CARRIER_ID, O_ENTRY_D, C_BALANCE,
C_FIRST, C_MIDDLE, C_ID
        INTO :o_id, :o_carrier_id , :o_entry_d , :c_balance, :c_first, :c_middle,
:c_id

        FROM TABLE ( ORD_C_LAST(   :w_id
                                 , :d_id
                                 , :c_last_input
                                 )
                   ) AS ORD_C_LAST
    ;
  }
  else
  {
    EXEC SQL
      SELECT O_ID, O_CARRIER_ID, O_ENTRY_D , C_BALANCE,
C_FIRST, C_MIDDLE ,C_LAST
        INTO :o_id, :o_carrier_id , :o_entry_d , :c_balance, :c_first, :c_middle,
:c_last

        FROM TABLE ( ORD_C_ID(   :w_id
                                 , :d_id
                                 , :c_id_input
                                 )
                   ) AS ORD_C_ID
    ;
  }
  if ( sqlca.sqlcode != 0 )
  {
    DLCHK( retry_tran );
    sqlerror( ORDSTAT_SQL, "READ CUST and ORDERS", __FILE__,
__LINE__ ,  &sqlca ) ;
    goto ferror;
  }
  /*-----------------------------------------------*/
  /*  Read ORDER_LINEs                             */
  /*-----------------------------------------------*/
  EXEC SQL OPEN read_orderline_cur ;
  if ( sqlca.sqlcode != 0 )
  {
    DLCHK( retry_tran );
    sqlerror(ORDSTAT_SQL, "OPEN CURSOR read_orderline_cur",
__FILE__, __LINE__ , &sqlca ) ;
    goto ferror;
  }
  itemArrayIndex = 0 ;
  {
    do
    {
      EXEC SQL FETCH read_orderline_cur
            INTO :ol_i_id , :ol_supply_w_id , :ol_quantity , :ol_amount ,
:ol_delivery_d ;
```

```
      if ( sqlca.sqlcode == 0 )
      {
        ordstat->item[ itemArrayIndex ].s_OL_I_ID           = ol_i_id ;
        ordstat->item[ itemArrayIndex ].s_OL_SUPPLY_W_ID     =
ol_supply_w_id ;
        ordstat->item[ itemArrayIndex ].s_OL_QUANTITY        = ol_quantity ;
        ordstat->item[ itemArrayIndex ].s_OL_AMOUNT          = ol_amount ;
        ordstat->item[ itemArrayIndex ].s_OL_DELIVERY_D_time =
ol_delivery_d ;

        itemArrayIndex++;
      }
      else
      if (sqlca.sqlcode < 0 )
      {
        DLCHK( retry_tran ) ;
        sqlerror( ORDSTAT_SQL, "FETCH CURSOR read_orderline_cur" ,
__FILE__, __LINE__ , &sqlca ) ;
        goto ferror ;
      }
    }
    while ( sqlca.sqlcode == 0 ) ;
  }
  ordstat->s_ol_cnt = itemArrayIndex ;
  EXEC SQL COMMIT ;
  if ( sqlca.sqlcode == 0 )
  {
    ordstat->s_transtatus = TRAN_OK ;
  }
  else
  {
    DLCHK( retry_tran );
    sqlerror(ORDSTAT_SQL, "COMMIT", __FILE__, __LINE__ , &sqlca);
    goto ferror ;
  }
mexit:
  if ( sqlca.sqlcode >= 0 )
  {
    storedProcRc = SQLZ_HOLD_PROC ;
  }
  else
  {
    storedProcRc = SQLZ_DISCONNECT_PROC ;
  }
#ifdef DEBUGIT
  ord_debug(ordstat, in_ordstat, "SP prior to return");
#endif
  return ( storedProcRc ) ;
ferror:
  ordstat->s_transtatus = FATAL_SQLERROR ;
  EXEC SQL ROLLBACK WORK ;
  if ( sqlca.sqlcode != 0 )
  {
    sqlerror(ORDSTAT_SQL, "ROLLBACK FAILED", __FILE__, __LINE__,
&sqlca);
  }
  goto mexit;
}
// ---------------------------------------------------------------
// Delivery SERVER
// ---------------------------------------------------------------


#undef d_id
#undef c_id
#undef w_id
#undef o_carrier_id
#undef ol_delivery_d
SQL_API_RC delivery_internal ( char * pin, char * pout )
{
  struct in_delivery_struct * in_delivery = (struct in_delivery_struct *)  pin ;
  struct out_delivery_struct * delivery   = (struct out_delivery_struct *) pout ;
  struct sqlca sqlca ;
  int storedProcRc ;
  short district_id ;
  sqlint32  customer_id ;

  EXEC SQL BEGIN DECLARE SECTION;
    // input
    //##sqlint32   w_id ;
    //##short      d_id ;
    //##sqlint32   c_id ;
    //##short      o_carrier_id ;
    //##sqlint64   ol_delivery_d ;
    // output
    short      no_o_id_indicator = 0 ;
    sqlint32   no_o_id ;
  EXEC SQL END DECLARE SECTION;
  #define d_id          district_id
  #define c_id          customer_id
  #define w_id          in_delivery->s_W_ID
  #define o_carrier_id  in_delivery->s_O_CARRIER_ID
  #define ol_delivery_d in_delivery->s_O_DELIVERY_D_time
  delivery->deadlocks = -1 ;
#ifdef DEBUGIT
  del_debug( delivery, in_delivery, "SP upon entry");
#endif
  // Deadlock Handling
  // -----------------
  // Since we COMMIT inside the for() loop, we must take special
  // care while handling deadlocks.  This is best explained by
  // an example.
  //
  // Assume we deadlock on d_id=6.  This means that an order from the
  // first 5 districts have already been delivered.  We will then
  // restart the loop (retry_tran).  However, the loop will restart
  // at d_id = 1!  This means that the second (and all subsequent)
  // time through the loop, we will deliver orders for districts that
  // have already been delivered, with the net result being more than
  // 10 orders being delivered.
  //
  // The solution to this problem is to initialize the starting point
  // of the loop *before* the retry_tran label.  This will ensure that
  // if we deadlock, we will restart the loop with the same district
  // that we deadlocked on, and we won't deliver any extra orders.
  //
  // NOTE: If we ever change this back to one COMMIT per transaction
  // (instead of one COMMIT per iteration), then the initialization
  // of d_id must be moved back into the for loop.  (A rollback due
  // to deadlock in this case would rollback all delivered orders so
  // far, so we'd need to re-deliver them all on the next iteration.)
  d_id = 1;
retry_tran:
  delivery->deadlocks++;
  for ( ;  d_id <= DISTRICTS_PER_WAREHOUSE ; d_id++ )
  {
    no_o_id = 0 ;
    no_o_id_indicator = 0 ;
      EXEC SQL BEGIN COMPOUND NOT ATOMIC STATIC
        SELECT O_ID

                INTO :no_o_id :no_o_id_indicator

          FROM TABLE (  DEL( :w_id , :d_id , :o_carrier_id , :ol_delivery_d ) )
AS T ;
```

```
        COMMIT ;
      END COMPOUND ;

    if ( sqlca.sqlcode == 0 )
    {
      /* Refer to clause 2.7.4.2, bullet 3 in spec.*/
      /* Need to report if more than 1 or 1% of   */
      /* no_o_id will remain 0 if null returned, so just treat the same way */
      delivery->s_O_ID[ d_id - 1 ] = no_o_id ;
    }
    else
    {
      DLCHK( retry_tran );

      sqlerror( DELIVERY_SQL , "DELIVERY", __FILE__, __LINE__ ,
&sqlca);
      goto ferror ;
    }
  }

  delivery->s_transtatus = TRAN_OK ;
mexit:
  if ( sqlca.sqlcode >= 0 )
  {
    storedProcRc = SQLZ_HOLD_PROC ;
  }
  else
  {
    storedProcRc = SQLZ_DISCONNECT_PROC ;
  }
#ifdef DEBUGIT
  del_debug( delivery, in_delivery, "SP prior to return");
#endif
  return ( storedProcRc ) ;
ferror:
  delivery->s_transtatus = FATAL_SQLERROR ;
  EXEC SQL ROLLBACK WORK ;
  if ( sqlca.sqlcode != 0 )
  {
   sqlerror( DELIVERY_SQL, "ROLLBACK FAILED", __FILE__, __LINE__
, &sqlca ) ;
  }

  goto mexit ;
}
// ---------------------------------------------------------------
// Stored Procedure Stubs
// ---------------------------------------------------------------
SQL_API_RC SQL_API_FN news( char *pin, char *pout )
{
  return new_order_internal( pin, pout ) ;
}
SQL_API_RC SQL_API_FN ords( char *pin, char *pout )
{
  return order_status_internal( pin, pout ) ;
}
SQL_API_RC SQL_API_FN dels ( char * pin, char * pout )
{
  return delivery_internal( pin, pout ) ;
}
```

Src.Srv/uncat_func.ddl

```
-----------------------------------------------------------------------------
-- Licensed Materials - Property of IBM
--
-- Governed under the terms of the International
-- License Agreement for Non-Warranted Sample Code.
--
-- (C) COPYRIGHT International Business Machines Corp. 1996 - 2004
-- All Rights Reserved.
--
-- US Government Users Restricted Rights - Use, duplication or
-- disclosure restricted by GSA ADP Schedule Contract with IBM Corp.
-----------------------------------------------------------------------------
--
-- uncat-func.ddl - Drop table function DDL
--
-- STOCK LEVEL
DROP SPECIFIC FUNCTION STOCK_LEVEL $
-- DELIVERY
DROP SPECIFIC FUNCTION DELIVERY $
-- ORDER STATUS
DROP SPECIFIC FUNCTION ORD_C_LAST $
DROP SPECIFIC FUNCTION ORD_C_ID $
-- PAYMENT
DROP SPECIFIC FUNCTION PAY_C_LAST $
DROP SPECIFIC FUNCTION PAY_C_ID $
-- NEW ORDER
DROP SPECIFIC FUNCTION NEW_OL_ALL $
DROP SPECIFIC FUNCTION NEW_OL_LOCAL $
DROP SPECIFIC FUNCTION NEW_WH $
```

Src.Srv/uncat_proc.ddl

```
DROP PROCEDURE news
                (varchar(270),varchar(662));
DROP PROCEDURE news;

DROP PROCEDURE pays;
DROP PROCEDURE ords
                (varchar(42),varchar(446));
DROP PROCEDURE ords;
DROP PROCEDURE dels
                (varchar(22),varchar(50));
DROP PROCEDURE dels;
DROP PROCEDURE stks
                (varchar(18),varchar(14));
DROP PROCEDURE stks;
```

Src.Srv/rpctpcc.def

```
LIBRARY rpctpcc
DESCRIPTION "Library of TPC-C Transactions (Stored Procedures)"
EXPORTS
news
ords
dels
```

utils/EXPLAIN.ddl

```
-- -*- sql -*-
--
-- Sample DDL to create Explain tables for Version 5.0
--
--   -> assumes db2start issued
--   -> assumes connection to a database exists
--   -> assumes called by "db2 -tf EXPLAIN.DDL"
--
--
-- To remind users how to use this file!
--
ECHO                    ;
ECHO ******* IMPORTANT ********** ;
```

```
ECHO                    ;
ECHO USAGE: db2 -tf EXPLAIN.DDL   ;
ECHO                    ;
ECHO ******* IMPORTANT ********** ;
ECHO                    ;
ECHO                    ;
--
--
-- Set autocommit off
--
UPDATE COMMAND OPTIONS USING C OFF;
--
--  EXPLAIN INSTANCE
--
--  (must be defined first due to referential integrity defintiions)
--
CREATE TABLE EXPLAIN_INSTANCE ( EXPLAIN_REQUESTER
VARCHAR(128) NOT NULL,
                    EXPLAIN_TIME      TIMESTAMP    NOT NULL,
                    SOURCE_NAME       VARCHAR(128) NOT NULL,
                    SOURCE_SCHEMA     VARCHAR(128) NOT NULL,
                    SOURCE_VERSION    VARCHAR(64)  NOT NULL,
                    EXPLAIN_OPTION    CHAR(1)      NOT NULL,
                    SNAPSHOT_TAKEN    CHAR(1)   NOT NULL,
                    DB2_VERSION       CHAR(7)   NOT NULL,
                    SQL_TYPE          CHAR(1)   NOT NULL,
                    QUERYOPT          INTEGER   NOT NULL,
                    BLOCK             CHAR(1)   NOT NULL,
                    ISOLATION         CHAR(2)   NOT NULL,
                    BUFFPAGE          INTEGER   NOT NULL,
                    AVG_APPLS         INTEGER   NOT NULL,
                    SORTHEAP          INTEGER   NOT NULL,
                    LOCKLIST          INTEGER   NOT NULL,
                    MAXLOCKS          SMALLINT  NOT NULL,
                    LOCKS_AVAIL       INTEGER   NOT NULL,
                    CPU_SPEED         DOUBLE    NOT NULL,
                    REMARKS           VARCHAR(254),
                    DBHEAP            INTEGER   NOT NULL,
                    COMM_SPEED        DOUBLE    NOT NULL,
                    PARALLELISM       CHAR(2)   NOT NULL,
                    DATAJOINER        CHAR(1)   NOT NULL,
                      PRIMARY KEY (EXPLAIN_REQUESTER,
                              EXPLAIN_TIME,
                              SOURCE_NAME,
                              SOURCE_SCHEMA,
                              SOURCE_VERSION))
IN USERSPACE1
INDEX IN USERSPACE1;
--
-- EXPLAIN_STATEMENT
--
CREATE TABLE EXPLAIN_STATEMENT ( EXPLAIN_REQUESTER
VARCHAR(128) NOT NULL,
                    EXPLAIN_TIME      TIMESTAMP    NOT NULL,
                    SOURCE_NAME       VARCHAR(128) NOT NULL,
                    SOURCE_SCHEMA     VARCHAR(128) NOT NULL,
                    SOURCE_VERSION    VARCHAR(64)  NOT NULL,
                    EXPLAIN_LEVEL     CHAR(1)      NOT NULL,
                    STMTNO            INTEGER      NOT NULL,
                    SECTNO            INTEGER      NOT NULL,
                    QUERYNO           INTEGER      NOT NULL,
                    QUERYTAG          CHAR(20)     NOT NULL,
                    STATEMENT_TYPE    CHAR(2)      NOT NULL,
                    UPDATABLE         CHAR(1)      NOT NULL,
                    DELETABLE         CHAR(1)      NOT NULL,
                    TOTAL_COST        DOUBLE       NOT NULL,
                    STATEMENT_TEXT    CLOB(2M)     NOT NULL NOT
LOGGED,
                    SNAPSHOT          BLOB(10M)    NOT LOGGED,
                    QUERY_DEGREE      INTEGER      NOT NULL,
                      PRIMARY KEY (EXPLAIN_REQUESTER,
                              EXPLAIN_TIME,
                              SOURCE_NAME,
                              SOURCE_SCHEMA,
                              SOURCE_VERSION,
                              EXPLAIN_LEVEL,
                              STMTNO,
                              SECTNO),
                      FOREIGN KEY (EXPLAIN_REQUESTER,
                              EXPLAIN_TIME,
                              SOURCE_NAME,
                              SOURCE_SCHEMA,
                              SOURCE_VERSION)
                      REFERENCES EXPLAIN_INSTANCE
                      ON DELETE CASCADE)
IN USERSPACE1
INDEX IN USERSPACE1;
--
-- EXPLAIN_ARGUMENTS
--
CREATE TABLE EXPLAIN_ARGUMENT ( EXPLAIN_REQUESTER
VARCHAR(128)  NOT NULL,
                    EXPLAIN_TIME      TIMESTAMP    NOT NULL,
                    SOURCE_NAME       VARCHAR(128)  NOT NULL,
                    SOURCE_SCHEMA     VARCHAR(128)  NOT NULL,
                    SOURCE_VERSION    VARCHAR(64)   NOT NULL,
                    EXPLAIN_LEVEL     CHAR(1)       NOT NULL,
                    STMTNO            INTEGER       NOT NULL,
                    SECTNO            INTEGER       NOT NULL,
                    OPERATOR_ID       INTEGER       NOT NULL,
                    ARGUMENT_TYPE     CHAR(8)       NOT NULL,
                    ARGUMENT_VALUE    VARCHAR(1024),
                    LONG_ARGUMENT_VALUE CLOB(2M)    NOT
LOGGED,
                      FOREIGN KEY (EXPLAIN_REQUESTER,
                              EXPLAIN_TIME,
                              SOURCE_NAME,
                              SOURCE_SCHEMA,
                              SOURCE_VERSION,
                              EXPLAIN_LEVEL,
                              STMTNO,
                              SECTNO)
                      REFERENCES EXPLAIN_STATEMENT
                      ON DELETE CASCADE)
IN USERSPACE1
INDEX IN USERSPACE1;
--
-- EXPLAIN_OBJECT
--
CREATE TABLE EXPLAIN_OBJECT ( EXPLAIN_REQUESTER
VARCHAR(128) NOT NULL,
                    EXPLAIN_TIME      TIMESTAMP    NOT NULL,
                    SOURCE_NAME       VARCHAR(128) NOT NULL,
                    SOURCE_SCHEMA     VARCHAR(128) NOT NULL,
                    SOURCE_VERSION    VARCHAR(64)  NOT NULL,
                    EXPLAIN_LEVEL     CHAR(1)      NOT NULL,
                    STMTNO            INTEGER      NOT NULL,
                    SECTNO            INTEGER      NOT NULL,
                    OBJECT_SCHEMA     VARCHAR(128) NOT NULL,
                    OBJECT_NAME       VARCHAR(128) NOT NULL,
                    OBJECT_TYPE       CHAR(2)      NOT NULL,
                    CREATE_TIME       TIMESTAMP,
                    STATISTICS_TIME   TIMESTAMP,
                    COLUMN_COUNT      SMALLINT     NOT NULL,
                    ROW_COUNT         BIGINT       NOT NULL,
                    WIDTH             INTEGER      NOT NULL,
```

```
                PAGES              INTEGER     NOT NULL,
                DISTINCT           CHAR(1)     NOT NULL,
                TABLESPACE_NAME    VARCHAR(128),
                OVERHEAD           DOUBLE      NOT NULL,
                TRANSFER_RATE      DOUBLE      NOT NULL,
                PREFETCHSIZE       INTEGER     NOT NULL,
                EXTENTSIZE         INTEGER     NOT NULL,
                CLUSTER            DOUBLE      NOT NULL,
                NLEAF              INTEGER     NOT NULL,
                NLEVELS            INTEGER     NOT NULL,
                FULLKEYCARD        BIGINT      NOT NULL,
                OVERFLOW           INTEGER     NOT NULL,
                FIRSTKEYCARD       BIGINT      NOT NULL,
                FIRST2KEYCARD      BIGINT      NOT NULL,
                FIRST3KEYCARD      BIGINT      NOT NULL,
                FIRST4KEYCARD      BIGINT      NOT NULL,
                SEQUENTIAL_PAGES   INTEGER     NOT NULL,
                DENSITY            INTEGER     NOT NULL,
                STATS_SRC          CHAR(1)     NOT NULL,
                AVERAGE_SEQUENCE_GAP        DOUBLE  NOT
NULL,
                AVERAGE_SEQUENCE_FETCH_GAP   DOUBLE  NOT
NULL,
                AVERAGE_SEQUENCE_PAGES       DOUBLE  NOT
NULL,
                AVERAGE_SEQUENCE_FETCH_PAGES  DOUBLE
NOT NULL,
                AVERAGE_RANDOM_PAGES         DOUBLE  NOT
NULL,
                AVERAGE_RANDOM_FETCH_PAGES   DOUBLE  NOT
NULL,
                NUMRIDS                  BIGINT  NOT NULL,
                NUMRIDS_DELETED          BIGINT  NOT NULL,
                NUM_EMPTY_LEAFS          BIGINT  NOT NULL,
                ACTIVE_BLOCKS            BIGINT  NOT NULL,
                  FOREIGN KEY (EXPLAIN_REQUESTER,
                        EXPLAIN_TIME,
                        SOURCE_NAME,
                        SOURCE_SCHEMA,
                        SOURCE_VERSION,
                        EXPLAIN_LEVEL,
                        STMTNO,
                        SECTNO)
                  REFERENCES EXPLAIN_STATEMENT
                  ON DELETE CASCADE)
IN USERSPACE1
INDEX IN USERSPACE1;
--
-- EXPLAIN_OPERATOR
--
CREATE TABLE EXPLAIN_OPERATOR ( EXPLAIN_REQUESTER
VARCHAR(128) NOT NULL,
                EXPLAIN_TIME     TIMESTAMP    NOT NULL,
                SOURCE_NAME      VARCHAR(128) NOT NULL,
                SOURCE_SCHEMA    VARCHAR(128) NOT NULL,
                SOURCE_VERSION   VARCHAR(64)  NOT NULL,
                EXPLAIN_LEVEL    CHAR(1)      NOT NULL,
                STMTNO           INTEGER      NOT NULL,
                SECTNO           INTEGER      NOT NULL,
                OPERATOR_ID      INTEGER      NOT NULL,
                OPERATOR_TYPE    CHAR(6)      NOT NULL,
                TOTAL_COST       DOUBLE       NOT NULL,
                IO_COST          DOUBLE       NOT NULL,
                CPU_COST         DOUBLE       NOT NULL,
                FIRST_ROW_COST   DOUBLE       NOT NULL,
                RE_TOTAL_COST    DOUBLE       NOT NULL,
                RE_IO_COST       DOUBLE       NOT NULL,
                RE_CPU_COST      DOUBLE       NOT NULL,
                COMM_COST        DOUBLE       NOT NULL,
                FIRST_COMM_COST  DOUBLE       NOT NULL,
                BUFFERS          DOUBLE       NOT NULL,
                REMOTE_TOTAL_COST DOUBLE      NOT NULL,
                REMOTE_COMM_COST  DOUBLE      NOT NULL,
                  FOREIGN KEY (EXPLAIN_REQUESTER,
                        EXPLAIN_TIME,
                        SOURCE_NAME,
                        SOURCE_SCHEMA,
                        SOURCE_VERSION,
                        EXPLAIN_LEVEL,
                        STMTNO,
                        SECTNO)
                  REFERENCES EXPLAIN_STATEMENT
                  ON DELETE CASCADE)
IN USERSPACE1
INDEX IN USERSPACE1;
--
-- EXPLAIN_PREDICATE
--
CREATE TABLE EXPLAIN_PREDICATE ( EXPLAIN_REQUESTER
VARCHAR(128) NOT NULL,
                EXPLAIN_TIME     TIMESTAMP    NOT NULL,
                SOURCE_NAME      VARCHAR(128) NOT NULL,
                SOURCE_SCHEMA    VARCHAR(128) NOT NULL,
                SOURCE_VERSION   VARCHAR(64)  NOT NULL,
                EXPLAIN_LEVEL    CHAR(1)      NOT NULL,
                STMTNO           INTEGER      NOT NULL,
                SECTNO           INTEGER      NOT NULL,
                OPERATOR_ID      INTEGER      NOT NULL,
                PREDICATE_ID     INTEGER      NOT NULL,
                HOW_APPLIED      CHAR(5)      NOT NULL,
                WHEN_EVALUATED   CHAR(3)      NOT NULL,
                RELOP_TYPE       CHAR(2)      NOT NULL,
                SUBQUERY         CHAR(1)      NOT NULL,
                FILTER_FACTOR    DOUBLE       NOT NULL,
                PREDICATE_TEXT   CLOB(2M)     NOT LOGGED,
                  FOREIGN KEY (EXPLAIN_REQUESTER,
                        EXPLAIN_TIME,
                        SOURCE_NAME,
                        SOURCE_SCHEMA,
                        SOURCE_VERSION,
                        EXPLAIN_LEVEL,
                        STMTNO,
                        SECTNO)
                  REFERENCES EXPLAIN_STATEMENT
                  ON DELETE CASCADE)
IN USERSPACE1
INDEX IN USERSPACE1;
--
-- EXPLAIN_STREAM
--
CREATE TABLE EXPLAIN_STREAM ( EXPLAIN_REQUESTER
VARCHAR(128) NOT NULL,
                EXPLAIN_TIME     TIMESTAMP    NOT NULL,
                SOURCE_NAME      VARCHAR(128) NOT NULL,
                SOURCE_SCHEMA    VARCHAR(128) NOT NULL,
                SOURCE_VERSION   VARCHAR(64)  NOT NULL,
                EXPLAIN_LEVEL    CHAR(1)      NOT NULL,
                STMTNO           INTEGER      NOT NULL,
                SECTNO           INTEGER      NOT NULL,
                STREAM_ID        INTEGER      NOT NULL,
                SOURCE_TYPE      CHAR(1)      NOT NULL,
                SOURCE_ID        INTEGER      NOT NULL,
                TARGET_TYPE      CHAR(1)      NOT NULL,
                TARGET_ID        INTEGER      NOT NULL,
                OBJECT_SCHEMA    VARCHAR(128),
                OBJECT_NAME      VARCHAR(128),
```

```
                STREAM_COUNT     DOUBLE      NOT NULL,
                COLUMN_COUNT     SMALLINT    NOT NULL,
                PREDICATE_ID     INTEGER     NOT NULL,
                COLUMN_NAMES     CLOB(2M)    NOT LOGGED,
                PMID             SMALLINT    NOT NULL,
                SINGLE_NODE      CHAR(5),
                PARTITION_COLUMNS CLOB(2M)   NOT LOGGED,
                   FOREIGN KEY (EXPLAIN_REQUESTER,
                           EXPLAIN_TIME,
                           SOURCE_NAME,
                           SOURCE_SCHEMA,
                           SOURCE_VERSION,
                           EXPLAIN_LEVEL,
                           STMTNO,
                           SECTNO)
                   REFERENCES EXPLAIN_STATEMENT
                   ON DELETE CASCADE)
IN USERSPACE1
INDEX IN USERSPACE1;
--
-- ADVISE TABLES
--
--
-- ADVISE_INSTANCE
--
--  (must be defined first due to referential integrity defintiions)
--
CREATE TABLE ADVISE_INSTANCE (
     START_TIME       TIMESTAMP    NOT NULL WITH DEFAULT
CURRENT TIMESTAMP,
     END_TIME         TIMESTAMP    NOT NULL WITH DEFAULT
CURRENT TIMESTAMP,
     MODE             VARCHAR(4)   NOT NULL WITH DEFAULT ",
     WKLD_COMPRESSION  CHAR(4)     NOT NULL WITH DEFAULT
'NONE',
     STATUS           CHAR(9)      NOT NULL WITH DEFAULT ",
                       PRIMARY KEY (START_TIME))
IN USERSPACE1
INDEX IN USERSPACE1;

--
-- ADVISE_INDEX
--
CREATE TABLE ADVISE_INDEX(
     EXPLAIN_REQUESTER VARCHAR(128)  NOT NULL WITH
DEFAULT ",
     EXPLAIN_TIME     TIMESTAMP    NOT NULL WITH DEFAULT
CURRENT TIMESTAMP,
     SOURCE_NAME      VARCHAR(128)  NOT NULL WITH DEFAULT ",
     SOURCE_SCHEMA    VARCHAR(128)  NOT NULL WITH DEFAULT
",
     SOURCE_VERSION   VARCHAR(64)   NOT NULL WITH DEFAULT
",
     EXPLAIN_LEVEL    CHAR(1)      NOT NULL WITH DEFAULT ",
     STMTNO           INTEGER      NOT NULL WITH DEFAULT 0,
     SECTNO           INTEGER      NOT NULL WITH DEFAULT 0,
     QUERYNO          INTEGER      NOT NULL WITH DEFAULT 0,
     QUERYTAG         CHAR(20)     NOT NULL WITH DEFAULT ",
     NAME             VARCHAR(128)  NOT NULL,
     CREATOR          VARCHAR(128)  NOT NULL WITH DEFAULT ",
     TBNAME           VARCHAR(128)  NOT NULL,
     TBCREATOR        VARCHAR(128)  NOT NULL WITH DEFAULT ",
     COLNAMES         CLOB(2M)     NOT NULL,
     UNIQUERULE       CHAR(1)      NOT NULL WITH DEFAULT ",
     COLCOUNT         SMALLINT     NOT NULL WITH DEFAULT 0,
     IID              SMALLINT     NOT NULL WITH DEFAULT 0,
     NLEAF            INTEGER      NOT NULL WITH DEFAULT 0,
     NLEVELS          SMALLINT     NOT NULL WITH DEFAULT 0,
     FIRSTKEYCARD     BIGINT       NOT NULL WITH DEFAULT 0,
     FULLKEYCARD      BIGINT       NOT NULL WITH DEFAULT 0,
     CLUSTERRATIO     SMALLINT     NOT NULL WITH DEFAULT 0,
     CLUSTERFACTOR    DOUBLE       NOT NULL WITH DEFAULT 0,
     USERDEFINED      SMALLINT     NOT NULL WITH DEFAULT 0,
     SYSTEM_REQUIRED  SMALLINT     NOT NULL WITH DEFAULT
0,
     CREATE_TIME      TIMESTAMP    NOT NULL WITH DEFAULT
CURRENT TIMESTAMP,
     STATS_TIME       TIMESTAMP            WITH DEFAULT CURRENT
TIMESTAMP,
     PAGE_FETCH_PAIRS  VARCHAR(254)  NOT NULL WITH
DEFAULT ",
     REMARKS          VARCHAR(254)         WITH DEFAULT ",
     DEFINER          VARCHAR(128)  NOT NULL WITH DEFAULT ",
     CONVERTED        CHAR(1)      NOT NULL WITH DEFAULT ",
     SEQUENTIAL_PAGES  INTEGER     NOT NULL WITH DEFAULT 0,
     DENSITY          INTEGER      NOT NULL WITH DEFAULT 0,
     FIRST2KEYCARD    BIGINT       NOT NULL WITH DEFAULT 0,
     FIRST3KEYCARD    BIGINT       NOT NULL WITH DEFAULT 0,
     FIRST4KEYCARD    BIGINT       NOT NULL WITH DEFAULT 0,
     PCTFREE          SMALLINT     NOT NULL WITH DEFAULT -1,
     UNIQUE_COLCOUNT  SMALLINT     NOT NULL WITH DEFAULT
-1,
     MINPCTUSED       SMALLINT     NOT NULL WITH DEFAULT 0,
     REVERSE_SCANS    CHAR(1)      NOT NULL WITH DEFAULT 'N',
     USE_INDEX        CHAR(1),
     CREATION_TEXT    CLOB(2M)     NOT NULL NOT LOGGED WITH
DEFAULT ",
     PACKED_DESC      BLOB(1M)             NOT LOGGED,
     RUN_ID           TIMESTAMP,
     INDEXTYPE        VARCHAR(4)   NOT NULL WITH DEFAULT ",
     EXISTS           CHAR(1)      NOT NULL WITH DEFAULT 'N',
     RIDTOBLOCK       CHAR(1)      NOT NULL WITH DEFAULT 'N',
                      FOREIGN KEY (RUN_ID)
                      REFERENCES ADVISE_INSTANCE (START_TIME)
                      ON DELETE CASCADE)
IN USERSPACE1
INDEX IN USERSPACE1;
--
-- ADVISE_WORKLOAD
--
CREATE TABLE ADVISE_WORKLOAD (
     WORKLOAD_NAME    CHAR(128)    NOT NULL WITH DEFAULT
'WK0',
     STATEMENT_NO     INTEGER      NOT NULL WITH DEFAULT 1,
     STATEMENT_TEXT   CLOB(2M)     NOT NULL NOT LOGGED,
     STATEMENT_TAG    VARCHAR(256) NOT NULL WITH DEFAULT "
,
     FREQUENCY        INTEGER      NOT NULL WITH DEFAULT 1,
     IMPORTANCE       DOUBLE       NOT NULL WITH DEFAULT 1,
     WEIGHT           DOUBLE       NOT NULL WITH DEFAULT 1,
     COST_BEFORE      DOUBLE,
     COST_AFTER       DOUBLE,
     COMPILABLE       CHAR(17))
IN USERSPACE1
INDEX IN USERSPACE1;
--
-- ADVISE_MQT
--
CREATE TABLE ADVISE_MQT (
     EXPLAIN_REQUESTER VARCHAR(128)  NOT NULL WITH
DEFAULT ",
     EXPLAIN_TIME     TIMESTAMP    NOT NULL WITH DEFAULT
CURRENT TIMESTAMP,
     SOURCE_NAME      VARCHAR(128)  NOT NULL WITH DEFAULT ",
     SOURCE_SCHEMA    VARCHAR(128)  NOT NULL WITH DEFAULT
",
```

```
    SOURCE_VERSION    VARCHAR(64)   NOT NULL WITH DEFAULT
",
    EXPLAIN_LEVEL     CHAR(1)       NOT NULL WITH DEFAULT ",
    STMTNO            INTEGER       NOT NULL WITH DEFAULT 0,
    SECTNO            INTEGER       NOT NULL WITH DEFAULT 0,
    NAME              VARCHAR(128)  NOT NULL,
    CREATOR           VARCHAR(128)  NOT NULL WITH DEFAULT ",
    IID               SMALLINT      NOT NULL WITH DEFAULT 0,
    CREATE_TIME       TIMESTAMP     NOT NULL WITH DEFAULT
CURRENT TIMESTAMP,
    STATS_TIME        TIMESTAMP             WITH DEFAULT CURRENT
TIMESTAMP,
    NUMROWS           DOUBLE        NOT NULL WITH DEFAULT 0,
    NUMCOLS           SMALLINT      NOT NULL WITH DEFAULT 0,
    ROWSIZE           DOUBLE        NOT NULL WITH DEFAULT 0,
    BENEFIT           FLOAT         NOT NULL WITH DEFAULT 0.0,
    USE_MQT           CHAR(1),
    MQT_SOURCE        CHAR(1),
    QUERY_TEXT        CLOB(2M)      NOT NULL NOT LOGGED WITH
DEFAULT ",
    CREATION_TEXT     CLOB(2M)      NOT NULL NOT LOGGED WITH
DEFAULT ",
    SAMPLE_TEXT       CLOB(2M)      NOT NULL NOT LOGGED WITH
DEFAULT ",
    COLSTATS          CLOB(2M)      NOT NULL NOT LOGGED WITH
DEFAULT ",
    EXTRA_INFO        BLOB(2M)      NOT NULL NOT LOGGED with
default BLOB(''),
    TBSPACE           VARCHAR(128)  NOT NULL WITH DEFAULT ",
    RUN_ID            TIMESTAMP,
    REFRESH_TYPE      CHAR(1)       NOT NULL WITH DEFAULT ",
    EXISTS            CHAR(1)       NOT NULL WITH DEFAULT 'N',
                      FOREIGN KEY (RUN_ID)
                      REFERENCES ADVISE_INSTANCE (START_TIME)
                      ON DELETE CASCADE)
IN USERSPACE1
INDEX IN USERSPACE1;
--
-- ADVISE_PARTITION
--
CREATE TABLE ADVISE_PARTITION (
    EXPLAIN_REQUESTER VARCHAR(128)  NOT NULL WITH
DEFAULT ",
    EXPLAIN_TIME      TIMESTAMP     NOT NULL WITH DEFAULT
CURRENT TIMESTAMP,
    SOURCE_NAME       VARCHAR(128)  NOT NULL WITH DEFAULT ",
    SOURCE_SCHEMA     VARCHAR(128)  NOT NULL WITH DEFAULT
",
    SOURCE_VERSION    VARCHAR(64)   NOT NULL WITH DEFAULT
",
    EXPLAIN_LEVEL     CHAR(1)       NOT NULL WITH DEFAULT ",
    STMTNO            INTEGER       NOT NULL WITH DEFAULT 0,
    SECTNO            INTEGER       NOT NULL WITH DEFAULT 0,
    QUERYNO           INTEGER       NOT NULL WITH DEFAULT 0,
    QUERYTAG          CHAR(20)      NOT NULL WITH DEFAULT ",
    TBNAME            VARCHAR(128)  NOT NULL,
    TBCREATOR         VARCHAR(128)  NOT NULL WITH DEFAULT ",
    PMID              SMALLINT      NOT NULL,
    TBSPACE           VARCHAR(128)  NOT NULL WITH DEFAULT ",
    COLNAMES          CLOB(2M)      NOT NULL NOT LOGGED WITH
DEFAULT ",
    COLCOUNT          SMALLINT      NOT NULL WITH DEFAULT 0,
    REPLICATE         CHAR(1)       NOT NULL WITH DEFAULT 'N',
    COST              DOUBLE        NOT NULL,
    USEIT             CHAR(1),
    RUN_ID            TIMESTAMP,
                      FOREIGN KEY(RUN_ID)
                      REFERENCES ADVISE_INSTANCE (START_TIME)
                      ON DELETE CASCADE)
IN USERSPACE1
INDEX IN USERSPACE1;
--
-- ADVISE_TABLE
--
CREATE TABLE ADVISE_TABLE (
    RUN_ID            TIMESTAMP,
    TABLE_NAME        VARCHAR(128)  NOT NULL,
    TABLE_SCHEMA      VARCHAR(128)  NOT NULL WITH DEFAULT
",
    TABLESPACE        VARCHAR(128)  NOT NULL WITH DEFAULT ",
    SELECTION_FLAG    VARCHAR(8)    NOT NULL WITH DEFAULT ",
    TABLE_EXISTS      CHAR(1)       NOT NULL WITH DEFAULT ",
    USE_TABLE         CHAR(1)       NOT NULL WITH DEFAULT ",
    GEN_COLUMNS               CLOB(2M)      NOT NULL NOT LOGGED
WITH DEFAULT ",
    ORGANIZE_BY  CLOB(2M)             NOT NULL NOT LOGGED
WITH DEFAULT ",
    CREATION_TEXT     CLOB(2M)      NOT NULL NOT LOGGED WITH
DEFAULT ",
    ALTER_COMMAND     CLOB(2M)      NOT NULL NOT LOGGED
WITH DEFAULT ",
    DISKUSE           DOUBLE        NOT NULL WITH DEFAULT 0 ,
                      FOREIGN KEY (RUN_ID)
                      REFERENCES ADVISE_INSTANCE (START_TIME)
                      ON DELETE CASCADE)
IN USERSPACE1
INDEX IN USERSPACE1;

--
-- Commit work
--
COMMIT WORK;
--
-- Optional Indexes: The following indexes are recommended for improved
performance
-- of explain-related utilities. These create index statements can be deleted, or
-- the indexes dropped if space is a problem.
--
CREATE INDEX STMT_I1 on
  EXPLAIN_STATEMENT(EXPLAIN_TIME, EXPLAIN_LEVEL,
STMTNO, SECTNO);
CREATE INDEX ARG_I1 on
  EXPLAIN_ARGUMENT(EXPLAIN_TIME, EXPLAIN_LEVEL, STMTNO,
SECTNO, OPERATOR_ID);
CREATE INDEX PRD_I1 on
  EXPLAIN_PREDICATE(EXPLAIN_TIME, EXPLAIN_LEVEL, STMTNO,
SECTNO, OPERATOR_ID);
CREATE INDEX OPR_I1 on
  EXPLAIN_OPERATOR(EXPLAIN_TIME, EXPLAIN_LEVEL, STMTNO,
SECTNO, OPERATOR_ID);
CREATE INDEX STM_I1 on
  EXPLAIN_STREAM(EXPLAIN_TIME, EXPLAIN_LEVEL, STMTNO,
SECTNO);
CREATE INDEX OBJ_I1 on
  EXPLAIN_OBJECT(EXPLAIN_TIME, EXPLAIN_LEVEL, STMTNO,
SECTNO);
CREATE INDEX IDX_I1 on
  ADVISE_INDEX (EXPLAIN_TIME);
CREATE INDEX IDX_I2 on
  ADVISE_INDEX (NAME, EXPLAIN_TIME);
CREATE INDEX MQT_I1 on
  ADVISE_MQT (EXPLAIN_TIME);
CREATE INDEX MQT_I2 on
  ADVISE_MQT (NAME,EXPLAIN_TIME);
CREATE INDEX PRT_I1 on
  ADVISE_PARTITION (EXPLAIN_TIME);
```

```
--
-- Commit work
--
COMMIT WORK;
```

utils/UNEXPLAIN.ddl

```
-----------------------------------------------------------------------------
-- Licensed Materials - Property of IBM
--
-- Governed under the terms of the International
-- License Agreement for Non-Warranted Sample Code.
--
-- (C) COPYRIGHT International Business Machines Corp. 1996 - 2004
-- All Rights Reserved.
--
-- US Government Users Restricted Rights - Use, duplication or
-- disclosure restricted by GSA ADP Schedule Contract with IBM Corp.
-----------------------------------------------------------------------------
DROP INDEX STMT_I1;
DROP INDEX ARG_I1;
DROP INDEX PRD_I1;
DROP INDEX OPR_I1;
DROP INDEX STM_I1;
DROP INDEX OBJ_I1;
DROP TABLE EXPLAIN_INSTANCE;
DROP TABLE EXPLAIN_STATEMENT;
DROP TABLE EXPLAIN_ARGUMENT;
DROP TABLE EXPLAIN_OBJECT;
DROP TABLE EXPLAIN_OPERATOR;
DROP TABLE EXPLAIN_PREDICATE;
DROP TABLE EXPLAIN_STREAM;
DROP TABLE ADVISE_INDEX;
DROP TABLE ADVISE_WORKLOAD;
```

tpccCom/comreg.h

```
// compreg.h : Declaration of the CCompReg
#pragma once
#include "resource.h"       // main symbols
#include "tpccCom.h"

// CCompReg
class ATL_NO_VTABLE CCompReg :
	public CComObjectRootEx<CComSingleThreadModel>,
	public CComCoClass<CCompReg, &CLSID_CompReg>,
	public IDispatchImpl<IComponentRegistrar,
&IID_IComponentRegistrar, &LIBID_tpccComLib, /*wMajor =*/ 1, /*wMinor
=*/ 0>
{
public:
	CCompReg()
	{
	}
DECLARE_NO_REGISTRY()
BEGIN_COM_MAP(CCompReg)
	COM_INTERFACE_ENTRY(IComponentRegistrar)
	COM_INTERFACE_ENTRY(IDispatch)
END_COM_MAP()
// IComponentRegistrar
public:
   STDMETHOD(Attach)(BSTR bstrPath)
	{
		return S_OK;
	}
	STDMETHOD(RegisterAll)()
	{
		return _AtlComModule.RegisterServer(TRUE);
	}
	STDMETHOD(UnregisterAll)()
	{
		_AtlComModule.UnregisterServer(TRUE);
		return S_OK;
	}
	STDMETHOD(GetComponents)(SAFEARRAY **ppCLSIDs,
SAFEARRAY **ppDescriptions)
	{
		if( ppCLSIDs == NULL || ppDescriptions == NULL )
			return E_POINTER;
		int nComponents = 0;
		for (_ATL_OBJMAP_ENTRY** ppEntry =
_AtlComModule.m_ppAutoObjMapFirst; ppEntry <
_AtlComModule.m_ppAutoObjMapLast; ppEntry++)
		{
			if (*ppEntry != NULL)
			{
				_ATL_OBJMAP_ENTRY* pEntry
= *ppEntry;
				if (pEntry->pclsid != NULL)
				{
					LPCTSTR
pszDescription = pEntry->pfnGetObjectDescription();
					if (pszDescription)

nComponents++;
				}
			}
		}
		SAFEARRAYBOUND rgBound[1];
		rgBound[0].lLbound = 0;
		rgBound[0].cElements = nComponents;
		*ppCLSIDs = SafeArrayCreate(VT_BSTR, 1, rgBound);
		if( *ppCLSIDs == NULL )
			return AtlHresultFromLastError();
		*ppDescriptions = SafeArrayCreate(VT_BSTR, 1,
rgBound);
		if( *ppDescriptions == NULL )
			return AtlHresultFromLastError();
		LONG i = 0;
		for (_ATL_OBJMAP_ENTRY** ppEntry =
_AtlComModule.m_ppAutoObjMapFirst; ppEntry <
_AtlComModule.m_ppAutoObjMapLast; ppEntry++)
		{
			if (*ppEntry != NULL)
			{
				_ATL_OBJMAP_ENTRY* pEntry
= *ppEntry;
				if (pEntry->pclsid != NULL)
				{
					LPCTSTR
pszDescription = pEntry->pfnGetObjectDescription();
					if (pszDescription)
					{
						LPOLESTR
pszCLSID;

StringFromCLSID(*pEntry->pclsid, &pszCLSID);
						BSTR
pBSTR = OLE2BSTR(pszCLSID);
						if( pBSTR
== NULL )
						{

CoTaskMemFree(pszCLSID);

return E_OUTOFMEMORY;
```

```
                                                        }
                                                        HRESULT
hResult = SafeArrayPutElement(*ppCLSIDs, &i, pBSTR);

CoTaskMemFree(pszCLSID);
                                                        if(
FAILED(hResult) )

return hResult;
                                                        pBSTR =
T2BSTR_EX(pszDescription);
                                                        if( pBSTR
== NULL )
                                                        {

return E_OUTOFMEMORY;
                                                        }
                                                        hResult =
SafeArrayPutElement(*ppDescriptions, &i, pBSTR);
                                                        if(
FAILED(hResult) )

return hResult;
                                                        i++;
                                                }
                                        }
                                }
                        }
                        return S_OK;
        }
        STDMETHOD(RegisterComponent)(BSTR bstrCLSID)
        {
                CLSID clsid;
                CLSIDFromString(bstrCLSID, &clsid);
                _AtlComModule.RegisterServer(TRUE, &clsid);
                return S_OK;
        }
        STDMETHOD(UnregisterComponent)(BSTR bstrCLSID)
        {
                CLSID clsid;
                CLSIDFromString(bstrCLSID, &clsid);
                _AtlComModule.UnregisterServer(FALSE, &clsid);
                return S_OK;
        }
};
OBJECT_ENTRY_AUTO(CLSID_CompReg, CCompReg)
```

tpccCom/dlldatax.h

```
#pragma once
#ifdef _MERGE_PROXYSTUB
extern "C"
{
BOOL WINAPI PrxDllMain(HINSTANCE hInstance, DWORD dwReason,
        LPVOID lpReserved);
STDAPI PrxDllCanUnloadNow(void);
STDAPI PrxDllGetClassObject(REFCLSID rclsid, REFIID riid, LPVOID*
ppv);
STDAPI PrxDllRegisterServer(void);
STDAPI PrxDllUnregisterServer(void);
}
#endif
```

tpccCom/Resource.h

```
//{{NO_DEPENDENCIES}}
// Microsoft Visual C++ generated include file.
// Used by tpccCom.rc
//
#define IDS_PROJNAME            100
#define IDR_TPCCCOM             101
#define IDR_TPCC_COM            102
// Next default values for new objects
//
#ifdef APSTUDIO_INVOKED
#ifndef APSTUDIO_READONLY_SYMBOLS
#define _APS_NEXT_RESOURCE_VALUE        201
#define _APS_NEXT_COMMAND_VALUE         32768
#define _APS_NEXT_CONTROL_VALUE         201
#define _APS_NEXT_SYMED_VALUE           103
#endif
#endif
```

tpccCom/stdafx.h

```
// stdafx.h : include file for standard system include files,
// or project specific include files that are used frequently,
// but are changed infrequently
#pragma once
#ifndef STRICT
#define STRICT
#endif
// Modify the following defines if you have to target a platform prior to the ones
specified below.
// Refer to MSDN for the latest info on corresponding values for different
platforms.
#ifndef WINVER                          // Allow use of features
specific to Windows 95 and Windows NT 4 or later.
#define WINVER 0x0400           // Change this to the appropriate
value to target Windows 98 and Windows 2000 or later.
#endif
#ifndef _WIN32_WINNT            // Allow use of features specific to
Windows NT 4 or later.
#define _WIN32_WINNT 0x0400             // Change this to the appropriate
value to target Windows 2000 or later.
#endif
#ifndef _WIN32_WINDOWS          // Allow use of features specific to
Windows 98 or later.
#define _WIN32_WINDOWS 0x0410 // Change this to the appropriate value to
target Windows Me or later.
#endif
#ifndef _WIN32_IE               // Allow use of features specific to
IE 4.0 or later.
#define _WIN32_IE 0x0400        // Change this to the appropriate value to
target IE 5.0 or later.
#endif
#define _ATL_APARTMENT_THREADED
#define _ATL_NO_AUTOMATIC_NAMESPACE
#define _ATL_CSTRING_EXPLICIT_CONSTRUCTORS          // some
CString constructors will be explicit
// turns off ATL's hiding of some common and often safely ignored warning
messages
#define _ATL_ALL_WARNINGS

#include <comsvcs.h>
#include "resource.h"
#include <atlbase.h>
#include <atlcom.h>
using namespace ATL;
```

tpccCom/tpccCom.h

```
// tpcc_com.h : Declaration of the Ctpcc_com
#pragma once
#include "tpccCom.h"
```

```
#include "resource.h"// main symbols
#include <comsvcs.h>
#include "..\tpccIsapi\tpcc.h"
#include <db2tpcc.h>
#include <tpcc.h>
#define NULL_DB                                         "nullDB"
static HINSTANCE dbInstance                             = NULL;
static CRITICAL_SECTION debugMutex;
static CRITICAL_SECTION errorMutex;
static int comServerID                                          =   0;
static ofstream debugStream;
static ofstream errorStream;
static int debugFileOpen                                =               0;
static int errorFileOpen                                =               0;
static int nullDB                                               =
0;
static char dbType[32];
static char dbName[32];
typedef INT (*NORD_PTR)(nord_wrapper *nord,void *connectHandle);
typedef INT (*PYMT_PTR)(paym_wrapper *pymt,void *connectHandle);
typedef INT (*ORDS_PTR)(ords_wrapper *ords,void *connectHandle);
typedef INT (*STOK_PTR)(stok_wrapper *stok,void *connectHandle);
typedef INT (*CONNECT_PTR)(char *dbName,void **connectHandle);
typedef INT (*DISCONNECT_PTR)(void *connectHandle);
NORD_PTR            do_nord;
PYMT_PTR            do_pymt;
ORDS_PTR            do_ords;
STOK_PTR            do_stok;
CONNECT_PTR         do_connection;
DISCONNECT_PTR do_disconnect;

// Ctpcc_com
class ATL_NO_VTABLE Ctpcc_com :
            public CComObjectRootEx<CComMultiThreadModel>,
            public IObjectControl,
            public CComCoClass<Ctpcc_com, &CLSID_tpcc_com>,
            public Itpcc_com
{
public:
            Ctpcc_com()
            {
                        int rc                                          = ERR;
                        connected                               =               0;
                        connectHandleInUse  =               0;
                        if(debugFlag)
                        {
                                    if(!debugFileOpen)
                                    {

InitializeCriticalSection(&debugMutex);
                                                //open comLog
                                                char comLogFile[128];

sprintf(comLogFile,"C:\\Inetpub\\wwwroot\\tpcc\\comLog_debug.txt");
                                                debugStream.rdbuf(
)->open(comLogFile,ios_base::in | ios_base::out | ios_base::app);
                                                debugFileOpen = 1;
                                    }
                        }

                        //open error log file
                        if(!errorFileOpen)
                        {
                                    InitializeCriticalSection(&errorMutex);
                                    char errorLogFile[128];

sprintf(errorLogFile,"C:\\Inetpub\\wwwroot\\tpcc\\comLog_err.txt");
                                                errorStream.rdbuf(
)->open(errorLogFile,ios_base::in | ios_base::out | ios_base::app);
                                                errorFileOpen=1;
                        }
                        //get registry values
                        if((rc = readRegistery()) != OK)
                        {
                                                ERRORMSG("Unable to open registery key "
<< REGISTERY_SUB_KEY << " rc:" << rc <<endl);
                                                return;
                        }

                        DEBUGMSG("nullDB:" <<nullDB<<"
dbType:"<<dbType<<" dbName:"<<dbName<<endl);

                        //load library based on registry
                        if( (rc = loadLibrary()) != OK)
                        {
                                                ERRORMSG("load library failure rc:" << rc
<< endl);
                                                return;
                        }

                        DEBUGMSG("dbtype:"<<dbType<<" instance:" <<
DEBUGADDRESS(dbInstance) << " loaded." << endl);

                        //connect to db
                        EnterCriticalSection(&errorMutex);
                        if((rc = connectDB()) != OK)
                        {
                                                ERRORMSG("unable to connect to db
"<<dbName<<" rc :"<<rc <<endl);
                                                LeaveCriticalSection(&errorMutex);
                                                return;
                        }
                        LeaveCriticalSection(&errorMutex);

                        DEBUGMSG("connected to db " <<dbName<< " rc:"<<
rc << " context:" <<DEBUGADDRESS(connectHandle) << endl);
            }
            DECLARE_PROTECT_FINAL_CONSTRUCT()
            HRESULT FinalConstruct()
            {
                        return S_OK;
            }

            void FinalRelease()
            {
            }
DECLARE_REGISTRY_RESOURCEID(IDR_TPCC_COM)
BEGIN_COM_MAP(Ctpcc_com)
            COM_INTERFACE_ENTRY(Itpcc_com)
            COM_INTERFACE_ENTRY(IObjectControl)
END_COM_MAP()
// IObjectControl
public:
            STDMETHOD(Activate)();
            STDMETHOD_(BOOL, CanBePooled)();
            STDMETHOD_(void, Deactivate)();
            CComPtr<IObjectContext> m_spObjectContext;

// Itpcc_com
public:
            STDMETHOD(doStockLevel)(INT *size, UCHAR **buffer);
            STDMETHOD(doNewOrder)(INT* size, UCHAR** buffer);
            STDMETHOD(doPayment)(INT* size, UCHAR** buffer);
            STDMETHOD(doOrderStatus)(INT* size, UCHAR** buffer);
            STDMETHOD(doDBInfo)(void);
```

```
	STDMETHOD(doSetComplete)(void);
	int connected;
	int connectHandleInUse;
private:
	//db2 specific context
	void *connectHandle;
	int loadLibrary();
	int readRegistery();
	int connectDB();

};
OBJECT_ENTRY_AUTO(__uuidof(tpcc_com), Ctpcc_com)
```

tpccCom/tpcc_com.h

```
// tpcc_com.h : Declaration of the Ctpcc_com
#pragma once
#include "tpccCom.h"
#include "resource.h"// main symbols
#include <comsvcs.h>
#include "..\tpccIsapi\tpcc.h"
#include <db2tpcc.h>
#include <tpcc.h>
#define NULL_DB 	"nullDB"
static HINSTANCE dbInstance 	= NULL;
static CRITICAL_SECTION debugMutex;
static CRITICAL_SECTION errorMutex;
static int comServerID 	= 0;
static ofstream debugStream;
static ofstream errorStream;
static int debugFileOpen 	= 	0;
static int errorFileOpen 	= 	0;
static int nullDB 	=
0;
static char dbType[32];
static char dbName[32];
typedef INT (*NORD_PTR)(nord_wrapper *nord,void *connectHandle);
typedef INT (*PYMT_PTR)(paym_wrapper *pymt,void *connectHandle);
typedef INT (*ORDS_PTR)(ords_wrapper *ords,void *connectHandle);
typedef INT (*STOK_PTR)(stok_wrapper *stok,void *connectHandle);
typedef INT (*CONNECT_PTR)(char *dbName,void **connectHandle);
typedef INT (*DISCONNECT_PTR)(void *connectHandle);
NORD_PTR	do_nord;
PYMT_PTR	do_pymt;
ORDS_PTR	do_ords;
STOK_PTR	do_stok;
CONNECT_PTR	do_connection;
DISCONNECT_PTR do_disconnect;

// Ctpcc_com
class ATL_NO_VTABLE Ctpcc_com :
	public CComObjectRootEx<CComMultiThreadModel>,
	public IObjectControl,
	public CComCoClass<Ctpcc_com, &CLSID_tpcc_com>,
	public Itpcc_com
{
public:
	Ctpcc_com()
	{
		int rc 	= ERR;
		connected 	= 	0;
		connectHandleInUse 	= 	0;
		if(debugFlag)
		{
			if(!debugFileOpen)
			{

InitializeCriticalSection(&debugMutex);
	//open comLog
		char comLogFile[128];

sprintf(comLogFile,"C:\\Inetpub\\wwwroot\\tpcc\\comLog_debug.txt");
		debugStream.rdbuf(
)->open(comLogFile,ios_base::in | ios_base::out | ios_base::app);
		debugFileOpen = 1;
			}
		}

		//open error log file
		if(!errorFileOpen)
		{
			InitializeCriticalSection(&errorMutex);
			char errorLogFile[128];

sprintf(errorLogFile,"C:\\Inetpub\\wwwroot\\tpcc\\comLog_err.txt");
			errorStream.rdbuf(
)->open(errorLogFile,ios_base::in | ios_base::out | ios_base::app);
			errorFileOpen=1;
		}
		//get registry values
		if((rc = readRegistery()) != OK)
		{
			ERRORMSG("Unable to open registery key "
<< REGISTERY_SUB_KEY << " rc:" << rc <<endl);
			return;
		}

		DEBUGMSG("nullDB:" <<nullDB<<"
dbType:"<<dbType<<" dbName:"<<dbName<<endl);

		//load library based on registry
		if( (rc = loadLibrary()) != OK)
		{
			ERRORMSG("load library failure rc:" << rc
<< endl);
			return;
		}

		DEBUGMSG("dbtype:"<<dbType<<" instance:" <<
DEBUGADDRESS(dbInstance) << " loaded." << endl);

		//connect to db
		EnterCriticalSection(&errorMutex);
		if((rc = connectDB()) != OK)
		{
			ERRORMSG("unable to connect to db
"<<dbName<<" rc :"<<rc <<endl);
			LeaveCriticalSection(&errorMutex);
			return;
		}
		LeaveCriticalSection(&errorMutex);

		DEBUGMSG("connected to db " <<dbName<< " rc:"<<
rc << " context:" <<DEBUGADDRESS(connectHandle) << endl);
	}
	DECLARE_PROTECT_FINAL_CONSTRUCT()
	HRESULT FinalConstruct()
	{
		return S_OK;
	}

	void FinalRelease()
	{
	}
DECLARE_REGISTRY_RESOURCEID(IDR_TPCC_COM)
BEGIN_COM_MAP(Ctpcc_com)
	COM_INTERFACE_ENTRY(Itpcc_com)
```

```
		COM_INTERFACE_ENTRY(IObjectControl)
END_COM_MAP()
// IObjectControl
public:
		STDMETHOD(Activate)();
		STDMETHOD_(BOOL, CanBePooled)();
		STDMETHOD_(void, Deactivate)();
		CComPtr<IObjectContext> m_spObjectContext;

// Itpcc_com
public:
		STDMETHOD(doStockLevel)(INT *size, UCHAR **buffer);
		STDMETHOD(doNewOrder)(INT* size, UCHAR** buffer);
		STDMETHOD(doPayment)(INT* size, UCHAR** buffer);
		STDMETHOD(doOrderStatus)(INT* size, UCHAR** buffer);
		STDMETHOD(doDBInfo)(void);
		STDMETHOD(doSetComplete)(void);
		int connected;
		int connectHandleInUse;
private:
		//db2 specific context
		void *connectHandle;
		int loadLibrary();
		int readRegistery();
		int connectDB();

};
OBJECT_ENTRY_AUTO(__uuidof(tpcc_com), Ctpcc_com)
```

tpccCom/tpccCom.def

```
; tpccCom.def : Declares the module parameters.
LIBRARY	"tpccCom.DLL"
EXPORTS
		DllCanUnloadNow		PRIVATE
		DllGetClassObject	PRIVATE
		DllRegisterServer	PRIVATE
		DllUnregisterServer	PRIVATE
```

tpccCom/tpccCom.idl

```
// tpccCom.idl : IDL source for tpccCom
//
// This file will be processed by the MIDL tool to
// produce the type library (tpccCom.tlb) and marshalling code.
import "oaidl.idl";
import "ocidl.idl";
//this is test.
[
		object,
		uuid(a817e7a2-43fa-11d0-9e44-00aa00b6770a),
		dual,
		helpstring("IComponentRegistrar Interface"),
		pointer_default(unique)
]
interface IComponentRegistrar : IDispatch
{
		[id(1)]	HRESULT Attach([in] BSTR bstrPath);
		[id(2)]	HRESULT RegisterAll();
		[id(3)]	HRESULT UnregisterAll();
		[id(4)]	HRESULT GetComponents([out]
SAFEARRAY(BSTR)* pbstrCLSIDs, [out] SAFEARRAY(BSTR)*
pbstrDescriptions);
		[id(5)]	HRESULT RegisterComponent([in] BSTR bstrCLSID);
		[id(6)] HRESULT UnregisterComponent([in] BSTR bstrCLSID);
};
[
		object,
		uuid(5B4FA473-2E68-4D79-A626-F38B30B8196E),
		helpstring("Itpcc_com Interface"),
		pointer_default(unique)
]
interface Itpcc_com : IUnknown{
		[helpstring("method doStockLevel")] HRESULT doStockLevel([in]
INT *size, [in,out, size_is(,*size)] UCHAR **buffer);
		[helpstring("method doNewOrder")] HRESULT doNewOrder([in]
INT* size, [in,out,size_is(,*size)] UCHAR** buffer);
		[helpstring("method doPayment")] HRESULT doPayment([in] INT*
size, [in,out,size_is(,*size)] UCHAR** buffer);
		[helpstring("method doOrderStatus")] HRESULT
doOrderStatus([in] INT* size, [in,out,size_is(,*size)] UCHAR** buffer);
		[helpstring("method doDBInfo")] HRESULT doDBInfo(void);
		[helpstring("method doSetComplete")] HRESULT
doSetComplete(void);
};
[
		uuid(91F1B8B0-89E9-457B-A228-3E2D6CE3E752),
		version(1.0),
		helpstring("tpccCom 1.0 Type Library"),

custom(a817e7a1-43fa-11d0-9e44-00aa00b6770a,"{90EEDAFF-F8D3-4711-99
A9-8AC3C0FE5DB9}")
]
library tpccComLib
{
		importlib("stdole2.tlb");
		[
			uuid(90EEDAFF-F8D3-4711-99A9-8AC3C0FE5DB9),
			helpstring("ComponentRegistrar Class")
		]
		coclass CompReg
		{
			[default] interface IComponentRegistrar;
		};
		[
			uuid(5F752BF2-F739-43D4-8492-44C19581C0A1),
			helpstring("tpcc_com Class")
		]
		coclass tpcc_com
		{
			[default] interface Itpcc_com;
		};
};
```

tpccCom/tpcc_com.rgs

```
HKCR
{
		tpccCom.tpcc_com.1 = s 'tpcc_com Class'
		{
			CLSID = s
'{5F752BF2-F739-43D4-8492-44C19581C0A1}'
		}
		tpccCom.tpcc_com = s 'tpcc_com Class'
		{
			CLSID = s
'{5F752BF2-F739-43D4-8492-44C19581C0A1}'
			CurVer = s 'tpccCom.tpcc_com.1'
		}
		NoRemove CLSID
		{
			ForceRemove
{5F752BF2-F739-43D4-8492-44C19581C0A1} = s 'tpcc_com Class'
			{
				ProgID = s 'tpccCom.tpcc_com.1'
				VersionIndependentProgID = s
'tpccCom.tpcc_com'
```

```
                                InprocServer32 = s '%MODULE%'
                                {
                                        val ThreadingModel = s 'Both'
                                }
                                val AppID = s '%APPID%'
                                'TypeLib' = s
'{91F1B8B0-89E9-457B-A228-3E2D6CE3E752}'
                        }
            }
}
```

tpccCom/comreg.cpp

```
/ compreg.cpp : Implementation of CCompReg
#include "stdafx.h"
#include "compreg.h"

// CCompReg
```

tpccCom/stdafx.cpp

```
// stdafx.cpp : source file that includes just the standard includes
// tpccCom.pch will be the pre-compiled header
// stdafx.obj will contain the pre-compiled type information
#include "stdafx.h"
```

tpccCom/tpccCom.cpp

```
// tpccCom.cpp : Implementation of DLL Exports.
//
// Note: COM+ 1.0 Information:
//      Please remember to run Microsoft Transaction Explorer to install the
component(s).
//      Registration is not done by default.
#include "stdafx.h"
#include "resource.h"
#include "tpccCom.h"
#include "compreg.h"
#include "dlldatax.h"
class CtpccComModule : public CAtlDllModuleT< CtpccComModule >
{
public :
            DECLARE_LIBID(LIBID_tpccComLib)

DECLARE_REGISTRY_APPID_RESOURCEID(IDR_TPCCCOM,
"{11ED2355-1A27-42F1-ADFF-F201F5E82BCE}")
};
CtpccComModule _AtlModule;

// DLL Entry Point
extern "C" BOOL WINAPI DllMain(HINSTANCE hInstance, DWORD
dwReason, LPVOID lpReserved)
{
#ifdef _MERGE_PROXYSTUB
   if (!PrxDllMain(hInstance, dwReason, lpReserved))
      return FALSE;
#endif
            hInstance;
   return _AtlModule.DllMain(dwReason, lpReserved);
}

// Used to determine whether the DLL can be unloaded by OLE
STDAPI DllCanUnloadNow(void)
{
#ifdef _MERGE_PROXYSTUB
   HRESULT hr = PrxDllCanUnloadNow();
   if (FAILED(hr))
      return hr;
#endif
   return _AtlModule.DllCanUnloadNow();
}

// Returns a class factory to create an object of the requested type
STDAPI DllGetClassObject(REFCLSID rclsid, REFIID riid, LPVOID* ppv)
{
#ifdef _MERGE_PROXYSTUB
   if (PrxDllGetClassObject(rclsid, riid, ppv) == S_OK)
      return S_OK;
#endif
   return _AtlModule.DllGetClassObject(rclsid, riid, ppv);
}

// DllRegisterServer - Adds entries to the system registry
STDAPI DllRegisterServer(void)
{
   // registers object, typelib and all interfaces in typelib
   HRESULT hr = _AtlModule.DllRegisterServer();
#ifdef _MERGE_PROXYSTUB
   if (FAILED(hr))
      return hr;
   hr = PrxDllRegisterServer();
#endif
            return hr;
}


// DllUnregisterServer - Removes entries from the system registry
STDAPI DllUnregisterServer(void)
{
            HRESULT hr = _AtlModule.DllUnregisterServer();
#ifdef _MERGE_PROXYSTUB
   if (FAILED(hr))
      return hr;
   hr = PrxDllRegisterServer();
   if (FAILED(hr))
      return hr;
   hr = PrxDllUnregisterServer();
#endif
            return hr;
}
```

tpccCom/tpcc_com.cpp

```
// tpcc_com.cpp : Implementation of Ctpcc_com
#include "stdafx.h"
#include "tpcc_com.h"
#include ".\tpcc_com.h"
#include <db2tpcc.h>
// Ctpcc_com
HRESULT Ctpcc_com::Activate()
{
            HRESULT hr = GetObjectContext(&m_spObjectContext);
            if (SUCCEEDED(hr))
            {
                        DEBUGMSG("Object assigned to thread."<<endl);
                        return S_OK;
            }
            return hr;
}
BOOL Ctpcc_com::CanBePooled()
{
            DEBUGMSG("CanBePooled() returning true"<<endl);
            return TRUE;
}
void Ctpcc_com::Deactivate()
{
```

```
		DEBUGMSG("deactivated() releasing object back into
pool"<<endl);
		m_spObjectContext.Release();
}
/*
*****************************************************************
** Name                    :       doSetComplete
** Description     :
**                                         Release object back
into com pool
** Parameters      :
** Returns         :
**                                         int - return code
** Comments                :
**                                         Calls SetComplete on
the object that the com
**                                         pool manager returned
to the caller(isapi thread)
*****************************************************************
*/
STDMETHODIMP Ctpcc_com::doSetComplete(void)
{
		// TODO: Add your implementation code here
		HRESULT hres = m_spObjectContext->SetComplete();
		if (SUCCEEDED(hres))
		{
			DEBUGMSG("SetComplete successful. object bit set to
release object into pool."<<endl);
		}
		else
		{
			DEBUGMSG("SetComplete failed. object bit set to
release object into pool."<<endl);
			ERRORMSG("SetComplete() failed,
code:"<<HRESULT_CODE(hres)<<"
facility:"<<HRESULT_FACILITY(hres)<<" hres:"<<hex<<hres<<endl);
		}
		return S_OK;
}
/*
*****************************************************************
** Name                    :       doStockLevel
** Description     :
**                                         Call db2 dll entry point
to execute txn
** Parameters      :
**                                         int*
size of UCHAR buffer to pay attention to
**                                         UCHAR**
char buffer that holds txn wrapper struct
** Returns         :
**                                         int - return code
** Comments                :
**
*****************************************************************
*/
STDMETHODIMP Ctpcc_com::doStockLevel(INT *size, UCHAR **buffer)
{
		stok_wrapper * stok;

		stok = (stok_wrapper *) *buffer;

		if(!connectHandleInUse)
		{
			DEBUGMSG("Setting Context handle in use to
true"<<endl);
			connectHandleInUse = 1;
		}
		else
		{
			DEBUGMSG("Context handle in use."<<endl);
			ERRORMSG("Context handle in use."<<endl);
			return ERR_HANDLE_IN_USE;
		}
		DEBUGMSG("Calling do_stok call using
connectHandle:"<<DEBUGADDRESS(connectHandle)<<"
w_id:"<<stok->in_stok.s_W_ID<<" d_id:"<< stok->in_stok.s_D_ID<<
"
s_transtatus:"<<stok->out_stok.s_transtatus<<endl);

		do_stok(stok,connectHandle);
		DEBUGMSG("Return from do_stok call using
connectHandle:"<<DEBUGADDRESS(connectHandle)<<"
w_id:"<<stok->in_stok.s_W_ID<<" d_id:"<< stok->in_stok.s_D_ID<<
"
s_transtatus:"<<stok->out_stok.s_transtatus<<endl);
		DEBUGMSG("Connection handle set to free" <<endl);
		connectHandleInUse = 0;
		return S_OK;
}
/*
*****************************************************************
** Name                    :       doNewOrder
** Description     :
**                                         Call db2 dll entry point
to execute txn
** Parameters      :
**                                         int*
size of UCHAR buffer to pay attention to
**                                         UCHAR**
char buffer that holds txn wrapper struct
** Returns         :
**                                         int - return code
** Comments                :
**
*****************************************************************
*/
STDMETHODIMP Ctpcc_com::doNewOrder(INT* size, UCHAR** buffer)
{
		nord_wrapper *nord;
		nord = (nord_wrapper *) *buffer;
		if(!connectHandleInUse)
		{
			DEBUGMSG("Setting Context handle in use to
true"<<endl);
			connectHandleInUse = 1;
		}
		else
		{
			DEBUGMSG("Context handle in use."<<endl);
			ERRORMSG("Context handle in use."<<endl);
			return ERR_HANDLE_IN_USE;
		}

		DEBUGMSG("Calling do_nord call using
connectHandle:"<<DEBUGADDRESS(connectHandle)<<"
w_id:"<<nord->in_nord.s_W_ID<<" d_id:"<< nord->in_nord.s_D_ID<<
"
s_transtatus:"<<nord->out_nord.s_transtatus<<endl);
		do_nord(nord,connectHandle);

		DEBUGMSG("Return from do_nord call using
connectHandle:"<<DEBUGADDRESS(connectHandle)<<"
w_id:"<<nord->in_nord.s_W_ID<<" d_id:"<< nord->in_nord.s_D_ID<<
"
s_transtatus:"<<nord->out_nord.s_transtatus<<endl);
```

```
		DEBUGMSG("Connection handle set to free" <<endl);
		connectHandleInUse = 0;
		return S_OK;
}
/*
*****************************************************************
** Name                    :       doPayment
** Description             :
**                                         Call db2 dll entry point
to execute txn
** Parameters              :
**                                         int*
size of UCHAR buffer to pay attention to
**                                         UCHAR**
char buffer that holds txn wrapper struct
** Returns                 :
**                                         int - return code
** Comments                :
**
*****************************************************************
*/
STDMETHODIMP Ctpcc_com::doPayment(INT* size, UCHAR** buffer)
{
		paym_wrapper		*pymt;
		pymt = (paym_wrapper *) *buffer;
		if(!connectHandleInUse)
		{
			DEBUGMSG("Setting Context handle in use to
true"<<endl);
			connectHandleInUse = 1;
		}
		else
		{
			DEBUGMSG("Context handle in use."<<endl);
			ERRORMSG("Context handle in use."<<endl);
			return ERR_HANDLE_IN_USE;
		}

		DEBUGMSG("Calling do_pymt call using
connectHandle:"<<DEBUGADDRESS(connectHandle)<<"
w_id:"<<pymt->in_paym.s_W_ID<<" d_id:"<< pymt->in_paym.s_D_ID<<
                                        "
s_transtatus:"<<pymt->out_paym.s_transtatus<<endl);
		do_pymt(pymt,connectHandle);
		DEBUGMSG("Return from do_pymt call using
connectHandle:"<<DEBUGADDRESS(connectHandle)<<"
w_id:"<<pymt->in_paym.s_W_ID<<" d_id:"<< pymt->in_paym.s_D_ID<<
                                        "
s_transtatus:"<<pymt->out_paym.s_transtatus<<endl);
		DEBUGMSG("Connection handle set to free" <<endl);
		connectHandleInUse = 0;


		return S_OK;
}
/*
*****************************************************************
** Name                    :       doOrderStatus
** Description             :
**                                         Call db2 dll entry point
to execute txn
** Parameters              :
**                                         int*
size of UCHAR buffer to pay attention to
**                                         UCHAR**
char buffer that holds txn wrapper struct
** Returns                 :
**                                         int - return code
** Comments                :
**
*****************************************************************
*/
STDMETHODIMP Ctpcc_com::doOrderStatus(INT* size, UCHAR** buffer)
{
		ords_wrapper		*ords;
		ords = (ords_wrapper *) *buffer;
		if(!connectHandleInUse)
		{
			DEBUGMSG("Setting Context handle in use to
true"<<endl);
			connectHandleInUse = 1;
		}
		else
		{
			DEBUGMSG("Context handle in use."<<endl);
			ERRORMSG("Context handle in use."<<endl);
			return ERR_HANDLE_IN_USE;
		}

		DEBUGMSG("Calling do_ords call using
connectHandle:"<<DEBUGADDRESS(connectHandle)<<"
w_id:"<<ords->in_ords.s_W_ID<<" d_id:"<< ords->in_ords.s_D_ID<<
                                        "
s_transtatus:"<<ords->out_ords.s_transtatus<<endl);
		do_ords(ords,connectHandle);
		DEBUGMSG("Return from do_ords call using
connectHandle:"<<DEBUGADDRESS(connectHandle)<<"
w_id:"<<ords->in_ords.s_W_ID<<" d_id:"<< ords->in_ords.s_D_ID<<
                                        "
s_transtatus:"<<ords->out_ords.s_transtatus<<endl);
		DEBUGMSG("Connection handle set to free" <<endl);
		connectHandleInUse = 0;

		return S_OK;
}
/*
*****************************************************************
** Name                    :       doDBInfo
** Description             :
**                                         Function to test com
interface
** Parameters              :
** Returns                 :
**                                         int - return code
** Comments                :
**
*****************************************************************
*/
STDMETHODIMP Ctpcc_com::doDBInfo(void)
{
		DEBUGMSG("Stub function to warm object pool"<<endl);
		return S_OK;
}
/*
*****************************************************************
** Name                    :       loadLibrary
** Description             :
**                                         Function loads
apprioate db library based on
**                                         registry setting
** Parameters              :
** Returns                 :
**                                         int - return code
** Comments                :
**
*****************************************************************
```

```
*/
Ctpcc_com::loadLibrary()
{
	DEBUGMSG("Entered loadLibrary function"<<endl);
	//check to see if dbInstance is already loaded
	if(!dbInstance)
	{
		DEBUGMSG("Database dll not loaded. Loading
dll."<<endl);
		if (nullDB)
		{
			DEBUGMSG("Loading "<<dbType << "
nulldb dll." << endl);
			dbInstance =
LoadLibrary("c:\\inetpub\\wwwroot\\tpcc\\nullDB.dll");
			if(dbInstance == NULL)
			{
				DEBUGMSG("Unable to load null
db dll, rc:"<<GetLastError());
				ERRORMSG("Unable to load null
db dll, rc:"<<GetLastError());
				return
ERR_NULL_DLL_NOT_LOADED;
			}
			DEBUGMSG(dbType << " nulldb dll
loaded"<<endl);
		}
		else if(strcmp(dbType,"DB2") == 0)
		{
			DEBUGMSG("Loading "<<dbType << " dll."
<< endl);

			dbInstance =
LoadLibrary("c:\\inetpub\\wwwroot\\tpcc\\tpccDB2glue.dll");
			if(dbInstance == NULL)
			{
				DEBUGMSG("Unable to load
library."<<endl);

				ERRORMSG("Unable to load com
dll, rc:" << GetLastError() << endl);

				return
ERR_DB2_DLL_NOT_LOADED;
			}
			DEBUGMSG(dbType<< " dll
loaded"<<endl);
		}
		else if( strcmp(dbType,"ORACLE") == 0 )
		{
			DEBUGMSG("Unable to load orcale
dll"<<endl);
			ERRORMSG("Unable to load orcale dll,
rc:"<<GetLastError()<<endl);
			return
ERR_ORACLE_DLL_NOT_LOADED;
		}
		else
		{
			DEBUGMSG("Unknown database type
dll:"<<dbType<<endl);
			ERRORMSG("Unknown database type
dll:"<<dbType<<endl);
			return ERR_UNKNOWN_DB;
		}
		//retrieve function addresses from instance loaded.
		DEBUGMSG("Getting do_connection function address
from "<<dbType<<" dll"<<endl);
		if( (do_connection =
(CONNECT_PTR)GetProcAddress(dbInstance,"connect_db")) == NULL )
			return
ERR_CONNECT_ADDRESS_NOT_FOUND;
		DEBUGMSG("do_connection
address:"<<DEBUGADDRESS(do_connection)<<endl);
		DEBUGMSG("Getting do_disconnect function address
from "<<dbType<<" dll"<<endl);
		if( (do_disconnect =
(DISCONNECT_PTR)GetProcAddress(dbInstance,"disconnect_db")) ==
NULL )
			return
ERR_DISCONNECT_ADDRESS_NOT_FOUND;
		DEBUGMSG("do_disconnect
address:"<<DEBUGADDRESS(do_disconnect)<<endl);
		DEBUGMSG("Getting do_nord function address from
"<<dbType<<" dll"<<endl);
		if( (do_nord = (NORD_PTR)
GetProcAddress(dbInstance,"do_nord")) == NULL)
			return
ERR_NORD_ADDRESS_NOT_FOUND;
		DEBUGMSG("do_nord function
address:"<<DEBUGADDRESS(do_nord)<<endl);
		DEBUGMSG("Getting do_pymt function address from
"<<dbType<<" dll"<<endl);
		if( (do_pymt = (PYMT_PTR)
GetProcAddress(dbInstance,"do_pymt")) == NULL)
			return
ERR_PYMT_ADDRESS_NOT_FOUND;
		DEBUGMSG("do_pymt function
adddress:"<<DEBUGADDRESS(do_pymt)<<endl);
		DEBUGMSG("Getting do_ords function address from
"<<dbType<<" dll"<<endl);
		if( (do_ords = (ORDS_PTR)
GetProcAddress(dbInstance,"do_ords")) == NULL)
			return
ERR_ORDS_ADDRESS_NOT_FOUND;
		DEBUGMSG("do_ords function
address:"<<DEBUGADDRESS(do_ords)<<endl);
		DEBUGMSG("Getting do_stok function address from
"<<dbType<<"
dll"<<endl);

		if( (do_stok = (STOK_PTR)
GetProcAddress(dbInstance,"do_stok")) == NULL)
			return
ERR_STOK_ADDRESS_NOT_FOUND;
		DEBUGMSG("do_stok function
address:"<<DEBUGADDRESS(do_stok)<<endl);
		DEBUGMSG("All function addresses retrieved
successfully."<<endl);
	}
	return OK;
}
/*
*****************************************************************
** Name		:	readRegistry()
** Description	:
**		Function reads registry
value
** Parameters	:
** Returns	:
**		int - return code
** Comments	:
**		Values retrieved from
registery
**		dbName, dbUserName,
and dbUserPassword
```

```
*************************************************************
*/
Ctpcc_com::readRegistery()
{
	//open registery key
	HKEY	registeryKey;
	DWORD	regType;
	char	value[MAX_STRING_LEN];
	DWORD	regValue;
	DWORD	regValueSize = MAX_STRING_LEN;
	DEBUGMSG("Entered readRegistery(), opening key:"<<
REGISTERY_SUB_KEY <<endl);
	//open up registery key

if(RegOpenKeyEx(HKEY_LOCAL_MACHINE,REGISTERY_SUB_KEY,0,K
EY_READ,&registeryKey) == ERROR_SUCCESS)
	{
		DEBUGMSG(REGISTERY_SUB_KEY<<" open,
getting database type from key"<<endl);
		regValueSize = sizeof(value);
		if
(RegQueryValueEx(registeryKey,DB_TYPE,0,&regType,(BYTE *)
&value,&regValueSize)== ERROR_SUCCESS )
			strcpy(dbType,value);
		DEBUGMSG("Database type:"<<dbType<<" from
registery key."<<endl);
		DEBUGMSG("Getting database name from registery
key."<<endl);
		regValueSize = sizeof(value);
		if
(RegQueryValueEx(registeryKey,DB_NAME,0,&regType,(BYTE *)
&value,&regValueSize)== ERROR_SUCCESS )
			strcpy(dbName,value);
		DEBUGMSG("Database name:"<<dbName<<endl);
		DEBUGMSG("Getting null database flag from
key."<<endl);
		regValueSize = sizeof(regValue);

if(RegQueryValueEx(registeryKey,NULL_DB,0,&regType,(BYTE
*)&regValue,&regValueSize) == ERROR_SUCCESS)
			nullDB = regValue;
		DEBUGMSG("Null database flag:"<<nullDB<<endl);
		return OK;
	}
	DEBUGMSG("Error, unable to open registery key."<<endl);
	return ERR_UNABLE_TO_OPEN_REG;
}
/*
*************************************************************
** Name		:	connectDB
** Description	:
**
Function connects to
the db
** Parameters	:
** Returns	:
**
int - return code
** Comments	:
**
*************************************************************
*/
Ctpcc_com::connectDB()
{
	DEBUGMSG("Entered connectDB(), checking if object is
connected."<<endl);
	if(!connected)
	{
		DEBUGMSG("Object not connected, calling
do_connection with dbName:"<<dbName<<" connectHandle:"<<
DEBUGADDRESS(connectHandle)<<endl);
		if(!connectHandleInUse)
		{
			DEBUGMSG("Setting Context handle in use
to true"<<endl);
			connectHandleInUse = 1;
			connected =
do_connection(dbName,&connectHandle);
			if(connected != OK)
			{
				DEBUGMSG("Object do_connect
failed, rc:"<<connected<<endl);
				ERRORMSG("Object do_connect
failed, rc:"<<connected<<endl);
				return connected;
			}
			DEBUGMSG("Object connection complete,
connectHandle:"<<DEBUGADDRESS(connectHandle)<<endl);
			connectHandleInUse = 0;
			return OK;
		}
		else
		{
			DEBUGMSG("Object's connectHandle
already in use, connect failed"<<endl);
			ERRORMSG("Object's connectHandle
already in use, connect failed"<<endl);
			return ERR_HANDLE_IN_USE;
		}
	}
	DEBUGMSG("Object already has connection established."<<endl);
	return OK;
}
```

tpccCom/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
*********************************************************/
#define PROXY_DELEGATION
#include <rpcproxy.h>
#ifdef __cplusplus

extern "C"   {
#endif
EXTERN_PROXY_FILE( tpccCom )

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

DLLDATA_ROUTINES( aProxyFileList, GET_DLL_CLSID )
#ifdef __cplusplus
}  /*extern "C" */
#endif
/* end of generated dlldata file */
```

tpccCom/dlldatax.c

```
// wrapper for dlldata.c
#ifdef _MERGE_PROXYSTUB // merge proxy stub DLL
```

```
#define REGISTER_PROXY_DLL //DllRegisterServer, etc.
#define _WIN32_WINNT 0x0500             //for Win2000, change it to 0x0400
for NT4 or Win95 with DCOM
#define USE_STUBLESS_PROXY              //defined only with MIDL switch
/Oicf
#pragma comment(lib, "rpcns4.lib")
#pragma comment(lib, "rpcrt4.lib")
#define ENTRY_PREFIX          Prx
#include "dlldata.c"
#include "tpccCom_p.c"
#endif //_MERGE_PROXYSTUB
```

tpccCom/tpccCom_i.c

```
* 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 6.00.0361 */
/* at Wed Feb 11 08:32:46 2004
 */
/* Compiler settings for .\tpccCom.idl:
    Oicf, W1, Zp8, env=Win32 (32b run)
    protocol : dce , 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_AMD64)

#pragma warning( disable: 4049 )  /* more than 64k source lines */

#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_IComponentRegistrar,0xa817e7a2,0x43fa,0x11d0,0x9e,0x44,0x00,0xaa,0x
00,0xb6,0x77,0x0a);

MIDL_DEFINE_GUID(IID,
IID_Itpcc_com,0x5B4FA473,0x2E68,0x4D79,0xA6,0x26,0xF3,0x8B,0x30,0x
B8,0x19,0x6E);

MIDL_DEFINE_GUID(IID,
LIBID_tpccComLib,0x91F1B8B0,0x89E9,0x457B,0xA2,0x28,0x3E,0x2D,0x6
C,0xE3,0xE7,0x52);

MIDL_DEFINE_GUID(CLSID,
CLSID_CompReg,0x90EEDAFF,0xF8D3,0x4711,0x99,0xA9,0x8A,0xC3,0xC
0,0xFE,0x5D,0xB9);

MIDL_DEFINE_GUID(CLSID,
CLSID_tpcc_com,0x5F752BF2,0xF739,0x43D4,0x84,0x92,0x44,0xC1,0x95,0
x81,0xC0,0xA1);
#undef MIDL_DEFINE_GUID
#ifdef __cplusplus
}
#endif

#endif /* !defined(_M_IA64) && !defined(_M_AMD64)*/
```

tpccCom/tpccCom_p.c

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

 /* File created by MIDL compiler version 6.00.0361 */
/* at Wed Feb 11 08:32:46 2004
 */
/* Compiler settings for .\tpccCom.idl:
    Oicf, W1, Zp8, env=Win32 (32b run)
    protocol : dce , 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_AMD64)

#pragma warning( disable: 4049 )  /* more than 64k source lines */
#if _MSC_VER >= 1200
#pragma warning(push)
#endif
#pragma warning( disable: 4100 ) /* unreferenced arguments in x86 call */
#pragma warning( disable: 4211 )  /* redefine extent to static */
#pragma warning( disable: 4232 )  /* dllimport identity*/
#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 "tpccCom.h"
#define TYPE_FORMAT_STRING_SIZE   1089
#define PROC_FORMAT_STRING_SIZE   409
```

```
#define TRANSMIT_AS_TABLE_SIZE    0
#define WIRE_MARSHAL_TABLE_SIZE   2
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;

static RPC_SYNTAX_IDENTIFIER  _RpcTransferSyntax =
{{0x8A885D04,0x1CEB,0x11C9,{0x9F,0xE8,0x08,0x00,0x2B,0x10,0x48,0x6
0}},{2,0}};

extern const MIDL_TYPE_FORMAT_STRING __MIDL_TypeFormatString;
extern const MIDL_PROC_FORMAT_STRING __MIDL_ProcFormatString;

extern const MIDL_STUB_DESC Object_StubDesc;

extern const MIDL_SERVER_INFO IComponentRegistrar_ServerInfo;
extern const MIDL_STUBLESS_PROXY_INFO
IComponentRegistrar_ProxyInfo;

extern const MIDL_STUB_DESC Object_StubDesc;

extern const MIDL_SERVER_INFO Itpcc_com_ServerInfo;
extern const MIDL_STUBLESS_PROXY_INFO Itpcc_com_ProxyInfo;

extern const USER_MARSHAL_ROUTINE_QUADRUPLE
UserMarshalRoutines[ WIRE_MARSHAL_TABLE_SIZE ];
#if !defined(__RPC_WIN32__)
#error  Invalid build platform for this stub.
#endif
#if !(TARGET_IS_NT50_OR_LATER)
#error You need a Windows 2000 or later to run this stub because it uses these
features:
#error   /robust command line switch.
#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 Attach */
                                0x33,               /*
FC_AUTO_HANDLE */
                                0x6c,               /* Old Flags:  object,
Oi2 */
/*  2 */    NdrFcLong( 0x0 ),   /* 0 */
/*  6 */    NdrFcShort( 0x7 ),  /* 7 */
/*  8 */    NdrFcShort( 0xc ),  /* x86 Stack size/offset = 12 */
/* 10 */    NdrFcShort( 0x0 ),  /* 0 */
/* 12 */    NdrFcShort( 0x8 ),  /* 8 */
/* 14 */    0x46,               /* Oi2 Flags:  clt must size, has return, has
ext, */
                                0x2,                /* 2 */
/* 16 */    0x8,                /* 8 */
                                0x5,                /* Ext Flags:  new corr
desc, srv corr check, */
/* 18 */    NdrFcShort( 0x0 ),  /* 0 */
/* 20 */    NdrFcShort( 0x1 ),  /* 1 */
/* 22 */    NdrFcShort( 0x0 ),  /* 0 */
            /* Parameter bstrPath */
/* 24 */    NdrFcShort( 0x8b ), /* Flags:  must size, must free, in, by val, */
/* 26 */    NdrFcShort( 0x4 ),  /* x86 Stack size/offset = 4 */
/* 28 */    NdrFcShort( 0x1c ), /* Type Offset=28 */
            /* Return value */
/* 30 */    NdrFcShort( 0x70 ), /* Flags:  out, return, base type, */
/* 32 */    NdrFcShort( 0x8 ),  /* x86 Stack size/offset = 8 */
/* 34 */    0x8,                /* FC_LONG */
                                0x0,                /* 0 */
            /* Procedure doSetComplete */

            /* Procedure RegisterAll */
/* 36 */    0x33,               /* FC_AUTO_HANDLE */
                                0x6c,               /* Old Flags:  object,
Oi2 */
/* 38 */    NdrFcLong( 0x0 ),   /* 0 */
/* 42 */    NdrFcShort( 0x8 ),  /* 8 */
/* 44 */    NdrFcShort( 0x8 ),  /* x86 Stack size/offset = 8 */
/* 46 */    NdrFcShort( 0x0 ),  /* 0 */
/* 48 */    NdrFcShort( 0x8 ),  /* 8 */
/* 50 */    0x44,               /* Oi2 Flags:  has return, has ext, */
                                0x1,                /* 1 */
/* 52 */    0x8,                /* 8 */
                                0x1,                /* Ext Flags:  new corr
desc, */
/* 54 */    NdrFcShort( 0x0 ),  /* 0 */
/* 56 */    NdrFcShort( 0x0 ),  /* 0 */
/* 58 */    NdrFcShort( 0x0 ),  /* 0 */
            /* Return value */

            /* Return value */
/* 60 */    NdrFcShort( 0x70 ), /* Flags:  out, return, base type, */
/* 62 */    NdrFcShort( 0x4 ),  /* x86 Stack size/offset = 4 */
/* 64 */    0x8,                /* FC_LONG */
                                0x0,                /* 0 */
            /* Procedure UnregisterAll */
/* 66 */    0x33,               /* FC_AUTO_HANDLE */
                                0x6c,               /* Old Flags:  object,
Oi2 */
/* 68 */    NdrFcLong( 0x0 ),   /* 0 */
/* 72 */    NdrFcShort( 0x9 ),  /* 9 */
/* 74 */    NdrFcShort( 0x8 ),  /* x86 Stack size/offset = 8 */
/* 76 */    NdrFcShort( 0x0 ),  /* 0 */
/* 78 */    NdrFcShort( 0x8 ),  /* 8 */
/* 80 */    0x44,               /* Oi2 Flags:  has return, has ext, */
                                0x1,                /* 1 */
/* 82 */    0x8,                /* 8 */
                                0x1,                /* Ext Flags:  new corr
desc, */
/* 84 */    NdrFcShort( 0x0 ),  /* 0 */
/* 86 */    NdrFcShort( 0x0 ),  /* 0 */
/* 88 */    NdrFcShort( 0x0 ),  /* 0 */
            /* Return value */
/* 90 */    NdrFcShort( 0x70 ), /* Flags:  out, return, base type, */
/* 92 */    NdrFcShort( 0x4 ),  /* x86 Stack size/offset = 4 */
/* 94 */    0x8,                /* FC_LONG */
                                0x0,                /* 0 */
            /* Procedure GetComponents */
/* 96 */    0x33,               /* FC_AUTO_HANDLE */
                                0x6c,               /* Old Flags:  object,
Oi2 */
/* 98 */    NdrFcLong( 0x0 ),   /* 0 */
/* 102 */   NdrFcShort( 0xa ),  /* 10 */
/* 104 */   NdrFcShort( 0x10 ), /* x86 Stack size/offset = 16 */
/* 106 */   NdrFcShort( 0x0 ),  /* 0 */
/* 108 */   NdrFcShort( 0x8 ),  /* 8 */
```

```
/* 110 */   0x45,                   /* Oi2 Flags:  srv must size, has return, has
ext, */
                                    0x3,                    /* 3 */
/* 112 */   0x8,                    /* 8 */
                                    0x3,                    /* Ext Flags:  new corr
desc, clt corr check, */
/* 114 */   NdrFcShort( 0x24 ),     /* 36 */
/* 116 */   NdrFcShort( 0x0 ),      /* 0 */
/* 118 */   NdrFcShort( 0x0 ),      /* 0 */
            /* Parameter pbstrCLSIDs */
/* 120 */   NdrFcShort( 0x2113 ),           /* Flags:  must size, must free, out,
simple ref, srv alloc size=8 */
/* 122 */   NdrFcShort( 0x4 ),      /* x86 Stack size/offset = 4 */
/* 124 */   NdrFcShort( 0x41e ),    /* Type Offset=1054 */
            /* Parameter pbstrDescriptions */
/* 126 */   NdrFcShort( 0x2113 ),           /* Flags:  must size, must free, out,
simple ref, srv alloc size=8 */
/* 128 */   NdrFcShort( 0x8 ),      /* x86 Stack size/offset = 8 */
/* 130 */   NdrFcShort( 0x41e ),    /* Type Offset=1054 */
            /* Return value */
/* 132 */   NdrFcShort( 0x70 ),     /* Flags:  out, return, base type, */
/* 134 */   NdrFcShort( 0xc ),      /* x86 Stack size/offset = 12 */
/* 136 */   0x8,                    /* FC_LONG */
                                    0x0,                    /* 0 */
            /* Procedure RegisterComponent */
/* 138 */   0x33,                   /* FC_AUTO_HANDLE */
                                    0x6c,                   /* Old Flags:  object,
Oi2 */
/* 140 */   NdrFcLong( 0x0 ),       /* 0 */
/* 144 */   NdrFcShort( 0xb ),      /* 11 */
/* 146 */   NdrFcShort( 0xc ),      /* x86 Stack size/offset = 12 */
/* 148 */   NdrFcShort( 0x0 ),      /* 0 */
/* 150 */   NdrFcShort( 0x8 ),      /* 8 */
/* 152 */   0x46,                   /* Oi2 Flags:  clt must size, has return, has
ext, */
                                    0x2,                    /* 2 */
/* 154 */   0x8,                    /* 8 */
                                    0x5,                    /* Ext Flags:  new corr
desc, srv corr check, */
/* 156 */   NdrFcShort( 0x0 ),      /* 0 */
/* 158 */   NdrFcShort( 0x1 ),      /* 1 */
/* 160 */   NdrFcShort( 0x0 ),      /* 0 */
            /* Parameter bstrCLSID */
/* 162 */   NdrFcShort( 0x8b ),     /* Flags:  must size, must free, in, by val, */
/* 164 */   NdrFcShort( 0x4 ),      /* x86 Stack size/offset = 4 */
/* 166 */   NdrFcShort( 0x1c ),     /* Type Offset=28 */
            /* Return value */
/* 168 */   NdrFcShort( 0x70 ),     /* Flags:  out, return, base type, */
/* 170 */   NdrFcShort( 0x8 ),      /* x86 Stack size/offset = 8 */
/* 172 */   0x8,                    /* FC_LONG */
                                    0x0,                    /* 0 */
            /* Procedure UnregisterComponent */
/* 174 */   0x33,                   /* FC_AUTO_HANDLE */
                                    0x6c,                   /* Old Flags:  object,
Oi2 */
/* 176 */   NdrFcLong( 0x0 ),       /* 0 */
/* 180 */   NdrFcShort( 0xc ),      /* 12 */
/* 182 */   NdrFcShort( 0xc ),      /* x86 Stack size/offset = 12 */
/* 184 */   NdrFcShort( 0x0 ),      /* 0 */
/* 186 */   NdrFcShort( 0x8 ),      /* 8 */
/* 188 */   0x46,                   /* Oi2 Flags:  clt must size, has return, has
ext, */
                                    0x2,                    /* 2 */
/* 190 */   0x8,                    /* 8 */
                                    0x5,                    /* Ext Flags:  new corr
desc, srv corr check, */
/* 192 */   NdrFcShort( 0x0 ),      /* 0 */
/* 194 */   NdrFcShort( 0x1 ),      /* 1 */
/* 196 */   NdrFcShort( 0x0 ),      /* 0 */
            /* Parameter bstrCLSID */
/* 198 */   NdrFcShort( 0x8b ),     /* Flags:  must size, must free, in, by val, */
/* 200 */   NdrFcShort( 0x4 ),      /* x86 Stack size/offset = 4 */
/* 202 */   NdrFcShort( 0x1c ),     /* Type Offset=28 */
            /* Return value */
/* 204 */   NdrFcShort( 0x70 ),     /* Flags:  out, return, base type, */
/* 206 */   NdrFcShort( 0x8 ),      /* x86 Stack size/offset = 8 */
/* 208 */   0x8,                    /* FC_LONG */
                                    0x0,                    /* 0 */
            /* Procedure doStockLevel */
/* 210 */   0x33,                   /* FC_AUTO_HANDLE */
                                    0x6c,                   /* Old Flags:  object,
Oi2 */
/* 212 */   NdrFcLong( 0x0 ),       /* 0 */
/* 216 */   NdrFcShort( 0x3 ),      /* 3 */
/* 218 */   NdrFcShort( 0x10 ),     /* x86 Stack size/offset = 16 */
/* 220 */   NdrFcShort( 0x1c ),     /* 28 */
/* 222 */   NdrFcShort( 0x8 ),      /* 8 */
/* 224 */   0x47,                   /* Oi2 Flags:  srv must size, clt must size, has
return, has ext, */
                                    0x3,                    /* 3 */
/* 226 */   0x8,                    /* 8 */
                                    0x7,                    /* Ext Flags:  new corr
desc, clt corr check, srv corr check, */
/* 228 */   NdrFcShort( 0x1 ),      /* 1 */
/* 230 */   NdrFcShort( 0x1 ),      /* 1 */
/* 232 */   NdrFcShort( 0x0 ),      /* 0 */
            /* Parameter size */
/* 234 */   NdrFcShort( 0x148 ),    /* Flags:  in, base type, simple ref, */
/* 236 */   NdrFcShort( 0x4 ),      /* x86 Stack size/offset = 4 */
/* 238 */   0x8,                    /* FC_LONG */
                                    0x0,                    /* 0 */
            /* Parameter buffer */
/* 240 */   NdrFcShort( 0x201b ),           /* Flags:  must size, must free, in,
out, srv alloc size=8 */
/* 242 */   NdrFcShort( 0x8 ),      /* x86 Stack size/offset = 8 */
/* 244 */   NdrFcShort( 0x42c ),    /* Type Offset=1068 */
            /* Return value */
/* 246 */   NdrFcShort( 0x70 ),     /* Flags:  out, return, base type, */
/* 248 */   NdrFcShort( 0xc ),      /* x86 Stack size/offset = 12 */
/* 250 */   0x8,                    /* FC_LONG */
                                    0x0,                    /* 0 */
            /* Procedure doNewOrder */
/* 252 */   0x33,                   /* FC_AUTO_HANDLE */
                                    0x6c,                   /* Old Flags:  object,
Oi2 */
/* 254 */   NdrFcLong( 0x0 ),       /* 0 */
/* 258 */   NdrFcShort( 0x4 ),      /* 4 */
/* 260 */   NdrFcShort( 0x10 ),     /* x86 Stack size/offset = 16 */
/* 262 */   NdrFcShort( 0x1c ),     /* 28 */
/* 264 */   NdrFcShort( 0x8 ),      /* 8 */
/* 266 */   0x47,                   /* Oi2 Flags:  srv must size, clt must size, has
return, has ext, */
                                    0x3,                    /* 3 */
/* 268 */   0x8,                    /* 8 */
                                    0x7,                    /* Ext Flags:  new corr
desc, clt corr check, srv corr check, */
/* 270 */   NdrFcShort( 0x1 ),      /* 1 */
/* 272 */   NdrFcShort( 0x1 ),      /* 1 */
/* 274 */   NdrFcShort( 0x0 ),      /* 0 */
            /* Parameter size */
/* 276 */   NdrFcShort( 0x148 ),    /* Flags:  in, base type, simple ref, */
/* 278 */   NdrFcShort( 0x4 ),      /* x86 Stack size/offset = 4 */
/* 280 */   0x8,                    /* FC_LONG */
                                    0x0,                    /* 0 */
            /* Parameter buffer */
```

```
/* 282 */   NdrFcShort( 0x201b ),           /* Flags:  must size, must free, in,
out, srv alloc size=8 */
/* 284 */   NdrFcShort( 0x8 ),      /* x86 Stack size/offset = 8 */
/* 286 */   NdrFcShort( 0x42c ),    /* Type Offset=1068 */
            /* Return value */
/* 288 */   NdrFcShort( 0x70 ),     /* Flags:  out, return, base type, */
/* 290 */   NdrFcShort( 0xc ),      /* x86 Stack size/offset = 12 */
/* 292 */   0x8,                    /* FC_LONG */
                                    0x0,                    /* 0 */
            /* Procedure doPayment */
/* 294 */   0x33,                   /* FC_AUTO_HANDLE */
                                    0x6c,                   /* Old Flags:  object,
Oi2 */
/* 296 */   NdrFcLong( 0x0 ),       /* 0 */
/* 300 */   NdrFcShort( 0x5 ),      /* 5 */
/* 302 */   NdrFcShort( 0x10 ),     /* x86 Stack size/offset = 16 */
/* 304 */   NdrFcShort( 0x1c ),     /* 28 */
/* 306 */   NdrFcShort( 0x8 ),      /* 8 */
/* 308 */   0x47,                   /* Oi2 Flags:  srv must size, clt must size, has
return, has ext, */
                                    0x3,                    /* 3 */
/* 310 */   0x8,                    /* 8 */
                                    0x7,                    /* Ext Flags:  new corr
desc, clt corr check, srv corr check, */
/* 312 */   NdrFcShort( 0x1 ),      /* 1 */
/* 314 */   NdrFcShort( 0x1 ),      /* 1 */
/* 316 */   NdrFcShort( 0x0 ),      /* 0 */
            /* Parameter size */
/* 318 */   NdrFcShort( 0x148 ),    /* Flags:  in, base type, simple ref, */
/* 320 */   NdrFcShort( 0x4 ),      /* x86 Stack size/offset = 4 */
/* 322 */   0x8,                    /* FC_LONG */
                                    0x0,                    /* 0 */
            /* Parameter buffer */
/* 324 */   NdrFcShort( 0x201b ),           /* Flags:  must size, must free, in,
out, srv alloc size=8 */
/* 326 */   NdrFcShort( 0x8 ),      /* x86 Stack size/offset = 8 */
/* 328 */   NdrFcShort( 0x42c ),    /* Type Offset=1068 */
            /* Return value */
/* 330 */   NdrFcShort( 0x70 ),     /* Flags:  out, return, base type, */
/* 332 */   NdrFcShort( 0xc ),      /* x86 Stack size/offset = 12 */
/* 334 */   0x8,                    /* FC_LONG */
                                    0x0,                    /* 0 */
            /* Procedure doOrderStatus */
/* 336 */   0x33,                   /* FC_AUTO_HANDLE */
                                    0x6c,                   /* Old Flags:  object,
Oi2 */
/* 338 */   NdrFcLong( 0x0 ),       /* 0 */
/* 342 */   NdrFcShort( 0x6 ),      /* 6 */
/* 344 */   NdrFcShort( 0x10 ),     /* x86 Stack size/offset = 16 */
/* 346 */   NdrFcShort( 0x1c ),     /* 28 */
/* 348 */   NdrFcShort( 0x8 ),      /* 8 */
/* 350 */   0x47,                   /* Oi2 Flags:  srv must size, clt must size, has
return, has ext, */
                                    0x3,                    /* 3 */
/* 352 */   0x8,                    /* 8 */
                                    0x7,                    /* Ext Flags:  new corr
desc, clt corr check, srv corr check, */
/* 354 */   NdrFcShort( 0x1 ),      /* 1 */
/* 356 */   NdrFcShort( 0x1 ),      /* 1 */
/* 358 */   NdrFcShort( 0x0 ),      /* 0 */
            /* Parameter size */
/* 360 */   NdrFcShort( 0x148 ),    /* Flags:  in, base type, simple ref, */
/* 362 */   NdrFcShort( 0x4 ),      /* x86 Stack size/offset = 4 */
/* 364 */   0x8,                    /* FC_LONG */
                                    0x0,                    /* 0 */
            /* Parameter buffer */
/* 366 */   NdrFcShort( 0x201b ),           /* Flags:  must size, must free, in,
out, srv alloc size=8 */
/* 368 */   NdrFcShort( 0x8 ),      /* x86 Stack size/offset = 8 */
/* 370 */   NdrFcShort( 0x42c ),    /* Type Offset=1068 */
            /* Return value */
/* 372 */   NdrFcShort( 0x70 ),     /* Flags:  out, return, base type, */
/* 374 */   NdrFcShort( 0xc ),      /* x86 Stack size/offset = 12 */
/* 376 */   0x8,                    /* FC_LONG */
                                    0x0,                    /* 0 */
            /* Procedure doDBInfo */
/* 378 */   0x33,                   /* FC_AUTO_HANDLE */
                                    0x6c,                   /* Old Flags:  object,
Oi2 */
/* 380 */   NdrFcLong( 0x0 ),       /* 0 */
/* 384 */   NdrFcShort( 0x7 ),      /* 7 */
/* 386 */   NdrFcShort( 0x8 ),      /* x86 Stack size/offset = 8 */
/* 388 */   NdrFcShort( 0x0 ),      /* 0 */
/* 390 */   NdrFcShort( 0x8 ),      /* 8 */
/* 392 */   0x44,                   /* Oi2 Flags:  has return, has ext, */
                                    0x1,                    /* 1 */
/* 394 */   0x8,                    /* 8 */
                                    0x1,                    /* Ext Flags:  new corr
desc, */
/* 396 */   NdrFcShort( 0x0 ),      /* 0 */
/* 398 */   NdrFcShort( 0x0 ),      /* 0 */
/* 400 */   NdrFcShort( 0x0 ),      /* 0 */
            /* Return value */
/* 402 */   NdrFcShort( 0x70 ),     /* Flags:  out, return, base type, */
/* 404 */   NdrFcShort( 0x4 ),      /* x86 Stack size/offset = 4 */
/* 406 */   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( 0xe ),      /* Offset= 14 (18) */
/*  6 */
                                    0x1b,                   /* FC_CARRAY */
                                    0x1,                    /* 1 */
/*  8 */    NdrFcShort( 0x2 ),      /* 2 */
/* 10 */    0x9,                    /* Corr desc: FC_ULONG */
                                    0x0,                    /*  */
/* 12 */    NdrFcShort( 0xfffc ),   /* -4 */
/* 14 */    NdrFcShort( 0x1 ),      /* Corr flags:  early, */
/* 16 */    0x6,                    /* FC_SHORT */
                                    0x5b,                   /* FC_END */
/* 18 */
                                    0x17,                   /* FC_CSTRUCT */
                                    0x3,                    /* 3 */
/* 20 */    NdrFcShort( 0x8 ),      /* 8 */
/* 22 */    NdrFcShort( 0xfff0 ),   /* Offset= -16 (6) */
/* 24 */    0x8,                    /* FC_LONG */
                                    0x8,                    /* FC_LONG */
/* 26 */    0x5c,                   /* FC_PAD */
                                    0x5b,                   /* FC_END */
/* 28 */    0xb4,                   /* FC_USER_MARSHAL */
                                    0x83,                   /* 131 */
/* 30 */    NdrFcShort( 0x0 ),      /* 0 */
/* 32 */    NdrFcShort( 0x4 ),      /* 4 */
/* 34 */    NdrFcShort( 0x0 ),      /* 0 */
/* 36 */    NdrFcShort( 0xffde ),   /* Offset= -34 (2) */
/* 38 */
                                    0x11, 0x4, /* FC_RP [alloced_on_stack] */
/* 40 */    NdrFcShort( 0x3f6 ),    /* Offset= 1014 (1054) */
```

```
/* 42 */
                                0x13, 0x10,             /* FC_OP
[pointer_deref] */
/* 44 */    NdrFcShort( 0x2 ),  /* Offset= 2 (46) */
/* 46 */
                                0x13, 0x0, /* FC_OP */
/* 48 */    NdrFcShort( 0x3dc ), /* Offset= 988 (1036) */
/* 50 */
                                0x2a,                   /*
FC_ENCAPSULATED_UNION */
                                0x49,                   /* 73 */
/* 52 */    NdrFcShort( 0x18 ), /* 24 */
/* 54 */    NdrFcShort( 0xa ),  /* 10 */
/* 56 */    NdrFcLong( 0x8 ),   /* 8 */
/* 60 */    NdrFcShort( 0x5a ), /* Offset= 90 (150) */
/* 62 */    NdrFcLong( 0xd ),   /* 13 */
/* 66 */    NdrFcShort( 0x90 ), /* Offset= 144 (210) */
/* 68 */    NdrFcLong( 0x9 ),   /* 9 */
/* 72 */    NdrFcShort( 0xc2 ), /* Offset= 194 (266) */
/* 74 */    NdrFcLong( 0xc ),   /* 12 */
/* 78 */    NdrFcShort( 0x2c0 ), /* Offset= 704 (782) */
/* 80 */    NdrFcLong( 0x24 ),  /* 36 */
/* 84 */    NdrFcShort( 0x2ea ), /* Offset= 746 (830) */
/* 86 */    NdrFcLong( 0x800d ),            /* 32781 */
/* 90 */    NdrFcShort( 0x306 ), /* Offset= 774 (864) */
/* 92 */    NdrFcLong( 0x10 ),  /* 16 */
/* 96 */    NdrFcShort( 0x320 ), /* Offset= 800 (896) */
/* 98 */    NdrFcLong( 0x2 ),   /* 2 */
/* 102 */   NdrFcShort( 0x33a ), /* Offset= 826 (928) */
/* 104 */   NdrFcLong( 0x3 ),   /* 3 */
/* 108 */   NdrFcShort( 0x354 ), /* Offset= 852 (960) */
/* 110 */   NdrFcLong( 0x14 ),  /* 20 */
/* 114 */   NdrFcShort( 0x36e ), /* Offset= 878 (992) */
/* 116 */   NdrFcShort( 0xffff ), /* Offset= -1 (115) */
/* 118 */
                                0x1b,                   /* FC_CARRAY */
                                0x3,                    /* 3 */
/* 120 */   NdrFcShort( 0x4 ),  /* 4 */
/* 122 */   0x19,               /* Corr desc:  field pointer, FC_ULONG */
                                0x0,                    /*  */
/* 124 */   NdrFcShort( 0x0 ),  /* 0 */
/* 126 */   NdrFcShort( 0x1 ),  /* Corr flags:  early, */
/* 128 */
                                0x4b,                   /* FC_PP */
                                0x5c,                   /* FC_PAD */
/* 130 */
                                0x48,                   /*
FC_VARIABLE_REPEAT */
                                0x49,                   /*
FC_FIXED_OFFSET */
/* 132 */   NdrFcShort( 0x4 ),  /* 4 */
/* 134 */   NdrFcShort( 0x0 ),  /* 0 */
/* 136 */   NdrFcShort( 0x1 ),  /* 1 */
/* 138 */   NdrFcShort( 0x0 ),  /* 0 */
/* 140 */   NdrFcShort( 0x0 ),  /* 0 */
/* 142 */   0x13, 0x0, /* FC_OP */
/* 144 */   NdrFcShort( 0xff82 ), /* Offset= -126 (18) */
/* 146 */
                                0x5b,                   /* FC_END */
                                0x8,                    /* FC_LONG */
/* 148 */   0x5c,               /* FC_PAD */
                                0x5b,                   /* FC_END */
/* 150 */
                                0x16,                   /* FC_PSTRUCT */
                                0x3,                    /* 3 */
/* 152 */   NdrFcShort( 0x8 ),  /* 8 */
/* 154 */
                                0x4b,                   /* FC_PP */
                                0x5c,                   /* FC_PAD */
/* 156 */
                                0x46,                   /* FC_NO_REPEAT */
                                0x5c,                   /* FC_PAD */
/* 158 */   NdrFcShort( 0x4 ),  /* 4 */
/* 160 */   NdrFcShort( 0x4 ),  /* 4 */
/* 162 */   0x11, 0x0, /* FC_RP */
/* 164 */   NdrFcShort( 0xffd2 ), /* Offset= -46 (118) */
/* 166 */
                                0x5b,                   /* FC_END */
                                0x8,                    /* FC_LONG */
/* 168 */   0x8,                /* FC_LONG */
                                0x5b,                   /* FC_END */
/* 170 */
                                0x2f,                   /* FC_IP */
                                0x5a,                   /*
FC_CONSTANT_IID */
/* 172 */   NdrFcLong( 0x0 ),   /* 0 */
/* 176 */   NdrFcShort( 0x0 ),  /* 0 */
/* 178 */   NdrFcShort( 0x0 ),  /* 0 */
/* 180 */   0xc0,               /* 192 */
                                0x0,                    /* 0 */
/* 182 */   0x0,                /* 0 */
                                0x0,                    /* 0 */
/* 184 */   0x0,                /* 0 */
                                0x0,                    /* 0 */
/* 186 */   0x0,                /* 0 */
                                0x46,                   /* 70 */
/* 188 */
                                0x21,                   /*
FC_BOGUS_ARRAY */
                                0x3,                    /* 3 */
/* 190 */   NdrFcShort( 0x0 ),  /* 0 */
/* 192 */   0x19,               /* Corr desc:  field pointer, FC_ULONG */
                                0x0,                    /*  */
/* 194 */   NdrFcShort( 0x0 ),  /* 0 */
/* 196 */   NdrFcShort( 0x1 ),  /* Corr flags:  early, */
/* 198 */   NdrFcLong( 0xffffffff ),        /* -1 */
/* 202 */   NdrFcShort( 0x0 ),  /* Corr flags:  */
/* 204 */   0x4c,               /* FC_EMBEDDED_COMPLEX */
                                0x0,                    /* 0 */
/* 206 */   NdrFcShort( 0xffdc ), /* Offset= -36 (170) */
/* 208 */   0x5c,               /* FC_PAD */
                                0x5b,                   /* FC_END */
/* 210 */
                                0x1a,                   /*
FC_BOGUS_STRUCT */
                                0x3,                    /* 3 */
/* 212 */   NdrFcShort( 0x8 ),  /* 8 */
/* 214 */   NdrFcShort( 0x0 ),  /* 0 */
/* 216 */   NdrFcShort( 0x6 ),  /* Offset= 6 (222) */
/* 218 */   0x8,                /* FC_LONG */
                                0x36,                   /* FC_POINTER */
/* 220 */   0x5c,               /* FC_PAD */
                                0x5b,                   /* FC_END */
/* 222 */
                                0x11, 0x0, /* FC_RP */
/* 224 */   NdrFcShort( 0xffdc ), /* Offset= -36 (188) */
/* 226 */
                                0x2f,                   /* FC_IP */
                                0x5a,                   /*
FC_CONSTANT_IID */
/* 228 */   NdrFcLong( 0x20400 ),           /* 132096 */
/* 232 */   NdrFcShort( 0x0 ),  /* 0 */
/* 234 */   NdrFcShort( 0x0 ),  /* 0 */
/* 236 */   0xc0,               /* 192 */
                                0x0,                    /* 0 */
/* 238 */   0x0,                /* 0 */
```

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                                0x0,                    /* 0 */
/* 240 */   0x0,                 /* 0 */
                                0x0,                    /* 0 */
/* 242 */   0x0,                 /* 0 */
                                0x46,                   /* 70 */
/* 244 */
                                0x21,                   /*
FC_BOGUS_ARRAY */
                                0x3,                    /* 3 */
/* 246 */   NdrFcShort( 0x0 ),   /* 0 */
/* 248 */   0x19,                /* Corr desc:  field pointer, FC_ULONG */
                                0x0,                    /*  */
/* 250 */   NdrFcShort( 0x0 ),   /* 0 */
/* 252 */   NdrFcShort( 0x1 ),   /* Corr flags:  early, */
/* 254 */   NdrFcLong( 0xffffffff ),          /* -1 */
/* 258 */   NdrFcShort( 0x0 ),   /* Corr flags:  */
/* 260 */   0x4c,                /* FC_EMBEDDED_COMPLEX */
                                0x0,                    /* 0 */
/* 262 */   NdrFcShort( 0xffdc ), /* Offset= -36 (226) */
/* 264 */   0x5c,                /* FC_PAD */
                                0x5b,                   /* FC_END */
/* 266 */
                                0x1a,                   /*
FC_BOGUS_STRUCT */
                                0x3,                    /* 3 */
/* 268 */   NdrFcShort( 0x8 ),   /* 8 */
/* 270 */   NdrFcShort( 0x0 ),   /* 0 */
/* 272 */   NdrFcShort( 0x6 ),   /* Offset= 6 (278) */
/* 274 */   0x8,                 /* FC_LONG */
                                0x36,                   /* FC_POINTER */
/* 276 */   0x5c,                /* FC_PAD */
                                0x5b,                   /* FC_END */
/* 278 */
                                0x11, 0x0, /* FC_RP */
/* 280 */   NdrFcShort( 0xffdc ), /* Offset= -36 (244) */
/* 282 */
                                0x2b,                   /*
FC_NON_ENCAPSULATED_UNION */
                                0x9,                    /* FC_ULONG */
/* 284 */   0x7,                 /* Corr desc: FC_USHORT */
                                0x0,                    /*  */
/* 286 */   NdrFcShort( 0xfff8 ), /* -8 */
/* 288 */   NdrFcShort( 0x1 ),   /* Corr flags:  early, */
/* 290 */   NdrFcShort( 0x2 ),   /* Offset= 2 (292) */
/* 292 */   NdrFcShort( 0x10 ),  /* 16 */
/* 294 */   NdrFcShort( 0x2f ),  /* 47 */
/* 296 */   NdrFcLong( 0x14 ),   /* 20 */
/* 300 */   NdrFcShort( 0x800b ),            /* Simple arm type: FC_HYPER */
/* 302 */   NdrFcLong( 0x3 ),    /* 3 */
/* 306 */   NdrFcShort( 0x8008 ),            /* Simple arm type: FC_LONG */
/* 308 */   NdrFcLong( 0x11 ),   /* 17 */
/* 312 */   NdrFcShort( 0x8001 ),            /* Simple arm type: FC_BYTE */
/* 314 */   NdrFcLong( 0x2 ),    /* 2 */
/* 318 */   NdrFcShort( 0x8006 ),            /* Simple arm type: FC_SHORT */
/* 320 */   NdrFcLong( 0x4 ),    /* 4 */
/* 324 */   NdrFcShort( 0x800a ),            /* Simple arm type: FC_FLOAT */
/* 326 */   NdrFcLong( 0x5 ),    /* 5 */
/* 330 */   NdrFcShort( 0x800c ),            /* Simple arm type: FC_DOUBLE
*/
/* 332 */   NdrFcLong( 0xb ),    /* 11 */
/* 336 */   NdrFcShort( 0x8006 ),            /* Simple arm type: FC_SHORT */
/* 338 */   NdrFcLong( 0xa ),    /* 10 */
/* 342 */   NdrFcShort( 0x8008 ),            /* Simple arm type: FC_LONG */
/* 344 */   NdrFcLong( 0x6 ),    /* 6 */
/* 348 */   NdrFcShort( 0xe8 ),  /* Offset= 232 (580) */
/* 350 */   NdrFcLong( 0x7 ),    /* 7 */
/* 354 */   NdrFcShort( 0x800c ),            /* Simple arm type: FC_DOUBLE
*/
/* 356 */   NdrFcLong( 0x8 ),    /* 8 */
/* 360 */   NdrFcShort( 0xe2 ),  /* Offset= 226 (586) */
/* 362 */   NdrFcLong( 0xd ),    /* 13 */
/* 366 */   NdrFcShort( 0xff3c ), /* Offset= -196 (170) */
/* 368 */   NdrFcLong( 0x9 ),    /* 9 */
/* 372 */   NdrFcShort( 0xff6e ), /* Offset= -146 (226) */
/* 374 */   NdrFcLong( 0x2000 ),             /* 8192 */
/* 378 */   NdrFcShort( 0xd4 ),  /* Offset= 212 (590) */
/* 380 */   NdrFcLong( 0x24 ),   /* 36 */
/* 384 */   NdrFcShort( 0xd6 ),  /* Offset= 214 (598) */
/* 386 */   NdrFcLong( 0x4024 ),             /* 16420 */
/* 390 */   NdrFcShort( 0xd0 ),  /* Offset= 208 (598) */
/* 392 */   NdrFcLong( 0x4011 ),             /* 16401 */
/* 396 */   NdrFcShort( 0x100 ), /* Offset= 256 (652) */
/* 398 */   NdrFcLong( 0x4002 ),             /* 16386 */
/* 402 */   NdrFcShort( 0xfe ),  /* Offset= 254 (656) */
/* 404 */   NdrFcLong( 0x4003 ),             /* 16387 */
/* 408 */   NdrFcShort( 0xfc ),  /* Offset= 252 (660) */
/* 410 */   NdrFcLong( 0x4014 ),             /* 16404 */
/* 414 */   NdrFcShort( 0xfa ),  /* Offset= 250 (664) */
/* 416 */   NdrFcLong( 0x4004 ),             /* 16388 */
/* 420 */   NdrFcShort( 0xf8 ),  /* Offset= 248 (668) */
/* 422 */   NdrFcLong( 0x4005 ),             /* 16389 */
/* 426 */   NdrFcShort( 0xf6 ),  /* Offset= 246 (672) */
/* 428 */   NdrFcLong( 0x400b ),             /* 16395 */
/* 432 */   NdrFcShort( 0xe0 ),  /* Offset= 224 (656) */
/* 434 */   NdrFcLong( 0x400a ),             /* 16394 */
/* 438 */   NdrFcShort( 0xde ),  /* Offset= 222 (660) */
/* 440 */   NdrFcLong( 0x4006 ),             /* 16390 */
/* 444 */   NdrFcShort( 0xe8 ),  /* Offset= 232 (676) */
/* 446 */   NdrFcLong( 0x4007 ),             /* 16391 */
/* 450 */   NdrFcShort( 0xde ),  /* Offset= 222 (672) */
/* 452 */   NdrFcLong( 0x4008 ),             /* 16392 */
/* 456 */   NdrFcShort( 0xe0 ),  /* Offset= 224 (680) */
/* 458 */   NdrFcLong( 0x400d ),             /* 16397 */
/* 462 */   NdrFcShort( 0xde ),  /* Offset= 222 (684) */
/* 464 */   NdrFcLong( 0x4009 ),             /* 16393 */
/* 468 */   NdrFcShort( 0xdc ),  /* Offset= 220 (688) */
/* 470 */   NdrFcLong( 0x6000 ),             /* 24576 */
/* 474 */   NdrFcShort( 0xda ),  /* Offset= 218 (692) */
/* 476 */   NdrFcLong( 0x400c ),             /* 16396 */
/* 480 */   NdrFcShort( 0xe0 ),  /* Offset= 224 (704) */
/* 482 */   NdrFcLong( 0x10 ),   /* 16 */
/* 486 */   NdrFcShort( 0x8002 ),            /* Simple arm type: FC_CHAR */
/* 488 */   NdrFcLong( 0x12 ),   /* 18 */
/* 492 */   NdrFcShort( 0x8006 ),            /* Simple arm type: FC_SHORT */
/* 494 */   NdrFcLong( 0x13 ),   /* 19 */
/* 498 */   NdrFcShort( 0x8008 ),            /* Simple arm type: FC_LONG */
/* 500 */   NdrFcLong( 0x15 ),   /* 21 */
/* 504 */   NdrFcShort( 0x800b ),            /* Simple arm type: FC_HYPER */
/* 506 */   NdrFcLong( 0x16 ),   /* 22 */
/* 510 */   NdrFcShort( 0x8008 ),            /* Simple arm type: FC_LONG */
/* 512 */   NdrFcLong( 0x17 ),   /* 23 */
/* 516 */   NdrFcShort( 0x8008 ),            /* Simple arm type: FC_LONG */
/* 518 */   NdrFcLong( 0xe ),    /* 14 */
/* 522 */   NdrFcShort( 0xbe ),  /* Offset= 190 (712) */
/* 524 */   NdrFcLong( 0x400e ),             /* 16398 */
/* 528 */   NdrFcShort( 0xc2 ),  /* Offset= 194 (722) */
/* 530 */   NdrFcLong( 0x4010 ),             /* 16400 */
/* 534 */   NdrFcShort( 0xc0 ),  /* Offset= 192 (726) */
/* 536 */   NdrFcLong( 0x4012 ),             /* 16402 */
/* 540 */   NdrFcShort( 0x74 ),  /* Offset= 116 (656) */
/* 542 */   NdrFcLong( 0x4013 ),             /* 16403 */
/* 546 */   NdrFcShort( 0x72 ),  /* Offset= 114 (660) */
/* 548 */   NdrFcLong( 0x4015 ),             /* 16405 */
/* 552 */   NdrFcShort( 0x70 ),  /* Offset= 112 (664) */
/* 554 */   NdrFcLong( 0x4016 ),             /* 16406 */
/* 558 */   NdrFcShort( 0x66 ),  /* Offset= 102 (660) */
```

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/* 560 */   NdrFcLong( 0x4017 ),            /* 16407 */
/* 564 */   NdrFcShort( 0x60 ),    /* Offset= 96 (660) */
/* 566 */   NdrFcLong( 0x0 ),      /* 0 */
/* 570 */   NdrFcShort( 0x0 ),     /* Offset= 0 (570) */
/* 572 */   NdrFcLong( 0x1 ),      /* 1 */
/* 576 */   NdrFcShort( 0x0 ),     /* Offset= 0 (576) */
/* 578 */   NdrFcShort( 0xffff ),  /* Offset= -1 (577) */
/* 580 */
                                   0x15,                  /* FC_STRUCT */
                                   0x7,                   /* 7 */
/* 582 */   NdrFcShort( 0x8 ),     /* 8 */
/* 584 */   0xb,                   /* FC_HYPER */
                                   0x5b,                  /* FC_END */
/* 586 */
                                   0x13, 0x0, /* FC_OP */
/* 588 */   NdrFcShort( 0xfdc6 ),/* Offset= -570 (18) */
/* 590 */
                                   0x13, 0x10,            /* FC_OP
[pointer_deref] */
/* 592 */   NdrFcShort( 0x2 ),     /* Offset= 2 (594) */
/* 594 */
                                   0x13, 0x0, /* FC_OP */
/* 596 */   NdrFcShort( 0x1b8 ), /* Offset= 440 (1036) */
/* 598 */
                                   0x13, 0x0, /* FC_OP */
/* 600 */   NdrFcShort( 0x20 ),    /* Offset= 32 (632) */
/* 602 */
                                   0x2f,                  /* FC_IP */
                                   0x5a,                  /*
FC_CONSTANT_IID */
/* 604 */   NdrFcLong( 0x2f ),     /* 47 */
/* 608 */   NdrFcShort( 0x0 ),     /* 0 */
/* 610 */   NdrFcShort( 0x0 ),     /* 0 */
/* 612 */   0xc0,                  /* 192 */
                                   0x0,                   /* 0 */
/* 614 */   0x0,                   /* 0 */
                                   0x0,                   /* 0 */
/* 616 */   0x0,                   /* 0 */
                                   0x0,                   /* 0 */
/* 618 */   0x0,                   /* 0 */
                                   0x46,                  /* 70 */
/* 620 */
                                   0x1b,                  /* FC_CARRAY */
                                   0x0,                   /* 0 */
/* 622 */   NdrFcShort( 0x1 ),     /* 1 */
/* 624 */   0x19,                  /* Corr desc:  field pointer, FC_ULONG */
                                   0x0,                   /*  */
/* 626 */   NdrFcShort( 0x4 ),     /* 4 */
/* 628 */   NdrFcShort( 0x1 ),     /* Corr flags:  early, */
/* 630 */   0x1,                   /* FC_BYTE */
                                   0x5b,                  /* FC_END */
/* 632 */
                                   0x1a,                  /*
FC_BOGUS_STRUCT */
                                   0x3,                   /* 3 */
/* 634 */   NdrFcShort( 0x10 ),    /* 16 */
/* 636 */   NdrFcShort( 0x0 ),     /* 0 */
/* 638 */   NdrFcShort( 0xa ),     /* Offset= 10 (648) */
/* 640 */   0x8,                   /* FC_LONG */
                                   0x8,                   /* FC_LONG */
/* 642 */   0x4c,                  /* FC_EMBEDDED_COMPLEX */
                                   0x0,                   /* 0 */
/* 644 */   NdrFcShort( 0xffd6 ),/* Offset= -42 (602) */
/* 646 */   0x36,                  /* FC_POINTER */
                                   0x5b,                  /* FC_END */
/* 648 */
                                   0x13, 0x0, /* FC_OP */
/* 650 */   NdrFcShort( 0xffe2 ), /* Offset= -30 (620) */
/* 652 */
                                   0x13, 0x8, /* FC_OP [simple_pointer] */
/* 654 */   0x1,                   /* FC_BYTE */
                                   0x5c,                  /* FC_PAD */
/* 656 */
                                   0x13, 0x8, /* FC_OP [simple_pointer] */
/* 658 */   0x6,                   /* FC_SHORT */
                                   0x5c,                  /* FC_PAD */
/* 660 */
                                   0x13, 0x8, /* FC_OP [simple_pointer] */
/* 662 */   0x8,                   /* FC_LONG */
                                   0x5c,                  /* FC_PAD */
/* 664 */
                                   0x13, 0x8, /* FC_OP [simple_pointer] */
/* 666 */   0xb,                   /* FC_HYPER */
                                   0x5c,                  /* FC_PAD */
/* 668 */
                                   0x13, 0x8, /* FC_OP [simple_pointer] */
/* 670 */   0xa,                   /* FC_FLOAT */
                                   0x5c,                  /* FC_PAD */
/* 672 */
                                   0x13, 0x8, /* FC_OP [simple_pointer] */
/* 674 */   0xc,                   /* FC_DOUBLE */
                                   0x5c,                  /* FC_PAD */
/* 676 */
                                   0x13, 0x0, /* FC_OP */
/* 678 */   NdrFcShort( 0xff9e ), /* Offset= -98 (580) */
/* 680 */
                                   0x13, 0x10,            /* FC_OP
[pointer_deref] */
/* 682 */   NdrFcShort( 0xffa0 ), /* Offset= -96 (586) */
/* 684 */
                                   0x13, 0x10,            /* FC_OP
[pointer_deref] */
/* 686 */   NdrFcShort( 0xfdfc ), /* Offset= -516 (170) */
/* 688 */
                                   0x13, 0x10,            /* FC_OP
[pointer_deref] */
/* 690 */   NdrFcShort( 0xfe30 ),/* Offset= -464 (226) */
/* 692 */
                                   0x13, 0x10,            /* FC_OP
[pointer_deref] */
/* 694 */   NdrFcShort( 0x2 ),     /* Offset= 2 (696) */
/* 696 */
                                   0x13, 0x10,            /* FC_OP
[pointer_deref] */
/* 698 */   NdrFcShort( 0x2 ),     /* Offset= 2 (700) */
/* 700 */
                                   0x13, 0x0, /* FC_OP */
/* 702 */   NdrFcShort( 0x14e ), /* Offset= 334 (1036) */
/* 704 */
                                   0x13, 0x10,            /* FC_OP
[pointer_deref] */
/* 706 */   NdrFcShort( 0x2 ),     /* Offset= 2 (708) */
/* 708 */
                                   0x13, 0x0, /* FC_OP */
/* 710 */   NdrFcShort( 0x14 ),    /* Offset= 20 (730) */
/* 712 */
                                   0x15,                  /* FC_STRUCT */
                                   0x7,                   /* 7 */
/* 714 */   NdrFcShort( 0x10 ),    /* 16 */
/* 716 */   0x6,                   /* FC_SHORT */
                                   0x1,                   /* FC_BYTE */
/* 718 */   0x1,                   /* FC_BYTE */
                                   0x8,                   /* FC_LONG */
/* 720 */   0xb,                   /* FC_HYPER */
                                   0x5b,                  /* FC_END */
/* 722 */
```

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                                0x13, 0x0, /* FC_OP */
/* 724 */   NdrFcShort( 0xfff4 ), /* Offset= -12 (712) */
/* 726 */
                                0x13, 0x8, /* FC_OP [simple_pointer] */
/* 728 */   0x2,                /* FC_CHAR */
                                0x5c,               /* FC_PAD */
/* 730 */
                                0x1a,               /*
FC_BOGUS_STRUCT */
                                0x7,                /* 7 */
/* 732 */   NdrFcShort( 0x20 ), /* 32 */
/* 734 */   NdrFcShort( 0x0 ),  /* 0 */
/* 736 */   NdrFcShort( 0x0 ),  /* Offset= 0 (736) */
/* 738 */   0x8,                /* FC_LONG */
                                0x8,                /* FC_LONG */
/* 740 */   0x6,                /* FC_SHORT */
                                0x6,                /* FC_SHORT */
/* 742 */   0x6,                /* FC_SHORT */
                                0x6,                /* FC_SHORT */
/* 744 */   0x4c,               /* FC_EMBEDDED_COMPLEX */
                                0x0,                /* 0 */
/* 746 */   NdrFcShort( 0xfe30 ),/* Offset= -464 (282) */
/* 748 */   0x5c,               /* FC_PAD */
                                0x5b,               /* FC_END */
/* 750 */
                                0x1b,               /* FC_CARRAY */
                                0x3,                /* 3 */
/* 752 */   NdrFcShort( 0x4 ),  /* 4 */
/* 754 */   0x19,               /* Corr desc:  field pointer, FC_ULONG */
                                0x0,                /*  */
/* 756 */   NdrFcShort( 0x0 ),  /* 0 */
/* 758 */   NdrFcShort( 0x1 ),  /* Corr flags:  early, */
/* 760 */
                                0x4b,               /* FC_PP */
                                0x5c,               /* FC_PAD */
/* 762 */
                                0x48,               /*
FC_VARIABLE_REPEAT */
                                0x49,               /*
FC_FIXED_OFFSET */
/* 764 */   NdrFcShort( 0x4 ),  /* 4 */
/* 766 */   NdrFcShort( 0x0 ),  /* 0 */
/* 768 */   NdrFcShort( 0x1 ),  /* 1 */
/* 770 */   NdrFcShort( 0x0 ),  /* 0 */
/* 772 */   NdrFcShort( 0x0 ),  /* 0 */
/* 774 */   0x13, 0x0, /* FC_OP */
/* 776 */   NdrFcShort( 0xffd2 ), /* Offset= -46 (730) */
/* 778 */
                                0x5b,               /* FC_END */
                                0x8,                /* FC_LONG */
/* 780 */   0x5c,               /* FC_PAD */
                                0x5b,               /* FC_END */
/* 782 */
                                0x1a,               /*
FC_BOGUS_STRUCT */
                                0x3,                /* 3 */
/* 784 */   NdrFcShort( 0x8 ),  /* 8 */
/* 786 */   NdrFcShort( 0x0 ),  /* 0 */
/* 788 */   NdrFcShort( 0x6 ),  /* Offset= 6 (794) */
/* 790 */   0x8,                /* FC_LONG */
                                0x36,               /* FC_POINTER */
/* 792 */   0x5c,               /* FC_PAD */
                                0x5b,               /* FC_END */
/* 794 */
                                0x11, 0x0, /* FC_RP */
/* 796 */   NdrFcShort( 0xffd2 ), /* Offset= -46 (750) */
/* 798 */
                                0x1b,               /* FC_CARRAY */
                                0x3,                /* 3 */
/* 800 */   NdrFcShort( 0x4 ),  /* 4 */
/* 802 */   0x19,               /* Corr desc:  field pointer, FC_ULONG */
                                0x0,                /*  */
/* 804 */   NdrFcShort( 0x0 ),  /* 0 */
/* 806 */   NdrFcShort( 0x1 ),  /* Corr flags:  early, */
/* 808 */
                                0x4b,               /* FC_PP */
                                0x5c,               /* FC_PAD */
/* 810 */
                                0x48,               /*
FC_VARIABLE_REPEAT */
                                0x49,               /*
FC_FIXED_OFFSET */
/* 812 */   NdrFcShort( 0x4 ),  /* 4 */
/* 814 */   NdrFcShort( 0x0 ),  /* 0 */
/* 816 */   NdrFcShort( 0x1 ),  /* 1 */
/* 818 */   NdrFcShort( 0x0 ),  /* 0 */
/* 820 */   NdrFcShort( 0x0 ),  /* 0 */
/* 822 */   0x13, 0x0, /* FC_OP */
/* 824 */   NdrFcShort( 0xff40 ), /* Offset= -192 (632) */
/* 826 */
                                0x5b,               /* FC_END */
                                0x8,                /* FC_LONG */
/* 828 */   0x5c,               /* FC_PAD */
                                0x5b,               /* FC_END */
/* 830 */
                                0x1a,               /*
FC_BOGUS_STRUCT */
                                0x3,                /* 3 */
/* 832 */   NdrFcShort( 0x8 ),  /* 8 */
/* 834 */   NdrFcShort( 0x0 ),  /* 0 */
/* 836 */   NdrFcShort( 0x6 ),  /* Offset= 6 (842) */
/* 838 */   0x8,                /* FC_LONG */
                                0x36,               /* FC_POINTER */
/* 840 */   0x5c,               /* FC_PAD */
                                0x5b,               /* FC_END */
/* 842 */
                                0x11, 0x0, /* FC_RP */
/* 844 */   NdrFcShort( 0xffd2 ), /* Offset= -46 (798) */
/* 846 */
                                0x1d,               /* FC_SMFARRAY */
                                0x0,                /* 0 */
/* 848 */   NdrFcShort( 0x8 ),  /* 8 */
/* 850 */   0x1,                /* FC_BYTE */
                                0x5b,               /* FC_END */
/* 852 */
                                0x15,               /* FC_STRUCT */
                                0x3,                /* 3 */
/* 854 */   NdrFcShort( 0x10 ), /* 16 */
/* 856 */   0x8,                /* FC_LONG */
                                0x6,                /* FC_SHORT */
/* 858 */   0x6,                /* FC_SHORT */
                                0x4c,               /*
FC_EMBEDDED_COMPLEX */
/* 860 */   0x0,                /* 0 */
                                NdrFcShort( 0xfff1 ), /* Offset= -15 (846) */
                                0x5b,               /* FC_END */
/* 864 */
                                0x1a,               /*
FC_BOGUS_STRUCT */
                                0x3,                /* 3 */
/* 866 */   NdrFcShort( 0x18 ), /* 24 */
/* 868 */   NdrFcShort( 0x0 ),  /* 0 */
/* 870 */   NdrFcShort( 0xa ),  /* Offset= 10 (880) */
/* 872 */   0x8,                /* FC_LONG */
                                0x36,               /* FC_POINTER */
/* 874 */   0x4c,               /* FC_EMBEDDED_COMPLEX */
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                                0x0,                    /* 0 */
/* 876 */   NdrFcShort( 0xffe8 ), /* Offset= -24 (852) */
/* 878 */   0x5c,                 /* FC_PAD */
                                0x5b,                   /* FC_END */
/* 880 */
                                0x11, 0x0, /* FC_RP */
/* 882 */   NdrFcShort( 0xfd4a ),/* Offset= -694 (188) */
/* 884 */
                                0x1b,                   /* FC_CARRAY */
                                0x0,                    /* 0 */
/* 886 */   NdrFcShort( 0x1 ),    /* 1 */
/* 888 */   0x19,                 /* Corr desc:  field pointer, FC_ULONG */
                                0x0,                    /*  */
/* 890 */   NdrFcShort( 0x0 ),    /* 0 */
/* 892 */   NdrFcShort( 0x1 ),    /* Corr flags:  early, */
/* 894 */   0x1,                  /* FC_BYTE */
                                0x5b,                   /* FC_END */
/* 896 */
                                0x16,                   /* FC_PSTRUCT */
                                0x3,                    /* 3 */
/* 898 */   NdrFcShort( 0x8 ),    /* 8 */
/* 900 */
                                0x4b,                   /* FC_PP */
                                0x5c,                   /* FC_PAD */
/* 902 */
                                0x46,                   /* FC_NO_REPEAT */
                                0x5c,                   /* FC_PAD */
/* 904 */   NdrFcShort( 0x4 ),    /* 4 */
/* 906 */   NdrFcShort( 0x4 ),    /* 4 */
/* 908 */   0x13, 0x0, /* FC_OP */
/* 910 */   NdrFcShort( 0xffe6 ), /* Offset= -26 (884) */
/* 912 */
                                0x5b,                   /* FC_END */
                                0x8,                    /* FC_LONG */
/* 914 */   0x8,                  /* FC_LONG */
                                0x5b,                   /* FC_END */
/* 916 */
                                0x1b,                   /* FC_CARRAY */
                                0x1,                    /* 1 */
/* 918 */   NdrFcShort( 0x2 ),    /* 2 */
/* 920 */   0x19,                 /* Corr desc:  field pointer, FC_ULONG */
                                0x0,                    /*  */
/* 922 */   NdrFcShort( 0x0 ),    /* 0 */
/* 924 */   NdrFcShort( 0x1 ),    /* Corr flags:  early, */
/* 926 */   0x6,                  /* FC_SHORT */
                                0x5b,                   /* FC_END */
/* 928 */
                                0x16,                   /* FC_PSTRUCT */
                                0x3,                    /* 3 */
/* 930 */   NdrFcShort( 0x8 ),    /* 8 */
/* 932 */
                                0x4b,                   /* FC_PP */
                                0x5c,                   /* FC_PAD */
/* 934 */
                                0x46,                   /* FC_NO_REPEAT */
                                0x5c,                   /* FC_PAD */
/* 936 */   NdrFcShort( 0x4 ),    /* 4 */
/* 938 */   NdrFcShort( 0x4 ),    /* 4 */
/* 940 */   0x13, 0x0, /* FC_OP */
/* 942 */   NdrFcShort( 0xffe6 ), /* Offset= -26 (916) */
/* 944 */
                                0x5b,                   /* FC_END */
                                0x8,                    /* FC_LONG */
/* 946 */   0x8,                  /* FC_LONG */
                                0x5b,                   /* FC_END */
/* 948 */
                                0x1b,                   /* FC_CARRAY */
                                0x3,                    /* 3 */
/* 950 */   NdrFcShort( 0x4 ),    /* 4 */
/* 952 */   0x19,                 /* Corr desc:  field pointer, FC_ULONG */
                                0x0,                    /*  */
/* 954 */   NdrFcShort( 0x0 ),    /* 0 */
/* 956 */   NdrFcShort( 0x1 ),    /* Corr flags:  early, */
/* 958 */   0x8,                  /* FC_LONG */
                                0x5b,                   /* FC_END */
/* 960 */
                                0x16,                   /* FC_PSTRUCT */
                                0x3,                    /* 3 */
/* 962 */   NdrFcShort( 0x8 ),    /* 8 */
/* 964 */
                                0x4b,                   /* FC_PP */
                                0x5c,                   /* FC_PAD */
/* 966 */
                                0x46,                   /* FC_NO_REPEAT */
                                0x5c,                   /* FC_PAD */
/* 968 */   NdrFcShort( 0x4 ),    /* 4 */
/* 970 */   NdrFcShort( 0x4 ),    /* 4 */
/* 972 */   0x13, 0x0, /* FC_OP */
/* 974 */   NdrFcShort( 0xffe6 ), /* Offset= -26 (948) */
/* 976 */
                                0x5b,                   /* FC_END */
                                0x8,                    /* FC_LONG */
/* 978 */   0x8,                  /* FC_LONG */
                                0x5b,                   /* FC_END */
/* 980 */
                                0x1b,                   /* FC_CARRAY */
                                0x7,                    /* 7 */
/* 982 */   NdrFcShort( 0x8 ),    /* 8 */
/* 984 */   0x19,                 /* Corr desc:  field pointer, FC_ULONG */
                                0x0,                    /*  */
/* 986 */   NdrFcShort( 0x0 ),    /* 0 */
/* 988 */   NdrFcShort( 0x1 ),    /* Corr flags:  early, */
/* 990 */   0xb,                  /* FC_HYPER */
                                0x5b,                   /* FC_END */
/* 992 */
                                0x16,                   /* FC_PSTRUCT */
                                0x3,                    /* 3 */
/* 994 */   NdrFcShort( 0x8 ),    /* 8 */
/* 996 */
                                0x4b,                   /* FC_PP */
                                0x5c,                   /* FC_PAD */
/* 998 */
                                0x46,                   /* FC_NO_REPEAT */
                                0x5c,                   /* FC_PAD */
/* 1000 */  NdrFcShort( 0x4 ),    /* 4 */
/* 1002 */  NdrFcShort( 0x4 ),    /* 4 */
/* 1004 */  0x13, 0x0, /* FC_OP */
/* 1006 */  NdrFcShort( 0xffe6 ), /* Offset= -26 (980) */
/* 1008 */
                                0x5b,                   /* FC_END */
                                0x8,                    /* FC_LONG */
/* 1010 */  0x8,                  /* FC_LONG */
                                0x5b,                   /* FC_END */
/* 1012 */
                                0x15,                   /* FC_STRUCT */
                                0x3,                    /* 3 */
/* 1014 */  NdrFcShort( 0x8 ),    /* 8 */
/* 1016 */  0x8,                  /* FC_LONG */
                                0x8,                    /* FC_LONG */
/* 1018 */  0x5c,                 /* FC_PAD */
                                0x5b,                   /* FC_END */
/* 1020 */
                                0x1b,                   /* FC_CARRAY */
                                0x3,                    /* 3 */
/* 1022 */  NdrFcShort( 0x8 ),    /* 8 */
/* 1024 */  0x7,                  /* Corr desc: FC_USHORT */
```

```
                                0x0,                    /*  */
/* 1026 */  NdrFcShort( 0xffd8 ), /* -40 */
/* 1028 */  NdrFcShort( 0x1 ),    /* Corr flags:  early, */
/* 1030 */  0x4c,                 /* FC_EMBEDDED_COMPLEX */
                                0x0,                    /* 0 */
/* 1032 */  NdrFcShort( 0xffec ), /* Offset= -20 (1012) */
/* 1034 */  0x5c,                 /* FC_PAD */
                                0x5b,                   /* FC_END */
/* 1036 */
                                0x1a,                   /*
FC_BOGUS_STRUCT */
                                0x3,                    /* 3 */
/* 1038 */  NdrFcShort( 0x28 ),   /* 40 */
/* 1040 */  NdrFcShort( 0xffec ), /* Offset= -20 (1020) */
/* 1042 */  NdrFcShort( 0x0 ),    /* Offset= 0 (1042) */
/* 1044 */  0x6,                  /* FC_SHORT */
                                0x6,                    /* FC_SHORT */
/* 1046 */  0x8,                  /* FC_LONG */
                                0x8,                    /* FC_LONG */
/* 1048 */  0x4c,                 /* FC_EMBEDDED_COMPLEX */
                                0x0,                    /* 0 */
/* 1050 */  NdrFcShort( 0xfc18 ),/* Offset= -1000 (50) */
/* 1052 */  0x5c,                 /* FC_PAD */
                                0x5b,                   /* FC_END */
/* 1054 */  0xb4,                 /* FC_USER_MARSHAL */
                                0x83,                   /* 131 */
/* 1056 */  NdrFcShort( 0x1 ),    /* 1 */
/* 1058 */  NdrFcShort( 0x4 ),    /* 4 */
/* 1060 */  NdrFcShort( 0x0 ),    /* 0 */
/* 1062 */  NdrFcShort( 0xfc04 ),/* Offset= -1020 (42) */
/* 1064 */
                                0x11, 0x8, /* FC_RP [simple_pointer] */
/* 1066 */  0x8,                  /* FC_LONG */
                                0x5c,                   /* FC_PAD */
/* 1068 */
                                0x11, 0x14,             /* FC_RP
[alloced_on_stack] [pointer_deref] */
/* 1070 */  NdrFcShort( 0x2 ),    /* Offset= 2 (1072) */
/* 1072 */
                                0x13, 0x0, /* FC_OP */
/* 1074 */  NdrFcShort( 0x2 ),    /* Offset= 2 (1076) */
/* 1076 */
                                0x1b,                   /* FC_CARRAY */
                                0x0,                    /* 0 */
/* 1078 */  NdrFcShort( 0x1 ),    /* 1 */
/* 1080 */  0x28,                 /* Corr desc:  parameter, FC_LONG */
                                0x54,                   /*
FC_DEREFERENCE */
/* 1082 */  NdrFcShort( 0x4 ),    /* x86 Stack size/offset = 4 */
/* 1084 */  NdrFcShort( 0x1 ),    /* Corr flags:  early, */
/* 1086 */  0x2,                  /* FC_CHAR */
                                0x5b,                   /* FC_END */
                                0x0
      }
   };
static const USER_MARSHAL_ROUTINE_QUADRUPLE
UserMarshalRoutines[ WIRE_MARSHAL_TABLE_SIZE ] =
      {

         {
         BSTR_UserSize
         ,BSTR_UserMarshal
         ,BSTR_UserUnmarshal
         ,BSTR_UserFree
         },
         {
         LPSAFEARRAY_UserSize
         ,LPSAFEARRAY_UserMarshal
         ,LPSAFEARRAY_UserUnmarshal
         ,LPSAFEARRAY_UserFree
         }
      };

/* Object interface: IUnknown, ver. 0.0,

GUID={0x00000000,0x0000,0x0000,{0xC0,0x00,0x00,0x00,0x00,0x00,0x00,0x00,
0x46}} */

/* Object interface: IDispatch, ver. 0.0,

GUID={0x00020400,0x0000,0x0000,{0xC0,0x00,0x00,0x00,0x00,0x00,0x00,0x00,
0x46}} */

/* Object interface: IComponentRegistrar, ver. 0.0,

GUID={0xa817e7a2,0x43fa,0x11d0,{0x9e,0x44,0x00,0xaa,0x00,0xb6,0x77,0x
0a}} */
#pragma code_seg(".orpc")
static const unsigned short IComponentRegistrar_FormatStringOffsetTable[] =
   {
   (unsigned short) -1,
   (unsigned short) -1,
   (unsigned short) -1,
   (unsigned short) -1,
   0,
   36,
   66,
   96,
   138,
   174
   };
static const MIDL_STUBLESS_PROXY_INFO
IComponentRegistrar_ProxyInfo =
   {
   &Object_StubDesc,
   __MIDL_ProcFormatString.Format,
   &IComponentRegistrar_FormatStringOffsetTable[-3],
   0,
   0,
   0
   };

static const MIDL_SERVER_INFO IComponentRegistrar_ServerInfo =
   {
   &Object_StubDesc,
   0,
   __MIDL_ProcFormatString.Format,
   &IComponentRegistrar_FormatStringOffsetTable[-3],
   0,
   0,
   0,
   0};
CINTERFACE_PROXY_VTABLE(13) _IComponentRegistrarProxyVtbl =
{
   &IComponentRegistrar_ProxyInfo,
   &IID_IComponentRegistrar,
   IUnknown_QueryInterface_Proxy,
   IUnknown_AddRef_Proxy,
   IUnknown_Release_Proxy ,
   0 /* (void *) (INT_PTR) -1 /* IDispatch::GetTypeInfoCount */ ,
   0 /* (void *) (INT_PTR) -1 /* IDispatch::GetTypeInfo */ ,
   0 /* (void *) (INT_PTR) -1 /* IDispatch::GetIDsOfNames */ ,
   0 /* IDispatch_Invoke_Proxy */ ,
   (void *) (INT_PTR) -1 /* IComponentRegistrar::Attach */ ,
   (void *) (INT_PTR) -1 /* IComponentRegistrar::RegisterAll */ ,
   (void *) (INT_PTR) -1 /* IComponentRegistrar::UnregisterAll */ ,
```

```
   (void *) (INT_PTR) -1 /* IComponentRegistrar::GetComponents */ ,
   (void *) (INT_PTR) -1 /* IComponentRegistrar::RegisterComponent */ ,
   (void *) (INT_PTR) -1 /* IComponentRegistrar::UnregisterComponent */
};

static const PRPC_STUB_FUNCTION IComponentRegistrar_table[] =
{
   STUB_FORWARDING_FUNCTION,
   STUB_FORWARDING_FUNCTION,
   STUB_FORWARDING_FUNCTION,
   STUB_FORWARDING_FUNCTION,
   NdrStubCall2,
   NdrStubCall2,
   NdrStubCall2,
   NdrStubCall2,
   NdrStubCall2,
   NdrStubCall2
};
CInterfaceStubVtbl _IComponentRegistrarStubVtbl =
{
   &IID_IComponentRegistrar,
   &IComponentRegistrar_ServerInfo,
   13,
   &IComponentRegistrar_table[-3],
   CStdStubBuffer_DELEGATING_METHODS
};

/* Object interface: Itpcc_com, ver. 0.0,

GUID={0x5B4FA473,0x2E68,0x4D79,{0xA6,0x26,0xF3,0x8B,0x30,0xB8,0x
19,0x6E}} */
#pragma code_seg(".orpc")
static const unsigned short Itpcc_com_FormatStringOffsetTable[] =
   {
   210,
   252,
   294,
   336,
   378,
   36
   };
static const MIDL_STUBLESS_PROXY_INFO Itpcc_com_ProxyInfo =
   {
   &Object_StubDesc,
   __MIDL_ProcFormatString.Format,
   &Itpcc_com_FormatStringOffsetTable[-3],
   0,
   0,
   0
   };

static const MIDL_SERVER_INFO Itpcc_com_ServerInfo =
   {
   &Object_StubDesc,
   0,
   __MIDL_ProcFormatString.Format,
   &Itpcc_com_FormatStringOffsetTable[-3],
   0,
   0,
   0,
   0};
CINTERFACE_PROXY_VTABLE(9) _Itpcc_comProxyVtbl =
{
   &Itpcc_com_ProxyInfo,
   &IID_Itpcc_com,
   IUnknown_QueryInterface_Proxy,
   IUnknown_AddRef_Proxy,
   IUnknown_Release_Proxy ,
   (void *) (INT_PTR) -1 /* Itpcc_com::doStockLevel */ ,
   (void *) (INT_PTR) -1 /* Itpcc_com::doNewOrder */ ,
   (void *) (INT_PTR) -1 /* Itpcc_com::doPayment */ ,
   (void *) (INT_PTR) -1 /* Itpcc_com::doOrderStatus */ ,
   (void *) (INT_PTR) -1 /* Itpcc_com::doDBInfo */ ,
   (void *) (INT_PTR) -1 /* Itpcc_com::doSetComplete */
};
const CInterfaceStubVtbl _Itpcc_comStubVtbl =
{
   &IID_Itpcc_com,
   &Itpcc_com_ServerInfo,
   9,
   0, /* pure interpreted */
   CStdStubBuffer_METHODS
};
static const MIDL_STUB_DESC Object_StubDesc =
   {
   0,
   NdrOleAllocate,
   NdrOleFree,
   0,
   0,
   0,
   0,
   0,
   __MIDL_TypeFormatString.Format,
   1, /* -error bounds_check flag */
   0x50002, /* Ndr library version */
   0,
   0x6000169, /* MIDL Version 6.0.361 */
   0,
   UserMarshalRoutines,
   0,  /* notify & notify_flag routine table */
   0x1, /* MIDL flag */
   0, /* cs routines */
   0,   /* proxy/server info */
   0   /* Reserved5 */
   };
const CInterfaceProxyVtbl * _tpccCom_ProxyVtblList[] =
{
   ( CInterfaceProxyVtbl *) &_Itpcc_comProxyVtbl,
   ( CInterfaceProxyVtbl *) &_IComponentRegistrarProxyVtbl,
   0
};
const CInterfaceStubVtbl * _tpccCom_StubVtblList[] =
{
   ( CInterfaceStubVtbl *) &_Itpcc_comStubVtbl,
   ( CInterfaceStubVtbl *) &_IComponentRegistrarStubVtbl,
   0
};
PCInterfaceName const _tpccCom_InterfaceNamesList[] =
{
   "Itpcc_com",
   "IComponentRegistrar",
   0
};
const IID *  _tpccCom_BaseIIDList[] =
{
   0,
   &IID_IDispatch,
   0
};

#define _tpccCom_CHECK_IID(n)              IID_GENERIC_CHECK_IID(
_tpccCom, pIID, n)
int __stdcall _tpccCom_IID_Lookup( const IID * pIID, int * pIndex )
{
```

```
   IID_BS_LOOKUP_SETUP
   IID_BS_LOOKUP_INITIAL_TEST( _tpccCom, 2, 1 )
   IID_BS_LOOKUP_RETURN_RESULT( _tpccCom, 2, *pIndex )

}
const ExtendedProxyFileInfo tpccCom_ProxyFileInfo =
{
   (PCInterfaceProxyVtblList *) & _tpccCom_ProxyVtblList,

   (PCInterfaceStubVtblList *) & _tpccCom_StubVtblList,
   (const PCInterfaceName * ) & _tpccCom_InterfaceNamesList,
   (const IID ** ) & _tpccCom_BaseIIDList,
   & _tpccCom_IID_Lookup,
   2,
   2,
   0, /* table of [async_uuid] interfaces */
   0, /* Filler1 */
   0, /* Filler2 */
   0  /* Filler3 */
};
#if _MSC_VER >= 1200
#pragma warning(pop)
#endif

#endif /* !defined(_M_IA64) && !defined(_M_AMD64)*/
```

TpccDB2Glue/stdfax.h

```
// stdafx.h : include file for standard system include files,
// or project specific include files that are used frequently, but
// are changed infrequently
//
#pragma once

#define WIN32_LEAN_AND_MEAN                    // Exclude rarely-used
stuff from Windows headers
// Windows Header Files:
#include <windows.h>
// TODO: reference additional headers your program requires here
```

tpccDB2Glue/tpccDB2glue.h

```
// The following ifdef block is the standard way of creating macros which make
exporting
// from a DLL simpler. All files within this DLL are compiled with the
TPCCDB2GLUE_EXPORTS
// symbol defined on the command line. this symbol should not be defined on
any project
// that uses this DLL. This way any other project whose source files include this
file see
// TPCCDB2GLUE_API functions as being imported from a DLL, whereas this
DLL sees symbols
// defined with this macro as being exported.
#ifdef TPCCDB2GLUE_EXPORTS
#define TPCCDB2GLUE_API __declspec(dllexport)
#else
#define TPCCDB2GLUE_API __declspec(dllimport)
#endif
#ifndef SPGENERAL
        #define SPGENERAL
#endif
#include <db2tpcc.h>
#include <tpcc.h>
////////////////////////////////////////////////////////////////////////
// Error/Debug log file defines
////////////////////////////////////////////////////////////////////////
ofstream debugStream;
ofstream errorStream;
CRITICAL_SECTION debugMutex;
CRITICAL_SECTION errorMutex;
//#define TIMING      1
FILE *respTimes;
struct txn
{
        short txnType;
        struct  _timeb                                  startTime;
        struct  _timeb                                  endTime;
        short padding;
};
////////////////////////////////////////////////////////////////////////
// Registery Values
////////////////////////////////////////////////////////////////////////
#define             DB_USER_NAME
"dbUserName"
#define             DB_USER_PASSWORD
"dbPassword"
#define             DB_NAME
                    "dbName"
char userName[16] = {NULL};
char userPassword[16] = {NULL};
HKEY    registeryKey;
DWORD   regType;
char    value[MAX_STRING_LEN];
DWORD   regValueSize = MAX_STRING_LEN;
////////////////////////////////////////////////////////////////////////
// DB2 Glue Function Prototypes
////////////////////////////////////////////////////////////////////////
extern "C" TPCCDB2GLUE_API int connect_db(char *dbName,void **ctx);
extern "C" TPCCDB2GLUE_API int getContext(void **ctx);
extern "C" TPCCDB2GLUE_API int detachContext(void *ctx);
extern "C" TPCCDB2GLUE_API int attachContext(void *ctx);
extern "C" TPCCDB2GLUE_API int disconnect_db(void *ctx);
extern "C" TPCCDB2GLUE_API int do_nord(nord_wrapper *nord,void *ctx);
extern "C" TPCCDB2GLUE_API int do_pymt(paym_wrapper *pymt,void
*ctx);
extern "C" TPCCDB2GLUE_API int do_ords(ords_wrapper *ords,void *ctx);
extern "C" TPCCDB2GLUE_API int do_dlvy(dlvy_wrapper *dlvy,void *ctx);
extern "C" TPCCDB2GLUE_API int do_stok(stok_wrapper *stok,void *ctx);
```

tpccDB2Glue/stdafx.cpp

```
// stdafx.cpp : source file that includes just the standard includes
// tpccDB2glue.pch will be the pre-compiled header
// stdafx.obj will contain the pre-compiled type information
#include "stdafx.h"
// TODO: reference any additional headers you need in STDAFX.H
// and not in this file
```

tpccDB2Glue/tpccDB2glue.cpp

```
// tpccDB2glue.cpp : Defines the entry point for the DLL application.
//
#include "stdafx.h"
#include "tpccDB2glue.h"
BOOL APIENTRY DllMain( HANDLE hModule,
                DWORD  ul_reason_for_call,
                LPVOID lpReserved
                                                        )
{
        switch (ul_reason_for_call)
        {
        case DLL_PROCESS_ATTACH:
                if(debugFlag)
                {
```

```
                        InitializeCriticalSection(&debugMutex);

                        debugStream.rdbuf(
)->open("C:\\inetpub\\wwwroot\\tpcc\\debug_gluecode.txt",ios_base::in |
ios_base::out | ios_base::app);
                        if(!debugStream.rdbuf( ) ->is_open())
                                return FALSE;
                }

                DEBUGMSG("Entered dllMain of tpccDB2glue.dll" <<
endl);
                InitializeCriticalSection(&errorMutex);
                errorStream.rdbuf(
)->open("C:\\inetpub\\wwwroot\\tpcc\\error_gluecode.txt",ios_base::in |
ios_base::out | ios_base::app);
                if(!errorStream.rdbuf( )->is_open())
                        return FALSE;

#ifdef TIMING

respTimes=fopen("c:\\inetpub\\wwwroot\\tpcc\\respTimes","wb");
                if(!respTimes)
                {
                        ERRORMSG("Unable to open response time
file c:\\inetpub\\wwwroot\\tpcc\\respTimes"<<endl);
                        return FALSE;
                }
                ERRORMSG("Response time file created:"<<endl);
#endif

                DEBUGMSG("Opening registery sub key "<<
REGISTERY_SUB_KEY << endl);
                //open up registery key

if(RegOpenKeyEx(HKEY_LOCAL_MACHINE,REGISTERY_SUB_KEY,0,K
EY_READ,&registeryKey) == ERROR_SUCCESS)
                {
                        DEBUGMSG("Registery key open"<<endl);
                        //get the null db user name
                        regValueSize = sizeof(value);
                        if
(RegQueryValueEx(registeryKey,DB_USER_NAME,0,&regType,(BYTE *)
&value,&regValueSize)== ERROR_SUCCESS )
                                strcpy(userName,value);
                        else
                                return
ERR_INVALID_USERNAME;
                        DEBUGMSG("DB user name:"<< userName
<< endl);
                        regValueSize = sizeof(value);
                        if

(RegQueryValueEx(registeryKey,DB_USER_PASSWORD,0,&regType,(BYT
E *) &value,&regValueSize)== ERROR_SUCCESS )
                                strcpy(userPassword,value);
                        else
                                return
ERR_INVALID_PASSWORD;
                        DEBUGMSG("DB user
password:"<<userPassword << endl);
                }
                else
                {
                        return ERR_INVALID_REGISTERY_KEY;
                        DEBUGMSG("Unable to open registery
key"<< REGISTERY_SUB_KEY << endl);
                }
                break;
        case DLL_THREAD_ATTACH:
                break;
        case DLL_THREAD_DETACH:
                break;
        case DLL_PROCESS_DETACH:
                #ifdef TIMING
                        ERRORMSG("dll_process_detach called,
closing timing file"<<endl);
                        fclose(respTimes);
                #endif
                break;
        }
  return TRUE;
}
/*
*****************************************************************
** Name                    :       attachContext
** Description     :
**                                         Function calls db2 api
to attach thread to
**                                         a specific context per
thread basis.
** Parameters      :
**                                         void*
stored context
** Returns         :
**                                         int - return code
** Comments                :
**
*****************************************************************
*/
extern "C" int attachContext(void *ctx)
{
        int rc;
        if ( (rc = attach_context(ctx)) != OK)
                return ERR_ATTACHING_CONTEXT;

        return OK;
}
/*
*****************************************************************
** Name                    :       detachContext
** Description     :
**                                         Function calls db2 api
to detach thread from context
** Parameters      :
**                                         void*
stored context
** Returns         :
**                                         int - return code
** Comments                :
**
*****************************************************************
*/
extern "C" int detachContext(void *ctx)
{
        int rc;
        if ( (rc = detach_context(ctx)) != OK)
        {
                ERRORMSG("error detaching context from db,
rc:"<<rc<<endl);
                return ERR_DETACHING_CONTEXT;
        }
        return OK;
}
/*
*****************************************************************
** Name                    :       connect_db
```

```
** Description          :
**                                                  Function calls db2 api
to connect to db
** Parameters           :
**                                                  char*
dbName
**                                                  void**
uninitialized context
** Returns              :
**                                                  int - return code
** Comments                        :
**                                                  To connect to db, first
connection must be
**                                                  established.  Next,
context for that connect
**                                                  be saved off.  Finally,
detach from the
**                                                  context just created.
**
*****************************************************************
*/
extern "C" TPCCDB2GLUE_API int connect_db(char *dbName,void **ctx)
{
        DEBUGMSG("Entered db2glue do_connect using dbName:"<<
dbName << endl << "Calling connect_to_TM_auth() with username:"<<
userName << " password:" <<userPassword << endl);
        int rc = connect_to_TM_auth(dbName,userName,userPassword);
        if(rc != OK)
        {
                DEBUGMSG("Object do_connect failed,
rc:"<<rc<<endl);
                ERRORMSG("Object do_connect failed,
rc:"<<rc<<endl);
                return rc;
        }
        DEBUGMSG("calling get_context"<<endl);
        if ( (rc = get_context(ctx)) != OK)
        {
                DEBUGMSG("Object get_context() failed, rc:"<< rc
<<endl);
                ERRORMSG("Object get_context() failed, rc:"<< rc
<<endl);
                return ERR_SAVING_CONTEXT;
        }
        DEBUGMSG("Object get_context successful, context:"<<
DEBUGADDRESS(*ctx)<<" saved"<<endl);
        DEBUGMSG("Object calling detach_context() w/
ctx:"<<DEBUGADDRESS(*ctx)<<endl);
        if( (rc = detach_context(*ctx)) != OK)
        {
                DEBUGMSG("Object failed detach_context w/
ctx:"<<DEBUGADDRESS(*ctx)<<" rc:" << rc << endl);
                ERRORMSG("Object failed detach_context w/
ctx:"<<DEBUGADDRESS(*ctx)<<" rc:" << rc << endl);

                return ERR_DETACHING_CONTEXT;
        }
        DEBUGMSG("Object detach_context successful,
context:"<<DEBUGADDRESS(*ctx)<<", connection complete"<<endl);
        return OK;
}
/*
*****************************************************************
** Name                    :       disconnect_db
** Description          :
**                                                  Function calls db2 api
to disconnect from db
** Parameters           :
**                                                  void*
stored context
** Returns              :
**                                                  int - return code
** Comments                        :

**                                                  To disconnect from db,
first must attach to
**                                                  thread's context.  Next,
disconnect from db
*****************************************************************
*/
extern "C" TPCCDB2GLUE_API int disconnect_db(void *ctx)
{
        DEBUGMSG("Entered do_disconnect, attaching to context:" <<
DEBUGADDRESS(ctx) << endl);
        int rc = attachContext(ctx);
        if(rc != OK)
        {
                ERRORMSG("failed attach_context w/
ctx:"<<DEBUGADDRESS(ctx)<<" rc:" << rc << endl);
                DEBUGMSG("failed attach_context w/
ctx:"<<DEBUGADDRESS(ctx)<<" rc:" << rc << endl);
                return ERR_ATTACHING_CONTEXT;
        }
        DEBUGMSG("context established.  preparing to call db2" << endl);
        rc = disconnect_from_TM();
        if(rc != OK)
        {
                DEBUGMSG("disconnect failed, rc:"<<rc<<endl);
                ERRORMSG("disconnect failed, rc:"<<rc<<endl);
                return rc;
        }
        return OK;
}
/*
*****************************************************************
** Name                    :       do_nord
** Description          :
**                                                  Function calls db2 api
to execute nord txn
** Parameters           :
**                                                  nord_wrapper*
new order txn structs wrapper
**                                                  void*
stored context
** Returns              :
**                                                  int - return code
** Comments                        :
**                                                  Attach to thread's
context, call nord sql function
**                                                  then detach from
context.
*****************************************************************
*/
extern "C" TPCCDB2GLUE_API int do_nord(nord_wrapper *nord,void *ctx)
{
        DEBUGMSG("Entered do_nord, attaching to context:" <<
DEBUGADDRESS(ctx) << endl);
        int rc = attachContext(ctx);
        if(rc != OK)
        {
                ERRORMSG("nord failed attach_context w/
ctx:"<<DEBUGADDRESS(ctx)<<" rc:" << rc << endl);
                DEBUGMSG("nord failed attach_context w/
ctx:"<<DEBUGADDRESS(ctx)<<" rc:" << rc << endl);
                return ERR_ATTACHING_CONTEXT;
        }
```

```
		DEBUGMSG("attached to context:" <<
DEBUGADDRESS(ctx)<<", preparing to call db2" << endl);
#ifdef TIMING
		struct txn timeSample;
		_ftime(&timeSample.startTime);
#endif
		//call new order txn
		neword_sql(&nord->in_nord,&nord->out_nord);
#ifdef TIMING
		_ftime(&timeSample.endTime);
		timeSample.txnType=1;
		EnterCriticalSection(&errorMutex);
		rc = fwrite(&timeSample,sizeof(struct txn),1,respTimes);

		LeaveCriticalSection(&errorMutex);
#endif
		DEBUGMSG("return from neword_sql(), s_transtatus:" <<
nord->out_nord.s_transtatus << endl);
		rc = detachContext(ctx);
		if(rc != OK)
		{
			ERRORMSG("nord failed detach_context w/
ctx:"<<DEBUGADDRESS(ctx)<<" rc:" << rc << endl);
			DEBUGMSG("nord failed detach_context w/
ctx:"<<DEBUGADDRESS(ctx)<<" rc:" << rc << endl);
			return ERR_DETACHING_CONTEXT;
		}
		return OK;
}
/*
*****************************************************************
** Name		:		do_pymt
** Description		:
**						Function calls db2 api
to execute pymt txn
** Parameters		:
**						paym_wrapper*
payment txn structs wrapper
**						void*
stored context
** Returns		:
**						int - return code
** Comments		:
**						Attach to thread's
context, call nord sql function
**						then detach from
context.


*****************************************************************

*/
extern "C" TPCCDB2GLUE_API int do_pymt(paym_wrapper *pymt,void *ctx)
{
		DEBUGMSG("Entered do_pymt, attaching to context:" <<
DEBUGADDRESS(ctx) << endl);
		int rc = attachContext(ctx);
		if(rc != OK)
		{
			ERRORMSG("pymt failed attach_context w/
ctx:"<<DEBUGADDRESS(ctx)<<" rc:" << rc << endl);
			DEBUGMSG("pymt failed attach_context w/
ctx:"<<DEBUGADDRESS(ctx)<<" rc:" << rc << endl);
			return ERR_ATTACHING_CONTEXT;
		}
		DEBUGMSG("attached to context:"<< DEBUGADDRESS(ctx) <<"
preparing to call db2" << endl);
#ifdef TIMING
		struct txn timeSample;
		_ftime(&timeSample.startTime);
#endif
		//call pymt txn
		payment_sql(&pymt->in_paym,&pymt->out_paym);
#ifdef TIMING
		_ftime(&timeSample.endTime);
		timeSample.txnType=2;
		EnterCriticalSection(&errorMutex);
		if(  (fwrite(&timeSample,sizeof(struct txn),1,respTimes)) != 1 )
		{
			ERRORMSG("Unable to write to binary file,
pymt"<<endl);
		}
		LeaveCriticalSection(&errorMutex);
#endif
		DEBUGMSG("return from payment_sql(), s_transtatus:" <<
pymt->out_paym.s_transtatus << endl);

		rc = detachContext(ctx);
		if(rc != OK)
		{
			ERRORMSG("pymt failed detach_context w/
ctx:"<<DEBUGADDRESS(ctx)<<endl);
			DEBUGMSG("pymt failed detach_context w/
ctx:"<<DEBUGADDRESS(ctx)<<" rc:" << rc << endl);


			return ERR_DETACHING_CONTEXT;
		}
		DEBUGMSG("pymt detach_context successful. pymt txn
complete."<<endl);
		return OK;
}
/*
*****************************************************************
** Name		:		do_ords
** Description		:
**						Function calls db2 api
to execute ords txn
** Parameters		:
**						ords_wrapper*
order status txn structs wrapper
**						void*
stored context
** Returns		:
**						int - return code
** Comments		:
**						Attach to thread's
context, call nord sql function
**						then detach from
context.
*****************************************************************
*/
extern "C"  TPCCDB2GLUE_API int do_ords(ords_wrapper *ords,void *ctx)
{
		DEBUGMSG("Entered do_ords, attaching to context:" <<
DEBUGADDRESS(ctx) << endl);
		int rc = attachContext(ctx);
		if(rc != OK)
		{
			ERRORMSG("ords failed attach_context w/
ctx:"<<DEBUGADDRESS(ctx)<<" rc:" << rc << endl);
			DEBUGMSG("ords failed attach_context w/
ctx:"<<DEBUGADDRESS(ctx)<<" rc:" << rc << endl);
			return ERR_ATTACHING_CONTEXT;
		}
```

```
		DEBUGMSG("attached to context:"<<DEBUGADDRESS(ctx)<<",
preparing to call db2" << endl);
		DEBUGMSG("calling ordstat_sql()" <<endl);
#ifdef TIMING
		struct txn timeSample;
		_ftime(&timeSample.startTime);
#endif
		ordstat_sql(&ords->in_ords,&ords->out_ords);
#ifdef TIMING
		_ftime(&timeSample.endTime);
		timeSample.txnType=3;
		EnterCriticalSection(&errorMutex);
		if(  (fwrite(&timeSample,sizeof(struct txn),1,respTimes)) != 1 )
		{
			ERRORMSG("Unable to write to binary file,
ords"<<endl);
		}
		LeaveCriticalSection(&errorMutex);
#endif
		DEBUGMSG("return from ordstat_sql(), s_transtatus:" <<
ords->out_ords.s_transtatus << endl);
		rc = detachContext(ctx);
		if(rc != OK)
		{
			ERRORMSG("ords failed attach_context w/
ctx:"<<DEBUGADDRESS(ctx)<<" rc:" << rc << endl);
			DEBUGMSG("ords failed attach_context w/
ctx:"<<DEBUGADDRESS(ctx)<<" rc:" << rc << endl);
			return ERR_DETACHING_CONTEXT;
		}
		DEBUGMSG("ords detach_context successful. pymt txn
complete."<<endl);
		return OK;
}
/*
****************************************************************
** Name		:		do_dlvy
** Description		:
**						Function calls db2 api
to execute ords txn
** Parameters		:
**						dlvy_wrapper*
dlvy txn structs wrapper
**						void*
stored context
** Returns		:
**						int - return code
** Comments		:
**						Attach to thread's
context, call nord sql function
**						then detach from
context.
****************************************************************
*/
extern "C" TPCCDB2GLUE_API int do_dlvy(dlvy_wrapper *dlvy,void *ctx)
{
		DEBUGMSG("Entered do_dlvy, attaching to context:" <<
DEBUGADDRESS(ctx) << endl);
		int rc = attachContext(ctx);
		if(rc != OK)
		{
			ERRORMSG("dlvy failed attach_context w/
ctx:"<<DEBUGADDRESS(ctx)<<" rc:" << rc << endl);
			DEBUGMSG("dlvy failed attach_context w/
ctx:"<<DEBUGADDRESS(ctx)<<" rc:" << rc << endl);
			return ERR_ATTACHING_CONTEXT;
		}
		DEBUGMSG("attached to context:"<<DEBUGADDRESS(ctx)<<",
preparing to call db2" << endl);
		DEBUGMSG("calling delivery_sql" <<  endl);
#ifdef TIMING
		struct txn timeSample;
		_ftime(&timeSample.startTime);
#endif
		//call dlvy txn
		delivery_sql(&dlvy->in_dlvy,&dlvy->out_dlvy);
#ifdef TIMING
		_ftime(&timeSample.endTime);
		timeSample.txnType=3;
		EnterCriticalSection(&errorMutex);
		if(  (fwrite(&timeSample,sizeof(struct txn),1,respTimes)) != 1 )
		{
			ERRORMSG("Unable to write to binary file,
dlvy"<<endl);
		}
		LeaveCriticalSection(&errorMutex);
#endif
		DEBUGMSG("return from delivery_sql(), s_transtatus:" <<
dlvy->out_dlvy.s_transtatus << endl);
		rc = detachContext(ctx);
		if(rc != OK)
		{
			ERRORMSG("dlvy failed detach_context w/
ctx:"<<DEBUGADDRESS(ctx)<<" rc:" << rc << endl);
			DEBUGMSG("dlvy failed detach_context w/
ctx:"<<DEBUGADDRESS(ctx)<<" rc:" << rc << endl);
			return ERR_DETACHING_CONTEXT;
		}
		DEBUGMSG("dlvy detach_context successful. dlvy txn
complete."<<endl);
  return OK;
}
/*
****************************************************************
** Name		:		do_stok
** Description		:
**						Function calls db2 api
to execute stok txn
** Parameters		:
**						stok_wrapper*
stock txn structs wrapper
**						void*
stored context
** Returns		:
**						int - return code
** Comments		:
**						Attach to thread's
context, call nord sql function
**						then detach from
context.
****************************************************************
*/
extern "C" TPCCDB2GLUE_API int do_stok(stok_wrapper *stok,void *ctx)
{
		DEBUGMSG("Entered do_stok, attaching to context:" <<
DEBUGADDRESS(ctx) << endl);
		int rc = attachContext(ctx);
		if(rc != OK)
		{
			ERRORMSG("stok failed attach_context w/
ctx:"<<DEBUGADDRESS(ctx)<<" rc:" << rc << endl);
			DEBUGMSG("stok failed attach_context w/
ctx:"<<DEBUGADDRESS(ctx)<<" rc:" << rc << endl);
			return ERR_ATTACHING_CONTEXT;
		}
```

```
		DEBUGMSG("attaching to context:"<<DEBUGADDRESS(ctx)<<",
preparing to call db2" << endl);
		DEBUGMSG("calling stocklev_sql()" <<endl);
#ifdef TIMING
		struct txn timeSample;
		_ftime(&timeSample.startTime);
#endif
		//call stock level txn
		stocklev_sql(&stok->in_stok, &stok->out_stok);
#ifdef TIMING
		_ftime(&timeSample.endTime);
		timeSample.txnType=5;
		EnterCriticalSection(&errorMutex);
		if(  (fwrite(&timeSample,sizeof(struct txn),1,respTimes)) != 1 )
		{
				ERRORMSG("Unable to write to binary file,
stok"<<endl);
		}
		LeaveCriticalSection(&errorMutex);
#endif
		DEBUGMSG("return from stocklev_sql(), s_transtatus:" <<
stok->out_stok.s_transtatus << endl);
		DEBUGMSG("calling detach_context"<<endl);
		rc = detachContext(ctx);
		if(rc != OK)
		{
				ERRORMSG("stok failed attach_context w/
ctx:"<<DEBUGADDRESS(ctx)<<" rc:" << rc << endl);
				DEBUGMSG("stok failed attach_context w/
ctx:"<<DEBUGADDRESS(ctx)<<" rc:" << rc << endl);
				return ERR_DETACHING_CONTEXT;
		}
		DEBUGMSG("detach_context successful. stok txn
complete."<<endl);
		return OK;
}
??

??

??

??
```

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NullDB.cpp

```
// nullDB.cpp : Defines the entry point for the DLL application.
//

#include "stdafx.h"
#include "nullDB.h"
#include "..\tpccIsapi\tpcc.h"

BOOL APIENTRY DllMain( HANDLE hModule,
		DWORD  ul_reason_for_call,
		LPVOID lpReserved
						)
{
		switch (ul_reason_for_call)
		{
		case DLL_PROCESS_ATTACH:
		case DLL_THREAD_ATTACH:
		case DLL_THREAD_DETACH:
		case DLL_PROCESS_DETACH:
				break;
		}
	return TRUE;
}

// This is an example of an exported variable

NULLDB_API int dataSet = 0;

extern "C" NULLDB_API int connect_db(char *dbName,void **ctx)
{
		return OK;
}

extern "C" NULLDB_API int disconnect_db(void *ctx)
{
		return OK;
}

extern "C" NULLDB_API int do_nord(struct  nord_wrapper *nord,void *ctx)
{
		nord->out_nord.s_transtatus = 0;

		if (dataSet == 0)
		{
				strcpy(nord->out_nord.s_C_LAST,"NOYOLA");
				strcpy(nord->out_nord.s_C_CREDIT,"GC");
				nord->out_nord.s_W_TAX = 1694;
				nord->out_nord.s_D_TAX = 967;
				nord->out_nord.s_C_DISCOUNT = 1024;
				nord->out_nord.s_O_ID = 3013;
				nord->out_nord.s_O_OL_CNT = 4;
				nord->out_nord.s_total_amount = 32345;
				nord->out_nord.s_O_ENTRY_D_time = 1234567890;

				strcpy(nord->out_nord.item[0].s_I_NAME,"98 Toyota
Supra Turbo");
				nord->in_nord.in_item[0].s_OL_I_ID = 1;
				nord->in_nord.in_item[0].s_OL_QUANTITY = 1;
				nord->in_nord.in_item[0].s_OL_SUPPLY_W_ID = 1;
				nord->out_nord.item[0].s_I_PRICE = 42000;
				nord->out_nord.item[0].s_OL_AMOUNT = 554000;
				nord->out_nord.item[0].s_S_QUANTITY = 31;
				nord->out_nord.item[0].s_brand_generic = 'G';

				strcpy(nord->out_nord.item[1].s_I_NAME,"HKS Turbo
Timer");
				nord->in_nord.in_item[1].s_OL_I_ID = 1;
				nord->in_nord.in_item[1].s_OL_QUANTITY = 1;
				nord->in_nord.in_item[1].s_OL_SUPPLY_W_ID = 1;
				nord->out_nord.item[1].s_I_PRICE = 4500;
				nord->out_nord.item[1].s_OL_AMOUNT = 438100;
				nord->out_nord.item[1].s_S_QUANTITY = 57;
				nord->out_nord.item[1].s_brand_generic = 'G';

				strcpy(nord->out_nord.item[2].s_I_NAME,"TRD GEN2
Exhaust");
				nord->in_nord.in_item[2].s_OL_I_ID = 1;
				nord->in_nord.in_item[2].s_OL_QUANTITY = 1;
				nord->in_nord.in_item[2].s_OL_SUPPLY_W_ID = 1;
				nord->out_nord.item[2].s_I_PRICE = 6734;
				nord->out_nord.item[2].s_OL_AMOUNT = 47173;
				nord->out_nord.item[2].s_S_QUANTITY = 42;
				nord->out_nord.item[2].s_brand_generic = 'G';

				strcpy(nord->out_nord.item[3].s_I_NAME,"BLITZ
DUAL-SOLENOID");
				nord->in_nord.in_item[3].s_OL_I_ID = 1;
```

```
		nord->in_nord.in_item[3].s_OL_QUANTITY = 1;
		nord->in_nord.in_item[3].s_OL_SUPPLY_W_ID = 1;
		nord->out_nord.item[3].s_I_PRICE = 35000;
		nord->out_nord.item[3].s_OL_AMOUNT = 12096;
		nord->out_nord.item[3].s_S_QUANTITY = 84;
		nord->out_nord.item[3].s_brand_generic = 'G';

		dataSet = 1;
	}
	else
	{
		strcpy(nord->out_nord.s_C_LAST,"SIMPSON");
		strcpy(nord->out_nord.s_C_CREDIT,"GC");
		nord->out_nord.s_W_TAX = 913;
		nord->out_nord.s_D_TAX = 1519;
		nord->out_nord.s_C_DISCOUNT = 958;
		nord->out_nord.s_O_ID = 1410;
		nord->out_nord.s_O_OL_CNT = 9;
		nord->out_nord.s_total_amount = 12345;
		nord->out_nord.s_O_ENTRY_D_time = 1234567890;

		strcpy(nord->out_nord.item[0].s_I_NAME,"97 Toyota
Supra NA");
		nord->in_nord.in_item[0].s_OL_I_ID = 1;
		nord->in_nord.in_item[0].s_OL_QUANTITY = 1;
		nord->in_nord.in_item[0].s_OL_SUPPLY_W_ID = 1;
		nord->out_nord.item[0].s_I_PRICE = 30000;
		nord->out_nord.item[0].s_OL_AMOUNT = 769600;
		nord->out_nord.item[0].s_S_QUANTITY = 97;
		nord->out_nord.item[0].s_brand_generic = 'G';

		strcpy(nord->out_nord.item[1].s_I_NAME,"98 Turbo
Stereo");
		nord->in_nord.in_item[1].s_OL_I_ID = 1;
		nord->in_nord.in_item[1].s_OL_QUANTITY = 1;
		nord->in_nord.in_item[1].s_OL_SUPPLY_W_ID = 1;
		nord->out_nord.item[1].s_I_PRICE = 10001;
		nord->out_nord.item[1].s_OL_AMOUNT = 192999;
		nord->out_nord.item[1].s_S_QUANTITY = 51;
		nord->out_nord.item[1].s_brand_generic = 'G';

		strcpy(nord->out_nord.item[2].s_I_NAME,"XERD
Exhaust Header");
		nord->in_nord.in_item[2].s_OL_I_ID = 1;
		nord->in_nord.in_item[2].s_OL_QUANTITY = 1;
		nord->in_nord.in_item[2].s_OL_SUPPLY_W_ID = 1;
		nord->out_nord.item[2].s_I_PRICE = 4000;
		nord->out_nord.item[2].s_OL_AMOUNT = 41670;
		nord->out_nord.item[2].s_S_QUANTITY = 14;
		nord->out_nord.item[2].s_brand_generic = 'G';

		strcpy(nord->out_nord.item[3].s_I_NAME,"LEXOL
Conditioner");
		nord->in_nord.in_item[3].s_OL_I_ID = 1;
		nord->in_nord.in_item[3].s_OL_QUANTITY = 1;
		nord->in_nord.in_item[3].s_OL_SUPPLY_W_ID = 1;
		nord->out_nord.item[3].s_I_PRICE = 1400;
		nord->out_nord.item[3].s_OL_AMOUNT = 17213;
		nord->out_nord.item[3].s_S_QUANTITY = 90;
		nord->out_nord.item[3].s_brand_generic = 'G';

		strcpy(nord->out_nord.item[4].s_I_NAME,"TRD Sticker
1");
		nord->in_nord.in_item[4].s_OL_I_ID = 1;
		nord->in_nord.in_item[4].s_OL_QUANTITY = 1;
		nord->in_nord.in_item[4].s_OL_SUPPLY_W_ID = 1;
		nord->out_nord.item[4].s_I_PRICE = 1400;
		nord->out_nord.item[4].s_OL_AMOUNT = 27232;
		nord->out_nord.item[4].s_S_QUANTITY = 75;
		nord->out_nord.item[4].s_brand_generic = 'G';

		strcpy(nord->out_nord.item[5].s_I_NAME,"TRD Sticker
2");
		nord->in_nord.in_item[5].s_OL_I_ID = 1;
		nord->in_nord.in_item[5].s_OL_QUANTITY = 1;
		nord->in_nord.in_item[5].s_OL_SUPPLY_W_ID = 1;
		nord->out_nord.item[5].s_I_PRICE = 4400;
		nord->out_nord.item[5].s_OL_AMOUNT = 35808;
		nord->out_nord.item[5].s_S_QUANTITY = 22;
		nord->out_nord.item[5].s_brand_generic = 'G';

		strcpy(nord->out_nord.item[6].s_I_NAME,"TRD Sticker
3");
		nord->in_nord.in_item[6].s_OL_I_ID = 1;
		nord->in_nord.in_item[6].s_OL_QUANTITY = 1;
		nord->in_nord.in_item[6].s_OL_SUPPLY_W_ID = 1;
		nord->out_nord.item[6].s_I_PRICE = 5500;
		nord->out_nord.item[6].s_OL_AMOUNT = 44392;
		nord->out_nord.item[6].s_S_QUANTITY = 21;
		nord->out_nord.item[6].s_brand_generic = 'G';

		strcpy(nord->out_nord.item[7].s_I_NAME,"TRD Sticker
4");
		nord->in_nord.in_item[7].s_OL_I_ID = 1;
		nord->in_nord.in_item[7].s_OL_QUANTITY = 1;
		nord->in_nord.in_item[7].s_OL_SUPPLY_W_ID = 1;
		nord->out_nord.item[7].s_I_PRICE = 8300;
		nord->out_nord.item[7].s_OL_AMOUNT = 83410;
		nord->out_nord.item[7].s_S_QUANTITY = 35;
		nord->out_nord.item[7].s_brand_generic = 'G';

		strcpy(nord->out_nord.item[8].s_I_NAME,"98 Toyota
OEM Bra");
		nord->in_nord.in_item[8].s_OL_I_ID = 1;
		nord->in_nord.in_item[8].s_OL_QUANTITY = 1;
		nord->in_nord.in_item[8].s_OL_SUPPLY_W_ID = 1;
		nord->out_nord.item[8].s_I_PRICE = 10000;
		nord->out_nord.item[8].s_OL_AMOUNT = 43160;
		nord->out_nord.item[8].s_S_QUANTITY = 73;
		nord->out_nord.item[8].s_brand_generic = 'G';

		dataSet = 0;
	}

	return OK;

}

extern "C"  NULLDB_API int do_pymt(struct paym_wrapper *pymt,void *ctx)
{
	pymt->out_paym.s_transtatus = 0;

	if (dataSet == 0)
	{
		pymt->out_paym.s_C_CREDIT_LIM = 5000000;
		pymt->out_paym.s_C_DISCOUNT = 1024;
		pymt->out_paym.s_C_BALANCE = 17815;
		pymt->out_paym.s_C_ID = 89;
		pymt->out_paym.s_H_DATE_time = 1234567890;

		strcpy(pymt->out_paym.s_W_STREET_1,"11501 Burnet
Rd");
		strcpy(pymt->out_paym.s_W_STREET_2,"BLD 905");
		strcpy(pymt->out_paym.s_W_CITY,"Austin");
		strcpy(pymt->out_paym.s_W_STATE,"TX");
		strcpy(pymt->out_paym.s_W_ZIP,"78758");
```

```
                strcpy(pymt->out_paym.s_D_STREET_1,"11900 Hobby
Horse");
                strcpy(pymt->out_paym.s_D_STREET_2,"Apt. 525");
                strcpy(pymt->out_paym.s_D_CITY,"Valley");
                strcpy(pymt->out_paym.s_D_STATE,"TX");
                strcpy(pymt->out_paym.s_D_ZIP,"78559");
                strcpy(pymt->out_paym.s_C_FIRST,"Jim");
                strcpy(pymt->out_paym.s_C_MIDDLE,"F");
                strcpy(pymt->out_paym.s_C_LAST,"Truck");
                strcpy(pymt->out_paym.s_C_STREET_1,"100 N Solis");
                strcpy(pymt->out_paym.s_C_STREET_2,"Flat 343");
                strcpy(pymt->out_paym.s_C_CITY,"Cambridge");
                strcpy(pymt->out_paym.s_C_STATE,"NY");
                strcpy(pymt->out_paym.s_C_ZIP,"785585432");

strcpy(pymt->out_paym.s_C_PHONE,"1234567890123456");
                pymt->out_paym.s_C_SINCE_time = 0;
                strcpy(pymt->out_paym.s_C_CREDIT,"BC");

strcpy(pymt->out_paym.s_C_DATA,"XXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
X");
                dataSet = 1;
        }
        else
        {
                pymt->out_paym.s_C_CREDIT_LIM = 4000000;
                pymt->out_paym.s_C_DISCOUNT = 52400;
                pymt->out_paym.s_C_BALANCE = 14080;
                pymt->out_paym.s_C_ID = 3180;
                pymt->out_paym.s_H_DATE_time = 1234567890;

                strcpy(pymt->out_paym.s_W_STREET_1,"1201 Park
Ave.");
                strcpy(pymt->out_paym.s_W_STREET_2,"Suite 432");
                strcpy(pymt->out_paym.s_W_CITY,"Denver");
                strcpy(pymt->out_paym.s_W_STATE,"CO");
                strcpy(pymt->out_paym.s_W_ZIP,"787562356");
                strcpy(pymt->out_paym.s_D_STREET_1,"3404 Garth
Rd");
                strcpy(pymt->out_paym.s_D_STREET_2,"Suite 320");
                strcpy(pymt->out_paym.s_D_CITY,"Austin");
                strcpy(pymt->out_paym.s_D_STATE,"TX");
                strcpy(pymt->out_paym.s_D_ZIP,"785598767");
                strcpy(pymt->out_paym.s_C_FIRST,"John");
                strcpy(pymt->out_paym.s_C_MIDDLE,"P");
                strcpy(pymt->out_paym.s_C_LAST,"Williams");
                strcpy(pymt->out_paym.s_C_STREET_1,"North Rab
Road");
                strcpy(pymt->out_paym.s_C_STREET_2,"Apt 343");
                strcpy(pymt->out_paym.s_C_CITY,"La Fiera");
                strcpy(pymt->out_paym.s_C_STATE,"TX");
                strcpy(pymt->out_paym.s_C_ZIP,"785585432");

strcpy(pymt->out_paym.s_C_PHONE,"1234567890123456");
                pymt->out_paym.s_C_SINCE_time = 0;
                strcpy(pymt->out_paym.s_C_CREDIT,"GC");
                strcpy(pymt->out_paym.s_C_DATA,"Great Ebaye");

                dataSet = 0;
        }
        return OK;
}

extern "C"  NULLDB_API int do_ords(struct ords_wrapper *ords,void *ctx)
{
        ords->out_ords.s_transtatus = 0;

        if (dataSet == 0)
        {
                ords->out_ords.s_C_BALANCE = 100000;
                ords->out_ords.s_C_ID = 3;
                ords->out_ords.s_O_ID = 1696;
                ords->out_ords.s_O_CARRIER_ID = 9;
                ords->out_ords.s_ol_cnt = 6;
                ords->out_ords.s_O_ENTRY_D_time = 1234567890;

                strcpy(ords->out_ords.s_C_FIRST,"Homer");
                strcpy(ords->out_ords.s_C_MIDDLE,"J");
                strcpy(ords->out_ords.s_C_LAST,"Simpson");

                ords->out_ords.item[0].s_OL_AMOUNT = 30000;
                ords->out_ords.item[0].s_OL_I_ID = 23492;
                ords->out_ords.item[0].s_OL_SUPPLY_W_ID = 9;
                ords->out_ords.item[0].s_OL_QUANTITY = 5;
                ords->out_ords.item[0].s_OL_DELIVERY_D_time =
1234567890;

                ords->out_ords.item[1].s_OL_AMOUNT = 12300;
                ords->out_ords.item[1].s_OL_I_ID = 18860;
                ords->out_ords.item[1].s_OL_SUPPLY_W_ID = 9;
                ords->out_ords.item[1].s_OL_QUANTITY = 5;
                ords->out_ords.item[1].s_OL_DELIVERY_D_time =
1234567890;

                ords->out_ords.item[2].s_OL_AMOUNT = 15000;
                ords->out_ords.item[2].s_OL_I_ID = 90488;
                ords->out_ords.item[2].s_OL_SUPPLY_W_ID = 9;
                ords->out_ords.item[2].s_OL_QUANTITY = 5;
                ords->out_ords.item[2].s_OL_DELIVERY_D_time =
1234567890;

                ords->out_ords.item[3].s_OL_AMOUNT = 25000;
                ords->out_ords.item[3].s_OL_I_ID = 22741;
                ords->out_ords.item[3].s_OL_SUPPLY_W_ID = 9;
                ords->out_ords.item[3].s_OL_QUANTITY = 5;
                ords->out_ords.item[3].s_OL_DELIVERY_D_time =
1234567890;

                ords->out_ords.item[4].s_OL_AMOUNT = 20000;
                ords->out_ords.item[4].s_OL_I_ID = 92952;
                ords->out_ords.item[4].s_OL_SUPPLY_W_ID = 9;
                ords->out_ords.item[4].s_OL_QUANTITY = 5;
                ords->out_ords.item[4].s_OL_DELIVERY_D_time =
1234567890;

                ords->out_ords.item[5].s_OL_AMOUNT = 2345;
                ords->out_ords.item[5].s_OL_I_ID = 29956;
                ords->out_ords.item[5].s_OL_SUPPLY_W_ID = 9;
                ords->out_ords.item[5].s_OL_QUANTITY = 5;
                ords->out_ords.item[5].s_OL_DELIVERY_D_time =
1234567890;

                dataSet = 1;
        }
        else
        {
                ords->out_ords.s_C_BALANCE = 123000;
                ords->out_ords.s_C_ID = 856;
                ords->out_ords.s_O_ID = 418;
                ords->out_ords.s_O_CARRIER_ID = 10;
                ords->out_ords.s_ol_cnt = 5;
                strcpy(ords->out_ords.s_C_FIRST,"Erick");
```

```
		strcpy(ords->out_ords.s_C_MIDDLE,"J");
		strcpy(ords->out_ords.s_C_LAST,"Forman");
		ords->out_ords.s_O_ENTRY_D_time = 1234567890;

		ords->out_ords.item[0].s_OL_AMOUNT = 12000;
		ords->out_ords.item[0].s_OL_I_ID = 54602;
		ords->out_ords.item[0].s_OL_SUPPLY_W_ID = 10;
		ords->out_ords.item[0].s_OL_QUANTITY = 5;
		ords->out_ords.item[0].s_OL_DELIVERY_D_time =
1234567890;

		ords->out_ords.item[1].s_OL_AMOUNT = 2300;
		ords->out_ords.item[1].s_OL_I_ID = 18860;
		ords->out_ords.item[1].s_OL_SUPPLY_W_ID = 10;
		ords->out_ords.item[1].s_OL_QUANTITY = 5;
		ords->out_ords.item[1].s_OL_DELIVERY_D_time =
1234567890;

		ords->out_ords.item[2].s_OL_AMOUNT = 56009;
		ords->out_ords.item[2].s_OL_I_ID = 90488;
		ords->out_ords.item[2].s_OL_SUPPLY_W_ID = 10;
		ords->out_ords.item[2].s_OL_QUANTITY = 5;
		ords->out_ords.item[2].s_OL_DELIVERY_D_time =
1234567890;

		ords->out_ords.item[3].s_OL_AMOUNT = 98000;
		ords->out_ords.item[3].s_OL_I_ID = 22741;
		ords->out_ords.item[3].s_OL_SUPPLY_W_ID = 10;
		ords->out_ords.item[3].s_OL_QUANTITY = 5;
		ords->out_ords.item[3].s_OL_DELIVERY_D_time =
1234567890;

		ords->out_ords.item[4].s_OL_AMOUNT = 25000;
		ords->out_ords.item[4].s_OL_I_ID = 92952;
		ords->out_ords.item[4].s_OL_SUPPLY_W_ID = 10;
		ords->out_ords.item[4].s_OL_QUANTITY = 5;
		ords->out_ords.item[4].s_OL_DELIVERY_D_time =
1234567890;

		dataSet = 0;
	}

	return OK;
}

extern "C"  NULLDB_API int do_dlvy(struct dlvy_wrapper *dlvy,void *ctx)
{
	dlvy->out_dlvy.s_transtatus = 0;

	if (dataSet == 0)
	{
		dataSet = 1;

		for(int districtIndex=0;districtIndex <
DISTRICTS_PER_WAREHOUSE;districtIndex++)
			dlvy->out_dlvy.s_O_ID[districtIndex]= 2055;
	}
	else
	{
		for(int districtIndex=0;districtIndex <
DISTRICTS_PER_WAREHOUSE;districtIndex++)
			dlvy->out_dlvy.s_O_ID[districtIndex]= 2056;

		dataSet = 0;
	}
	return OK;
}

extern "C"  NULLDB_API int do_stok(struct stok_wrapper *stok,void *ctx)
{
	stok->out_stok.s_transtatus = 0;

	if (dataSet == 0)
	{
		stok->out_stok.s_low_stock = 100;

		dataSet = 1;
	}
	else
	{
		stok->out_stok.s_low_stock = 40;

		dataSet = 0;
	}
	return OK;
}
```

NullDB.h

```
// The following ifdef block is the standard way of creating macros which make
exporting
// from a DLL simpler. All files within this DLL are compiled with the
NULLDB_EXPORTS
// symbol defined on the command line. this symbol should not be defined on
any project
// that uses this DLL. This way any other project whose source files include this
file see
// NULLDB_API functions as being imported from a DLL, whereas this DLL
sees symbols
// defined with this macro as being exported.
#ifdef NULLDB_EXPORTS
#define NULLDB_API __declspec(dllexport)
#else
#define NULLDB_API __declspec(dllimport)
#endif

extern NULLDB_API int dataSet;

extern "C" NULLDB_API int do_nord(struct nord_wrapper *nord,void *ctx);
extern "C" NULLDB_API int do_pymt(struct paym_wrapper *pymt,void *ctx);
extern "C" NULLDB_API int do_ords(struct ords_wrapper *ords,void *ctx);
extern "C" NULLDB_API int do_dlvy(struct dlvy_wrapper *dlvy,void *ctx);
extern "C" NULLDB_API int do_stok(struct stok_wrapper *stok,void *ctx);

extern "C" NULLDB_API int connect_db(char *dbName,void **ctx);
extern "C" NULLDB_API int disconnect_db(void *ctx);
```

Stdafx.cpp

```
// stdafx.cpp : source file that includes just the standard includes
//	tpccIsapi.pch will be the pre-compiled header
//	stdafx.obj will contain the pre-compiled type information

#include "stdafx.h"

// TODO: reference any additional headers you need in STDAFX.H
// and not in this file
```

Stdafx.h

```
// stdafx.h : include file for standard system include files,
// or project specific include files that are used frequently, but
// are changed infrequently
//

#pragma once

#define WIN32_LEAN_AND_MEAN                     // Exclude rarely-used
stuff from Windows headers

#define _ATL_CSTRING_EXPLICIT_CONSTRUCTORS          // some
CString constructors will be explicit

// turns off ATL's hiding of some common and often safely ignored warning
messages
#define _ATL_ALL_WARNINGS

// critical error descriptions will only be shown to the user
// in debug builds. they will always be logged to the event log
#ifndef _DEBUG
#define ATL_CRITICAL_ISAPI_ERROR_LOGONLY
#endif


#ifndef _WIN32_WINNT
#define _WIN32_WINNT 0x0403
#endif

// TODO: this disables support for registering COM objects
// exported by this project since the project contains no
// COM objects or typelib. If you wish to export COM objects
// from this project, add a typelib and remove this line
#define _ATL_NO_COM_SUPPORT

#include "resource.h"
#include <atlsrvres.h>
#include <atlisapi.h>
#include <atlstencil.h>

// TODO: reference additional headers your program requires here
```

Stdafx.cpp

```
// stdafx.cpp : source file that includes just the standard includes
// tpccComClient.pch will be the pre-compiled header
// stdafx.obj will contain the pre-compiled type information

#include "stdafx.h"

// TODO: reference any additional headers you need in STDAFX.H
// and not in this file
```

StdAfx.h

```
// stdafx.h : include file for standard system include files,
// or project specific include files that are used frequently, but
// are changed infrequently
//

#pragma once
#include <iostream>
#include <tchar.h>

// TODO: reference additional headers your program requires here
```

TpccComClient.cpp

```
// tpccComClient.cpp : Defines the entry point for the console application.
//

#include "stdafx.h"

#include "..\tpccCom\tpccCom.h"
#include "..\tpccCom\tpccCom_i.c"
#include <tpcc.h>

struct txn_buffer
{
        char        *dataBuffer;
        int                     size;
};

int _tmain(int argc, _TCHAR* argv[])
{
        HRESULT hres;
        Itpcc_com * pTxn;

        hres = CoInitialize(NULL);
        if (FAILED(hres))
        {
                printf("Error : CoInitialize() failed
rc:%d\n",GetLastError());
                fflush(stdout);
                return 0;
        }

        hres =
CoCreateInstance(CLSID_tpcc_com,NULL,CLSCTX_SERVER,IID_Itpcc_co
m,(void **)&pTxn);
        if (FAILED(hres))
        {
                printf("Error : CoCreateInstance() failed rc:%d
hres:%X\n",GetLastError(),hres);
                fflush(stdout);
                return 0;
        }

        //int size = sizeof(in_stocklev_struct);
        //int size2 = sizeof(out_stocklev_struct);

        //define txn buffer to store txn structure in
        struct txn_buffer       comBuffer;
        comBuffer.dataBuffer = (char *)
CoTaskMemAlloc(sizeof(STOCKLEVELDATA));
        if (!(comBuffer.dataBuffer))
        {
                printf(comBuffer.dataBuffer,"CoTaskMemAlloc failed,
rc:%d\n",GetLastError());
                return(TRUE);
        };
        comBuffer.size                          =
sizeof(STOCKLEVELDATA);

        struct STOCKLEVELDATA       *pStock;
        pStock = (STOCKLEVELDATA*)comBuffer.dataBuffer;
        ZeroMemory(pStock,comBuffer.size);

        //initialize fields
        pStock->in_s_W_ID = 10; pStock->in_s_D_ID = 1;
        pStock->in_s_threshold = 2; pStock->out_s_transtatus = -1;

        int dataLen = comBuffer.size;
```

```
	try{
		hres = pTxn->doStockLevel(&dataLen,(unsigned
char**)&comBuffer.dataBuffer);
	}
	catch(...)
	{
		printf("Error : StockLevel() com caused exeception failed
rc:%d\n",GetLastError());
		fflush(stdout);
		return 0;
	}
	if (FAILED(hres))
	{
		printf("Error : StockLevel() com call failed
rc:%d\n",GetLastError());
		return 0;
	}

	pStock = (STOCKLEVELDATA *)comBuffer.dataBuffer;

	printf("Stock Level txn complete.
s_transtatus:%d\n",pStock->out_s_transtatus);

	return 0;
	return 0;
}
```

HtmlPhraser.cpp

```
////////////////////////////////////////////////////////////////////////
// htmlPhraser.cpp
////////////////////////////////////////////////////////////////////////
// Class implmentation of htmlPhraser.
// This class will take a query string and break it into a series
// of consituant parts
////////////////////////////////////////////////////////////////////////

#include "htmlPhraser.h"

////////////////////////////////////////////////////////////////////////
// htmlPhraser::htmlPhraser
////////////////////////////////////////////////////////////////////////
// Title	: Constructor
// Parameters	: char * query string
// Return Value	: None
// Comments	:
////////////////////////////////////////////////////////////////////////

htmlPhraser::htmlPhraser(char *queryString)
{
	// initilize query values
	iCustomerIdFlag = iCarrierNumFlag = iStockThresholdFlag = false;

	// this initilizes the query list to NULL's. This means that
	// characters being added are overwriting null characters and
	// therfore the string will be null terminated implicitly.

	memset(iQueryValues,NULL,(MAX_FIELD_NUM *
MAX_FIELD_LEN));

	// controls
	char		queryChar		= NULL;

	int		queryIndex			= -1;
	int		valueIndex		= -1;

	// process each characeter of query string
	while(*queryString)
	{
		// check for special case characters
		if(queryChar)
		{
			// a percentage sign would indicate a token
			if(*queryString != '%')
			{
				// a plus sign repersents a space
				if(*queryString == '+')
				{
					queryChar = ' ';
					*queryString++;
				}
				else queryChar = *queryString++;
			}
			else queryChar =
convertQueryToken(&queryString);
		}
		else queryChar = '&';

		// handle query reference (&)
		if(queryChar == '&')
		{
			// reset value index
			valueIndex = -1;

			// do we have a numeric query reference
			if(*queryString >= '0' && *queryString <=
'9')
			{
				// numeric query id
				queryIndex =
					((*queryString - '0') *
10) + (*(queryString + 1) - '0');

				// walk past the two command
characters
				queryString += 2;

				// validate query value
				if(queryIndex >
MAX_QUERY_ID)
					queryIndex = -1;
			}
			else queryIndex = -1;

			// finished processing for query reference
			continue;
		}

		// we have a query reference but need to wait until we see
'='
		// before accepting value

		if(valueIndex == -1)
		{
			// we are waiting for '='
			if(queryChar == '=')
			{
				valueIndex = 0;

				// set query string flags
				switch(queryIndex)
				{
				case C_ID:
```

```
                                        iCustomerIdFlag = true;
break;
                                case CARRIER_NUM:
                                        iCarrierNumFlag =
true; break;
                                case STK_THRESHOLD:
                                        iStockThresholdFlag =
true; break;
                                default: break;
                                }
                        }

                        // finishes looging for '='
                        continue;
                }

                // add each character to the query value
                if(queryIndex > -1 && valueIndex > -1)
                {
                        // we are processing a query value
                        if(valueIndex < MAX_FIELD_LEN)
                        {
                                // we have not exceeded max line
len

iQueryValues[queryIndex][valueIndex++] = queryChar;
                        }
                        continue;
                }
        }

        return;
}

////////////////////////////////////////////////////////////////////
// htmlPhraser::getCommandId
////////////////////////////////////////////////////////////////////
// Title        : Returns the page command
// Parameters           : None
// Return Value         : int - page command
// Comments             :
////////////////////////////////////////////////////////////////////

int htmlPhraser::getCommandId()
{
        // return command numeric code
        switch(*iQueryValues[COMMAND_ID])
        {
        case NEW_ORDER_CODE:
                if(iCustomerIdFlag)
                        return
COMMAND_NEW_ORDER_RESULTS;
                else return COMMAND_NEW_ORDER;
        case PAYMENT_CODE:
                if(iCustomerIdFlag)
                        return COMMAND_PAYMENT_RESULTS;
                else return COMMAND_PAYMENT;
        case ORDER_STATUS_CODE:
                if(iCustomerIdFlag)
                        return
COMMAND_ORDER_STATUS_RESULTS;
                else return COMMAND_ORDER_STATUS;
        case DELIVERY_CODE:
                if(iCarrierNumFlag)
                        return COMMAND_DELIVERY_RESULTS;
                else return COMMAND_DELIVERY;
        case STOCK_CODE:
                if(iStockThresholdFlag)
                        return COMMAND_STOCK_RESULTS;
                else return COMMAND_STOCK;
        case MENU_CODE:
                return COMMAND_LOGIN_RESULTS;
        case EXIT_CODE:
                return COMMAND_EXIT;
        default:
                return COMMAND_LOGIN;
        };


        // should not get here
        return COMMAND_LOGIN;
}

////////////////////////////////////////////////////////////////////
// htmlPhraser::validate
////////////////////////////////////////////////////////////////////
// Title        : validate url parameter list for all txn types
// Parameters           : int - txn type
// Return Value         : int - error code
// Comments             :
////////////////////////////////////////////////////////////////////


int validate(int txnType)
{
        return 0;
}

////////////////////////////////////////////////////////////////////
// htmlPhraser::convertQueryToken
////////////////////////////////////////////////////////////////////
// Title        : Returns the page command
// Parameters           : None
// Return Value         : int - page command
// Comments             :
////////////////////////////////////////////////////////////////////

char htmlPhraser::convertQueryToken(char **queryString)
{
        char queryChar          = NULL;

        // skip over %
        (*queryString)++;

        // look at first character
        switch(**queryString)
        {
        case '2':
                {
                        // what follows?
                        (*queryString)++;

                        switch(**queryString)
                        {
                        case '1':
                                queryChar = '!';
                                break;
                        case '3':
                                queryChar = '#';
                                break;
                        case '4':
                                queryChar = '$';
                                break;
                        case '5':
                                queryChar = '%';
                                break;
```

```
                case '6':
                        queryChar = '&';
                        break;
                case '8':
                        queryChar = '(';
                        break;
                case '9':
                        queryChar = ')';
                        break;
                case 'B':
                        queryChar = '+';
                        break;
                case 'C':
                        queryChar = ',';
                        break;
                case 'F':
                        queryChar = '/';
                        break;
                case ' ':
                        queryChar = ' ';
                        break;
                }
        }

        break;
case '3':
        {
                // what follows?
                (*queryString)++;

                switch(**queryString)
                {
                case 'A':
                        queryChar = ':';
                        break;
                case 'B':
                        queryChar = ';';
                        break;
                case 'D':
                        queryChar = '=';
                        break;
                case 'F':
                        queryChar = '?';
                        break;
                case ' ':
                        queryChar = ' ';
                        break;
                }
        }

        break;
case '4':
        {
                // what follows?
                (*queryString)++;

                switch(**queryString)
                {
                case '0':
                        queryChar = '@';
                        break;
                case ' ':
                        queryChar = ' ';
                        break;
                }
        }

        break;
        case '5':
                {
                        // what follows?
                        (*queryString)++;

                        switch(**queryString)
                        {
                        case 'B':
                                queryChar = '[';
                                break;
                        case 'D':
                                queryChar = ']';
                                break;
                        case 'E':
                                queryChar = '^';
                                break;
                        case ' ':
                                queryChar = ' ';
                                break;
                        }
                }

                break;
        case '7':
                {
                        // what follows?
                        (*queryString)++;

                        switch(**queryString)
                        {
                        case 'B':
                                queryChar = '{';
                                break;
                        case 'C':
                                queryChar = '|';
                                break;
                        case 'D':
                                queryChar = '}';
                                break;
                        case 'E':
                                queryChar = '~';
                                break;
                        case ' ':
                                queryChar = ' ';
                                break;
                        }
                }

                break;
        case '+':
                queryChar = '+';
                break;
        }

        // advance pointer and return
        (*queryString)++; return queryChar;
}

//////////////////////////////////////////////////////////////////////////////
```

HtmlPhraser.h

```
//////////////////////////////////////////////////////////////////////////////
// htmlPharaser.h
//////////////////////////////////////////////////////////////////////////////
// Class to decode a html query string
```

```
//////////////////////////////////////////////////////////////////////

#pragma once

#include <memory.h>

//////////////////////////////////////////////////////////////////////
// Definitions
//////////////////////////////////////////////////////////////////////

#define NULL                                    0

#define COMMAND_ID                              0
#define     TERM_ID                             1
#define     W_ID                                2
#define     D_ID                                3
#define C_ID                                    4
#define C_NAME                                  5

#define C_W_ID                                  6
#define C_D_ID                                  7
#define AMT_PAID                                8

#define STK_THRESHOLD                           9
#define CARRIER_NUM
10

#define ITEM_LIST_START                         11
#define ITEM_LIST_FINISH                        55

#define MAX_QUERY_ID                            55
#define MAX_FIELD_LEN                           256
#define MAX_FIELD_NUM                           56

//////////////////////////////////////////////////////////////////////
// Command Codes
//////////////////////////////////////////////////////////////////////

#define NEW_ORDER_CODE
'n'
#define PAYMENT_CODE
'p'
#define ORDER_STATUS_CODE
'o'
#define DELIVERY_CODE
'd'
#define STOCK_CODE
's'
#define EXIT_CODE
'e'
#define MENU_CODE
'm'

#define     COMMAND_LOGIN                       0
#define     COMMAND_NEW_ORDER                   1
#define     COMMAND_PAYMENT
2
#define     COMMAND_ORDER_STATUS                3
#define     COMMAND_DELIVERY                    4
#define     COMMAND_STOCK
5
#define     COMMAND_EXIT                        6

#define     COMMAND_LOGIN_RESULTS
7
#define     COMMAND_NEW_ORDER_RESULTS           8
#define     COMMAND_PAYMENT_RESULTS
9
#define     COMMAND_ORDER_STATUS_RESULTS
10
#define     COMMAND_DELIVERY_RESULTS
11
#define     COMMAND_STOCK_RESULTS
12

//////////////////////////////////////////////////////////////////////
// Class htmlPhraser
//////////////////////////////////////////////////////////////////////

class htmlPhraser
{
            // Constructors / Destructor
            public:
                        htmlPhraser(char *queryString);
                        ~htmlPhraser()
{return;}

            // geters
            public:
                        int         getCommandId();
                        int validate(int txnType);

                        char *      get_TERM_ID()
{return iQueryValues[TERM_ID];}
                        char *      get_W_ID()
{return iQueryValues[W_ID];}
                        char *      get_D_ID()
{return iQueryValues[D_ID];}
                        char *      get_C_ID()
{return iQueryValues[C_ID];}
                        char *      get_C_NAME()
{return iQueryValues[C_NAME];}
                        char *      get_C_W_ID()
{return iQueryValues[C_W_ID];}
                        char *      get_C_D_ID()
{return iQueryValues[C_D_ID];}
                        char *      get_AMT_PAID()
{return iQueryValues[AMT_PAID];}
                        char *      get_STK_THRESHOLD()
{return iQueryValues[STK_THRESHOLD];}
                        char *      get_CARRIER_NUM()
{return iQueryValues[CARRIER_NUM];}

                        char *      get_ITEM_SUPP_W(int item)     {return
iQueryValues[(ITEM_LIST_START + 0) + (item * 3)];}
                        char *      get_ITEM_ITEM_NUM(int item)
{return iQueryValues[(ITEM_LIST_START + 1) + (item * 3)];}
                        char *      get_ITEM_QTY(int item)
{return iQueryValues[(ITEM_LIST_START + 2) + (item * 3)];}

            // Class Functions
            private:
                        char convertQueryToken(char **queryString);

            // Class Attributes
            private:
                        int         iCustomerIdFlag;
                        int         iCarrierNumFlag;
                        int         iStockThresholdFlag;

                        char
iQueryValues[MAX_FIELD_NUM][MAX_FIELD_LEN];
};

//////////////////////////////////////////////////////////////////////
```

Resource.h

```
//{{NO_DEPENDENCIES}}
// Microsoft Visual C++ generated include file.
// Used by tpccIsapi.rc
//
#define IDS_PROJNAME 100



// Next default values for new objects
//
#ifdef APSTUDIO_INVOKED
#ifndef APSTUDIO_READONLY_SYMBOLS
#define _APS_NEXT_RESOURCE_VALUE        201
#define _APS_NEXT_COMMAND_VALUE         32768
#define _APS_NEXT_CONTROL_VALUE         201
#define _APS_NEXT_SYMED_VALUE           101
#endif
#endif
```

StdAfx.cpp

```
// stdafx.cpp : source file that includes just the standard includes
//              tpccIsapi.pch will be the pre-compiled header
//              stdafx.obj will contain the pre-compiled type information

#include "stdafx.h"

// TODO: reference any additional headers you need in STDAFX.H
// and not in this file
```

StdAfx.h

```
// stdafx.h : include file for standard system include files,
// or project specific include files that are used frequently, but
// are changed infrequently
//

#pragma once

#define WIN32_LEAN_AND_MEAN                     // Exclude rarely-used
stuff from Windows headers

#define _ATL_CSTRING_EXPLICIT_CONSTRUCTORS          // some
CString constructors will be explicit

// turns off ATL's hiding of some common and often safely ignored warning
messages
#define _ATL_ALL_WARNINGS

// critical error descriptions will only be shown to the user
// in debug builds. they will always be logged to the event log
#ifndef _DEBUG
#define ATL_CRITICAL_ISAPI_ERROR_LOGONLY
#endif


#ifndef _WIN32_WINNT
#define _WIN32_WINNT 0x0403
#endif

// TODO: this disables support for registering COM objects
// exported by this project since the project contains no
// COM objects or typelib. If you wish to export COM objects
// from this project, add a typelib and remove this line
#define _ATL_NO_COM_SUPPORT

#include "resource.h"
#include <atlsrvres.h>
#include <atlisapi.h>
#include <atlstencil.h>

// TODO: reference additional headers your program requires here
```

Tpcc.h

```
// Common defines and structures use internally by client code
// Not to be confused with structures actually passed in transaxtions
//

// standard includes

#ifndef _COMMON_TPCC
#define _COMMON_TPCC
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <sys/timeb.h>
#include <time.h>

#include <db2tpcc.h>
#include <iostream>
#include <fstream>
#include <process.h>
#include <ios>

//////////////////////////////////////////////////////////////////
// Defines
//////////////////////////////////////////////////////////////////

#define                 OK
0
#define                 INVALID_STATUS                  -1
#define                 ERR
-1
#define                 INVALID_COM_STATUS              -2


#define     TXN_MAX_COMMANDS                            55
#define MAX_TRANSACTIONS                                14
#define MAX_CMD_LENGTH                                  100
#define     INPUT_ITEMS                                         3
#define MAX_INT_BUFFER                                  15
#define NORD_ITEMS
15
#define ITEM_START
11
#define     ITEM_END
55
#define MAX_ITEMS
15

#define     MAX_STRING_LEN                              256
#define MAX_HTML_PAGE_LEN                               4096
#define MAX_HTML_HEADER_LEN                             512

#define DELIVERY_THREADS_NUM            100

#define DISTRICTS_PER_WAREHOUSE         10
//////////////////////////////////////////////////////////////////
```

```
// Transaction Codes
//////////////////////////////////////////////////////////////////////////////

#define		TXN_LOGIN
0
#define		TXN_NEW_ORDER		1
#define		TXN_PAYMENT
2
#define		TXN_ORDER_STATUS		3
#define		TXN_DELIVERY		4
#define		TXN_STOCK
5
#define		TXN_EXIT
6
#define		TXN_LOGIN_RESULTS		7
#define		TXN_NEW_ORDER_RESULTS		8
#define		TXN_PAYMENT_RESULTS		9
#define		TXN_ORDER_STATUS_RESULTS	10
#define		TXN_DELIVERY_RESULTS		11
#define		TXN_STOCK_RESULTS
12

#define		CMD_NORD
"nord"
#define		CMD_PYMT
"pymt"
#define		CMD_ORDS
"ords"
#define		CMD_DLVY
"dlvy"
#define		CMD_STOK
"stok"
#define		CMD_EXIT
"exit"
#define		CMD_MENU
"menu"

#define		APP_NAME
"tpcc.html"
#define		HEADER
"Content-Type:text/html\r\nContent-Length: %d\r\nConnection:
Keep-Alive\r\n\r\n"

//////////////////////////////////////////////////////////////////////////
// URL Commands
//////////////////////////////////////////////////////////////////////////

#define		CMD_TXN_ID
"00"
#define		CMD_TERM_ID
"01"
#define		CMD_W_ID
"02"
#define		CMD_D_ID
"03"
#define		CMD_C_ID
"04"
#define		CMD_C_NAME
"05"
#define		CMD_C_W_ID
"06"
#define		CMD_C_D_ID
"07"
#define		CMD_AMT_PAID		"08"

#define		CMD_STK_THRESHOLD		"09"
#define		CMD_CARRIER_NUM
"10"
#define		ITEM01_SUPP_W		"11"
#define		ITEM01_ITEM_NUM
"12"
#define		ITEM01_OTY
"13"


#define CHAR_FILL		' '
#define NUMERIC_FILL		' '
#define NEGITIVE_SYMBOL		'-'
#define MONEY_SYMBOL		'$'
#define DECIMAL_SYMBOL		'.'
#define ZERO_SYMBOL
'0'
#define ZIP_DELIMITER		'-'
#define PHONE_DELIMITER		'-'
#define DATE_DELIMITER		'-'
#define TIME_DELIMITER		':'

#define DEFAULT_MONEY64_LEN		15
#define DEFAULT_MONEY32_LEN		9
#define DEFAULT_MONEY16_LEN		9

#define DEFAULT_NUMERIC64_LEN		15
#define DEFAULT_NUMERIC32_LEN		9
#define DEFAULT_NUMERIC16_LEN		9

#define DEFAULT_DECIMAL64_LEN		5
#define DEFAULT_DECIMAL32_LEN		5
#define DEFAULT_DECIMAL16_LEN		5

#define DEFAULT_DATETIME_LEN		19
#define DEFAULT_DATE_LEN		11
#define DEFAULT_TIME_LEN		8

#define DEFAULT_STRING_LEN		25
#define DEFAULT_ZIP_LEN		17
#define DEFAULT_PHONE_LEN		18

//////////////////////////////////////////////////////////////////////////
// String Field Lengths
//////////////////////////////////////////////////////////////////////////

#define NAME_LEN		24
#define LAST_NAME_LEN		16
#define FIRST_NAME_LEN		16
#define INITIALS_LEN		2

#define CREDIT_LEN		2

#define STREET_LEN		20
#define CITY_LEN		20
#define STATE_LEN		2
#define ZIP_LEN		9

#define PHONE_LEN		16
#define DATA_LEN		200

#define ITEM_LIST		15
#define ORDER_LIST		10

//////////////////////////////////////////////////////////////////////////
// Type definitions
//////////////////////////////////////////////////////////////////////////

typedef __int8		INT8b;
typedef __int16		INT16b;
```

```
typedef __int32                         INT32b;
typedef __int64                         INT64b;

typedef unsigned __int8         UINT8b;
typedef unsigned __int16        UINT16b;
typedef unsigned __int32        UINT32b;
typedef unsigned __int64        UINT64b;

typedef INT16b                          sqlint16;
typedef INT32b                          sqlint32;
typedef INT64b                          sqlint64;

typedef INT16b                          int16_t;
typedef INT32b                          int32_t;
typedef INT64b                          int64_t;

typedef char                            BYTE8b;
typedef double                          DOUBLE;
typedef unsigned long           NATURAL;

//////////////////////////////////////////////////////////////////////
// Date and time values
//////////////////////////////////////////////////////////////////////

#define SECONDS_IN_DAY          86400
#define SECONDS_IN_HOUR         3600
#define SECONDS_IN_MINUTE       60
#define GMT_OFFSET                      5

#define DAYS_IN_YEAR            365
#define YEARS_IN_LEAP           4
#define START_YEAR                      1970
#define MONTHS_IN_YEAR          12

//////////////////////////////////////////////////////////////////////
// Error codes
//////////////////////////////////////////////////////////////////////
#define ERR_INVALID_TXN_TYPE                    -1

#define ERR_MISSING_W_ID                        -2
#define ERR_NON_NUMERIC_W_ID                    -3
#define ERR_MISSING_D_ID                        -4
#define     ERR_NON_NUMERIC_D_ID                -5
#define ERR_MISSING_C_ID                        -6
#define ERR_NON_NUMERIC_C_ID                    -7

#define ERR_MISSING_SUPP_W
-8
#define ERR_NON_NUMERIC_SUPP_W                  -9
#define ERR_MISSING_ITEM_NUM                    -10
#define ERR_NON_NUMERIC_ITEM_NUM                -11
#define ERR_MISSING_ITEM_OTY                    -12
#define ERR_NON_NUMERIC_ITEM_QTY                -13

#define ERR_MISSING_CLAST_NAME                  -14
#define ERR_NON_NUMERIC_CUST_W_ID               -15
#define ERR_NON_NUMERIC_CUST_D_ID               -16
#define ERR_MISSING_AMOUNT_PAID                 -17
#define ERR_NON_NUMERIC_AMOUNT_PAID             -18

#define     ERR_INVALID_D_ID                    "ERROR:
Invalid District ID. Try Again."
#define     ERR_INVALID_W_ID                    "ERROR:
Invalid Warehouse ID. Try Again."
#define ERR_INVALID_C_ID                        "ERROR: Invalid
Customer ID. Try Again."
#define ERR_INVALID_SUPPLY_W_ID                 "ERROR: Invalid Item
Supply Warehouse. Try Again."
#define ERR_INVALID_ITEM_NUM                    "ERROR: Invalid Item
Number. Try Again."
#define ERR_INVALID_ITEM_OTY                    "ERROR: Invalid Item
Qty. Try Again."
#define ERR_MISSING_C_ID_OR_CLAST               "ERROR: Must Enter
Customer Id or Customer Last Name. Try Again."
#define ERR_INVALID_PAYMENT_AMOUNT              "ERROR: Invalid
Payment Amount. Try Again."
#define ERR_INVALID_CARRIER                     "ERROR:
Invalid Carrier Number. Try Again."
#define ERR_INVALID_THRESHOLD                   "ERROR: Invalid
Threshold. Try Again."
#define ERR_INVALID_C_D_ID                      "ERROR:
Invalid Customer District Id. Try Again."
#define ERR_INVALID_C_W_ID                      "ERROR:
Invalid Customer Warehouse Id. Try Again."
#define     ERR_TERMINAL_FULL                   "ERROR:
Terminal can not support user.  Terminal full."
#define ERR_C_ID_OR_CLAST_ONLY                  "ERROR: Either
customer id or customer last name can be specified."

#define     ERR_UNABLE_TO_OPEN_REG
-50
#define     ERR_DLVY_THREAD_FAILED
-51
#define     ERR_DLVY_SEMAPHORE_INIT_FAILED          -52
#define     ERR_DLVY_EVENT_INIT_FAILED              -53
#define ERR_DLVY_QUEUE_EATING_TAIL                  -54

#define     ERR_INVALID_USERNAME                    -70
#define ERR_INVALID_PASSWORD                        -71
#define ERR_INVALID_DB_NAME
-72
#define ERR_INVALID_REGISTERY_KEY                   -73
#define ERR_DB2_DLL_NOT_LOADED                      -74
#define ERR_ORACLE_DLL_NOT_LOADED                   -75
#define ERR_CONNECT_ADDRESS_NOT_FOUND  -76
#define ERR_NORD_ADDRESS_NOT_FOUND                  -77
#define ERR_PYMT_ADDRESS_NOT_FOUND                  -78
#define ERR_ORDS_ADDRESS_NOT_FOUND                  -79
#define ERR_DLVY_ADDRESS_NOT_FOUND                  -80
#define ERR_STOK_ADDRESS_NOT_FOUND                  -81
#define     ERR_NULL_DLL_NOT_LOADED
-82
#define     ERR_UNKNOWN_DB
-83
#define ERR_DISCONNECT_ADDRESS_NOT_FOUND -84

#define     ERR_SAVING_CONTEXT
-90
#define     ERR_DETACHING_CONTEXT                   -91
#define     ERR_ATTACHING_CONTEXT                   -92
#define ERR_HANDLE_IN_USE
-93

#define ERR_CONNECT_TO_TM_FAILED                    -99
#define     ERR_DLVY_LOG_OPEN_FAILED                -100
#define     ERR_DLVY_QUEUE_FULL
-101

//////////////////////////////////////////////////////////////////////
// Registery Definitions
//////////////////////////////////////////////////////////////////////
#define             REGISTERY_SUB_KEY       "SOFTWARE\\TPCC"

#define             DELIVERY_THREADS
"dlvyThreads"
```

```
#define		DELIVERY_QUEUE_LEN
"dlvyQueueLen"
#define		DELIVERY_LOG_PATH
"dlvyLogPath"
#define		ERROR_LOG_FILE
"errorLogFile"
#define		HTML_TRACE_LOG_FILE
"htmlTraceLogFile"
#define		DB_NAME
"dbName"
#define		NULL_DB
"nullDB"
#define		COM_NULL_DB
"comnullDB"
#define		CLIENT_NULL_DB
"clientNullDB"

#define		NUM_USERS
"numUsers"
#define		DB_TYPE
"dbType"

#define		TXN_MONITOR
"txn_server"
#define		COMM_POOL
"comm_pool"
#define		HTML_TRACE
"htmlTrace"
#define		ISAPI_TRACE
"isapi_trace"

#define		DEFAULT_DLVY_THREADS		1
#define		DEFAULT_DLVY_QUEUE_LEN
10
#define		DEFAULT_DLVY_LOG_PATH
"c:\\inetpub\\wwwroot\\tpcc\\dlvy"
#define		DEFAULT_ERROR_LOG_FILE
"c:\\inetpub\\wwwroot\\tpcc\\errorLog.txt"
#define		DEFAULT_HTML_TRACE_LOG_FILE
"c:\\inetpub\\wwwroot\\tpcc\\htmlTrace.txt"
#define		DEFAULT_NUM_USERS
10000

#define		DEFAULT_DB_NAME
"tpcc"

//////////////////////////////////////////////////////////////////////////
// Structure defines
//////////////////////////////////////////////////////////////////////////

struct nord_wrapper {
	struct in_neword_struct in_nord;
	struct out_neword_struct out_nord;
};

struct paym_wrapper {
	struct in_payment_struct in_paym;
	struct out_payment_struct out_paym;
};

struct ords_wrapper {
	struct in_ordstat_struct in_ords;
	struct out_ordstat_struct out_ords;
};

struct dlvy_wrapper {
	struct in_delivery_struct in_dlvy;
	struct out_delivery_struct out_dlvy;
};

struct stok_wrapper {
	struct in_stocklev_struct in_stok;
	struct out_stocklev_struct out_stok;
};

typedef	struct
{
	int		year;
	int		month;
	int		day;

	int		hour;
	int		minute;
	int		second;
} datetime;

struct NEWORDERDATA
{
	struct	in_items_struct {
		int	s_OL_I_ID;
		int	s_OL_SUPPLY_W_ID;
		short	s_OL_QUANTITY;
	} in_item[15];

	long long	in_s_O_ENTRY_D_time;		/* init by SUT */
	int		in_s_C_ID;
	int		in_s_W_ID;
	short		in_s_D_ID;
	short		in_s_O_OL_CNT;		/* init by SUT */
	short		in_s_all_local;
	short		in_duplicate_items;

	struct	out_items_struct {
		double	s_I_PRICE;
		double	s_OL_AMOUNT;
		short	s_S_QUANTITY;
		char	s_I_NAME[25];
		char	s_brand_generic;
	} out_item[15];

	long long	out_s_O_ENTRY_D_time;
	double	out_s_W_TAX;
	double	out_s_D_TAX;
	double	out_s_C_DISCOUNT;
	double	out_s_total_amount;
	int		out_s_O_ID;
	short		out_s_O_OL_CNT;
	short		out_s_transtatus;
	short		out_deadlocks;
	char	out_s_C_LAST[17];
	char	out_s_C_CREDIT[3];

};

struct PAYMENTDATA
{
	long long	in_s_H_DATE_time;
	double	in_s_H_AMOUNT;
	int		in_s_W_ID;
	int		in_s_C_W_ID;
	int		in_s_C_ID;
	short		in_s_C_D_ID;
	short		in_s_D_ID;
	char		in_s_C_LAST[17];

	long long	out_s_H_DATE_time;
```

```
        long long   out_s_C_SINCE_time;
        double      out_s_C_CREDIT_LIM;
        double      out_s_C_BALANCE;
        double      out_s_C_DISCOUNT;
        int                     out_s_C_ID;
        short       out_s_transtatus;
        short       out_deadlocks;
        char  out_s_W_STREET_1[21];
        char  out_s_W_STREET_2[21];
        char  out_s_W_CITY[21];
        char  out_s_W_STATE[3];
        char  out_s_W_ZIP[10];
        char  out_s_D_STREET_1[21];
        char  out_s_D_STREET_2[21];
        char  out_s_D_CITY[21];
        char  out_s_D_STATE[3];
        char  out_s_D_ZIP[10];
        char  out_s_C_FIRST[17];
        char  out_s_C_MIDDLE[3];
        char  out_s_C_LAST[17];
        char  out_s_C_STREET_1[21];
        char  out_s_C_STREET_2[21];
        char  out_s_C_CITY[21];
        char  out_s_C_STATE[3];
        char  out_s_C_ZIP[10];
        char  out_s_C_PHONE[17];
        char  out_s_C_CREDIT[3];
        char  out_s_C_DATA[201];
};

struct ORDERSTATUSDATA
{
        int   in_s_C_ID;
        int   in_s_W_ID;
        short in_s_D_ID;
        char  in_s_C_LAST[17];

        double out_s_C_BALANCE;
        long long  out_s_O_ENTRY_D_time;
        int    out_s_C_ID;
        int    out_s_O_ID;
        short  out_s_O_CARRIER_ID;
        short  out_s_ol_cnt;
        struct out_oitems_struct {
                long long  s_OL_DELIVERY_D_time;
                double   s_OL_AMOUNT;
                int   s_OL_I_ID;
                int   s_OL_SUPPLY_W_ID;
                short s_OL_QUANTITY;
        } out_item[15];
        short  out_s_transtatus;
        short  out_deadlocks;
        char   out_s_C_FIRST[17];
        char   out_s_C_MIDDLE[3];
        char   out_s_C_LAST[17];

};

struct DELIVERYDATA
{
        long long  in_s_O_DELIVERY_D_time;
        int   in_s_W_ID;
        short in_s_O_CARRIER_ID;
        int   out_s_O_ID[10];
        short out_s_transtatus;
        short outdeadlocks;
};
```

```
struct STOCKLEVELDATA
{
        int   in_s_threshold;
        int   in_s_W_ID;
        short in_s_D_ID;

        int   out_s_low_stock;
        short out_s_transtatus;
        short out_deadlocks;
};




//      MISCELLANEOUS HELPER FUNCTIONS
inline void appendText(char **string,char *text);
inline void appendText(char **string,char *text,int length,int justify);
inline void appendChar(char **string,char byte);
inline void DEBUGMSG(FILE * debugFile, char * message);
inline void appendSpaces(char **string,int spaces);

inline void calcOutDateTime(const INT64b value,datetime *timestamp);
inline int copyOutPhone(char *buffer,char *value,int len);
inline bool copyInMoney64(const char * value,INT64 *number);
inline int copyInMoney(const char *value);
inline void copyOutMoney64(char *buffer,INT64b value,unsigned int len);
inline int copyOutDateTime(char *buffer,INT64b value);
inline int copyOutDate(char *buffer,INT64b value);
inline int copyOutTime(char *buffer,INT64b value);
inline int copyOutDecimal64(char *buffer,INT64b value,unsigned int len);

inline UINT16b changeOrder16(UINT16b value);
inline UINT32b changeOrder32(UINT32b value);
inline UINT64b changeOrder64(UINT64b value);

inline INT16b changeOrder16(INT16b value);
inline INT32b changeOrder32(INT32b value);
inline INT64b changeOrder64(INT64b value);

//
// Name        : appendText
// Description  :
//      Append text to string
// Parameters   :
//      char ** - string point to append to
//      char * - text to append
// Returns      :
//      None
// Comments     :
//

inline void appendText(char **string,char *text)
{
        while(*text)
        {
                *(*string)++ = *text++;
        }

        **string='\0';
        return;
}

//
// Name        : appendText
// Description  :
//      Append text to string
// Parameters   :
//      char ** - string point to append to
```

```
//          char * - text to append
//                                          int - total field length including
blank spaces
//                                          int - justify flag
// Returns     :
//          None
// Comments    :
//                                          right justify
//                                          left justify


inline void appendText(char **string,char *text,int length,int justify)
{
        int byteCount = 0;

        if(justify)
        {
                while(*text)
                {
                        *(*string)++ = *text++;
                        byteCount++;
                }

                //append blank spaces if text is less than length at end
                for(byteCount;byteCount < length;byteCount++)
                        *(*string)++ = ' ';
        }
        else
        {
                long long textLen = strlen(text);
                for(textLen;textLen < length;textLen++)
                        *(*string)++ = ' ';

                while(*text)
                        *(*string)++ = *text++;

        }
        **string='\0';
}


// Name            : appendChar
// Description  :
//                         Append text to string
// Parameters   :
//                         char ** - string point to append to
//                         char * - text to append
// Returns         :
//                         None
// Comments        :
//

inline void appendChar(char **string,char byte)
{
        *(*string)++ = byte;
        **string='\0';

        return;
}


//
// Name                    : appendSpaces
// Description         :
//                                          appends buffer spaces to result
page
// Parameters          :
//                                                  **htmlPage
//
// Returns             :
//                                                  amount of characters
the function appened
//                                                  to the html page
// Comments                    :
//

inline void appendSpaces(char **string,int spaces)
{
        for(int index=0;index<spaces;index++)
        {
                *(*string)++ = ' ';
        }

        **string='\0';
}

//
// Name                    : appendCustData
// Description         :
//                                          appends cust data buffer to result
page
// Parameters          :
//                                                  **htmlPage
//
// Returns             :
//
//                                                  Adds a newline
character every 50 characters displayed.
// Comments                    :
//

inline void appendCustData(char **string,char *text)
{
        short byteCount = 0;
        while(*text)
        {
                *(*string)++ = *text++;
                byteCount++;
                if((byteCount % 50) == 0)
                {
                        *(*string)++ = '\n';
                        *(*string)++ = ' ';     *(*string)++ = ' ';
*(*string)++ = ' ';     *(*string)++ = ' ';
                        *(*string)++ = ' ';     *(*string)++ = ' ';
*(*string)++ = ' ';     *(*string)++ = ' ';
                        *(*string)++ = ' ';     *(*string)++ = ' ';
*(*string)++ = ' ';
                }
        }
        **string='\0';
}



//
// calcOutDateTime
//
// Title                   : Calculate date & time data out of class array
// Parameters              : INT64b - date & time expressed in seconds
//                                          datetime * - timestamp
// Return Value            : None
// Comments                    :
//

inline void calcOutDateTime(const INT64b value,datetime *timestamp)
{
```

```
		// fixed days in each month (FEB 29 is special case)
		static int daysInMonth[12]		=
{31,28,31,30,31,30,31,31,30,31,30,31};

		// mask out EPOC seconds
		int dateValue		= ((int) (value & 0xffffffff)) +
								(SECONDS_IN_DAY -
(GMT_OFFSET * SECONDS_IN_HOUR));

		int offset	= (int) (value >> 32);

		// break out the seconds
		int hms			= dateValue % SECONDS_IN_DAY;
		int days	= dateValue / SECONDS_IN_DAY;

		int years	= (days - 1) / DAYS_IN_YEAR;
		int leaps	= years / YEARS_IN_LEAP;

		int daysUsed		= (years * DAYS_IN_YEAR) + leaps;

		// adjust the number of days to account for calculated years
		days = days - daysUsed;

		// set the starting year, month, and day
		timestamp->day			= 1;
		timestamp->month	= 1;
		timestamp->year			= START_YEAR + years;

		// is the current year a leap year
		int leap = !(timestamp->year % YEARS_IN_LEAP);

			// apply remaining days based on days in months
			int daysInCurrentMonth;

			while(days)
			{
				// get days in current month
				daysInCurrentMonth =
daysInMonth[timestamp->month - 1];
				if(timestamp->month == 2 && leap)
					daysInCurrentMonth =
daysInCurrentMonth + 1;

				// days > days in current month
				if(days > daysInCurrentMonth)
				{
					// increment month
					timestamp->month += 1;
					days = days -
daysInCurrentMonth;

					// month exceeds months in year
					if(timestamp->month >
MONTHS_IN_YEAR)
					{
						// increment year and
reset month
						timestamp->year += 1;
timestamp->month = 1;

						// are we now on a leap
year
						leap =
!(timestamp->year % YEARS_IN_LEAP);
					}
				}
				else
				{
```

```
					// set day of month to remaioning
days
					timestamp->day = days; days = 0;
				}
			}

			// set time values to remaining seconds
			timestamp->hour = hms / SECONDS_IN_HOUR;
			hms = hms % SECONDS_IN_HOUR;

			timestamp->minute = hms / SECONDS_IN_MINUTE;
			timestamp->second = hms % SECONDS_IN_MINUTE;
			return;
		}

//
// copyOutZip
//
// Title		: Copy zip data out of class array
// Parameters		: char * - buffer to copy zip string into
//
// Return Value		: int - Length of copy
// Comments		:
//

inline int copyOutZip(char *buffer,char *value,int len = DEFAULT_ZIP_LEN)
{
		int index		= 0;
		int bufferPos		= 0;

		// add each digit of zip number to buffer inserting delimiter at 5
		while(value[index] && bufferPos < len)
		{
			if(index == 5)
				buffer[bufferPos++] = ZIP_DELIMITER;

			buffer[bufferPos++] = value[index++];
		}

		// space fill to the required length
		while(bufferPos < len)
			buffer[bufferPos++] = CHAR_FILL;

		buffer[bufferPos] = NULL;
		return len;
}

//
// copyOutPhone
//
// Title		: Copy phone data out of class array
// Parameters		: char * - buffer to copy phone string into
//
// Return Value		: int - Length of copy
// Comments		:
//

inline int copyOutPhone(char *buffer,char *value,int len =
DEFAULT_PHONE_LEN)
{
		int index		= 0;
		int bufferPos		= 0;

		// add each digit of phone number to buffer inserting delimiter before
6, 9, and 12
		while(value[index] && index < len)
		{
			switch(index)
```

```
		{
		case  6:
		case  9:
		case 12:
			// insert delimiter
			buffer[bufferPos++] = PHONE_DELIMITER;
		default:
			// add phone digit to buffer
			buffer[bufferPos++] = value[index++];
		}
	}

	// space fill to the required length
	while(bufferPos < len)
		buffer[bufferPos++] = CHAR_FILL;

	buffer[bufferPos] = '\0';

	return len;
}

//
// copyInMoney64
//
// Title		: Copy money data into class array
// Parameters		: const char * - value string
// Return Value		: INT64b integer value
// Comments		:
//

inline bool copyInMoney64(const char * value,INT64b *number)
{
	//INT64b	number		= 0;
	int		index		= 0;
	int		decimal		= 0;
	int		decimals	= 0;
	int		digitsAfterDec	= 0;

	bool	negitiveFlag	= false;

	// convert each digit to a numeric portion
	while(value[index])
	{
		// handle $ . - All the rest assumed numeric
		switch(value[index])
		{
		case MONEY_SYMBOL:
			// ignore $ sign
			break;
		case NEGITIVE_SYMBOL:
			// set negitive flag
			negitiveFlag = true;
			break;

		case DECIMAL_SYMBOL:
			// set decimal
			decimal=1;
			decimals++;
			if(decimals >1)
				//more than 1 decimal point found
				return false;
			break;

		default:
			// adjust decimal places
			decimal = decimal * 10;

			// add digit to running total
```

```
			if(value[index] >= '0' && value[index] <= '9')
			{
				if(decimal)
					if(++digitsAfterDec >
2)
						return false;

				*number = (*number * 10) +
(value[index] - '0');
			}
			else
			{
				//non-numeric field inserted
				return false;
			}
		}
		index++;
	}


	// apply decimal where decimal not found
	if(decimal < 100)
	{
		if(decimal)
		{
			*number *= (100 / decimal);
		}
		else
		{
			*number *= 100;
		}
	}

	// make negitive
	if(negitiveFlag)
		*number = *number * (-1);

	return true;
}

//
// copyInMoney
//
// Title		: Convert char string money field to double
// Parameters		: const char * - value string
// Return Value		: double integer value
// Comments		:
//

inline int copyInMoney(const char *value)
{
	char buf[20];
	int i,j,decimalFound,digitsAfterDecimal=0;

	int decimal=0;

	//walk past $ if present in char string
	if(*value == '$')
		*value++;

	int len=(int)strlen(value);
	for (i=0;i<len;i++)
	{
		if(value[i] == '.')
		{
			decimalFound++;
			if(decimalFound > 1)
				return -1;
```

```
		}
		if(value[i] == '-')


		if (value[i] != '.')
		{
			if(decimal)
			{
				if(digitsAfterDecimal<2)
					digitsAfterDecimal++;
				else
					return -1;
			}
			buf[j++] = value[i];
		}
	}
	int amount = atoi(buf);

	return amount;
}


//
// copyOutMoney64
//
// Title		: Copy money data out of class array
// Parameters		: char * - buffer to copy string 64 bit money into
//				INT64b - value
//				unsigned len - max number of
bytes to copy
// Return Value		: int - Length of copy
// Comments		:
//

inline void copyOutMoney64(char *buffer,INT64b value,unsigned int len =
DEFAULT_MONEY64_LEN)
{
	unsigned int		index		= len;

	int			places
= 0;

	bool		negitiveFlag		= false;
	bool		moneyFlag		= true;

	// NULL terminate string
	buffer[index] = NULL;

	// check length > 0
//	if(!index) return len;

	// handle negitive value
	if(value < 0)
	{
		negitiveFlag = true;
		value = value * (-1);
	}

	// break off each digit from value, fill if needed
	do
	{
		if(value)
		{
			// get next digit and add to buffer
			buffer[--index] = (char) (value % 10 + '0');
			value /= 10; places++;

			if(places == 2 && index)
			{
				places++;
				buffer[--index] =
DECIMAL_SYMBOL;
			}
		}
		else
		{
			// add zeros to first place before decimal point
on (i.e. 0.00)
			if(places < 2 || places == 3)
			{
				buffer[--index] =
ZERO_SYMBOL;
			}
			else
			{
				// add the decimal point
				if(places == 2)
				{
					buffer[--index] =
DECIMAL_SYMBOL;
				}
				else
				{
					// add the negitive
indicator
					if(negitiveFlag)
					{
						negitiveFlag
= false;

buffer[--index] = NEGITIVE_SYMBOL;
					}
					else
					{
						// add the
money indicator

if(moneyFlag)
						{

moneyFlag = false;

buffer[--index] = MONEY_SYMBOL;
						}
						else
buffer[--index] = NUMERIC_FILL;
					}
				}
			}


			// need to trace place for decimal point and
zero fill
			places++;
		}
	} while(index);

	//return len;
}

//
// copyOutDateTime
//
// Title		: Copy date & time data out of class array
// Parameters		: char * - buffer to copy date & time string into
//				INT64b - value
// Return Value		: int - Length of copy
```

```
// Comments                        : Fixed length
//

inline int copyOutDateTime(char *buffer,INT64b value)
{
        datetime timestamp;

        // break value into      time/date components
        calcOutDateTime(value,&timestamp);

        // put month into buffer
        *buffer++ =           (char) ((timestamp.month / 10) + '0');
        *buffer++ =           (char) ((timestamp.month % 10) + '0');
        *buffer++ =           DATE_DELIMITER;

        // put day into          buffer
        *buffer++ =           (char) ((timestamp.day / 10) + '0');
        *buffer++ =           (char) ((timestamp.day % 10) + '0');
        *buffer++ =           DATE_DELIMITER;

        // put year  into buffer
        int           year = timestamp.year;
        *buffer++ =           (char) ((year /           1000) +     '0');
year = year% 1000;
        *buffer++ =           (char) ((year /           100) + '0'); year = year
% 100;
        *buffer++ =           (char) ((year /           10)         + '0');
        *buffer++ =           (char) ((year %           10)         + '0');
        *buffer++ =           CHAR_FILL;

        // put hour  into buffer
        *buffer++ =           (char) ((timestamp.hour           / 10) +
'0');
        *buffer++ =           (char) ((timestamp.hour           % 10) +
'0');
        *buffer++ =           TIME_DELIMITER;

        // put minute into buffer
        *buffer++ =           (char) ((timestamp.minute /       10)         +
'0');
        *buffer++ =           (char) ((timestamp.minute %       10)         +
'0');
        *buffer++ =           TIME_DELIMITER;

        // put second into buffer
        *buffer++ =           (char) ((timestamp.second /       10)         +
'0');
        *buffer++ =           (char) ((timestamp.second %       10)         +
'0');

        *buffer     = NULL;   return DEFAULT_DATETIME_LEN;
}
//
// copyOutTime
//
// Title                   : Copy date data out of class array
// Parameters              : char * - buffer to copy date string into
//                                          INT64b - value
// Return Value            : int - Length of copy
// Comments                        : Fixed length
//

inline int copyOutDate(char *buffer,INT64b value)
{
        datetime timestamp;

        // break value into time/date components
        calcOutDateTime(value,&timestamp);

        // put month into buffer
        *buffer++ = (char) ((timestamp.month / 10) + '0');
        *buffer++ = (char) ((timestamp.month % 10) + '0');
        *buffer++ = DATE_DELIMITER;

        // put day into buffer
        *buffer++ = (char) ((timestamp.day / 10) + '0');
        *buffer++ = (char) ((timestamp.day % 10) + '0');
        *buffer++ = DATE_DELIMITER;

        // put year into buffer
        int year = timestamp.year;
        *buffer++ = (char) ((year / 1000) + '0');       year = year % 1000;
        *buffer++ = (char) ((year / 100) + '0');        year = year % 100;
        *buffer++ = (char) ((year / 10) + '0');
        *buffer++ = (char) ((year % 10) + '0');
        *buffer++ = CHAR_FILL;

        *buffer = NULL;

        return DEFAULT_DATE_LEN;
}

//
// copyOutTime
//
// Title                   : Copy time data out of class array
// Parameters              : char * - buffer to copy time string into
//                                          INT64b - value
// Return Value            : int - Length of copy
// Comments                        : Fixed length TBD
//

inline int copyOutTime(char *buffer,INT64b value)
{
        datetime timestamp;

        // break value into time/date components
        calcOutDateTime(value,&timestamp);

        // put hour into buffer
        *buffer++ = (char) ((timestamp.hour / 10) + '0');
        *buffer++ = (char) ((timestamp.hour % 10) + '0');
        *buffer++ = TIME_DELIMITER;

        // put minute into buffer
        *buffer++ = (char) ((timestamp.minute / 10) + '0');
        *buffer++ = (char) ((timestamp.minute % 10) + '0');
        *buffer++ = TIME_DELIMITER;

        // put second into buffer
        *buffer++ = (char) ((timestamp.second / 10) + '0');
        *buffer++ = (char) ((timestamp.second % 10) + '0');

        *buffer = NULL; return DEFAULT_TIME_LEN;
}

//
// copyOutDecimal64
//
// Title                   : Copy decimal data out of class array
// Parameters              : char * - buffer to copy string 64 bit money into
//                                          INT64b - value
//                                          unsigned len - max number of
bytes to copy
// Return Value            : int - Length of copy
// Comments                        :
```

```
//

inline int copyOutDecimal64(char *buffer,INT64b value,unsigned int len =
DEFAULT_DECIMAL64_LEN)
{
	unsigned int		index		= len;

	int		places
= 0;

	bool		negitiveFlag		= false;

	// NULL terminate string
	buffer[index] = NULL;

	// check length > 0
	if(!index) return len;

	// handle negitive value
	if(value < 0)
	{
		negitiveFlag = true;
		value = value * (-1);
	}

	// break off each digit from value, fill if needed
	do
	{
		if(value)
		{
			// get next digit and add to buffer
			buffer[--index] = (char) (value % 10 + '0');
			value /= 10; places++;

			if(places == 2 && index)
			{
				places++;
				buffer[--index] =
DECIMAL_SYMBOL;
			}
		}
		else
		{
			// add zeros to first place before decimal point
on (i.e. 0.00)
			if(places < 2 || places == 3)
			{
				buffer[--index] =
ZERO_SYMBOL;
			}
			else
			{
				// add the decimal point
				if(places == 2)
				{
					buffer[--index] =
DECIMAL_SYMBOL;
				}
				else
				{
					// add the negitive
indicator
					if(negitiveFlag)
					{
						negitiveFlag
= false;

buffer[--index] = NEGITIVE_SYMBOL;
					}
					else buffer[--index] =
NUMERIC_FILL;
				}
			}

			// need to trace place for decimal point and
zero fill
			places++;
		}
	} while(index);

	return len;
}

////////////////////////////////////////////////////////////////////////////
//  Macros
////////////////////////////////////////////////////////////////////////////
using namespace std;

#ifdef _DEBUG
	int debugFlag = 1;
#else
	int debugFlag = 0;
#endif

inline BYTE8b *debugFileName(BYTE8b *filePath)
{
	BYTE8b *fileName = filePath + strlen(filePath);

  while(fileName != filePath)
  {
		if(*fileName == '/' || *fileName == '\\' && *(fileName +
1))
			return (fileName + 1);

    fileName--;
  }

  return filePath;
}

#define DEBUGADDRESS(POINTER)	hex << (void *) POINTER << dec

#define ERRORMSG(TEXT)

\

EnterCriticalSection(&errorMutex);
\


		\
		errorStream
<< debugFileName(__FILE__)		\
		<< "|" <<
__TIMESTAMP__ << "|" << __LINE__ << "|"		\
		<< _getpid()
<< "|" << GetCurrentThreadId() << "|"		\
		<< TEXT;

	\

errorStream.flush();
	\

LeaveCriticalSection(&errorMutex);
```

```
#ifdef _DEBUG

        #define DEBUGMSG(TEXT)

\

EnterCriticalSection(&debugMutex);
\



                                \

debugStream << debugFileName(__FILE__)                                  \
                                                                << "|" <<
__TIMESTAMP__ << "|" << __LINE__ << "|"         \
                                                                << _getpid()
<< "|" << GetCurrentThreadId() << "|"       \
                                                                << TEXT ;


                        \

debugStream.flush();
        \

LeaveCriticalSection(&debugMutex);


        #define DEBUGSTRING(TEXT,LENGTH)
                                                                \
                                debugVarString(TEXT,LENGTH)




#else
    #define DEBUGMSG(TEXT) ;
    #define DEBUGSTRING(TEXT,LENGTH) ;

#endif
#endif /* _COMMON_TPCC */
```

TpccIsapi.cpp

```
/*
*****************************************************************
** Project              : AIX
** Component            : Performance/TPC-C Benchmark
** Name                         : tpccIsapi.cpp
** Title                : TPCC html processing
*****************************************************************
** Copyright (c) 2003 IBM Corporation
** All rights reserved
*****************************************************************
** History      :
**          Developed at IBM Austin by the AIX RS/6000
**          performance group.
**
** Comments                             :
**
*****************************************************************
*/

#include "stdafx.h"

#include "..\tpccCom\tpccCom.h"
#include "..\tpccCom\tpccCom_i.c"
#include <tpccIsapi.hpp>

// For custom assert and trace handling with WebDbg.exe
[ module(name="tpccIsapi", type="dll") ];
[ emitidl(restricted) ];

#define _WIN32_DCOM

//////////////////////////////////////////////////////////////
// Globals
//////////////////////////////////////////////////////////////

int                     maxDataSize;
//max struct size of all txn(s)
int                     numUsers;
//number of users that client will service.
int                     dlvyQueueLen;
//static length of dlvy queue
int                     dlvyThreads;
//number of dlvy threads to create
int                     dlvyBufferFreeSlots;            //length of dlvy txn
queue
int                     dlvyBufferSlotIndex;            //index into next
avaliable slot in dlvy txn queue
int                     dlvyBufferThreadIndex;                  //thread
index into dlvy txn queue
int                     nullDB;
//null db on client(bypass com call).

int                     trace;

static DWORD                            threadLSIndex;
//isapi thread local storage index
CRITICAL_SECTION                        isapiLock;
//isapi lock
CRITICAL_SECTION                        errorLock;
//error log file lock.
CRITICAL_SECTION                        termLock;
//terminal array lock.
CRITICAL_SECTION                        dlvyQueueLock;
//dlvy queue critical section lock
HANDLE                                          dlvyThreadDone =
INVALID_HANDLE_VALUE;           //dlvy thread exit event
HANDLE                                          dlvyThreadSemaphore
= INVALID_HANDLE_VALUE;         //dlvy thread wrk to do semaphore
int
dlvyThreadID = 0;

struct DLVYQUEUEDATA        *dlvyQueue;
//dlvy queue
HANDLE                                          *dlvyThreadHandles;
//ptr to array of thread handles

TERM_ENTRY          *termArray;
                    //array of terminal entries to store each users info.
int                         termNextFree;
                    //next available slot in terminal array

FILE        *htmlDebug                  =           NULL;
            //html debug file
FILE        *errorLog           =           NULL;
//error file
FILE        *htmlTrace                  =           NULL;


ofstream debugStream;
ofstream errorStream;
CRITICAL_SECTION debugMutex;
CRITICAL_SECTION errorMutex;
```

```
char	dlvyLogPath[128]		= {NULL};
char	errorLogFile[128]		= {NULL};
char	htmlTraceLogFile[128]		= {NULL};
char	dbName[64]	= {NULL};
char	dbType[16]	= {NULL};

typedef INT (*CONNECT_PTR)(char *dbName,void **connectHandle);
typedef INT		(*DISCONNECT_PTR)(void *connectHandle);
typedef INT (*DLVY_FUNC_PTR)(dlvy_wrapper *dlvy,void
*connectHandle);
typedef INT (*NORD_FUNC_PTR)(nord_wrapper *nord,void
*connectHandle);
typedef INT (*PYMT_FUNC_PTR)(paym_wrapper *pymt,void
*connnectHandle);
typedef INT (*ORDS_FUNC_PTR)(ords_wrapper *ords,void *connectHandle);
typedef INT (*STOK_FUNC_PTR)(stok_wrapper *stok,void *connectHandle);

HINSTANCE		dbInstance;
CONNECT_PTR		db_connect;
DISCONNECT_PTR	db_disconnect;
DLVY_FUNC_PTR	dlvyCall;


//////////////////////////////////////////////////////////////////
// Page functions arrays
//////////////////////////////////////////////////////////////////

typedef int (*pageFuncPtr) (htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle);

pageFuncPtr htmlPageFunctions[MAX_TRANSACTIONS] =
		{
			{doLoginForm},
			{doNewOrderForm},
			{doPaymentForm},
			{doOrderStatusForm},
			{doDeliveryForm},
			{doStockForm},
			{doExit},
			{doLoginResults},
			{doNewOrderResults},
			{doPaymentResults},
			{doOrderStatusResults},
			{doDeliveryResults},
			{doStockResults}
		};

extern "C" DWORD WINAPI
HttpExtensionProc(LPEXTENSION_CONTROL_BLOCK lpECB)
{
	struct TXN_HANDLE		*txnHandle = NULL;

	txnHandle = (TXN_HANDLE *) TlsGetValue(threadLSIndex);

	if(txnHandle == NULL)
	{
		int rc = initTxnHandle(&txnHandle);
		if (rc != OK)
		{
			char response[256];	char htmlHeader[256];
			sprintf(response,"ERROR: Init txnHandle
function failed.\n");

			size_t htmlPageLen = strlen(response);

			//add content length and keep alive header
			sprintf(htmlHeader,HEADER,htmlPageLen);

lpECB->ServerSupportFunction(lpECB->ConnID,HSE_REQ_SEND_RESPO
NSE_HEADER,"200 OK",NULL,(DWORD*)htmlHeader);

lpECB->WriteClient(lpECB->ConnID,response,(LPDWORD)&htmlPageLen,0
);

			return
HSE_STATUS_SUCCESS_AND_KEEP_CONN;
		}

		txnHandle = (TXN_HANDLE *)
TlsGetValue(threadLSIndex);
		if (txnHandle == NULL)
		{
			char response[256];	char htmlHeader[256];
			sprintf(response,"ERROR: Unable to retrieve
txnHandle from TLS.\n");

			size_t htmlPageLen = strlen(response);

			//add content length and keep alive header
			sprintf(htmlHeader,HEADER,htmlPageLen);

lpECB->ServerSupportFunction(lpECB->ConnID,HSE_REQ_SEND_RESPO
NSE_HEADER,"200 OK",NULL,(DWORD*)htmlHeader);

lpECB->WriteClient(lpECB->ConnID,response,(LPDWORD)&htmlPageLen,0
);

			return
HSE_STATUS_SUCCESS_AND_KEEP_CONN;
		}
	}

	try
	{
		txnHandle->urlString  =
(char*)lpECB->lpszQueryString;

		DEBUGMSG("calling doHtml() w/ query string:" <<
txnHandle->urlString << endl);
		doHtml(txnHandle);

		size_t htmlPageLen;
		htmlPageLen = strlen(txnHandle->htmlPage);
		if(htmlPageLen >= 4096)
		{
			ERRORMSG("WARNING:  HTML PAGE IS
>= 4096!, page size:"<<htmlPageLen<<endl);
		}
		//add content length and keep alive header
		sprintf(txnHandle->htmlHeader,HEADER,htmlPageLen);
		size_t headerLen = strlen(txnHandle->htmlHeader);
		if(headerLen >= 256)
		{
			ERRORMSG("WARNING:  HTML
HEADER IS >= 256!, header size:"<<headerLen<<endl);
		}

		//write response to user

lpECB->ServerSupportFunction(lpECB->ConnID,HSE_REQ_SEND_RESPO
NSE_HEADER,"200 OK",NULL,(DWORD*)txnHandle->htmlHeader);

lpECB->WriteClient(lpECB->ConnID,txnHandle->htmlPage,(LPDWORD)&ht
mlPageLen,0);
```

```
                        DEBUGMSG("HTML
PAGE-->"<<endl<<txnHandle->htmlHeader<<txnHandle->htmlPage<<endl);

            }
            catch (...)
            {
                        char response[256];
                        ZeroMemory(response,256);
                        char *ptr = response;

                        appendText(&ptr,"<HTML><BODY> Error : Unhandled
Exception </BODY></HTML>");
                        DWORD   cbResponse = sizeof(response)-1 ;

                        //write response to user

lpECB->ServerSupportFunction(lpECB->ConnID,HSE_REQ_SEND_RESPO
NSE_HEADER,"200 OK",NULL,(DWORD*)response);

lpECB->WriteClient(lpECB->ConnID,response,&cbResponse,0);
            }

  return HSE_STATUS_SUCCESS_AND_KEEP_CONN;
}

extern "C" BOOL WINAPI GetExtensionVersion(HSE_VERSION_INFO*
pVer)
{
            // Create the extension version string, and copy string to
HSE_VERSION_INFO structure.
            pVer->dwExtensionVersion =
MAKELONG(HSE_VERSION_MINOR, HSE_VERSION_MAJOR);

            // Copy description string into HSE_VERSION_INFO structure.
            strcpy(pVer->lpszExtensionDesc, "TPCC ISAPI Extension");

            // Initialze isapi critcal section
            InitializeCriticalSection(&isapiLock);

            // Initailize error log critcal section
            InitializeCriticalSection(&errorLock);

            // Initialze terminal critcal section
            InitializeCriticalSection(&termLock);

            // Initialize debug/error critcal sections
            if(debugFlag)
                        InitializeCriticalSection(&debugMutex);
            InitializeCriticalSection(&errorMutex);

            // Read registery values
            if(readRegisteryValues() != OK)
                        return(FALSE);

            // Initialize terminal array
            termArray = (TERM_ENTRY*)
calloc(numUsers,sizeof(TERM_ENTRY));
            termNextFree = 1;

            //open up error/debug streams
            errorStream.rdbuf( )->open(errorLogFile,ios::out);
            if(debugFlag)
                        debugStream.rdbuf( )->open(htmlTraceLogFile,ios::out);

            ERRORMSG("Error log file open."<<endl);

            DEBUGMSG("Loading library for dlvy txn."<<endl);
            int rc = getDBInstance();
            if (rc != OK)
            {
                        ERRORMSG("Error, unable to load database dll,
rc:"<<rc);
                        DEBUGMSG("Error, unable to load database dll,
rc:"<<rc);

                        return FALSE;
            }
            DEBUGMSG("Library loaded for dlvy txn."<<endl);

            DEBUGMSG("Calling initDlvy." <<endl);

            if(initDlvy() != OK)
                        return (FALSE);

            DEBUGMSG("Initializing TLS." << endl);

            // Initialize thread local storage index
            threadLSIndex = TlsAlloc();
            if (threadLSIndex == TLS_NULL)
            {
                        ERRORMSG("Isapi error: unable to initialize thread
local storage(TLS), rc:" << GetLastError()<<endl);
                        return(FALSE);
            }

            DEBUGMSG("sizeof out_neword_struct:   "<<sizeof(struct
out_neword_struct)<<endl);
            DEBUGMSG("sizeof  in_neword_struct:   "<<sizeof(struct
in_neword_struct)<<endl);
            DEBUGMSG("sizeof out_payment_struct:  "<<sizeof(struct
out_payment_struct)<<endl);
            DEBUGMSG("sizeof  in_payment_struct:  "<<sizeof(struct
in_payment_struct)<<endl);
            DEBUGMSG("sizeof out_ordstat_struct:  "<<sizeof(struct
out_ordstat_struct)<<endl);
            DEBUGMSG("sizeof  in_ordstat_struct:  "<<sizeof(struct
in_ordstat_struct)<<endl);
            DEBUGMSG("sizeof out_delivery_struct: "<<sizeof(struct
out_delivery_struct)<<endl);
            DEBUGMSG("sizeof  in_delivery_struct: "<<sizeof(struct
in_delivery_struct)<<endl);
            DEBUGMSG("sizeof out_stocklev_struct: "<<sizeof(struct
out_stocklev_struct)<<endl);
            DEBUGMSG("sizeof  in_stocklev_struct: "<<sizeof(struct
in_stocklev_struct)<<endl);

            //compute the max struct size for com data construct
            maxDataSize = max(maxDataSize,sizeof(nord_wrapper));
            maxDataSize = max(maxDataSize,sizeof(paym_wrapper));
            maxDataSize = max(maxDataSize,sizeof(ords_wrapper));
            maxDataSize = max(maxDataSize,sizeof(dlvy_wrapper));
            maxDataSize = max(maxDataSize,sizeof(stok_wrapper));
            maxDataSize += 10;

            DEBUGMSG("max data struct size:"<<maxDataSize <<endl);

            return true;
}

extern "C" BOOL WINAPI TerminateExtension(DWORD dwFlags)
{
            return true;
}


/*
```

```
*****************************************************************
** Name                    :        initTxnHandle
** Description        :
**                                        Isapi thread initializes
its own com interface
**                                        structure.
** Parameters         :
**                                        TXN_HANDLE**
isapi txn handle
** Returns            :
**                                        int - return code
** Comments                :
**
*****************************************************************
*/
int initTxnHandle(TXN_HANDLE **txnHandle)
{
        DEBUGMSG("Inside init txn handle, getting isapiLock." << endl);
        EnterCriticalSection(&isapiLock);

        HRESULT hres = NULL;
        try
        {
                DEBUGMSG("Got ispaiLock, initializing txnHandle:
"<<DEBUGADDRESS(*txnHandle)<< endl);
                *txnHandle = (TXN_HANDLE *)
calloc(1,sizeof(TXN_HANDLE));
                if (*txnHandle == NULL)
                {
                        ERRORMSG("Unable to allocated
TXN_HANDLE, rc:"<<GetLastError()<<endl);
                        return ERR;
                };

                (*txnHandle)->comInterface.comHandle = NULL;
                DEBUGMSG("Initializing txnHandle com data buffer to
"<<maxDataSize<<"bytes"<<endl);
                (*txnHandle)->comInterface.txnBuffer = (char *)
CoTaskMemAlloc(maxDataSize);
                if (!((*txnHandle)->comInterface.txnBuffer))
                {
                        ERRORMSG("CoTaskMemAlloc() failed of
size "<<maxDataSize<<", rc: "<<hres<<endl);
                        return(ERR);
                };
                DEBUGMSG("txnHandle com data buffer initialized to "
<< maxDataSize << "bytes" <<endl);

                DEBUGMSG("Calling CoInitialize with txnHandle:
"<<DEBUGADDRESS(*txnHandle)<<endl);
                hres =
CoInitializeEx(NULL,COINIT_MULTITHREADED);
                if (FAILED(hres))
                {
                        ERRORMSG("CoInitializeEx() failed, rc :
"<<hres<<endl);
                        return(ERR);
                };

                struct  _timeb
startTime;
                struct  _timeb
endTime;

                DEBUGMSG("Calling CoCreateInstance with
txnHandle:"<<DEBUGADDRESS(*txnHandle)<< endl);
                _ftime(&startTime);
                hres =
CoCreateInstance(CLSID_tpcc_com,NULL,CLSCTX_SERVER,IID_Itpcc_co
m,(void **)&(*txnHandle)->comInterface.comHandle);
                if (FAILED(hres))
                {
                        _ftime(&endTime);
                        //store error code in txnHandle
                        ERRORMSG("CoCreateInstance() failed,
code:"<<HRESULT_CODE(hres)<<"
facility:"<<HRESULT_FACILITY(hres)<<
                                " hres:"<<hres<< " time
waiting:"<<
                                ((((endTime.time -
startTime.time)*1000)+
                                 (endTime.millitm -
startTime.millitm))/1000.0)<<endl);

                        DEBUGMSG("CoCreateInstance() failed,
code:"<<HRESULT_CODE(hres)<<"
facility:"<<HRESULT_FACILITY(hres)<<
                                " hres:"<<hres<< " time
waiting:"<<
                                ((((endTime.time -
startTime.time)*1000)+
                                 (endTime.millitm -
startTime.millitm))/1000.0)<<endl);

                        return(ERR);
                };

                _ftime(&endTime);
                DEBUGMSG("CoCreateInstance successful.txnHande
com initialized, time waiting for object to be activated:" <<
                        ((((endTime.time - startTime.time)*1000)+
                                 (endTime.millitm -
startTime.millitm))/1000.0)<<endl);

                //call set complete to return object to pool.

(*txnHandle)->comInterface.comHandle->doSetComplete();

                //set the com buffers size
                DEBUGMSG("Setting txnHandle: " <<
DEBUGADDRESS(*txnHandle) << "com buffer size to " << maxDataSize<<
endl)
                (*txnHandle)->comInterface.size = maxDataSize;

                DEBUGMSG("txnHandle:
"<<DEBUGADDRESS(*txnHandle) <<"set to " << maxDataSize << endl);

                TlsSetValue(threadLSIndex,*txnHandle);

                DEBUGMSG("txnHandle:
"<<DEBUGADDRESS(*txnHandle) << "stored in TLS" << endl);


ZeroMemory((*txnHandle)->htmlPage,MAX_HTML_PAGE_LEN);

ZeroMemory((*txnHandle)->htmlHeader,MAX_HTML_HEADER_LEN);

                LeaveCriticalSection(&isapiLock);
                return(OK);
        }
        catch(...)
        {
                DEBUGMSG("Unhandled exeception in initTxnHandle,
unlocking isapi lock" <<endl);
```

```
                        ERRORMSG("Unhandled exeception in initTxnHandle,
unlocking isapi lock" <<endl);
                        LeaveCriticalSection(&isapiLock);
            };

            return ERR;
}

/*
*****************************************************************
** Name                        :           getDBInstance
** Description         :
**                                                     load db specific lib
based on dbType registery
**                                                     value.
** Parameters          :
**
** Returns             :
**                                                     int - return code
** Comments                    :
**                                                     This function only
exists for the dlvy threads
**                                                     Dlvy threads hold
direct connections to the database
**                                                     and therefore need to
know what db interface to talk to.
*****************************************************************
*/
int getDBInstance()
{
            if(nullDB)
            {
                        dbInstance =
LoadLibrary("c:\\inetpub\\wwwroot\\tpcc\\nullDB.dll");
                        if(dbInstance == NULL)
                        {
                                    return ERR_NULL_DLL_NOT_LOADED;
                        }
            }
            else if( (strcmp(dbType,"DB2") == 0) )
            {
                        dbInstance =
LoadLibrary("c:\\inetpub\\wwwroot\\tpcc\\tpccDB2glue.dll");
                        if(dbInstance == NULL)
                        {
                                    return ERR_DB2_DLL_NOT_LOADED;
                        }
            }
            else if( (strcmp(dbType,"ORACLE") == 0) )
            {
                        return ERR_ORACLE_DLL_NOT_LOADED;
            }
            else
            {
                        return ERR_UNKNOWN_DB;
            }

            db_connect =
(CONNECT_PTR)GetProcAddress(dbInstance,"connect_db");
            if(db_connect == NULL)
            {
                        return ERR_CONNECT_ADDRESS_NOT_FOUND;
            }
            dlvyCall =
(DLVY_FUNC_PTR)GetProcAddress(dbInstance,"do_dlvy");
            if(dlvyCall == NULL)
            {
                        return ERR_DLVY_ADDRESS_NOT_FOUND;
            }

            return OK;
}

/*
*****************************************************************
** Name                        :           initDlvy
** Description         :
**                                                     initialize dlvy
threads/dlvy queueu
** Parameters          :
**
** Returns             :
**                                                     int - return code
** Comments                    :
**
*****************************************************************
*/

int initDlvy()
{
            // Initialze critcal section
            InitializeCriticalSection(&dlvyQueueLock);

            //create dlvy queue
            dlvyQueue = (DLVYQUEUEDATA *)
calloc(dlvyQueueLen,sizeof(DLVYQUEUEDATA));

            dlvyThreadDone = CreateEvent(NULL,

 TRUE,                  //manual reset

 FALSE,   //initially not signalled.

 NULL);
            if(dlvyThreadDone == NULL)
            {
                        DEBUGMSG("Error: dlvyThreadDone handled init
failed, GetLastError:"<<GetLastError()<<endl);

                        ERRORMSG("Error : dlvyThreadDone handled init
failed, GetLastError:"<<GetLastError()<<endl);

                        return  ERR_DLVY_EVENT_INIT_FAILED;
            }

            //create dlvy semaphore
            dlvyThreadSemaphore =
CreateSemaphore(NULL,0,dlvyQueueLen,NULL);
            if(dlvyThreadSemaphore == NULL)
            {
                        DEBUGMSG("Error: dlvyThreadSemaphore semaphore
init failed, GetLastError:"<<GetLastError()<<endl);
                        ERRORMSG("Error: dlvyThreadSemaphore semaphore
init failed, GetLastError:"<<GetLastError()<<endl);
                        return  ERR_DLVY_SEMAPHORE_INIT_FAILED;

            }

            //set number of free slots available in queue
            dlvyBufferFreeSlots = dlvyQueueLen;

            //index into next avaliable slot in dlvy txn queue
            dlvyBufferSlotIndex = 0;

            //thread index into dlvy txn queue
            dlvyBufferThreadIndex = 0;
```

```
	dlvyThreadHandles = new HANDLE[dlvyThreads];
	//create threads
	for(int threadCount = 0;threadCount < dlvyThreads;threadCount++)
	{
		dlvyThreadHandles[threadCount] =
(HANDLE)_beginthread(dlvyThreadEntry,0,NULL);
		if(dlvyThreadHandles[threadCount] ==
INVALID_HANDLE_VALUE)
			return ERR_DLVY_THREAD_FAILED;
	}

	return OK;
}


/*
****************************************************************
** Name		:	readRegisteryValues
** Description	:
**
**
initialize isapi global
variables from registery
** Parameters	:
**
** Returns	:
**
**
int - return code
** Comments	:
**
****************************************************************
*/
int readRegisteryValues()
{
	HKEY	registeryKey;
	char	value[MAX_STRING_LEN];
	DWORD	regType;
	DWORD	regValue;
	DWORD	regValueSize = MAX_STRING_LEN;

	//open up registery key

if(RegOpenKeyEx(HKEY_LOCAL_MACHINE,REGISTERY_SUB_KEY,0,K
EY_READ,&registeryKey) != ERROR_SUCCESS)
		return ERR_UNABLE_TO_OPEN_REG;

	//get null db flag
	regValueSize = sizeof(regValue);
	if(RegQueryValueEx(registeryKey,NULL_DB,0,&regType,(BYTE
*)&regValue,&regValueSize) == ERROR_SUCCESS)
			nullDB = regValue;
	else
			nullDB = 0;

	//get num dlvy threads
	regValueSize = sizeof(regValue);

if(RegQueryValueEx(registeryKey,DELIVERY_THREADS,0,&regType,(BYT
E *)&regValue,&regValueSize) == ERROR_SUCCESS)
			dlvyThreads = regValue;
	else
			dlvyThreads =
DEFAULT_DLVY_THREADS;

	//get dlvy queue len
	regValueSize = sizeof(regValue);

if(RegQueryValueEx(registeryKey,DELIVERY_QUEUE_LEN,0,&regType,(B
YTE *)&regValue,&regValueSize) == ERROR_SUCCESS)
			dlvyQueueLen = regValue;
	else
			dlvyQueueLen =
DEFAULT_DLVY_QUEUE_LEN;

	//get the htmlTrace flag
	regValueSize = sizeof(regValue);

if(RegQueryValueEx(registeryKey,HTML_TRACE,0,&regType,(BYTE
*)&regValue,&regValueSize) == ERROR_SUCCESS)
			trace = regValue;
	else
			trace = 0;

	//get the client null db flag
	regValueSize = sizeof(regValue);
	if(RegQueryValueEx(registeryKey,NULL_DB,0,&regType,(BYTE
*)&regValue,&regValueSize) == ERROR_SUCCESS)
			nullDB = regValue;
	else
			nullDB = 0;

	//get the num of users
	regValueSize = sizeof(regValue);

if(RegQueryValueEx(registeryKey,NUM_USERS,0,&regType,(BYTE
*)&regValue,&regValueSize) == ERROR_SUCCESS)
			numUsers = regValue;
	else
			numUsers = DEFAULT_NUM_USERS;

	//get dlvy log file path
	regValueSize = sizeof(value);
	if
(RegQueryValueEx(registeryKey,DELIVERY_LOG_PATH,0,&regType,(BYT
E *) &value,&regValueSize)== ERROR_SUCCESS )
		strcpy(dlvyLogPath,value);
	else
		strcpy(dlvyLogPath,DEFAULT_DLVY_LOG_PATH);

	//get global error log file path/name
	regValueSize = sizeof(value);
	if
(RegQueryValueEx(registeryKey,ERROR_LOG_FILE,0,&regType,(BYTE *)
&value,&regValueSize)== ERROR_SUCCESS )
		strcpy(errorLogFile,value);
	else
		strcpy(errorLogFile,DEFAULT_ERROR_LOG_FILE);

	//get global error log file path/name
	regValueSize = sizeof(value);
	if
(RegQueryValueEx(registeryKey,HTML_TRACE_LOG_FILE,0,&regType,(B
YTE *) &value,&regValueSize)== ERROR_SUCCESS )
		strcpy(htmlTraceLogFile,value);
	else

strcpy(htmlTraceLogFile,DEFAULT_HTML_TRACE_LOG_FILE);

	//get db name
	regValueSize = sizeof(value);
	if (RegQueryValueEx(registeryKey,DB_NAME,0,&regType,(BYTE
*) &value,&regValueSize)== ERROR_SUCCESS )
		strcpy(dbName,value);
	else
		strcpy(dbName,DEFAULT_DB_NAME);

	//get db type
	regValueSize = sizeof(value);
```

```
		if (RegQueryValueEx(registeryKey,DB_TYPE,0,&regType,(BYTE
*) &value,&regValueSize)== ERROR_SUCCESS )
			strcpy(dbType,value);

		RegCloseKey(registeryKey);

		return OK;
}

/*
*****************************************************************
** Name				: doLoginForm
** Description		:
**					HTML Login page entry point
** Parameters		:
**					htmlPhraser*		command
block
**					TXN_HANDLE*		txn handle
struct
** Returns		:
**					int - return code
** Comments		:
**
*****************************************************************
*/

int doLoginForm(htmlPhraser *commandBlock,TXN_HANDLE *txnHandle)
{
		DEBUGMSG("Entering doLoginForm()."<<endl);
		char *html=txnHandle->htmlPage;

		DEBUGMSG("Creating html login page"<<endl);
		//begin html page
		appendText(&html,"<HTML><HEAD><TITLE>TPC-C Client
Home Page</TITLE></HEAD>"
						"<FORM
ACTION=\""
						APP_NAME
						"\"
METHOD=\"GET\">"
						"<H2>Please
Login.</H2>"
						"<INPUT
TYPE=\"hidden\" NAME=\""
						CMD_TXN_ID
						"\" VALUE=\""
						CMD_MENU
						"\">"
						"<H3>Warehouse
<INPUT NAME=\""
						CMD_W_ID
						"\" SIZE=6>"
						" District <INPUT
NAME=\""
						CMD_D_ID
						"\" SIZE=2></H3>"
						"<INPUT
TYPE=\"submit\" VALUE=\"Submit\">"
						"</FORM>");


html+=sprintf(html,"dlvy Queue Length:%d <BR> num dlvy threads:%d <BR>
dlvy queue free slots:%d <BR> isapi queue index:%d <BR> thread queue
index:%d <BR> </BODY></HTML>\n",
				dlvyQueueLen,
				dlvyThreads,
				dlvyBufferFreeSlots,
				dlvyBufferSlotIndex,
				dlvyBufferThreadIndex);

DEBUGMSG("Html login page done"<<endl);

return OK;
}

/*
*****************************************************************
** Name				: doLoginResults
** Description		:
**					HTML Login results page entry
point
** Parameters		:
**					htmlPhraser*		command
block
**					TXN_HANDLE*		txn handle
struct
** Returns		:
**					int - return code
** Comments		:
**
*****************************************************************
*/

int doLoginResults(htmlPhraser *commandBlock,TXN_HANDLE *txnHandle)
{
		char *html=txnHandle->htmlPage;

		//validate parameters
		if( (txnHandle->w_id = atoi(commandBlock->get_W_ID())) == 0 )
		{
			doLoginErrorPage(html,ERR_INVALID_W_ID);
			return OK;
		}
		if( (txnHandle->d_id = atoi(commandBlock->get_D_ID())) == 0 )
		{
			doLoginErrorPage(html,ERR_INVALID_D_ID);
			return OK;
		}

		//store user into terminal array,
		//function will ERR if the terminal array is full
		if( assignTerminal(txnHandle) != OK)
		{
			doLoginErrorPage(html,ERR_TERMINAL_FULL);
			return OK;
		};

		appendText(&html,"<HTML><HEAD><TITLE>TPC-C Main
Menu</TITLE></HEAD>\r\n"
						"<BODY><FORM
ACTION=\""
						APP_NAME
						"\"
METHOD=\"GET\">\r\n"
						"<H3>Please Select
Transaction.</H3>\r\n");
		html+=appendButtons(html);
		html+=appendHiddenFields(html,txnHandle);
		appendText(&html,"</FORM></BODY></HTML>");

		return OK;
}

/*
*****************************************************************
** Name				: doLoginErrorPage
```

```
** Description          :
**                                      HTML Login page entry point
** Parameters           :
**                                      char *                  html page
buffer
**                                      char *                  error
message
** Returns              :
**                                      int - return code
** Comments                     :
**
*****************************************************************
*/

int doLoginErrorPage(char *htmlPage,char *errorMessage)
{
        char *html=htmlPage;

        //begin html page
        appendText(&html,"<HTML><HEAD><TITLE>TPC-C Client
Home Page</TITLE></HEAD>"
                                                "<FORM
ACTION=\""
                                                APP_NAME
                                                "\"
METHOD=\"GET\">");
        appendText(&html,"<H2>Please Login.</H2>"
                                                "<INPUT
TYPE=\"hidden\" NAME=\""
                                                CMD_TXN_ID
                                                "\" VALUE=\""
                                                CMD_MENU
                                                "\">"
                                                "<H3>Warehouse
<INPUT NAME=\""
                                                CMD_W_ID
                                                "\" SIZE=6>"
                                                " District <INPUT
NAME=\""
                                                CMD_D_ID
                                                "\" SIZE=2></H3>"
                                                "<INPUT
TYPE=\"submit\" VALUE=\"Submit\">"
                                                "</FORM>");
        appendText(&html,errorMessage);
        appendText(&html,"<BODY></HTML>");

        return OK;
}


/*
*****************************************************************
** Name                         : doNewOrderForm
** Description          :
**                                      HTML neworder page entry point
** Parameters           :
**                                      htmlPhraser*            command
block
**                                      TXN_HANDLE*     txn handle
struct
** Returns              :
**                                      int - return code
** Comments                     :
**
*****************************************************************
*/
int doNewOrderForm(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle)
{
        char *html=txnHandle->htmlPage;

        appendText(&html,"<HTML><HEAD><TITLE>TPC-C New
Order</TITLE></HEAD>\r\n"
                                                "<BODY><FORM
ACTION=\""
                                                APP_NAME
                                                "\"
METHOD=\"GET\">\r\n"

"<CENTER><H3>Please Fill In New Order Form.</H3></CENTER>\r\n"
//check if not needed
                                                "Submit Transaction
<INPUT TYPE=\"submit\" NAME=\""
                                                CMD_TXN_ID
                                                "\" VALUE=\""
                                                CMD_NORD
                                                "\">");


        //append the hidden
        html+=appendHiddenFields(html,txnHandle);

        //int buffer for warehouse
        char buffer[15];
        appendText(&html," <PRE>"
//                                              "       1       2       3
   4       5       6       7       8       9\r\n"
//
"1234567890123456789012345678901234567890123456789012345678901234567890123
4567890123456789012345678901234567890\r\n"
                                                "Warehouse: ");
        appendText(&html,itoa(txnHandle->w_id,buffer,10),7,1);
        appendText(&html,"District: <INPUT NAME=\""
                                                CMD_D_ID
                                                "\" SIZE=1>
        Date:<BR>"
          "Customer <INPUT NAME=\""
                                                CMD_C_ID
                                                "\" SIZE=6>  Name:
      Credit:     %Disc.:<BR>"
                                                "Order Number:
Number of Lines:        W_tax:      D_tax:<BR> <BR>"
//                                              "       1       2       3
   4       5       6       7       8       9\r\n"
//
"1234567890123456789012345678901234567890123456789012345678901234567890123
4567890123456789012345678901234567890\r\n"
                                                " Supp_W  Item_Num
Item_Name             Qty Stock  B/G  Price    Amount <BR> ");

        //append the 15 items commands
        html+=appendItems(html,NORD_ITEMS,ITEM_START);

        //seal up html page
        appendText(&html,"</PRE></BODY></HTML>");

        return OK;
}

/*
*****************************************************************
** Name                         : doNewOrderResults
** Description          :
**                                      HTML neworder page entry point
** Parameters           :
```

```
**                                          htmlPhraser*        command
block
**                                          TXN_HANDLE*     txn handle
struct
** Returns              :
**                                          int - return code
** Comments                        :
**
*****************************************************************
*/


int doNewOrderResults(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle)
{
        DEBUGMSG("Entered doNewOrderResults" << endl);

        char *html=txnHandle->htmlPage;
        struct nord_wrapper *nord = NULL;

        DEBUGMSG("Casting COM txnBuffer to nord struct" <<endl);
        nord = (nord_wrapper*)txnHandle->comInterface.txnBuffer;
        ZeroMemory(nord,maxDataSize);
        DEBUGMSG("COM txnBuffer initialized, validating input
parameters" << endl);

        //set warehouse,district and customer id from command block
        nord->in_nord.s_W_ID = txnHandle->w_id;
        DEBUGMSG("nord w_id:" <<  nord->in_nord.s_W_ID << endl);

        if( (nord->in_nord.s_D_ID = atoi(commandBlock->get_D_ID()) )
== 0)
        {

doNewOrderErrorPage(html,ERR_INVALID_D_ID,commandBlock,txnHandle
);
                return OK;
        }
        DEBUGMSG("nord d_id:" <<  nord->in_nord.s_D_ID << endl);

        if((nord->in_nord.s_C_ID = atoi(commandBlock->get_C_ID()) ) ==
0)
        {

doNewOrderErrorPage(html,ERR_INVALID_C_ID,commandBlock,txnHandle
);
                return OK;
        }
        DEBUGMSG("nord c_id:" <<  nord->in_nord.s_C_ID << endl);

        int itemCmd                             = ITEM_START;
        short itemComplete = 0;
        char field[256] ={NULL};

        for (int itemIndex=0;itemIndex<NORD_ITEMS;itemIndex++)
        {
                //supply warehouse
                if( *(commandBlock->get_ITEM_SUPP_W(itemIndex))
)
                        if (
(nord->in_nord.in_item[nord->in_nord.s_O_OL_CNT].s_OL_SUPPLY_W_ID
= atoi(commandBlock->get_ITEM_SUPP_W(itemIndex))) == 0)
                        {

doNewOrderErrorPage(html,ERR_INVALID_SUPPLY_W_ID,commandBlock
,txnHandle);
                                return OK;
                        }
                        else
                                itemComplete++;

                //item number
                if(
*(commandBlock->get_ITEM_ITEM_NUM(itemIndex)) )
                {
                        if(itemComplete==1)
                        {
                                if (
(nord->in_nord.in_item[nord->in_nord.s_O_OL_CNT].s_OL_I_ID =
atoi(commandBlock->get_ITEM_ITEM_NUM(itemIndex))) == 0)
                                {

doNewOrderErrorPage(html,ERR_INVALID_ITEM_NUM,commandBlock,txn
Handle);
                                        return OK;
                                }
                                else
                                        itemComplete++;
                        }
                        //missing previous value of item supp
warehouse, flag error
                        else
                        {

doNewOrderErrorPage(html,ERR_INVALID_SUPPLY_W_ID,commandBlock
,txnHandle);
                                return OK;
                        }
                }
                else if( (itemComplete==1) ) //nothing in the command
block, check to see if the previous item value is present
                {

doNewOrderErrorPage(html,ERR_INVALID_ITEM_NUM,commandBlock,txn
Handle);
                        return OK;
                }

                //item qty
                if(*(commandBlock->get_ITEM_QTY(itemIndex)))
                {
                        if(itemComplete==2)
                        {
                                if(
(nord->in_nord.in_item[nord->in_nord.s_O_OL_CNT].s_OL_QUANTITY =
atoi(commandBlock->get_ITEM_QTY(itemIndex))) == 0)
                                {

doNewOrderErrorPage(html,ERR_INVALID_ITEM_OTY,commandBlock,txn
Handle);
                                        return OK;
                                }
                                else
                                        itemComplete++;
                        }
                        //missing previous value of item number
                        else if (itemComplete ==1)
                        {

doNewOrderErrorPage(html,ERR_INVALID_ITEM_NUM,commandBlock,txn
Handle);
                                return OK;
                        }
                        //missing 1st value of supp warehouse
                        else
                        {
```

```
doNewOrderErrorPage(html,ERR_INVALID_SUPPLY_W_ID,commandBlock
,txnHandle);
                                        return OK;
                                }
                        }
                        else if(itemComplete==2)                //nothing in
the command block, check to see if the previous item values are present
                        {

doNewOrderErrorPage(html,ERR_INVALID_ITEM_NUM,commandBlock,txn
Handle);
                                return OK;
                        }

                        DEBUGMSG("nord item:" <<
nord->in_nord.s_O_OL_CNT << "SUPPLY_W_ID:" <<
nord->in_nord.in_item[nord->in_nord.s_O_OL_CNT].s_OL_SUPPLY_W_ID
<<
                                " OL_I_ID:" <<
nord->in_nord.in_item[nord->in_nord.s_O_OL_CNT].s_OL_I_ID << "
OL_QUANTITY:" <<
nord->in_nord.in_item[nord->in_nord.s_O_OL_CNT].s_OL_QUANTITY
<<endl);

                        if(itemComplete == 3)
                                nord->in_nord.s_O_OL_CNT++;

                        itemComplete=0;
                }

                DEBUGMSG("complete nord
items:"<<nord->in_nord.s_O_OL_CNT<<" initializing remaing unused items "
<< NORD_ITEMS - nord->in_nord.s_O_OL_CNT  << " to 0" <<endl);
                for(int
itemIndex=nord->in_nord.s_O_OL_CNT;itemIndex<NORD_ITEMS;itemIndex
++)
                {

nord->in_nord.in_item[itemIndex].s_OL_SUPPLY_W_ID=0;
                        nord->in_nord.in_item[itemIndex].s_OL_I_ID = 0;
                        nord->in_nord.in_item[itemIndex].s_OL_QUANTITY
=0;
                }

                DEBUGMSG("nord creating new order results html title page"
<<endl);

                appendText(&html,"<HTML><HEAD><TITLE>TPC-C New Order
Results</TITLE></HEAD>\r\n"
                                                "<BODY><FORM
ACTION=\""
                                                APP_NAME
                                                "\"
METHOD=\"GET\">\r\n");
                //append menu buttons
                html+=appendButtons(html);
                html+=appendHiddenFields(html,txnHandle);

                appendText(&html,"</FORM><CENTER><H3>New Order</H3>
<BR></CENTER>"
                                        "<PRE>"
//                                              "       1       2       3
    4       5       6       7       8       9\r\n"
//
"1234567890123456789012345678901234567890123456789012345678901234567890123
4567890123456789012345678901234567890\r\n
                                                "");
                //assume failure
                nord->out_nord.s_transtatus = -1;

                DEBUGMSG("nord executing COM interface function" << endl);
                HRESULThres;
                try
                {
                        hres =
txnHandle->comInterface.comHandle->doNewOrder(&txnHandle->comInterfa
ce.size,(UCHAR**)&txnHandle->comInterface.txnBuffer);
                }
                catch(...)
                {
                        html+=sprintf(html,"ERROR: nord com call caused
exeception to occur.</PRE></BODY></HTML>");
                        ERRORMSG("ERROR : nord com call cause exeception
to occur,"<<endl);
                        return OK;
                }

                if(FAILED(hres))
                {
                        ERRORMSG("ERROR : nord com call failed, rc:" <<
hex  << hres);
                        DEBUGMSG("ERROR : nord com call failed, rc:" <<
hex  << hres);
                        return OK;
                }

                //com call successful, return object back to pool.
                hres = txnHandle->comInterface.comHandle->doSetComplete();
                if(FAILED(hres))
                {
                        ERRORMSG("ERROR : nord setcomplete call failed,
rc:" << hex  << hres);
                        DEBUGMSG("ERROR : nord setcomplete call failed,
rc:" << hex  << hres);
                }

                nord = (nord_wrapper *)txnHandle->comInterface.txnBuffer;
                if(FAILED(hres))
                {
                        html+=sprintf(html,"ERROR: nord com doSetComplete
failed, rc:%ld</PRE></BODY></HTML>",hres);
                        ERRORMSG("ERROR : nord com doSetComplete
failed, rc:"<<DEBUGADDRESS(hres)<<endl);
                        return OK;
                }

                DEBUGMSG("nord COM interface function successful,
s_transtatus:" << nord->out_nord.s_transtatus << endl);

                int rc = nord->out_nord.s_transtatus;

                char buffer[10];
                appendText(&html,"Warehouse:  ");
                appendText(&html,itoa(nord->in_nord.s_W_ID,buffer,10),6,1);

                appendText(&html,"District: ");
                appendText(&html,itoa(nord->in_nord.s_D_ID,buffer,10),26,1);

                appendText(&html,"Date: ");
                if(rc == OK)
                {
                        char dateTimeBuffer[50];

copyOutDateTime(dateTimeBuffer,nord->out_nord.s_O_ENTRY_D_time);
                        appendText(&html,dateTimeBuffer);
```

```
		}
		appendText(&html," <BR>"
				"Customer: ");
		appendText(&html,itoa(nord->in_nord.s_C_ID,buffer,10),8,1);

		appendText(&html,"Name: ");

appendText(&html,nord->out_nord.s_C_LAST,LAST_NAME_LEN+3,1);

		appendText(&html,"Credit: ");
		appendText(&html,nord->out_nord.s_C_CREDIT,5,1);

		appendText(&html,"%Disc.: ");
		if(rc == OK)
		{

html+=sprintf(html,"%2.2lf",nord->out_nord.s_C_DISCOUNT/100.0);
		}
		appendText(&html," <BR>"
				"Order Number: ");
		if(rc != INVALID_STATUS)

appendText(&html,itoa(nord->out_nord.s_O_ID,buffer,10),10,1);

		appendText(&html,"Number of Lines: ");

		if(rc != INVALID_STATUS)

appendText(&html,itoa(nord->out_nord.s_O_OL_CNT,buffer,10),10,1);

		appendText(&html,"W_Tax: ");
		if(rc == OK)
		{

html+=sprintf(html,"%5.2lf",nord->out_nord.s_W_TAX/100.0);
		}

		appendText(&html,"   D_Tax: ");
		if(rc == OK)
		{

html+=sprintf(html,"%5.2lf",nord->out_nord.s_D_TAX/100.0);
		}
		appendText(&html," <BR> <BR>"
//                                      "       1       2       3       4       5       6
   7       8       9\r\n"
//
"1234567890123456789012345678901234567890123456789012345678901234567890123
4567890123456789012345678901234567890\r\n"
                                        " Supp_W  Item_Id   Item_Name
Qty Stock  B/G  Price    Amount <BR> ");

		//display items
		if (rc == OK)
		{
			//display valid items
			for(int itemCount=0;itemCount <
nord->out_nord.s_O_OL_CNT;itemCount++)
			{

appendText(&html,itoa(nord->in_nord.in_item[itemCount].s_OL_SUPPLY_W
_ID,buffer,10),8,1);

appendText(&html,itoa(nord->in_nord.in_item[itemCount].s_OL_I_ID,buffer,1
0),10,1);

appendText(&html,nord->out_nord.item[itemCount].s_I_NAME,DEFAULT_S
TRING_LEN+1,1);

appendText(&html,itoa(nord->in_nord.in_item[itemCount].s_OL_QUANTITY,
buffer,10),5,1);

appendText(&html,itoa(nord->out_nord.item[itemCount].s_S_QUANTITY,buf
fer,10),7,1);
                                        html+=sprintf(html,"%c   $%-7.2lf $%-7.2lf
<BR> ",nord->out_nord.item[itemCount].s_brand_generic,


nord->out_nord.item[itemCount].s_I_PRICE/100.0,


nord->out_nord.item[itemCount].s_OL_AMOUNT/100.0);
                        }
                        //display blank line for remaining empty items in the
order
                        for(int lineBreaks=0;lineBreaks <
(NORD_ITEMS-nord->out_nord.s_O_OL_CNT);lineBreaks++)
                                        appendText(&html," <BR>");
                }
                else
                        appendText(&html," <BR> <BR> <BR> <BR> <BR>
<BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR>");

                appendText(&html,"\r\n <BR> ");

                html+=displayStatus(html,rc);
                if(rc == OK)
                        html+=sprintf(html,"      Total:
$%.2lf",nord->out_nord.s_total_amount/100.0);
                else
                        appendText(&html,"      Total: <BR>");

                appendText(&html,"</PRE></BODY> </HTML>");

                DEBUGMSG("nord html page complete.  returing to calling
function" << endl);

                return OK;
}

/*
*****************************************************************
** Name                         : doNewOrderErrorPage
** Description          :
**                                      HTML neworder page entry point
** Parameters           :
**                                      char *                  html result
page
**                                      char *                  error
message
**                                      htmlPhraser*  command block
**                                      TXN_HANDLE*     txn handle
struct
** Returns              :
**                                      int - return code
** Comments                     :
**
*****************************************************************
*/


int doNewOrderErrorPage(char *htmlPage,char *message,htmlPhraser
*commandBlock,TXN_HANDLE *txnHandle)
{
                char *html=htmlPage;
```

```
		appendText(&html,"<HTML><HEAD><TITLE>TPC-C New
Order</TITLE></HEAD>\r\n"
								"<BODY><FORM
ACTION=\""
								APP_NAME
								"\"
METHOD=\"GET\">\r\n"

"<CENTER><H3>Please Fill In New Order Form.</H3></CENTER>\r\n"
								"Submit Transaction
<INPUT TYPE=\"submit\" NAME=\""
								CMD_TXN_ID
								"\" VALUE=\""
								CMD_NORD
								"\">");

		//append the hidden warehouse and district fields
		html+=appendHiddenFields(html,txnHandle);

		//int buffer for warehouse
		char buffer[15];
		/*appendText(&html,"<PRE>	1	2	3	4	5
6	7	8	9\r\n"

"123456789012345678901234567890123456789012345678901234567890123
4567890123456789012345678901234567890\r\n"
								"Warehouse: ");*/
		appendText(&html,"<PRE>Warehouse: ");
		appendText(&html,itoa(txnHandle->w_id,buffer,10),7,1);
		appendText(&html,"District: <INPUT NAME=\""
								CMD_D_ID
								"\" SIZE=1>
		Date:<BR>"
		  "Customer <INPUT NAME=\""
								CMD_C_ID
								"\" SIZE=6>  Name:
	Credit:	%Disc.:<BR>"
								"Order Number:
Number of Lines:	W_tax:	D_tax:<BR> <BR>"
								//"	1	2	3
	4	5	6	7	8	9\r\n"

//"123456789012345678901234567890123456789012345678901234567890123
4567890123456789012345678901234567890\r\n"
								" Supp_W  Item_Num
Item_Name		Qty Stock  B/G  Price	Amount <BR> ");

		//append the 15 items commands
		html+=appendItems(html,NORD_ITEMS,ITEM_START);
		appendText(&html,message);

		//seal up html page
		appendText(&html,"</PRE></BODY></HTML>");

		return OK;
}


/*
*****************************************************************
** Name				: doPaymentForm
** Description		:
**
** Parameters		:
**
**
**
*****************************************************************
*/

int doPaymentForm(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle)
{
		char *html=txnHandle->htmlPage;
		appendText(&html,"<HTML><HEAD><TITLE>TPC-C
Payment</TITLE></HEAD>\r\n"
</TITLE>
</HEAD>
<BODY>
<FORM
ACTION="
APP_NAME
"
METHOD="GET">
"<CENTER><H3>Please Fill In Payment Form.</H3></CENTER> <BR>
"Submit Transaction
<INPUT TYPE="submit" NAME="
CMD_TXN_ID
" VALUE="
CMD_PYMT
">");
		html+=appendHiddenFields(html,txnHandle);
		appendText(&html,"<BR><PRE>\r\n"
"Date:<BR>"
"Warehouse: ");
		char buffer[15];
		appendText(&html,itoa(txnHandle->w_id,buffer,10));


		appendSpaces(&html,10);
		appendText(&html,"District: <INPUT NAME=\""
CMD_D_ID
"\" SIZE=1>\r\n<BR>"
"<BR> <BR> <BR>"
"Customer: "
"<INPUT NAME=\""
CMD_C_ID
"\" SIZE=5>"
"  "
"Cust-Warehouse: "
"<INPUT NAME=\""
CMD_C_W_ID
"\" SIZE=5>"
"  "
"Cust-District: "
"<INPUT NAME=\""
CMD_C_D_ID
"\" SIZE=1><BR>"
"Name:  <INPUT
NAME=\""
CMD_C_NAME
"\" SIZE=20>");
		appendText(&html,"	Since: <BR>"
"	"
"
Credit: <BR>"
"	"
"
%Disc: <BR>"
"Amount Paid:	"
"<INPUT NAME=\""
CMD_AMT_PAID
"\" SIZE=10>"
```

```
                                                        "          "
                                                        "New
Cust-Balance:<BR>"
                                                        "Credit Limit:<BR>
<BR>Cust-Data:<BR> <BR> <BR> <BR> </PRE>");

        return OK;
}

/*
****************************************************************
** Name                    : doPaymentResults
** Description     :
**                                         HTML neworder page entry point
** Parameters      :
**                                         htmlPhraser*        command
block
**                                         TXN_HANDLE*     txn handle
struct
** Returns         :
**                                 int - return code
** Comments                :
**
****************************************************************
*/

int doPaymentResults(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle)
{
        char *html=txnHandle->htmlPage;
        char buffer[50];

        struct paym_wrapper  *pymt = NULL;
        pymt = (paym_wrapper*)txnHandle->comInterface.txnBuffer;
        ZeroMemory(pymt,maxDataSize);

        //set login warehouse id from command block
        pymt->in_paym.s_W_ID = txnHandle->w_id;

        //set district from command block
        if( (pymt->in_paym.s_D_ID = atoi(commandBlock->get_D_ID()))
== 0)
        {

doPaymentErrorPage(html,ERR_INVALID_D_ID,commandBlock,txnHandle);
                return OK;
        }

        //set customer id from command block
        if( (pymt->in_paym.s_C_ID = atoi(commandBlock->get_C_ID()))
== 0)
        {
                if(*(commandBlock->get_C_NAME()) == NULL)
                {
                        //no customer id nor customer last name
specified.

doPaymentErrorPage(html,ERR_MISSING_C_ID_OR_CLAST,commandBloc
k,txnHandle);
                        return OK;
                }
                else

strcpy(pymt->in_paym.s_C_LAST,commandBlock->get_C_NAME());
        }
        else
        {
                //make sure that the user only inserted just c_id
                if(*(commandBlock->get_C_NAME()) != NULL)
                {

doPaymentErrorPage(html,ERR_C_ID_OR_CLAST_ONLY,commandBlock,tx
nHandle);
                        return OK;
                }
        }

        //get customer warehose id field
        if( (pymt->in_paym.s_C_W_ID =
atoi(commandBlock->get_C_W_ID())) == 0)
        {

doPaymentErrorPage(html,ERR_INVALID_C_W_ID,commandBlock,txnHand
le);
                return OK;
        }

        //get customer district id field
        if ( (pymt->in_paym.s_C_D_ID =
atoi(commandBlock->get_C_D_ID())) == 0)
        {

doPaymentErrorPage(html,ERR_INVALID_C_D_ID,commandBlock,txnHandl
e);
                return OK;
        }


if(!copyInMoney64(commandBlock->get_AMT_PAID(),&pymt->in_paym.s_H
_AMOUNT))
        {

doPaymentErrorPage(html,ERR_INVALID_PAYMENT_AMOUNT,command
Block,txnHandle);
                return OK;
        }

        appendText(&html,"<HTML><HEAD><TITLE>TPC-C Payment
Results</TITLE></HEAD>\r\n"
                                                "<BODY><FORM
ACTION=\""
                                                APP_NAME
                                                "\"
METHOD=\"GET\">\r\n");
        html+=appendButtons(html);

        html+=appendHiddenFields(html,txnHandle);


appendText(&html,"</FORM><CENTER><H3>Payment</H3></CENTER>")
;

        DEBUGMSG("Calling com entry api payment,
w_id:"<<pymt->in_paym.s_W_ID<<"
d_id:"<<pymt->in_paym.s_D_ID<<endl);

        //assume failure
        pymt->out_paym.s_transtatus = -1;
        HRESULThres;
        try
        {
                hres =
txnHandle->comInterface.comHandle->doPayment(&txnHandle->comInterface
.size,(UCHAR**)&txnHandle->comInterface.txnBuffer);
        }
        catch(...)
```

```
		{
			html+=sprintf(html,"ERROR: Com Payment call caused
exeception to occur.</PRE></BODY></HTML>");
			ERRORMSG("ERROR : Com Payment call caused
exeception to occur."<<endl);
			return OK;
		}

		if(FAILED(hres))
		{
			html+=sprintf(html,"ERROR: pymt com call failed,
rc:%x</PRE></BODY></HTML>",hres);
			ERRORMSG("ERROR : pymt com call failed,
rc:"<<hres<<endl);
			return OK;
		}

		hres = txnHandle->comInterface.comHandle->doSetComplete();
		if(FAILED(hres))
		{
			html+=sprintf(html,"ERROR: pymt com doSetComplete
failed, rc:%ld</PRE></BODY></HTML>",hres);
			ERRORMSG("ERROR : pymt com doSetComplete
failed, rc:"<<DEBUGADDRESS(hres)<<endl);
			return OK;
		}
		pymt = (paym_wrapper *)txnHandle->comInterface.txnBuffer;
		//get return code
		int rc = pymt->out_paym.s_transtatus;
		if( rc != OK)
		{
			html+=displayStatus(html,rc);
			appendText(&html,"</PRE></BODY></HTML>");
			ERRORMSG("Payment TXN ERROR"<<endl

<<"pymt->in_paym.s_C_D_ID:"<<pymt->in_paym.s_C_D_ID<<endl

<<"pymt->in_paym.s_C_ID:"<<pymt->in_paym.s_C_ID<<endl

<<"pymt->in_paym.s_C_LAST:"<<pymt->in_paym.s_C_LAST<<endl

<<"pymt->in_paym.s_C_W_ID:"<<pymt->in_paym.s_C_W_ID<<endl

<<"pymt->in_paym.s_D_ID:"<<pymt->in_paym.s_D_ID<<endl

<<"pymt->in_paym.s_H_AMOUNT:"<<pymt->in_paym.s_H_AMOUNT<<en
dl

<<"pymt->in_paym.s_H_DATE_time:"<<pymt->in_paym.s_H_DATE_time<<
endl

<<"pymt->in_paym.s_W_ID:"<<pymt->in_paym.s_W_ID<<endl

<<"pymt->out_paym.deadlocks:"<<pymt->out_paym.deadlocks<<endl

<<"pymt->out_paym.s_C_BALANCE:"<<pymt->out_paym.s_C_BALANCE<
<endl

<<"pymt->out_paym.s_C_CITY:"<<pymt->out_paym.s_C_CITY<<endl

<<"pymt->out_paym.s_C_CREDIT:"<<pymt->out_paym.s_C_CREDIT<<endl

<<"pymt->out_paym.s_C_CREDIT_LIM:"<<pymt->out_paym.s_C_CREDIT_
LIM<<endl

<<"pymt->out_paym.s_C_DATA:"<<pymt->out_paym.s_C_DATA<<endl

<<"pymt->out_paym.s_C_DISCOUNT:"<<pymt->out_paym.s_C_DISCOUNT
<<endl

<<"pymt->out_paym.s_C_FIRST:"<<pymt->out_paym.s_C_FIRST<<endl

<<"pymt->out_paym.s_C_ID:"<<pymt->out_paym.s_C_ID<<endl

<<"pymt->out_paym.s_C_LAST:"<<pymt->out_paym.s_C_LAST<<endl

<<"pymt->out_paym.s_C_MIDDLE:"<<pymt->out_paym.s_C_MIDDLE<<end
l

<<"pymt->out_paym.s_C_PHONE:"<<pymt->out_paym.s_C_PHONE<<endl

<<"pymt->out_paym.s_C_SINCE_time:"<<pymt->out_paym.s_C_SINCE_time
<<endl

<<"pymt->out_paym.s_C_STATE:"<<pymt->out_paym.s_C_STATE<<endl

<<"pymt->out_paym.s_C_STREET_1:"<<pymt->out_paym.s_C_STREET_1<
<endl

<<"pymt->out_paym.s_C_STREET_2:"<<pymt->out_paym.s_C_STREET_2<
<endl

<<"pymt->out_paym.s_C_ZIP:"<<pymt->out_paym.s_C_ZIP<<endl

<<"pymt->out_paym.s_D_CITY:"<<pymt->out_paym.s_D_CITY<<endl

<<"pymt->out_paym.s_D_STATE:"<<pymt->out_paym.s_D_STATE<<endl

<<"pymt->out_paym.s_D_STREET_1:"<<pymt->out_paym.s_D_STREET_1<
<endl

<<"pymt->out_paym.s_D_STREET_2:"<<pymt->out_paym.s_D_STREET_2<
<endl

<<"pymt->out_paym.s_D_ZIP:"<<pymt->out_paym.s_D_ZIP<<endl

<<"pymt->out_paym.s_H_DATE_time:"<<pymt->out_paym.s_H_DATE_time
<<endl

<<"pymt->out_paym.s_transtatus:"<<pymt->out_paym.s_transtatus<<endl

<<"pymt->out_paym.s_W_CITY:"<<pymt->out_paym.s_W_CITY<<endl

<<"pymt->out_paym.s_W_STATE:"<<pymt->out_paym.s_W_STATE<<endl

<<"pymt->out_paym.s_W_STREET_1:"<<pymt->out_paym.s_W_STREET_1
<<endl

<<"pymt->out_paym.s_W_STREET_2:"<<pymt->out_paym.s_W_STREET_2
<<endl

<<"pymt->out_paym.s_W_ZIP:"<<pymt->out_paym.s_W_ZIP<<endl);

				return OK;
		}
//		appendText(&html, "<BR><PRE>\r\n");
//		appendText(&html,"	1	2	3	4	5	6	7
	8<BR>");
//
appendText(&html,"12345678901234567890123456789012345678901234567
890123456789012345678901234567890<BR>");

		//start creating result body
		appendText(&html, "<BR><PRE>\r\n"
```

```
                                                "Date: ");

        copyOutDateTime(buffer,pymt->out_paym.s_H_DATE_time);
        appendText(&html,buffer);

        appendText(&html, "<BR>"
          "Warehouse: ");

appendText(&html,itoa(pymt->in_paym.s_W_ID,buffer,10),6+24,1);
        appendText(&html,"District: ");
        appendText(&html,itoa(pymt->in_paym.s_D_ID,buffer,10),2,1);
        appendText(&html,"<BR>");

        //print out warehouse and district information

appendText(&html,pymt->out_paym.s_W_STREET_1,STREET_LEN+21,1);

appendText(&html,pymt->out_paym.s_D_STREET_1,STREET_LEN,1);
        appendText(&html,"<BR>");


appendText(&html,pymt->out_paym.s_W_STREET_2,STREET_LEN+21,1);

appendText(&html,pymt->out_paym.s_D_STREET_2,STREET_LEN,1);
        appendText(&html,"<BR>");

        appendText(&html,pymt->out_paym.s_W_CITY,CITY_LEN+1,1);

appendText(&html,pymt->out_paym.s_W_STATE,STATE_LEN+1,1);
        copyOutZip(buffer,pymt->out_paym.s_W_ZIP);
        appendText(&html,buffer);

        appendText(&html,pymt->out_paym.s_D_CITY,CITY_LEN+1,1);

appendText(&html,pymt->out_paym.s_D_STATE,STATE_LEN+1,1);
        copyOutZip(buffer,pymt->out_paym.s_D_ZIP);
        appendText(&html,buffer);

        //print out customer information
        appendText(&html,"<BR> <BR>Customer: ");
        appendText(&html,itoa(pymt->out_paym.s_C_ID,buffer,10),5+1,1);

        appendText(&html,"Cust-Warehouse: ");

appendText(&html,itoa(pymt->in_paym.s_C_W_ID,buffer,10),6+1,1);

        appendText(&html,"Cust-District: ");
        appendText(&html,itoa(pymt->in_paym.s_C_D_ID,buffer,10));

        //add customer information
        appendText(&html,"<BR>Name:   ");

appendText(&html,pymt->out_paym.s_C_FIRST,FIRST_NAME_LEN+1,1);

appendText(&html,pymt->out_paym.s_C_MIDDLE,INITIALS_LEN+1,1);
        DEBUGMSG("Last name:"<<pymt->out_paym.s_C_LAST<<endl);

appendText(&html,pymt->out_paym.s_C_LAST,LAST_NAME_LEN+5,1);

        appendText(&html,"Since: ");
        copyOutDateTime(buffer,pymt->out_paym.s_C_SINCE_time);
        appendText(&html,buffer);

        appendText(&html,"<BR>");
        appendSpaces(&html,8);


appendText(&html,pymt->out_paym.s_C_STREET_1,STREET_LEN+20,1);
        appendText(&html," Credit: ");
        appendText(&html,pymt->out_paym.s_C_CREDIT);

        appendText(&html,"<BR>");
        appendSpaces(&html,8);


appendText(&html,pymt->out_paym.s_C_STREET_2,STREET_LEN+21,1);
        appendText(&html,"%Disc: ");

html+=sprintf(html,"%2.2lf",pymt->out_paym.s_C_DISCOUNT/100.0);

        appendText(&html,"<BR>");
        appendSpaces(&html,8);

        appendText(&html,pymt->out_paym.s_C_CITY,CITY_LEN+1,1);


appendText(&html,pymt->out_paym.s_C_STATE,STATE_LEN+1,1);

        copyOutZip(buffer,pymt->out_paym.s_C_ZIP);
        appendText(&html,buffer,15,1);

        appendText(&html,"Phone: ");
        copyOutPhone(buffer,pymt->out_paym.s_C_PHONE);
        appendText(&html,buffer);

        appendText(&html," <BR> <BR>Amount Paid: $");

html+=sprintf(html,"%-9.2lf",pymt->in_paym.s_H_AMOUNT/100.0);

        appendText(&html," New Cust-Balance: $");

html+=sprintf(html,"%-9.2lf",pymt->out_paym.s_C_BALANCE/100.0);

        appendText(&html,"<BR>Credit Limit: $");

html+=sprintf(html,"%-9.2lf",pymt->out_paym.s_C_CREDIT_LIM/100.0);

        appendText(&html," <BR> <BR>Cust-Data: ");
        if(pymt->out_paym.s_C_CREDIT[0] == 'B' &&
pymt->out_paym.s_C_CREDIT[1] == 'C')
        {
                appendCustData(&html,pymt->out_paym.s_C_DATA);
                appendText(&html," <BR>");
        }
        else
                appendText(&html," <BR> <BR> <BR>");

        html+=displayStatus(html,rc);
        appendText(&html,"</PRE></BODY></HTML>");

        return OK;
}
/*
*****************************************************************
** Name                    : doPaymentErrorPage
** Description     :
**                                         append payment error body
** Parameters      :
**                                         char *          html page
result
**                                         char *          error
message
**                                         htmlPhraser * command block
**                                         TXN_HANDLE*     txn handle
struct
** Returns         :
```

```
**                                                  int - return code
** Comments                          :
**
*****************************************************************
*/

int doPaymentErrorPage(char *htmlPage,char *message,htmlPhraser
*commandBlock,TXN_HANDLE *txnHandle)
{
        char *html=htmlPage;
        appendText(&html,"<HTML><HEAD><TITLE>TPC-C
Payment</TITLE></HEAD>\r\n"
                                                "<BODY><FORM
ACTION=\""
                                                APP_NAME
                                                "\"
METHOD=\"GET\">\r\n"

"<CENTER><H3>Please Fill In Payment Form.</H3></CENTER> <BR>\r\n"
                                                "Submit Transaction
<INPUT TYPE=\"submit\" NAME=\""
                                                CMD_TXN_ID
                                                "\" VALUE=\""
                                                CMD_PYMT
                                                "\">");
        html+=appendHiddenFields(html,txnHandle);
        appendText(&html,"<BR><PRE>\r\n"
                                                "Date:<BR>"
                                                "Warehouse: ");
        char buffer[15];
        appendText(&html,itoa(txnHandle->w_id,buffer,10));


        appendSpaces(&html,10);
        appendText(&html,"District: <INPUT NAME=\""
                                                CMD_D_ID
                                                "\" SIZE=1>\r\n<BR>"
                                                "<BR> <BR> <BR>
<BR>"
                                                "Customer: "
                                                "<INPUT NAME=\""
                                                CMD_C_ID
                                                "\" SIZE=5>"
                                                "  "
                                                "Cust-Warehouse: "
                                                "<INPUT NAME=\""
                                                CMD_C_W_ID
                                                "\" SIZE=6>"
                                                "  "
                                                "Cust-District: "
                                                "<INPUT NAME=\""
                                                CMD_C_D_ID
                                                "\" SIZE=1><BR>"
                                                "Name:  <INPUT
NAME=\""
                                                CMD_C_NAME
                                                "\" SIZE=20>");
        appendText(&html,"                      Since: <BR>"
                                                "                    "
                                                "
Credit: <BR>"
                                                "                    "
                                                "
%Disc: <BR>"
                                                "Amount Paid:        "
                                                "<INPUT NAME=\""
                                                CMD_AMT_PAID
                                                "\" SIZE=10>"
                                                "        "
                                                "New
Cust-Balance:<BR>"
                                                "Credit Limit:<BR>
<BR> <BR> Cust-Data:<BR> <BR> <BR> <BR> ");
        appendText(&html,message);
        appendText(&html,"</PRE>");

        return OK;
}

/*
*****************************************************************
** Name                          : doOrderStatusForm
** Description          :
**                                         HTML orderStatus page entry
point
** Parameters           :
**                                         htmlPhraser*         command
block
**                                         TXN_HANDLE*    txn handle
struct
** Returns              :
**                                         int - return code
** Comments                          :
**
*****************************************************************
*/

int doOrderStatusForm(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle)
{
        char *html=txnHandle->htmlPage;

        appendText(&html,"<HTML><HEAD><TITLE>TPC-C Order
Status</TITLE></HEAD>\r\n"
                                                "<BODY><FORM
ACTION=\""
                                                APP_NAME
                                                "\"
METHOD=\"GET\">\r\n"

"<CENTER><H3>Please Fill In Order Status Form.</H3></CENTER>
<BR>\r\n"
                                                "Submit Transaction
<INPUT TYPE=\"submit\" NAME=\""
                                                CMD_TXN_ID
                                                "\" VALUE=\""
                                                CMD_ORDS
                                                "\">"
                                                "<BR> ");
        html+=appendHiddenFields(html,txnHandle);

        appendText(&html,"<PRE>\r\n"
                                                "Warehouse: ");
        char buffer[15];
        appendText(&html,itoa(txnHandle->w_id,buffer,10));

        appendText(&html,"          District: <INPUT NAME=\""
                                                CMD_D_ID
                                                "\" SIZE=1>\r\n<BR>"
                                                "Customer: "
                                                "<INPUT NAME=\""
                                                CMD_C_ID
                                                "\" SIZE=5>"
                                                "  "
                                                "Name: "
                                                "<INPUT NAME=\""
```

```
                                                CMD_C_NAME
                                                "\" SIZE=20><BR>"
                                                "Cust-Balance: <BR>"
                                                "Order-Number:
Entry-Date:                 Carrier-Number<BR>"
                                                "Supply-W
Item-Num    Oty        Amount        Delivery<BR></PRE>");

        appendText(&html,"</BODY></HTML>");

        return OK;
}

/*
*****************************************************************
** Name                        : doOrderStatusResults
** Description         :
**                                     HTML orderStatus page entry
point
** Parameters          :
**                                     htmlPhraser*        command
block
**                                     char *              html result
page
** Returns             :
**                                     int - return code
** Comments                    :
**
*****************************************************************
*/

int doOrderStatusResults(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle)
{
        char *html=txnHandle->htmlPage;
        struct ords_wrapper    *ords = NULL;
        ords = (ords_wrapper *) txnHandle->comInterface.txnBuffer;
        ZeroMemory(ords,maxDataSize);

        //set warehouse login id from command blk
        ords->in_ords.s_W_ID = txnHandle->w_id;

        //set district login id from command blk
        if( (ords->in_ords.s_D_ID = atoi(commandBlock->get_D_ID())) ==
0)
        {

doOrderStatusErrorPage(html,ERR_INVALID_D_ID,commandBlock,txnHandl
e);
                return OK;
        }

        if( (ords->in_ords.s_C_ID = atoi(commandBlock->get_C_ID())) ==
0)
        {
                if(*(commandBlock->get_C_NAME()) == NULL)
                {
                        //no customer id nor customer last name
specified.

doOrderStatusErrorPage(html,ERR_MISSING_C_ID_OR_CLAST,commandBl
ock,txnHandle);
                        return OK;
                }
                else

strcpy(ords->in_ords.s_C_LAST,commandBlock->get_C_NAME());
        }
        else
        {
                //make sure that the user only inserted just c_id
                if(*(commandBlock->get_C_NAME()) != NULL)
                {

doOrderStatusErrorPage(html,ERR_C_ID_OR_CLAST_ONLY,commandBloc
k,txnHandle);
                        return OK;
                }
        }

        appendText(&html,"<HTML><HEAD><TITLE>TPC-C Order
Status Results</TITLE></HEAD>\r\n"
                                                "<BODY><FORM
ACTION=\""
                                                APP_NAME
                                                "\"
METHOD=\"GET\">\r\n");
        html+=appendButtons(html);

        html+=appendHiddenFields(html,txnHandle);

        appendText(&html,"</FORM>");

        ords->out_ords.s_transtatus = -1;

        HRESULThres;
        try
        {
                hres =
txnHandle->comInterface.comHandle->doOrderStatus(&txnHandle->comInterf
ace.size,(UCHAR**)&txnHandle->comInterface.txnBuffer);
        }
        catch(...)
        {
                html+=sprintf(html,"ERROR: ords com call caused
exeception.</PRE></BODY></HTML>");
                return OK;
        }

        if(FAILED(hres))
        {
                html+=sprintf(html,"ERROR: ords com call failed,
rc:%x</PRE></BODY></HTML>",hres);
                ERRORMSG("ERROR : ords com call failed,
rc:"<<DEBUGADDRESS(hres));
                return OK;
        }

        hres = txnHandle->comInterface.comHandle->doSetComplete();
        if(FAILED(hres))
        {
                html+=sprintf(html,"ERROR: ords com doSetComplete
failed, rc:%ld</PRE></BODY></HTML>",hres);
                ERRORMSG("ERROR : ords com doSetComplete failed,
rc:"<<DEBUGADDRESS(hres)<<endl);
                return OK;
        }

        ords = (ords_wrapper *)txnHandle->comInterface.txnBuffer;
        int rc = ords->out_ords.s_transtatus;
        if( rc != OK)
        {
                html+=displayStatus(html,rc);
                appendText(&html,"</PRE></BODY></HTML>");
                ERRORMSG("ERROR order status"<<endl
```

```
<<"ords->in_ords.s_C_ID:"<<ords->in_ords.s_C_ID<<endl

<<"ords->in_ords.s_C_LAST:"<<ords->in_ords.s_C_LAST<<endl

<<"ords->in_ords.s_D_ID:"<<ords->in_ords.s_D_ID<<endl

<<"ords->in_ords.s_W_ID:"<<ords->in_ords.s_W_ID<<endl

<<"ords->out_ords.deadlocks:"<<ords->out_ords.deadlocks<<endl

<<"ords->out_ords.s_C_BALANCE:"<<ords->out_ords.s_C_BALANCE<<en
dl

<<"ords->out_ords.s_C_FIRST:"<<ords->out_ords.s_C_FIRST<<endl

<<"ords->out_ords.s_C_ID:"<<ords->out_ords.s_C_ID<<endl

<<"ords->out_ords.s_C_ID:"<<ords->out_ords.s_C_ID<<endl

<<"ords->out_ords.s_C_MIDDLE:"<<ords->out_ords.s_C_MIDDLE<<endl

<<"ords->out_ords.s_O_CARRIER_ID:"<<ords->out_ords.s_O_CARRIER_ID
<<endl

<<"ords->out_ords.s_O_ENTRY_D_time:"<<ords->out_ords.s_O_ENTRY_D_
time<<endl

<<"ords->out_ords.s_O_ID:"<<ords->out_ords.s_O_ID<<endl

<<"ords->out_ords.s_ol_cnt:"<<ords->out_ords.s_ol_cnt<<endl);

                return OK;
        }

        //start creating result body

appendText(&html,"</FORM><CENTER><H3>Order-Status</H3></CENTE
R>");
        appendText(&html, "<BR><PRE>\r\nWarehouse: ");
        char buffer[50];

        appendText(&html,itoa(ords->in_ords.s_W_ID,buffer,10),6+1,1);
        appendText(&html,"District: ");
        appendText(&html,itoa(ords->in_ords.s_D_ID,buffer,10));
        appendText(&html,"<BR>"
                                        "Customer: ");
        //get customer id
        appendText(&html,itoa(ords->in_ords.s_C_ID,buffer,10),6+1,1);
        appendText(&html,"Name: ");
        //get first, middle, and last from wrapper

appendText(&html,ords->out_ords.s_C_FIRST,FIRST_NAME_LEN+1,1);

appendText(&html,ords->out_ords.s_C_MIDDLE,INITIALS_LEN+1,1);

appendText(&html,ords->out_ords.s_C_LAST,LAST_NAME_LEN+5,1);

        //get customer balance from wrapper
        appendText(&html,"\r\nCust-Balance: $");
        html+=sprintf(html,"%.2lf",ords->out_ords.s_C_BALANCE/100.0);

        //display order number, entry date, and carrier number
        appendText(&html,"<BR> <BR>"
                                        "Order-Number ");
        appendText(&html,itoa(ords->out_ords.s_O_ID,buffer,10),12,1);
        appendText(&html,"Entry-Date: ");
        copyOutDateTime(buffer,ords->out_ords.s_O_ENTRY_D_time);
        appendText(&html,buffer,22,1);

        appendText(&html,"Carrier-Number: ");

appendText(&html,itoa(ords->out_ords.s_O_CARRIER_ID,buffer,10));

        //add item title columns
        appendText(&html,"<BR>"
                                        "Supply-W     "
                                        "Item-Id    "
                                        "Qty    "
                                        "Amount      "
                                        "Delivery-Date<BR>
");

        //display items
        for (int
itemCount=0;itemCount<ords->out_ords.s_ol_cnt;itemCount++)
        {
//appendSpaces(&html,2);

                //get supp w

appendText(&html,itoa(ords->out_ords.item[itemCount].s_OL_SUPPLY_W_I
D,buffer,10),11,1);

                //get item num

appendText(&html,itoa(ords->out_ords.item[itemCount].s_OL_I_ID,buffer,10),
11,1);

                //get item oty

appendText(&html,itoa(ords->out_ords.item[itemCount].s_OL_QUANTITY,bu
ffer,10),6,1);

                //get item dollor amount

html+=sprintf(html,"$%-14.2lf",ords->out_ords.item[itemCount].s_OL_AMOU
NT/100.0);

                //get delivery date

copyOutDate(buffer,ords->out_ords.item[itemCount].s_OL_DELIVERY_D_ti
me);
                appendText(&html,buffer);
                appendText(&html," <BR>  ");

        }

        //append line breaks if item count is less than 15
        for (int itemCount=0;itemCount <
(15-ords->out_ords.s_ol_cnt);itemCount++)
                appendText(&html,"<BR> ");

        html+=displayStatus(html,rc);

        appendText(&html,"</PRE></BODY></HTML>");

        return OK;
}

/*
*****************************************************************
** Name                    : doOrderStatusErrorPage
** Description     :
**                                         HTML orderStatus error page
** Parameters      :
```

```
**                                          char *              html page
result
**                                          char *              error
message
**                                          htmlPhraser*        command
block
**                                          TXN_HANDLE*         txn handle
** Returns              :
**                                          int - return code
** Comments                        :
**
*****************************************************************
*/

int doOrderStatusErrorPage(char *htmlPage,char *message,htmlPhraser
*commandBlock,TXN_HANDLE *txnHandle)
{
        char *html=htmlPage;

        appendText(&html,"<HTML><HEAD><TITLE>TPC-C Order
Status</TITLE></HEAD>\r\n"
                                                    "<BODY><FORM
ACTION=\""
                                                    APP_NAME
                                                    "\"
METHOD=\"GET\">\r\n"

"<CENTER><H3>Please Fill In Order Status Form.</H3></CENTER>
<BR>\r\n"
                                                    "Submit Transaction
<INPUT TYPE=\"submit\" NAME=\""
                                                    CMD_TXN_ID
                                                    "\" VALUE=\""
                                                    CMD_ORDS
                                                    "\">"
                                                    "<BR> ");
        html+=appendHiddenFields(html,txnHandle);

        appendText(&html,"<PRE>\r\n"
                                                    "Warehouse: ");
        char buffer[15];
        appendText(&html,itoa(txnHandle->w_id,buffer,10));

        appendText(&html,"          District: <INPUT NAME=\""
                                                    CMD_D_ID
                                                    "\" SIZE=1>\r\n<BR>"
                                                    "Customer: "
                                                    "<INPUT NAME=\""
                                                    CMD_C_ID
                                                    "\" SIZE=5>"
                                                    "  "
                                                    "Name: "
                                                    "<INPUT NAME=\""
                                                    CMD_C_NAME
                                                    "\" SIZE=20><BR>"
                                                    "Cust-Balance: <BR>"
                                                    "Order-Number:
Entry-Date:             Carrier-Number<BR>"
                                                    "Supply-W
Item-Num    Oty       Amount       Delivery <BR>");

        appendText(&html,message);
        appendText(&html,"</PRE></BODY></HTML>");

        return OK;
}

/*
*****************************************************************
** Name                        : doDeliveryForm
** Description          :
**                                          HTML payment page entry point
** Parameters           :
**                                          htmlPhraser*        command
block
**                                          TXN_HANDLE*         txn handle
struct
** Returns              :
**                                          int - return code
** Comments                        :
**
*****************************************************************
*/
int doDeliveryForm(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle)
{
        char *html=txnHandle->htmlPage;

        appendText(&html,"<HTML><HEAD><TITLE>TPC-C
Delivery</TITLE></HEAD>\r\n"
                                                    "<BODY><FORM
ACTION=\""
                                                    APP_NAME
                                                    "\"
METHOD=\"GET\">\r\n"

"<CENTER><H3>Delivery.</H3></CENTER>\r\n"
                                                    "Submit Transaction
<INPUT TYPE=\"submit\" NAME=\""
                                                    CMD_TXN_ID
                                                    "\" VALUE=\""
                                                    CMD_DLVY
                                                    "\">");
        html+=appendHiddenFields(html,txnHandle);

        appendText(&html,"<BR> <PRE>"
                                                    "Warehouse: ");
        char buffer[10];
        appendText(&html,itoa(txnHandle->w_id,buffer,10));

        appendText(&html," <BR> <BR>"
                                                    "Carrier Number: "
                                                    "<INPUT NAME=\""

CMD_CARRIER_NUM
                                                    "\" SIZE=1>"
                                                    "</FORM></PRE>");

        appendText(&html,"</BODY></HTML>");

        return OK;
}

/*
*****************************************************************
** Name                        : doDeliveryResults
** Description          :
**                                          HTML payment page entry point
** Parameters           :
**                                          htmlPhraser*        command
block
**                                          TXN_HANDLE*         txn handle
** Returns              :
**                                          int - return code
** Comments                        :
**
```

```
*****************************************************************
*/

int doDeliveryResults(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle)
{
	char *html = txnHandle->htmlPage;

	//declare delivery structure
	struct dlvy_wrapper		dlvy;

	//set warehouse login id from command blk
	dlvy.in_dlvy.s_W_ID = txnHandle->w_id;

	//set the carrier id from command blk
	if( (dlvy.in_dlvy.s_O_CARRIER_ID =
atoi(commandBlock->get_CARRIER_NUM())) == 0)
	{

doDeliveryErrorPage(html,ERR_INVALID_CARRIER,commandBlock,txnHan
dle);
		return OK;
	}

	//print title, add hidden fields , txn buttons
	appendText(&html,"<HTML><HEAD><TITLE>TPC-C Delivery
Results</TITLE></HEAD>\r\n<BODY><FORM ACTION=\""
						APP_NAME
						"\"
METHOD=\"GET\">\r\n");

	html+=appendButtons(html);

	html+=appendHiddenFields(html,txnHandle);

	appendText(&html,
"<FORM><CENTER><H3>Delivery</H3></CENTER>");

	int rc =
queueDlvyTxn(dlvy.in_dlvy.s_W_ID,dlvy.in_dlvy.s_O_CARRIER_ID);
	if( rc != OK)
	{
		html+=displayStatus(html,rc);
		appendText(&html,"</PRE></BODY></HTML>\r\n");

		ERRORMSG("ERROR: Unable to queue dlvy txn,
rc:"<<rc<<endl);
		return OK;
	}

	//start creating result body
	appendText(&html,"Warehouse: ");

	//get w_id from wrapper
	char buffer[15];
	appendText(&html,itoa(dlvy.in_dlvy.s_W_ID,buffer,10));
	appendText(&html,"<BR> <BR>Carrier Number: ");

	//get carrier_id from wrapper

appendText(&html,itoa(dlvy.in_dlvy.s_O_CARRIER_ID,buffer,10));
	appendText(&html,"<BR> <BR>Execution Status: Delivery has
been queued </PRE></BODY></HTML>");

	return OK;
}

/*
*****************************************************************
** Name		: doDeliveryErrorPage
** Description	:
**		HTML payment error page entry
point
** Parameters	:
**		char *		html result
page
**		char *		error
message
**		htmlPhraser	command
block
**		TXN_HANDLE*	txn handle
**
** Returns	:
**		int - return code
** Comments	:
**
*****************************************************************
*/
int doDeliveryErrorPage(char *htmlPage,char *message,htmlPhraser
*commandBlock,TXN_HANDLE *txnHandle)
{
	char *html=htmlPage;

	appendText(&html,"<HTML><HEAD><TITLE>TPC-C
Delivery</TITLE></HEAD>\r\n"
						"<BODY><FORM
ACTION=\""
						APP_NAME
						"\"
METHOD=\"GET\">\r\n"

"<CENTER><H3>Delivery.</H3></CENTER>\r\n"
						"Submit Transaction
<INPUT TYPE=\"submit\" NAME=\""
						CMD_TXN_ID
						"\" VALUE=\""
						CMD_DLVY
						"\">");
	html+=appendHiddenFields(html,txnHandle);

	appendText(&html,"<BR> <PRE>"
						"Warehouse: ");
	char buffer[15];
	appendText(&html,itoa(txnHandle->w_id,buffer,10));

	appendText(&html," <BR> <BR>"
						"Carrier Number: "
						"<INPUT NAME=\""

CMD_CARRIER_NUM
						"\" SIZE=1> <BR>");

	appendText(&html,message);
	appendText(&html,"</PRE></BODY></HTML>");

	return OK;
}



/*
*****************************************************************
** Name		: doStockForm
** Description	:
**		HTML stock page entry point
** Parameters	:
```

```
**                                          htmlPhraser         command
block
**                                          TXN_HANDLE*     txn handle
** Returns              :
**                                          int - return code
** Comments                     :
**
*****************************************************************
*/

int doStockForm(htmlPhraser *commandBlock,TXN_HANDLE *txnHandle)
{
        char *html=txnHandle->htmlPage;
        appendText(&html,"<HTML><HEAD><TITLE>TPC-C Stock
Level</TITLE></HEAD>\r\n"
                                                "<BODY><FORM
ACTION=\""
                                                APP_NAME
                                                "\"
METHOD=\"GET\">\r\n"

"<CENTER><H3>Please Fill In Stock Form.</H3></CENTER> <BR>\r\n"
                                                "Submit Transaction
<INPUT TYPE=\"submit\" NAME=\""
                                                CMD_TXN_ID
                                                "\" VALUE=\""
                                                CMD_STOK
                                                "\">");
        html+=appendHiddenFields(html,txnHandle);

        appendText(&html,"<PRE>"
                                                "Warehouse: ");
        char buffer[15];
        appendText(&html,itoa(txnHandle->w_id,buffer,10),6+1,1);
        appendText(&html,"District: ");

        appendText(&html,itoa(txnHandle->d_id,buffer,10));
        appendText(&html," <BR> <BR>"
                                                "Stock Level
Threshold: "
                                                "<INPUT NAME=\""

CMD_STK_THRESHOLD
                                                "\" SIZE=1> <BR>
<BR>"
                                                "Low Stock: <BR>"
                                                "</PRE>");

        appendText(&html,"</FORM></BODY></HTML>");

        return OK;
}

/*
*****************************************************************
** Name                         : doStockResults
** Description          :
**                                          HTML stock page entry point
** Parameters           :
**                                          htmlPhraser*        command
block
**                                          TXN_HANDLE*     txn handle
struct
** Returns              :
**                                          int - return code
** Comments                     :
**
*****************************************************************
*/

int doStockResults(htmlPhraser *commandBlock,TXN_HANDLE *txnHandle)
{
        char *html = txnHandle->htmlPage;

        struct stok_wrapper     *stok;
        stok = (stok_wrapper*)txnHandle->comInterface.txnBuffer;
        ZeroMemory(stok,maxDataSize);

        //set warehouse login id from command blk
        stok->in_stok.s_W_ID = txnHandle->w_id;

        //set district login id from command blk
        stok->in_stok.s_D_ID = txnHandle->d_id;

        //set stock level threshold id from command blk
        if( (stok->in_stok.s_threshold =
atoi(commandBlock->get_STK_THRESHOLD())) == 0)
        {

doStockErrorPage(html,ERR_INVALID_THRESHOLD,commandBlock,txnHa
ndle);
                return OK;
        }
        //assume failure, set s_transtatus to err
        stok->out_stok.s_transtatus = INVALID_STATUS;

        //print title, add hidden fields , txn buttons
        appendText(&html,"<HTML><HEAD><TITLE>TPC-C Stock
Level Results</TITLE></HEAD>\r\n"
                                                "<BODY><FORM
ACTION=\""
                                                APP_NAME
                                                "\"
METHOD=\"GET\">\r\n");

        html+=appendButtons(html);

        html+=appendHiddenFields(html,txnHandle);

        appendText(&html,"</FORM>");

        stok->out_stok.s_transtatus = -1;

        DEBUGMSG("Calling com entry api for stock call,
w_id:"<<stok->in_stok.s_W_ID<<" d_id:"<<stok->in_stok.s_D_ID<<
                " threshold:"<<stok->in_stok.s_threshold<<endl);

        HRESULThres;
        try
        {
                hres =
txnHandle->comInterface.comHandle->doStockLevel(&txnHandle->comInterfa
ce.size,(UCHAR**)&txnHandle->comInterface.txnBuffer);
        }
        catch(...)
        {
                html+=sprintf(html,"ERROR: Com Stock call caused
exeception to occur.</PRE></BODY></HTML>");
                ERRORMSG("ERROR : Com Stock call caused
exeception to occur."<<endl;)
                return OK;
        }

        if(FAILED(hres))
        {
```

```
                html+=sprintf(html,"ERROR: stok com call failed,
rc:%ld</PRE></BODY></HTML>",hres);
                ERRORMSG("ERROR : stok com call failed,
rc:"<<DEBUGADDRESS(hres)<<endl);
                return OK;
        }

        hres = txnHandle->comInterface.comHandle->doSetComplete();
        if(FAILED(hres))
        {
                html+=sprintf(html,"ERROR: stok com doSetComplete
failed, rc:%ld</PRE></BODY></HTML>",hres);
                ERRORMSG("ERROR : stok com doSetComplete failed,
rc:"<<DEBUGADDRESS(hres)<<endl);
                return OK;
        }
        stok = (stok_wrapper *)txnHandle->comInterface.txnBuffer;
        int rc = stok->out_stok.s_transtatus;
        if(rc != OK)
        {
                html+=displayStatus(html,rc);
                appendText(&html,"</PRE></BODY></HTML>");
                ERRORMSG("ERROR stok txn failed"<<endl

<<"stok->in_stok.s_D_ID:"<<stok->in_stok.s_D_ID<<endl

<<"stok->in_stok.s_threshold:"<<stok->in_stok.s_threshold<<endl

<<"stok->in_stok.s_W_ID:"<<stok->in_stok.s_W_ID<<endl

<<"stok->out_stok.deadlocks:"<<stok->out_stok.deadlocks<<endl

<<"stok->out_stok.s_low_stock:"<<stok->out_stok.s_low_stock<<endl

<<"stok->out_stok.s_transtatus:"<<stok->out_stok.s_transtatus<<endl);
                return OK;
        }

        //start creating result body

appendText(&html,"<FORM><CENTER><H3>Stock-Level</H3></CENTER
>");
        appendText(&html, "<BR><PRE>\r\n"
                "Warehouse: ");

        //get w_id from wrapper
        char buffer[10];
        appendText(&html,itoa(stok->in_stok.s_W_ID,buffer,10),6+1,1);

        appendText(&html,"District: ");
        appendText(&html,itoa(stok->in_stok.s_D_ID,buffer,10));

        appendText(&html," <BR> <BR>"
                                        "Stock Level
Threshold: ");
        appendText(&html,itoa(stok->in_stok.s_threshold,buffer,10));

        appendText(&html," <BR> <BR>"
                                        "Low Stock: ");
        appendText(&html,itoa(stok->out_stok.s_low_stock,buffer,10));
        appendText(&html," <BR> <BR>");

        html+=displayStatus(html,rc);
        appendText(&html,"</PRE></BODY></HTML>");

        return OK;
}
```

```
/*
*************************************************************
** Name                    : doStockErrorPage
** Description     :
**                                     HTML stock page entry point
** Parameters      :
**                                     char *          html result
page
**                                     char *          query string
**                                     htmlPhraser     command
block
**                                     TXN_HANDLE *    handle for
this transaction
** Returns         :
**                                     int - return code
** Comments                :
**
*************************************************************
*/

int doStockErrorPage(char *htmlPage,char *message,htmlPhraser
*commandBlock,TXN_HANDLE *txnHandle)
{
        char *html=htmlPage;

        appendText(&html,"<HTML><HEAD><TITLE>TPC-C Stock
Level</TITLE></HEAD>\r\n"
                                        "<BODY><FORM
ACTION=\""
                                        APP_NAME
                                        "\"
METHOD=\"GET\">\r\n"

"<CENTER><H3>Please Fill In Stock Form.</H3></CENTER> <BR>\r\n"
                                        "Submit Transaction
<INPUT TYPE=\"submit\" NAME=\""
                                        CMD_TXN_ID
                                        "\" VALUE=\""
                                        CMD_STOK
                                        "\">");
        html+=appendHiddenFields(html,txnHandle);

        appendText(&html,"<PRE>"
                                        "Warehouse:  ");
        char buffer[15];
        appendText(&html,itoa(txnHandle->w_id,buffer,10));
        appendSpaces(&html,2);
        appendText(&html,"District: ");
        appendText(&html,commandBlock->get_D_ID());
        appendText(&html," <BR> <BR>"
                                        "Stock Level
Threshold: "
                                        "<INPUT NAME=\""

CMD_STK_THRESHOLD
                                        "\" SIZE=1> <BR>
<BR>"
                                        "Low Stock: <BR>");

        appendText(&html,message);


        appendText(&html,"</PRE></FORM></BODY></HTML>");

        return OK;
}
```

```
/*
*****************************************************************
** Name                    : doExit
** Description             :
**                                         HTML exit page entry point
** Parameters              :
**                                         htmlPhraser*        command
block
**                                         TXN_HANDLE*         txn handle
struct
** Returns                 :
**                                         int - return code
** Comments                :
**
*****************************************************************
*/
int doExit(htmlPhraser *commandBlock,TXN_HANDLE *txnHandle)
{
        return (doLoginForm(commandBlock,txnHandle));
}

/*
*****************************************************************
** Name                    : displayStatus
** Description             :
**                                         appends status string to the html
page
** Parameters              :
**                                         char*               html page
**                                         int                 rc
** Returns                 :
**                                         amount of characters the function
appened
**                                         to the html page
** Comments                :
**
*****************************************************************
*/
int displayStatus(char *htmlPage,int rc)
{
        char *html = htmlPage;

        appendText(&html,"");

        switch (rc)
        {
        case OK:
                appendText(&html,"Execution Status: Transaction
Committed",50,1);
                break;
        case INVALID_ITEM:
                appendText(&html,"Execution Status: Item number is not
valid",50,1);
                break;
        case INVALID_STATUS:
                appendText(&html,"Execution Status: ERROR: Rollback
INVALID_STATUS",50,1);
                break;
        case INVALID_COM_STATUS:
                appendText(&html,"Execution Status: ERROR: Rollback
COM FAILURE",50,1);
                break;
        case ERR_DLVY_QUEUE_FULL:
                appendText(&html,"Execution Status: ERROR: Rollback
DLVY QUEUE FULL",50,1);
                break;
        default:
                appendText(&html,"Execution Status: ERROR:
Rollback",50,1);

        };

        appendText(&html,"    ");

        return (int)(html - htmlPage);
}
/*
*****************************************************************
** Name                    : appendButtons
** Description             :
**                                         append hidden field to recognize
user after login
**
** Parameters              :
**                                         *htmlPage
html result page
**                                         *TXN_HANDLE
txn handle
** Returns                 :
**                                         int
amount of characters the function appened
**
        to the html page
** Comments                :
**
*****************************************************************
*/
int appendHiddenFields(char *htmlPage,TXN_HANDLE *txnHandle)
{
        char *html = htmlPage;
        char buffer[15];

        appendText(&html,"<INPUT TYPE=\"hidden\" NAME=\""
                                                CMD_TERM_ID
                                                "\" VALUE=\"");
        appendText(&html,itoa(txnHandle->term_id,buffer,10));
        appendText(&html,"\">\r\n");

        return (int)(html-htmlPage);

}
/*
*****************************************************************
** Name                    : appendButtons
** Description             :
**                                         appends buttons transaction
buttons to result page
** Parameters              :
**                                         *htmlPage
**
** Returns                 :
**                                         amount of characters the function
appened
**                                         to the html page
** Comments                :
**
*****************************************************************
*/
int appendButtons(char *htmlPage)
{
        char *html = htmlPage;

        appendText(&html,"<INPUT TYPE=\"submit\" NAME=\""
                                                CMD_TXN_ID
                                                "\" VALUE=\""
```

```
                                                CMD_NORD
                                                "\">\r\n"
                                                "<INPUT
TYPE=\"submit\" NAME=\""
                                                CMD_TXN_ID
                                                "\" VALUE=\""
                                                CMD_PYMT
                                                "\">\r\n"
                                                "<INPUT
TYPE=\"submit\" NAME=\""
                                                CMD_TXN_ID
                                                "\" VALUE=\""
                                                CMD_ORDS
                                                "\">\r\n"
                                                "<INPUT
TYPE=\"submit\" NAME=\""
                                                CMD_TXN_ID
                                                "\" VALUE=\""
                                                CMD_DLVY
                                                "\">\r\n"
                                                "<INPUT
TYPE=\"submit\" NAME=\""
                                                CMD_TXN_ID
                                                "\" VALUE=\""
                                                CMD_STOK
                                                "\">\r\n"
                                                "<INPUT
TYPE=\"submit\" NAME=\""
                                                CMD_TXN_ID
                                                "\" VALUE=\""
                                                CMD_EXIT
                                        "\">\r\n <BR>");

        return (int)(html - htmlPage);
}

/*
*****************************************************************
** Name                        : appendItems
** Description         :
**                                        appends items to new order and
order status page
** Parameters          :
**                                        *htmlPage
        html result page
**                                        short
        items to append
**                                        short
        item CMD id start
**
** Returns             :
**                                        amount of characters the function
appened
**                                        to the html page
** Comments                    :
**
*****************************************************************
*/
int appendItems(char *htmlPage,short itemCount,short cmdIDStart)
{
        char *html = htmlPage;
        char numBuffer[MAX_INT_BUFFER];

        for(int item=0;item < itemCount;item++)
        {
                appendText(&html,"<BR> <INPUT NAME=\"");
                appendText(&html,itoa(cmdIDStart++,numBuffer,10));
                appendText(&html,"\" SIZE=6> <INPUT NAME=\"");
                appendText(&html,itoa(cmdIDStart++,numBuffer,10));
                appendText(&html,"\" SIZE=6>
<INPUT NAME=\"");
                appendText(&html,itoa(cmdIDStart++,numBuffer,10));
                appendText(&html,"\" SIZE=2>\r\n");
        }

        return (int)(html - htmlPage);
}

/*
*****************************************************************
** Name                        : dlvyThreadEntry
** Description         :
**                                        dlvy thread worker entry point
** Parameters          :
**
** Returns             :
**
** Comments                    :
**                                        All dlvy threads created by
initDly enter at
**                                        this point.  They must first make a
connection
**                                        to the database, then go to sleep.
**
**                                        Main isapi threads control dlvy
worker semaphore
**                                        and signal when a dlvy txn is
queued.
**
*****************************************************************
*/

void dlvyThreadEntry(void *)
{
        int                     rc = 0;

        DEBUGMSG("dlvyThread " << GetCurrentThreadId() << " entered
dlvyThreadEntry, calling db_connect to db:" << dbName << endl);

        void *connectHandle;
        //connect to database.
        DEBUGMSG("ptr created. calling db_connect to db:" << dbName
<< endl);
        rc = db_connect(dbName,&connectHandle);

        if(rc != OK)
        {
                ERRORMSG("dlvyThread " << GetCurrentThreadId()
<<" unable to connect to database, rc:" << rc << endl);
                DEBUGMSG("dlvyThread " << GetCurrentThreadId()
<<" unable to connect to database, rc:" << rc << endl);
                return;
        }

        DEBUGMSG("dlvyThread " << GetCurrentThreadId() << " connect
to db:" << dbName << " successful" << endl);

        FILE *dlvyLog = NULL;
        char logFileName[MAX_STRING_LEN] = {NULL};

        EnterCriticalSection(&isapiLock);
        //open dlvy log file for this thread
        sprintf(logFileName,"%s\\del_%d.txt",dlvyLogPath,dlvyThreadID);
        dlvyLog = fopen(logFileName,"w");
        if(!dlvyLog)
        {
```

```
                ERRORMSG("dlvyThread " << GetCurrentThreadId()
<< " unable to open dlvy log "
                        << dlvyLogPath << "\\del_" <<
dlvyThreadID << endl);
                DEBUGMSG("dlvyThread " << GetCurrentThreadId()
<< " unable toopen dlvy log "
                        << dlvyLogPath << "\\del_" <<
dlvyThreadID << endl);
                return;
        }

        //increment the global dlvy thread id
        dlvyThreadID++;

        LeaveCriticalSection(&isapiLock);

        DEBUGMSG("dlvyThread " << GetCurrentThreadId() <<" dlvy log
file name: " << logFileName << " open." << endl);

        HANDLE  workerHandles[2];
                //handle array to store event to wait on

        struct  DLVYQUEUEDATA           dlvyQueueData;
        //dlvy queue struct to store queued txn
        struct  dlvy_wrapper            dlvyTxn;
        //dlvy wrapper of db2 structs

        struct  _timeb
endQueueTime;                   //time stamp to queue removal time
        struct  _timeb
endProcessTime;                 //time stamp for end process time

        char    orderIDs[MAX_STRING_LEN] = {NULL};
        //string to store oids for each district
        int             bytesWritten =  0;
        int             dlvyCount  =    0;

        DEBUGMSG("dlvyThread entering work loop" << endl);

        //successful, while true
        while(true)
        {
                try
                {
                        DEBUGMSG("dlvyThread initializing wait
handles" << endl);

                        //wait for both program exit AND if there is
work to do
                        workerHandles[0] = dlvyThreadDone;
                        workerHandles[1] = dlvyThreadSemaphore;

                        DEBUGMSG("dlvyThread going to sleep
waiting for wrk" << endl);

                        rc =
WaitForMultipleObjects(2,&workerHandles[0],FALSE,INFINITE);

                        DEBUGMSG("dlvyThread awake, checking
wake condition" << endl);

                        if(rc == WAIT_OBJECT_0)
                                break;
                        else if(rc == (WAIT_OBJECT_0+1) )
                        {
                                DEBUGMSG("dlvyThread awake,
wake condition of dlvyThreadSemaphore" << endl);
                        }
                        DEBUGMSG("dlvyThread trying to enter
critical section" << endl);

                        EnterCriticalSection(&dlvyQueueLock);

                        DEBUGMSG("dlvyThread entered critical
section" << endl);

                        //remove queued dlvy txn
                        dlvyQueueData.enqueueTime.time
=       dlvyQueue[dlvyBufferThreadIndex].enqueueTime.time;
                        dlvyQueueData.enqueueTime.millitm       =
dlvyQueue[dlvyBufferThreadIndex].enqueueTime.millitm;
                        dlvyQueueData.in_s_0_CARRIER_ID
=       dlvyQueue[dlvyBufferThreadIndex].in_s_0_CARRIER_ID;
                        dlvyQueueData.warehouse
        =       dlvyQueue[dlvyBufferThreadIndex].warehouse;

                        DEBUGMSG("dlvyThread removed dlvy:"
<< dlvyCount << ",w_id:" << dlvyQueueData.warehouse

<< " carrier_id:" << dlvyQueueData.in_s_0_CARRIER_ID << endl);

                        DEBUGMSG("dlvyThread removed dlvy in
queue index: " <<dlvyBufferThreadIndex<< " w_id: " <<
dlvyQueueData.warehouse

 << " carrier_id: " << dlvyQueueData.in_s_0_CARRIER_ID << endl);

                        //increment the number of free slots
                        dlvyBufferFreeSlots++;

                        //increment the thread index to next slot in
dlvy queue
                        dlvyBufferThreadIndex++;

                        DEBUGMSG("dlvyThread incremented
amount of free slots:" << dlvyBufferFreeSlots << " and thread index:" <<

        dlvyBufferThreadIndex << endl);
                        //check if we reached the end of dlvy queue, if
so, reset back index back to 0
                        if(dlvyBufferThreadIndex == dlvyQueueLen)
                        {
                                DEBUGMSG("dlvyThread  reset
dlvyBufferThreadIndex to 0, current dlvyBufferThreadIndex:" <<
dlvyBufferThreadIndex
                                                << " free
slots:"<<dlvyBufferFreeSlots<<endl);
                                dlvyBufferThreadIndex=0;

                        }
                        DEBUGMSG("dlvyThread releasing critical
section" << endl);

                        LeaveCriticalSection(&dlvyQueueLock);

                        //take enqueue time
                        _ftime(&endQueueTime);

                        DEBUGMSG("dlvyThread executing txn
w_id:" << dlvyQueueData.warehouse
                                                << " carrier_id:" <<
dlvyQueueData.in_s_0_CARRIER_ID << endl);

                        //prepare to call database
```

```
                                dlvyTxn.in_dlvy.s_O_CARRIER_ID          =
dlvyQueueData.in_s_0_CARRIER_ID;
                                dlvyTxn.in_dlvy.s_W_ID
=               dlvyQueueData.warehouse;
                                dlvyTxn.out_dlvy.s_transtatus     =  -1;

                                //increment dlvy count
                                dlvyCount++;

                                DEBUGMSG("dlvyThread %d calling dlvy
txn" << rc << endl);

                                //call dvly txn
                                rc = dlvyCall(&dlvyTxn,connectHandle);

                                _ftime(&endProcessTime);

                                rc = dlvyTxn.out_dlvy.s_transtatus;

                                DEBUGMSG("dlvy txn response time:"<<
                                        ((((endProcessTime.time -
endQueueTime.time)*1000)+

(endProcessTime.millitm - endQueueTime.millitm))/1000.0)<<
                                                        "
w_id:"<<dlvyTxn.in_dlvy.s_W_ID<<" carrier:"
<<dlvyTxn.in_dlvy.s_O_CARRIER_ID<<
                                                        "
deadLocks:"<<dlvyTxn.out_dlvy.deadlocks<<" rc: "<< rc <<endl);

                                DEBUGMSG("dlvyThread dlvy s_transtatus:"
<< rc << endl);

                                if(rc == OK)
                                {
                                        bytesWritten=0;
                                        char *buffer = orderIDs;

                                        for(int
districtIndex=0;districtIndex <
DISTRICTS_PER_WAREHOUSE;districtIndex++)
                                        {

if(dlvyTxn.out_dlvy.s_O_ID[districtIndex] == 0)
                                                        bytesWritten
= sprintf(buffer,"\nD_ID %d had no new orders",districtIndex);
                                                else
                                                        bytesWritten
= sprintf(buffer,"%d ",dlvyTxn.out_dlvy.s_O_ID[districtIndex]);


                                                buffer+=bytesWritten;
                                        }
                                }
                                else
                                        sprintf(orderIDs,"\nDelivery
transaction failed");



fprintf(dlvyLog,DELIVERY_LOG_SUCCESS_STR,

dlvyCount,

dlvyQueueData.enqueueTime.time,

dlvyQueueData.enqueueTime.millitm,

endQueueTime.time,

endQueueTime.millitm,

dlvyQueueData.warehouse,

dlvyQueueData.in_s_0_CARRIER_ID,

orderIDs,

endProcessTime.time,

endProcessTime.millitm);

                                fflush(dlvyLog);
                        }
                        catch(...)
                        {
                                ERRORMSG("ERROR: Unhandled
exception in dlvy thread. Thread exiting"<<endl);
                                fprintf(dlvyLog,"ERROR: Unhandled
exception in dlvy thread %ld. Thread exiting.\n",GetCurrentThreadId());
                                fflush(dlvyLog);

                                LeaveCriticalSection(&dlvyQueueLock);
                        }
                }//end while true
}

/*
*****************************************************************
** Name                         : queueDlvyTxn
** Description          :
**                                        function queues dlvy txn in dlvy
queue
** Parameters           :
**                                        int                     warehouse
**                                        short                   carrier
** Returns              :
**                                        int                     error code
** Comments                     :
**                                                Function will queue
dlvy txn if 2 points are true
**                                                1) We have room in our
dlvy buffer
**                                                2) We writing over the
end of the queue
**
*****************************************************************
*/

int queueDlvyTxn(int warehouse, short carrier_id)
{
                DEBUGMSG("Taking lock to queue dlvy txn.");

                EnterCriticalSection(&dlvyQueueLock);

                DEBUGMSG("Lock aquired to queue dlvy txn");

                if(dlvyBufferFreeSlots)
                {
                        DEBUGMSG("Checking if we are inserting at tail of
dlvy queue."<<endl);
                        if( dlvyBufferSlotIndex == (dlvyBufferThreadIndex-1))
                        {
                                ERRORMSG("Error dlvy queue inserting
over unserviced queued dlvy txn."<<endl);
```

```
                                DEBUGMSG("Error dlvy queue inserting
over unserviced queued dlvy txn."<<endl);
                                LeaveCriticalSection(&dlvyQueueLock);
                                return
ERR_DLVY_QUEUE_EATING_TAIL;
                        }
                        DEBUGMSG("free slots dlvy
queue:"<<dlvyBufferFreeSlots<<" inserting txn in slot: "
<<dlvyBufferSlotIndex<<
                                "w_id: "<<warehouse<<" carrier:
"<<carrier_id<<endl);

                        dlvyQueue[dlvyBufferSlotIndex].warehouse =
warehouse;
                        dlvyQueue[dlvyBufferSlotIndex].in_s_0_CARRIER_ID
= carrier_id;


_ftime(&dlvyQueue[dlvyBufferSlotIndex].enqueueTime);

                        //decrement the number of free slots in the buffer
                        dlvyBufferFreeSlots--;


                        //increment the index to the next dlvy queue slot.
                        dlvyBufferSlotIndex++;


                        DEBUGMSG("dlvy txn queued, slots available in
queue:"<<dlvyBufferFreeSlots<<" queue slot index:"<<dlvyBufferSlotIndex
                                        <<"w_id:"<<warehouse<<"
carrier:"<<carrier_id<<endl);

                        DEBUGMSG("dlvy txn queued, slots available in queue:
"<<dlvyBufferFreeSlots<<" queue slot index: "<<dlvyBufferSlotIndex
                                        <<" w_id: "<<warehouse<<"
carrier: "<<carrier_id<<endl);

                        if(dlvyBufferSlotIndex == dlvyQueueLen)
                        {
                                DEBUGMSG("queue slot index hit end of
queue, reset to 0, current index:"<<dlvyBufferSlotIndex<<" free
slots:"<<dlvyBufferFreeSlots<<endl);
                                dlvyBufferSlotIndex=0;
                        }
                }
                else
                {
                        //no slots available in dlvy buffer, release critcal section
and return an nord->in_nord.in_item
                        LeaveCriticalSection(&dlvyQueueLock);
                        ERRORMSG("dlvy queue buffer full, increase the dlvy
queue length."<<endl);
                        return ERR_DLVY_QUEUE_FULL;
                }

                LeaveCriticalSection(&dlvyQueueLock);

                //release semaphore to wake thread that there is work
                ReleaseSemaphore(dlvyThreadSemaphore,1,NULL);

                return OK;
}


/*
**************************************************************
** Name                        : doHtml
** Description         :
**                                        HTML processing page entry
point
** Parameters          :
**                                        txn handle
** Returns             :
**                                        int - return code
** Comments                    :
**
**************************************************************
*/

void doHtml(TXN_HANDLE *txnHandle)
{
                DEBUGMSG("Entered doHtml(), parsing query string:"<<
txnHandle->urlString << " into command block"<< endl);
                htmlPhraser             commandBlock(txnHandle->urlString);
                DEBUGMSG("Query string parsed.  command:"<<
commandBlock.getCommandId() << " user's terminal id:" <<
commandBlock.get_TERM_ID() << endl);

                int terminalID = atoi(commandBlock.get_TERM_ID());
                int commandID = commandBlock.getCommandId();

                DEBUGMSG("User sent in a terimal id:"<<terminalID<<", checking
to see if user has logged in before"<<endl);
                if(terminalID > 0)
                {
                        DEBUGMSG("Terminal id > 0, user has logged in
already, terminalID:"<<terminalID<<" retrieving warehouse district
pair"<<endl);
                        if(getTerminal(terminalID,txnHandle) != OK)
                                return;
                        DEBUGMSG("User had valid terminal id, user's login
warehouse:"<<txnHandle->w_id<<" district:"<<txnHandle->d_id<<endl);
                }
                else
                {
                        DEBUGMSG("User did not submit a terminal id or valid
terminal id, ensure that the user is trying to log in."<<endl);
                        if( (commandID != TXN_LOGIN) && (commandID !=
TXN_LOGIN_RESULTS) )
                        {
                                DEBUGMSG("ERROR : User has not logged
in."<<endl);
                                ERRORMSG("ERROR : User has not logged
in."<<endl);
                                sprintf(txnHandle->htmlPage,"ERROR: User
has not logged in or did not submit a valid terminal.");
                                return;
                        }
                        DEBUGMSG("User is in process of logging in,
commandID:"<<commandID<<endl);
                }

                DEBUGMSG("Calling html page
function:"<<commandBlock.getCommandId()<<endl);
                int rc =
htmlPageFunctions[commandBlock.getCommandId()](&commandBlock,txnHa
ndle);
                DEBUGMSG("Return from html page
function:"<<commandBlock.getCommandId()<<endl);

                return;
}

/*
**************************************************************
```

```
** Name                          : getTerminal
** Description          :
**                                          retrieves terminal information
based on terminal id
** Parameters          :
**                                          int
terminal id
**                                          TERM_HANDLE*   txn handle
** Returns             :
**                                          int - return code
** Comments                       :
**
*****************************************************************
*/
int getTerminal(int terminal,TXN_HANDLE *txnHandle)
{
        //check to see if terminal id is out of range
        if(terminal >= numUsers)
        {
                //terminal id not valid.
                sprintf(txnHandle->htmlPage,"ERROR: Client does not
support more than %d users, terminal id:%d",numUsers,terminal);
                ERRORMSG("ERROR : Client does not support more
than "<<numUsers<<" users, terminal id:"<<terminal<<endl);
                return ERR;
        }

        //check if terminal id is points to a not in use terminal
        if(!(termArray+terminal)->terminalInUse)
        {
                sprintf(txnHandle->htmlPage,"ERROR: Terminal id
given points to a not in use terminal.");
                ERRORMSG("ERROR :  Terminal id given points to a
not in use terminal."<<endl);
                return ERR;
        }

        DEBUGMSG("Storing terminal warehouse, district , and initial term
id for user:"<<terminal<<endl);

        //assign terminal values to txn_handle
        txnHandle->d_id = termArray[terminal].d_id;
        txnHandle->w_id = termArray[terminal].w_id;
        txnHandle->term_id = termArray[terminal].terminalID;

        DEBUGMSG("Users terminal:"<<terminal<<", stored
warehouse:"<<txnHandle->w_id<<
                        " district:"<<txnHandle->d_id<<" termialID
stored:"<<txnHandle->term_id<<endl);

        return OK;
}

/*
*****************************************************************
** Name                          : assignTerminal
** Description          :
**                                          assigns terminal index to user
** Parameters          :
**                                          TERM_HANDLE*   txn handle
** Returns             :
**                                          int - return code
** Comments                       :
**
*****************************************************************
*/
int assignTerminal(TXN_HANDLE *txnHandle)
{
        EnterCriticalSection(&termLock);

        //check if terminal array is full.
        if(termNextFree == numUsers)
        {
                LeaveCriticalSection(&termLock);
                return ERR;
        }

        DEBUGMSG("Storing user warehouse:"<<txnHandle->w_id<<"
district:"<< txnHandle->d_id<<
                        " in terminal slot:"<<termNextFree<<endl);

        //store users w_id and d_id
        termArray[termNextFree].d_id = txnHandle->d_id;
        termArray[termNextFree].w_id = txnHandle->w_id;

        //set terminal slot to be in use
        termArray[termNextFree].terminalInUse = true;
        termArray[termNextFree].terminalID = termNextFree;
        //in txn handle, set the terminal id
        txnHandle->term_id = termNextFree;

        //increment to next free terminal.
        termNextFree++;

        DEBUGMSG("User warehouse:"<<txnHandle->w_id<<"
district:"<< txnHandle->d_id <<
                        " stored in terminal slot:"<<txnHandle->term_id<<" next
terminal free:"<<termNextFree<<endl);

        LeaveCriticalSection(&termLock);

        return OK;
}
```

TpccIsapi.def

```
; tpccIsapi.def : declares the module parameters for the DLL.

LIBRARY     "tpccIsapi"

EXPORTS
        HttpExtensionProc
        GetExtensionVersion
        TerminateExtension
```

TpccIsapi.hpp

```
/*
*****************************************************************
** Project             : AIX
** Component           : Performance/TPC-W Benchmark
** Name                          : tpccIsapi.hpp
** Title               : ISAPI interface for tpcc
*****************************************************************
** Copyright (c) 2001,2002 IBM Corporation
** All rights reserved
*****************************************************************
** History       :
**              Developed at IBM Austin by the AIX RS/6000
**              performance group.
**
```

```
** Comments      :
**
*****************************************************************
*/

#ifndef __tpccISAPI_hpp__
#define __tpccISAPI_hpp__

#include <windows.h>
#include <httpext.h>

#include <tpcc.h>
#include <htmlPhraser.h>
#include <iomanip>

#include <db2tpcc.h>
#include <comsvcs.h>

//////////////////////////////////////////////////////////////////
// Terminal struct
//////////////////////////////////////////////////////////////////
struct TERM_ENTRY
{
        int             terminalID;
        bool    terminalInUse;
        int             w_id;
        short   d_id;
};

//////////////////////////////////////////////////////////////////
// COM interface
//////////////////////////////////////////////////////////////////
struct COM_HANDLE
{
        Itpcc_com *comHandle;
        char            *txnBuffer;
        int                     size;
};

//////////////////////////////////////////////////////////////////
// TXN handle
//////////////////////////////////////////////////////////////////
struct  TXN_HANDLE
{
        char    htmlPage[MAX_HTML_PAGE_LEN];
        char    htmlHeader[MAX_HTML_HEADER_LEN];
        char    *urlString;

        //user data
        int             w_id;
        int             d_id;
        int             sync_id;
        int             term_id;
        int             conn_id;

        COM_HANDLE      comInterface;
};

struct DLVYQUEUEDATA
{
        int             warehouse;
        short   in_s_0_CARRIER_ID;
        struct _timeb enqueueTime;
};

//////////////////////////////////////////////////////////////////
// Definitions
//////////////////////////////////////////////////////////////////
#define         INVALID_ITEM            100
#define         HEADER
"Content-Type:text/html\r\nContent-Length: %d\r\nConnection:
Keep-Alive\r\n\r\n"
#define         TLS_NULL
0xFFFFFFFF
#define         ACCESS_TIMEOUT          3600000
                                        //One hour in milli
seconds

#define         DELIVERY_LOG_SUCCESS_STR        "--Tran %d
Queue %d.%03d Start %d.%03d\nW_ID: %d CARRIER_ID: %d
%s\nend-time: %d.%03d\n"

//////////////////////////////////////////////////////////////////
// Function Prototypes
//////////////////////////////////////////////////////////////////

int initDlvy();
int initTxnHandle(TXN_HANDLE **txnHandle);
int closeTxnHandle(TXN_HANDLE *txnHandle);
int readRegisteryValues();
int getTerminal(int terminal,TXN_HANDLE *txnHandle);
int assignTerminal(TXN_HANDLE *txnHandle);
int getDBInstance();

void doHtml(TXN_HANDLE *txnHandle);
int doLoginForm(htmlPhraser *commandBlock,TXN_HANDLE *txnHandle);
int doLoginResults(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle);
int doNewOrderForm(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle);
int doNewOrderResults(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle);
int doPaymentForm(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle);
int doPaymentResults(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle);
int doOrderStatusForm(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle);
int doOrderStatusResults(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle);
int doDeliveryForm(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle);
int doDeliveryResults(htmlPhraser *commandBlock,TXN_HANDLE
*txnHandle);
int doStockForm(htmlPhraser *commandBlock,TXN_HANDLE *txnHandle);
int doStockResults(htmlPhraser *commandBlock,TXN_HANDLE *txnHandle);
int doExit(htmlPhraser *commandBlock,TXN_HANDLE *txnHandle);

int doLoginErrorPage(char *htmlPage,char *message);
int doNewOrderErrorPage(char *htmlPage,char *message,htmlPhraser
*commandBlock,TXN_HANDLE *txnHandle);
int doPaymentErrorPage(char *htmlPage,char *message,htmlPhraser
*commandBlock,TXN_HANDLE *txnHandle);
int doOrderStatusErrorPage(char *htmlPage,char *message,htmlPhraser
*commandBlock,TXN_HANDLE *txnHandle);
int doDeliveryErrorPage(char *htmlPage,char *message,htmlPhraser
*commandBlock,TXN_HANDLE *txnHandle);
int doStockErrorPage(char *htmlPage,char *message,htmlPhraser
*commandBlock,TXN_HANDLE *txnHandle);

void dlvyThreadEntry(void *);
int  queueDlvyTxn(int warehouse, short carrier_id);

int appendButtons(char *htmlPage);
int appendItems(char *htmlPage,short itemCount,short cmdIDStart);
int appendHiddenFields(char *htmlPage,TXN_HANDLE *txnHandle);
```

```
int displayStatus(char *htmlPage,int rc);

#endif
```

TpccIsapi.rc

```
// Microsoft Visual C++ generated resource script.
//
#include "resource.h"

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

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

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

1 TEXTINCLUDE
BEGIN
   "resource.h\0"
END

2 TEXTINCLUDE
BEGIN
   "#include ""winres.h""\r\n"
   "#include ""atlsrvres.h""\r\n"
   "\0"
END

3 TEXTINCLUDE
BEGIN

                        "LANGUAGE LANG_ENGLISH,
SUBLANG_ENGLISH_US\r\n"
            "#pragma code_page(1252)\r\n"
            "#include ""atlsrv.rc""\r\n"
                        "\0"
END

#endif    // APSTUDIO_INVOKED



/////////////////////////////////////////////////////////////////////////////
//
// 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 "040904e4"
      BEGIN
                                    VALUE "CompanyName", "TODO:
<Company name>"
         VALUE "FileDescription", "TODO: <File description>"
         VALUE "FileVersion", "1.0.0.1"
         VALUE "InternalName", "isapi.dll"
         VALUE "LegalCopyright", "TODO: (c) <Company name>.  All rights
reserved."
         VALUE "OriginalFilename", "isapi.dll"
         VALUE "ProductName", "TODO: <Product name>"
         VALUE "ProductVersion", "1.0.0.1"
         VALUE "OLESelfRegister", ""
      END
   END
   BLOCK "VarFileInfo"
   BEGIN
                        VALUE "Translation", 0x0409, 1252
   END
END



LANGUAGE 9, 1
#pragma code_page(1252)
/////////////////////////////////////////////////////////////////////////////
//
// String Table
//

STRINGTABLE
BEGIN
         IDS_PROJNAME         "tpccIsapi"
END

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


#ifndef APSTUDIO_INVOKED
/////////////////////////////////////////////////////////////////////////////
//
// Generated from the TEXTINCLUDE 3 resource.
//
LANGUAGE LANG_ENGLISH, SUBLANG_ENGLISH_US
#pragma code_page(1252)
#include "atlsrv.rc"

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

Appendix B: Database Design Scripts

create_tablespace.ddl

```
connect to tpcc;

-- WAR
create regular tablespace WAR PAGESIZE 4096 managed by database using (
DEVICE 'C:\Containers\WAR\001' 256,
DEVICE 'C:\Containers\WAR\002' 256,
DEVICE 'C:\Containers\WAR\003' 256,
DEVICE 'C:\Containers\WAR\004' 256,
DEVICE 'C:\Containers\WAR\005' 256,
DEVICE 'C:\Containers\WAR\006' 256,
DEVICE 'C:\Containers\WAR\007' 256,
DEVICE 'C:\Containers\WAR\008' 256,
DEVICE 'C:\Containers\WAR\009' 256,
DEVICE 'C:\Containers\WAR\010' 256,
DEVICE 'C:\Containers\WAR\011' 256,
DEVICE 'C:\Containers\WAR\012' 256
) EXTENTSIZE 16 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

-- DIS
create regular tablespace DIS PAGESIZE 4096 managed by database using (
DEVICE 'C:\Containers\DIS\001' 512,
DEVICE 'C:\Containers\DIS\002' 512,
DEVICE 'C:\Containers\DIS\003' 512,
DEVICE 'C:\Containers\DIS\004' 512,
DEVICE 'C:\Containers\DIS\005' 512,
DEVICE 'C:\Containers\DIS\006' 512,
DEVICE 'C:\Containers\DIS\007' 512,
DEVICE 'C:\Containers\DIS\008' 512,
DEVICE 'C:\Containers\DIS\009' 512,
DEVICE 'C:\Containers\DIS\010' 512,
DEVICE 'C:\Containers\DIS\011' 512,
DEVICE 'C:\Containers\DIS\012' 512
) EXTENTSIZE 32 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

-- ITM
create regular tablespace ITM PAGESIZE 8192 managed by database using (
DEVICE 'C:\Containers\ITM\001' 256,
DEVICE 'C:\Containers\ITM\002' 256,
DEVICE 'C:\Containers\ITM\003' 256,
DEVICE 'C:\Containers\ITM\004' 256,
DEVICE 'C:\Containers\ITM\005' 256,
DEVICE 'C:\Containers\ITM\006' 256,
DEVICE 'C:\Containers\ITM\007' 256,
DEVICE 'C:\Containers\ITM\008' 256,
DEVICE 'C:\Containers\ITM\009' 256,
DEVICE 'C:\Containers\ITM\010' 256,
DEVICE 'C:\Containers\ITM\011' 256,
DEVICE 'C:\Containers\ITM\012' 256
) EXTENTSIZE 32 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULT8K;

-- STK
create regular tablespace STK_001 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\STK\001' 7875840,
DEVICE 'C:\Containers\STK\002' 7875840
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

create regular tablespace STK_002 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\STK\003' 7875840,
DEVICE 'C:\Containers\STK\004' 7875840
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

create regular tablespace STK_003 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\STK\005' 7875840,
DEVICE 'C:\Containers\STK\006' 7875840
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

create regular tablespace STK_004 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\STK\007' 7875840,
DEVICE 'C:\Containers\STK\008' 7875840
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

create regular tablespace STK_005 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\STK\009' 7875840,
DEVICE 'C:\Containers\STK\010' 7875840
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

create regular tablespace STK_006 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\STK\011' 7875840,
DEVICE 'C:\Containers\STK\012' 7875840
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

create regular tablespace STK_007 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\STK\013' 1313024,
DEVICE 'C:\Containers\STK\014' 1313024,
DEVICE 'C:\Containers\STK\015' 1313024,
DEVICE 'C:\Containers\STK\016' 1313024,
DEVICE 'C:\Containers\STK\017' 1313024,
DEVICE 'C:\Containers\STK\018' 1313024,
DEVICE 'C:\Containers\STK\019' 1313024,
DEVICE 'C:\Containers\STK\020' 1313024,
DEVICE 'C:\Containers\STK\021' 1313024,
DEVICE 'C:\Containers\STK\022' 1313024,
DEVICE 'C:\Containers\STK\023' 1313024,
DEVICE 'C:\Containers\STK\024' 1313024
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

-- CST
create regular tablespace CST_001 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\CST\001' 5670912,
DEVICE 'C:\Containers\CST\002' 5670912
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

create regular tablespace CST_002 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\CST\003' 5670912,
DEVICE 'C:\Containers\CST\004' 5670912
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

create regular tablespace CST_003 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\CST\005' 5670912,
DEVICE 'C:\Containers\CST\006' 5670912
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

create regular tablespace CST_004 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\CST\007' 5670912,
DEVICE 'C:\Containers\CST\008' 5670912
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;
```

```
create regular tablespace CST_005 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\CST\009' 5670912,
DEVICE 'C:\Containers\CST\010' 5670912
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

create regular tablespace CST_006 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\CST\011' 5670912,
DEVICE 'C:\Containers\CST\012' 5670912
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

create regular tablespace CST_007 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\CST\013' 945408,
DEVICE 'C:\Containers\CST\014' 945408,
DEVICE 'C:\Containers\CST\015' 945408,
DEVICE 'C:\Containers\CST\016' 945408,
DEVICE 'C:\Containers\CST\017' 945408,
DEVICE 'C:\Containers\CST\018' 945408,
DEVICE 'C:\Containers\CST\019' 945408,
DEVICE 'C:\Containers\CST\020' 945408,
DEVICE 'C:\Containers\CST\021' 945408,
DEVICE 'C:\Containers\CST\022' 945408,
DEVICE 'C:\Containers\CST\023' 945408,
DEVICE 'C:\Containers\CST\024' 945408
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

-- CSTI
create regular tablespace CSTI_001 PAGESIZE 8192 managed by database
using (
DEVICE 'C:\Containers\CSTI\001' 179712,
DEVICE 'C:\Containers\CSTI\002' 179712
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULT8K;

create regular tablespace CSTI_002 PAGESIZE 8192 managed by database
using (
DEVICE 'C:\Containers\CSTI\003' 179712,
DEVICE 'C:\Containers\CSTI\004' 179712
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULT8K;

create regular tablespace CSTI_003 PAGESIZE 8192 managed by database
using (
DEVICE 'C:\Containers\CSTI\005' 179712,
DEVICE 'C:\Containers\CSTI\006' 179712
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULT8K;

create regular tablespace CSTI_004 PAGESIZE 8192 managed by database
using (
DEVICE 'C:\Containers\CSTI\007' 179712,
DEVICE 'C:\Containers\CSTI\008' 179712
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULT8K;

create regular tablespace CSTI_005 PAGESIZE 8192 managed by database
using (
DEVICE 'C:\Containers\CSTI\009' 179712,
DEVICE 'C:\Containers\CSTI\010' 179712
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULT8K;

create regular tablespace CSTI_006 PAGESIZE 8192 managed by database
using (
DEVICE 'C:\Containers\CSTI\011' 179712,
DEVICE 'C:\Containers\CSTI\012' 179712
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULT8K;

create regular tablespace CSTI_007 PAGESIZE 8192 managed by database
using (
DEVICE 'C:\Containers\CSTI\013' 29952,
DEVICE 'C:\Containers\CSTI\014' 29952,
DEVICE 'C:\Containers\CSTI\015' 29952,
DEVICE 'C:\Containers\CSTI\016' 29952,
DEVICE 'C:\Containers\CSTI\017' 29952,
DEVICE 'C:\Containers\CSTI\018' 29952,
DEVICE 'C:\Containers\CSTI\019' 29952,
DEVICE 'C:\Containers\CSTI\020' 29952,
DEVICE 'C:\Containers\CSTI\021' 29952,
DEVICE 'C:\Containers\CSTI\022' 29952,
DEVICE 'C:\Containers\CSTI\023' 29952,
DEVICE 'C:\Containers\CSTI\024' 29952
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULT8K;

-- ORD
create regular tablespace ORD PAGESIZE 8192 managed by database using (
DEVICE 'C:\Containers\ORD\001' 190720,
DEVICE 'C:\Containers\ORD\002' 190720,
DEVICE 'C:\Containers\ORD\003' 190720,
DEVICE 'C:\Containers\ORD\004' 190720,
DEVICE 'C:\Containers\ORD\005' 190720,
DEVICE 'C:\Containers\ORD\006' 190720,
DEVICE 'C:\Containers\ORD\007' 190720,
DEVICE 'C:\Containers\ORD\008' 190720,
DEVICE 'C:\Containers\ORD\009' 190720,
DEVICE 'C:\Containers\ORD\010' 190720,
DEVICE 'C:\Containers\ORD\011' 190720,
DEVICE 'C:\Containers\ORD\012' 190720
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULT8K;

-- ORDI
create regular tablespace ORDI PAGESIZE 8192 managed by database using (
DEVICE 'C:\Containers\ORDI\001' 169472,
DEVICE 'C:\Containers\ORDI\002' 169472,
DEVICE 'C:\Containers\ORDI\003' 169472,
DEVICE 'C:\Containers\ORDI\004' 169472,
DEVICE 'C:\Containers\ORDI\005' 169472,
DEVICE 'C:\Containers\ORDI\006' 169472,
DEVICE 'C:\Containers\ORDI\007' 169472,
DEVICE 'C:\Containers\ORDI\008' 169472,
DEVICE 'C:\Containers\ORDI\009' 169472,
DEVICE 'C:\Containers\ORDI\010' 169472,
DEVICE 'C:\Containers\ORDI\011' 169472,
DEVICE 'C:\Containers\ORDI\012' 169472
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULT8K;

-- OLN
create regular tablespace OLN_001 PAGESIZE 8192 managed by database
using (
DEVICE 'C:\Containers\OLN\001' 4378624,
DEVICE 'C:\Containers\OLN\002' 4378624
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULT8K;

create regular tablespace OLN_002 PAGESIZE 8192 managed by database
using (
DEVICE 'C:\Containers\OLN\003' 4378624,
DEVICE 'C:\Containers\OLN\004' 4378624
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULT8K;

create regular tablespace OLN_003 PAGESIZE 8192 managed by database
using (
DEVICE 'C:\Containers\OLN\005' 4378624,
DEVICE 'C:\Containers\OLN\006' 4378624
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULT8K;

create regular tablespace OLN_004 PAGESIZE 8192 managed by database
using (
DEVICE 'C:\Containers\OLN\007' 4378624,
DEVICE 'C:\Containers\OLN\008' 4378624
```

```
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULT8K;

create regular tablespace OLN_005 PAGESIZE 8192 managed by database
using (
DEVICE 'C:\Containers\OLN\009' 4378624,
DEVICE 'C:\Containers\OLN\010' 4378624
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULT8K;

create regular tablespace OLN_006 PAGESIZE 8192 managed by database
using (
DEVICE 'C:\Containers\OLN\011' 4378624,
DEVICE 'C:\Containers\OLN\012' 4378624
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULT8K;

create regular tablespace OLN_007 PAGESIZE 8192 managed by database
using (
DEVICE 'C:\Containers\OLN\013' 730112,
DEVICE 'C:\Containers\OLN\014' 730112,
DEVICE 'C:\Containers\OLN\015' 730112,
DEVICE 'C:\Containers\OLN\016' 730112,
DEVICE 'C:\Containers\OLN\017' 730112,
DEVICE 'C:\Containers\OLN\018' 730112,
DEVICE 'C:\Containers\OLN\019' 730112,
DEVICE 'C:\Containers\OLN\020' 730112,
DEVICE 'C:\Containers\OLN\021' 730112,
DEVICE 'C:\Containers\OLN\022' 730112,
DEVICE 'C:\Containers\OLN\023' 730112,
DEVICE 'C:\Containers\OLN\024' 730112
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULT8K;

-- NEWA
create regular tablespace NEWA_001 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\NEWA\001' 84224,
DEVICE 'C:\Containers\NEWA\002' 84224
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

create regular tablespace NEWA_002 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\NEWA\003' 84224,
DEVICE 'C:\Containers\NEWA\004' 84224
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

create regular tablespace NEWA_003 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\NEWA\005' 84224,
DEVICE 'C:\Containers\NEWA\006' 84224
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

create regular tablespace NEWA_004 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\NEWA\007' 84224,
DEVICE 'C:\Containers\NEWA\008' 84224
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

create regular tablespace NEWA_005 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\NEWA\009' 84224,
DEVICE 'C:\Containers\NEWA\010' 84224
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

create regular tablespace NEWA_006 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\NEWA\011' 84224,
DEVICE 'C:\Containers\NEWA\012' 84224
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

create regular tablespace NEWA_007 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\NEWA\013' 14336,
DEVICE 'C:\Containers\NEWA\014' 14336,
DEVICE 'C:\Containers\NEWA\015' 14336,
DEVICE 'C:\Containers\NEWA\016' 14336,
DEVICE 'C:\Containers\NEWA\017' 14336,
DEVICE 'C:\Containers\NEWA\018' 14336,
DEVICE 'C:\Containers\NEWA\019' 14336,
DEVICE 'C:\Containers\NEWA\020' 14336,
DEVICE 'C:\Containers\NEWA\021' 14336,
DEVICE 'C:\Containers\NEWA\022' 14336,
DEVICE 'C:\Containers\NEWA\023' 14336,
DEVICE 'C:\Containers\NEWA\024' 14336
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

-- HST
create regular tablespace HST PAGESIZE 16384 managed by database using (
DEVICE 'C:\Containers\HST\001' 186624,
DEVICE 'C:\Containers\HST\002' 186624,
DEVICE 'C:\Containers\HST\003' 186624,
DEVICE 'C:\Containers\HST\004' 186624,
DEVICE 'C:\Containers\HST\005' 186624,
DEVICE 'C:\Containers\HST\006' 186624,
DEVICE 'C:\Containers\HST\007' 186624,
DEVICE 'C:\Containers\HST\008' 186624,
DEVICE 'C:\Containers\HST\009' 186624,
DEVICE 'C:\Containers\HST\010' 186624,
DEVICE 'C:\Containers\HST\011' 186624,
DEVICE 'C:\Containers\HST\012' 186624
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULT16K;

-- NEWB
create regular tablespace NEWB_001 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\NEWB\001' 84224,
DEVICE 'C:\Containers\NEWB\002' 84224
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

create regular tablespace NEWB_002 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\NEWB\003' 84224,
DEVICE 'C:\Containers\NEWB\004' 84224
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

create regular tablespace NEWB_003 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\NEWB\005' 84224,
DEVICE 'C:\Containers\NEWB\006' 84224
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

create regular tablespace NEWB_004 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\NEWB\007' 84224,
DEVICE 'C:\Containers\NEWB\008' 84224
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

create regular tablespace NEWB_005 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\NEWB\009' 84224,
DEVICE 'C:\Containers\NEWB\010' 84224
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

create regular tablespace NEWB_006 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\NEWB\011' 84224,
DEVICE 'C:\Containers\NEWB\012' 84224
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;
```

```
create regular tablespace NEWB_007 PAGESIZE 4096 managed by database
using (
DEVICE 'C:\Containers\NEWB\013' 14336,
DEVICE 'C:\Containers\NEWB\014' 14336,
DEVICE 'C:\Containers\NEWB\015' 14336,
DEVICE 'C:\Containers\NEWB\016' 14336,
DEVICE 'C:\Containers\NEWB\017' 14336,
DEVICE 'C:\Containers\NEWB\018' 14336,
DEVICE 'C:\Containers\NEWB\019' 14336,
DEVICE 'C:\Containers\NEWB\020' 14336,
DEVICE 'C:\Containers\NEWB\021' 14336,
DEVICE 'C:\Containers\NEWB\022' 14336,
DEVICE 'C:\Containers\NEWB\023' 14336,
DEVICE 'C:\Containers\NEWB\024' 14336
) EXTENTSIZE 256 PREFETCHSIZE 0 BUFFERPOOL IBMDEFAULTBP;

connect reset;
```

alter_tablespace.ddl

```
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-----------------------------------------------------------------------------

-- Set Bufferpools For Tablespaces
connect to tpcc;
alter tablespace WAR      bufferpool WAR;
alter tablespace DIS      bufferpool DIS;
alter tablespace ITM      bufferpool ITM;
alter tablespace STK_001  bufferpool STK;
alter tablespace STK_002  bufferpool STK;
alter tablespace STK_003  bufferpool STK;
alter tablespace STK_004  bufferpool STK;
alter tablespace STK_005  bufferpool STK;
alter tablespace STK_006  bufferpool STK;
alter tablespace STK_007  bufferpool STK;
alter tablespace CST_001  bufferpool CST;
alter tablespace CST_002  bufferpool CST;
alter tablespace CST_003  bufferpool CST;
alter tablespace CST_004  bufferpool CST;
alter tablespace CST_005  bufferpool CST;
alter tablespace CST_006  bufferpool CST;
alter tablespace CST_007  bufferpool CST;
alter tablespace CSTI_001 bufferpool CST_I;
alter tablespace CSTI_002 bufferpool CST_I;
alter tablespace CSTI_003 bufferpool CST_I;
alter tablespace CSTI_004 bufferpool CST_I;
alter tablespace CSTI_005 bufferpool CST_I;
alter tablespace CSTI_006 bufferpool CST_I;
alter tablespace CSTI_007 bufferpool CST_I;
alter tablespace ORD      bufferpool ORD;
alter tablespace ORDI     bufferpool ORD_I;
alter tablespace OLN_001  bufferpool OLN;
alter tablespace OLN_002  bufferpool OLN;
alter tablespace OLN_003  bufferpool OLN;
alter tablespace OLN_004  bufferpool OLN;
alter tablespace OLN_005  bufferpool OLN;
alter tablespace OLN_006  bufferpool OLN;
alter tablespace OLN_007  bufferpool OLN;
alter tablespace NEWA_001 bufferpool NEW;
alter tablespace NEWA_002 bufferpool NEW;
alter tablespace NEWA_003 bufferpool NEW;
alter tablespace NEWA_004 bufferpool NEW;
alter tablespace NEWA_005 bufferpool NEW;
alter tablespace NEWA_006 bufferpool NEW;
alter tablespace NEWA_007 bufferpool NEW;
alter tablespace NEWB_001 bufferpool NEW;
alter tablespace NEWB_002 bufferpool NEW;
alter tablespace NEWB_003 bufferpool NEW;
alter tablespace NEWB_004 bufferpool NEW;
alter tablespace NEWB_005 bufferpool NEW;
alter tablespace NEWB_006 bufferpool NEW;
alter tablespace NEWB_007 bufferpool NEW;
alter tablespace HST      bufferpool HST;

connect reset;
terminate;
```

alter_bufferpool.ddl

```
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-----------------------------------------------------------------------------

-- Alter Size of Bufferpools
connect to tpcc;

alter bufferpool IBMDEFAULT8K  deferred size 16;
alter bufferpool IBMDEFAULT16K deferred size 16;
alter bufferpool WAR           deferred size 325;
alter bufferpool DIS           deferred size 4000;
alter bufferpool ITM           deferred size 1235;
alter bufferpool HST           deferred size 825;
alter bufferpool NEW           deferred size 240000;
alter bufferpool ORD           deferred size 131500;
alter bufferpool CST           deferred size 20000;
alter bufferpool STK           deferred size 12420000;
alter bufferpool OLN           deferred size 480000;
alter bufferpool CST_I         deferred size 150000;
alter bufferpool ORD_I         deferred size 350000;

connect reset;
terminate;
```

create_bufferpool.ddl

```
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-----------------------------------------------------------------------------

-- Create Bufferpools
connect to tpcc;
create bufferpool IBMDEFAULTBP  size 1310720 pagesize 4096;
create bufferpool IBMDEFAULT8K  size 655360 pagesize 8192;
create bufferpool IBMDEFAULT16K size 5000 pagesize 16384;
create bufferpool WAR           size 1000 pagesize 4096;
create bufferpool DIS           size 1000 pagesize 4096;
create bufferpool ITM           size 1000 pagesize 8192;
create bufferpool HST           size 1000 pagesize 16384;
create bufferpool NEW           size 1000 pagesize 4096;
create bufferpool ORD           size 1000 pagesize 8192;
create bufferpool CST           size 1000 pagesize 4096;
create bufferpool STK           size 1000 pagesize 4096;
create bufferpool OLN           size 1000 pagesize 8192;
create bufferpool CST_I         size 1000 pagesize 8192;
create bufferpool ORD_I         size 1000 pagesize 8192;
connect reset;
terminate;
```

create_database.ddl

```
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-----------------------------------------------------------------------------

-- Create Database
drop database tpcc;
create database tpcc collate using identity;
```

alttbsp_pf_0.ddl

```
connect to TPCC;
alter tablespace CSTI_001 prefetchsize 0;
alter tablespace CSTI_002 prefetchsize 0;
alter tablespace CSTI_003 prefetchsize 0;
alter tablespace CSTI_004 prefetchsize 0;
alter tablespace CSTI_005 prefetchsize 0;
alter tablespace CSTI_006 prefetchsize 0;
alter tablespace CSTI_007 prefetchsize 0;
alter tablespace CST_001 prefetchsize 0;
alter tablespace CST_002 prefetchsize 0;
alter tablespace CST_003 prefetchsize 0;
alter tablespace CST_004 prefetchsize 0;
alter tablespace CST_005 prefetchsize 0;
alter tablespace CST_006 prefetchsize 0;
alter tablespace CST_007 prefetchsize 0;
alter tablespace DIS prefetchsize 0;
alter tablespace HST prefetchsize 0;
alter tablespace ITM prefetchsize 0;
alter tablespace NEWA_001 prefetchsize 0;
alter tablespace NEWA_002 prefetchsize 0;
alter tablespace NEWA_003 prefetchsize 0;
alter tablespace NEWA_004 prefetchsize 0;
alter tablespace NEWA_005 prefetchsize 0;
alter tablespace NEWA_006 prefetchsize 0;
alter tablespace NEWA_007 prefetchsize 0;
alter tablespace NEWB_001 prefetchsize 0;
alter tablespace NEWB_002 prefetchsize 0;
alter tablespace NEWB_003 prefetchsize 0;
alter tablespace NEWB_004 prefetchsize 0;
alter tablespace NEWB_005 prefetchsize 0;
alter tablespace NEWB_006 prefetchsize 0;
alter tablespace NEWB_007 prefetchsize 0;
alter tablespace OLN_001 prefetchsize 0;
alter tablespace OLN_002 prefetchsize 0;
alter tablespace OLN_003 prefetchsize 0;
alter tablespace OLN_004 prefetchsize 0;
alter tablespace OLN_005 prefetchsize 0;
alter tablespace OLN_006 prefetchsize 0;
alter tablespace OLN_007 prefetchsize 0;
alter tablespace ORD prefetchsize 0;
alter tablespace ORDI prefetchsize 0;
alter tablespace STK_001 prefetchsize 0;
alter tablespace STK_002 prefetchsize 0;
alter tablespace STK_003 prefetchsize 0;
alter tablespace STK_004 prefetchsize 0;
alter tablespace STK_005 prefetchsize 0;
alter tablespace STK_006 prefetchsize 0;
alter tablespace STK_007 prefetchsize 0;
alter tablespace WAR prefetchsize 0;
connect reset;
```

alttbsp_pf_1024.ddl

```
connect to TPCC;
alter tablespace CSTI_001 prefetchsize 1024;
alter tablespace CSTI_002 prefetchsize 1024;
alter tablespace CSTI_003 prefetchsize 1024;
alter tablespace CSTI_004 prefetchsize 1024;
alter tablespace CSTI_005 prefetchsize 1024;
alter tablespace CSTI_006 prefetchsize 1024;
alter tablespace CSTI_007 prefetchsize 1024;
alter tablespace CST_001 prefetchsize 1024;
alter tablespace CST_002 prefetchsize 1024;
alter tablespace CST_003 prefetchsize 1024;
alter tablespace CST_004 prefetchsize 1024;
alter tablespace CST_005 prefetchsize 1024;
alter tablespace CST_006 prefetchsize 1024;
alter tablespace CST_007 prefetchsize 1024;
alter tablespace DIS prefetchsize 1024;
alter tablespace HST prefetchsize 1024;
alter tablespace ITM prefetchsize 1024;
alter tablespace NEWA_001 prefetchsize 1024;
alter tablespace NEWA_002 prefetchsize 1024;
alter tablespace NEWA_003 prefetchsize 1024;
alter tablespace NEWA_004 prefetchsize 1024;
alter tablespace NEWA_005 prefetchsize 1024;
alter tablespace NEWA_006 prefetchsize 1024;
alter tablespace NEWA_007 prefetchsize 1024;
alter tablespace NEWB_001 prefetchsize 1024;
alter tablespace NEWB_002 prefetchsize 1024;
alter tablespace NEWB_003 prefetchsize 1024;
alter tablespace NEWB_004 prefetchsize 1024;
alter tablespace NEWB_005 prefetchsize 1024;
alter tablespace NEWB_006 prefetchsize 1024;
alter tablespace NEWB_007 prefetchsize 1024;
alter tablespace OLN_001 prefetchsize 1024;
alter tablespace OLN_002 prefetchsize 1024;
alter tablespace OLN_003 prefetchsize 1024;
```

```
alter tablespace OLN_004 prefetchsize 1024;
alter tablespace OLN_005 prefetchsize 1024;
alter tablespace OLN_006 prefetchsize 1024;
alter tablespace OLN_007 prefetchsize 1024;
alter tablespace ORD prefetchsize 1024;
alter tablespace ORDI prefetchsize 1024;
alter tablespace STK_001 prefetchsize 1024;
alter tablespace STK_002 prefetchsize 1024;
alter tablespace STK_003 prefetchsize 1024;
alter tablespace STK_004 prefetchsize 1024;
alter tablespace STK_005 prefetchsize 1024;
alter tablespace STK_006 prefetchsize 1024;
alter tablespace STK_007 prefetchsize 1024;
alter tablespace WAR prefetchsize 1024;
connect reset;
```

crconst_customer.ddl

```
connect to TPCC in share mode;
SET INTEGRITY FOR CUSTOMER1 OFF;
ALTER TABLE CUSTOMER1 DROP CONSTRAINT CUSTOMER1CKC;
ALTER TABLE CUSTOMER1 ADD CONSTRAINT CUSTOMER1CKC
CHECK (C_W_ID BETWEEN 1 AND 1800);
SET INTEGRITY FOR CUSTOMER1 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR CUSTOMER2 OFF;
ALTER TABLE CUSTOMER2 DROP CONSTRAINT CUSTOMER2CKC;
ALTER TABLE CUSTOMER2 ADD CONSTRAINT CUSTOMER2CKC
CHECK (C_W_ID BETWEEN 1801 AND 3600);
SET INTEGRITY FOR CUSTOMER2 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR CUSTOMER3 OFF;
ALTER TABLE CUSTOMER3 DROP CONSTRAINT CUSTOMER3CKC;
ALTER TABLE CUSTOMER3 ADD CONSTRAINT CUSTOMER3CKC
CHECK (C_W_ID BETWEEN 3601 AND 5400);
SET INTEGRITY FOR CUSTOMER3 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR CUSTOMER4 OFF;
ALTER TABLE CUSTOMER4 DROP CONSTRAINT CUSTOMER4CKC;
ALTER TABLE CUSTOMER4 ADD CONSTRAINT CUSTOMER4CKC
CHECK (C_W_ID BETWEEN 5401 AND 7200);
SET INTEGRITY FOR CUSTOMER4 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR CUSTOMER5 OFF;
ALTER TABLE CUSTOMER5 DROP CONSTRAINT CUSTOMER5CKC;
ALTER TABLE CUSTOMER5 ADD CONSTRAINT CUSTOMER5CKC
CHECK (C_W_ID BETWEEN 7201 AND 9000);
SET INTEGRITY FOR CUSTOMER5 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR CUSTOMER6 OFF;
ALTER TABLE CUSTOMER6 DROP CONSTRAINT CUSTOMER6CKC;
ALTER TABLE CUSTOMER6 ADD CONSTRAINT CUSTOMER6CKC
CHECK (C_W_ID BETWEEN 9001 AND 10800);
SET INTEGRITY FOR CUSTOMER6 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR CUSTOMER7 OFF;
ALTER TABLE CUSTOMER7 DROP CONSTRAINT CUSTOMER7CKC;
ALTER TABLE CUSTOMER7 ADD CONSTRAINT CUSTOMER7CKC
CHECK (C_W_ID >= 10801);
SET INTEGRITY FOR CUSTOMER7 ALL IMMEDIATE UNCHECKED;
connect reset;
```

crconst_new_ordera.ddl

```
connect to TPCC in share mode;
SET INTEGRITY FOR NEW_ORDERA1 OFF;
ALTER TABLE NEW_ORDERA1 DROP CONSTRAINT
NEW_ORDERA1CKC;
ALTER TABLE NEW_ORDERA1 ADD CONSTRAINT
NEW_ORDERA1CKC CHECK ((NO_W_ID BETWEEN 1 AND 1800) AND
(NO_O_ID <= 3643));
SET INTEGRITY FOR NEW_ORDERA1 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR NEW_ORDERA2 OFF;
ALTER TABLE NEW_ORDERA2 DROP CONSTRAINT
NEW_ORDERA2CKC;
ALTER TABLE NEW_ORDERA2 ADD CONSTRAINT
NEW_ORDERA2CKC CHECK ((NO_W_ID BETWEEN 1801 AND 3600)
AND (NO_O_ID <= 3643));
SET INTEGRITY FOR NEW_ORDERA2 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR NEW_ORDERA3 OFF;
ALTER TABLE NEW_ORDERA3 DROP CONSTRAINT
NEW_ORDERA3CKC;
ALTER TABLE NEW_ORDERA3 ADD CONSTRAINT
NEW_ORDERA3CKC CHECK ((NO_W_ID BETWEEN 3601 AND 5400)
AND (NO_O_ID <= 3643));
SET INTEGRITY FOR NEW_ORDERA3 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR NEW_ORDERA4 OFF;
ALTER TABLE NEW_ORDERA4 DROP CONSTRAINT
NEW_ORDERA4CKC;
ALTER TABLE NEW_ORDERA4 ADD CONSTRAINT
NEW_ORDERA4CKC CHECK ((NO_W_ID BETWEEN 5401 AND 7200)
AND (NO_O_ID <= 3643));
SET INTEGRITY FOR NEW_ORDERA4 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR NEW_ORDERA5 OFF;
ALTER TABLE NEW_ORDERA5 DROP CONSTRAINT
NEW_ORDERA5CKC;
ALTER TABLE NEW_ORDERA5 ADD CONSTRAINT
NEW_ORDERA5CKC CHECK ((NO_W_ID BETWEEN 7201 AND 9000)
AND (NO_O_ID <= 3643));
SET INTEGRITY FOR NEW_ORDERA5 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR NEW_ORDERA6 OFF;
ALTER TABLE NEW_ORDERA6 DROP CONSTRAINT
NEW_ORDERA6CKC;
ALTER TABLE NEW_ORDERA6 ADD CONSTRAINT
NEW_ORDERA6CKC CHECK ((NO_W_ID BETWEEN 9001 AND 10800)
AND (NO_O_ID <= 3643));
SET INTEGRITY FOR NEW_ORDERA6 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR NEW_ORDERA7 OFF;
ALTER TABLE NEW_ORDERA7 DROP CONSTRAINT
NEW_ORDERA7CKC;
ALTER TABLE NEW_ORDERA7 ADD CONSTRAINT
NEW_ORDERA7CKC CHECK ((NO_W_ID >= 10801) AND (NO_O_ID <=
3643));
SET INTEGRITY FOR NEW_ORDERA7 ALL IMMEDIATE UNCHECKED;
connect reset;
```

crconst_new_orderb.ddl

```
connect to TPCC in share mode;
SET INTEGRITY FOR NEW_ORDERB1 OFF;
ALTER TABLE NEW_ORDERB1 DROP CONSTRAINT
NEW_ORDERB1CKC;
ALTER TABLE NEW_ORDERB1 ADD CONSTRAINT
NEW_ORDERB1CKC CHECK ((NO_W_ID BETWEEN 1 AND 1800) AND
(NO_O_ID >= 3644));
SET INTEGRITY FOR NEW_ORDERB1 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR NEW_ORDERB2 OFF;
ALTER TABLE NEW_ORDERB2 DROP CONSTRAINT
NEW_ORDERB2CKC;
ALTER TABLE NEW_ORDERB2 ADD CONSTRAINT
NEW_ORDERB2CKC CHECK ((NO_W_ID BETWEEN 1801 AND 3600)
AND (NO_O_ID >= 3644));
SET INTEGRITY FOR NEW_ORDERB2 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR NEW_ORDERB3 OFF;
ALTER TABLE NEW_ORDERB3 DROP CONSTRAINT
NEW_ORDERB3CKC;
ALTER TABLE NEW_ORDERB3 ADD CONSTRAINT
NEW_ORDERB3CKC CHECK ((NO_W_ID BETWEEN 3601 AND 5400)
AND (NO_O_ID >= 3644));
SET INTEGRITY FOR NEW_ORDERB3 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR NEW_ORDERB4 OFF;
ALTER TABLE NEW_ORDERB4 DROP CONSTRAINT
NEW_ORDERB4CKC;
ALTER TABLE NEW_ORDERB4 ADD CONSTRAINT
NEW_ORDERB4CKC CHECK ((NO_W_ID BETWEEN 5401 AND 7200)
AND (NO_O_ID >= 3644));
SET INTEGRITY FOR NEW_ORDERB4 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR NEW_ORDERB5 OFF;
ALTER TABLE NEW_ORDERB5 DROP CONSTRAINT
NEW_ORDERB5CKC;
ALTER TABLE NEW_ORDERB5 ADD CONSTRAINT
NEW_ORDERB5CKC CHECK ((NO_W_ID BETWEEN 7201 AND 9000)
AND (NO_O_ID >= 3644));
SET INTEGRITY FOR NEW_ORDERB5 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR NEW_ORDERB6 OFF;
ALTER TABLE NEW_ORDERB6 DROP CONSTRAINT
NEW_ORDERB6CKC;
ALTER TABLE NEW_ORDERB6 ADD CONSTRAINT
NEW_ORDERB6CKC CHECK ((NO_W_ID BETWEEN 9001 AND 10800)
AND (NO_O_ID >= 3644));
SET INTEGRITY FOR NEW_ORDERB6 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR NEW_ORDERB7 OFF;
ALTER TABLE NEW_ORDERB7 DROP CONSTRAINT
NEW_ORDERB7CKC;
ALTER TABLE NEW_ORDERB7 ADD CONSTRAINT
NEW_ORDERB7CKC CHECK ((NO_W_ID >= 10801) AND (NO_O_ID >=
3644));
SET INTEGRITY FOR NEW_ORDERB7 ALL IMMEDIATE UNCHECKED;
connect reset;
```

crconst_order_line.ddl

```
connect to TPCC in share mode;
SET INTEGRITY FOR ORDER_LINE1 OFF;
ALTER TABLE ORDER_LINE1 DROP CONSTRAINT
ORDER_LINE1CKC;
ALTER TABLE ORDER_LINE1 ADD CONSTRAINT ORDER_LINE1CKC
CHECK (OL_W_ID BETWEEN 1 AND 1800);
SET INTEGRITY FOR ORDER_LINE1 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR ORDER_LINE2 OFF;
ALTER TABLE ORDER_LINE2 DROP CONSTRAINT
ORDER_LINE2CKC;
ALTER TABLE ORDER_LINE2 ADD CONSTRAINT ORDER_LINE2CKC
CHECK (OL_W_ID BETWEEN 1801 AND 3600);
SET INTEGRITY FOR ORDER_LINE2 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR ORDER_LINE3 OFF;
ALTER TABLE ORDER_LINE3 DROP CONSTRAINT
ORDER_LINE3CKC;
ALTER TABLE ORDER_LINE3 ADD CONSTRAINT ORDER_LINE3CKC
CHECK (OL_W_ID BETWEEN 3601 AND 5400);
SET INTEGRITY FOR ORDER_LINE3 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR ORDER_LINE4 OFF;
ALTER TABLE ORDER_LINE4 DROP CONSTRAINT
ORDER_LINE4CKC;
ALTER TABLE ORDER_LINE4 ADD CONSTRAINT ORDER_LINE4CKC
CHECK (OL_W_ID BETWEEN 5401 AND 7200);
SET INTEGRITY FOR ORDER_LINE4 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR ORDER_LINE5 OFF;
ALTER TABLE ORDER_LINE5 DROP CONSTRAINT
ORDER_LINE5CKC;
ALTER TABLE ORDER_LINE5 ADD CONSTRAINT ORDER_LINE5CKC
CHECK (OL_W_ID BETWEEN 7201 AND 9000);
SET INTEGRITY FOR ORDER_LINE5 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR ORDER_LINE6 OFF;
ALTER TABLE ORDER_LINE6 DROP CONSTRAINT
ORDER_LINE6CKC;
ALTER TABLE ORDER_LINE6 ADD CONSTRAINT ORDER_LINE6CKC
CHECK (OL_W_ID BETWEEN 9001 AND 10800);
SET INTEGRITY FOR ORDER_LINE6 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR ORDER_LINE7 OFF;
ALTER TABLE ORDER_LINE7 DROP CONSTRAINT
ORDER_LINE7CKC;
ALTER TABLE ORDER_LINE7 ADD CONSTRAINT ORDER_LINE7CKC
CHECK (OL_W_ID >= 10801);
SET INTEGRITY FOR ORDER_LINE7 ALL IMMEDIATE UNCHECKED;
connect reset;
```

crconst_stock.ddl

```
connect to TPCC in share mode;
SET INTEGRITY FOR STOCK1 OFF;
ALTER TABLE STOCK1 DROP CONSTRAINT STOCK1CKC;
ALTER TABLE STOCK1 ADD CONSTRAINT STOCK1CKC CHECK
(S_W_ID BETWEEN 1 AND 1800);
SET INTEGRITY FOR STOCK1 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR STOCK2 OFF;
```

```
ALTER TABLE STOCK2 DROP CONSTRAINT STOCK2CKC;
ALTER TABLE STOCK2 ADD CONSTRAINT STOCK2CKC CHECK
(S_W_ID BETWEEN 1801 AND 3600);
SET INTEGRITY FOR STOCK2 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR STOCK3 OFF;
ALTER TABLE STOCK3 DROP CONSTRAINT STOCK3CKC;
ALTER TABLE STOCK3 ADD CONSTRAINT STOCK3CKC CHECK
(S_W_ID BETWEEN 3601 AND 5400);
SET INTEGRITY FOR STOCK3 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR STOCK4 OFF;
ALTER TABLE STOCK4 DROP CONSTRAINT STOCK4CKC;
ALTER TABLE STOCK4 ADD CONSTRAINT STOCK4CKC CHECK
(S_W_ID BETWEEN 5401 AND 7200);
SET INTEGRITY FOR STOCK4 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR STOCK5 OFF;
ALTER TABLE STOCK5 DROP CONSTRAINT STOCK5CKC;
ALTER TABLE STOCK5 ADD CONSTRAINT STOCK5CKC CHECK
(S_W_ID BETWEEN 7201 AND 9000);
SET INTEGRITY FOR STOCK5 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR STOCK6 OFF;
ALTER TABLE STOCK6 DROP CONSTRAINT STOCK6CKC;
ALTER TABLE STOCK6 ADD CONSTRAINT STOCK6CKC CHECK
(S_W_ID BETWEEN 9001 AND 10800);
SET INTEGRITY FOR STOCK6 ALL IMMEDIATE UNCHECKED;
connect reset;
connect to TPCC in share mode;
SET INTEGRITY FOR STOCK7 OFF;
ALTER TABLE STOCK7 DROP CONSTRAINT STOCK7CKC;
ALTER TABLE STOCK7 ADD CONSTRAINT STOCK7CKC CHECK
(S_W_ID >= 10801);
SET INTEGRITY FOR STOCK7 ALL IMMEDIATE UNCHECKED;
connect reset;
```

cridx_cust_idxb.ddl

```
connect to TPCC in share mode;
DROP INDEX CUST_IDXB1;
CREATE INDEX CUST_IDXB1
                ON CUSTOMER1(C_LAST, C_W_ID, C_D_ID, C_FIRST,
C_ID) PCTFREE 0;
connect reset;
connect to TPCC in share mode;
DROP INDEX CUST_IDXB2;
CREATE INDEX CUST_IDXB2
                ON CUSTOMER2(C_LAST, C_W_ID, C_D_ID, C_FIRST,
C_ID) PCTFREE 0;
connect reset;
connect to TPCC in share mode;
DROP INDEX CUST_IDXB3;
CREATE INDEX CUST_IDXB3
                ON CUSTOMER3(C_LAST, C_W_ID, C_D_ID, C_FIRST,
C_ID) PCTFREE 0;
connect reset;
connect to TPCC in share mode;
DROP INDEX CUST_IDXB4;
CREATE INDEX CUST_IDXB4
                ON CUSTOMER4(C_LAST, C_W_ID, C_D_ID, C_FIRST,
C_ID) PCTFREE 0;
connect reset;
connect to TPCC in share mode;
DROP INDEX CUST_IDXB5;
CREATE INDEX CUST_IDXB5
                ON CUSTOMER5(C_LAST, C_W_ID, C_D_ID, C_FIRST,
C_ID) PCTFREE 0;
connect reset;
connect to TPCC in share mode;
DROP INDEX CUST_IDXB6;
CREATE INDEX CUST_IDXB6
                ON CUSTOMER6(C_LAST, C_W_ID, C_D_ID, C_FIRST,
C_ID) PCTFREE 0;
connect reset;
connect to TPCC in share mode;
DROP INDEX CUST_IDXB7;
CREATE INDEX CUST_IDXB7
                ON CUSTOMER7(C_LAST, C_W_ID, C_D_ID, C_FIRST,
C_ID) PCTFREE 0;
connect reset;
```

cridx_ordr_idxb.ddl

```
connect to TPCC in share mode;
DROP INDEX ORDR_IDXB;
CREATE INDEX ORDR_IDXB
                ON ORDERS(O_C_ID, O_W_ID, O_D_ID, O_ID DESC)
PCTFREE 20 LEVEL2 PCTFREE 20;
connect reset;
```

crtb_customer.ddl

```
connect to TPCC in share mode;
DROP TABLE CUSTOMER1;
CREATE TABLE CUSTOMER1
            (
            C_ID          INTEGER      NOT NULL,
            C_STATE       CHAR(2)      NOT NULL,
            C_ZIP         CHAR(9)      NOT NULL,
            C_PHONE       CHAR(16)     NOT NULL,
            C_SINCE       BIGINT       NOT NULL,
            C_CREDIT_LIM  BIGINT       NOT NULL,
            C_MIDDLE      CHAR(2)      NOT NULL,
            C_CREDIT      CHAR(2)      NOT NULL,
            C_DISCOUNT    INTEGER      NOT NULL,
            C_DATA        VARCHAR(500) NOT NULL,
            C_LAST        VARCHAR(16)  NOT NULL,
            C_FIRST       VARCHAR(16)  NOT NULL,
            C_STREET_1    VARCHAR(20)  NOT NULL,
            C_STREET_2    VARCHAR(20)  NOT NULL,
            C_CITY        VARCHAR(20)  NOT NULL,
            C_D_ID        SMALLINT     NOT NULL,
            C_W_ID        INTEGER      NOT NULL,
            C_DELIVERY_CNT INTEGER     NOT NULL,
            C_BALANCE     BIGINT       NOT NULL,
            C_YTD_PAYMENT BIGINT       NOT NULL,
            C_PAYMENT_CNT INTEGER      NOT NULL
            )
            IN CST_001
            INDEX IN CSTI_001
            ORGANIZE BY KEY SEQUENCE (
            C_ID STARTING FROM 1 ENDING AT 3000,
            C_W_ID STARTING FROM 1 ENDING AT 1800,
            C_D_ID STARTING FROM 1 ENDING AT 10
            )
            ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE CUSTOMER2;
CREATE TABLE CUSTOMER2
```

```
(
 C_ID          INTEGER      NOT NULL,
 C_STATE       CHAR(2)      NOT NULL,
 C_ZIP         CHAR(9)      NOT NULL,
 C_PHONE       CHAR(16)     NOT NULL,
 C_SINCE       BIGINT       NOT NULL,
 C_CREDIT_LIM  BIGINT       NOT NULL,
 C_MIDDLE      CHAR(2)      NOT NULL,
 C_CREDIT      CHAR(2)      NOT NULL,
 C_DISCOUNT    INTEGER      NOT NULL,
 C_DATA        VARCHAR(500) NOT NULL,
 C_LAST        VARCHAR(16)  NOT NULL,
 C_FIRST       VARCHAR(16)  NOT NULL,
 C_STREET_1    VARCHAR(20)  NOT NULL,
 C_STREET_2    VARCHAR(20)  NOT NULL,
 C_CITY        VARCHAR(20)  NOT NULL,
 C_D_ID        SMALLINT     NOT NULL,
 C_W_ID        INTEGER      NOT NULL,
 C_DELIVERY_CNT INTEGER     NOT NULL,
 C_BALANCE     BIGINT       NOT NULL,
 C_YTD_PAYMENT BIGINT       NOT NULL,
 C_PAYMENT_CNT INTEGER      NOT NULL
)
IN CST_002
INDEX IN CSTI_002
ORGANIZE BY KEY SEQUENCE (
 C_ID STARTING FROM 1 ENDING AT 3000,
 C_W_ID STARTING FROM 1801 ENDING AT 3600,
 C_D_ID STARTING FROM 1 ENDING AT 10
)
ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE CUSTOMER3;
CREATE TABLE CUSTOMER3
(
 C_ID          INTEGER      NOT NULL,
 C_STATE       CHAR(2)      NOT NULL,
 C_ZIP         CHAR(9)      NOT NULL,
 C_PHONE       CHAR(16)     NOT NULL,
 C_SINCE       BIGINT       NOT NULL,
 C_CREDIT_LIM  BIGINT       NOT NULL,
 C_MIDDLE      CHAR(2)      NOT NULL,
 C_CREDIT      CHAR(2)      NOT NULL,
 C_DISCOUNT    INTEGER      NOT NULL,
 C_DATA        VARCHAR(500) NOT NULL,
 C_LAST        VARCHAR(16)  NOT NULL,
 C_FIRST       VARCHAR(16)  NOT NULL,
 C_STREET_1    VARCHAR(20)  NOT NULL,
 C_STREET_2    VARCHAR(20)  NOT NULL,
 C_CITY        VARCHAR(20)  NOT NULL,
 C_D_ID        SMALLINT     NOT NULL,
 C_W_ID        INTEGER      NOT NULL,
 C_DELIVERY_CNT INTEGER     NOT NULL,
 C_BALANCE     BIGINT       NOT NULL,
 C_YTD_PAYMENT BIGINT       NOT NULL,
 C_PAYMENT_CNT INTEGER      NOT NULL
)
IN CST_003
INDEX IN CSTI_003
ORGANIZE BY KEY SEQUENCE (
 C_ID STARTING FROM 1 ENDING AT 3000,
 C_W_ID STARTING FROM 3601 ENDING AT 5400,
 C_D_ID STARTING FROM 1 ENDING AT 10
)
ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE CUSTOMER4;
CREATE TABLE CUSTOMER4
(
 C_ID          INTEGER      NOT NULL,
 C_STATE       CHAR(2)      NOT NULL,
 C_ZIP         CHAR(9)      NOT NULL,
 C_PHONE       CHAR(16)     NOT NULL,
 C_SINCE       BIGINT       NOT NULL,
 C_CREDIT_LIM  BIGINT       NOT NULL,
 C_MIDDLE      CHAR(2)      NOT NULL,
 C_CREDIT      CHAR(2)      NOT NULL,
 C_DISCOUNT    INTEGER      NOT NULL,
 C_DATA        VARCHAR(500) NOT NULL,
 C_LAST        VARCHAR(16)  NOT NULL,
 C_FIRST       VARCHAR(16)  NOT NULL,
 C_STREET_1    VARCHAR(20)  NOT NULL,
 C_STREET_2    VARCHAR(20)  NOT NULL,
 C_CITY        VARCHAR(20)  NOT NULL,
 C_D_ID        SMALLINT     NOT NULL,
 C_W_ID        INTEGER      NOT NULL,
 C_DELIVERY_CNT INTEGER     NOT NULL,
 C_BALANCE     BIGINT       NOT NULL,
 C_YTD_PAYMENT BIGINT       NOT NULL,
 C_PAYMENT_CNT INTEGER      NOT NULL
)
IN CST_004
INDEX IN CSTI_004
ORGANIZE BY KEY SEQUENCE (
 C_ID STARTING FROM 1 ENDING AT 3000,
 C_W_ID STARTING FROM 5401 ENDING AT 7200,
 C_D_ID STARTING FROM 1 ENDING AT 10
)
ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE CUSTOMER5;
CREATE TABLE CUSTOMER5
(
 C_ID          INTEGER      NOT NULL,
 C_STATE       CHAR(2)      NOT NULL,
 C_ZIP         CHAR(9)      NOT NULL,
 C_PHONE       CHAR(16)     NOT NULL,
 C_SINCE       BIGINT       NOT NULL,
 C_CREDIT_LIM  BIGINT       NOT NULL,
 C_MIDDLE      CHAR(2)      NOT NULL,
 C_CREDIT      CHAR(2)      NOT NULL,
 C_DISCOUNT    INTEGER      NOT NULL,
 C_DATA        VARCHAR(500) NOT NULL,
 C_LAST        VARCHAR(16)  NOT NULL,
 C_FIRST       VARCHAR(16)  NOT NULL,
 C_STREET_1    VARCHAR(20)  NOT NULL,
 C_STREET_2    VARCHAR(20)  NOT NULL,
 C_CITY        VARCHAR(20)  NOT NULL,
 C_D_ID        SMALLINT     NOT NULL,
 C_W_ID        INTEGER      NOT NULL,
 C_DELIVERY_CNT INTEGER     NOT NULL,
 C_BALANCE     BIGINT       NOT NULL,
 C_YTD_PAYMENT BIGINT       NOT NULL,
 C_PAYMENT_CNT INTEGER      NOT NULL
)
IN CST_005
INDEX IN CSTI_005
ORGANIZE BY KEY SEQUENCE (
 C_ID STARTING FROM 1 ENDING AT 3000,
 C_W_ID STARTING FROM 7201 ENDING AT 9000,
 C_D_ID STARTING FROM 1 ENDING AT 10
)
ALLOW OVERFLOW;
```

```
connect reset;
connect to TPCC in share mode;
DROP TABLE CUSTOMER6;
CREATE TABLE CUSTOMER6
        (
         C_ID          INTEGER      NOT NULL,
         C_STATE       CHAR(2)      NOT NULL,
         C_ZIP         CHAR(9)      NOT NULL,
         C_PHONE       CHAR(16)     NOT NULL,
         C_SINCE       BIGINT       NOT NULL,
         C_CREDIT_LIM  BIGINT       NOT NULL,
         C_MIDDLE      CHAR(2)      NOT NULL,
         C_CREDIT      CHAR(2)      NOT NULL,
         C_DISCOUNT    INTEGER      NOT NULL,
         C_DATA        VARCHAR(500) NOT NULL,
         C_LAST        VARCHAR(16)  NOT NULL,
         C_FIRST       VARCHAR(16)  NOT NULL,
         C_STREET_1    VARCHAR(20)  NOT NULL,
         C_STREET_2    VARCHAR(20)  NOT NULL,
         C_CITY        VARCHAR(20)  NOT NULL,
         C_D_ID        SMALLINT     NOT NULL,
         C_W_ID        INTEGER      NOT NULL,
         C_DELIVERY_CNT INTEGER     NOT NULL,
         C_BALANCE     BIGINT       NOT NULL,
         C_YTD_PAYMENT BIGINT       NOT NULL,
         C_PAYMENT_CNT INTEGER      NOT NULL
        )
        IN CST_006
        INDEX IN CSTI_006
        ORGANIZE BY KEY SEQUENCE (
         C_ID STARTING FROM 1 ENDING AT 3000,
         C_W_ID STARTING FROM 9001 ENDING AT 10800,
         C_D_ID STARTING FROM 1 ENDING AT 10
        )
        ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE CUSTOMER7;
CREATE TABLE CUSTOMER7
        (
         C_ID          INTEGER      NOT NULL,
         C_STATE       CHAR(2)      NOT NULL,
         C_ZIP         CHAR(9)      NOT NULL,
         C_PHONE       CHAR(16)     NOT NULL,
         C_SINCE       BIGINT       NOT NULL,
         C_CREDIT_LIM  BIGINT       NOT NULL,
         C_MIDDLE      CHAR(2)      NOT NULL,
         C_CREDIT      CHAR(2)      NOT NULL,
         C_DISCOUNT    INTEGER      NOT NULL,
         C_DATA        VARCHAR(500) NOT NULL,
         C_LAST        VARCHAR(16)  NOT NULL,
         C_FIRST       VARCHAR(16)  NOT NULL,
         C_STREET_1    VARCHAR(20)  NOT NULL,
         C_STREET_2    VARCHAR(20)  NOT NULL,
         C_CITY        VARCHAR(20)  NOT NULL,
         C_D_ID        SMALLINT     NOT NULL,
         C_W_ID        INTEGER      NOT NULL,
         C_DELIVERY_CNT INTEGER     NOT NULL,
         C_BALANCE     BIGINT       NOT NULL,
         C_YTD_PAYMENT BIGINT       NOT NULL,
         C_PAYMENT_CNT INTEGER      NOT NULL
        )
        IN CST_007
        INDEX IN CSTI_007
        ORGANIZE BY KEY SEQUENCE (
         C_ID STARTING FROM 1 ENDING AT 3000,
         C_W_ID STARTING FROM 10801 ENDING AT 12600,
         C_D_ID STARTING FROM 1 ENDING AT 10
        )
        ALLOW OVERFLOW;
connect reset;
```

crtb_item.ddl

```
connect to TPCC in share mode;
DROP TABLE ITEM;
CREATE TABLE ITEM
        (
         I_NAME        CHAR(24)     NOT NULL,
         I_PRICE       INTEGER      NOT NULL,
         I_DATA        VARCHAR(50)  NOT NULL,
         I_IM_ID       INTEGER      NOT NULL,
         I_ID          INTEGER      NOT NULL
        )
        IN ITM
        INDEX IN ITM
        ORGANIZE BY KEY SEQUENCE (
         I_ID STARTING FROM 1 ENDING AT 100000
        )
        ALLOW OVERFLOW;
ALTER TABLE ITEM LOCKSIZE TABLE;
connect reset;
```

crtb_district.ddl

```
connect to TPCC in share mode;
DROP TABLE DISTRICT;
CREATE TABLE DISTRICT
        (
         D_NEXT_O_ID INTEGER      NOT NULL,
         D_TAX       INTEGER      NOT NULL,
         D_YTD       BIGINT       NOT NULL,
         D_NAME      CHAR(10)     NOT NULL,
         D_STREET_1  CHAR(20)     NOT NULL,
         D_STREET_2  CHAR(20)     NOT NULL,
         D_CITY      CHAR(20)     NOT NULL,
         D_STATE     CHAR(2)      NOT NULL,
         D_ZIP       CHAR(9)      NOT NULL,
         D_ID        SMALLINT     NOT NULL,
         D_W_ID      INTEGER      NOT NULL
        )
        IN DIS
        INDEX IN DIS
        ORGANIZE BY KEY SEQUENCE (
         D_ID STARTING FROM 1 ENDING AT 10,
         D_W_ID STARTING FROM 1 ENDING AT 12600
        )
        ALLOW OVERFLOW;
connect reset;
```

crtb_orders.ddl

```
connect to TPCC in share mode;
DROP TABLE ORDERS;
CREATE TABLE ORDERS
        (
         O_C_ID        INTEGER      NOT NULL,
         O_ENTRY_D     BIGINT       NOT NULL,
         O_CARRIER_ID  SMALLINT     NOT NULL,
         O_OL_CNT      SMALLINT     NOT NULL,
         O_ALL_LOCAL   SMALLINT     NOT NULL,
         O_ID          INTEGER      NOT NULL,
         O_W_ID        INTEGER      NOT NULL,
```

```
        O_D_ID        SMALLINT    NOT NULL
        )
        IN ORD
        INDEX IN ORDI
        ORGANIZE BY KEY SEQUENCE (
        O_ID STARTING FROM 0 ENDING AT 3643,
        O_W_ID STARTING FROM 1 ENDING AT 12600,
        O_D_ID STARTING FROM 1 ENDING AT 10
        )
        ALLOW OVERFLOW;
connect reset;
```

crtb_order_line.ddl

```
connect to TPCC in share mode;
DROP TABLE ORDER_LINE1;
CREATE TABLE ORDER_LINE1
        (
        OL_DELIVERY_D    BIGINT     NOT NULL,
        OL_AMOUNT        INTEGER    NOT NULL,
        OL_I_ID          INTEGER    NOT NULL,
        OL_SUPPLY_W_ID   INTEGER    NOT NULL,
        OL_QUANTITY      SMALLINT   NOT NULL,
        OL_DIST_INFO     CHAR(24)   NOT NULL,
        OL_O_ID          INTEGER    NOT NULL,
        OL_D_ID          SMALLINT   NOT NULL,
        OL_W_ID          INTEGER    NOT NULL,
        OL_NUMBER        SMALLINT   NOT NULL
        )
        IN OLN_001
        INDEX IN OLN_001
        ORGANIZE BY KEY SEQUENCE (
        OL_W_ID STARTING FROM 1 ENDING AT 1800,
        OL_D_ID STARTING FROM 1 ENDING AT 10,
        OL_O_ID STARTING FROM 0 ENDING AT 3643,
        OL_NUMBER STARTING FROM 1 ENDING AT 15
        )
        ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE ORDER_LINE2;
CREATE TABLE ORDER_LINE2
        (
        OL_DELIVERY_D    BIGINT     NOT NULL,
        OL_AMOUNT        INTEGER    NOT NULL,
        OL_I_ID          INTEGER    NOT NULL,
        OL_SUPPLY_W_ID   INTEGER    NOT NULL,
        OL_QUANTITY      SMALLINT   NOT NULL,
        OL_DIST_INFO     CHAR(24)   NOT NULL,
        OL_O_ID          INTEGER    NOT NULL,
        OL_D_ID          SMALLINT   NOT NULL,
        OL_W_ID          INTEGER    NOT NULL,
        OL_NUMBER        SMALLINT   NOT NULL
        )
        IN OLN_002
        INDEX IN OLN_002
        ORGANIZE BY KEY SEQUENCE (
        OL_W_ID STARTING FROM 1801 ENDING AT 3600,
        OL_D_ID STARTING FROM 1 ENDING AT 10,
        OL_O_ID STARTING FROM 0 ENDING AT 3643,
        OL_NUMBER STARTING FROM 1 ENDING AT 15
        )
        ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE ORDER_LINE3;
CREATE TABLE ORDER_LINE3
        (
        OL_DELIVERY_D    BIGINT     NOT NULL,
        OL_AMOUNT        INTEGER    NOT NULL,
        OL_I_ID          INTEGER    NOT NULL,
        OL_SUPPLY_W_ID   INTEGER    NOT NULL,
        OL_QUANTITY      SMALLINT   NOT NULL,
        OL_DIST_INFO     CHAR(24)   NOT NULL,
        OL_O_ID          INTEGER    NOT NULL,
        OL_D_ID          SMALLINT   NOT NULL,
        OL_W_ID          INTEGER    NOT NULL,
        OL_NUMBER        SMALLINT   NOT NULL
        )
        IN OLN_003
        INDEX IN OLN_003
        ORGANIZE BY KEY SEQUENCE (
        OL_W_ID STARTING FROM 3601 ENDING AT 5400,
        OL_D_ID STARTING FROM 1 ENDING AT 10,
        OL_O_ID STARTING FROM 0 ENDING AT 3643,
        OL_NUMBER STARTING FROM 1 ENDING AT 15
        )
        ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE ORDER_LINE4;
CREATE TABLE ORDER_LINE4
        (
        OL_DELIVERY_D    BIGINT     NOT NULL,
        OL_AMOUNT        INTEGER    NOT NULL,
        OL_I_ID          INTEGER    NOT NULL,
        OL_SUPPLY_W_ID   INTEGER    NOT NULL,
        OL_QUANTITY      SMALLINT   NOT NULL,
        OL_DIST_INFO     CHAR(24)   NOT NULL,
        OL_O_ID          INTEGER    NOT NULL,
        OL_D_ID          SMALLINT   NOT NULL,
        OL_W_ID          INTEGER    NOT NULL,
        OL_NUMBER        SMALLINT   NOT NULL
        )
        IN OLN_004
        INDEX IN OLN_004
        ORGANIZE BY KEY SEQUENCE (
        OL_W_ID STARTING FROM 5401 ENDING AT 7200,
        OL_D_ID STARTING FROM 1 ENDING AT 10,
        OL_O_ID STARTING FROM 0 ENDING AT 3643,
        OL_NUMBER STARTING FROM 1 ENDING AT 15
        )
        ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE ORDER_LINE5;
CREATE TABLE ORDER_LINE5
        (
        OL_DELIVERY_D    BIGINT     NOT NULL,
        OL_AMOUNT        INTEGER    NOT NULL,
        OL_I_ID          INTEGER    NOT NULL,
        OL_SUPPLY_W_ID   INTEGER    NOT NULL,
        OL_QUANTITY      SMALLINT   NOT NULL,
        OL_DIST_INFO     CHAR(24)   NOT NULL,
        OL_O_ID          INTEGER    NOT NULL,
        OL_D_ID          SMALLINT   NOT NULL,
        OL_W_ID          INTEGER    NOT NULL,
        OL_NUMBER        SMALLINT   NOT NULL
        )
        IN OLN_005
        INDEX IN OLN_005
        ORGANIZE BY KEY SEQUENCE (
        OL_W_ID STARTING FROM 7201 ENDING AT 9000,
        OL_D_ID STARTING FROM 1 ENDING AT 10,
        OL_O_ID STARTING FROM 0 ENDING AT 3643,
```

```
        OL_NUMBER STARTING FROM 1 ENDING AT 15
        )
        ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE ORDER_LINE6;
CREATE TABLE ORDER_LINE6
        (
        OL_DELIVERY_D   BIGINT    NOT NULL,
        OL_AMOUNT       INTEGER   NOT NULL,
        OL_I_ID         INTEGER   NOT NULL,
        OL_SUPPLY_W_ID  INTEGER   NOT NULL,
        OL_QUANTITY     SMALLINT  NOT NULL,
        OL_DIST_INFO    CHAR(24)  NOT NULL,
        OL_O_ID         INTEGER   NOT NULL,
        OL_D_ID         SMALLINT  NOT NULL,
        OL_W_ID         INTEGER   NOT NULL,
        OL_NUMBER       SMALLINT  NOT NULL
        )
        IN OLN_006
        INDEX IN OLN_006
        ORGANIZE BY KEY SEQUENCE (
        OL_W_ID STARTING FROM 9001 ENDING AT 10800,
        OL_D_ID STARTING FROM 1 ENDING AT 10,
        OL_O_ID STARTING FROM 0 ENDING AT 3643,
        OL_NUMBER STARTING FROM 1 ENDING AT 15
        )
        ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE ORDER_LINE7;
CREATE TABLE ORDER_LINE7
        (
        OL_DELIVERY_D   BIGINT    NOT NULL,
        OL_AMOUNT       INTEGER   NOT NULL,
        OL_I_ID         INTEGER   NOT NULL,
        OL_SUPPLY_W_ID  INTEGER   NOT NULL,
        OL_QUANTITY     SMALLINT  NOT NULL,
        OL_DIST_INFO    CHAR(24)  NOT NULL,
        OL_O_ID         INTEGER   NOT NULL,
        OL_D_ID         SMALLINT  NOT NULL,
        OL_W_ID         INTEGER   NOT NULL,
        OL_NUMBER       SMALLINT  NOT NULL
        )
        IN OLN_007
        INDEX IN OLN_007
        ORGANIZE BY KEY SEQUENCE (
        OL_W_ID STARTING FROM 10801 ENDING AT 12600,
        OL_D_ID STARTING FROM 1 ENDING AT 10,
        OL_O_ID STARTING FROM 0 ENDING AT 3643,
        OL_NUMBER STARTING FROM 1 ENDING AT 15
        )
        ALLOW OVERFLOW;
connect reset;
```

crtb_new_ordera.ddl

```
connect to TPCC in share mode;
DROP TABLE NEW_ORDERA1;
CREATE TABLE NEW_ORDERA1
        (
        NO_O_ID         INTEGER     NOT NULL,
        NO_D_ID         SMALLINT    NOT NULL,
        NO_W_ID         INTEGER     NOT NULL
        )
        IN NEWA_001
        INDEX IN NEWA_001
        ORGANIZE BY KEY SEQUENCE (
        NO_W_ID STARTING FROM 1 ENDING AT
1800,
        NO_D_ID STARTING FROM 1 ENDING AT 10,
        NO_O_ID STARTING FROM 1900 ENDING AT
3643
        )
        ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE NEW_ORDERA2;
CREATE TABLE NEW_ORDERA2
        (
        NO_O_ID         INTEGER     NOT NULL,
        NO_D_ID         SMALLINT    NOT NULL,
        NO_W_ID         INTEGER     NOT NULL
        )
        IN NEWA_002
        INDEX IN NEWA_002
        ORGANIZE BY KEY SEQUENCE (
        NO_W_ID STARTING FROM 1801 ENDING
AT 3600,
        NO_D_ID STARTING FROM 1 ENDING AT 10,
        NO_O_ID STARTING FROM 1900 ENDING AT
3643
        )
        ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE NEW_ORDERA3;
CREATE TABLE NEW_ORDERA3
        (
        NO_O_ID         INTEGER     NOT NULL,
        NO_D_ID         SMALLINT    NOT NULL,
        NO_W_ID         INTEGER     NOT NULL
        )
        IN NEWA_003
        INDEX IN NEWA_003
        ORGANIZE BY KEY SEQUENCE (
        NO_W_ID STARTING FROM 3601 ENDING
AT 5400,
        NO_D_ID STARTING FROM 1 ENDING AT 10,
        NO_O_ID STARTING FROM 1900 ENDING AT
3643
        )
        ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE NEW_ORDERA4;
CREATE TABLE NEW_ORDERA4
        (
        NO_O_ID         INTEGER     NOT NULL,
        NO_D_ID         SMALLINT    NOT NULL,
```

```
 NO_W_ID        INTEGER     NOT NULL
)
IN NEWA_004
INDEX IN NEWA_004
ORGANIZE BY KEY SEQUENCE (
 NO_W_ID STARTING FROM 5401 ENDING
AT 7200,
 NO_D_ID STARTING FROM 1 ENDING AT 10,
 NO_O_ID STARTING FROM 1900 ENDING AT
3643
)
ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE NEW_ORDERA5;
CREATE TABLE NEW_ORDERA5
(
 NO_O_ID        INTEGER     NOT NULL,
 NO_D_ID        SMALLINT    NOT NULL,
 NO_W_ID        INTEGER     NOT NULL
)
IN NEWA_005
INDEX IN NEWA_005
ORGANIZE BY KEY SEQUENCE (
 NO_W_ID STARTING FROM 7201 ENDING
AT 9000,
 NO_D_ID STARTING FROM 1 ENDING AT 10,
 NO_O_ID STARTING FROM 1900 ENDING AT
3643
)
ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE NEW_ORDERA6;
CREATE TABLE NEW_ORDERA6
(
 NO_O_ID        INTEGER     NOT NULL,
 NO_D_ID        SMALLINT    NOT NULL,
 NO_W_ID        INTEGER     NOT NULL
)
IN NEWA_006
INDEX IN NEWA_006
ORGANIZE BY KEY SEQUENCE (
 NO_W_ID STARTING FROM 9001 ENDING
AT 10800,
 NO_D_ID STARTING FROM 1 ENDING AT 10,
 NO_O_ID STARTING FROM 1900 ENDING AT
3643
)
ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE NEW_ORDERA7;
CREATE TABLE NEW_ORDERA7
(
 NO_O_ID        INTEGER     NOT NULL,
 NO_D_ID        SMALLINT    NOT NULL,
 NO_W_ID        INTEGER     NOT NULL
)
IN NEWA_007
INDEX IN NEWA_007
ORGANIZE BY KEY SEQUENCE (
 NO_W_ID STARTING FROM 10801 ENDING
AT 12600,
 NO_D_ID STARTING FROM 1 ENDING AT 10,
 NO_O_ID STARTING FROM 1900 ENDING AT
3643
)
ALLOW OVERFLOW;
connect reset;
```

crtb_new_orderb.ddl

```
connect to TPCC in share mode;
DROP TABLE NEW_ORDERB1;
CREATE TABLE NEW_ORDERB1
(
 NO_O_ID        INTEGER     NOT NULL,
 NO_D_ID        SMALLINT    NOT NULL,
 NO_W_ID        INTEGER     NOT NULL
)
IN NEWB_001
INDEX IN NEWB_001
ORGANIZE BY KEY SEQUENCE (
 NO_W_ID STARTING FROM 1 ENDING AT 1800,
 NO_D_ID STARTING FROM 1 ENDING AT 10,
 NO_O_ID STARTING FROM 3644 ENDING AT 5387
)
ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE NEW_ORDERB2;
CREATE TABLE NEW_ORDERB2
(
 NO_O_ID        INTEGER     NOT NULL,
 NO_D_ID        SMALLINT    NOT NULL,
 NO_W_ID        INTEGER     NOT NULL
)
IN NEWB_002
INDEX IN NEWB_002
ORGANIZE BY KEY SEQUENCE (
 NO_W_ID STARTING FROM 1801 ENDING AT 3600,
 NO_D_ID STARTING FROM 1 ENDING AT 10,
 NO_O_ID STARTING FROM 3644 ENDING AT 5387
)
ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE NEW_ORDERB3;
CREATE TABLE NEW_ORDERB3
(
 NO_O_ID        INTEGER     NOT NULL,
 NO_D_ID        SMALLINT    NOT NULL,
 NO_W_ID        INTEGER     NOT NULL
)
IN NEWB_003
INDEX IN NEWB_003
ORGANIZE BY KEY SEQUENCE (
```

```
            NO_W_ID STARTING FROM 3601 ENDING AT 5400,
            NO_D_ID STARTING FROM 1 ENDING AT 10,
            NO_O_ID STARTING FROM 3644 ENDING AT 5387
           )
           ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE NEW_ORDERB4;
CREATE TABLE NEW_ORDERB4
           (
            NO_O_ID       INTEGER    NOT NULL,
            NO_D_ID       SMALLINT   NOT NULL,
            NO_W_ID       INTEGER    NOT NULL
           )
           IN NEWB_004
           INDEX IN NEWB_004
           ORGANIZE BY KEY SEQUENCE (
            NO_W_ID STARTING FROM 5401 ENDING AT 7200,
            NO_D_ID STARTING FROM 1 ENDING AT 10,
            NO_O_ID STARTING FROM 3644 ENDING AT 5387
           )
           ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE NEW_ORDERB5;
CREATE TABLE NEW_ORDERB5
           (
            NO_O_ID       INTEGER    NOT NULL,
            NO_D_ID       SMALLINT   NOT NULL,
            NO_W_ID       INTEGER    NOT NULL
           )
           IN NEWB_005
           INDEX IN NEWB_005
           ORGANIZE BY KEY SEQUENCE (
            NO_W_ID STARTING FROM 7201 ENDING AT 9000,
            NO_D_ID STARTING FROM 1 ENDING AT 10,
            NO_O_ID STARTING FROM 3644 ENDING AT 5387
           )
           ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE NEW_ORDERB6;
CREATE TABLE NEW_ORDERB6
           (
            NO_O_ID       INTEGER    NOT NULL,
            NO_D_ID       SMALLINT   NOT NULL,
            NO_W_ID       INTEGER    NOT NULL
           )
           IN NEWB_006
           INDEX IN NEWB_006
           ORGANIZE BY KEY SEQUENCE (
            NO_W_ID STARTING FROM 9001 ENDING AT 10800,
            NO_D_ID STARTING FROM 1 ENDING AT 10,
            NO_O_ID STARTING FROM 3644 ENDING AT 5387
           )
           ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE NEW_ORDERB7;
CREATE TABLE NEW_ORDERB7
           (
            NO_O_ID       INTEGER    NOT NULL,
            NO_D_ID       SMALLINT   NOT NULL,
            NO_W_ID       INTEGER    NOT NULL
           )
           IN NEWB_007
           INDEX IN NEWB_007
           ORGANIZE BY KEY SEQUENCE (
            NO_W_ID STARTING FROM 10801 ENDING AT 12600,
            NO_D_ID STARTING FROM 1 ENDING AT 10,
            NO_O_ID STARTING FROM 3644 ENDING AT 5387
           )
           ALLOW OVERFLOW;
connect reset;
```

crtb_stock.ddl

```
connect to TPCC in share mode;
DROP TABLE STOCK1;
CREATE TABLE STOCK1
           (
            S_REMOTE_CNT   INTEGER    NOT NULL,
            S_QUANTITY     INTEGER    NOT NULL,
            S_ORDER_CNT    INTEGER    NOT NULL,
            S_YTD          INTEGER    NOT NULL,
            S_DATA         VARCHAR(50) NOT NULL,
            S_DIST_01      CHAR(24)   NOT NULL,
            S_DIST_02      CHAR(24)   NOT NULL,
            S_DIST_03      CHAR(24)   NOT NULL,
            S_DIST_04      CHAR(24)   NOT NULL,
            S_DIST_05      CHAR(24)   NOT NULL,
            S_DIST_06      CHAR(24)   NOT NULL,
            S_DIST_07      CHAR(24)   NOT NULL,
            S_DIST_08      CHAR(24)   NOT NULL,
            S_DIST_09      CHAR(24)   NOT NULL,
            S_DIST_10      CHAR(24)   NOT NULL,
            S_I_ID         INTEGER    NOT NULL,
            S_W_ID         INTEGER    NOT NULL
           )
           IN STK_001
           INDEX IN STK_001
           ORGANIZE BY KEY SEQUENCE (
            S_I_ID STARTING FROM 1 ENDING AT 100000,
            S_W_ID STARTING FROM 1 ENDING AT 1800
           )
           ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE STOCK2;
CREATE TABLE STOCK2
           (
            S_REMOTE_CNT   INTEGER    NOT NULL,
            S_QUANTITY     INTEGER    NOT NULL,
            S_ORDER_CNT    INTEGER    NOT NULL,
            S_YTD          INTEGER    NOT NULL,
            S_DATA         VARCHAR(50) NOT NULL,
            S_DIST_01      CHAR(24)   NOT NULL,
            S_DIST_02      CHAR(24)   NOT NULL,
            S_DIST_03      CHAR(24)   NOT NULL,
            S_DIST_04      CHAR(24)   NOT NULL,
            S_DIST_05      CHAR(24)   NOT NULL,
            S_DIST_06      CHAR(24)   NOT NULL,
            S_DIST_07      CHAR(24)   NOT NULL,
            S_DIST_08      CHAR(24)   NOT NULL,
            S_DIST_09      CHAR(24)   NOT NULL,
            S_DIST_10      CHAR(24)   NOT NULL,
            S_I_ID         INTEGER    NOT NULL,
            S_W_ID         INTEGER    NOT NULL
           )
           IN STK_002
           INDEX IN STK_002
           ORGANIZE BY KEY SEQUENCE (
            S_I_ID STARTING FROM 1 ENDING AT 100000,
            S_W_ID STARTING FROM 1801 ENDING AT 3600
           )
```

```
        ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE STOCK3;
CREATE TABLE STOCK3
        (
        S_REMOTE_CNT    INTEGER     NOT NULL,
        S_QUANTITY      INTEGER     NOT NULL,
        S_ORDER_CNT     INTEGER     NOT NULL,
        S_YTD           INTEGER     NOT NULL,
        S_DATA          VARCHAR(50) NOT NULL,
        S_DIST_01       CHAR(24)    NOT NULL,
        S_DIST_02       CHAR(24)    NOT NULL,
        S_DIST_03       CHAR(24)    NOT NULL,
        S_DIST_04       CHAR(24)    NOT NULL,
        S_DIST_05       CHAR(24)    NOT NULL,
        S_DIST_06       CHAR(24)    NOT NULL,
        S_DIST_07       CHAR(24)    NOT NULL,
        S_DIST_08       CHAR(24)    NOT NULL,
        S_DIST_09       CHAR(24)    NOT NULL,
        S_DIST_10       CHAR(24)    NOT NULL,
        S_I_ID          INTEGER     NOT NULL,
        S_W_ID          INTEGER     NOT NULL
        )
        IN STK_003
        INDEX IN STK_003
        ORGANIZE BY KEY SEQUENCE (
        S_I_ID STARTING FROM 1 ENDING AT 100000,
        S_W_ID STARTING FROM 3601 ENDING AT 5400
        )
        ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE STOCK4;
CREATE TABLE STOCK4
        (
        S_REMOTE_CNT    INTEGER     NOT NULL,
        S_QUANTITY      INTEGER     NOT NULL,
        S_ORDER_CNT     INTEGER     NOT NULL,
        S_YTD           INTEGER     NOT NULL,
        S_DATA          VARCHAR(50) NOT NULL,
        S_DIST_01       CHAR(24)    NOT NULL,
        S_DIST_02       CHAR(24)    NOT NULL,
        S_DIST_03       CHAR(24)    NOT NULL,
        S_DIST_04       CHAR(24)    NOT NULL,
        S_DIST_05       CHAR(24)    NOT NULL,
        S_DIST_06       CHAR(24)    NOT NULL,
        S_DIST_07       CHAR(24)    NOT NULL,
        S_DIST_08       CHAR(24)    NOT NULL,
        S_DIST_09       CHAR(24)    NOT NULL,
        S_DIST_10       CHAR(24)    NOT NULL,
        S_I_ID          INTEGER     NOT NULL,
        S_W_ID          INTEGER     NOT NULL
        )
        IN STK_004
        INDEX IN STK_004
        ORGANIZE BY KEY SEQUENCE (
        S_I_ID STARTING FROM 1 ENDING AT 100000,
        S_W_ID STARTING FROM 5401 ENDING AT 7200
        )
        ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE STOCK5;
CREATE TABLE STOCK5
        (
        S_REMOTE_CNT    INTEGER     NOT NULL,
        S_QUANTITY      INTEGER     NOT NULL,
        S_ORDER_CNT     INTEGER     NOT NULL,
        S_YTD           INTEGER     NOT NULL,
        S_DATA          VARCHAR(50) NOT NULL,
        S_DIST_01       CHAR(24)    NOT NULL,
        S_DIST_02       CHAR(24)    NOT NULL,
        S_DIST_03       CHAR(24)    NOT NULL,
        S_DIST_04       CHAR(24)    NOT NULL,
        S_DIST_05       CHAR(24)    NOT NULL,
        S_DIST_06       CHAR(24)    NOT NULL,
        S_DIST_07       CHAR(24)    NOT NULL,
        S_DIST_08       CHAR(24)    NOT NULL,
        S_DIST_09       CHAR(24)    NOT NULL,
        S_DIST_10       CHAR(24)    NOT NULL,
        S_I_ID          INTEGER     NOT NULL,
        S_W_ID          INTEGER     NOT NULL
        )
        IN STK_005
        INDEX IN STK_005
        ORGANIZE BY KEY SEQUENCE (
        S_I_ID STARTING FROM 1 ENDING AT 100000,
        S_W_ID STARTING FROM 7201 ENDING AT 9000
        )
        ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE STOCK6;
CREATE TABLE STOCK6
        (
        S_REMOTE_CNT    INTEGER     NOT NULL,
        S_QUANTITY      INTEGER     NOT NULL,
        S_ORDER_CNT     INTEGER     NOT NULL,
        S_YTD           INTEGER     NOT NULL,
        S_DATA          VARCHAR(50) NOT NULL,
        S_DIST_01       CHAR(24)    NOT NULL,
        S_DIST_02       CHAR(24)    NOT NULL,
        S_DIST_03       CHAR(24)    NOT NULL,
        S_DIST_04       CHAR(24)    NOT NULL,
        S_DIST_05       CHAR(24)    NOT NULL,
        S_DIST_06       CHAR(24)    NOT NULL,
        S_DIST_07       CHAR(24)    NOT NULL,
        S_DIST_08       CHAR(24)    NOT NULL,
        S_DIST_09       CHAR(24)    NOT NULL,
        S_DIST_10       CHAR(24)    NOT NULL,
        S_I_ID          INTEGER     NOT NULL,
        S_W_ID          INTEGER     NOT NULL
        )
        IN STK_006
        INDEX IN STK_006
        ORGANIZE BY KEY SEQUENCE (
        S_I_ID STARTING FROM 1 ENDING AT 100000,
        S_W_ID STARTING FROM 9001 ENDING AT 10800
        )
        ALLOW OVERFLOW;
connect reset;
connect to TPCC in share mode;
DROP TABLE STOCK7;
CREATE TABLE STOCK7
        (
        S_REMOTE_CNT    INTEGER     NOT NULL,
        S_QUANTITY      INTEGER     NOT NULL,
        S_ORDER_CNT     INTEGER     NOT NULL,
        S_YTD           INTEGER     NOT NULL,
        S_DATA          VARCHAR(50) NOT NULL,
        S_DIST_01       CHAR(24)    NOT NULL,
        S_DIST_02       CHAR(24)    NOT NULL,
        S_DIST_03       CHAR(24)    NOT NULL,
        S_DIST_04       CHAR(24)    NOT NULL,
        S_DIST_05       CHAR(24)    NOT NULL,
```

```
            S_DIST_06      CHAR(24)    NOT NULL,
            S_DIST_07      CHAR(24)    NOT NULL,
            S_DIST_08      CHAR(24)    NOT NULL,
            S_DIST_09      CHAR(24)    NOT NULL,
            S_DIST_10      CHAR(24)    NOT NULL,
            S_I_ID         INTEGER     NOT NULL,
            S_W_ID         INTEGER     NOT NULL
            )
            IN STK_007
            INDEX IN STK_007
            ORGANIZE BY KEY SEQUENCE (
            S_I_ID STARTING FROM 1 ENDING AT 100000,
            S_W_ID STARTING FROM 10801 ENDING AT 12600
            )
            ALLOW OVERFLOW;
connect reset;
```

crtb_history.ddl

```
connect to TPCC in share mode;
DROP TABLE HISTORY;
CREATE TABLE HISTORY
            (
            H_C_ID         INTEGER     NOT NULL,
            H_C_D_ID       SMALLINT    NOT NULL,
            H_C_W_ID       INTEGER     NOT NULL,
            H_D_ID         SMALLINT    NOT NULL,
            H_W_ID         INTEGER     NOT NULL,
            H_DATE         BIGINT      NOT NULL,
            H_AMOUNT       INTEGER     NOT NULL,
            H_DATA         CHAR(24)    NOT NULL
            )
            IN HST
            INDEX IN HST;
ALTER TABLE HISTORY APPEND ON;
connect reset;
```

crtb_warehouse.ddl

```
connect to TPCC in share mode;
DROP TABLE WAREHOUSE;
CREATE TABLE WAREHOUSE
            (
            W_NAME      CHAR(10)       NOT NULL,
            W_STREET_1  CHAR(20)       NOT NULL,
            W_STREET_2  CHAR(20)       NOT NULL,
            W_CITY      CHAR(20)       NOT NULL,
            W_STATE     CHAR(2)        NOT NULL,
            W_ZIP       CHAR(9)        NOT NULL,
            W_TAX       INTEGER        NOT NULL,
            W_YTD       BIGINT         NOT NULL,
            W_ID        INTEGER        NOT NULL
            )
            IN WAR
            INDEX IN WAR
            ORGANIZE BY KEY SEQUENCE (
            W_ID STARTING FROM 1 ENDING AT 12600
            )
            ALLOW OVERFLOW;
connect reset;
```

crvw_customer.ddl

```
connect to TPCC in share mode;
DROP VIEW CUSTOMER;
CREATE VIEW CUSTOMER
            (C_ID,
             C_STATE,
             C_ZIP,
             C_PHONE,
             C_SINCE,
             C_CREDIT_LIM,
             C_MIDDLE,
             C_CREDIT,
             C_DISCOUNT,
             C_DATA,
             C_LAST,
             C_FIRST,
             C_STREET_1,
             C_STREET_2,
             C_CITY,
             C_D_ID,
             C_W_ID,
             C_DELIVERY_CNT,
             C_BALANCE,
             C_YTD_PAYMENT,
             C_PAYMENT_CNT
            ) AS SELECT * FROM CUSTOMER1 UNION ALL
SELECT * FROM CUSTOMER2 UNION ALL
SELECT * FROM CUSTOMER3 UNION ALL
SELECT * FROM CUSTOMER4 UNION ALL
SELECT * FROM CUSTOMER5 UNION ALL
SELECT * FROM CUSTOMER6 UNION ALL
SELECT * FROM CUSTOMER7
WITH ROW MOVEMENT;
COMMIT WORK;
connect reset;
```

crvw_new_order.ddl

```
connect to TPCC in share mode;
DROP VIEW NEW_ORDER;
CREATE VIEW NEW_ORDER
            (NO_O_ID,
             NO_D_ID,
             NO_W_ID
            ) AS SELECT * FROM NEW_ORDERA1 UNION ALL
SELECT * FROM NEW_ORDERA2 UNION ALL
SELECT * FROM NEW_ORDERA3 UNION ALL
SELECT * FROM NEW_ORDERA4 UNION ALL
SELECT * FROM NEW_ORDERA5 UNION ALL
SELECT * FROM NEW_ORDERA6 UNION ALL
SELECT * FROM NEW_ORDERA7 UNION ALL
SELECT * FROM NEW_ORDERB1 UNION ALL
SELECT * FROM NEW_ORDERB2 UNION ALL
SELECT * FROM NEW_ORDERB3 UNION ALL
SELECT * FROM NEW_ORDERB4 UNION ALL
SELECT * FROM NEW_ORDERB5 UNION ALL
SELECT * FROM NEW_ORDERB6 UNION ALL
SELECT * FROM NEW_ORDERB7
WITH ROW MOVEMENT;
COMMIT WORK;
connect reset;
```

crvw_order_line.ddl

```
connect to TPCC in share mode;
DROP VIEW ORDER_LINE;
CREATE VIEW ORDER_LINE
            (OL_DELIVERY_D,
             OL_AMOUNT,
             OL_I_ID,
```

```
            OL_SUPPLY_W_ID,
            OL_QUANTITY,
            OL_DIST_INFO,
            OL_O_ID,
            OL_D_ID,
            OL_W_ID,
            OL_NUMBER
           ) AS SELECT * FROM ORDER_LINE1 UNION ALL
SELECT * FROM ORDER_LINE2 UNION ALL
SELECT * FROM ORDER_LINE3 UNION ALL
SELECT * FROM ORDER_LINE4 UNION ALL
SELECT * FROM ORDER_LINE5 UNION ALL
SELECT * FROM ORDER_LINE6 UNION ALL
SELECT * FROM ORDER_LINE7
WITH ROW MOVEMENT;
COMMIT WORK;
connect reset;
```

crvw_stock.ddl

```
connect to TPCC in share mode;
DROP VIEW STOCK;
CREATE VIEW STOCK
           (S_REMOTE_CNT,
            S_QUANTITY,
            S_ORDER_CNT,
            S_YTD,
            S_DATA,
            S_DIST_01,
            S_DIST_02,
            S_DIST_03,
            S_DIST_04,
            S_DIST_05,
            S_DIST_06,
            S_DIST_07,
            S_DIST_08,
            S_DIST_09,
            S_DIST_10,
            S_I_ID,
            S_W_ID
           ) AS SELECT * FROM STOCK1 UNION ALL
SELECT * FROM STOCK2 UNION ALL
SELECT * FROM STOCK3 UNION ALL
SELECT * FROM STOCK4 UNION ALL
SELECT * FROM STOCK5 UNION ALL
SELECT * FROM STOCK6 UNION ALL
SELECT * FROM STOCK7
WITH ROW MOVEMENT;
COMMIT WORK;
connect reset;
```

gen_customer.bat

```
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 7 -r 1 1800 -f1
C:\flats\flat_001\customer_001_1.dat
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 7 -r 1801 3600 -f1
C:\flats\flat_002\customer_002_1.dat
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 7 -r 3601 5400 -f1
C:\flats\flat_003\customer_003_1.dat
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 7 -r 5401 7200 -f1
C:\flats\flat_004\customer_004_1.dat
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 7 -r 7201 9000 -f1
C:\flats\flat_005\customer_005_1.dat
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 7 -r 9001 10800 -f1
C:\flats\flat_006\customer_006_1.dat
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 7 -r 10801 12600 -f1
C:\flats\flat_007\customer_007_1.dat
```

gen_district.bat

```
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 4 -r 1 12600 -f1
C:\flats\flat\district_1.dat
```

gen_history.bat

```
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 8 -r 1 3150 -f1
T:\flats\flat\history_1.dat
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 8 -r 3151 6300 -f1
T:\flats\flat\history_2.dat
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 8 -r 6301 9450 -f1
T:\flats\flat\history_3.dat
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 8 -r 9451 12600 -f1
T:\flats\flat\history_4.dat
```

gen_item.bat

```
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 5 -f1
C:\flats\flat\item_1.dat
```

gen_new_order.bat

```
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 11 -r 1 1800 -f1
C:\flats\flat_001\neworder_001_1.dat

C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 11 -r 1801 3600 -f1
C:\flats\flat_002\neworder_002_1.dat

C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 11 -r 3601 5400 -f1
C:\flats\flat_003\neworder_003_1.dat

C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 11 -r 5401 7200 -f1
C:\flats\flat_004\neworder_004_1.dat

C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 11 -r 7201 9000 -f1
C:\flats\flat_005\neworder_005_1.dat

C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 11 -r 9001 10800 -f1
C:\flats\flat_006\neworder_006_1.dat

C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 11 -r 10801 12600 -f1
C:\flats\flat_007\neworder_007_1.dat
```

gen_orders.bat

```
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 9 -r 1 1800 -f1
T:\flats\flat\orders_1.dat -f2 C:\flats\flat_001\orderline_001_1.dat
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 9 -r 1801 3600 -f1
T:\flats\flat\orders_2.dat -f2 C:\flats\flat_002\orderline_002_1.dat
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 9 -r 3601 5400 -f1
T:\flats\flat\orders_3.dat -f2 C:\flats\flat_003\orderline_003_1.dat
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 9 -r 5401 7200 -f1
T:\flats\flat\orders_4.dat -f2 C:\flats\flat_004\orderline_004_1.dat
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 9 -r 7201 9000 -f1
T:\flats\flat\orders_5.dat -f2 C:\flats\flat_005\orderline_005_1.dat
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 9 -r 9001 10800 -f1
T:\flats\flat\orders_6.dat -f2 C:\flats\flat_006\orderline_006_1.dat
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 9 -r 10801 12600 -f1
T:\flats\flat\orders_7.dat -f2 C:\flats\flat_007\orderline_007_1.dat
```

gen_stock.bat

```
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 6 -r 1 1800 -f1
C:\flats\flat_001\stock_001_1.dat
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 6 -r 1801 3600 -f1
C:\flats\flat_002\stock_002_1.dat
```

```
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 6 -r 3601 5400 -f1
C:\flats\flat_003\stock_003_1.dat
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 6 -r 5401 7200 -f1
C:\flats\flat_004\stock_004_1.dat
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 6 -r 7201 9000 -f1
C:\flats\flat_005\stock_005_1.dat
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 6 -r 9001 10800 -f1
C:\flats\flat_006\stock_006_1.dat
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 6 -r 10801 12600 -f1
C:\flats\flat_007\stock_007_1.dat
```

gen_warehouse.bat

```
C:\tpcckit\tpc-c.ibm\dbgen\gendata.exe -t 3 -r 1 12600 -f1
C:\flats\flat\warehouse_1.dat
```

load_customer_all.ddl

```
CONNECT TO TPCC IN SHARE MODE;
UPDATE COMMAND OPTIONS USING C OFF;
ALTER TABLE CUSTOMER1 ACTIVATE NOT LOGGED INITIALLY;
IMPORT FROM C:\flats\flat_001\customer_001_1.dat OF DEL MODIFIED
BY COLDEL| KEEPBLANKS COMPOUND=50  COMMITCOUNT
54000000 INSERT INTO CUSTOMER1;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
UPDATE COMMAND OPTIONS USING C OFF;
ALTER TABLE CUSTOMER2 ACTIVATE NOT LOGGED INITIALLY;
IMPORT FROM C:\flats\flat_002\customer_002_1.dat OF DEL MODIFIED
BY COLDEL| KEEPBLANKS COMPOUND=50  COMMITCOUNT
54000000 INSERT INTO CUSTOMER2;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
UPDATE COMMAND OPTIONS USING C OFF;
ALTER TABLE CUSTOMER3 ACTIVATE NOT LOGGED INITIALLY;
IMPORT FROM C:\flats\flat_003\customer_003_1.dat OF DEL MODIFIED
BY COLDEL| KEEPBLANKS COMPOUND=50  COMMITCOUNT
54000000 INSERT INTO CUSTOMER3;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
UPDATE COMMAND OPTIONS USING C OFF;
ALTER TABLE CUSTOMER4 ACTIVATE NOT LOGGED INITIALLY;
IMPORT FROM C:\flats\flat_004\customer_004_1.dat OF DEL MODIFIED
BY COLDEL| KEEPBLANKS COMPOUND=50  COMMITCOUNT
54000000 INSERT INTO CUSTOMER4;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
UPDATE COMMAND OPTIONS USING C OFF;
ALTER TABLE CUSTOMER5 ACTIVATE NOT LOGGED INITIALLY;
IMPORT FROM C:\flats\flat_005\customer_005_1.dat OF DEL MODIFIED
BY COLDEL| KEEPBLANKS COMPOUND=50  COMMITCOUNT
54000000 INSERT INTO CUSTOMER5;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
UPDATE COMMAND OPTIONS USING C OFF;
ALTER TABLE CUSTOMER6 ACTIVATE NOT LOGGED INITIALLY;
IMPORT FROM C:\flats\flat_006\customer_006_1.dat OF DEL MODIFIED
BY COLDEL| KEEPBLANKS COMPOUND=50  COMMITCOUNT
54000000 INSERT INTO CUSTOMER6;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
UPDATE COMMAND OPTIONS USING C OFF;
ALTER TABLE CUSTOMER7 ACTIVATE NOT LOGGED INITIALLY;
IMPORT FROM C:\flats\flat_007\customer_007_1.dat OF DEL MODIFIED
BY COLDEL| KEEPBLANKS COMPOUND=50  COMMITCOUNT
54000000 INSERT INTO CUSTOMER7;
COMMIT WORK;
CONNECT RESET;
```

load_district_all.ddl

```
CONNECT TO TPCC IN SHARE MODE;
IMPORT FROM C:\flats\flat\district_1.dat OF DEL MODIFIED BY COLDEL|
KEEPBLANKS COMPOUND=50 ALLOW WRITE ACCESS
COMMITCOUNT 1000 INSERT INTO DISTRICT;
COMMIT WORK;
CONNECT RESET;
```

load_history_all.ddl

```
connect to TPCC in share mode;
LOAD FROM T:\flats\flat\history_1.dat, T:\flats\flat\history_2.dat,
T:\flats\flat\history_3.dat, T:\flats\flat\history_4.dat OF DEL MODIFIED BY
COLDEL| KEEPBLANKS FASTPARSE REPLACE INTO HISTORY
NONRECOVERABLE DATA BUFFER 5000 CPU_PARALLELISM 4 ;
connect reset;
```

load_item_all.ddl

```
CONNECT TO TPCC IN SHARE MODE;
IMPORT FROM C:\flats\flat\item_1.dat OF DEL MODIFIED BY COLDEL|
KEEPBLANKS COMPOUND=50  COMMITCOUNT 1000 INSERT INTO
ITEM;
COMMIT WORK;
CONNECT RESET;
```

load_new_order_all.ddl

```
CONNECT TO TPCC IN SHARE MODE;
IMPORT FROM C:\flats\flat_001\neworder_001_1.dat OF DEL MODIFIED
BY COLDEL| KEEPBLANKS COMPOUND=50 ALLOW WRITE ACCESS
COMMITCOUNT 20000 INSERT INTO NEW_ORDERA1;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
IMPORT FROM C:\flats\flat_002\neworder_002_1.dat OF DEL MODIFIED
BY COLDEL| KEEPBLANKS COMPOUND=50 ALLOW WRITE ACCESS
COMMITCOUNT 20000 INSERT INTO NEW_ORDERA2;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
IMPORT FROM C:\flats\flat_003\neworder_003_1.dat OF DEL MODIFIED
BY COLDEL| KEEPBLANKS COMPOUND=50 ALLOW WRITE ACCESS
COMMITCOUNT 20000 INSERT INTO NEW_ORDERA3;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
IMPORT FROM C:\flats\flat_004\neworder_004_1.dat OF DEL MODIFIED
BY COLDEL| KEEPBLANKS COMPOUND=50 ALLOW WRITE ACCESS
COMMITCOUNT 20000 INSERT INTO NEW_ORDERA4;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
```

```
IMPORT FROM C:\flats\flat_005\neworder_005_1.dat OF DEL MODIFIED
BY COLDEL| KEEPBLANKS COMPOUND=50 ALLOW WRITE ACCESS
COMMITCOUNT 20000 INSERT INTO NEW_ORDERA5;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
IMPORT FROM C:\flats\flat_006\neworder_006_1.dat OF DEL MODIFIED
BY COLDEL| KEEPBLANKS COMPOUND=50 ALLOW WRITE ACCESS
COMMITCOUNT 20000 INSERT INTO NEW_ORDERA6;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
IMPORT FROM C:\flats\flat_007\neworder_007_1.dat OF DEL MODIFIED
BY COLDEL| KEEPBLANKS COMPOUND=50 ALLOW WRITE ACCESS
COMMITCOUNT 20000 INSERT INTO NEW_ORDERA7;
COMMIT WORK;
CONNECT RESET;
```

load_order_line_all.ddl

```
CONNECT TO TPCC IN SHARE MODE;
UPDATE COMMAND OPTIONS USING C OFF;
ALTER TABLE ORDER_LINE1 ACTIVATE NOT LOGGED INITIALLY;
IMPORT FROM C:\flats\flat_001\orderline_001_1.dat OF DEL MODIFIED
BY COLDEL| KEEPBLANKS COMPOUND=50  COMMITCOUNT
594000000 INSERT INTO ORDER_LINE1;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
UPDATE COMMAND OPTIONS USING C OFF;
ALTER TABLE ORDER_LINE2 ACTIVATE NOT LOGGED INITIALLY;
IMPORT FROM C:\flats\flat_002\orderline_002_1.dat OF DEL MODIFIED
BY COLDEL| KEEPBLANKS COMPOUND=50  COMMITCOUNT
594000000 INSERT INTO ORDER_LINE2;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
UPDATE COMMAND OPTIONS USING C OFF;
ALTER TABLE ORDER_LINE3 ACTIVATE NOT LOGGED INITIALLY;
IMPORT FROM C:\flats\flat_003\orderline_003_1.dat OF DEL MODIFIED
BY COLDEL| KEEPBLANKS COMPOUND=50  COMMITCOUNT
594000000 INSERT INTO ORDER_LINE3;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
UPDATE COMMAND OPTIONS USING C OFF;
ALTER TABLE ORDER_LINE4 ACTIVATE NOT LOGGED INITIALLY;
IMPORT FROM C:\flats\flat_004\orderline_004_1.dat OF DEL MODIFIED
BY COLDEL| KEEPBLANKS COMPOUND=50  COMMITCOUNT
594000000 INSERT INTO ORDER_LINE4;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
UPDATE COMMAND OPTIONS USING C OFF;
ALTER TABLE ORDER_LINE5 ACTIVATE NOT LOGGED INITIALLY;
IMPORT FROM C:\flats\flat_005\orderline_005_1.dat OF DEL MODIFIED
BY COLDEL| KEEPBLANKS COMPOUND=50  COMMITCOUNT
594000000 INSERT INTO ORDER_LINE5;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
UPDATE COMMAND OPTIONS USING C OFF;
ALTER TABLE ORDER_LINE6 ACTIVATE NOT LOGGED INITIALLY;
IMPORT FROM C:\flats\flat_006\orderline_006_1.dat OF DEL MODIFIED
BY COLDEL| KEEPBLANKS COMPOUND=50  COMMITCOUNT
594000000 INSERT INTO ORDER_LINE6;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
UPDATE COMMAND OPTIONS USING C OFF;
ALTER TABLE ORDER_LINE7 ACTIVATE NOT LOGGED INITIALLY;
IMPORT FROM C:\flats\flat_007\orderline_007_1.dat OF DEL MODIFIED
BY COLDEL| KEEPBLANKS COMPOUND=50  COMMITCOUNT
594000000 INSERT INTO ORDER_LINE7;
COMMIT WORK;
CONNECT RESET;
```

load_orders_all.ddl

```
CONNECT TO TPCC IN SHARE MODE;
IMPORT FROM T:\flats\flat\orders_1.dat OF DEL MODIFIED BY COLDEL|
KEEPBLANKS COMPOUND=50 ALLOW WRITE ACCESS
COMMITCOUNT 1000 INSERT INTO ORDERS;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
IMPORT FROM T:\flats\flat\orders_2.dat OF DEL MODIFIED BY COLDEL|
KEEPBLANKS COMPOUND=50 ALLOW WRITE ACCESS
COMMITCOUNT 1000 INSERT INTO ORDERS;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
IMPORT FROM T:\flats\flat\orders_3.dat OF DEL MODIFIED BY COLDEL|
KEEPBLANKS COMPOUND=50 ALLOW WRITE ACCESS
COMMITCOUNT 1000 INSERT INTO ORDERS;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
IMPORT FROM T:\flats\flat\orders_4.dat OF DEL MODIFIED BY COLDEL|
KEEPBLANKS COMPOUND=50 ALLOW WRITE ACCESS
COMMITCOUNT 1000 INSERT INTO ORDERS;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
IMPORT FROM T:\flats\flat\orders_5.dat OF DEL MODIFIED BY COLDEL|
KEEPBLANKS COMPOUND=50 ALLOW WRITE ACCESS
COMMITCOUNT 1000 INSERT INTO ORDERS;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
IMPORT FROM T:\flats\flat\orders_6.dat OF DEL MODIFIED BY COLDEL|
KEEPBLANKS COMPOUND=50 ALLOW WRITE ACCESS
COMMITCOUNT 1000 INSERT INTO ORDERS;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
IMPORT FROM T:\flats\flat\orders_7.dat OF DEL MODIFIED BY COLDEL|
KEEPBLANKS COMPOUND=50 ALLOW WRITE ACCESS
COMMITCOUNT 1000 INSERT INTO ORDERS;
COMMIT WORK;
CONNECT RESET;
```

load_stock_all.ddl

```
CONNECT TO TPCC IN SHARE MODE;
UPDATE COMMAND OPTIONS USING C OFF;
ALTER TABLE STOCK1 ACTIVATE NOT LOGGED INITIALLY;
IMPORT FROM C:\flats\flat_001\stock_001_1.dat OF DEL MODIFIED BY
COLDEL| KEEPBLANKS COMPOUND=50  COMMITCOUNT 180000000
INSERT INTO STOCK1;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
UPDATE COMMAND OPTIONS USING C OFF;
ALTER TABLE STOCK2 ACTIVATE NOT LOGGED INITIALLY;
```

```
IMPORT FROM C:\flats\flat_002\stock_002_1.dat OF DEL MODIFIED BY
COLDEL| KEEPBLANKS COMPOUND=50  COMMITCOUNT 180000000
INSERT INTO STOCK2;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
UPDATE COMMAND OPTIONS USING C OFF;
ALTER TABLE STOCK3 ACTIVATE NOT LOGGED INITIALLY;
IMPORT FROM C:\flats\flat_003\stock_003_1.dat OF DEL MODIFIED BY
COLDEL| KEEPBLANKS COMPOUND=50  COMMITCOUNT 180000000
INSERT INTO STOCK3;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
UPDATE COMMAND OPTIONS USING C OFF;
ALTER TABLE STOCK4 ACTIVATE NOT LOGGED INITIALLY;
IMPORT FROM C:\flats\flat_004\stock_004_1.dat OF DEL MODIFIED BY
COLDEL| KEEPBLANKS COMPOUND=50  COMMITCOUNT 180000000
INSERT INTO STOCK4;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
UPDATE COMMAND OPTIONS USING C OFF;
ALTER TABLE STOCK5 ACTIVATE NOT LOGGED INITIALLY;
IMPORT FROM C:\flats\flat_005\stock_005_1.dat OF DEL MODIFIED BY
COLDEL| KEEPBLANKS COMPOUND=50  COMMITCOUNT 180000000
INSERT INTO STOCK5;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
UPDATE COMMAND OPTIONS USING C OFF;
ALTER TABLE STOCK6 ACTIVATE NOT LOGGED INITIALLY;
IMPORT FROM C:\flats\flat_006\stock_006_1.dat OF DEL MODIFIED BY
COLDEL| KEEPBLANKS COMPOUND=50  COMMITCOUNT 180000000
INSERT INTO STOCK6;
COMMIT WORK;
CONNECT RESET;
CONNECT TO TPCC IN SHARE MODE;
UPDATE COMMAND OPTIONS USING C OFF;
ALTER TABLE STOCK7 ACTIVATE NOT LOGGED INITIALLY;
IMPORT FROM C:\flats\flat_007\stock_007_1.dat OF DEL MODIFIED BY
COLDEL| KEEPBLANKS COMPOUND=50  COMMITCOUNT 180000000
INSERT INTO STOCK7;
COMMIT WORK;
CONNECT RESET;
```

load_warehouse_all.ddl

```
CONNECT TO TPCC IN SHARE MODE;
IMPORT FROM C:\flats\flat\warehouse_1.dat OF DEL MODIFIED BY
COLDEL| KEEPBLANKS COMPOUND=50 ALLOW WRITE ACCESS
COMMITCOUNT 1000 INSERT INTO WAREHOUSE;
COMMIT WORK;
CONNECT RESET;
```

rnst_customer.ddl

```
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.CUSTOMER1 AND INDEXES ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.CUSTOMER2 AND INDEXES ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.CUSTOMER3 AND INDEXES ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.CUSTOMER4 AND INDEXES ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.CUSTOMER5 AND INDEXES ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.CUSTOMER6 AND INDEXES ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.CUSTOMER7 AND INDEXES ALL;
COMMIT WORK;
connect reset;
```

rnst_district.ddl

```
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.DISTRICT AND INDEXES ALL;
COMMIT WORK;
connect reset;
```

rnst_history.ddl

```
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.HISTORY AND INDEXES ALL;
COMMIT WORK;
connect reset;
```

rnst_item.ddl

```
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.ITEM AND INDEXES ALL;
COMMIT WORK;
connect reset;
```

rnst_new_ordera.ddl

```
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.NEW_ORDERA1 AND INDEXES
ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.NEW_ORDERA2 AND INDEXES
ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.NEW_ORDERA3 AND INDEXES
ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.NEW_ORDERA4 AND INDEXES
ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.NEW_ORDERA5 AND INDEXES
ALL;
```

```
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.NEW_ORDERA6 AND INDEXES
ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.NEW_ORDERA7 AND INDEXES
ALL;
COMMIT WORK;
connect reset;
```

rnst_new_orderb.ddl

```
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.NEW_ORDERB1 AND INDEXES
ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.NEW_ORDERB2 AND INDEXES
ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.NEW_ORDERB3 AND INDEXES
ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.NEW_ORDERB4 AND INDEXES
ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.NEW_ORDERB5 AND INDEXES
ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.NEW_ORDERB6 AND INDEXES
ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.NEW_ORDERB7 AND INDEXES
ALL;
COMMIT WORK;
connect reset;
```

rnst_order_line.ddl

```
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.ORDER_LINE1 AND INDEXES
ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.ORDER_LINE2 AND INDEXES
ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.ORDER_LINE3 AND INDEXES
ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.ORDER_LINE4 AND INDEXES
ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.ORDER_LINE5 AND INDEXES
ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.ORDER_LINE6 AND INDEXES
ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.ORDER_LINE7 AND INDEXES
ALL;
COMMIT WORK;
connect reset;
```

rnst_orders.ddl

```
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.ORDERS AND INDEXES ALL;
COMMIT WORK;
connect reset;
```

rnst_stock.ddl

```
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.STOCK1 AND INDEXES ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.STOCK2 AND INDEXES ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.STOCK3 AND INDEXES ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.STOCK4 AND INDEXES ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.STOCK5 AND INDEXES ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.STOCK6 AND INDEXES ALL;
COMMIT WORK;
connect reset;
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.STOCK7 AND INDEXES ALL;
COMMIT WORK;
connect reset;
```

rnst_warehouse.ddl

```
connect to TPCC in share mode;
RUNSTATS ON TABLE Administrator.WAREHOUSE AND INDEXES ALL;
COMMIT WORK;
connect reset;
```

DBGEN

dbgen\gendata.c

```
/*************************************************************
*************
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*************************************************************
*************/

/*
* gendata.c - Generate data for TPC-C database
*/

#include <stdlib.h>
#include <stdio.h>
#include <string.h>
#include <sqlutil.h>
/* NT named pipe support */
#include <windows.h>
#include <time.h>

#include "platform.h"
#include "db2tpcc.h"
#include "tpccrnd.h"
#include "tpccmisc.h"
#include "lval.h"


/*  PROTOTYPES.  */
void gen_dist_tbl( void );
void gen_cust_tbl( void );
void gen_hist_tbl( void );
void gen_nu_ord_tbl( void );
void gen_ordr_tbl( void );
void gen_item_tbl( void );
void gen_stock_tbl( void );
void gen_ware_tbl( void );

int i, j;
double timestamp1, timestamp2, elapse;
int rc, rc1, rc2;

int using_range = 0;
int using_npipe = 0;
int using_rctload = 0;
int quiet_mode = 0;
sqlint32 ware_start=-1, ware_end=-1;

char fmtWare[]    = "%s|%s|%s|%s|%s|%s|%d|%I64d|%d\n";
char fmtDist[]    = "%d|%d|%I64d|%s|%s|%s|%s|%s|%s|%d|%d\n";
char fmtItem[]    = "%s|%d|%s|%d|%d\n";
char fmtStock[]   =
"%d|%d|%d|%d|%s|%s|%s|%s|%s|%s|%s|%s|%s|%s|%s|%d|%d\n";
char fmtCust[]    =
"%d|%s|%s|%s|%I64d|%I64d|%s|%s|%d|%s|%s|%s|%s|%s|%s|%d|%d|%d|%I64d|
%I64d|%d\n";
char fmtHist[]    = "%d|%d|%d|%d|%d|%I64d|%d|%s\n";
char fmtOrdr[]    = "%d|%I64d|%d|%d|%d|%d|%d|%d\n";
char fmtOLine[]   = "%I64d|%d|%d|%d|%d|%s|%d|%d|%d|%d\n";
char fmtNewOrd[]  = "%d|%d|%d\n";
void InitFormatStrings(char delim);
void ScalingReport(void);

int outtype1 = 0;
int outtype2 = 0;
char *outname1 = NULL;
char *outname2 = NULL;

/*-----------------------------------------------------------------*/
/*     main                                                        */
/*-----------------------------------------------------------------*/
int main (int argc, char *argv[])
{
  int option = -1;
  char *delim = NULL;

  /*
*************************************************************
* */
  /* Compute Warehouse Ranges                                    */
  /*
*************************************************************
* */
  ware_start = 1;
  ware_end = WAREHOUSES;

  /*
*************************************************************
* */
  /* Process Command Line Arguments                              */
  /*
*************************************************************
* */

  /* Valid Command Line Options
   * -------------------------
   * Table Option:            -t <table>        (-t 3 for warehouse)
   * Output Column Delimiter:  -d <char>         (-d ' ', -d '|', etc)
   * Output to File:          -f[n] <file>      (-f customer.dat)
   * Output to Pipe:          -p[n] <pipename>  (-p tpccpipe.000)
   * Warehouse Range:         -r <start> <end>  (-r 1 100)
   * Scaling Report:          -s
   * Quiet Mode:              -q
   *
   * The -f[n] and/or -p[n] options are required.
   * The -t, -d, -r, -s and -q options are optional.
   *
   * If -d is omitted, the vertical bar (pipe) symbol ('|') will be used.
   * If -r is omitted, the range [1..WAREHOUSES] will be used.
   *
   * Due to the TPC-C spec requiring that orders and orderline be
   * generated at the same time, there is an extension to the -f and -p
   * options to specify one of the two output streams for each argument.
   *
   * -f1 orders.dat -f2 orderline.dat will output to two files
   * -f1 orders.dat -p2 tpccpipe.000 will output to a file and a pipe
   *
   * -f1/-p1 specifies the destination for the orders table
   * -f2/-p2 specifies the destination for the orderline table
   *
   */

  /* Read Arguments */
  for (i=1; i<argc; i++)
  {
```

```
    if (strcmp(argv[i], "-t") == 0) {
      option = atoi(argv[i+1]);
      i++;
    } else if (strcmp(argv[i], "-r") == 0) {
      ware_start = atoi(argv[i+1]);
      ware_end = atoi(argv[i+2]);
      i += 2;
    } else if (strcmp(argv[i], "-d") == 0) {
      delim = argv[i+1];
      i++;
    } else if ((strcmp(argv[i], "-f")  == 0) ||
            (strcmp(argv[i], "-f1") == 0)) {
      outtype1 = IOH_FILE;
      outname1 = argv[i+1];
      i++;
    } else if (strcmp(argv[i], "-f2") == 0) {
      outtype2 = IOH_FILE;
      outname2 = argv[i+1];
      i++;
    } else if ((strcmp(argv[i], "-p")  == 0) ||
            (strcmp(argv[i], "-p1") == 0)) {
      outtype1 = IOH_PIPE;
      outname1 = argv[i+1];
      i++;
    } else if (strcmp(argv[i], "-p2") == 0) {
      outtype2 = IOH_PIPE;
      outname2 = argv[i+1];
      i++;
    } else if (strcmp(argv[i], "-s") == 0) {
      ScalingReport();
      exit(0);
    } else if (strcmp(argv[i], "-q") == 0) {
      quiet_mode = 1;
    } else {
      fprintf(stderr, "gendata: Don't understand argument: %s\n",argv[i]);
      exit(-1);
    }
  }

  /*
*****************************************************************
* */
  /* Validate Command Line Arguments                          */
  /*
*****************************************************************
* */

  /* Validate Table Argument */
  if (option < 3 || option > 11 || option == 10)
  {
    fprintf(stderr,"gendata: Invalid table selected: %d\n",option);
    exit(-1);
  }

  /* Validate Delimiter Argument */
  if (delim == NULL) {
   // default delimiter is used for IMPORT & LOAD, no changes neccessary
   using_rctload = 0;
  } else if (strlen(delim) == 1 && !isalnum(delim[0]) &&
          delim[0] != '.' && delim[0] != '%')
  {
    // user-supplied delimiter used for rctload
    InitFormatStrings(delim[0]);
    using_rctload = 1;
  } else {
    fprintf(stderr,"gendata: Invalid delimiter specified: %s\n",delim);
    exit(-1);
  }

  /* Validate File/Pipe Arguments */
  if (option != 9 && outtype1 > 0 && outtype2 > 0)
  {
    fprintf(stderr,"gendata: Specifying two output file/pipes allowed only when
generating\norders/orderline.\n");
    exit(-1);
  }
  if (option == 9 && ((outtype1 == 0) || (outtype2 == 0)))
  {
    fprintf(stderr,"gendata: Must specify two output file/pipes when generating
orders/orderline.\n");
    exit(-1);
  }
  if (outtype1 == 0 || outname1 == NULL || strcmp(outname1,"") == 0)
  {
    fprintf(stderr,"gendata: Invalid 1st output file/pipe specified.\n");
    exit(-1);
  }
  if (option == 9 && (outtype2 == 0 || outname2 == NULL ||
strcmp(outname2,"") == 0))
  {
    fprintf(stderr,"gendata: Invalid 2nd output file/pipe specified.\n");
    exit(-1);
  }
  /* Ensure O/OL flat files are opened in append mode.  This is required */
  /* because we generate O/OL concurrently.  See comments in genload.pl  */
  /* for further details on why this is neccessary.                     */
  if (option == 9)
  {
    if (outtype1 == IOH_FILE) outtype1 = IOH_FILE_APPEND;
    if (outtype2 == IOH_FILE) outtype2 = IOH_FILE_APPEND;
  }

  /* Validate Range Arguments */
  if (ware_start <= 0 || ware_start > WAREHOUSES) {
    fprintf(stderr,"gendata: Invalid range starting value: %d\n",ware_start);
     exit(-1);
  }
  if (ware_end <= 0 || ware_end > WAREHOUSES || ware_end < ware_start) {
    fprintf(stderr,"gendata: Invalid range ending value: %d\n",ware_end);
    exit(-1);
  }

  initialize_random();

  /*
*****************************************************************
* */
  /* Generate Data                                            */
  /*
*****************************************************************
* */
  switch (option) {
   case 3: /* WAREHOUSE */
    gen_ware_tbl();
    break;
   case 4: /* DISTRICT  */
    gen_dist_tbl();
    break;
   case 5: /* ITEM  */
    gen_item_tbl();
    break;
   case 6: /* STOCK     */
    gen_stock_tbl();
    break;
   case 7: /* CUSTOMER  */
    gen_cust_tbl();
```

```
    break;
  case 8: /* HISTORY   */
    gen_hist_tbl();
    break;
  case 9: /* ORDERS + ORDER_LINE */
    gen_ordr_tbl();
    break;
  case 11: /* NEW_ORDER */
    gen_nu_ord_tbl();
    break;
  case 2:
  case 10:
  default:
    fprintf(stderr, "Error: invalid option = %d \n",(option));
    break;
  }
  return 0;
}

/*----------------------------------------------------------------------*/
/* generate item table                                                  */
/*----------------------------------------------------------------------*/

void gen_item_tbl( void )
{
  sqlint32  item_num = 0 ;
  sqlint32  item_im_id ;
  char  item_name[25] ;
  sqlint32  item_price ;
  char  item_data[51] ;

  IOH_NUM numBytes;
  ioHandle hnd;
  char Buffer[1024];

  timestamp1 = current_time();

  rc = GenericOpen(&hnd, outtype1, outname1);
  if (rc != 0) { goto item_done; }

  for(item_num = 1; item_num <= ITEMS; item_num++)
  {
    /* create image id field */
    item_im_id = rand_integer( 1, 10000 ) ;
    /* create name field */
    create_random_a_string( item_name, 14, 24);
    /* create price field */
    item_price = rand_integer( 100, 10000 ) ;
    /* create ORIGINAL field */
    create_a_string_with_original( item_data, 26, 50, 10) ;

    numBytes = sprintf(Buffer, fmtItem,
                       item_name,
                       item_price,
                       item_data,
                       item_im_id,
                       item_num);

    rc = GenericWrite(&hnd, Buffer, numBytes);
    if (rc != 0) { goto item_done; }

  } /* end for... */

  rc = GenericClose(&hnd);

item_done:

  timestamp2 = current_time();
  elapse = timestamp2 - timestamp1;
  if (rc == 0) {
    fprintf(stdout,"\nITEM table generated in %8.2f seconds.\n\n",elapse);
    fflush(stdout);
  } else {
    fprintf(stderr,"\nITEM table FAILED at (I %d) after %8.2f
seconds.\n\n",item_num,elapse);
    fflush(stderr);
  }
}

/*----------------------------------------------------------------------*/
/* generate stock table                                                 */
/*----------------------------------------------------------------------*/
void gen_stock_tbl( void )
{
  sqlint32 ware_num = 0 ;
  sqlint32 stock_num = 0 ;
  sqlint32 stock_quant;
  sqlint32 s_ytd;
  sqlint32 s_order_cnt, s_remote_cnt;
  char  stock_dist_01[25] ;
  char  stock_dist_02[25] ;
  char  stock_dist_03[25] ;
  char  stock_dist_04[25] ;
  char  stock_dist_05[25] ;
  char  stock_dist_06[25] ;
  char  stock_dist_07[25] ;
  char  stock_dist_08[25] ;
  char  stock_dist_09[25] ;
  char  stock_dist_10[25] ;
  char  stock_data[51] ;

  IOH_NUM numBytes;
  ioHandle hnd;
  char Buffer[1024];

  timestamp1 = current_time();

  rc = GenericOpen(&hnd, outtype1, outname1);
  if (rc != 0) { goto stock_done; }

  for (stock_num = 1; stock_num <= STOCK_PER_WAREHOUSE;
stock_num++)
  {
    if (!quiet_mode && (stock_num%500 == 0))
    {
      fprintf(stdout, "STOCK for Item #%d\n",stock_num);
      fflush(stdout);
    }
    for (ware_num = ware_start; ware_num <= ware_end; ware_num++)
    {
      stock_quant = rand_integer( 10, 100 ) ;
      create_random_a_string( stock_dist_01, 24, 24);
      create_random_a_string( stock_dist_02, 24, 24);
      create_random_a_string( stock_dist_03, 24, 24);
      create_random_a_string( stock_dist_04, 24, 24);
      create_random_a_string( stock_dist_05, 24, 24);
      create_random_a_string( stock_dist_06, 24, 24);
      create_random_a_string( stock_dist_07, 24, 24);
      create_random_a_string( stock_dist_08, 24, 24);
      create_random_a_string( stock_dist_09, 24, 24);
      create_random_a_string( stock_dist_10, 24, 24);

      /* create ORIGINAL field */
      create_a_string_with_original( stock_data, 26, 50, 10 );
      s_ytd = s_order_cnt = s_remote_cnt = 0;
```

```
      numBytes = sprintf(Buffer, fmtStock,
                         s_remote_cnt,
                         stock_quant,
                         s_order_cnt,
                         s_ytd,
                         stock_data,
                         stock_dist_01,
                         stock_dist_02,
                         stock_dist_03,
                         stock_dist_04,
                         stock_dist_05,
                         stock_dist_06,
                         stock_dist_07,
                         stock_dist_08,
                         stock_dist_09,
                         stock_dist_10,
                         stock_num,
                         ware_num);

      rc = GenericWrite(&hnd, Buffer, numBytes);
      if (rc != 0) { goto stock_done; }

    } /* end for... */
  } /* end for... */

  rc = GenericClose(&hnd);

stock_done:

  timestamp2 = current_time();
  elapse = timestamp2 - timestamp1;
  if (rc == 0) {
    fprintf(stdout,"\nSTOCK table generated in %8.2f seconds.\n\n",elapse);
    fflush(stdout);
  } else {
    fprintf(stderr,"\nSTOCK table FAILED at (S %d W %d) after %8.2f
seconds.\n\n",stock_num, ware_num, elapse);
    fflush(stderr);
  }
}

/*----------------------------------------------------------------------*/
/* generate warehouse table                                             */
/*----------------------------------------------------------------------*/
void gen_ware_tbl( void )
{
  sqlint32 ware_num = 0 ;
  char ware_name[11] ;
  char ware_street_1[21] ;
  char ware_street_2[21] ;
  char ware_city[21] ;
  char ware_state[3]  ;
  char ware_zip[10]  ;
  sqlint32 ware_tax ;
  sqlint64 ware_YTD ;

  IOH_NUM numBytes;
  ioHandle hnd;
  char Buffer[1024];

  timestamp1 = current_time();

  rc = GenericOpen(&hnd, outtype1, outname1);
  if (rc != 0) { goto ware_done; }

  for (ware_num = ware_start; ware_num <= ware_end; ware_num++)
  {
    if (!quiet_mode && ((ware_num % 500) == 0)) {
      fprintf(stdout, "Warehouse #%d\n", ware_num);
      fflush(stdout);
    }

    create_random_a_string( ware_name,      6,10) ; /* create name */
    create_random_a_string( ware_street_1, 10,20) ; /* create street 1 */
    create_random_a_string( ware_street_2, 10,20) ; /* create street 2 */
    create_random_a_string( ware_city,     10,20) ; /* create city */
    create_random_a_string( ware_state,     2,2) ;  /* create state */
    create_random_n_string( ware_zip,       4,4) ;  /* create zip */
    strcat(ware_zip, "11111");

    ware_tax = rand_integer(0, 2000);
    ware_YTD = 30000000;

    numBytes = sprintf(Buffer, fmtWare,
                       ware_name,
                       ware_street_1,
                       ware_street_2,
                       ware_city,
                       ware_state,
                       ware_zip,
                       ware_tax,
                       ware_YTD,
                       ware_num);

    rc = GenericWrite(&hnd, Buffer, numBytes);
    if (rc != 0) { goto ware_done; }

  } /* end for */

  rc = GenericClose(&hnd);

ware_done:

  timestamp2 = current_time();
  elapse = timestamp2 - timestamp1;
  if (rc == 0) {
    fprintf(stdout,"\nWAREHOUSE table generated in %8.2f
seconds.\n\n",elapse);
    fflush(stdout);
  } else {
    fprintf(stderr,"\nWAREHOUSE table FAILED at (W %d) after %8.2f
seconds.\n\n",ware_num, elapse);
    fflush(stderr);
  }
}

/*----------------------------------------------------------------------*/
/* generate dist table                                                  */
/*----------------------------------------------------------------------*/
void gen_dist_tbl( void )
{
  sqlint32 ware_num = 0 ;
  sqlint32 dist_num = 0 ;
  char dist_name[11];
  char dist_street_1[21];
  char dist_street_2[21];
  char dist_city[21];
  char dist_state[3];
  char dist_zip[10];
  sqlint32 dist_tax;
  sqlint32 next_o_id;
  sqlint64 dist_YTD;

  IOH_NUM numBytes;
  ioHandle hnd;
  char Buffer[1024];
```

```
  next_o_id = CUSTOMERS_PER_DISTRICT + 1;
  timestamp1 = current_time();

  rc = GenericOpen(&hnd, outtype1, outname1);
  if (rc != 0) { goto dist_done; }

  for (ware_num = ware_start; ware_num <= ware_end; ware_num++)
  {
    if (!quiet_mode) {
      fprintf(stdout, "DISTRICT for Warehouse #%d\n", ware_num);
      fflush(stdout);
    }
    for (dist_num = 1; dist_num <= DISTRICTS_PER_WAREHOUSE;
dist_num++)
    {
      create_random_a_string( dist_name,      6,10) ; /* create name */
      create_random_a_string( dist_street_1, 10,20) ; /* create street 1 */
      create_random_a_string( dist_street_2, 10,20) ; /* create street 2 */
      create_random_a_string( dist_city,     10,20) ; /* create city */
      create_random_a_string( dist_state,     2,2) ;  /* create state */
      create_random_n_string( dist_zip,       4,4) ;  /* create zip */
      strcat(dist_zip, "11111");
      dist_tax = rand_integer(0, 2000);
      dist_YTD = 3000000;

      numBytes = sprintf(Buffer, fmtDist,
                    next_o_id,
                    dist_tax,
                    dist_YTD,
                    dist_name,
                    dist_street_1,
                    dist_street_2,
                    dist_city,
                    dist_state,
                    dist_zip,
                    dist_num,
                    ware_num);

      rc = GenericWrite(&hnd, Buffer, numBytes);
      if (rc != 0) { goto dist_done; }

    } /* end for... */
  } /* end for... */

  rc = GenericClose(&hnd);

dist_done:

  timestamp2 = current_time();
  elapse = timestamp2 - timestamp1;
  if (rc == 0) {
    fprintf(stdout,"\nDISTRICT table generated in %8.2f seconds.\n\n",elapse);
    fflush(stdout);
  } else {
    fprintf(stderr,"\nDISTRICT table FAILED at (W %d D %d) after %8.2f
seconds.\n\n",ware_num,dist_num,elapse);
    fflush(stderr);
  }
}

/*----------------------------------------------------------------------*/
/* generate customer table                                              */
/*----------------------------------------------------------------------*/
void gen_cust_tbl( void )
{
  sqlint32 ware_num = 0 ;
  sqlint32 dist_num = 0 ;
  sqlint32 cust_num = 0 ;
  char cust_last[17];
  char cust_middle[3];
  char cust_first[17];
  char cust_street_1[21];
  char cust_street_2[21];
  char cust_city[21];
  char cust_state[3];
  char cust_zip[10];
  char cust_phone[17];
  char cust_credit[3];
  char cust_data[501];
  sqlint32 cust_discount;
  sqlint64 currtmstmp;
  sqlint64 cust_balance;
  sqlint64 cust_YTD_payment;
  sqlint64 cust_credit_lim;

  IOH_NUM numBytes;
  ioHandle hnd;
  char Buffer[1024];
  int len, pos;

  timestamp1 = current_time();

  rc = GenericOpen(&hnd, outtype1, outname1);
  if (rc != 0) { goto cust_done; }

  strcpy(cust_middle, "OE");
  currtmstmp = time(NULL);

  for (cust_num = 1; cust_num <= CUSTOMERS_PER_DISTRICT;
cust_num++)
  {
    if (!quiet_mode) {
      fprintf(stdout, "CUSTOMER #%d:\n", cust_num);
      fflush(stdout);
    }

    for (ware_num = ware_start; ware_num <= ware_end; ware_num++)
    {
      for (dist_num = 1; dist_num <= DISTRICTS_PER_WAREHOUSE;
dist_num++)
      {
        if (cust_num <= 1000)                    /* create last name */
          create_random_last_name( cust_last, cust_num);
        else                                     /* create last name */
          create_random_last_name( cust_last, 0);
        create_random_a_string( cust_first,     8,16) ; /* create first name */
        create_random_a_string( cust_street_1, 10,20) ; /* create street 1 */
        create_random_a_string( cust_street_2, 10,20) ; /* create street 2 */
        create_random_a_string( cust_city,     10,20) ; /* create city */
        create_random_a_string( cust_state,     2,2) ;  /* create state */
        create_random_n_string( cust_zip,       4,4) ;  /* create zip */
        strcat(cust_zip, "11111");

        /* create phone number */
        create_random_n_string( cust_phone, 16,16) ;
        if ( rand_integer( 1, 100 ) <= 10 )
          strcpy( cust_credit, "BC" ) ;
        else
          strcpy( cust_credit, "GC" ) ;

        /* create discount rate */
        cust_discount = rand_integer(0, 5000);

        /* create customer data */
        create_random_a_string(cust_data, 300, 500);
```

```
        /* pad customer data (only for non-rctload) */
        if (using_rctload == 0) {
          for (pos=strlen(cust_data); pos<500; pos++)
            cust_data[pos] = ' ';
          cust_data[500] = '\0';
        }

        cust_credit_lim = 5000000;
        cust_balance = -1000;
        cust_YTD_payment = 1000;

        if (cust_num == 1 && dist_num == 1 && ware_num == 1)
        {
          sprintf(cust_first,"C_LAST_LOAD=%d",C_C_LAST_LOAD);
        }

        numBytes = sprintf(Buffer, fmtCust,
                    cust_num,
                    cust_state,
                    cust_zip,
                    cust_phone,
                    currtmstmp,
                    cust_credit_lim,
                    cust_middle,
                    cust_credit,
                    cust_discount,
                    cust_data,
                    cust_last,
                    cust_first,
                    cust_street_1,
                    cust_street_2,
                    cust_city,
                    dist_num,
                    ware_num,
                    0,
                    cust_balance,
                    cust_YTD_payment,
                    1);

        rc = GenericWrite(&hnd, Buffer, numBytes);
        if (rc != 0) { goto cust_done; }

      } /* end for district... */
    } /* end for warehouse... */
  } /* end for customer... */

  rc = GenericClose(&hnd);

cust_done:

  timestamp2 = current_time();
  elapse = timestamp2 - timestamp1;
  if (rc == 0) {
    fprintf(stdout,"\nCUSTOMER table generated in %8.2f
seconds.\n\n",elapse);
    fflush(stdout);
  } else {
    fprintf(stderr,"\nCUSTOMER table FAILED at (W %d D %d C %d) after
%8.2f seconds.\n\n",ware_num, dist_num, cust_num, elapse);
    fflush(stderr);
  }
}

/*----------------------------------------------------------------------*/
/* generate hist table                                                  */
/*----------------------------------------------------------------------*/
void gen_hist_tbl( void )
{
  sqlint32 ware_num = 0 ;
  sqlint32 dist_num = 0 ;
  sqlint32 cust_num = 0 ;
  char hist_data[25] ;
  sqlint64 currtmstmp;

  IOH_NUM numBytes;
  ioHandle hnd;
  char Buffer[1024];

  timestamp1 = current_time();

  rc = GenericOpen(&hnd, outtype1, outname1);
  if (rc != 0) { goto hist_done; }

  currtmstmp = time(NULL);

  for (ware_num = ware_start; ware_num <= ware_end; ware_num++)
  {
    if (!quiet_mode) {
      fprintf(stdout, "HISTORY for Warehouse #%d:\n", ware_num);
      fflush(stdout);
    }
    for (dist_num = 1; dist_num <= DISTRICTS_PER_WAREHOUSE;
dist_num++)
    {
      for (cust_num = 1; cust_num <= CUSTOMERS_PER_DISTRICT;
cust_num++)
      {
        /* create history data */
        create_random_a_string( hist_data, 12,24) ;

        numBytes = sprintf(Buffer, fmtHist,
                    cust_num,
                    dist_num,
                    ware_num,
                    dist_num,
                    ware_num,
                    currtmstmp,
                    1000,
                    hist_data);

        rc = GenericWrite(&hnd, Buffer, numBytes);
        if (rc != 0) { goto hist_done; }

      } /* end for customer... */
    } /* end for district... */
  } /* end for warehouse... */

  rc = GenericClose(&hnd);

hist_done:

  timestamp2 = current_time();
  elapse = timestamp2 - timestamp1;
  if (rc == 0) {
    fprintf(stdout,"\nHISTORY table generated in %8.2f seconds.\n\n",elapse);
    fflush(stdout);
  } else {
    fprintf(stderr,"\nHISTORY table FAILED at (W %d D %d C %d) after
%8.2f seconds.\n\n",ware_num, dist_num, cust_num, elapse);
    fflush(stderr);
  }
}

/*----------------------------------------------------------------------*/
/* generate nu_ord table                                                */
```

```
/*----------------------------------------------------------------------*/
void gen_nu_ord_tbl( void )
{
  sqlint32 ware_num = 0 ;
  sqlint32 dist_num = 0 ;
  sqlint32 nu_ord_id = 0 ;
  int nu_ord_hi ;

  IOH_NUM numBytes;
  ioHandle hnd;
  char Buffer[1024];

  /* compute maximum and minimum
     order numbers for this
     district */
  nu_ord_hi = CUSTOMERS_PER_DISTRICT -
NU_ORDERS_PER_DISTRICT + 1;
  if (nu_ord_hi < 0) {
     nu_ord_hi = CUSTOMERS_PER_DISTRICT -
(CUSTOMERS_PER_DISTRICT / 3) + 1;
     fprintf(stderr,"\n**** WARNING **** NU_ORDERS_PER_DISTRICT is
> CUSTOMERS_PER_DISTRICT\n");
     fprintf(stderr,"                Check the values in file lval.h\n");
     fprintf(stderr,"                Loading New-Order with 1/3 of
CUSTOMERS_PER_DISTRICT\n");
  }

  timestamp1 = current_time();

  rc = GenericOpen(&hnd, outtype1, outname1);
  if (rc != 0) { goto neword_done; }

  for (nu_ord_id = nu_ord_hi;
       nu_ord_id <= CUSTOMERS_PER_DISTRICT;
       nu_ord_id++)
  {
    if (!quiet_mode) {
      fprintf(stdout, "NEW_ORDER for Customer #%d:\n", nu_ord_id);
      fflush(stdout);
    }
    for (ware_num = ware_start; ware_num <= ware_end; ware_num++)
    {
      for (dist_num = 1; dist_num <= DISTRICTS_PER_WAREHOUSE;
dist_num++)
      {
        numBytes = sprintf(Buffer, fmtNewOrd,
                           nu_ord_id,
                           dist_num,
                           ware_num);

        rc = GenericWrite(&hnd, Buffer, numBytes);
        if (rc != 0) { goto neword_done; }

      } /* end for... */
    } /* end for... */
  } /* end for... */

  rc = GenericClose(&hnd);

neword_done:

  timestamp2 = current_time();
  elapse = timestamp2 - timestamp1;
  if (rc == 0) {
     fprintf(stdout,"\nNEW_ORDER table generated in %8.2f
seconds.\n\n",elapse);
     fflush(stdout);
  } else {
     fprintf(stderr,"\nNEW_ORDER table FAILED at (W %d D %d O %d) after
%8.2f seconds.\n\n",ware_num, dist_num, nu_ord_id, elapse);
     fflush(stderr);
  }
}

/*----------------------------------------------------------------------*/
/* generate order and order_line tables                                 */
/*----------------------------------------------------------------------*/
void gen_ordr_tbl( void )
{
  sqlint32 ware_num = 0 ;
  sqlint32 dist_num = 0 ;
  sqlint32 cust_num = 0 ;
  sqlint32 ord_num = 0 ;
  sqlint32 ordr_carrier_id;
  sqlint32 ordr_ol_cnt;
  sqlint32 oline_ol_num;
  sqlint32 oline_item_num;

  sqlint32 oline_amount;
  char oline_dist_info[25];
  sqlint64 nulltmstmp = 0;
  sqlint64 currtmstmp;

  IOH_NUM numBytes;
  ioHandle hnd1, hnd2;
  char Buffer[1024];

  oline_dist_info[24] = '\0';

  timestamp1 = current_time();

  rc1 = GenericOpen(&hnd1, outtype1, outname1);
  if (rc1 != 0) { goto ool_done; }
  rc2 = GenericOpen(&hnd2, outtype2, outname2);
  if (rc2 != 0) { goto ool_done; }

  currtmstmp = time(NULL);

  for (ware_num = ware_start; ware_num <= ware_end; ware_num++)
  {
    if (!quiet_mode) {
      fprintf(stdout, "ORDERS & ORDER_LINE for Warehouse #%d\n",
ware_num);
      fflush(stdout);
    }
    for (dist_num = 1; dist_num <= DISTRICTS_PER_WAREHOUSE;
dist_num++)
    {
      if (!quiet_mode) {
        fprintf(stdout, "District #%d\t", dist_num);
        fflush(stdout);
      }

      seed_1_3000();

      for (ord_num = 1; ord_num <= CUSTOMERS_PER_DISTRICT;
ord_num++)
      {
        if (ord_num < 2101)
          ordr_carrier_id = rand_integer( 1, 10 ) ;
        else
          ordr_carrier_id = 0;

        cust_num = random_1_3000();
        ordr_ol_cnt =
rand_integer(MIN_OL_PER_ORDER,MAX_OL_PER_ORDER);
```

```
        numBytes = sprintf(Buffer, fmtOrdr,
                    cust_num,
                    currtmstmp,
                    ordr_carrier_id,
                    ordr_ol_cnt,
                    1,
                    ord_num,
                    ware_num,
                    dist_num);

        rc1 = GenericWrite(&hnd1, Buffer, numBytes);
        if (rc1 != 0) { goto ool_done; }

        for ( oline_ol_num = 1; oline_ol_num <= ordr_ol_cnt; oline_ol_num++ )
        {
          oline_item_num = rand_integer(1, ITEMS) ;
          create_random_a_string( oline_dist_info, 24, 24) ;

          numBytes = sprintf(Buffer, fmtOLine,
                    ((ord_num < 2101) ? currtmstmp : nulltmstmp),
                    ((ord_num < 2101) ? 0 : rand_integer(1,999999)),
                    oline_item_num,
                    ware_num,
                    5,
                    oline_dist_info,
                    ord_num,
                    dist_num,
                    ware_num,
                    oline_ol_num);

          rc2 = GenericWrite(&hnd2, Buffer, numBytes);
          if (rc2 != 0) { goto ool_done; }

        } /* for order_line */
      } /* for order */
    } /* for dist */
  } /* for ware */

  rc1 = GenericClose(&hnd2);
  rc2 = GenericClose(&hnd1);

ool_done:

  timestamp2 = current_time();
  elapse = timestamp2 - timestamp1;
  if (rc1 == 0 && rc2 == 0) {
    fprintf(stdout,"\nORDERS & ORDER_LINE table(s) generated in %8.2f
seconds.\n\n",elapse);
    fflush(stdout);
  } else {
    fprintf(stderr,"\nORDERS & ORDER_LINE table(s) FAILED at (W %d D
%d O %d OL %d) after %8.2f seconds.\n\n",ware_num, dist_num, ord_num,
oline_ol_num, elapse);
    fflush(stderr);
  }
}

// This routine will initalize the printf format strings and replace the
// delimiter with the one provided.  The pipe symbol is the default.
void InitFormatStrings(char delim)
{
 char *p;

 // Check if Using Default Delimiter
 if (delim == '|') return;

 // Replace Delimiters
 while (p = strchr(fmtWare,'|'))   { *p = delim; }
 while (p = strchr(fmtDist,'|'))   { *p = delim; }
 while (p = strchr(fmtItem,'|'))   { *p = delim; }
 while (p = strchr(fmtStock,'|'))  { *p = delim; }
 while (p = strchr(fmtCust,'|'))   { *p = delim; }
 while (p = strchr(fmtHist,'|'))   { *p = delim; }
 while (p = strchr(fmtOrdr,'|'))   { *p = delim; }
 while (p = strchr(fmtOLine,'|'))  { *p = delim; }
 while (p = strchr(fmtNewOrd,'|')) { *p = delim; }
}

void ScalingReport(void)
{
  /* Print Scaling Values */
  fprintf(stdout,"Scaling Values in Use\n");
  fprintf(stdout,"-------------------------------\n");
  fprintf(stdout,"Warehouses:           %d\n", WAREHOUSES);
  fprintf(stdout,"Districts/Warehouse:   %d\n",
DISTRICTS_PER_WAREHOUSE);
  fprintf(stdout,"Customers/District:    %d\n",
CUSTOMERS_PER_DISTRICT);
  fprintf(stdout,"Items:                 %d\n", ITEMS);
  fprintf(stdout,"Stock/Warehouse:       %d\n", STOCK_PER_WAREHOUSE);
  fprintf(stdout,"Min Order Lines/Order: %d\n", MIN_OL_PER_ORDER);
  fprintf(stdout,"Max Order Lines/Order: %d\n", MAX_OL_PER_ORDER);
  fprintf(stdout,"New Orders/District:   %d\n",
NU_ORDERS_PER_DISTRICT);
  fprintf(stdout,"-------------------------------\n");
}
```

dbgen\makefile

```
#################################################################
############
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#################################################################
#############

# Makefile - Build gendata tool
#

!include $(TPCC_ROOT)/Makefile.config

#
#################################################################
########
# Preprocessor, Compiler and Linker Flags
#
#################################################################
########

INCLUDES =      -I$(TPCC_SQLLIB)$(SLASH)include
-I$(TPCC_ROOT)$(SLASH)include

CFLAGS =                $(INCLUDES) $(CFLAGS_OS) -DLINT_ARGS
-DSQLA_NOLINES \
                        -D$(DB2EDITION) -D$(DB2VERSION)
$(CFLAGS_DEBUG)
```

```
LDFLAGS =           $(LDFLAGS_EXEC) $(LDFLAGS_LIB)

#
################################################################
########
# File Collections
#
################################################################
########

OBJS =              tpccrnd$(OBJEXT) \
                    $(TPCC_ROOT)/Src.Common/tpccmisc$(OBJEXT)
OBJ_EEE =           $(TPCC_ROOT)/Src.Common/tpcclwh$(OBJEXT)

EXEC =              gendata$(BINEXT)

#
################################################################
########
# End-User Targets
#
################################################################
########

all:        $(EXEC)

clean:
            - $(ERASE) *$(OBJEXT) $(EXEC)

#
################################################################
########
# Build Rules
#
################################################################
########

.SUFFIXES:
.SUFFIXES:    $(OBJEXT) .c

$(EXEC):
            $(LD_EXEC) $(LDFLAGS) $(OBJS) $*$(OBJEXT)
$(LDFLAGS_OUT)$@

#
################################################################
########
# Dependencies
#
################################################################
########

# Link Dependencies
gendata$(BINEXT):   $(OBJS) gendata$(OBJEXT)

# Build Dependencies
# Source
gendata$(OBJEXT):   gendata.c

# Headers
gendata.c:  $(TPCC_ROOT)/include/tpccrnd.h $(TPCC_ROOT)/include/lval.h
```

dbgen\tpccrnd.c

```
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*****************************************************************
*************/

/*
 * tpccrnd.c - Random generation functions for TPC-C
 */

#include <windows.h>
#include <stdio.h>
#include <string.h>
#include "db2tpcc.h"
#include "tpccmisc.h"
#include "lval.h"

static char tbl_cust[CUSTOMERS_PER_DISTRICT];

static char alnum[] =

"0123456789abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUV
WXYZ";

static char *last_name_parts[] =
{
  "BAR",
  "OUGHT",
  "ABLE",
  "PRI",
  "PRES",
  "ESE",
  "ANTI",
  "CALLY",
  "ATION",
  "EING"
};

/*
*****************************************************************
***********
*   seed_1_3000
*
*
*****************************************************************
***********
*/

void seed_1_3000( void )
{
  int i;

  for (i = 0; i < CUSTOMERS_PER_DISTRICT; i++) {
    tbl_cust[i] = 0;
  }
}

/*
*****************************************************************
***********
*   random_1_3000
```

```
*
*
*****************************************************************
***********
*/

int random_1_3000( void )
{
  static int i;
  static int x;

  x = rand_integer(0, CUSTOMERS_PER_DISTRICT - 1);

  for (i = 0; i < CUSTOMERS_PER_DISTRICT; i++)
  {
    if (tbl_cust[x] == 0)
    {
      tbl_cust[x] = 1;
      return(x+1);
    } else {
      x++;
    }
    if (x == CUSTOMERS_PER_DISTRICT)
      x=0;
  }

  printf("\nfatal error in random_1_3000 \n");
  abort();
}


/*
*****************************************************************
***********
*   initialize_random
*****************************************************************
***********
*/

void initialize_random(void)
{
  int t = current_time();

  srand(t);
  srandom(t);
}


/*
*****************************************************************
***********
*   create_random_a_string
*
*   create a random alphanumeric string, of random length between lo and
*   hi and place them in designated buffer. Routine returns the actual
*   length.
*
*   parameters
*   ----------
*   lo end of acceptable length range
*   hi end of acceptable length range
*
*   output
*   ------
*   actual length
*   random alphanumeric string
*
*****************************************************************
***********
*/

int create_random_a_string( char *out_buffer, int length_lo, int length_hi )
{
  int i, actual_length ;

  actual_length = rand_integer( length_lo, length_hi ) ;

  for (i = 0; i < actual_length; i++ )
  {
    out_buffer[i] = alnum[rand_integer( 0, 61 )] ;
  }
  out_buffer[actual_length] = '\0' ;

  return (actual_length);
}


/*
*****************************************************************
***********
*   create_random_n_string
*
*   create a random numeric string, of random length between lo and
*   hi and place them in designated buffer. Routine returns the actual
*   length.
*
*   parameters
*   ----------
*   lo end of acceptable length range
*   hi end of acceptable length range
*
*   output
*   ------
*   actual length
*   random numeric string
*
*****************************************************************
***********
*/

int create_random_n_string( char *out_buffer, int length_lo, int length_hi )
{
  int i, actual_length ;

  actual_length = rand_integer( length_lo, length_hi ) ;

  for (i = 0; i < actual_length; i++ )
  {
    out_buffer[i] = (char)rand_integer( 48,57 ) ;
  }
  out_buffer[actual_length] = '\0' ;

  return (actual_length);
}

/*
*****************************************************************
***********
*   NUrand_val
*
*   create a non-uniform random numeric value of type integer, of random
*   value between lo and hi. Number is NOT placed in BUFFER, and IS
*   simply RETURNED.
*
*   Routine RETURNS the VALUE.
```

```
*
*   parameters
*   ----------
*   lo end of acceptable value range
*   hi end of acceptable value range
*
*   output
*   ------
*   random integer value  RETURNED
*
*****************************************************************
***********
*/

int NUrand_val ( int A, int x, int y, int C )
{
 return((((rand_integer(0,A)|rand_integer(x,y))+C)%(y-x+1))+x);
}

/*
*****************************************************************
***********
*   rand_integer
*
*   create a uniform random numeric value of type integer, of random
*   value between lo and hi. Number is NOT placed in BUFFER, and IS
*   simply RETURNED.
*
*   Routine RETURNS the VALUE.
*
*   parameters
*   ----------
*   lo end of acceptable value range
*   hi end of acceptable value range
*
*   output
*   ------
*   random integer value  RETURNED
*
*****************************************************************
***********
*/

int rand_integer ( int val_lo, int val_hi )
{
 return((random()%(val_hi-val_lo+1))+val_lo);
}

/*
*****************************************************************
***********
*   create_a_string_with_original
*
*   create a random alphanumeric string, of random length between lo and
*   hi and place them in designated buffer. Routine returns the actual
*   length.
*
*   the word "ORIGINAL" is placed at a random location in the buffer at
*   random, for a given percent of the records.
*
*   percent_to_set must be an integer value from 0 to 100.
*   if 0, no records will be set. If 100, all records will be set.
*
*   CANNOT USE ON STRINGS OF LENGTH LESS THAN 8 ! LOWER
LIMIT MUST BE > 8 !
*
*   parameters
*   ----------
*   lo end of acceptable length range
*   hi end of acceptable length range
*   percentage of records to set to ORIGINAL
*
*   output
*   ------
*   actual length
*   random alphanumeric string with the word "ORIGINAL" is placed at a
*       random location
*
*****************************************************************
***********
*/

int create_a_string_with_original( char *out_buffer, int length_lo,
                                   int length_hi, int percent_to_set )
{
 int actual_length, start_pos ;

 actual_length = create_random_a_string( out_buffer, length_lo, length_hi ) ;

 if ( rand_integer( 1, 100 ) <= percent_to_set )
 {
  start_pos = rand_integer( 0, actual_length-8 ) ;
  strncpy(out_buffer+start_pos,"ORIGINAL",8) ;
 }

 return (actual_length);
}


/*****************************************************************
**************
 *
 * create_random_last_name
 *
 * parameters:
 *    out_buffer - target buffer for the generated last name
 *
 * description:
 *    create_random_last_name generates a random number from 0 to 999
 *    inclusive. a random name is generated by associating a random string
 *    with each digit of the generated number. the three strings are
 *    concatenated to generate the name
 *
 *****************************************************************
**************/

int create_random_last_name(char *out_buffer, int cust_num)
{
 int random_num;

 if (cust_num == 0)
  random_num = NUrand_val( A_C_LAST, 0, 999, C_C_LAST_LOAD );
 else
  random_num = cust_num - 1;

 strcpy(out_buffer, last_name_parts[random_num / 100]);
 random_num %= 100;
 strcat(out_buffer, last_name_parts[random_num / 10]);
 random_num %= 10;
 strcat(out_buffer, last_name_parts[random_num]);

 return(strlen(out_buffer));
}
```

dbgen\include\db2tpcc.h

```
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*****************************************************************
*************/

/*
 * db2tpcc.h - Macros and Miscellany
 */

#ifndef __DB2TPCC_H
#define __DB2TPCC_H

#include <sys/types.h>
typedef __int16 int16_t;
typedef __int32 int32_t;
typedef __int64 int64_t;

#include "lval.h"

/*
*****************************************************************
******* */
/* Transaction Return Codes (s_transtatus)                      */
/*
*****************************************************************
******* */

#define INVALID_ITEM          100
#define TRAN_OK               0
#define FATAL_SQLERROR        -1

/*
*****************************************************************
******* */
/* Definition of Unused and Bad Items                           */
/*
*****************************************************************
******* */
/* Define unused item ID to be 0. This allows the SUT to determine the    */
/* number of items in the order as required by 2.4.1.3 and 2.4.2.2 since  */
/* the assumption that any item with OL_I_ID = 0 is unused will be true.  */
/* This in turn requires that the value used for an invalid item is       */
/* equal to ITEMS + 1.                                                    */
/*
*****************************************************************
******* */

#define INVALID_ITEM_ID (2 * ITEMS) + 1
#define UNUSED_ITEM_ID 0

#define MIN_WAREHOUSE 1
#define MAX_WAREHOUSE WAREHOUSES

/*****************************************************************
************/
/* NURand Constants                                             */
/* C_C_LAST_RUN and C_C_LAST_LOAD must adhere to clause 2.1.6.
  */
/* Analysis indicates that a C_LAST delta of 85 is optimal.              */
/*****************************************************************
************/
#define C_C_LAST_RUN          88
#define C_C_LAST_LOAD         173
#define C_C_ID                319
#define C_OL_I_ID   3849
#define A_C_LAST    255
#define A_C_ID                1023
#define A_OL_I_ID   8191

/*****************************************************************
************/
/* Transaction Type Identifiers                                 */
/*****************************************************************
************/

#define CLIENT_SQL   0
#define NEWORD_SQL   1
#define PAYMENT_SQL  2
#define ORDSTAT_SQL  3
#define DELIVERY_SQL 4
#define STOCKLEV_SQL 5

#define SPGENERAL_PAD 3
#define SPGENERAL_ADJUST sizeof(int16_t)

struct in_neword_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  struct   in_items_struct {
    int32_t  s_OL_I_ID;
    int32_t  s_OL_SUPPLY_W_ID;
    int16_t  s_OL_QUANTITY;
    int16_t  pad1[3];
  } in_item[15];
  int64_t  s_O_ENTRY_D_time;  /* init by SUT */
  int32_t  s_C_ID;
  int32_t  s_W_ID;
  int16_t  s_D_ID;
  int16_t  s_O_OL_CNT;                        /* init by SUT */
  int16_t  s_all_local;
  int16_t  duplicate_items;
};

struct out_neword_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  struct   items_struct {
    int32_t  s_I_PRICE;
    int32_t  s_OL_AMOUNT;
    int16_t  s_S_QUANTITY;
    int16_t  pad2;
    char     s_I_NAME[25];
    char     s_brand_generic;
  } item[15];
  int64_t  s_O_ENTRY_D_time;
  int32_t  s_W_TAX;
  int32_t  s_D_TAX;
  int32_t  s_C_DISCOUNT;
  int32_t  s_total_amount;
  int32_t  s_O_ID;
  int16_t  s_O_OL_CNT;
  int16_t  s_transtatus;
  int16_t  deadlocks;
  char     s_C_LAST[17];
  char     s_C_CREDIT[3];
};
```

```
struct in_payment_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int64_t  s_H_DATE_time;        /* init by SUT */
  int64_t  s_H_AMOUNT;
  int32_t  s_W_ID;
  int32_t  s_C_W_ID;
  int32_t  s_C_ID;
  int16_t  s_C_D_ID;
  int16_t  s_D_ID;
  char     s_C_LAST[17];
};

struct out_payment_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int64_t  s_H_DATE_time;
  int64_t  s_C_SINCE_time;
  int64_t  s_C_CREDIT_LIM;
  int64_t  s_C_BALANCE;
  int32_t  s_C_DISCOUNT;
  int32_t  s_C_ID;
  int16_t  s_transtatus;
  int16_t  deadlocks;
  char     s_W_STREET_1[21];
  char     s_W_STREET_2[21];
  char     s_W_CITY[21];
  char     s_W_STATE[3];
  char     s_W_ZIP[10];
  char     s_D_STREET_1[21];
  char     s_D_STREET_2[21];
  char     s_D_CITY[21];
  char     s_D_STATE[3];
  char     s_D_ZIP[10];
  char     s_C_FIRST[17];
  char     s_C_MIDDLE[3];
  char     s_C_LAST[17];
  char     s_C_STREET_1[21];
  char     s_C_STREET_2[21];
  char     s_C_CITY[21];
  char     s_C_STATE[3];
  char     s_C_ZIP[10];
  char     s_C_PHONE[17];
  char     s_C_CREDIT[3];
  char     s_C_DATA[201];
};

struct in_ordstat_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int32_t  s_C_ID;
  int32_t  s_W_ID;
  int16_t  s_D_ID;
  int16_t  pad1[3];
  char     s_C_LAST[17];
};

struct out_ordstat_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int64_t  s_C_BALANCE;
  int64_t  s_O_ENTRY_D_time;
  int32_t  s_C_ID;
  int32_t  s_O_ID;
  int16_t  s_O_CARRIER_ID;
  int16_t  s_ol_cnt;
  int16_t  pad1[2];
  struct   oitems_struct {
    int64_t  s_OL_DELIVERY_D_time;
    int32_t  s_OL_AMOUNT;
    int32_t  s_OL_I_ID;
    int32_t  s_OL_SUPPLY_W_ID;
    int16_t  s_OL_QUANTITY;
    int16_t  pad2;
  } item[15];
  int16_t  s_transtatus;
  int16_t  deadlocks;
  char     s_C_FIRST[17];
  char     s_C_MIDDLE[3];
  char     s_C_LAST[17];
};

struct in_delivery_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int64_t  s_O_DELIVERY_D_time;          /* init by SUT */
  int32_t  s_W_ID;
  int16_t  s_O_CARRIER_ID;
};

struct out_delivery_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int32_t  s_O_ID[10];
  int16_t  s_transtatus;
  int16_t  deadlocks;
};

struct in_stocklev_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int32_t  s_threshold;
  int32_t  s_W_ID;
  int16_t  s_D_ID;
};

struct out_stocklev_struct {
  int16_t  len;
  int16_t  pad[SPGENERAL_PAD];
  int32_t  s_low_stock;
  int16_t  s_transtatus;
  int16_t  deadlocks;
};

/*
*************************************************************
******* */
/* Transaction Prototypes                                  */
/*
*************************************************************
******* */

#ifdef __cplusplus
extern "C" {
#endif

extern int neword_sql(struct in_neword_struct*, struct out_neword_struct*);
extern int payment_sql(struct in_payment_struct*, struct out_payment_struct*);
extern int ordstat_sql(struct in_ordstat_struct*, struct out_ordstat_struct*);
extern int delivery_sql(struct in_delivery_struct*, struct out_delivery_struct*);
extern int stocklev_sql(struct in_stocklev_struct*, struct out_stocklev_struct*);

#ifdef __cplusplus
}
#endif
```

```
/*
*****************************************************************
******* */
/* DB2 Connect/Disconnect & Thread Context Wrappers              */
/*
*****************************************************************
******* */

#ifdef __cplusplus
extern "C" {
#endif

extern int connect_to_TM(char*);
extern int connect_to_TM_auth(char*, char*, char*);
extern int disconnect_from_TM(void);

extern int create_context(void);
extern int destroy_context(void);
extern int get_context(void**);
extern int attach_context(void*);
extern int detach_context(void*);

#ifdef __cplusplus
}
#endif

#endif // __DB2TPCC_H
```

dbgen\include\lval.h

```
#ifndef __LVAL_H
#define __LVAL_H
#define WAREHOUSES 12000
#define DISTRICTS_PER_WAREHOUSE 10
#define CUSTOMERS_PER_DISTRICT 3000
#define ITEMS 100000
#define STOCK_PER_WAREHOUSE 100000
#define MIN_OL_PER_ORDER 5
#define MAX_OL_PER_ORDER 15
#define NU_ORDERS_PER_DISTRICT 900
#endif // __LVAL_H
```

dbgen\include\platform.h

```
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*****************************************************************
*************/

/*
 * platform.h - Platform Isolation Layer
 */

#ifndef __PLATFORM_H
#define __PLATFORM_H

/*
*****************************************************************
********/
/* Generic Macros                                               */
/*
*****************************************************************
********/
#define GEN_ERRCODE          GetLastError()

/*
*****************************************************************
********/
/* Windows I/O Macros                                           */
/*
*****************************************************************
********/
#ifndef INVALID_HANDLE_VALUE
#define INVALID_HANDLE_VALUE ((DWORD)-1)
#endif

#ifndef INVALID_SET_FILE_POINTER
#define INVALID_SET_FILE_POINTER ((DWORD)-1)
#endif

#define IOH_INIT(hnd, type, name)                                \
  hnd->fd = INVALID_HANDLE_VALUE;                                \
  hnd->type = type;                                              \
  hnd->name = name;

#define IOH_CREATE(hnd)                                          \
  if (hnd->type == IOH_PIPE) {                                   \
    DWORD timeout = 1000;                                        \
    hnd->fd = CreateNamedPipe(hnd->name, PIPE_ACCESS_OUTBOUND,
    \
                PIPE_TYPE_BYTE | PIPE_READMODE_BYTE | PIPE_WAIT,
 \
                1, 0, 0, timeout, NULL);                         \
    rc = (hnd->fd == INVALID_HANDLE_VALUE) ? -1 : 0;             \
  } else {                                                       \
    rc = 0;                                                      \
  }

#define IOH_OPEN(hnd)                                            \
  if (hnd->type == IOH_PIPE) {                                   \
    rc = (ConnectNamedPipe(hnd->fd, NULL) != 0) ? 0 : -1;        \
  } else {                                                       \
    hnd->fd = CreateFile(hnd->name, GENERIC_WRITE,
FILE_SHARE_WRITE,    \
          NULL, OPEN_ALWAYS, FILE_ATTRIBUTE_NORMAL, NULL);
      \
    rc = (hnd->fd == INVALID_HANDLE_VALUE) ? -1 : 0;             \
    if (rc == 0 && hnd->type == IOH_FILE_APPEND) {               \
      rc = SetFilePointer(hnd->fd, 0, 0, FILE_END);              \
      if (rc == INVALID_SET_FILE_POINTER) {                      \
        rc = (GetLastError() == NO_ERROR) ? 0 : -1;              \
      } else {                                                   \
        rc = 0;                                                  \
      }                                                          \
    }                                                            \
  }

#define IOH_WRITE(hnd, buff, num, num2)                          \
  rc = (WriteFile(hnd->fd, buff, num, (LPDWORD)&num2, NULL) != 0) ? 0 :
-1;

#define IOH_FLUSH(hnd)                                           \
  if (hnd->type == IOH_PIPE) {                                   \
```

```
    rc = (FlushFileBuffers(hnd->fd) != 0) ? 0 : -1;                    \
  } else {                                                             \
    rc = 0;                                                            \
  }

#define IOH_DELETE(hnd)                          rc = 0;

#define IOH_CLOSE(hnd)                                                 \
  if (hnd->type == IOH_PIPE) {                                         \
    rc = (DisconnectNamedPipe(hnd->fd) != 0) ? 0 : -1;                 \
    IOH_ERRMSG(hnd, "disconnecting");                                  \
    rc = (CloseHandle(hnd->fd) != 0) ? 0 : -1;                         \
  }

typedef DWORD IOH_NUM;
typedef HANDLE IOH_HND;

/*****************************************************************
***********/
/* Windows Semaphore Macros                                      */
/*****************************************************************
***********/
#define SEM_HANDLE HANDLE

#define SEM_INIT(hnd, x, name)                                         \
  hnd = CreateSemaphore(NULL, x, 1, NULL);                             \
  if (hnd == NULL)                                                     \
    API_ERROR(__LINE__, "CreateSemaphore", (rc=GEN_ERRCODE));

#define SEM_WAIT(hnd)                                                  \
  if ((rc=WaitForSingleObject(hnd, INFINITE)) == WAIT_FAILED)          \
    API_ERROR(__LINE__, "WaitForSingleObject", (rc=GEN_ERRCODE));

#define SEM_FREE(hnd)                                                  \
  ReleaseSemaphore(hnd, 1, NULL)

#define SEM_DESTROY(hnd)                                               \
  if ((rc=CloseHandle(hnd)) == 0)                                      \
    API_ERROR(__LINE__, "CloseHandle", (rc=GEN_ERRCODE));


/*
*****************************************************************
********/
/* Common I/O Macros and Definitions                             */
/*
*****************************************************************
********/
#define IOH_FILE 1
#define IOH_PIPE 2
#define IOH_FILE_APPEND 3

#define IOH_ERRMSG(hnd, msg)                                           \
  if (rc != 0) {                                                       \
    fprintf(stderr, "Error %d %s fd %d (%d, %s)\n", GEN_ERRCODE, msg,  \
                hnd->fd, hnd->type, hnd->name);                        \
    return rc;                                                         \
  }

struct _ioh {
  IOH_HND fd;
  int type;
  char *name;
};

typedef struct _ioh ioHandle;
```

```
/*
*****************************************************************
********/
/* Generic I/O Routine Prototypes                                */
/*
*****************************************************************
********/
int GenericOpen(ioHandle *hnd, int type, char *name);
int GenericWrite(ioHandle *hnd, char *Buffer, unsigned int numBytes);
int GenericClose(ioHandle *hnd);

/*
*****************************************************************
********/
/* Generic I/O Routines                                          */
/*
*****************************************************************
********/
int GenericOpen(ioHandle *hnd, int type, char *name)
{
  int rc = 0;

  IOH_INIT(hnd, type, name)

  IOH_CREATE(hnd)
  IOH_ERRMSG(hnd, "creating")

  IOH_OPEN(hnd)
  IOH_ERRMSG(hnd, "opening")

  return rc;
}

int GenericWrite(ioHandle *hnd, char *Buffer, unsigned int numBytes)
{
  int rc = 0;
  int numBytesWritten = -1;

  IOH_WRITE(hnd, Buffer, numBytes, numBytesWritten)
  IOH_ERRMSG(hnd, "writing")
  if (numBytes != numBytesWritten) {
    fprintf(stderr, "Truncated data writing to fd %d (%d, %s)\n", hnd->fd,
hnd->type, hnd->name);
    rc = -1;
  }
  return rc;
}

int GenericClose(ioHandle *hnd)
{
  int rc = 0;

  IOH_FLUSH(hnd)
  IOH_ERRMSG(hnd, "flushing")

  IOH_CLOSE(hnd)
  IOH_ERRMSG(hnd, "closing")

  IOH_DELETE(hnd)
  IOH_ERRMSG(hnd, "deleting")

  return rc;
}

#endif // __PLATFORM_H
```

dbgen\include\tpccrnd.h

```
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*****************************************************************
*************/

/*
 * tpccrnd.h - Random generation functions for TPC-C
 */

#ifndef __TPCCRND_H
#define __TPCCRND_H

void initialize_random(void);
int rand_integer( int val_lo, int val_hi ) ;
int NUrand_val( int A, int val_lo, int val_hi, int C ) ;

void seed_1_3000( void );
int random_1_3000( void );

int create_random_a_string( char *out_buffer,
                            int length_lo,
                            int length_hi );
int create_random_n_string( char *out_buffer,
                            int length_lo,
                            int length_hi );
int create_a_string_with_original( char *out_buffer,
                                   int length_lo,
                                   int length_hi,
                                   int percent_to_set ) ;
int create_random_last_name(char *out_buffer, int cust_num);

#endif // __TPCCRND_H
```

dbgen\makefile.config

```
##################################################################
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##################################################################
#############

#
# Makefile.config - NT/Win2000 Makefile Configuration
#

# Make Configuration (MSVC)
MAKE=nmake.exe

# Compiler Configuration (MSVC).
# CFLAGS_DEBUG may be set to "-Zi -Od", "-DDEBUGIT" "-Zi -Od
-DDEBUGIT" or left blank
CC=cl.exe
CFLAGS_OS=-DSQLWINT -MT -GS- -DWIN64 -J -Zp8
-DREG_KIT_METHOD
CFLAGS_OUT=/Fo
CFLAGS_DEBUG=

# Linker Configuration (MSVC)
LD_EXEC=link.exe
LD_STORP=link.exe
LDFLAGS_EXEC=
LDFLAGS_SHLIB=/DLL
LDFLAGS_STORP=$(LDFLAGS_SHLIB) /DEF:rpctpcc.def
LDFLAGS_LIB=/LIBPATH:$(TPCC_SQLLIB)\lib
/LIBPATH:"C:\MsSDKx64\Lib\AMD64" db2api.lib WinMM.lib
LDFLAGS_OUT=/OUT:

# Library Configuration
AR=lib.exe
ARFLAGS=
ARFLAGS_LIB=
ARFLAGS_OUT=/OUT:

# OS Commands
ERASE=del /F
ERASEDIR=rmdir /S
MOVE=MOVE
COPY=COPY

# OS File Extensions & Path Separator
OBJEXT=.obj
LIBEXT=.lib
SHLIBEXT=.dll
BINEXT=.exe
SLASH=\\
CMDSEP=&
```

dbgen\Src.Common\makefile

```
##################################################################
############
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##################################################################
#############

#
# Makefile - Makefile for Src.Common
#

!include $(TPCC_ROOT)/Makefile.config
```

```
#
################################################################
########
# Preprocessor, Compiler and LInker Flags
#
################################################################
########

BND_OPTS =          GRANT PUBLIC \
                    MESSAGES $*.bnd.msg
PRP_OPTS =          BINDFILE \
                    OPTLEVEL 1 \
                    ISOLATION RR \
                    MESSAGES $*.prep.msg \
                    LEVEL $(TPCC_VERSION) \
                    NOLINEMACRO

INCLUDES =          -I$(TPCC_SQLLIB)$(SLASH)include
-I$(TPCC_ROOT)$(SLASH)include

CFLAGS =            $(CFLAGS_OS) $(CFLAGS_DEBUG) $(INCLUDES) \
                    -DSQLA_NOLINES -D$(DB2EDITION)
-D$(DB2VERSION) \
                    -D$(TPCC_SPTYPE)

UTIL_OBJ =          tpccmisc$(OBJEXT) tpccdbg$(OBJEXT)
tpccctx$(OBJEXT)

#
################################################################
########
# User Targets
#
################################################################
########

all:        connect $(UTIL_OBJ) disconnect

clean:
            - $(ERASE) *$(OBJEXT) *.bnd *.msg tpccctx.c

#
################################################################
########
# Helper Targets
#
################################################################
########

connect:
            - db2 connect to $(TPCC_DBNAME)

disconnect:
            - db2 connect reset
            - db2 terminate

rebind:
            db2 bind tpccctx.bnd $(BND_OPTS)

#
################################################################
########
# Build Rules
#
################################################################
########

.SUFFIXES:
.SUFFIXES: $(OBJEXT) .c .sqc

.sqc.c:
            @echo "Prepping $*.sqc"
            -db2 prep $*.sqc $(PRP_OPTS)
            @echo "Binding $*.bnd"
            db2 bind $*.bnd $(BND_OPTS)

#
################################################################
########
# Dependencies
#
################################################################
########

# Source
tpccdbg$(OBJEXT):   tpccdbg.c
tpccctx$(OBJEXT):   tpccctx.c
tpccmisc$(OBJEXT): tpccmisc.c

# Headers
tpccdbg.c:  $(TPCC_ROOT)/include/db2tpcc.h
```

dbgen\Src.Common\tpccmisc.c

```
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*************************************************************
*************/

/*
 * tpccmisc.c - Miscellaneous routines
 */

#include <windows.h>

#define RAND_A  16807
#define RAND_M  2147483647
#define RAND_M1 2147483646
#define RAND_MD 2147483647.0
#define RAND_Q  127773
#define RAND_R  2836

static int seed = 1;
static int seedflag = 0;

void srandom(int);
int random(void);
double current_time_ms(void);
double current_time(void);

void srandom (int initial_seed)
{
  seed = initial_seed;
  if ((seed < 1) || (seed > RAND_M1)) seed = 1;
}
```

```
int random (void)
{
  int lo;
  int hi;
  int test;

  hi = seed / RAND_Q;
  lo = seed % RAND_Q;
  test = RAND_A * lo - RAND_R * hi;
  if (test > 0) seed = test;
  else seed = test + RAND_M;

  return (seed);
}

/* Current time in SECONDS, precision SECONDS */
double current_time(void)
{
  /* truncate fractional seconds -> seconds */
  return (double)((int)(current_time_ms()));
}

/* Current time in SECONDS, precision MILLISECONDS */
double current_time_ms(void)
{
  /* GetCurrentTime() returns ms */
  /* convert to fractional seconds */
  return (GetCurrentTime() / 1000);
}
```

dbgen\tpccenv.bat

```
@REM
**************************************************************
**********
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@REM
**************************************************************
***********
@REM
@REM tpccenv.bat - Windows Environment Setup
@REM

@REM The Kit Version
set TPCC_VERSION=CK041012

@REM The DB2 Instance Name (for DB2)
set DB2INSTANCE=DB2

@REM The OS being used (i.e. "UNIX", "WINDOWS")
set PLATFORM=WINDOWS

@REM The type of make command and slash used by the OS
@REM (i.e. UNIX - "/", WINDOWS - "\")
@REM These are referenced all over the kit.
set SLASH=\
set MAKE=nmake

set TPCC_SPTYPE=SPGENERAL

set DB2VERSION=v8

@REM The schema name is typically the SQL autorization ID (or username).
@REM This is required for runstats and EEE.
set TPCC_SCHEMA=%USERNAME%

@REM DB2 EE/EEE Configuration
set DB2EDITION=EE
set DB2NODE=0
set DB2NODES=1

@REM TPCC General Configuration
set HOME=C
set TPCC_DBNAME=TPCC
set TPCC_ROOT=c:\tpcckit\tpc-c.ibm
set TPCC_SQLLIB=c:\SQLLIB
set TPCC_RUNDATA=c:\tpcckit\tpccdata

@REM TPCC Debug Configuration
set TPCC_DEBUGDIR=c:\temp

@REM Specifies where stored procedures should be placed and if they should
@REM be fenced.
set TPCC_SPDIR=%TPCC_SQLLIB%\function
set TPCC_FENCED=NO
```

Appendix C: Tunable Parameters

IBM DB2 UDB

Database Manager Configuration

Database Manager Configuration

Node type = Database Server with local and remote clients

Database manager configuration release level = 0x0a00

Maximum total of files open (MAXTOTFILOP) = 16000

CPU speed (millisec/instruction) (CPUSPEED) = 3.306409e-007

Max number of concurrently active databases (NUMDB) = 1

Data Links support (DATALINKS) = NO

Federated Database System Support (FEDERATED) = NO

Transaction processor monitor name (TP_MON_NAME) =

Default charge-back account (DFT_ACCOUNT_STR) =

Java Development Kit installation path (JDK_PATH) = C:\SQLLIB\java\jdk

Diagnostic error capture level (DIAGLEVEL) = 1

Notify Level (NOTIFYLEVEL) = 1

Diagnostic data directory path (DIAGPATH) =

Default database monitor switches

Buffer pool (DFT_MON_BUFPOOL) = OFF

Lock (DFT_MON_LOCK) = OFF

Sort (DFT_MON_SORT) = OFF

Statement (DFT_MON_STMT) = OFF

Table (DFT_MON_TABLE) = OFF

Timestamp (DFT_MON_TIMESTAMP) = OFF

Unit of work (DFT_MON_UOW) = OFF

Monitor health of instance and databases (HEALTH_MON) = OFF

SYSADM group name (SYSADM_GROUP) =

SYSCTRL group name (SYSCTRL_GROUP) =

SYSMAINT group name (SYSMAINT_GROUP) =

SYSMON group name (SYSMON_GROUP) =

Client Userid-Password Plugin (CLNT_PW_PLUGIN) =

Client Kerberos Plugin (CLNT_KRB_PLUGIN) = IBMkrb5

Group Plugin (GROUP_PLUGIN) =

GSS Plugin for Local Authorization (LOCAL_GSSPLUGIN) =

Server Plugin Mode (SRV_PLUGIN_MODE) = UNFENCED

Server List of GSS Plugins (SRVCON_GSSPLUGIN_LIST) =

Server Userid-Password Plugin (SRVCON_PW_PLUGIN) =

Server Connection Authentication (SRVCON_AUTH) = NOT_SPECIFIED

Database manager authentication (AUTHENTICATION) = CLIENT

Cataloging allowed without authority (CATALOG_NOAUTH) = NO

Trust all clients (TRUST_ALLCLNTS) = YES

Trusted client authentication (TRUST_CLNTAUTH) = CLIENT

Bypass federated authentication (FED_NOAUTH) = NO

Default database path (DFTDBPATH) = C:

Database monitor heap size (4KB) (MON_HEAP_SZ) = 4096

Java Virtual Machine heap size (4KB) (JAVA_HEAP_SZ) = 1024

Audit buffer size (4KB) (AUDIT_BUF_SZ) = 0

Size of instance shared memory (4KB) (INSTANCE_MEMORY) = AUTOMATIC

Backup buffer default size (4KB) (BACKBUFSZ) = 1024

Restore buffer default size (4KB) (RESTBUFSZ) = 1024

Agent stack size (AGENT_STACK_SZ) = 16

Minimum committed private memory (4KB) (MIN_PRIV_MEM) = 32

Private memory threshold (4KB) (PRIV_MEM_THRESH) = 20000

Sort heap threshold (4KB) (SHEAPTHRES) = 10000

Directory cache support (DIR_CACHE) = YES

Application support layer heap size (4KB) (ASLHEAPSZ) = 15

Max requester I/O block size (bytes) (RQRIOBLK) = 4096

DOS requester I/O block size (bytes) (DOS_RQRIOBLK) = 4096

Query heap size (4KB) (QUERY_HEAP_SZ) = 1000

Workload impact by throttled utilities(UTIL_IMPACT_LIM) = 10

Priority of agents (AGENTPRI) = SYSTEM

Max number of existing agents (MAXAGENTS) = 375

Agent pool size (NUM_POOLAGENTS) = 300

Initial number of agents in pool (NUM_INITAGENTS) = 0

Max number of coordinating agents (MAX_COORDAGENTS) = MAXAGENTS

Max no. of concurrent coordinating agents (MAXCAGENTS) = MAX_COORDAGENTS

Max number of client connections (MAX_CONNECTIONS) = MAX_COORDAGENTS

Keep fenced process (KEEPFENCED) = YES

Number of pooled fenced processes (FENCED_POOL) = MAX_COORDAGENTS

Initial number of fenced processes (NUM_INITFENCED) = 0

Index re-creation time and redo index build (INDEXREC) = RESTART

Transaction manager database name (TM_DATABASE) = 1ST_CONN

Transaction resync interval (sec) (RESYNC_INTERVAL) = 180

SPM name (SPM_NAME) =

SPM log size (SPM_LOG_FILE_SZ) = 256

SPM resync agent limit (SPM_MAX_RESYNC) = 20

SPM log path (SPM_LOG_PATH) =

NetBIOS Workstation name (NNAME) =

TCP/IP Service name (SVCENAME) = db2c_DB2

Discovery mode (DISCOVER) = SEARCH

Discover server instance (DISCOVER_INST) = ENABLE

Maximum query degree of parallelism (MAX_QUERYDEGREE) = ANY

Enable intra-partition parallelism (INTRA_PARALLEL) = NO

No. of int. communication buffers(4KB)(FCM_NUM_BUFFERS) = 1024

Number of FCM request blocks (FCM_NUM_RQB) = AUTOMATIC

Database Configuration

Database Configuration for Database tpcc

Database configuration release level = 0x0a00

Database release level = 0x0a00

Database territory = US

Database code page = 1252

Database code set = IBM-1252

Database country/region code = 1

Database collating sequence = BINARY

Alternate collating sequence (ALT_COLLATE) =

Database page size = 4096

Dynamic SQL Query management (DYN_QUERY_MGMT) = DISABLE

Discovery support for this database (DISCOVER_DB) = ENABLE

Default query optimization class (DFT_QUERYOPT) = 5

Degree of parallelism (DFT_DEGREE) = 1

Continue upon arithmetic exceptions (DFT_SQLMATHWARN) = NO

Default refresh age (DFT_REFRESH_AGE) = 0

Default maintained table types for opt (DFT_MTTB_TYPES) = SYSTEM

Number of frequent values retained (NUM_FREQVALUES) = 10

Number of quantiles retained (NUM_QUANTILES) = 20

Backup pending = NO

Database is consistent = YES

Rollforward pending = NO

Restore pending = NO

Multi-page file allocation enabled = YES

Log retain for recovery status = RECOVERY

User exit for logging status = NO

Data Links Token Expiry Interval (sec) (DL_EXPINT) = 60

Data Links Write Token Init Expiry Intvl(DL_WT_IEXPINT) = 60

Data Links Number of Copies (DL_NUM_COPIES) = 1

Data Links Time after Drop (days) (DL_TIME_DROP) = 1

Data Links Token in Uppercase (DL_UPPER) = NO

Data Links Token Algorithm (DL_TOKEN) = MAC0

Database heap (4KB) (DBHEAP) = 8192

Size of database shared memory (4KB) (DATABASE_MEMORY) = AUTOMATIC

Catalog cache size (4KB) (CATALOGCACHE_SZ) = (MAXAPPLS*4)

Log buffer size (4KB) (LOGBUFSZ) = 3000

Utilities heap size (4KB) (UTIL_HEAP_SZ) = 200000

Buffer pool size (pages) (BUFFPAGE) = 250

Extended storage segments size (4KB) (ESTORE_SEG_SZ) = 16000

Number of extended storage segments (NUM_ESTORE_SEGS) = 0

Max storage for lock list (4KB) (LOCKLIST) = 5000

Max size of appl. group mem set (4KB) (APPGROUP_MEM_SZ) = 30000

Percent of mem for appl. group heap (GROUPHEAP_RATIO) = 70

Max appl. control heap size (4KB) (APP_CTL_HEAP_SZ) = 128

Sort heap thres for shared sorts (4KB) (SHEAPTHRES_SHR) = (SHEAPTHRES)

Sort list heap (4KB) (SORTHEAP) = 16

SQL statement heap (4KB) (STMTHEAP) = 16384

Default application heap (4KB) (APPLHEAPSZ) = 328

Package cache size (4KB) (PCKCACHESZ) = 1000

Statistics heap size (4KB) (STAT_HEAP_SZ) = 4384

Interval for checking deadlock (ms) (DLCHKTIME) = 3000

Percent. of lock lists per application (MAXLOCKS) = 100

Lock timeout (sec) (LOCKTIMEOUT) = -1

Changed pages threshold (CHNGPGS_THRESH) = 99

Number of asynchronous page cleaners (NUM_IOCLEANERS) = 4

Number of I/O servers (NUM_IOSERVERS) = 1

Index sort flag (INDEXSORT) = YES

Sequential detect flag (SEQDETECT) = NO

Default prefetch size (pages) (DFT_PREFETCH_SZ) = AUTOMATIC

Track modified pages (TRACKMOD) = OFF

Default number of containers = 1

Default tablespace extentsize (pages) (DFT_EXTENT_SZ) = 32

Max number of active applications (MAXAPPLS) = 375

Average number of active applications (AVG_APPLS) = 1

Max DB files open per application (MAXFILOP) = 800

Log file size (4KB) (LOGFILSIZ) = 256000

Number of primary log files (LOGPRIMARY) = 31

Number of secondary log files (LOGSECOND) = 0

Changed path to log files (NEWLOGPATH) =

Path to log files = \\.\L:

Overflow log path (OVERFLOWLOGPATH) =

Mirror log path (MIRRORLOGPATH) =

First active log file = S0000002.LOG

Block log on disk full (BLK_LOG_DSK_FUL) = NO

Percent of max active log space by transaction(MAX_LOG) = 0

Num. of active log files for 1 active UOW(NUM_LOG_SPAN) = 0

Group commit count (MINCOMMIT) = 1

Percent log file reclaimed before soft chckpt (SOFTMAX) = 900

Log retain for recovery enabled (LOGRETAIN) = RECOVERY

User exit for logging enabled (USEREXIT) = OFF

HADR database role = STANDARD

HADR local host name (HADR_LOCAL_HOST) =

HADR local service name (HADR_LOCAL_SVC) =

HADR remote host name (HADR_REMOTE_HOST) =

HADR remote service name (HADR_REMOTE_SVC) =

HADR instance name of remote server (HADR_REMOTE_INST) =

HADR timeout value (HADR_TIMEOUT) = 120

HADR log write synchronization mode (HADR_SYNCMODE) = NEARSYNC

First log archive method (LOGARCHMETH1) = LOGRETAIN

Options for logarchmeth1 (LOGARCHOPT1) =

Second log archive method (LOGARCHMETH2) = OFF

Options for logarchmeth2 (LOGARCHOPT2) =

Failover log archive path (FAILARCHPATH) =

Number of log archive retries on error (NUMARCHRETRY) = 5

Log archive retry Delay (secs) (ARCHRETRYDELAY) = 20

Vendor options (VENDOROPT) =

Auto restart enabled (AUTORESTART) = ON

Index re-creation time and redo index build (INDEXREC) = SYSTEM (RESTART)

Log pages during index build (LOGINDEXBUILD) = OFF

Default number of loadrec sessions (DFT_LOADREC_SES) = 1

Number of database backups to retain (NUM_DB_BACKUPS) = 12

Recovery history retention (days) (REC_HIS_RETENTN) = 366

TSM management class (TSM_MGMTCLASS) =

TSM node name (TSM_NODENAME) =

TSM owner (TSM_OWNER) =

TSM password (TSM_PASSWORD) =

Automatic maintenance (AUTO_MAINT) = OFF

Automatic database backup (AUTO_DB_BACKUP) = OFF

Automatic table maintenance (AUTO_TBL_MAINT) = OFF

Automatic runstats (AUTO_RUNSTATS) = OFF

Automatic statistics profiling (AUTO_STATS_PROF) = OFF

Automatic profile updates (AUTO_PROF_UPD) = OFF

Automatic reorganization (AUTO_REORG) = OFF

DB2set Parameters

[e] DB2PATH=C:\SQLLIB

[i] DB2_SELUDI_COMM_BUFFER=Y

[i] DB2_USE_ALTERNATE_PAGE_CLEANING=YES

[i] DB2_MAX_NON_TABLE_LOCKS=500

[i] DB2_LGPAGE_BP=ON

[i] DB2_TRUSTED_BINDIN=ON

[i] DB2_KEEPTABLELOCK=ON

[i] DB2_NO_FORK_CHECK=ON

[i] DB2_APM_PERFORMANCE=ALL

[i] DB2_ENABLE_BUFPD=OFF

[i] DB2_PINNED_BP=ON

[i] DB2_SELECTIVITY=ON

[i] DB2ASSUMEUPDATE=ON

[i] DB2CHECKCLIENTINTERVAL=0

[i] DB2_HASH_JOIN=OFF

[i] DB2_COLLECT_TS_REC_INFO=false

[i] DB2COMM=tcpip

[i] DB2CHKPTR=OFF

[g] DB2_EXTSECURITY=YES

[g] DB2SYSTEM=DB2SERV1

[g] DB2PATH=C:\SQLLIB

[g] DB2ADMINSERVER=DB2DAS00

Microsoft Windows Server 2003 Enterprise x64 Edition

Server Configuration Parameters

Server Configuration Parameters

Microsoft Windows Server 2003 Enterprise x64 Edition Configuration
The following services were set as manual on the server:
Automatic Updates
Computer Browser
Cryptographic Services
DHCP Client
Distributed Link Tracking Client
DNS Client
Help and Support
IPSEC service
Print Spooler
Remote Registry
System Event Notification
Task Scheduler
Windows Time
Wireless Configuration

Boot.ini

[boot loader]
timeout=30
default=multi(0)disk(0)rdisk(0)partition(1)\WINDOWS
[operating systems]
multi(0)disk(0)rdisk(0)partition(1)\WINDOWS="Windows Server 2003 Enterprise x64 Edition - maxmem=65536" /noexecute=optout /fastdetect /maxmem=65536
multi(0)disk(0)rdisk(0)partition(1)\WINDOWS="Windows Server 2003 Enterprise x64 Edition" /noexecute=optout /fastdetect
multi(0)disk(0)rdisk(0)partition(1)\WINDOWS="Windows Server 2003 Enterprise x64 Edition - DEBUG" /noexecute=optout /fastdetect /baudrate=115200 /debugport=com1

System Information Report

System Information report written at: 03/22/05 08:14:28
System Name: DB2SERV1
[System Summary]

Item Value
OS Name Microsoft(R) Windows(R) Server 2003 Enterprise x64 Edition
Version 5.2.3790 Service Pack 1, v.1289 Build 3790
OS Manufacturer Microsoft Corporation
System Name DB2SERV1
System Manufacturer IBM
System Model eserver xSeries 366-[88634RZ]-
System Type x64-based PC
Processor EM64T Family 15 Model 4 Stepping 1 GenuineIntel ~3670 Mhz
Processor EM64T Family 15 Model 4 Stepping 1 GenuineIntel ~3670 Mhz
Processor EM64T Family 15 Model 4 Stepping 1 GenuineIntel ~3670 Mhz
Processor EM64T Family 15 Model 4 Stepping 1 GenuineIntel ~3670 Mhz
Processor EM64T Family 15 Model 4 Stepping 1 GenuineIntel ~3670 Mhz
Processor EM64T Family 15 Model 4 Stepping 1 GenuineIntel ~3670 Mhz
Processor EM64T Family 15 Model 4 Stepping 1 GenuineIntel ~3670 Mhz
BIOS Version/Date IBM -[ZUE123AUS-1.01]-, 3/6/2005
SMBIOS Version 2.3
Windows Directory C:\WINDOWS
System Directory C:\WINDOWS\system32
Boot Device \Device\HarddiskVolume232
Locale United States
Hardware Abstraction Layer Version = "5.2.3790.1289 (srv03_sp1_rc1.041202-1618)"
User NameDB2SERV1\Administrator
Time ZoneEastern Standard Time
Total Physical Memory 63,486.91 MB
Available Physical Memory 60.25 GB
Total Virtual Memory62.45 GB
Available Virtual Memory 62.27 GB
Page File Space 2.00 GB
Page File C:\pagefile.sys

[Hardware Resources]

[Conflicts/Sharing]

Resource Device
I/O Port 0x00000000-0x00001FFF PCI bus
I/O Port 0x00000000-0x00001FFF Direct memory access controller

IRQ 20 NEC PCI to USB Open Host Controller
IRQ 20 NEC PCI to USB Open Host Controller
IRQ 20 Standard Enhanced PCI to USB Host Controller

Memory Address 0xF0900000-0xF09FFFFF PCI bus
Memory Address 0xF0900000-0xF09FFFFF Radeon 7000 / RADEON VE Family (Microsoft Corporation)

I/O Port 0x00002200-0x000023FF PCI bus
I/O Port 0x00002200-0x000023FF QLogic Fibre Channel Adapter

I/O Port 0x00002000-0x000021FF PCI bus
I/O Port 0x00002000-0x000021FF QLogic Fibre Channel Adapter

Memory Address 0xF0E00000-0xF0EFFFFF PCI bus
Memory Address 0xF0E00000-0xF0EFFFFF PCI standard PCI-to-PCI bridge

Memory Address 0xF0A00000-0xF0AFFFFF PCI bus
Memory Address 0xF0A00000-0xF0AFFFFF Broadcom NetXtreme Gigabit Ethernet #2

I/O Port 0x00002400-0x000025FF PCI bus
I/O Port 0x00002400-0x000025FF QLogic Fibre Channel Adapter

Memory Address 0xE0000000-0xE7FFFFFF PCI bus
Memory Address 0xE0000000-0xE7FFFFFF Radeon 7000 / RADEON VE Family (Microsoft Corporation)

Memory Address 0xA0000-0xBFFFF PCI bus
Memory Address 0xA0000-0xBFFFF Radeon 7000 / RADEON VE Family (Microsoft Corporation)

[DMA]

Resource Device Status
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 (Microsoft Corporation) OK
0x000003B0-0x000003BB Radeon 7000 / RADEON VE Family (Microsoft Corporation) OK
0x000003C0-0x000003DF Radeon 7000 / RADEON VE Family (Microsoft Corporation) 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
0x00000060-0x00000060 Standard 101/102-Key or Microsoft Natural PS/2 Keyboard OK
0x00000064-0x00000064 Standard 101/102-Key or Microsoft Natural PS/2 Keyboard OK
0x000003F8-0x000003FF Communications Port (COM1) OK
0x000002F8-0x000002FF Communications Port (COM2) OK
0x00000020-0x00000021 Advanced programmable interrupt controller OK
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
0x0000004E-0x0000004F Motherboard resources OK
0x00000052-0x00000053 Motherboard resources OK
0x00000092-0x00000092 Motherboard resources OK
0x00000094-0x0000009F Motherboard resources OK
0x000000A8-0x000000A9 Motherboard resources OK
0x00000400-0x0000047F Motherboard resources OK
0x00000480-0x000004FF Motherboard resources OK
0x00000500-0x0000055F Motherboard resources OK
0x00000600-0x00000600 Motherboard resources OK
0x00000800-0x00000803 Motherboard resources OK
0x00000C00-0x00000CDF Motherboard resources OK
0x00000F50-0x00000F5F Motherboard resources OK
0x00002000-0x000021FF PCI bus OK
0x00002000-0x000021FF QLogic Fibre Channel Adapter OK
0x00002200-0x000023FF PCI bus OK
0x00002200-0x000023FF QLogic Fibre Channel Adapter OK
0x00003000-0x00003FFF PCI bus OK
0x00002400-0x000025FF PCI bus OK
0x00002400-0x000025FF QLogic Fibre Channel Adapter OK
0x00004000-0x00004FFF PCI bus OK

[IRQs]

Resource Device Status
IRQ 9 Microsoft ACPI-Compliant System OK
IRQ 16 Radeon 7000 / RADEON VE Family (Microsoft Corporation) OK
IRQ 20 NEC PCI to USB Open Host Controller OK
IRQ 20 NEC PCI to USB Open Host Controller OK
IRQ 20 Standard Enhanced PCI to USB Host Controller OK
IRQ 14 Primary IDE Channel OK
IRQ 1 Standard 101/102-Key or Microsoft Natural PS/2 Keyboard OK
IRQ 12 PS/2 Compatible Mouse OK
IRQ 4 Communications Port (COM1) OK
IRQ 3 Communications Port (COM2) OK
IRQ 0 System timer OK
IRQ 8 System CMOS/real time clock OK
IRQ 13 Numeric data processor OK
IRQ 24 Broadcom NetXtreme Gigabit Ethernet #2 OK
IRQ 28 Broadcom NetXtreme Gigabit Ethernet OK
IRQ 18 QLogic Fibre Channel Adapter OK
IRQ 19 QLogic Fibre Channel Adapter OK
IRQ 52 QLogic Fibre Channel Adapter OK
IRQ 54 IBM ServeRAID 6M Controller OK

[Memory]

Resource Device Status
0xA0000-0xBFFFF PCI bus OK
0xA0000-0xBFFFF Radeon 7000 / RADEON VE Family (Microsoft Corporation) OK
0xE0000000-0xE7FFFFFF PCI bus OK
0xE0000000-0xE7FFFFFF Radeon 7000 / RADEON VE Family (Microsoft Corporation) OK
0xF0900000-0xF09FFFFF PCI bus OK
0xF0900000-0xF09FFFFF Radeon 7000 / RADEON VE Family (Microsoft Corporation) OK
0xF0910000-0xF0910FFF NEC PCI to USB Open Host Controller OK
0xF0911000-0xF0911FFF NEC PCI to USB Open Host Controller OK
0xF0912000-0xF09120FF Standard Enhanced PCI to USB Host Controller OK
0x0400-0x04FF System board OK
0x100000-0x7FFFFFFF Memory Module OK
0xF0A00000-0xF0AFFFFF PCI bus OK
0xF0A00000-0xF0AFFFFF Broadcom NetXtreme Gigabit Ethernet #2 OK
0xF0A10000-0xF0A1FFFF Broadcom NetXtreme Gigabit Ethernet OK
0xF0B00000-0xF0BFFFFF PCI bus OK
0xF0B20000-0xF0B20FFF QLogic Fibre Channel Adapter OK
0xF0C00000-0xF0CFFFFF PCI bus OK
0xF0C20000-0xF0C20FFF QLogic Fibre Channel Adapter OK
0xE8000000-0xE83FFFFF PCI bus OK
0xF0000000-0xF03FFFFF PCI bus OK
0xF0D00000-0xF0DFFFFF PCI bus OK
0xF0D20000-0xF0D20FFF QLogic Fibre Channel Adapter OK
0xE8400000-0xE87FFFFF PCI bus OK
0xF0400000-0xF07FFFFF PCI bus OK
0xF0E00000-0xF0EFFFFF PCI bus OK
0xF0E00000-0xF0EFFFFF PCI standard PCI-to-PCI bridge OK
0xF0E80000-0xF0E80FFF IBM ServeRAID 6M Controller OK

[Components]

[Multimedia]

[Audio Codecs]

CODEC Manufacturer Description Status File Version Size Creation Date
c:\windows\system32\imaadp32.acm Microsoft Corporation OK C:\WINDOWS\system32\IMAADP32.ACM 5.2.3790.1289

(srv03_sp1_rc1.041202-1618) 23.50 KB (24,064 bytes) 12/3/2004 7:00 AM
c:\windows\system32\msg711.acm Microsoft Corporation
OK C:\WINDOWS\system32\MSG711.ACM 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 13.50 KB (13,824 bytes) 12/3/2004 7:00 AM
c:\windows\system32\msgsm32.acm Microsoft Corporation
OK C:\WINDOWS\system32\MSGSM32.ACM 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 34.00 KB (34,816 bytes) 12/3/2004 7:00 AM
c:\windows\system32\tssoft32.acm DSP GROUP, INC.
OK C:\WINDOWS\system32\TSSOFT32.ACM 1.01 13.00 KB (13,312 bytes) 12/3/2004 7:00 AM
c:\windows\system32\msadp32.acm Microsoft Corporation
OK C:\WINDOWS\system32\MSADP32.ACM 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 23.00 KB (23,552 bytes) 12/3/2004 7:00 AM

[Video Codecs]

CODEC Manufacturer Description Status File Version Size Creation Date
c:\windows\system32\msrle32.dll Microsoft Corporation
OK C:\WINDOWS\system32\MSRLE32.DLL 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 15.50 KB (15,872 bytes) 12/3/2004 7:00 AM
c:\windows\system32\tsbyuv.dll Microsoft Corporation
OK C:\WINDOWS\system32\TSBYUV.DLL 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 12.50 KB (12,800 bytes) 12/2/2004 2:09 PM
c:\windows\system32\iyuv_32.dll Microsoft Corporation
OK C:\WINDOWS\system32\IYUV_32.DLL 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 52.50 KB (53,760 bytes) 12/2/2004 1:52 PM
c:\windows\system32\msvidc32.dll Microsoft Corporation
OK C:\WINDOWS\system32\MSVIDC32.DLL 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 42.00 KB (43,008 bytes) 12/3/2004 7:00 AM
c:\windows\system32\msyuv.dll Microsoft Corporation
OK C:\WINDOWS\system32\MSYUV.DLL 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 21.50 KB (22,016 bytes) 12/2/2004 1:53 PM

[CD-ROM]

Item Value
Drive D:
Description CD-ROM Drive
Media Loaded No
Media Type CD-ROM
Name MATSHITA DVD-ROM SR-8178
Manufacturer (Standard CD-ROM drives)
Status OK
Transfer Rate Not Available
SCSI Target ID 0
PNP Device ID IDE\CDROMMATSHITA_DVD-ROM_SR-8178_____PJ22____\5&A8D2D22&0&0.0.0
Driver c:\windows\system32\drivers\cdrom.sys (5.2.3790.1289 (srv03_sp1_rc1.041202-1618), 75.50 KB (77,312 bytes), 12/3/2004 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_02C81014&REV_00\3&267A616A&0&08
Adapter Type RADEON 7000 (0x5159), ATI Technologies Inc. compatible
Adapter Description Radeon 7000 / RADEON VE Family (Microsoft Corporation)
Adapter RAM 16.00 MB (16,777,216 bytes)
Installed Drivers ati2dvag.dll
Driver Version 6.14.10.6490
INF File atiixpag.inf (ati2mtag_RV100 section)
Color Planes 1
Color Table Entries 4294967296
Resolution 1024 x 768 x 60 hertz
Bits/Pixel 32
Memory Address 0xE0000000-0xE7FFFFFF
I/O Port 0x00001800-0x000018FF
Memory Address 0xF0900000-0xF09FFFFF
IRQ Channel IRQ 16
I/O Port 0x000003B0-0x000003BB
I/O Port 0x000003C0-0x000003DF
Memory Address 0xA0000-0xBFFFF
Driver c:\windows\system32\drivers\ati2mtag.sys (6.14.10.6490, 1.20 MB (1,260,032 bytes), 2/3/2005 6:07 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&13245C1&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 (5.2.3790.1289 (srv03_sp1_rc1.041202-1618), 91.00 KB (93,184 bytes), 12/3/2004 7:00 AM)

[Pointing Device]

Item Value
Hardware Type PS/2 Compatible Mouse
Number of Buttons 5
Status OK
PNP Device ID ACPI\PNP0F13\4&13245C1&0
Power Management Supported No
Double Click Threshold 6
Handedness Right Handed Operation
IRQ Channel IRQ 12
Driver c:\windows\system32\drivers\i8042prt.sys (5.2.3790.1289 (srv03_sp1_rc1.041202-1618), 91.00 KB (93,184 bytes), 12/3/2004 7:00 AM)

[Modem]

Item Value

[Network]

[Adapter]

Item Value
Name [00000001] Broadcom NetXtreme Gigabit Ethernet
Adapter Type Ethernet 802.3
Product Type Broadcom NetXtreme Gigabit Ethernet
Installed Yes
PNP Device ID
PCI\VEN_14E4&DEV_1648&SUBSYS_02E71014&REV_10\3&13C0B0C5&0&09
Last Reset 3/22/2005 8:01 AM
Index 1
Service Name b57nd
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 00:0D:60:98:00:57
Memory Address 0xF0A10000-0xF0A1FFFF
IRQ Channel IRQ 28
Driver c:\windows\system32\drivers\b57amd64.sys (7.80.0.0 built by: WinDDK, 254.50 KB (260,608 bytes), 2/3/2005 6:08 AM)

Name [00000002] 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_02E71014&REV_10\3&13C0B0C5&0&08
Last Reset 3/22/2005 8:01 AM
Index 2
Service Name b57nd
IP Address 192.168.50.201
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 00:0D:60:98:00:56
Memory Address 0xF0A00000-0xF0AFFFFF
IRQ Channel IRQ 24
Driver c:\windows\system32\drivers\b57amd64.sys (7.80.0.0 built by: WinDDK, 254.50 KB (260,608 bytes), 2/3/2005 6:08 AM)

Name [00000003] RAS Async Adapter
Adapter Type Not Available
Product Type RAS Async Adapter
Installed Yes
PNP Device ID Not Available
Last Reset 3/22/2005 8:01 AM
Index 3
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 [00000004] WAN Miniport (L2TP)
Adapter Type Not Available
Product Type WAN Miniport (L2TP)
Installed Yes
PNP Device ID ROOT\MS_L2TPMINIPORT\0000
Last Reset 3/22/2005 8:01 AM
Index 4
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

Name [00000005] 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 3/22/2005 8:01 AM
Index 5
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

Name [00000006] 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 3/22/2005 8:01 AM
Index 6
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

Name [00000007] Direct Parallel
Adapter Type Not Available
Product Type Direct Parallel
Installed Yes
PNP Device ID ROOT\MS_PTIMINIPORT\0000
Last Reset 3/22/2005 8:01 AM
Index 7
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

Name [00000008] WAN Miniport (IP)
Adapter Type Not Available
Product Type WAN Miniport (IP)
Installed Yes
PNP Device ID ROOT\MS_NDISWANIP\0000
Last Reset 3/22/2005 8:01 AM
Index 8
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

[Protocol]

Item Value
Name MSAFD Tcpip [TCP/IP]
Connectionless Service No
Guarantees Delivery Yes
Guarantees Sequencing Yes
Maximum Address Size 16 bytes
Maximum Message Size 0 bytes
Message Oriented No
Minimum Address Size 16 bytes
Pseudo Stream Oriented No
Supports Broadcasting No
Supports Connect Data No
Supports Disconnect Data No
Supports Encryption No
Supports Expedited Data Yes
Supports Graceful Closing Yes
Supports Guaranteed Bandwidth No
Supports Multicasting No

Name MSAFD Tcpip [UDP/IP]
Connectionless Service Yes
Guarantees Delivery No
Guarantees Sequencing No
Maximum Address Size 16 bytes
Maximum Message Size 63.93 KB (65,467 bytes)
Message Oriented Yes
Minimum Address Size 16 bytes
Pseudo Stream Oriented No
Supports Broadcasting Yes
Supports Connect Data No
Supports Disconnect Data No
Supports Encryption No
Supports Expedited Data No
Supports Graceful Closing No
Supports Guaranteed Bandwidth No
Supports Multicasting Yes

Name RSVP UDP Service Provider
Connectionless Service Yes
Guarantees Delivery No
Guarantees Sequencing No
Maximum Address Size 16 bytes
Maximum Message Size 63.93 KB (65,467 bytes)
Message Oriented Yes
Minimum Address Size 16 bytes
Pseudo Stream Oriented No
Supports Broadcasting Yes
Supports Connect Data No
Supports Disconnect Data No
Supports Encryption Yes
Supports Expedited Data No
Supports Graceful Closing No
Supports Guaranteed Bandwidth No
Supports Multicasting Yes

Name RSVP TCP Service Provider
Connectionless Service No
Guarantees Delivery Yes
Guarantees Sequencing Yes
Maximum Address Size 16 bytes
Maximum Message Size 0 bytes
Message Oriented No
Minimum Address Size 16 bytes
Pseudo Stream Oriented No
Supports Broadcasting No
Supports Connect Data No
Supports Disconnect Data No
Supports Encryption Yes
Supports Expedited Data Yes
Supports Graceful Closing Yes
Supports Guaranteed Bandwidth No
Supports Multicasting No

[WinSock]

Item Value
File c:\windows\system32\wsock32.dll
Size 23.50 KB (24,064 bytes)
Version 5.2.3790.1289 (srv03_sp1_rc1.041202-1618)

[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 (5.2.3790.1289 (srv03_sp1_rc1.041202-1618), 118.50 KB (121,344 bytes), 12/3/2004 7:00 AM)

Name Communications Port (COM2)
Status OK
PNP Device ID ACPI\PNP0501\2
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 0x000002F8-0x000002FF
IRQ Channel IRQ 3
Driver c:\windows\system32\drivers\serial.sys (5.2.3790.1289 (srv03_sp1_rc1.041202-1618), 118.50 KB (121,344 bytes), 12/3/2004 7:00 AM)

[Parallel]

Item Value

[Storage]

[Drives]

Item Value
Drive C:
Description Local Fixed Disk
Compressed No
File System NTFS
Size 33.90 GB (36,398,149,632 bytes)
Free Space 26.25 GB (28,185,587,712 bytes)
Volume Name
Volume Serial Number 68B790E7

Drive D:
Description CD-ROM Disc

Drive L:
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 Y:
Description Network Connection
Provider Name \\192.168.50.224\c$

Drive Z:
Description Network Connection
Provider Name \\fsserv\ddrive

[Disks]

Item Value
Description Disk drive
Manufacturer (Standard disk drives)
Model IBM 1742-900 SCSI Disk Device
Bytes/Sector 512
Media Loaded Yes
Media Type Fixed hard disk
Partitions 19
SCSI Bus 0
SCSI Logical Unit 0
SCSI Port 3
SCSI Target ID 0
Sectors/Track 63
Size 935.23 GB (1,004,199,759,360 bytes)
Total Cylinders 122,087
Total Sectors 1,961,327,655
Total Tracks 31,132,185
Tracks/Cylinder 255
Partition Disk #4, Partition #0
Partition Size 935.23 GB (1,004,191,534,080 bytes)
Partition Starting Offset 8,225,280 bytes

Description Disk drive
Manufacturer (Standard disk drives)
Model IBM 1742-900 SCSI Disk Device
Bytes/Sector 512
Media Loaded Yes
Media Type Fixed hard disk
Partitions 19
SCSI Bus 0
SCSI Logical Unit 1

SCSI Port 3
SCSI Target ID 0
Sectors/Track 63
Size 935.23 GB (1,004,199,759,360 bytes)
Total Cylinders 122,087
Total Sectors 1,961,327,655
Total Tracks 31,132,185
Tracks/Cylinder 255
Partition Disk #5, Partition #0
Partition Size 935.23 GB (1,004,191,534,080 bytes)
Partition Starting Offset 8,225,280 bytes

Description Disk drive
Manufacturer (Standard disk drives)
Model IBM 1742-900 SCSI Disk Device
Bytes/Sector 512
Media Loaded Yes
Media Type Fixed hard disk
Partitions 20
SCSI Bus 0
SCSI Logical Unit 2
SCSI Port 3
SCSI Target ID 1
Sectors/Track 63
Size 935.23 GB (1,004,199,759,360 bytes)
Total Cylinders 122,087
Total Sectors 1,961,327,655
Total Tracks 31,132,185
Tracks/Cylinder 255
Partition Disk #6, Partition #0
Partition Size 935.23 GB (1,004,191,534,080 bytes)
Partition Starting Offset 8,225,280 bytes

Description Disk drive
Manufacturer (Standard disk drives)
Model IBM 1742-900 SCSI Disk Device
Bytes/Sector 512
Media Loaded Yes
Media Type Fixed hard disk
Partitions 19
SCSI Bus 0
SCSI Logical Unit 3
SCSI Port 3
SCSI Target ID 1
Sectors/Track 63
Size 935.23 GB (1,004,199,759,360 bytes)
Total Cylinders 122,087
Total Sectors 1,961,327,655
Total Tracks 31,132,185
Tracks/Cylinder 255
Partition Disk #7, Partition #0
Partition Size 935.23 GB (1,004,191,534,080 bytes)
Partition Starting Offset 8,225,280 bytes

Description Disk drive
Manufacturer (Standard disk drives)
Model IBM 1742-900 SCSI Disk Device
Bytes/Sector 512
Media Loaded Yes
Media Type Fixed hard disk
Partitions 20
SCSI Bus 0
SCSI Logical Unit 0
SCSI Port 4
SCSI Target ID 0
Sectors/Track 63
Size 935.23 GB (1,004,199,759,360 bytes)
Total Cylinders 122,087
Total Sectors 1,961,327,655
Total Tracks 31,132,185
Tracks/Cylinder 255
Partition Disk #8, Partition #0
Partition Size 935.23 GB (1,004,191,534,080 bytes)
Partition Starting Offset 8,225,280 bytes

Description Disk drive
Manufacturer (Standard disk drives)
Model IBM 1742-900 SCSI Disk Device
Bytes/Sector 512
Media Loaded Yes
Media Type Fixed hard disk
Partitions 19
SCSI Bus 0
SCSI Logical Unit 1
SCSI Port 4
SCSI Target ID 0
Sectors/Track 63
Size 935.23 GB (1,004,199,759,360 bytes)
Total Cylinders 122,087
Total Sectors 1,961,327,655
Total Tracks 31,132,185
Tracks/Cylinder 255
Partition Disk #9, Partition #0
Partition Size 935.23 GB (1,004,191,534,080 bytes)
Partition Starting Offset 8,225,280 bytes

Description Disk drive
Manufacturer (Standard disk drives)
Model IBM 1742-900 SCSI Disk Device
Bytes/Sector 512
Media Loaded Yes
Media Type Fixed hard disk
Partitions 20
SCSI Bus 0
SCSI Logical Unit 2
SCSI Port 4
SCSI Target ID 1
Sectors/Track 63
Size 935.23 GB (1,004,199,759,360 bytes)
Total Cylinders 122,087
Total Sectors 1,961,327,655
Total Tracks 31,132,185
Tracks/Cylinder 255
Partition Disk #10, Partition #0
Partition Size 935.23 GB (1,004,191,534,080 bytes)
Partition Starting Offset 8,225,280 bytes

Description Disk drive
Manufacturer (Standard disk drives)
Model IBM 1742-900 SCSI Disk Device
Bytes/Sector 512
Media Loaded Yes
Media Type Fixed hard disk
Partitions 19
SCSI Bus 0
SCSI Logical Unit 3
SCSI Port 4
SCSI Target ID 1
Sectors/Track 63
Size 935.23 GB (1,004,199,759,360 bytes)
Total Cylinders 122,087
Total Sectors 1,961,327,655
Total Tracks 31,132,185
Tracks/Cylinder 255
Partition Disk #11, Partition #0
Partition Size 935.23 GB (1,004,191,534,080 bytes)

Partition Starting Offset 8,225,280 bytes

Description Disk drive
Manufacturer (Standard disk drives)
Model IBM 1742-900 SCSI Disk Device
Bytes/Sector 512
Media Loaded Yes
Media Type Fixed hard disk
Partitions 19
SCSI Bus 0
SCSI Logical Unit 0
SCSI Port 2
SCSI Target ID 0
Sectors/Track 63
Size 935.23 GB (1,004,199,759,360 bytes)
Total Cylinders 122,087
Total Sectors 1,961,327,655
Total Tracks 31,132,185
Tracks/Cylinder 255
Partition Disk #0, Partition #0
Partition Size 935.23 GB (1,004,191,534,080 bytes)
Partition Starting Offset 8,225,280 bytes

Description Disk drive
Manufacturer (Standard disk drives)
Model IBM 1742-900 SCSI Disk Device
Bytes/Sector 512
Media Loaded Yes
Media Type Fixed hard disk
Partitions 19
SCSI Bus 0
SCSI Logical Unit 1
SCSI Port 2
SCSI Target ID 0
Sectors/Track 63
Size 935.23 GB (1,004,199,759,360 bytes)
Total Cylinders 122,087
Total Sectors 1,961,327,655
Total Tracks 31,132,185
Tracks/Cylinder 255
Partition Disk #1, Partition #0
Partition Size 935.23 GB (1,004,191,534,080 bytes)
Partition Starting Offset 8,225,280 bytes

Description Disk drive
Manufacturer (Standard disk drives)
Model IBM 1742-900 SCSI Disk Device
Bytes/Sector 512
Media Loaded Yes
Media Type Fixed hard disk
Partitions 19
SCSI Bus 0
SCSI Logical Unit 2
SCSI Port 2
SCSI Target ID 1
Sectors/Track 63
Size 935.23 GB (1,004,199,759,360 bytes)
Total Cylinders 122,087
Total Sectors 1,961,327,655
Total Tracks 31,132,185
Tracks/Cylinder 255
Partition Disk #2, Partition #0
Partition Size 935.23 GB (1,004,191,534,080 bytes)
Partition Starting Offset 8,225,280 bytes

Description Disk drive
Manufacturer (Standard disk drives)
Model IBM 1742-900 SCSI Disk Device
Bytes/Sector 512
Media Loaded Yes
Media Type Fixed hard disk
Partitions 19
SCSI Bus 0
SCSI Logical Unit 3
SCSI Port 2
SCSI Target ID 1
Sectors/Track 63
Size 935.23 GB (1,004,199,759,360 bytes)
Total Cylinders 122,087
Total Sectors 1,961,327,655
Total Tracks 31,132,185
Tracks/Cylinder 255
Partition Disk #3, Partition #0
Partition Size 935.23 GB (1,004,191,534,080 bytes)
Partition Starting Offset 8,225,280 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 1
SCSI Bus 0
SCSI Logical Unit 0
SCSI Port 5
SCSI Target ID 0
Sectors/Track 32
Size 33.90 GB (36,400,267,264 bytes)
Total Cylinders 17,357
Total Sectors 71,094,272
Total Tracks 2,221,696
Tracks/Cylinder 128
Partition Disk #12, Partition #0
Partition Size 33.90 GB (36,398,153,728 bytes)
Partition Starting Offset 16,384 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 1
SCSI Bus 0
SCSI Logical Unit 0
SCSI Port 5
SCSI Target ID 1
Sectors/Track 32
Size 237.31 GB (254,808,162,304 bytes)
Total Cylinders 121,502
Total Sectors 497,672,192
Total Tracks 15,552,256
Tracks/Cylinder 128
Partition Disk #13, Partition #0
Partition Size 237.31 GB (254,808,145,920 bytes)
Partition Starting Offset 16,384 bytes

[SCSI]

Item Value
Name QLogic Fibre Channel Adapter
Manufacturer QLogic
Status OK

PNP Device ID
PCI\VEN_1077&DEV_2312&SUBSYS_01001077&REV_02\3&1070020&0&08
I/O Port 0x00002000-0x000021FF
Memory Address 0xF0B20000-0xF0B20FFF
IRQ Channel IRQ 18
Driver c:\windows\system32\drivers\ql2300.sys (9.0.1.64 Beta 3 (wx64 IP), 715.00 KB (732,160 bytes), 2/9/2005 2:21 PM)

Name QLogic Fibre Channel Adapter
Manufacturer QLogic
Status OK
PNP Device ID
PCI\VEN_1077&DEV_2312&SUBSYS_01001077&REV_02\3&29E81982&0&08
I/O Port 0x00002200-0x000023FF
Memory Address 0xF0C20000-0xF0C20FFF
IRQ Channel IRQ 19
Driver c:\windows\system32\drivers\ql2300.sys (9.0.1.64 Beta 3 (wx64 IP), 715.00 KB (732,160 bytes), 2/9/2005 2:21 PM)

Name QLogic Fibre Channel Adapter
Manufacturer QLogic
Status OK
PNP Device ID
PCI\VEN_1077&DEV_2312&SUBSYS_01001077&REV_02\3&474B838&0&08
I/O Port 0x00002400-0x000025FF
Memory Address 0xF0D20000-0xF0D20FFF
IRQ Channel IRQ 52
Driver c:\windows\system32\drivers\ql2300.sys (9.0.1.64 Beta 3 (wx64 IP), 715.00 KB (732,160 bytes), 2/9/2005 2:21 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 0xF0E80000-0xF0E80FFF
IRQ Channel IRQ 54
Driver c:\windows\system32\drivers\nfrd960.sys (7.10.52 (NT.041001-1408), 52.00 KB (53,248 bytes), 12/3/2004 7:00 AM)

Name QLogic Optimizing and Multipath Driver
Manufacturer QLogic
Status Degraded
PNP Device ID ROOT\SCSIADAPTER\0000

[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_02121166&REV_A0\3&267A616A&0&79
I/O Port 0x00000700-0x0000070F
Driver c:\windows\system32\drivers\pciide.sys (5.2.3790.1289 (srv03_sp1_rc1.041202-1618), 6.00 KB (6,144 bytes), 12/3/2004 7:00 AM)

Name Primary IDE Channel
Manufacturer (Standard IDE ATA/ATAPI controllers)
Status OK
PNP Device ID PCIIDE\IDECHANNEL\4&101988B2&0&0
I/O Port 0x000001F0-0x000001F7
I/O Port 0x000003F6-0x000003F6
IRQ Channel IRQ 14
Driver c:\windows\system32\drivers\atapi.sys (5.2.3790.1289 (srv03_sp1_rc1.041202-1618), 146.00 KB (149,504 bytes), 12/3/2004 7:00 AM)

Name Secondary IDE Channel
Manufacturer (Standard IDE ATA/ATAPI controllers)
Status OK
PNP Device ID PCIIDE\IDECHANNEL\4&101988B2&0&1
I/O Port 0x00000170-0x00000177
I/O Port 0x00000376-0x00000376
Driver c:\windows\system32\drivers\atapi.sys (5.2.3790.1289 (srv03_sp1_rc1.041202-1618), 146.00 KB (149,504 bytes), 12/3/2004 7:00 AM)

[Printing]

Name Driver Port Name Server Name

[Problem Devices]

Device PNP Device ID Error Code
Not Available ACPI\IBM37D4\2&DABA3FF&0 The drivers for this device are not installed.

[USB]

Device PNP Device ID
NEC PCI to USB Open Host Controller
PCI\VEN_1033&DEV_0035&SUBSYS_00351033&REV_43\3&267A616A&0&18
NEC PCI to USB Open Host Controller
PCI\VEN_1033&DEV_0035&SUBSYS_00351033&REV_43\3&267A616A&0&19
Standard Enhanced PCI to USB Host Controller
PCI\VEN_1033&DEV_00E0&SUBSYS_00E01033&REV_04\3&267A616A&0&1A

[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
Disabled Stopped OK Ignore No No
acpi Microsoft ACPI Driver
c:\windows\system32\drivers\acpi.sys Kernel Driver Yes
Boot Running OK Normal No Yes
acpiec ACPIEC c:\windows\system32\drivers\acpiec.sys Kernel
Driver No Disabled Stopped OK Normal No
No
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
afd AFD c:\windows\system32\drivers\afd.sys Kernel
Driver Yes System Running OK Normal No
Yes
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 AliIde Not Available Kernel Driver No
Disabled Stopped OK Normal No No

amdide AmdIde Not Available Kernel Driver No
Disabled Stopped OK Normal No No
arc arc Not Available Kernel Driver No
Disabled Stopped OK Normal No No
asyncmac RAS Asynchronous Media Driver
c:\windows\system32\drivers\asyncmac.sys Kernel Driver No
Manual Stopped OK Normal No No
atapi Standard IDE/ESDI Hard Disk Controller
c:\windows\system32\drivers\atapi.sys Kernel Driver Yes
Boot Running OK Normal No Yes
atdisk Atdisk Not Available Kernel Driver No
Disabled Stopped OK Ignore No No
ati2mtag ati2mtag c:\windows\system32\drivers\ati2mtag.sys Kernel
Driver Yes Manual Running OK Ignore No
Yes
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
b57nd Broadcom NetXtreme Gigabit Ethernet
c:\windows\system32\drivers\b57amd64.sys Kernel Driver Yes
Manual Running OK Normal No Yes
beep Beep c:\windows\system32\drivers\beep.sys Kernel
Driver Yes System Running OK Normal No
Yes
cdac15ba CdaC15BA c:\windows\system32\drivers\cdac15ba.sys
Kernel Driver Yes Auto Running OK Normal
No Yes
cdad10ba CdaD10BA c:\windows\system32\drivers\cdad10ba.sys
Kernel Driver Yes Auto Running OK Normal
No Yes
cdfs Cdfs c:\windows\system32\drivers\cdfs.sys File System
Driver Yes Disabled Running OK Normal No
Yes
cdrom CD-ROM Driver c:\windows\system32\drivers\cdrom.sys
Kernel Driver Yes System Running OK Normal
No Yes
changer Changer Not Available Kernel Driver No
System Stopped OK Ignore No No
clusdisk Cluster Disk Driver c:\windows\system32\drivers\clusdisk.sys
Kernel Driver No Disabled Stopped OK Normal
No No
cmdide CmdIde Not Available Kernel Driver No
Disabled Stopped OK Normal No No
cpqcissm cpqcissm Not Available Kernel Driver No
Disabled Stopped OK Normal No No
crcdisk CRC Disk Filter Driver
c:\windows\system32\drivers\crcdisk.sys Kernel Driver Yes
Boot Running OK Normal No Yes
dfsdriver DfsDriver c:\windows\system32\drivers\dfs.sys File System
Driver Yes Boot Running OK Normal No
Yes
disk Disk Driver c:\windows\system32\drivers\disk.sys
Kernel Driver Yes Boot Running OK Normal
No Yes
dmboot dmboot c:\windows\system32\drivers\dmboot.sys Kernel
Driver No Disabled Stopped OK Normal No
No
dmio Logical Disk Manager Driver
c:\windows\system32\drivers\dmio.sys Kernel Driver Yes
Boot Running OK Normal No Yes
dmload dmload c:\windows\system32\drivers\dmload.sys Kernel
Driver Yes Boot Running OK Normal No
Yes
dpti2o dpti2o Not Available Kernel Driver No
Disabled Stopped OK Normal No No
elxstor elxstor Not Available Kernel Driver No
Disabled Stopped OK Normal No No
fastfat Fastfat c:\windows\system32\drivers\fastfat.sys File System
Driver No Disabled Stopped OK Normal No
No
fdc Fdc c:\windows\system32\drivers\fdc.sys Kernel
Driver No System Stopped OK Ignore No
No
fips Fips c:\windows\system32\drivers\fips.sys Kernel
Driver Yes System Running OK Normal No
Yes
flpydisk Flpydisk c:\windows\system32\drivers\flpydisk.sys Kernel
Driver No System Stopped OK Ignore No
No
fltmgr FltMgr c:\windows\system32\drivers\fltmgr.sys File System
Driver Yes Boot Running OK Normal No
Yes
ftdisk Volume Manager Driver
c:\windows\system32\drivers\ftdisk.sys Kernel Driver Yes
Boot Running OK Normal No Yes
gpc Generic Packet Classifier
c:\windows\system32\drivers\msgpc.sys Kernel Driver Yes
Manual Running OK Normal No Yes
hpcisss hpcisss Not Available Kernel Driver No
Disabled Stopped OK Normal No No
http HTTP c:\windows\system32\drivers\http.sys Kernel
Driver No Manual Stopped OK Normal No
No
i2omgmt i2omgmt Not Available Kernel Driver No
System Stopped OK Normal No No
i8042prt i8042 Keyboard and PS/2 Mouse Port Driver
c:\windows\system32\drivers\i8042prt.sys Kernel Driver Yes
System Running OK Normal No Yes
iirsp iirsp Not Available Kernel Driver No
Disabled Stopped OK Normal No No
imapi CD-Burning Filter Driver
c:\windows\system32\drivers\imapi.sys Kernel Driver No
System Stopped OK Normal No No
intelide IntelIde Not Available Kernel Driver No
Disabled Stopped OK Normal No No
intelppm Intel Processor Driver c:\windows\system32\drivers\intelppm.sys
Kernel Driver Yes Manual Running OK Normal
No Yes
ip6fw IPv6 Windows Firewall Driver
c:\windows\system32\drivers\ip6fw.sys Kernel Driver No
Manual Stopped OK Normal No No
ipfilterdriver IP Traffic Filter Driver
c:\windows\system32\drivers\ipfltdrv.sys Kernel Driver No
Manual Stopped OK Normal No No
ipinip IP in IP Tunnel Driverc:\windows\system32\drivers\ipinip.sys
Kernel Driver No Manual Stopped OK Normal
No No
ipnat IP Network Address Translator
c:\windows\system32\drivers\ipnat.sys Kernel Driver No
Manual Stopped OK Normal No No
ipsec IPSEC driver c:\windows\system32\drivers\ipsec.sys
Kernel Driver Yes System Running OK Normal
No Yes
isapnp PnP ISA/EISA Bus Driver
c:\windows\system32\drivers\isapnp.sys Kernel Driver Yes
Boot Running OK Critical No Yes
kbdclass Keyboard Class Driver
c:\windows\system32\drivers\kbdclass.sys Kernel Driver Yes
System Running OK Normal No Yes
ksecdd KSecDD c:\windows\system32\drivers\ksecdd.sys Kernel
Driver Yes Boot Running OK Normal No
Yes

ksthunk Kernel Streaming WOW64 Thunk Service
c:\windows\system32\drivers\ksthunk.sys Kernel Driver Yes
Manual Running OK Normal No Yes
lp6nds35 lp6nds35 Not Available Kernel Driver No
Disabled Stopped OK Normal No No
mnmdd mnmdd Not Available Kernel Driver No
System Stopped OK Ignore No No
modem Modem c:\windows\system32\drivers\modem.sys Kernel
Driver No Manual Stopped OK Ignore No
No
mouclass Mouse Class Driver c:\windows\system32\drivers\mouclass.sys
Kernel Driver Yes System Running OK Normal
No Yes
mountmgr Mount Point Manager c:\windows\system32\drivers\mountmgr.sys
Kernel Driver Yes Boot Running OK Normal
No Yes
mraid35x mraid35x Not Available Kernel Driver No
Disabled Stopped OK Normal No No
mrxdav WebDav Client Redirector
c:\windows\system32\drivers\mrxdav.sys File System Driver No
Manual Stopped OK Normal No No
mrxsmb MRXSMB c:\windows\system32\drivers\mrxsmb.sys File System
Driver Yes System Running OK Normal No
Yes
msfs Msfs c:\windows\system32\drivers\msfs.sys File System
Driver Yes System Running OK Normal No
Yes
mssmbios Microsoft System Management BIOS Driver
c:\windows\system32\drivers\mssmbios.sys Kernel Driver Yes
Manual Running OK Normal No Yes
mup Mup c:\windows\system32\drivers\mup.sys File System
Driver Yes Boot Running OK Normal No
Yes
ndis NDIS System Driver c:\windows\system32\drivers\ndis.sys
Kernel Driver Yes Boot Running OK Normal
No Yes
ndistapi Remote Access NDIS TAPI Driver
c:\windows\system32\drivers\ndistapi.sys Kernel Driver Yes
Manual Running OK Normal No Yes
ndisuio NDIS Usermode I/O Protocol
c:\windows\system32\drivers\ndisuio.sys Kernel Driver No
Manual Stopped OK Normal No No
ndiswan Remote Access NDIS WAN Driver
c:\windows\system32\drivers\ndiswan.sys Kernel Driver Yes
Manual Running OK Normal No Yes
ndproxy NDIS Proxy c:\windows\system32\drivers\ndproxy.sys
Kernel Driver Yes Manual Running OK Normal
No Yes
netbios NetBIOS Interface c:\windows\system32\drivers\netbios.sys
File System Driver Yes System Running OK Normal
No Yes
netbt NetBios over Tcpip c:\windows\system32\drivers\netbt.sys
Kernel Driver Yes System Running OK Normal
No Yes
nfrd960 nfrd960 c:\windows\system32\drivers\nfrd960.sys Kernel
Driver Yes Boot Running OK Normal No
Yes
npfs Npfs c:\windows\system32\drivers\npfs.sys File System
Driver Yes System Running OK Normal No
Yes
ntfs Ntfs c:\windows\system32\drivers\ntfs.sys File System
Driver Yes Disabled Running OK Normal No
Yes
null Null c:\windows\system32\drivers\null.sys Kernel
Driver Yes System Running OK Normal No
Yes
parport Parport c:\windows\system32\drivers\parport.sys Kernel
Driver No Manual Stopped OK Ignore No
No
partmgr Partition Manager c:\windows\system32\drivers\partmgr.sys
Kernel Driver Yes Boot Running OK Normal
No Yes
pci PCI Bus Driver c:\windows\system32\drivers\pci.sys
Kernel Driver Yes Boot Running OK Critical
No Yes
pciide PCIIde c:\windows\system32\drivers\pciide.sys Kernel
Driver Yes Boot Running OK Normal No
Yes
pcmcia Pcmcia c:\windows\system32\drivers\pcmcia.sys Kernel
Driver No Disabled Stopped OK Normal No
No
pdcomp PDCOMP Not Available Kernel Driver No
Manual Stopped OK Ignore No No
pdframe PDFRAME Not Available Kernel Driver
No Manual Stopped OK Ignore No No
pdreli PDRELI Not Available Kernel Driver No
Manual Stopped OK Ignore No No
pdrframe PDRFRAME Not Available Kernel Driver
No Manual Stopped OK Ignore No No
pnpmem Microsoft Memory Module Driver
c:\windows\system32\drivers\pnpmem.sys Kernel Driver Yes
Manual Running OK Normal No Yes
pptpminiport WAN Miniport (PPTP)
c:\windows\system32\drivers\raspptp.sys Kernel Driver Yes
Manual Running OK Normal No Yes
ptilink Direct Parallel Link Driver
c:\windows\system32\drivers\ptilink.sys Kernel Driver Yes
Manual Running OK Normal No Yes
ql2300 ql2300 c:\windows\system32\drivers\ql2300.sys Kernel
Driver Yes Boot Running OK Normal No
Yes
qldirect qldirect c:\windows\system32\drivers\qldirect.sys Kernel
Driver Yes Auto Running OK Normal No
Yes
rasacd Remote Access Auto Connection Driver
c:\windows\system32\drivers\rasacd.sys Kernel Driver Yes
System Running OK Normal No Yes
rasl2tp WAN Miniport (L2TP)
c:\windows\system32\drivers\rasl2tp.sys Kernel Driver Yes
Manual Running OK Normal No Yes
raspppoe Remote Access PPPOE Driver
c:\windows\system32\drivers\raspppoe.sys Kernel Driver Yes
Manual Running OK Normal No Yes
raspti Direct Parallel c:\windows\system32\drivers\raspti.sys
Kernel Driver Yes Manual Running OK Normal
No Yes
rdbss Rdbss c:\windows\system32\drivers\rdbss.sys File System
Driver Yes System Running OK Normal No
Yes
rdpcdd RDPCDD c:\windows\system32\drivers\rdpcdd.sys Kernel
Driver Yes System Running OK Ignore No
Yes
rdpdr Terminal Server Device Redirector Driver
c:\windows\system32\drivers\rdpdr.sys Kernel Driver Yes
Manual Running OK Normal No Yes
rdpwd RDPWD c:\windows\system32\drivers\rdpwd.sys Kernel
Driver Yes Manual Running OK Ignore No
Yes
redbook Digital CD Audio Playback Filter Driver
c:\windows\system32\drivers\redbook.sys Kernel Driver Yes
System Running OK Normal No Yes
secdrv Security Driver c:\windows\system32\drivers\secdrv.sys
Kernel Driver Yes Auto Running OK Normal
No Yes

serenum Serenum Filter Driver c:\windows\system32\drivers\serenum.sys
Kernel Driver Yes Manual Running OK Normal
No Yes
serial Serial port driver c:\windows\system32\drivers\serial.sys
Kernel Driver Yes System Running OK Ignore
No Yes
sfloppy High-Capacity Floppy Disk Drive
c:\windows\system32\drivers\sfloppy.sys Kernel Driver No
Manual Stopped OK Normal No No
simbad Simbad Not Available Kernel Driver No
Disabled Stopped OK Normal No No
srv Srv c:\windows\system32\drivers\srv.sys File System
Driver Yes Manual Running OK Normal No
Yes
swenum Software Bus Driver c:\windows\system32\drivers\swenum.sys
Kernel Driver Yes Manual Running OK Normal
No Yes
symc8xx symc8xx Not Available Kernel Driver No
Disabled Stopped OK Normal No No
symmpi symmpi Not Available Kernel Driver No
Disabled Stopped OK Normal No No
sym_hi sym_hi Not Available Kernel Driver No
Disabled Stopped OK Normal No No
sym_u3 sym_u3 Not Available Kernel Driver No
Disabled Stopped OK Normal No No
tcpip TCP/IP Protocol Driver
c:\windows\system32\drivers\tcpip.sys Kernel Driver Yes
System Running OK Normal No Yes
tdpipe TDPIPE c:\windows\system32\drivers\tdpipe.sys Kernel
Driver No Manual Stopped OK Ignore No
No
tdtcp TDTCP c:\windows\system32\drivers\tdtcp.sys Kernel
Driver Yes Manual Running OK Ignore No
Yes
termdd Terminal Device Driver
c:\windows\system32\drivers\termdd.sys Kernel Driver Yes
System Running OK Normal No Yes
toside TosIde Not Available Kernel Driver No
Disabled Stopped OK Normal No No
udfs Udfs c:\windows\system32\drivers\udfs.sys File System
Driver No Disabled Stopped OK Normal No
No
ultra ultra Not Available Kernel Driver No
Disabled Stopped OK Normal No No
update Microcode Update Driver
c:\windows\system32\drivers\update.sys Kernel Driver Yes
Manual Running OK Normal No Yes
usbehci Microsoft USB 2.0 Enhanced Host Controller Miniport Driver
c:\windows\system32\drivers\usbehci.sys Kernel Driver Yes
Manual Running OK Normal No Yes
usbhub USB2 Enabled Hub c:\windows\system32\drivers\usbhub.sys
Kernel Driver Yes Manual Running OK Normal
No Yes
usbohci Microsoft USB Open Host Controller Miniport Driver
c:\windows\system32\drivers\usbohci.sys Kernel Driver Yes
Manual Running OK Normal No Yes
usbstor USB Mass Storage Driver
c:\windows\system32\drivers\usbstor.sys Kernel Driver No
Manual Stopped OK Normal No No
vgasave VGA Display Controller.
c:\windows\system32\drivers\vga.sys Kernel Driver Yes
System Running OK Ignore No Yes
viaide ViaIde Not Available Kernel Driver No
Disabled Stopped OK Normal No No
volsnap Storage volumes c:\windows\system32\drivers\volsnap.sys
Kernel Driver Yes Boot Running OK Normal
No Yes
wanarp Remote Access IP ARP Driver
c:\windows\system32\drivers\wanarp.sys Kernel Driver Yes
Manual Running OK Normal No Yes
wdica WDICA Not Available Kernel Driver No
Manual Stopped OK Ignore No No
wlbs Network Load Balancing
c:\windows\system32\drivers\wlbs.sys Kernel Driver No
Manual Stopped OK Normal No No

[Signed Drivers]

Device Name Signed Device Class Driver Version
Driver Date Manufacturer INF Name Driver Name
Device ID
Microsoft System Management BIOS DriverNo SYSTEM
5.2.3790.1289 10/1/2002 (Standard system devices) machine.inf
Not Available ROOT\SYSTEM\0002
Microcode Update Device No SYSTEM 5.2.3790.1289
10/1/2002 (Standard system devices) machine.inf Not
Available ROOT\SYSTEM\0001
Plug and Play Software Device Enumerator No SYSTEM
5.2.3790.1289 10/1/2002 (Standard system devices) machine.inf
Not Available ROOT\SYSTEM\0000
QLogic Optimizing and Multipath Driver No SCSIADAPTER
Not Available Not Available Not Available oem4.inf
Not Available ROOT\SCSIADAPTER\0000
Terminal Server Mouse Driver No SYSTEM 5.2.3790.1289
10/1/2002 (Standard system devices) machine.inf Not
Available ROOT\RDP_MOU\0000
Terminal Server Keyboard Driver No SYSTEM
5.2.3790.1289 10/1/2002 (Standard system devices) machine.inf
Not Available ROOT\RDP_KBD\0000
Terminal Server Device Redirector No SYSTEM
5.2.3790.1289 10/1/2002 (Standard system devices) machine.inf
Not Available ROOT\RDPDR\0000
Direct Parallel No NET 5.2.3790.1289 10/1/2002
Microsoft netrasa.inf Not Available ROOT\MS_PTIMINIPORT\0000
WAN Miniport (PPTP) No NET 5.2.3790.1289
10/1/2002 Microsoft netrasa.inf Not Available
ROOT\MS_PPTPMINIPORT\0000
WAN Miniport (PPPOE) No NET 5.2.3790.1289
10/1/2002 Microsoft netrasa.inf Not Available
ROOT\MS_PPPOEMINIPORT\0000
WAN Miniport (IP) No NET 5.2.3790.1289 10/1/2002
Microsoft netrasa.inf Not Available ROOT\MS_NDISWANIP\0000
WAN Miniport (L2TP) No NET 5.2.3790.1289
10/1/2002 Microsoft netrasa.inf Not Available
ROOT\MS_L2TPMINIPORT\0000
Video Codecs No MEDIA 5.2.3790.1289 10/1/2002
(Standard system devices) wave.inf Not Available
ROOT\MEDIA\MS_MMVID
Legacy Video Capture Devices No MEDIA 5.2.3790.1289
10/1/2002 (Standard system devices) wave.inf Not Available
ROOT\MEDIA\MS_MMVCD
Media Control Devices No MEDIA 5.2.3790.1289
10/1/2002 (Standard system devices) wave.inf Not Available
ROOT\MEDIA\MS_MMMCI
Legacy Audio DriversNo MEDIA 5.2.3790.1289 10/1/2002
(Standard system devices) wave.inf Not Available
ROOT\MEDIA\MS_MMDRV
Audio Codecs No MEDIA 5.2.3790.1289 10/1/2002
(Standard system devices) wave.inf Not Available
ROOT\MEDIA\MS_MMACM
Remote Access IP ARP Driver Not Available LEGACYDRIVER
Not Available Not Available Not Available Not
Available Not Available ROOT\LEGACY_WANARP\0000

volsnap Not Available LEGACYDRIVER Not Available
Not Available Not Available Not Available Not
Available ROOT\LEGACY_VOLSNAP\0000
VGA Display Controller. Not Available LEGACYDRIVER
Not Available Not Available Not Available Not
Available Not Available ROOT\LEGACY_VGASAVE\0000
TDTCP Not Available LEGACYDRIVER Not Available
Not Available Not Available Not Available Not
Available ROOT\LEGACY_TDTCP\0000
TCP/IP Protocol Driver Not Available LEGACYDRIVER
Not Available Not Available Not Available Not
Available Not Available ROOT\LEGACY_TCPIP\0000
Security Driver Not Available LEGACYDRIVER Not
Available Not Available Not Available Not Available
Not Available ROOT\LEGACY_SECDRV\0000
RDPWD Not Available LEGACYDRIVER Not Available
Not Available Not Available Not Available Not
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RDPCDD Not Available LEGACYDRIVER Not Available
Not Available Not Available Not Available Not
Available ROOT\LEGACY_RDPCDD\0000
Remote Access Auto Connection Driver Not Available
LEGACYDRIVER Not Available Not Available Not
Available Not Available Not Available
ROOT\LEGACY_RASACD\0000
qldirect Not Available LEGACYDRIVER Not Available
Not Available Not Available Not Available Not
Available ROOT\LEGACY_QLDIRECT\0000
Partition Manager Not Available LEGACYDRIVER Not
Available Not Available Not Available Not Available
Not Available ROOT\LEGACY_PARTMGR\0000
Null Not Available LEGACYDRIVER Not Available
Not Available Not Available Not Available Not
Available ROOT\LEGACY_NULL\0000
NetBios over Tcpip Not Available LEGACYDRIVER Not
Available Not Available Not Available Not Available
Not Available ROOT\LEGACY_NETBT\0000
NDProxy Not Available LEGACYDRIVER Not Available
Not Available Not Available Not Available Not
Available ROOT\LEGACY_NDPROXY\0000
NDIS Usermode I/O Protocol Not Available LEGACYDRIVER
Not Available Not Available Not Available Not
Available Not Available ROOT\LEGACY_NDISUIO\0000
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LEGACYDRIVER Not Available Not Available Not
Available Not Available Not Available
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NDIS System Driver Not Available LEGACYDRIVER Not
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IPSEC driver Not Available LEGACYDRIVER Not
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Not Available ROOT\LEGACY_IPSEC\0000
IP Network Address Translator Not Available LEGACYDRIVER
Not Available Not Available Not Available Not
Available Not Available ROOT\LEGACY_IPNAT\0000
Generic Packet Classifier Not Available LEGACYDRIVER
Not Available Not Available Not Available Not
Available Not Available ROOT\LEGACY_GPC\0000
Fips Not Available LEGACYDRIVER Not Available
Not Available Not Available Not Available Not
Available ROOT\LEGACY_FIPS\0000
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Not Available Not Available Not Available Not
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dmboot Not Available LEGACYDRIVER Not Available
Not Available Not Available Not Available Not
Available ROOT\LEGACY_DMBOOT\0000
CRC Disk Filter Driver Not Available LEGACYDRIVER
Not Available Not Available Not Available Not
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CdaD10BA Not Available LEGACYDRIVER Not
Available Not Available Not Available Not Available
Not Available ROOT\LEGACY_CDAD10BA\0000
CdaC15BA Not Available LEGACYDRIVER Not
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Microsoft volume.inf Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE181F05ACOFFSET13
02DC8C00LENGTH568819200
Generic volume No VOLUME 5.2.3790.1289 10/1/2002
Microsoft volume.inf Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE181F05ACOFFSET11
C23A7000LENGTH140A19E00
Generic volume No VOLUME 5.2.3790.1289 10/1/2002
Microsoft volume.inf Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE181F05ACOFFSETA3
F68CC00LENGTH782D12600
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A7F1C00LENGTH164E93200
Generic volume No VOLUME 5.2.3790.1289 10/1/2002
Microsoft volume.inf Not Available
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Microsoft volume.inf Not Available
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Generic volume No VOLUME 5.2.3790.1289 10/1/2002
Microsoft volume.inf Not Available
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Microsoft volume.inf Not Available
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68600LENGTH57C16800
Generic volume No VOLUME 5.2.3790.1289 10/1/2002
Microsoft volume.inf Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE181F05ACOFFSET17
90400LENGTH7D0400
Generic volume No VOLUME 5.2.3790.1289 10/1/2002
Microsoft volume.inf Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE181F05ACOFFSETFB
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Generic volume No VOLUME 5.2.3790.1289 10/1/2002
Microsoft volume.inf Not Available
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0000LENGTH7D0400
Volume Manager No SYSTEM 5.2.3790.1289 10/1/2002
(Standard system devices) machine.inf Not Available
ROOT\FTDISK\0000
Logical Disk ManagerNo SYSTEM 5.2.3790.1289 10/1/2002
(Standard system devices) machine.inf Not Available
ROOT\DMIO\0000
IBM Dummy Device No SYSTEM 5.2.3790.1289 10/1/2002
IBM scsidev.inf Not Available
SCSI\BRIDGE&VEN_IBM&PROD_DUMMY_DEVICE&REV_7.10\5&804C
5&0&300
SCSI Processor Device No SYSTEM 5.2.3790.1289
10/1/2002 IBM scsidev.inf Not Available
SCSI\PROCESSOR&VEN_IBM&PROD_EXP400___S320&REV_D110\5&8
04C5&0&2F0
SCSI Processor Device No SYSTEM 5.2.3790.1289
10/1/2002 IBM scsidev.inf Not Available
SCSI\PROCESSOR&VEN_IBM&PROD_EXP400___S320&REV_D110\5&8
04C5&0&1F0
Disk drive No DISKDRIVE 5.2.3790.1289 10/1/2002
(Standard disk drives) disk.inf Not Available
SCSI\DISK&VEN_IBM&PROD_SERVERAID&REV_6.10\5&804C5&0&01
0
Disk drive No DISKDRIVE 5.2.3790.1289 10/1/2002
(Standard disk drives) disk.inf Not Available
SCSI\DISK&VEN_IBM&PROD_SERVERAID&REV_6.10\5&804C5&0&00
0
IBM ServeRAID 6M Controller No SCSIADAPTER
5.2.3790.1289 10/1/2002 IBM Corporation pnpscsi.inf Not
Available
PCI\VEN_9005&DEV_0250&SUBSYS_02791014&REV_02\4&29C8B970&
0&4008
PCI standard PCI-to-PCI bridge No SYSTEM 5.2.3790.1289
10/1/2002 (Standard system devices) machine.inf Not
Available
PCI\VEN_1014&DEV_01A7&SUBSYS_00000000&REV_02\3&20FEA912&
0&08
PCI standard host CPU bridge No SYSTEM 5.2.3790.1289
10/1/2002 (Standard system devices) machine.inf Not
Available
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PCI bus No SYSTEM 5.2.3790.1289 10/1/2002 (Standard
system devices) machine.inf Not Available
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PCI standard host CPU bridge No SYSTEM 5.2.3790.1289
10/1/2002 (Standard system devices) machine.inf Not
Available
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system devices) machine.inf Not Available
ACPI\PNP0A03\6
Qlogic processor device No SYSTEM 5.2.3790.1289
10/1/2002 QLOGIC scsidev.inf Not Available
SCSI\PROCESSOR&VEN_QLOGIC&PROD_PSEUDO_DEVICE&REV_\4&
1D1C1BB3&0&07F0
Disk drive No DISKDRIVE 5.2.3790.1289 10/1/2002
(Standard disk drives) disk.inf Not Available
SCSI\DISK&VEN_IBM&PROD_1742-900&REV_0520\4&1D1C1BB3&0&0
13
Disk drive No DISKDRIVE 5.2.3790.1289 10/1/2002
(Standard disk drives) disk.inf Not Available
SCSI\DISK&VEN_IBM&PROD_1742-900&REV_0520\4&1D1C1BB3&0&0
12
Disk drive No DISKDRIVE 5.2.3790.1289 10/1/2002
(Standard disk drives) disk.inf Not Available

SCSI\DISK&VEN_IBM&PROD_1742-900&REV_0520\4&1D1C1BB3&0&0
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Disk drive No DISKDRIVE 5.2.3790.1289 10/1/2002
(Standard disk drives) disk.inf Not Available
SCSI\DISK&VEN_IBM&PROD_1742-900&REV_0520\4&1D1C1BB3&0&0
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QLogic Fibre Channel Adapter No SCSIADAPTER 9.0.1.64
2/18/2005 QLogic oem6.inf Not Available
PCI\VEN_1077&DEV_2312&SUBSYS_01001077&REV_02\3&474B838&0
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PCI standard host CPU bridge No SYSTEM 5.2.3790.1289
10/1/2002 (Standard system devices) machine.inf Not
Available
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PCI bus No SYSTEM 5.2.3790.1289 10/1/2002 (Standard
system devices) machine.inf Not Available
ACPI\PNP0A03\5
PCI standard host CPU bridge No SYSTEM 5.2.3790.1289
10/1/2002 (Standard system devices) machine.inf Not
Available
PCI\VEN_1014&DEV_02A1&SUBSYS_00000000&REV_01\3&172E68DD&
0&00
PCI bus No SYSTEM 5.2.3790.1289 10/1/2002 (Standard
system devices) machine.inf Not Available
ACPI\PNP0A03\4
Qlogic processor device No SYSTEM 5.2.3790.1289
10/1/2002 QLOGIC scsidev.inf Not Available
SCSI\PROCESSOR&VEN_QLOGIC&PROD_PSEUDO_DEVICE&REV_\4&
232FAFE&1&07F0
Disk drive No DISKDRIVE 5.2.3790.1289 10/1/2002
(Standard disk drives) disk.inf Not Available
SCSI\DISK&VEN_IBM&PROD_1742-900&REV_0520\4&232FAFE&1&013
Disk drive No DISKDRIVE 5.2.3790.1289 10/1/2002
(Standard disk drives) disk.inf Not Available
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(Standard disk drives) disk.inf Not Available
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(Standard disk drives) disk.inf Not Available
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QLogic Fibre Channel Adapter No SCSIADAPTER 9.0.1.64
2/18/2005 QLogic oem6.inf Not Available
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10/1/2002 (Standard system devices) machine.inf Not
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system devices) machine.inf Not Available
ACPI\PNP0A03\3
Qlogic processor device No SYSTEM 5.2.3790.1289
10/1/2002 QLOGIC scsidev.inf Not Available
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3B4E3515&1&07F0
Disk drive No DISKDRIVE 5.2.3790.1289 10/1/2002
(Standard disk drives) disk.inf Not Available
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3
Disk drive No DISKDRIVE 5.2.3790.1289 10/1/2002
(Standard disk drives) disk.inf Not Available
SCSI\DISK&VEN_IBM&PROD_1742-900&REV_0520\4&3B4E3515&1&01
2
Disk drive No DISKDRIVE 5.2.3790.1289 10/1/2002
(Standard disk drives) disk.inf Not Available
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1
Disk drive No DISKDRIVE 5.2.3790.1289 10/1/2002
(Standard disk drives) disk.inf Not Available
SCSI\DISK&VEN_IBM&PROD_1742-900&REV_0520\4&3B4E3515&1&00
0
QLogic Fibre Channel Adapter No SCSIADAPTER 9.0.1.64
2/18/2005 QLogic oem6.inf Not Available
PCI\VEN_1077&DEV_2312&SUBSYS_01001077&REV_02\3&1070020&0
&08
PCI standard host CPU bridge No SYSTEM 5.2.3790.1289
10/1/2002 (Standard system devices) machine.inf Not
Available
PCI\VEN_1014&DEV_02A1&SUBSYS_00000000&REV_01\3&1070020&0
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PCI bus No SYSTEM 5.2.3790.1289 10/1/2002 (Standard
system devices) machine.inf Not Available
ACPI\PNP0A03\2
Broadcom NetXtreme Gigabit Ethernet No NET 7.80.0.0
10/1/2002 Broadcom net57amd.inf Not Available
PCI\VEN_14E4&DEV_1648&SUBSYS_02E71014&REV_10\3&13C0B0C5&
0&09
Broadcom NetXtreme Gigabit Ethernet No NET 7.80.0.0
10/1/2002 Broadcom net57amd.inf Not Available
PCI\VEN_14E4&DEV_1648&SUBSYS_02E71014&REV_10\3&13C0B0C5&
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PCI standard host CPU bridge No SYSTEM 5.2.3790.1289
10/1/2002 (Standard system devices) machine.inf Not
Available
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PCI bus No SYSTEM 5.2.3790.1289 10/1/2002 (Standard
system devices) machine.inf Not Available
ACPI\PNP0A03\1
Memory Module No MEMORY5.2.3790.1289 10/1/2002
Microsoft memory.inf Not Available ACPI\PNP0C80\0
Intel Processor No PROCESSOR 5.2.3790.1289
10/1/2002 Intel cpu.inf Not Available
ACPI\GENUINEINTEL_-_EM64T_FAMILY_15_MODEL_4_7
Intel Processor No PROCESSOR 5.2.3790.1289
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10/1/2002 Intel cpu.inf Not Available
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10/1/2002 (Standard system devices) machine.inf Not
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System board No SYSTEM 5.2.3790.1289 10/1/2002
(Standard system devices) machine.inf Not Available
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Motherboard resources No SYSTEM 5.2.3790.1289 10/1/2002 (Standard system devices) machine.inf Not Available ACPI\PNP0C02\3
Numeric data processor No SYSTEM 5.2.3790.1289 10/1/2002 (Standard system devices) machine.inf Not Available ACPI\PNP0C04\4&13245C1&0
System speaker No SYSTEM 5.2.3790.1289 10/1/2002 (Standard system devices) machine.inf Not Available ACPI\PNP0800\4&13245C1&0
System CMOS/real time clock No SYSTEM 5.2.3790.1289 10/1/2002 (Standard system devices) machine.inf Not Available ACPI\PNP0B00\4&13245C1&0
System timer No SYSTEM 5.2.3790.1289 10/1/2002 (Standard system devices) machine.inf Not Available ACPI\PNP0100\4&13245C1&0
Direct memory access controller No SYSTEM 5.2.3790.1289 10/1/2002 (Standard system devices) machine.inf Not Available ACPI\PNP0200\4&13245C1&0
Advanced programmable interrupt controller No SYSTEM 5.2.3790.1289 10/1/2002 (Standard system devices) machine.inf Not Available ACPI\PNP0003\4&13245C1&0
Communications Port No PORTS 5.2.3790.1289 10/1/2002 (Standard port types) msports.inf Not Available ACPI\PNP0501\2
Communications Port No PORTS 5.2.3790.1289 10/1/2002 (Standard port types) msports.inf Not Available ACPI\PNP0501\1
PS/2 Compatible Mouse No MOUSE 5.2.3790.1289 10/1/2002 Microsoft msmouse.inf Not Available ACPI\PNP0F13\4&13245C1&0
Standard 101/102-Key or Microsoft Natural PS/2 Keyboard No KEYBOARD 5.2.3790.1289 10/1/2002 (Standard keyboards) keyboard.inf Not Available ACPI\PNP0303\4&13245C1&0
Serverworks Champion CSB6 - SouthBridge 6 LPC No SYSTEM 5.2.3790.1289 10/1/2002 ServerWorks (RCC) machine.inf Not Available
PCI\VEN_1166&DEV_0227&SUBSYS_00000000&REV_00\3&267A616A&0&7B
Secondary IDE Channel No HDC 5.2.3790.1289 10/1/2002 (Standard IDE ATA/ATAPI controllers) mshdc.inf Not Available PCIIDE\IDECHANNEL\4&101988B2&0&1
CD-ROM Drive No CDROM 5.2.3790.1289 10/1/2002 (Standard CD-ROM drives) cdrom.inf Not Available
IDE\CDROMMATSHITA_DVD-ROM_SR-8178_____PJ22____\5&A8D2D22&0&0.0.0
Primary IDE Channel No HDC 5.2.3790.1289 10/1/2002 (Standard IDE ATA/ATAPI controllers) mshdc.inf Not Available PCIIDE\IDECHANNEL\4&101988B2&0&0
Standard Dual Channel PCI IDE Controller No HDC 5.2.3790.1289 10/1/2002 (Standard IDE ATA/ATAPI controllers) mshdc.inf Not Available
PCI\VEN_1166&DEV_0213&SUBSYS_02121166&REV_A0\3&267A616A&0&79
ServerWorks Champion CSB6 - SouthBridge 6 No SYSTEM 5.2.3790.1289 10/1/2002 ServerWorks (RCC) machine.inf Not Available
PCI\VEN_1166&DEV_0203&SUBSYS_00000000&REV_A0\3&267A616A&0&78
USB Root Hub No USB 5.2.3790.1289 10/1/2002 (Standard USB Host Controller) usbport.inf Not Available USB\ROOT_HUB20\4&2B778F81&0
Standard Enhanced PCI to USB Host Controller No USB 5.2.3790.1289 10/1/2002 (Standard USB Host Controller) usbport.inf Not Available
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USB Root Hub No USB 5.2.3790.1289 10/1/2002 (Standard USB Host Controller) usbport.inf Not Available USB\ROOT_HUB\4&2DDBD7B&0
NEC PCI to USB Open Host Controller No USB 5.2.3790.1289 10/1/2002 NEC usbport.inf Not Available
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USB Root Hub No USB 5.2.3790.1289 10/1/2002 (Standard USB Host Controller) usbport.inf Not Available USB\ROOT_HUB\4&15976E20&0
NEC PCI to USB Open Host Controller No USB 5.2.3790.1289 10/1/2002 NEC usbport.inf Not Available
PCI\VEN_1033&DEV_0035&SUBSYS_00351033&REV_43\3&267A616A&0&18
Plug and Play Monitor No MONITOR 5.2.3790.1289 10/1/2002 (Standard monitor types) monitor.inf Not Available
DISPLAY\AVO0000\4&36FA8DD8&0&10000080&00&01
Plug and Play Monitor No MONITOR 5.2.3790.1289 10/1/2002 (Standard monitor types) monitor.inf Not Available
DISPLAY\IBM029A\4&36FA8DD8&0&10000082&00&01
Radeon 7000 / RADEON VE Family (Microsoft Corporation) No DISPLAY 6.14.10.6490 10/19/2004 ATI Technologies Inc. atiixpag.inf Not Available
PCI\VEN_1002&DEV_5159&SUBSYS_02C81014&REV_00\3&267A616A&0&08
PCI standard host CPU bridge No SYSTEM 5.2.3790.1289 10/1/2002 (Standard system devices) machine.inf Not Available
PCI\VEN_1014&DEV_02A1&SUBSYS_00000000&REV_01\3&267A616A&0&00
PCI bus No SYSTEM 5.2.3790.1289 10/1/2002 (Standard system devices) machine.inf Not Available ACPI\PNP0A03\0
Microsoft ACPI-Compliant System No SYSTEM 5.2.3790.1289 10/1/2002 Microsoft acpi.inf Not Available ACPI_HAL\PNP0C08\0
ACPI Multiprocessor x64-based PC No COMPUTER 5.2.3790.1289 10/1/2002 (Standard computers) hal.inf Not Available ROOT\ACPI_HAL\0000
Not Available Not Available Not Available Not Available Not Available Not Available Not Available
HTREE\ROOT\0

[Environment Variables]

Variable Value User Name
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ClusterLog C:\WINDOWS\Cluster\cluster.log <SYSTEM>
ComSpec %SystemRoot%\system32\cmd.exe <SYSTEM>
DB2INSTANCE DB2 <SYSTEM>
DB2TEMPDIR C:\SQLLIB\ <SYSTEM>
FP_NO_HOST_CHECK NO <SYSTEM>
INCLUDE
C:\MsSDKx64\Include;C:\MsSDKx64\Include\crt;C:\MsSDKx64\Include\crt\sys;C:\MsSDKx64\Include\mfc;C:\MsSDKx64\Include\atl;C:\VC\include;C:\VC\include\sys;C:\SQLLIB\INCLUDE;C:\SQLLIB\LIB <SYSTEM>
LIB
C:\MsSDKx64\Lib\AMD64;C:\MsSDKx64\Lib\AMD64\mfc;C:\SQLLIB\LIB <SYSTEM>
NUMBER_OF_PROCESSORS 8 <SYSTEM>
OS Windows_NT <SYSTEM>

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PATHEXT
.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH <SYSTEM>
PROCESSOR_ARCHITECTURE AMD64 <SYSTEM>
PROCESSOR_IDENTIFIER EM64T Family 15 Model 4 Stepping 1, GenuineIntel <SYSTEM>
PROCESSOR_LEVEL 15 <SYSTEM>
PROCESSOR_REVISION 0401 <SYSTEM>
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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 DB2SERV1\Administrator
TMP %USERPROFILE%\Local Settings\Temp DB2SERV1\Administrator
VCToolkitInstallDir C:\MSVC\ DB2SERV1\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
Y: \\192.168.50.224\c$ Disk Persistent Connection DB2SERV1\Administrator
Z: \\fsserv\ddrive Disk Current Connection DB2SERV1\Administrator

[Running Tasks]

Name Path Process ID Priority Min Working Set Max Working Set Start Time Version Size File Date
system idle process Not Available 0 0 Not Available Not Available Not Available Not Available Not Available Not Available
system Not Available 4 8 0 1413120 Not Available Not Available Not Available Not Available
smss.exe Not Available 588 11 204800 1413120 3/22/2005 8:02 AM Not Available Not Available Not Available
csrss.exe Not Available 816 13 Not Available Not Available 3/22/2005 8:03 AM Not Available Not Available Not Available
winlogon.exe c:\windows\system32\winlogon.exe 204 13 204800 1413120 3/22/2005 8:04 AM 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 848.00 KB (868,352 bytes) 12/3/2004 7:00 AM
services.exe c:\windows\system32\services.exe 364 9 204800 1413120 3/22/2005 8:04 AM 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 217.50 KB (222,720 bytes) 12/3/2004 7:00 AM
lsass.exe c:\windows\system32\lsass.exe 384 9 204800 1413120 3/22/2005 8:04 AM 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 13.50 KB (13,824 bytes) 12/3/2004 7:00 AM
svchost.exe c:\windows\system32\svchost.exe 636 8 204800 1413120 3/22/2005 8:04 AM 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 24.50 KB (25,088 bytes) 12/3/2004 7:00 AM
svchost.exe Not Available 748 8 Not Available Not Available 3/22/2005 8:04 AM Not Available Not Available Not Available
svchost.exe Not Available 808 8 Not Available Not Available 3/22/2005 8:04 AM Not Available Not Available Not Available
svchost.exe c:\windows\system32\svchost.exe 848 8 204800 1413120 3/22/2005 8:04 AM 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 24.50 KB (25,088 bytes) 12/3/2004 7:00 AM
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svchost.exe c:\windows\system32\svchost.exe 1392 8 204800 1413120 3/22/2005 8:04 AM 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 24.50 KB (25,088 bytes) 12/3/2004 7:00 AM
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db2sec.exe c:\sqllib\bin\db2sec.exe 1808 8 204800 1413120 3/22/2005 8:04 AM 8.1.9.787 8.50 KB (8,704 bytes) 2/4/2005 10:11 AM
svchost.exe c:\windows\system32\svchost.exe 1868 8 204800 1413120 3/22/2005 8:04 AM 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 24.50 KB (25,088 bytes) 12/3/2004 7:00 AM
wmiprvse.exe Not Available 1852 8 Not Available Not Available 3/22/2005 8:05 AM Not Available Not Available Not Available
explorer.exe c:\windows\explorer.exe 1272 8 204800 1413120 3/22/2005 8:11 AM 6.00.3790.1289 (srv03_sp1_rc1.041202-1618) 1.31 MB (1,373,184 bytes) 12/3/2004 7:00 AM
helpctr.exe c:\windows\pchealth\helpctr\binaries\helpctr.exe 572 8 204800 1413120 3/22/2005 8:12 AM 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 1.30 MB (1,365,504 bytes) 2/3/2005 11:52 AM
wmiprvse.exe Not Available 1724 8 Not Available Not Available 3/22/2005 8:12 AM Not Available Not Available Not Available
helpsvc.exe c:\windows\pchealth\helpctr\binaries\helpsvc.exe 968 8 204800 1413120 3/22/2005 8:12 AM 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 1.52 MB (1,590,272 bytes) 2/3/2005 11:52 AM

[Loaded Modules]

Name Version Size File Date Manufacturer Path
winlogon 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 848.00 KB (868,352 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\winlogon.exe
ntdll 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 1.20 MB (1,259,008 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\ntdll.dll

kernel32 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 1.43 MB (1,498,112 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\kernel32.dll
advapi32 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 1,008.50 KB (1,032,704 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\advapi32.dll
rpcrt4 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 1.63 MB (1,707,520 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\rpcrt4.dll
crypt32 5.131.3790.1289 (srv03_sp1_rc1.041202-1618) 1.36 MB (1,423,872 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\crypt32.dll
msasn1 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 151.50 KB (155,136 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\msasn1.dll
msvcrt 7.0.3790.1289 (srv03_sp1_rc1.041202-1618) 512.00 KB (524,288 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\msvcrt.dll
user32 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 1.05 MB (1,100,288 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\user32.dll
gdi32 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 588.50 KB (602,624 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\gdi32.dll
nddeapi 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 25.00 KB (25,600 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\nddeapi.dll
profmap 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 35.00 KB (35,840 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\profmap.dll
netapi32 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 590.00 KB (604,160 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\netapi32.dll
userenv 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 1.02 MB (1,067,520 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\userenv.dll
psapi 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 28.50 KB (29,184 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\psapi.dll
regapi 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 107.00 KB (109,568 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\regapi.dll
secur32 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 121.00 KB (123,904 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\secur32.dll
setupapi 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 1.46 MB (1,533,952 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\setupapi.dll
version 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 28.00 KB (28,672 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\version.dll
winsta 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 87.50 KB (89,600 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\winsta.dll
ws2_32 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 174.50 KB (178,688 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\ws2_32.dll
ws2help 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 29.00 KB (29,696 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\ws2help.dll
msgina 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 1.22 MB (1,277,440 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\msgina.dll
shsvcs 6.00.3790.1289 (srv03_sp1_rc1.041202-1618) 193.50 KB (198,144 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\shsvcs.dll
shlwapi 6.00.3790.1289 (srv03_sp1_rc1.041202-1618) 608.50 KB (623,104 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\shlwapi.dll
sfc 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 6.00 KB (6,144 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\sfc.dll
sfc_os 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 183.00 KB (187,392 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\sfc_os.dll
wintrust 5.131.3790.1289 (srv03_sp1_rc1.041202-1618) 297.00 KB (304,128 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\wintrust.dll
imagehlp 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 57.50 KB (58,880 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\imagehlp.dll
ole32 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 2.42 MB (2,539,520 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\ole32.dll
comctl32 6.0 (srv03_sp1_rc1.041202-1618) 1.51 MB (1,583,616 bytes) 2/3/2005 6:00 AM Microsoft Corporation c:\windows\winsxs\amd64_microsoft.windows.common-controls_6595b64144ccf1df_6.0.3790.1289_x-ww_a9fe16ed\comctl32.dll
winscard 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 229.00 KB (234,496 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\winscard.dll
wtsapi32 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 27.50 KB (28,160 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\wtsapi32.dll
winmm 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 296.00 KB (303,104 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\winmm.dll
shell32 6.00.3790.1289 (srv03_sp1_rc1.041202-1618) 10.04 MB (10,531,328 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\shell32.dll
sxs 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 1.91 MB (2,003,968 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\sxs.dll
rsaenh 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 241.46 KB (247,256 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\rsaenh.dll
wldap32 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 367.00 KB (375,808 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\wldap32.dll
cscdll 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 149.50 KB (153,088 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\cscdll.dll
dimsntfy 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 27.50 KB (28,160 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\dimsntfy.dll
wlnotify 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 147.50 KB (151,040 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\wlnotify.dll
mpr 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 115.00 KB (117,760 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\mpr.dll
oleaut32 5.2.3790.1289 1.07 MB (1,118,720 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\oleaut32.dll
winspool 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 246.50 KB (252,416 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\winspool.drv
comctl32 5.82 (srv03_sp1_rc1.041202-1618) 935.50 KB (957,952 bytes) 2/3/2005 6:00 AM Microsoft Corporation c:\windows\winsxs\amd64_microsoft.windows.common-controls_6595b64144ccf1df_5.82.3790.1289_x-ww_4a89d168\comctl32.dll
uxtheme 6.00.3790.1289 (srv03_sp1_rc1.041202-1618) 457.00 KB (467,968 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\uxtheme.dll

mprapi 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 153.50 KB (157,184 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\mprapi.dll
activeds 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 347.50 KB (355,840 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\activeds.dll
adsldpc 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 241.00 KB (246,784 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\adsldpc.dll
credui 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 201.50 KB (206,336 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\credui.dll
atl 3.05.2284 96.00 KB (98,304 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\atl.dll
rtutils 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 65.00 KB (66,560 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\rtutils.dll
samlib 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 67.00 KB (68,608 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\samlib.dll
clbcatq 2001.12.4720.1289 (srv03_sp1_rc1.041202-1618) 867.00 KB (887,808 bytes) 2/3/2005 11:50 AM Microsoft Corporation c:\windows\system32\clbcatq.dll
comres 2001.12.4720.1289 (srv03_sp1_rc1.041202-1618) 778.50 KB (797,184 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\comres.dll
xpsp2res 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 2.77 MB (2,899,456 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\xpsp2res.dll
cscui 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 441.50 KB (452,096 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\cscui.dll
drprov 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 22.00 KB (22,528 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\drprov.dll
ntlanman 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 71.50 KB (73,216 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\ntlanman.dll
netui0 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 129.50 KB (132,608 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\netui0.dll
netui1 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 338.00 KB (346,112 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\netui1.dll
davclnt 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 36.50 KB (37,376 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\davclnt.dll
mprui 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 67.50 KB (69,120 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\mprui.dll
netui2 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 545.50 KB (558,592 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\netui2.dll
comdlg32 6.00.3790.1289 (srv03_sp1_rc1.041202-1618) 445.00 KB (455,680 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\comdlg32.dll
netmsg 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 179.00 KB (183,296 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\netmsg.dll
ntmarta 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 222.00 KB (227,328 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\ntmarta.dll
services 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 217.50 KB (222,720 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\services.exe
ncobjapi 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 79.50 KB (81,408 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\ncobjapi.dll
msvcp60 6.10.30806.0 822.00 KB (841,728 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\msvcp60.dll
scesrv 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 594.50 KB (608,768 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\scesrv.dll
authz 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 165.50 KB (169,472 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\authz.dll
umpnpmgr 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 201.00 KB (205,824 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\umpnpmgr.dll
eventlog 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 124.00 KB (126,976 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\eventlog.dll
lsass 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 13.50 KB (13,824 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\lsass.exe
lsasrv 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 1.49 MB (1,565,696 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\lsasrv.dll
ntdsapi 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 127.00 KB (130,048 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\ntdsapi.dll
dnsapi 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 297.00 KB (304,128 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\dnsapi.dll
samsrv 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 1.01 MB (1,062,400 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\samsrv.dll
cryptdll 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 47.00 KB (48,128 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\cryptdll.dll
msprivs 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 47.50 KB (48,640 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\msprivs.dll
kerberos 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 702.00 KB (718,848 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\kerberos.dll
msv1_0 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 251.00 KB (257,024 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\msv1_0.dll
iphlpapi 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 176.50 KB (180,736 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\iphlpapi.dll
netlogon 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 664.50 KB (680,448 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\netlogon.dll
w32time 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 397.50 KB (407,040 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\w32time.dll
schannel 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 249.00 KB (254,976 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\schannel.dll
wdigest 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 130.50 KB (133,632 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\wdigest.dll
rassfm 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 35.00 KB (35,840 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\rassfm.dll
kdcsvc 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 409.50 KB (419,328 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\kdcsvc.dll
ntdsa 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 2.95 MB (3,098,112 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\ntdsa.dll
esent 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 2.25 MB (2,361,856 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\esent.dll

ntdsatq 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 50.50 KB (51,712 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\ntdsatq.dll
mswsock 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 476.50 KB (487,936 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\mswsock.dll
scecli 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 308.00 KB (315,392 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\scecli.dll
ws03res 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 775.00 KB (793,600 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\ws03res.dll
hnetcfg 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 562.50 KB (576,000 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\hnetcfg.dll
wshtcpip 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 28.00 KB (28,672 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\wshtcpip.dll
pstorsvc 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 36.00 KB (36,864 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\pstorsvc.dll
psbase 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 123.50 KB (126,464 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\psbase.dll
dssenh 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 226.46 KB (231,896 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\dssenh.dll
svchost 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 24.50 KB (25,088 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\svchost.exe
rpcss 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 671.50 KB (687,616 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\rpcss.dll
wkssvc 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 219.50 KB (224,768 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\wkssvc.dll
wiarpc 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 57.00 KB (58,368 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\wiarpc.dll
aelupsvc 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 31.00 KB (31,744 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\aelupsvc.dll
apphelp 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 241.00 KB (246,784 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\apphelp.dll
dmserver 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 35.00 KB (35,840 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\dmserver.dll
srvsvc 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 155.00 KB (158,720 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\srvsvc.dll
es 2001.12.4720.1289 (srv03_sp1_rc1.041202-1618) 357.00 KB (365,568 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\es.dll
seclogon 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 26.50 KB (27,136 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\seclogon.dll
wmisvc 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 227.50 KB (232,960 bytes) 2/3/2005 11:50 AM Microsoft Corporation c:\windows\system32\wbem\wmisvc.dll
vssapi 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 1.26 MB (1,319,424 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\vssapi.dll
comsvcs 2001.12.4720.1289 (srv03_sp1_rc1.041202-1618) 2.06 MB (2,158,080 bytes) 2/3/2005 11:50 AM Microsoft Corporation c:\windows\system32\comsvcs.dll
sens 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 63.00 KB (64,512 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\sens.dll
wbemcore 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 1.24 MB (1,300,992 bytes) 2/3/2005 11:50 AM Microsoft Corporation c:\windows\system32\wbem\wbemcore.dll
esscli 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 627.00 KB (642,048 bytes) 2/3/2005 11:50 AM Microsoft Corporation c:\windows\system32\wbem\esscli.dll
wbemcomn 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 525.00 KB (537,600 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\wbem\wbemcomn.dll
fastprox 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 868.00 KB (888,832 bytes) 2/3/2005 11:50 AM Microsoft Corporation c:\windows\system32\wbem\fastprox.dll
wmiutils 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 170.50 KB (174,592 bytes) 2/3/2005 11:50 AM Microsoft Corporation c:\windows\system32\wbem\wmiutils.dll
repdrvfs 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 350.50 KB (358,912 bytes) 2/3/2005 11:50 AM Microsoft Corporation c:\windows\system32\wbem\repdrvfs.dll
wmiprvsd 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 737.00 KB (754,688 bytes) 2/3/2005 11:50 AM Microsoft Corporation c:\windows\system32\wbem\wmiprvsd.dll
wbemess 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 533.00 KB (545,792 bytes) 2/3/2005 11:50 AM Microsoft Corporation c:\windows\system32\wbem\wbemess.dll
ncprov 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 72.50 KB (74,240 bytes) 2/3/2005 11:50 AM Microsoft Corporation c:\windows\system32\wbem\ncprov.dll
wbemsvc 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 58.00 KB (59,392 bytes) 2/3/2005 11:50 AM Microsoft Corporation c:\windows\system32\wbem\wbemsvc.dll
wbemcons 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 65.50 KB (67,072 bytes) 2/3/2005 11:50 AM Microsoft Corporation c:\windows\system32\wbem\wbemcons.dll
actxprxy 6.00.3790.1289 (srv03_sp1_rc1.041202-1618) 220.50 KB (225,792 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\actxprxy.dll
netman 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 457.50 KB (468,480 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\netman.dll
netshell 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 2.33 MB (2,438,144 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\netshell.dll
clusapi 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 125.50 KB (128,512 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\clusapi.dll
rasapi32 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 410.50 KB (420,352 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\rasapi32.dll
rasman 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 93.00 KB (95,232 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\rasman.dll
tapi32 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 332.50 KB (340,480 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\tapi32.dll
wininet 6.00.3790.1289 (srv03_sp1_rc1.041202-1618) 1.17 MB (1,223,680 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\wininet.dll
wzcsapi 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 57.00 KB (58,368 bytes) 12/2/2004 2:10 PM Microsoft Corporation c:\windows\system32\wzcsapi.dll
wzcsvc 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 491.00 KB (502,784 bytes) 12/2/2004 2:10 PM Microsoft Corporation c:\windows\system32\wzcsvc.dll

wmi 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 7.00 KB (7,168 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\wmi.dll
dhcpcsvc 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 218.00 KB (223,232 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\dhcpcsvc.dll
netcfgx 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 1.29 MB (1,354,752 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\netcfgx.dll
winipsec 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 52.00 KB (53,248 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\winipsec.dll
wbemprox 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 37.50 KB (38,400 bytes) 2/3/2005 11:50 AM Microsoft Corporation c:\windows\system32\wbem\wbemprox.dll
rasdlg 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 859.50 KB (880,128 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\rasdlg.dll
rasadhlp 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 10.00 KB (10,240 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\rasadhlp.dll
pchsvc 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 75.00 KB (76,800 bytes) 2/3/2005 11:52 AM Microsoft Corporation c:\windows\pchealth\helpctr\binaries\pchsvc.dll
ersvc 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 30.50 KB (31,232 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\ersvc.dll
wrshdnt 2.23.00 92.00 KB (94,208 bytes) 2/22/2005 12:16 PM Denicomp Systems c:\wrshdnt\wrshdnt.exe
wow64 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 246.00 KB (251,904 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\wow64.dll
wow64win 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 278.50 KB (285,184 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\wow64win.dll
wow64cpu 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 17.00 KB (17,408 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\wow64cpu.dll
db2sec 8.1.9.787 8.50 KB (8,704 bytes) 2/4/2005 10:11 AM International Business Machines Corporation c:\sqllib\bin\db2sec.exe
db2sys64 8.1.9.787 1.43 MB (1,503,744 bytes) 2/4/2005 10:11 AM International Business Machines Corporation c:\sqllib\bin\db2sys64.dll
db2wint64 8.1.9.787 32.00 KB (32,768 bytes) 2/4/2005 10:11 AM International Business Machines Corporation c:\sqllib\bin\db2wint64.dll
db2sysp64 8.1.9.787 166.00 KB (169,984 bytes) 2/4/2005 10:11 AM International Business Machines Corporation c:\sqllib\bin\db2sysp64.dll
db2app64 8.1.9.787 6.40 MB (6,713,344 bytes) 2/4/2005 10:11 AM International Business Machines Corporation c:\sqllib\bin\db2app64.dll
db2osse64 8.1.9.787 1.90 MB (1,989,120 bytes) 2/4/2005 10:11 AM International Business Machines Corporation c:\sqllib\bin\db2osse64.dll
libmmd 8.1.8.2 802.00 KB (821,248 bytes) 2/4/2005 10:11 AM Intel Corporation c:\sqllib\bin\libmmd.dll
db2locale64 8.1.9.787 43.50 KB (44,544 bytes) 2/4/2005 10:11 AM International Business Machines Corporation c:\sqllib\bin\db2locale64.dll
db2g11n64 8.1.9.787 437.50 KB (448,000 bytes) 2/4/2005 10:11 AM International Business Machines Corporation c:\sqllib\bin\db2g11n64.dll
db2genreg64 8.1.9.787 183.50 KB (187,904 bytes) 2/4/2005 10:11 AM International Business Machines Corporation c:\sqllib\bin\db2genreg64.dll
db2install64 8.1.9.787 21.00 KB (21,504 bytes) 2/4/2005 10:11 AM International Business Machines Corporation c:\sqllib\bin\db2install64.dll
db2dascmn64 8.1.9.787 98.00 KB (100,352 bytes) 2/4/2005 10:11 AM International Business Machines Corporation c:\sqllib\bin\db2dascmn64.dll
db2osse_db264 8.1.9.787 66.50 KB (68,096 bytes) 2/4/2005 10:11 AM International Business Machines Corporation c:\sqllib\bin\db2osse_db264.dll
db2sec64 8.1.9.787 23.50 KB (24,064 bytes) 2/4/2005 10:11 AM International Business Machines Corporation c:\sqllib\bin\db2sec64.dll
db2trcapi64 8.1.9.787 33.00 KB (33,792 bytes) 2/4/2005 10:11 AM International Business Machines Corporation c:\sqllib\bin\db2trcapi64.dll
termsrv 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 352.00 KB (360,448 bytes) 2/3/2005 11:50 AM Microsoft Corporation c:\windows\system32\termsrv.dll
icaapi 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 26.50 KB (27,136 bytes) 2/3/2005 11:50 AM Microsoft Corporation c:\windows\system32\icaapi.dll
mstlsapi 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 187.00 KB (191,488 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\mstlsapi.dll
rdpwsx 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 170.63 KB (174,728 bytes) 2/3/2005 11:50 AM Microsoft Corporation c:\windows\system32\rdpwsx.dll
explorer 6.00.3790.1289 (srv03_sp1_rc1.041202-1618) 1.31 MB (1,373,184 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\explorer.exe
browseui 6.00.3790.1289 (srv03_sp1_rc1.041202-1618) 1.54 MB (1,613,312 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\browseui.dll
shdocvw 6.00.3790.1289 (srv03_sp1_rc1.041202-1618) 2.33 MB (2,444,800 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\shdocvw.dll
cryptui 5.131.3790.1289 (srv03_sp1_rc1.041202-1618) 706.00 KB (722,944 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\cryptui.dll
themeui 6.00.3790.1289 (srv03_sp1_rc1.041202-1618) 530.00 KB (542,720 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\themeui.dll
msimg32 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 6.50 KB (6,656 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\msimg32.dll
linkinfo 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 30.50 KB (31,232 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\linkinfo.dll
ntshrui 6.00.3790.1289 (srv03_sp1_rc1.041202-1618) 183.50 KB (187,904 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\ntshrui.dll
urlmon 6.00.3790.1289 (srv03_sp1_rc1.041202-1618) 1,016.50 KB (1,040,896 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\urlmon.dll
webcheck 6.00.3790.1289 (srv03_sp1_rc1.041202-1618) 440.50 KB (451,072 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\webcheck.dll
wsock32 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 23.50 KB (24,064 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\wsock32.dll
stobject 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 141.50 KB (144,896 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\stobject.dll
batmeter 6.00.3790.1289 (srv03_sp1_rc1.041202-1618) 40.50 KB (41,472 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\batmeter.dll

powrprof 6.00.3790.1289 (srv03_sp1_rc1.041202-1618) 31.00 KB (31,744 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\powrprof.dll
browselc 6.00.3790.1289 (srv03_sp1_rc1.041202-1618) 63.00 KB (64,512 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\browselc.dll
shdoclc 6.00.3790.1289 (srv03_sp1_rc1.041202-1618) 589.50 KB (603,648 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\shdoclc.dll
netplwiz 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 938.00 KB (960,512 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\netplwiz.dll
helpctr 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 1.30 MB (1,365,504 bytes) 2/3/2005 11:52 AM Microsoft Corporation c:\windows\pchealth\helpctr\binaries\helpctr.exe
hcappres 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 7.50 KB (7,680 bytes) 2/3/2005 11:52 AM Microsoft Corporation c:\windows\pchealth\helpctr\binaries\hcappres.dll
itss 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 208.00 KB (212,992 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\itss.dll
msxml3 8.70.1006.0 1.97 MB (2,068,992 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\msxml3.dll
pchshell 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 153.50 KB (157,184 bytes) 2/3/2005 11:52 AM Microsoft Corporation c:\windows\pchealth\helpctr\binaries\pchshell.dll
mlang 6.00.3790.1289 (srv03_sp1_rc1.041202-1618) 687.00 KB (703,488 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\mlang.dll
mshtml 6.00.3790.1289 (srv03_sp1_rc1.041202-1618) 5.73 MB (6,010,368 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\mshtml.dll
msls31 3.10.349.0 356.50 KB (365,056 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\msls31.dll
msimtf 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 380.50 KB (389,632 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\msimtf.dll
msctf 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 617.00 KB (631,808 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\msctf.dll
jscript 5.6.0.8827 983.00 KB (1,006,592 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\jscript.dll
imm32 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 209.00 KB (214,016 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\imm32.dll
mshtmled 6.00.3790.1289 (srv03_sp1_rc1.041202-1618) 912.50 KB (934,400 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\mshtmled.dll
vbscript 5.6.0.8827 647.00 KB (662,528 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\vbscript.dll
msinfo 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 635.50 KB (650,752 bytes) 2/3/2005 11:52 AM Microsoft Corporation c:\windows\pchealth\helpctr\binaries\msinfo.dll
mfc42u 6.50.9146.0 1.39 MB (1,462,272 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\mfc42u.dll
riched32 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 5.50 KB (5,632 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\riched32.dll
riched20 5.31.23.1223 1.10 MB (1,156,608 bytes) 12/3/2004 7:00 AM Microsoft Corporation c:\windows\system32\riched20.dll
helpsvc 5.2.3790.1289 (srv03_sp1_rc1.041202-1618) 1.52 MB (1,590,272 bytes) 2/3/2005 11:52 AM Microsoft Corporation c:\windows\pchealth\helpctr\binaries\helpsvc.exe

[Services]

Display Name Name State Start ModeService Type Path Error Control Start NameTag ID
Application Experience Lookup Service AeLookupSvc Running Auto Share Process c:\windows\system32\svchost.exe -k netsvcs Normal LocalSystem 0
Alerter Alerter Stopped Disabled Share Process c:\windows\system32\svchost.exe -k localservice Normal NT AUTHORITY\LocalService 0
Application Layer Gateway Service ALG Stopped Manual Own Process c:\windows\system32\alg.exe Normal NT AUTHORITY\LocalService 0
Application Management AppMgmt Stopped Manual Share Process c:\windows\system32\svchost.exe -k netsvcs Normal LocalSystem 0
ASP.NET State Service aspnet_state Stopped Manual Own Process c:\windows\microsoft.net\framework\v1.1.4322\aspnet_state.exe Normal NT AUTHORITY\NetworkService 0
Windows Audio AudioSrv Stopped Disabled Share Process c:\windows\system32\svchost.exe -k netsvcs Normal LocalSystem 0
Background Intelligent Transfer Service BITS Stopped Manual Share Process c:\windows\system32\svchost.exe -k netsvcs Normal LocalSystem 0
Computer Browser Browser Stopped Manual Share Process c:\windows\system32\svchost.exe -k netsvcs Normal LocalSystem 0
Indexing Service CiSvc Stopped Disabled Share Process c:\windows\system32\cisvc.exe Normal LocalSystem 0
ClipBook ClipSrv Stopped Disabled Own Process c:\windows\system32\clipsrv.exe Normal LocalSystem 0
COM+ System Application COMSysApp Stopped Manual Own Process c:\windows\system32\dllhost.exe /processid:{02d4b3f1-fd88-11d1-960d-00805fc79235} Normal LocalSystem 0
Cryptographic Services CryptSvc Stopped Manual Share Process c:\windows\system32\svchost.exe -k netsvcs Normal LocalSystem 0
DB2 - DB2 DB2 Stopped Manual Own Process c:\sqllib\bin\db2syscs.exe Normal .\Administrator 0
DB2DAS - DB2DAS00 DB2DAS00 Stopped Manual Own Process "c:\sqllib\bin\db2dasrrm.exe" Normal LocalSystem 0
DB2 Governor DB2GOVERNOR Stopped Manual Own Process "c:\sqllib\bin\db2govds.exe" Normal .\administrator 0
DB2 JDBC Applet Server DB2JDS Stopped Manual Own Process "c:\sqllib\bin\db2jds.exe" Normal LocalSystem 0
DB2 License Server DB2LICD Stopped Manual Own Process c:\sqllib\bin\db2licd.exe Ignore LocalSystem 0
DB2 Registry Reflector DB2NTREGREFLECTOR Stopped Manual Own Process "c:\sqllib\bin\db2reg64.exe" Normal .\administrator 0
DB2 Security Server DB2NTSECSERVER Running Auto Own Process "c:\sqllib\bin\db2sec.exe" Normal LocalSystem 0
DB2 Remote Command Server DB2REMOTECMD Stopped Manual Own Process "c:\sqllib\bin\db2rcmd.exe" Ignore .\administrator 0
DCOM Server Process Launcher DcomLaunch Running Auto Share Process c:\windows\system32\svchost.exe -k dcomlaunch Normal LocalSystem 0
Distributed File System Dfs Stopped Manual Own Process c:\windows\system32\dfssvc.exe Normal LocalSystem 0
DHCP Client Dhcp Stopped Manual Share Process c:\windows\system32\svchost.exe -k networkservice Normal NT AUTHORITY\NetworkService 0
Logical Disk Manager Administrative Service dmadmin Stopped Manual Share Process c:\windows\system32\dmadmin.exe /com Normal LocalSystem 0
Logical Disk Managerdmserver Running Auto Share Process c:\windows\system32\svchost.exe -k netsvcs Normal LocalSystem 0

DNS Client Dnscache Stopped Manual Share Process
c:\windows\system32\svchost.exe -k networkservice Normal NT
AUTHORITY\NetworkService 0
Error Reporting Service ERSvc Running Auto Share
Process c:\windows\system32\svchost.exe -k winerr Ignore
LocalSystem 0
Event Log Eventlog Running Auto Share Process
c:\windows\system32\services.exe Normal LocalSystem 0
COM+ Event System EventSystem Running Auto Share
Process c:\windows\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
Help and Support helpsvc Running Manual Share Process
c:\windows\system32\svchost.exe -k netsvcs Normal LocalSystem 0
Human Interface Device Access HidServ Stopped Disabled Share
Process c:\windows\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
HTTP SSL HTTPFilter Stopped Manual Share Process
c:\windows\system32\lsass.exe Normal LocalSystem 0
IAS Jet Database Access IASJet Stopped Manual Share
Process c:\windows\syswow64\svchost.exe -k iasjet Normal
LocalSystem 0
IMAPI CD-Burning COM Service ImapiService Stopped
Disabled Own Process c:\windows\system32\imapi.exe Normal
LocalSystem 0
Intersite Messaging IsmServ Stopped Disabled Own Process
c:\windows\system32\ismserv.exe Normal LocalSystem 0
Kerberos Key Distribution Center kdc Stopped Disabled
Share Process c:\windows\system32\lsass.exe Normal
LocalSystem 0
Server lanmanserver Running Auto Share Process
c:\windows\system32\svchost.exe -k netsvcs Normal LocalSystem 0
Workstation lanmanworkstation Running Auto Share
Process c:\windows\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
License Logging LicenseService Stopped Disabled Own
Process c:\windows\system32\llssrv.exe Normal NT
AUTHORITY\NetworkService 0
TCP/IP NetBIOS Helper LmHosts Running Auto Share
Process c:\windows\system32\svchost.exe -k localservice Normal
NT AUTHORITY\LocalService 0
Messenger Messenger Stopped Disabled Share Process
c:\windows\system32\svchost.exe -k netsvcs Normal LocalSystem 0
NetMeeting Remote Desktop Sharing mnmsrvc Stopped Disabled
Own Process c:\windows\system32\mnmsrvc.exe Normal
LocalSystem 0
Distributed Transaction Coordinator MSDTC Running Auto
Own Process c:\windows\system32\msdtc.exe Normal NT
AUTHORITY\NetworkService 0
Windows Installer MSIServer Stopped Manual Share Process
c:\windows\system32\msiexec.exe /v Normal LocalSystem 0
Network DDE NetDDE Stopped Disabled Share Process
c:\windows\system32\netdde.exe Normal LocalSystem 0
Network DDE DSDM NetDDEdsdm Stopped Disabled Share
Process c:\windows\system32\netdde.exe Normal LocalSystem 0
Net Logon Netlogon Stopped Manual Share Process
c:\windows\system32\lsass.exe Normal LocalSystem 0
Network Connections Netman Running Manual Share Process
c:\windows\system32\svchost.exe -k netsvcs Normal LocalSystem 0
Network Location Awareness (NLA) Nla Running Manual
Share Process c:\windows\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
File Replication NtFrs Stopped Manual Own Process
c:\windows\system32\ntfrs.exe Ignore LocalSystem 0
NT LM Security Support Provider NtLmSsp Stopped Manual
Share Process c:\windows\system32\lsass.exe Normal
LocalSystem 0
Removable Storage NtmsSvc Stopped Manual Share Process
c:\windows\system32\svchost.exe -k netsvcs Normal LocalSystem 0
Plug and Play PlugPlay Running Auto Share Process
c:\windows\system32\services.exe Normal LocalSystem 0
IPSEC Services PolicyAgent Stopped Manual Share
Process c:\windows\system32\lsass.exe Normal LocalSystem 0
Protected Storage ProtectedStorage Running Auto Share
Process c:\windows\system32\lsass.exe Normal LocalSystem 0
Remote Access Auto Connection Manager RasAuto Stopped Manual
Share Process c:\windows\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
Remote Access Connection Manager RasMan Stopped Manual
Share Process c:\windows\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
Remote Desktop Help Session Manager RDSessMgr Stopped
Manual Own Process c:\windows\system32\sessmgr.exe
Normal LocalSystem 0
Remote Shell Daemon Remote Shell Daemon Running
Auto Own Process c:\wrshdnt\wrshdnt.exe Normal
LocalSystem 0
Routing and Remote Access RemoteAccess Stopped Disabled
Share Process c:\windows\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
Remote Registry RemoteRegistry Stopped Manual Share
Process c:\windows\system32\svchost.exe -k regsvc Normal NT
AUTHORITY\LocalService 0
Remote Procedure Call (RPC) Locator RpcLocator Stopped
Manual Own Process c:\windows\system32\locator.exe Normal
NT AUTHORITY\NetworkService 0
Remote Procedure Call (RPC) RpcSs Running Auto Share
Process c:\windows\system32\svchost.exe -k rpcss Normal NT
AUTHORITY\NetworkService 0
Resultant Set of Policy Provider RSoPProv Stopped Manual Share
Process c:\windows\system32\rsopprov.exe Normal
LocalSystem 0
Special Administration Console Helper sacsvr Stopped Manual
Share Process c:\windows\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
Security Accounts Manager SamSs Running Auto Share
Process c:\windows\system32\lsass.exe Normal LocalSystem 0
Smart Card SCardSvr Stopped Manual Share Process
c:\windows\system32\scardsvr.exe Ignore NT
AUTHORITY\LocalService 0
Task Scheduler Schedule Stopped Manual Share Process
c:\windows\system32\svchost.exe -k netsvcs Normal LocalSystem 0
Secondary Logon seclogon Running Auto Share Process
c:\windows\system32\svchost.exe -k netsvcs Ignore LocalSystem 0
System Event Notification SENS Running Manual Share
Process c:\windows\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
Windows Firewall/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 Stopped Manual Own Process
c:\windows\system32\spoolsv.exe Normal LocalSystem 0
Windows Image Acquisition (WIA) stisvc Stopped Disabled
Share Process c:\windows\system32\svchost.exe -k imgsvc Normal
NT AUTHORITY\LocalService 0
Microsoft Software Shadow Copy Provider swprv Stopped Manual
Own Process c:\windows\system32\svchost.exe -k swprv Normal
LocalSystem 0
Performance Logs and Alerts SysmonLog Stopped Auto
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 Stopped Manual 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
Windows User Mode Driver Framework UMWdf Stopped Manual
Own Process c:\windows\system32\wdfmgr.exe Normal
NT AUTHORITY\LocalService 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 Stopped Manual Share Process
c:\windows\system32\svchost.exe -k localservice Normal NT
AUTHORITY\LocalService 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 wuauserv Stopped Manual Share Process
c:\windows\system32\svchost.exe -k netsvcs Normal LocalSystem 0
Wireless Configuration WZCSVC Stopped Manual Share
Process c:\windows\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
Network Provisioning Service xmlprov Stopped Manual 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
ActiveState ActivePerl 5.8 All Users:ActiveState ActivePerl 5.8
All Users
Administrative Tools All Users:Administrative Tools All Users
IBM DB2 All Users:IBM DB2 All Users
IBM DB2\Command Line Tools All Users:IBM DB2\Command Line Tools
All Users
IBM DB2\Development Tools All Users:IBM DB2\Development Tools
All Users
IBM DB2\General Administration Tools All Users:IBM DB2\General
Administration Tools All Users
IBM DB2\Information All Users:IBM DB2\Information All Users
IBM DB2\Monitoring Tools All Users:IBM DB2\Monitoring Tools
All Users
IBM DB2\Set-up Tools All Users:IBM DB2\Set-up Tools
All Users
ServeRAID Manager All Users:ServeRAID Manager All Users
Startup All Users:Startup All Users
WinZip All Users:WinZip 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 DB2SERV1\Administrator:Accessories
DB2SERV1\Administrator
Accessories\Accessibility
DB2SERV1\Administrator:Accessories\Accessibility
DB2SERV1\Administrator
Accessories\Entertainment
DB2SERV1\Administrator:Accessories\Entertainment
DB2SERV1\Administrator
Microsoft Visual C++ Toolkit 2003
DB2SERV1\Administrator:Microsoft Visual C++ Toolkit 2003
DB2SERV1\Administrator
Startup DB2SERV1\Administrator:Startup
DB2SERV1\Administrator

[Startup Programs]

Program Command User NameLocation
desktop desktop.ini NT AUTHORITY\SYSTEM Startup
desktop desktop.ini DB2SERV1\Administrator Startup
synctime synctime.bat DB2SERV1\Administrator Startup
desktop desktop.ini .DEFAULT Startup
desktop desktop.ini All Users Common Startup
WinZip Quick Pick c:\winzip\wzqkpick.exe 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"
Bitmap Image mspaint.exe

[Windows Error Reporting]

Time Type Details
3/21/2005 1:08 PM Application Hang Hanging application mmc.exe, version 5.2.3790.1289, hang module hungapp, version 0.0.0.0, hang address 0x0000000000000000.

[Internet Settings]

[Internet Explorer]

[Following are sub-categories of this main category]
[Summary]

Item Value
Version 6.0.3790.1289
Build 63790.1289
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 6.0.3790.1289 221 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
advpack.dll 6.0.3790.1289 146 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
asctrls.ocx 6.0.3790.1289 147 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
browselc.dll 6.0.3790.1289 63 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
browseui.dll 6.0.3790.1289 1,576 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
cdfview.dll 6.0.3790.1289 215 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
comctl32.dll 5.82.3790.1289 936 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
dxtrans.dll 6.3.3790.1289 326 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
dxtmsft.dll 6.3.3790.1289 555 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
iecont.dll <File Missing> Not Available Not Available Not Available Not Available
iecontlc.dll<File Missing> Not Available Not Available Not Available Not Available
iedkcs32.dll 16.0.3790.1289 417 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
iepeers.dll 6.0.3790.1289 360 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
iesetup.dll 6.0.3790.1289 71 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
ieuinit.inf Not Available 24 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Not Available
iexplore.exe 6.0.3790.1289 94 KB 12/3/2004 7:00:00 AM C:\Program Files\Internet Explorer Microsoft Corporation
imgutil.dll 6.0.3790.1289 62 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
inetcpl.cpl 6.0.3790.1289 428 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
inetcplc.dll6.0.3790.1289 110 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
inseng.dll 6.0.3790.1289 146 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
mlang.dll 6.0.3790.1289 687 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
msencode.dll <File Missing> Not Available Not Available Not Available Not Available
mshta.exe 6.0.3790.1289 38 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
mshtml.dll 6.0.3790.1289 5,870 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
mshtml.tlb 6.0.3790.1289 1,320 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
mshtmled.dll 6.0.3790.1289 913 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
mshtmler.dll 6.0.3790.1289 56 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
msident.dll6.0.3790.1289 70 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
msidntld.dll 6.0.3790.1289 16 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
msieftp.dll 6.0.3790.1289 369 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
msrating.dll 6.0.3790.1289 240 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
mstime.dll 6.0.3790.1289 880 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
occache.dll 6.0.3790.1289 126 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
proctexe.ocx <File Missing> Not Available Not Available Not Available Not Available
sendmail.dll 6.0.3790.1289 64 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
shdoclc.dll 6.0.3790.1289 590 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
shdocvw.dll 6.0.3790.1289 2,388 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
shfolder.dll 6.0.3790.1289 34 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
shlwapi.dll6.0.3790.1289 609 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
tdc.ocx 1.3.0.3130 92 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
url.dll 6.0.3790.1289 40 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
urlmon.dll 6.0.3790.1289 1,017 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
webcheck.dll 6.0.3790.1289 441 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation
wininet.dll 6.0.3790.1289 1,195 KB 12/3/2004 7:00:00 AM C:\WINDOWS\system32 Microsoft Corporation

[Connectivity]

Item Value
Connection Preference Never dial

LAN Settings

AutoConfigProxy wininet.dll
AutoProxyDetectMode Disabled
AutoConfigURL
Proxy Disabled
ProxyServer
ProxyOverride

[Cache]

[Following are sub-categories of this main category]
[Summary]

Item Value
Page Refresh Type Automatic
Temporary Internet Files Folder C:\Documents and Settings\Administrator\Local Settings\Temporary Internet Files
Total Disk Space 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 Custom
Trusted sites Custom
Internet High
Restricted sites Custom

ServeRAID-6M Disk Controller Configuration Parameters

March 21, 2005 3:56:03 PM EST

Configuration summary

Server name.....db2serv1
ServeRAID Manager agent.....6.10.26 (1253)
ServeRAID Manager console.....6.10.26 (1253)
Number of controllers.....1
Operating system.....Windows 2003

Configuration information for controller 1

Controller type.....ServeRAID-6M
SCSI backend type.....AIC-7902
SCSI backend revision.....3
Controller FRU.....02R0998
Battery FRU.....02R0986
Serial number.....60B73939
Part number.....
Physical slot.....6
BIOS version.....7.10.18
Firmware version.....7.10.18
Device driver version.....7.10.52
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

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.....B
Array size.....69430 MB
Stripe order (channel/device)...1/0 2/0
Number of physical drives.....2

Array identifier.....C
Array size.....69430 MB
Stripe order (channel/device)...1/1 2/1
Number of physical drives.....2

Array identifier.....D
Array size.....69430 MB
Stripe order (channel/device)...1/2 2/2
Number of physical drives.....2

Array identifier.....E
Array size.....69430 MB
Stripe order (channel/device)...1/3 2/3
Number of physical drives.....2

Array identifier.....F
Array size.....69430 MB
Stripe order (channel/device)...1/4 2/4
Number of physical drives.....2

Array identifier.....G
Array size.....69430 MB

Stripe order (channel/device)...1/5 2/5
Number of physical drives.....2

Array identifier.....H
Array size.....69430 MB
Stripe order (channel/device)...1/6 2/6
Number of physical drives.....2

Physical drives in array B

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0R106
Firmware level.....B85B
Channel.....1
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.....3HX0QMSB
Firmware level.....B85B
Channel.....2
SCSI ID.....0
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.....3HX0PEAA
Firmware level.....B85B
Channel.....1
SCSI ID.....1
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.....3HX0KW2R
Firmware level.....B85B
Channel.....2
SCSI ID.....1
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.....3HX0QPDR
Firmware level.....B85B
Channel.....1
SCSI ID.....2
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.....3HX0LK0L
Firmware level.....B85B
Channel.....2
SCSI ID.....2
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.....3HX0QMT4
Firmware level.....B85B
Channel.....1
SCSI ID.....3
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.....3HX0KR5T
Firmware level.....B85B
Channel.....2
SCSI ID.....3
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.....3HX0QPBF
Firmware level.....B85B
Channel.....1
SCSI ID.....4
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.....3HX0KW78
Firmware level.....B85B
Channel.....2
SCSI ID.....4
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.....3HX0R239
Firmware level.....B85B
Channel.....1
SCSI ID.....5
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.....3HX0MMA5
Firmware level.....B85B
Channel.....2
SCSI ID.....5
Size.....34715 MB
State.....Online
Array letter.....G
PFA error.....No

Physical drives in array H

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0R1AF
Firmware level.....B85B
Channel.....1
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....H
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0MP10
Firmware level.....B85B
Channel.....2
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....H
PFA error.....No

Logical drives in spanned array 1

Logical drive.....2
Spanned array number 1
State.....Okay
RAID level.....10
Data space.....243005 MB
Parity space.....243005 MB
Date created.....02/03/2005
Write-cache mode.....Write through
Merge-group number.....207
Merge-group state.....Non-shared

Array A

Array identifier.....A
Array size.....34715 MB
Free space.....0 MB
Number of logical drives.....1
Stripe order (channel/device)...2/14
Number of physical drives.....1

Logical drives in array A

Logical drive.....1
Array letter.....A
State.....Okay
RAID level.....0
Data space.....34715 MB
Parity space.....0 MB
Date created.....02/03/2005
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.....3HX0MK56
Firmware level.....B85B
Channel.....2
SCSI ID.....14
Size.....34715 MB
State.....Online
Array letter.....A
PFA error.....No

SCSI channel 1

Number of drives.....7
SCSI transfer speed.....Optimal
SCSI initiator ID.....7

Type.....Hard disk drive
Vendor.....IBM-ESXS

Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0R106
Firmware level.....B85B
Channel.....1
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.....3HX0PEAA
Firmware level.....B85B
Channel.....1
SCSI ID.....1
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.....3HX0QPDR
Firmware level.....B85B
Channel.....1
SCSI ID.....2
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.....3HX0QMT4
Firmware level.....B85B
Channel.....1
SCSI ID.....3
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.....3HX0QPBF
Firmware level.....B85B
Channel.....1
SCSI ID.....4
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.....3HX0R239
Firmware level.....B85B
Channel.....1
SCSI ID.....5
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.....3HX0R1AF
Firmware level.....B85B
Channel.....1
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....H
PFA error.....No

Type.....Enclosure
Vendor.....IBM
Product or model number.....EXP400
Serial number.....23M0051
Firmware level.....D110
FRU type.....MIDPLANE
FRU vendor.....IBM
FRU date of manufacture.....07/2003
FRU part number.....59P4865
FRU serial number.....1373197
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....07/2003
FRU part number.....59P4866
FRU serial number.....1R043373199
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....07/2003
FRU part number.....71P8146
FRU serial number.....1R045373201
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....07/2003
FRU part number.....71P8146
FRU serial number.....1R045373202
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....07/2003
FRU part number.....59P4869
FRU serial number.....1R044373200
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.....8
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.....3HX0QMSB
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.....3HX0KW2R
Firmware level.....B85B
Channel.....2
SCSI ID.....1
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.....3HX0LK0L
Firmware level.....B85B
Channel.....2
SCSI ID.....2
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.....3HX0KR5T
Firmware level.....B85B
Channel.....2
SCSI ID.....3
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.....3HX0KW78
Firmware level.....B85B
Channel.....2
SCSI ID.....4
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.....3HX0MMA5
Firmware level.....B85B
Channel.....2
SCSI ID.....5
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.....3HX0MP10
Firmware level.....B85B
Channel.....2
SCSI ID.....6
Size.....34715 MB
State.....Online
Array letter.....H
PFA error.....No

Type.....Hard disk drive
Vendor.....IBM-ESXS
Product or model number.....ST336753
FRU part number.....32P0736
Serial number.....3HX0MK56
Firmware level.....B85B
Channel.....2
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.....23M0139
Firmware level.....D110
FRU type.....MIDPLANE
FRU vendor.....IBM
FRU date of manufacture.....07/2003
FRU part number.....59P4865
FRU serial number.....1379163
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....07/2003
FRU part number.....59P4866
FRU serial number.....1R043379164
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....07/2003
FRU part number.....71P8146
FRU serial number.....1R045379167
FRU type.....Power
FRU vendor.....IBM
FRU date of manufacture.....07/2003
FRU part number.....71P8146
FRU serial number.....1R045379168
FRU type.....CARD
FRU vendor.....IBM
FRU date of manufacture.....07/2003
FRU part number.....59P4869
FRU serial number.....1R044379166
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 1

DS4500 Disk Subsystem Configuration

Rack 1

PROFILE FOR STORAGE SUBSYSTEM: RACK1 (3/21/05 3:40:27 PM)

SUMMARY----------
  Number of controllers: 2
  Number of arrays: 4
  Total number of logical drives (includes an access logical drive): 5 of 2048 used
    Number of standard logical drives: 4
    Number of access logical drives: 1
  Number of drives: 112
  Supported drive types: Fibre (112)
  Total hot spare drives: 0
    Standby: 0
    In use: 0
  Access logical drive: None mapped
  Default host type: Windows 2000/Server 2003 Non-Clustered (Host type index 2)
  Current configuration
    Firmware version: 06.10.06.00
    NVSRAM version: N1742F900R910V02
  Pending configuration
    Staged firmware download supported?: Yes
    Firmware version: None
    NVSRAM version: None
    Transferred on: None
  NVSRAM configured for batteries?: Yes
  Start cache flushing at (in percentage): 80
  Stop cache flushing at (in percentage): 80
  Cache block size (in KB): 4
  Media scan frequency (in days): Disabled
  Failover alert delay (in minutes): 5
  Feature enable identifier: 303531343000303531313100 41B429DB
  Storage Subsystem worldwide name (ID): 600A0B800013C6EA0000000041B47D54

CONTROLLERS----------
  Number of controllers: 2

  Controller in Slot A
    Status: Online
    Current configuration
      Firmware version: 06.10.06.00
        Appware version: 06.10.06.00
        Bootware version: 06.10.01.00
      NVSRAM version: N1742F900R910V02
    Pending configuration
      Firmware version: None
        Appware version: None
        Bootware version: None
      NVSRAM version: None
      Transferred on: None
    Board ID: 5884
    Product ID: 1742-900
    Product revision: 0520
    Serial number: 1T41105140
    Date of manufacture: March 25, 2004
    Cache/processor size (MB): 1024/128
    Date/Time: Mon Mar 21 15:38:55 EST 2005
    Associated Logical Drives (* = Preferred Owner):
      RACK1_0*, RACK1_1*
    Ethernet port: 1
      MAC address: 00:a0:b8:13:c6:ea
      Host name: RACK1_A
      Network configuration: Static
      IP address: 192.168.128.100
      Subnet mask: 255.255.255.0
      Gateway: 0.0.0.0
      Remote login: Disabled

    Drive interface: Fibre
      Channel: 1
      Current ID: 125/0x1
      Maximum data rate: 2 Gbps
      Current data rate: 2 Gbps
      Data rate control: Switch
      Link status: Up
    Drive interface: Fibre
      Channel: 2
      Current ID: 125/0x1
      Maximum data rate: 2 Gbps
      Current data rate: 2 Gbps
      Data rate control: Switch
      Link status: Up
    Drive interface: Fibre
      Channel: 3
      Current ID: 125/0x1
      Maximum data rate: 2 Gbps
      Current data rate: 2 Gbps
      Data rate control: Switch
      Link status: Up
    Drive interface: Fibre
      Channel: 4
      Current ID: 125/0x1
      Maximum data rate: 2 Gbps
      Current data rate: 2 Gbps
      Data rate control: Switch
      Link status: Up
    Host interface: Fibre
      Port: 1
      Current ID: Not applicable/0xFFFFFFFF
      Preferred ID: 126/0x0
      NL-Port ID: 0x010000
      Maximum data rate: 2 Gbps
      Current data rate: 2 Gbps
      Data rate control: Switch
      Link status: Up
      Topology: Fabric Attach
      World-wide port name: 20:04:00:a0:b8:13:c6:eb
      World-wide node name: 20:04:00:a0:b8:13:c6:ea
      Part type: HPFC-5400 revision 6
    Host interface: Fibre
      Port: 2
      Current ID: Not applicable/0xFFFFFFFF
      Preferred ID: 1/0xE8
      NL-Port ID: 0x000000
      Maximum data rate: 2 Gbps
      Current data rate: 1 Gbps
      Data rate control: Switch
      Link status: Down
      Topology: Not available

```
      World-wide port name: 20:04:00:a0:b8:13:c6:ec
      World-wide node name: 20:04:00:a0:b8:13:c6:ea
      Part type: HPFC-5400    revision 6

Controller in Slot B
  Status: Online
  Current configuration
    Firmware version: 06.10.06.00
      Appware version: 06.10.06.00
      Bootware version: 06.10.01.00
    NVSRAM version: N1742F900R910V02
  Pending configuration
    Firmware version: None
      Appware version: None
      Bootware version: None
    NVSRAM version: None
    Transferred on: None
  Board ID: 5884
  Product ID: 1742-900
  Product revision: 0520
  Serial number: 1T41105111
  Date of manufacture: March 26, 2004
  Cache/processor size (MB): 1024/128
  Date/Time: Mon Mar 21 15:38:28 EST 2005
  Associated Logical Drives (* = Preferred Owner):
    RACK1_2*, RACK1_3*
  Ethernet port: 1
    MAC address: 00:a0:b8:13:c5:fa
    Host name: RACK1_B
    Network configuration: Static
    IP address: 192.168.128.101
    Subnet mask: 255.255.255.0
    Gateway: 0.0.0.0
    Remote login: Disabled

  Drive interface: Fibre
    Channel: 1
    Current ID: 124/0x2
    Maximum data rate: 2 Gbps
    Current data rate: 2 Gbps
    Data rate control: Switch
    Link status: Up
  Drive interface: Fibre
    Channel: 2
    Current ID: 124/0x2
    Maximum data rate: 2 Gbps
    Current data rate: 2 Gbps
    Data rate control: Switch
    Link status: Up
  Drive interface: Fibre
    Channel: 3
    Current ID: 124/0x2
    Maximum data rate: 2 Gbps
    Current data rate: 2 Gbps
    Data rate control: Switch
    Link status: Up
  Drive interface: Fibre
    Channel: 4
    Current ID: 124/0x2
    Maximum data rate: 2 Gbps
    Current data rate: 2 Gbps
    Data rate control: Switch
    Link status: Up
  Host interface: Fibre
    Port: 1
    Current ID: Not applicable/0xFFFFFFFF
    Preferred ID: 126/0x0
    NL-Port ID: 0x010100
    Maximum data rate: 2 Gbps
    Current data rate: 2 Gbps
    Data rate control: Switch
    Link status: Up
    Topology: Fabric Attach
    World-wide port name: 20:05:00:a0:b8:13:c6:eb
    World-wide node name: 20:05:00:a0:b8:13:c6:ea
    Part type: HPFC-5400    revision 6
  Host interface: Fibre
    Port: 2
    Current ID: Not applicable/0xFFFFFFFF
    Preferred ID: 3/0xE2
    NL-Port ID: 0x000000
    Maximum data rate: 2 Gbps
    Current data rate: 1 Gbps
    Data rate control: Switch
    Link status: Down
    Topology: Not available
    World-wide port name: 20:05:00:a0:b8:13:c6:ec
    World-wide node name: 20:05:00:a0:b8:13:c6:ea
    Part type: HPFC-5400    revision 6

ARRAYS-----------------------------
  Number of arrays: 4

  Array 1 (RAID 0)
    Status: Online
    Drive type: Fibre Channel
    Enclosure loss protection: No
    Current owner: Controller in slot A
    Associated logical drives and free capacities:
      RACK1_0 (935.238 GB)
    Associated drives (in piece order):
      Drive at Enclosure 0, Slot 1
      Drive at Enclosure 0, Slot 2
      Drive at Enclosure 0, Slot 3
      Drive at Enclosure 0, Slot 4
      Drive at Enclosure 0, Slot 5
      Drive at Enclosure 0, Slot 6
      Drive at Enclosure 0, Slot 7
      Drive at Enclosure 0, Slot 8
      Drive at Enclosure 0, Slot 9
      Drive at Enclosure 0, Slot 10
      Drive at Enclosure 0, Slot 11
      Drive at Enclosure 0, Slot 12
      Drive at Enclosure 0, Slot 13
      Drive at Enclosure 0, Slot 14
      Drive at Enclosure 1, Slot 1
      Drive at Enclosure 1, Slot 2
      Drive at Enclosure 1, Slot 3
      Drive at Enclosure 1, Slot 4
      Drive at Enclosure 1, Slot 5
      Drive at Enclosure 1, Slot 6
      Drive at Enclosure 1, Slot 7
      Drive at Enclosure 1, Slot 8
      Drive at Enclosure 1, Slot 9
      Drive at Enclosure 1, Slot 10
      Drive at Enclosure 1, Slot 11
      Drive at Enclosure 1, Slot 12
      Drive at Enclosure 1, Slot 13
      Drive at Enclosure 1, Slot 14
  Array 2 (RAID 0)
    Status: Online
    Drive type: Fibre Channel
    Enclosure loss protection: No
    Current owner: Controller in slot A
    Associated logical drives and free capacities:
      RACK1_1 (935.238 GB)
```

Associated drives (in piece order):
Drive at Enclosure 2, Slot 1
Drive at Enclosure 2, Slot 2
Drive at Enclosure 2, Slot 3
Drive at Enclosure 2, Slot 4
Drive at Enclosure 2, Slot 5
Drive at Enclosure 2, Slot 6
Drive at Enclosure 2, Slot 7
Drive at Enclosure 2, Slot 8
Drive at Enclosure 2, Slot 9
Drive at Enclosure 2, Slot 10
Drive at Enclosure 2, Slot 11
Drive at Enclosure 2, Slot 12
Drive at Enclosure 2, Slot 13
Drive at Enclosure 2, Slot 14
Drive at Enclosure 3, Slot 1
Drive at Enclosure 3, Slot 2
Drive at Enclosure 3, Slot 3
Drive at Enclosure 3, Slot 4
Drive at Enclosure 3, Slot 5
Drive at Enclosure 3, Slot 6
Drive at Enclosure 3, Slot 7
Drive at Enclosure 3, Slot 8
Drive at Enclosure 3, Slot 9
Drive at Enclosure 3, Slot 10
Drive at Enclosure 3, Slot 11
Drive at Enclosure 3, Slot 12
Drive at Enclosure 3, Slot 13
Drive at Enclosure 3, Slot 14
Array 3 (RAID 0)
Status: Online
Drive type: Fibre Channel
Enclosure loss protection: No
Current owner: Controller in slot B
Associated logical drives and free capacities:
RACK1_2 (935.238 GB)
Associated drives (in piece order):
Drive at Enclosure 10, Slot 1
Drive at Enclosure 10, Slot 2
Drive at Enclosure 10, Slot 3
Drive at Enclosure 10, Slot 4
Drive at Enclosure 10, Slot 5
Drive at Enclosure 10, Slot 6
Drive at Enclosure 10, Slot 7
Drive at Enclosure 10, Slot 8
Drive at Enclosure 10, Slot 9
Drive at Enclosure 10, Slot 10
Drive at Enclosure 10, Slot 11
Drive at Enclosure 10, Slot 12
Drive at Enclosure 10, Slot 13
Drive at Enclosure 10, Slot 14
Drive at Enclosure 11, Slot 1
Drive at Enclosure 11, Slot 2
Drive at Enclosure 11, Slot 3
Drive at Enclosure 11, Slot 4
Drive at Enclosure 11, Slot 5
Drive at Enclosure 11, Slot 6
Drive at Enclosure 11, Slot 7
Drive at Enclosure 11, Slot 8
Drive at Enclosure 11, Slot 9
Drive at Enclosure 11, Slot 10
Drive at Enclosure 11, Slot 11
Drive at Enclosure 11, Slot 12
Drive at Enclosure 11, Slot 13
Drive at Enclosure 11, Slot 14
Array 4 (RAID 0)
Status: Online
Drive type: Fibre Channel
Enclosure loss protection: No
Current owner: Controller in slot B
Associated logical drives and free capacities:
RACK1_3 (935.238 GB)
Associated drives (in piece order):
Drive at Enclosure 12, Slot 1
Drive at Enclosure 12, Slot 2
Drive at Enclosure 12, Slot 3
Drive at Enclosure 12, Slot 4
Drive at Enclosure 12, Slot 5
Drive at Enclosure 12, Slot 6
Drive at Enclosure 12, Slot 7
Drive at Enclosure 12, Slot 8
Drive at Enclosure 12, Slot 9
Drive at Enclosure 12, Slot 10
Drive at Enclosure 12, Slot 11
Drive at Enclosure 12, Slot 12
Drive at Enclosure 12, Slot 13
Drive at Enclosure 12, Slot 14
Drive at Enclosure 13, Slot 1
Drive at Enclosure 13, Slot 2
Drive at Enclosure 13, Slot 3
Drive at Enclosure 13, Slot 4
Drive at Enclosure 13, Slot 5
Drive at Enclosure 13, Slot 6
Drive at Enclosure 13, Slot 7
Drive at Enclosure 13, Slot 8
Drive at Enclosure 13, Slot 9
Drive at Enclosure 13, Slot 10
Drive at Enclosure 13, Slot 11
Drive at Enclosure 13, Slot 12
Drive at Enclosure 13, Slot 13
Drive at Enclosure 13, Slot 14

STANDARD LOGICAL DRIVES----------

SUMMARY
Number of standard logical drives: 4
See other Logical Drives sub-tabs for premium feature information.

NAME	STATUS	CAPACITY	RAID LEVEL	ARRAY
RACK1_0	Optimal	935.238 GB	0	1
RACK1_1	Optimal	935.238 GB	0	2
RACK1_2	Optimal	935.238 GB	0	3
RACK1_3	Optimal	935.238 GB	0	4

DETAILS
Logical Drive name: RACK1_0
Logical Drive ID: 60:0a:0b:80:00:13:c6:ea:00:00:00:03:41:bd:50:9a
Subsystem ID (SSID): 0
Status: Optimal
Drive type: Fibre Channel
Enclosure loss protection: No
Preferred owner: Controller in slot A
Current owner: Controller in slot A
Capacity: 935.238 GB
RAID level: 0
Segment size: 64 KB
Modification priority: Highest
Associated array: 1
Read cache: Disabled
Write cache: Disabled
Write cache without batteries: Disabled
Write cache with mirroring: Disabled
Flush write cache after (in seconds): 10.00
Cache read ahead multiplier: 0
Enable background media scan: Disabled
Media scan with redundancy check: Disabled

Logical Drive name: RACK1_1
Logical Drive ID: 60:0a:0b:80:00:13:c6:ea:00:00:00:05:41:bd:50:d8
Subsystem ID (SSID): 1
Status: Optimal
Drive type: Fibre Channel
Enclosure loss protection: No
Preferred owner: Controller in slot A
Current owner: Controller in slot A
Capacity: 935.238 GB
RAID level: 0
Segment size: 64 KB
Modification priority: Highest
Associated array: 2
Read cache: Disabled
Write cache: Disabled
Write cache without batteries: Disabled
Write cache with mirroring: Disabled
Flush write cache after (in seconds): 10.00
Cache read ahead multiplier: 0
Enable background media scan: Disabled
Media scan with redundancy check: Disabled

Logical Drive name: RACK1_2
Logical Drive ID: 60:0a:0b:80:00:13:c5:fa:00:00:00:01:41:bd:50:c5
Subsystem ID (SSID): 2
Status: Optimal
Drive type: Fibre Channel
Enclosure loss protection: No
Preferred owner: Controller in slot B
Current owner: Controller in slot B
Capacity: 935.238 GB
RAID level: 0
Segment size: 64 KB
Modification priority: Highest
Associated array: 3
Read cache: Disabled
Write cache: Disabled
Write cache without batteries: Disabled
Write cache with mirroring: Disabled
Flush write cache after (in seconds): 10.00
Cache read ahead multiplier: 0
Enable background media scan: Disabled
Media scan with redundancy check: Disabled

Logical Drive name: RACK1_3
Logical Drive ID: 60:0a:0b:80:00:13:c5:fa:00:00:00:03:41:bd:50:f7
Subsystem ID (SSID): 3
Status: Optimal
Drive type: Fibre Channel
Enclosure loss protection: No
Preferred owner: Controller in slot B
Current owner: Controller in slot B
Capacity: 935.238 GB
RAID level: 0
Segment size: 64 KB
Modification priority: Highest
Associated array: 4
Read cache: Disabled
Write cache: Disabled
Write cache without batteries: Disabled
Write cache with mirroring: Disabled
Flush write cache after (in seconds): 10.00
Cache read ahead multiplier: 0
Enable background media scan: Disabled
Media scan with redundancy check: Disabled

MISSING LOGICAL DRIVES----------
Number of missing logical drives: 0

DRIVES----------

SUMMARY
Number of drives: 112
Supported drive types: Fibre (112)

BASIC:

TRAY, SLOT	STATUS	CAPACITY	CURRENT DATA RATE	PRODUCT ID	FIRMWARE VERSION
0, 1	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 2	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 3	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 4	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 5	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 6	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 7	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 8	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 9	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 10	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 11	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 12	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 13	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 14	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 1	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 2	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 3	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 4	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 5	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 6	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 7	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 8	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 9	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 10	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 11	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 12	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 13	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954

1, 14	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 1	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 2	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 3	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 4	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 5	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 6	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 7	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 8	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 9	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 10	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 11	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 12	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 13	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 14	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 1	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 2	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 3	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 4	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 5	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 6	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 7	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 8	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 9	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 10	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 11	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 12	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 13	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 14	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
10, 1	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
10, 2	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
10, 3	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
10, 4	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
10, 5	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
10, 6	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
10, 7	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
10, 8	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
10, 9	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
10, 10	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
10, 11	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
10, 12	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
10, 13	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
10, 14	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
11, 1	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
11, 2	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
11, 3	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
11, 4	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
11, 5	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
11, 6	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
11, 7	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
11, 8	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
11, 9	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
11, 10	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
11, 11	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
11, 12	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
11, 13	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
11, 14	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
12, 1	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
12, 2	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
12, 3	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
12, 4	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
12, 5	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
12, 6	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
12, 7	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
12, 8	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
12, 9	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
12, 10	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
12, 11	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954

12, 12	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 13	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 14	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 1	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 2	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 3	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 4	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 5	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 6	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 7	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 8	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 9	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 10	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 11	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 12	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 13	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 14	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954

DRIVE CHANNELS:

TRAY, SLOT	PREFERRED CHANNEL	REDUNDANT CHANNEL
0, 1	4	3
0, 2	3	4
0, 3	4	3
0, 4	3	4
0, 5	4	3
0, 6	3	4
0, 7	4	3
0, 8	3	4
0, 9	4	3
0, 10	3	4
0, 11	4	3
0, 12	3	4
0, 13	4	3
0, 14	3	4
1, 1	4	3
1, 2	3	4
1, 3	4	3
1, 4	3	4
1, 5	4	3
1, 6	3	4
1, 7	4	3
1, 8	3	4
1, 9	4	3
1, 10	3	4
1, 11	4	3
1, 12	3	4
1, 13	4	3
1, 14	3	4
2, 1	4	3
2, 2	3	4
2, 3	4	3
2, 4	3	4
2, 5	4	3
2, 6	3	4
2, 7	4	3
2, 8	3	4
2, 9	4	3
2, 10	3	4
2, 11	4	3
2, 12	3	4
2, 13	4	3
2, 14	3	4
3, 1	4	3
3, 2	3	4
3, 3	4	3
3, 4	3	4
3, 5	4	3
3, 6	3	4
3, 7	4	3
3, 8	3	4
3, 9	4	3
3, 10	3	4
3, 11	4	3
3, 12	3	4
3, 13	4	3
3, 14	3	4
10, 1	2	1
10, 2	1	2
10, 3	2	1
10, 4	1	2
10, 5	2	1
10, 6	1	2
10, 7	2	1
10, 8	1	2
10, 9	2	1
10, 10	1	2
10, 11	2	1
10, 12	1	2
10, 13	2	1
10, 14	1	2
11, 1	2	1
11, 2	1	2
11, 3	2	1
11, 4	1	2
11, 5	2	1
11, 6	1	2
11, 7	2	1
11, 8	1	2
11, 9	2	1
11, 10	1	2
11, 11	2	1
11, 12	1	2
11, 13	2	1
11, 14	1	2
12, 1	2	1
12, 2	1	2
12, 3	2	1
12, 4	1	2
12, 5	2	1
12, 6	1	2
12, 7	2	1
12, 8	1	2
12, 9	2	1
12, 10	1	2
12, 11	2	1
12, 12	1	2
12, 13	2	1
12, 14	1	2

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13, 1     2          1
13, 2     1          2
13, 3     2          1
13, 4     1          2
13, 5     2          1
13, 6     1          2
13, 7     2          1
13, 8     1          2
13, 9     2          1
13, 10    1          2
13, 11    2          1
13, 12    1          2
13, 13    2          1
13, 14    1          2

HOT SPARE COVERAGE:
  The following arrays are not protected: 2, 1, 4, 3

  Total hot spare drives: 0
    Standby: 0
    In use: 0

DETAILS
  Drive at Enclosure 0, Slot 1
    Drive port: 1, Channel: 4, ID: 0/0xEF
    Drive port: 2, Channel: 3, ID: 0/0xEF
    Drive path redundancy: OK
    Status: Optimal
    Raw capacity: 33.902 GB
    Usable capacity: 33.402 GB
    Current data rate: 2 Gbps
    Product ID: ST336753FC    F
    Firmware version: B954
    Serial number: 3HX2NEQ200007502AZRN
    Vendor: IBM-ESXS
    Date of manufacture: July 21, 2004
    World-wide name: 20:00:00:0c:50:45:ab:88
    Drive type: Fibre Channel
    Speed: 15015 RPM
    Mode: Assigned
    Associated array: 1

  Drive at Enclosure 0, Slot 2
    Drive port: 1, Channel: 3, ID: 1/0xE8
    Drive port: 2, Channel: 4, ID: 1/0xE8
    Drive path redundancy: OK
    Status: Optimal
    Raw capacity: 33.902 GB
    Usable capacity: 33.402 GB
    Current data rate: 2 Gbps
    Product ID: ST336753FC    F
    Firmware version: B954
    Serial number: 3HX2DMZH000074478XSY
    Vendor: IBM-ESXS
    Date of manufacture: May 26, 2004
    World-wide name: 20:00:00:0c:50:d6:cf:29
    Drive type: Fibre Channel
    Speed: 15015 RPM
    Mode: Assigned
    Associated array: 1

  Drive at Enclosure 0, Slot 3
    Drive port: 1, Channel: 4, ID: 2/0xE4
    Drive port: 2, Channel: 3, ID: 2/0xE4
    Drive path redundancy: OK
    Status: Optimal
    Raw capacity: 33.902 GB
    Usable capacity: 33.402 GB
    Current data rate: 2 Gbps
    Product ID: ST336753FC    F
    Firmware version: B954
    Serial number: 3HX2EAQ400007446H3ZS
    Vendor: IBM-ESXS
    Date of manufacture: May 26, 2004
    World-wide name: 20:00:00:0c:50:d6:cf:96
    Drive type: Fibre Channel
    Speed: 15015 RPM
    Mode: Assigned
    Associated array: 1

  Drive at Enclosure 0, Slot 4
    Drive port: 1, Channel: 3, ID: 3/0xE2
    Drive port: 2, Channel: 4, ID: 3/0xE2
    Drive path redundancy: OK
    Status: Optimal
    Raw capacity: 33.902 GB
    Usable capacity: 33.402 GB
    Current data rate: 2 Gbps
    Product ID: ST336753FC    F
    Firmware version: B954
    Serial number: 3HX26SJZ00007440BFBY
    Vendor: IBM-ESXS
    Date of manufacture: May 31, 2004
    World-wide name: 20:00:00:0c:50:d6:fc:e9
    Drive type: Fibre Channel
    Speed: 15015 RPM
    Mode: Assigned
    Associated array: 1

  Drive at Enclosure 0, Slot 5
    Drive port: 1, Channel: 4, ID: 4/0xE1
    Drive port: 2, Channel: 3, ID: 4/0xE1
    Drive path redundancy: OK
    Status: Optimal
    Raw capacity: 33.902 GB
    Usable capacity: 33.402 GB
    Current data rate: 2 Gbps
    Product ID: ST336753FC    F
    Firmware version: B954
    Serial number: 3HX2DWG200007447AYA1
    Vendor: IBM-ESXS
    Date of manufacture: May 26, 2004
    World-wide name: 20:00:00:0c:50:d6:cf:fe
    Drive type: Fibre Channel
    Speed: 15015 RPM
    Mode: Assigned
    Associated array: 1

  Drive at Enclosure 0, Slot 6
    Drive port: 1, Channel: 3, ID: 5/0xE0
    Drive port: 2, Channel: 4, ID: 5/0xE0
    Drive path redundancy: OK
    Status: Optimal
    Raw capacity: 33.902 GB
    Usable capacity: 33.402 GB
    Current data rate: 2 Gbps
    Product ID: ST336753FC    F
    Firmware version: B954
    Serial number: 3HX2DQTT00007447NFYS
    Vendor: IBM-ESXS
    Date of manufacture: May 26, 2004
    World-wide name: 20:00:00:0c:50:d6:d8:5b
    Drive type: Fibre Channel
    Speed: 15015 RPM
    Mode: Assigned
    Associated array: 1
```

Drive at Enclosure 0, Slot 7
Drive port: 1, Channel: 4, ID: 6/0xDC
Drive port: 2, Channel: 3, ID: 6/0xDC
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DBPB00007447QTBR
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:ce:3f
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 8
Drive port: 1, Channel: 3, ID: 7/0xDA
Drive port: 2, Channel: 4, ID: 7/0xDA
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DEDC0000744780SZ
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:cf:b9
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 9
Drive port: 1, Channel: 4, ID: 80/0x55
Drive port: 2, Channel: 3, ID: 80/0x55
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MKSK000075029SW2
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ad:c0
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 10
Drive port: 1, Channel: 3, ID: 96/0x3A
Drive port: 2, Channel: 4, ID: 96/0x3A
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MYRF00007502CJ80
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ac:8e
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 11
Drive port: 1, Channel: 4, ID: 64/0x72
Drive port: 2, Channel: 3, ID: 64/0x72
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DJA800007447NFLS
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:cf:6e
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 12
Drive port: 1, Channel: 3, ID: 72/0x67
Drive port: 2, Channel: 4, ID: 72/0x67
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DY1L0000744270NY
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d8:e5
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 13
Drive port: 1, Channel: 4, ID: 88/0x4B
Drive port: 2, Channel: 3, ID: 88/0x4B
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E23P00007447LWJT
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:ce:8e
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 14
Drive port: 1, Channel: 3, ID: 104/0x2E

Drive port: 2, Channel: 4, ID: 104/0x2E
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EAPC00007447KV7V
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:cf:d9
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 1
Drive port: 1, Channel: 4, ID: 8/0xD9
Drive port: 2, Channel: 3, ID: 8/0xD9
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2CALH00007447RB09
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d7:c9
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 2
Drive port: 1, Channel: 3, ID: 9/0xD6
Drive port: 2, Channel: 4, ID: 9/0xD6
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E2320000744780ME
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d0:8a
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 3
Drive port: 1, Channel: 4, ID: 10/0xD5
Drive port: 2, Channel: 3, ID: 10/0xD5
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DND9000074478XSF
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:ce:80
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 4
Drive port: 1, Channel: 3, ID: 11/0xD4
Drive port: 2, Channel: 4, ID: 11/0xD4
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N1E700007453V842
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ad:16
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 5
Drive port: 1, Channel: 4, ID: 12/0xD3
Drive port: 2, Channel: 3, ID: 12/0xD3
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EE7B00007447LW2A
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:cf:d3
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 6
Drive port: 1, Channel: 3, ID: 13/0xD2
Drive port: 2, Channel: 4, ID: 13/0xD2
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MZXQ00007502CWDB
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:af:9f
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 7
Drive port: 1, Channel: 4, ID: 14/0xD1
Drive port: 2, Channel: 3, ID: 14/0xD1
Drive path redundancy: OK
Status: Optimal

Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MNA4000075029S1Y
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:a9:70
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 8
Drive port: 1, Channel: 3, ID: 15/0xCE
Drive port: 2, Channel: 4, ID: 15/0xCE
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DD8700007447LWKE
Vendor: IBM-ESXS
Date of manufacture: May 25, 2004
World-wide name: 20:00:00:0c:50:d6:cf:c1
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 9
Drive port: 1, Channel: 4, ID: 81/0x54
Drive port: 2, Channel: 3, ID: 81/0x54
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DTA700007447QSUW
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d0:0b
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 10
Drive port: 1, Channel: 3, ID: 97/0x39
Drive port: 2, Channel: 4, ID: 97/0x39
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2HAKT00007502BES1
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ad:9b
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 11
Drive port: 1, Channel: 4, ID: 65/0x71
Drive port: 2, Channel: 3, ID: 65/0x71
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EBND00007447BVRL
Vendor: IBM-ESXS
Date of manufacture: May 25, 2004
World-wide name: 20:00:00:0c:50:d6:d0:38
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 12
Drive port: 1, Channel: 3, ID: 73/0x66
Drive port: 2, Channel: 4, ID: 73/0x66
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DN0000007447829M
Vendor: IBM-ESXS
Date of manufacture: May 25, 2004
World-wide name: 20:00:00:0c:50:d6:cf:33
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 13
Drive port: 1, Channel: 4, ID: 89/0x4A
Drive port: 2, Channel: 3, ID: 89/0x4A
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DQVQ00007447NFNF
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:cf:64
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 14
Drive port: 1, Channel: 3, ID: 105/0x2D
Drive port: 2, Channel: 4, ID: 105/0x2D
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps

Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DK1V00007447QTH8
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:cf:07
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 2, Slot 1
Drive port: 1, Channel: 4, ID: 16/0xCD
Drive port: 2, Channel: 3, ID: 16/0xCD
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NENC00007453W8P0
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:9a
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 2
Drive port: 1, Channel: 3, ID: 17/0xCC
Drive port: 2, Channel: 4, ID: 17/0xCC
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DW7C000074478XPC
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:db:74
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 3
Drive port: 1, Channel: 4, ID: 18/0xCB
Drive port: 2, Channel: 3, ID: 18/0xCB
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DSFV00007447825S
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d9:f9
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 4
Drive port: 1, Channel: 3, ID: 19/0xCA
Drive port: 2, Channel: 4, ID: 19/0xCA
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DR2W000074478XTE
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d9:f3
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 5
Drive port: 1, Channel: 4, ID: 20/0xC9
Drive port: 2, Channel: 3, ID: 20/0xC9
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DDRQ00007447AYBB
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:35
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 6
Drive port: 1, Channel: 3, ID: 21/0xC7
Drive port: 2, Channel: 4, ID: 21/0xC7
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E18000007447RBGZ
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:db:1b
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 7
Drive port: 1, Channel: 4, ID: 22/0xC6
Drive port: 2, Channel: 3, ID: 22/0xC6
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2CXVS0000744781LS

Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:30
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 8
Drive port: 1, Channel: 3, ID: 23/0xC5
Drive port: 2, Channel: 4, ID: 23/0xC5
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DNKW00007447KU1N
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:89
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 9
Drive port: 1, Channel: 4, ID: 82/0x53
Drive port: 2, Channel: 3, ID: 82/0x53
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DNBQ00007447KUQU
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:ce:97
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 10
Drive port: 1, Channel: 3, ID: 98/0x36
Drive port: 2, Channel: 4, ID: 98/0x36
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NF3900007453DWQG
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:df
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 11
Drive port: 1, Channel: 4, ID: 66/0x6E
Drive port: 2, Channel: 3, ID: 66/0x6E
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E9JK00007447BWBZ
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:e0
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 12
Drive port: 1, Channel: 3, ID: 74/0x65
Drive port: 2, Channel: 4, ID: 74/0x65
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EBR800007447AYAM
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:cf:1a
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 13
Drive port: 1, Channel: 4, ID: 90/0x49
Drive port: 2, Channel: 3, ID: 90/0x49
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E2RR00007447RBFU
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:db:1d
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 14
Drive port: 1, Channel: 3, ID: 106/0x2C
Drive port: 2, Channel: 4, ID: 106/0x2C
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E1WB00007441YPTM
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:cf:b1

Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 1
Drive port: 1, Channel: 4, ID: 24/0xC3
Drive port: 2, Channel: 3, ID: 24/0xC3
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2CZ1Q00007447QT8K
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:d9:98
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 2
Drive port: 1, Channel: 3, ID: 25/0xBC
Drive port: 2, Channel: 4, ID: 25/0xBC
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EDZA00007447RB32
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d9:48
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 3
Drive port: 1, Channel: 4, ID: 26/0xBA
Drive port: 2, Channel: 3, ID: 26/0xBA
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EC0100007447QT8X
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d9:a4
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 4
Drive port: 1, Channel: 3, ID: 27/0xB9
Drive port: 2, Channel: 4, ID: 27/0xB9
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MVG900007502CJB5
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:a7:d3
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 5
Drive port: 1, Channel: 4, ID: 28/0xB6
Drive port: 2, Channel: 3, ID: 28/0xB6
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E9A6000074478XRP
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:19
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 6
Drive port: 1, Channel: 3, ID: 29/0xB5
Drive port: 2, Channel: 4, ID: 29/0xB5
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E9KG00007447QT58
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:d9:a7
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 7
Drive port: 1, Channel: 4, ID: 30/0xB4
Drive port: 2, Channel: 3, ID: 30/0xB4
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DHMD00007447KVCS
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:2b
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned

Associated array: 2

Drive at Enclosure 3, Slot 8
Drive port: 1, Channel: 3, ID: 31/0xB3
Drive port: 2, Channel: 4, ID: 31/0xB3
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DHSG000074445YU0
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:2e
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 9
Drive port: 1, Channel: 4, ID: 83/0x52
Drive port: 2, Channel: 3, ID: 83/0x52
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E1EP00007447BW3T
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d9:26
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 10
Drive port: 1, Channel: 3, ID: 99/0x35
Drive port: 2, Channel: 4, ID: 99/0x35
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DCS600007447BW2Q
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d9:23
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 11
Drive port: 1, Channel: 4, ID: 67/0x6D
Drive port: 2, Channel: 3, ID: 67/0x6D
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NF23000075029RX3
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ab:ec
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 12
Drive port: 1, Channel: 3, ID: 75/0x63
Drive port: 2, Channel: 4, ID: 75/0x63
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NEL600007502CJ9M
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:96
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 13
Drive port: 1, Channel: 4, ID: 91/0x47
Drive port: 2, Channel: 3, ID: 91/0x47
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EA5M00007447RB8L
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:b6
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 14
Drive port: 1, Channel: 3, ID: 107/0x2B
Drive port: 2, Channel: 4, ID: 107/0x2B
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MSP5000075029T24
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ac:92
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 10, Slot 1

Drive port: 1, Channel: 2, ID: 0/0xEF
Drive port: 2, Channel: 1, ID: 0/0xEF
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DSV200007447AXF9
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:b1:7a
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 2
Drive port: 1, Channel: 1, ID: 1/0xE8
Drive port: 2, Channel: 2, ID: 1/0xE8
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EAKA00007447QTAN
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d9:25
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 3
Drive port: 1, Channel: 2, ID: 2/0xE4
Drive port: 2, Channel: 1, ID: 2/0xE4
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E33B00007447LX6C
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d8:d3
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 4
Drive port: 1, Channel: 1, ID: 3/0xE2
Drive port: 2, Channel: 2, ID: 3/0xE2
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E06Q0000744478X3
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d9:6f
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 5
Drive port: 1, Channel: 2, ID: 4/0xE1
Drive port: 2, Channel: 1, ID: 4/0xE1
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EC0G0000744781XQ
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:d9:e6
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 6
Drive port: 1, Channel: 1, ID: 5/0xE0
Drive port: 2, Channel: 2, ID: 5/0xE0
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E2QQ00007447AXRA
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:28
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 7
Drive port: 1, Channel: 2, ID: 6/0xDC
Drive port: 2, Channel: 1, ID: 6/0xDC
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2L2ZQ00007502A7DU
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:a9:72
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 8
Drive port: 1, Channel: 1, ID: 7/0xDA
Drive port: 2, Channel: 2, ID: 7/0xDA
Drive path redundancy: OK

Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E1A600007447BW8L
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d9:56
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 9
Drive port: 1, Channel: 2, ID: 80/0x55
Drive port: 2, Channel: 1, ID: 80/0x55
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NENQ00007502CJ2A
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:24
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 10
Drive port: 1, Channel: 1, ID: 96/0x3A
Drive port: 2, Channel: 2, ID: 96/0x3A
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MDLM00007502CWGK
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:a7:e1
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 11
Drive port: 1, Channel: 2, ID: 64/0x72
Drive port: 2, Channel: 1, ID: 64/0x72
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NET600007502A7NZ
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:aa:b9
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 12
Drive port: 1, Channel: 1, ID: 72/0x67
Drive port: 2, Channel: 2, ID: 72/0x67
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MSE400007502CWHG
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:af:aa
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 13
Drive port: 1, Channel: 2, ID: 88/0x4B
Drive port: 2, Channel: 1, ID: 88/0x4B
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N5VY00007502CJ9R
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:a8:31
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 14
Drive port: 1, Channel: 1, ID: 104/0x2E
Drive port: 2, Channel: 2, ID: 104/0x2E
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N3MJ00007502CWCS
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:af:a7
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 1
Drive port: 1, Channel: 2, ID: 8/0xD9
Drive port: 2, Channel: 1, ID: 8/0xD9
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB

Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DVH700007447LVRP
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d7:24
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 2
Drive port: 1, Channel: 1, ID: 9/0xD6
Drive port: 2, Channel: 2, ID: 9/0xD6
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NEJT000075029SZD
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:6f
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 3
Drive port: 1, Channel: 2, ID: 10/0xD5
Drive port: 2, Channel: 1, ID: 10/0xD5
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E8CY00007447QTDX
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:5e
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 4
Drive port: 1, Channel: 1, ID: 11/0xD4
Drive port: 2, Channel: 2, ID: 11/0xD4
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DZXC00007447QTA9
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d9:31
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 5
Drive port: 1, Channel: 2, ID: 12/0xD3
Drive port: 2, Channel: 1, ID: 12/0xD3
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DKSL00007447LX3E
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:45
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 6
Drive port: 1, Channel: 1, ID: 13/0xD2
Drive port: 2, Channel: 2, ID: 13/0xD2
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2CSGG00007447AYLX
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:ce:ae
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 7
Drive port: 1, Channel: 2, ID: 14/0xD1
Drive port: 2, Channel: 1, ID: 14/0xD1
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DNC60000744779DE
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:ce:e0
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 8
Drive port: 1, Channel: 1, ID: 15/0xCE
Drive port: 2, Channel: 2, ID: 15/0xCE
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954

Serial number: 3HX2EBVK00007447AYE9
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:a0
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 9
Drive port: 1, Channel: 2, ID: 81/0x54
Drive port: 2, Channel: 1, ID: 81/0x54
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DQYL00007447RB9K
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d8:96
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 10
Drive port: 1, Channel: 1, ID: 97/0x39
Drive port: 2, Channel: 2, ID: 97/0x39
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DPGS00007447BW35
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d8:02
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 11
Drive port: 1, Channel: 2, ID: 65/0x71
Drive port: 2, Channel: 1, ID: 65/0x71
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DQBQ00007447NG5H
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d9:fb
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 12
Drive port: 1, Channel: 1, ID: 73/0x66
Drive port: 2, Channel: 2, ID: 73/0x66
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E31A00007447BW50
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:d8:a6
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 13
Drive port: 1, Channel: 2, ID: 89/0x4A
Drive port: 2, Channel: 1, ID: 89/0x4A
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MY5100007502J0MF
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:7f
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 14
Drive port: 1, Channel: 1, ID: 105/0x2D
Drive port: 2, Channel: 2, ID: 105/0x2D
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DND800007447JQE0
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:ce:ab
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 12, Slot 1
Drive port: 1, Channel: 2, ID: 16/0xCD
Drive port: 2, Channel: 1, ID: 16/0xCD
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NENG00007502BENY
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004

World-wide name: 20:00:00:0c:50:45:aa:f7
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 2
Drive port: 1, Channel: 1, ID: 17/0xCC
Drive port: 2, Channel: 2, ID: 17/0xCC
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DWKC00007447RB4T
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:3d
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 3
Drive port: 1, Channel: 2, ID: 18/0xCB
Drive port: 2, Channel: 1, ID: 18/0xCB
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DYG300007447AXVT
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:73
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 4
Drive port: 1, Channel: 1, ID: 19/0xCA
Drive port: 2, Channel: 2, ID: 19/0xCA
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DKL800007447PXHK
Vendor: IBM-ESXS
Date of manufacture: May 25, 2004
World-wide name: 20:00:00:0c:50:d6:d0:5a
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 5
Drive port: 1, Channel: 2, ID: 20/0xC9
Drive port: 2, Channel: 1, ID: 20/0xC9
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E7YA00007447RB0F
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d9:61
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 6
Drive port: 1, Channel: 1, ID: 21/0xC7
Drive port: 2, Channel: 2, ID: 21/0xC7
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E2BS00007447PXHE
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:d9:de
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 7
Drive port: 1, Channel: 2, ID: 22/0xC6
Drive port: 2, Channel: 1, ID: 22/0xC6
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E2CS00007447KUZR
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d8:db
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 8
Drive port: 1, Channel: 1, ID: 23/0xC5
Drive port: 2, Channel: 2, ID: 23/0xC5
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MJTS00007502B0UC
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ad:c9
Drive type: Fibre Channel
Speed: 15015 RPM

Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 9
Drive port: 1, Channel: 2, ID: 82/0x53
Drive port: 2, Channel: 1, ID: 82/0x53
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2JRFH00007502J0VC
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:89
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 10
Drive port: 1, Channel: 1, ID: 98/0x36
Drive port: 2, Channel: 2, ID: 98/0x36
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MMY2000075029S6Y
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ad:1c
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 11
Drive port: 1, Channel: 2, ID: 66/0x6E
Drive port: 2, Channel: 1, ID: 66/0x6E
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2832900007440P56C
Vendor: IBM-ESXS
Date of manufacture: May 31, 2004
World-wide name: 20:00:00:0c:50:d6:fd:45
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 12
Drive port: 1, Channel: 1, ID: 74/0x65
Drive port: 2, Channel: 2, ID: 74/0x65
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E8WZ00007447BVW4
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:fe
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 13
Drive port: 1, Channel: 2, ID: 90/0x49
Drive port: 2, Channel: 1, ID: 90/0x49
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EBZD00007445Q6G6
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:ce:e7
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 14
Drive port: 1, Channel: 1, ID: 106/0x2C
Drive port: 2, Channel: 2, ID: 106/0x2C
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DWG600007447QT5G
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d9:9c
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 1
Drive port: 1, Channel: 2, ID: 24/0xC3
Drive port: 2, Channel: 1, ID: 24/0xC3
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E11L00007447NG1Z
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:da:33
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 2
Drive port: 1, Channel: 1, ID: 25/0xBC
Drive port: 2, Channel: 2, ID: 25/0xBC
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DAGQ00007447NFNJ
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d8:62
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 3
Drive port: 1, Channel: 2, ID: 26/0xBA
Drive port: 2, Channel: 1, ID: 26/0xBA
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NENE00007502AZQQ
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ac:1e
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 4
Drive port: 1, Channel: 1, ID: 27/0xB9
Drive port: 2, Channel: 2, ID: 27/0xB9
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DPB60000744780M7
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d8:d8
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 5
Drive port: 1, Channel: 2, ID: 28/0xB6
Drive port: 2, Channel: 1, ID: 28/0xB6
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2LXLN00007502BE4G
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ad:2a
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 6
Drive port: 1, Channel: 1, ID: 29/0xB5
Drive port: 2, Channel: 2, ID: 29/0xB5
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EBM000007447RBS6
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:db:36
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 7
Drive port: 1, Channel: 2, ID: 30/0xB4
Drive port: 2, Channel: 1, ID: 30/0xB4
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EDQS00007447RB9B
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:d9:52
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 8
Drive port: 1, Channel: 1, ID: 31/0xB3
Drive port: 2, Channel: 2, ID: 31/0xB3
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E96500007447AY95
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d8:46
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 9
Drive port: 1, Channel: 2, ID: 83/0x52
Drive port: 2, Channel: 1, ID: 83/0x52

Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DZAQ00007447RB3N
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d8:74
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 10
Drive port: 1, Channel: 1, ID: 99/0x35
Drive port: 2, Channel: 2, ID: 99/0x35
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N4ND00007501G32B
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ac:29
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 11
Drive port: 1, Channel: 2, ID: 67/0x6D
Drive port: 2, Channel: 1, ID: 67/0x6D
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MY7500007502AZE7
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:85
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 12
Drive port: 1, Channel: 1, ID: 75/0x63
Drive port: 2, Channel: 2, ID: 75/0x63
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2D9KM00007447QTDL
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:58
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 13
Drive port: 1, Channel: 2, ID: 91/0x47
Drive port: 2, Channel: 1, ID: 91/0x47
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NEZC000075029S7J
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:34
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 14
Drive port: 1, Channel: 1, ID: 107/0x2B
Drive port: 2, Channel: 2, ID: 107/0x2B
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NEKK000075029T44
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:a7
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Rack 2

PROFILE FOR STORAGE SUBSYSTEM: RACK2 (3/21/05 3:43:11 PM)

SUMMARY----------
Number of controllers: 2
Number of arrays: 4
Total number of logical drives (includes an access logical drive): 5 of 2048 used
Number of standard logical drives: 4
Number of access logical drives: 1
Number of drives: 112
Supported drive types: Fibre (112)
Total hot spare drives: 0
Standby: 0
In use: 0
Access logical drive: None mapped
Default host type: Windows 2000/Server 2003 Non-Clustered (Host type index 2)
Current configuration
Firmware version: 06.10.06.00
NVSRAM version: N1742F900R910V02
Pending configuration
Staged firmware download supported?: Yes
Firmware version: None

```
      NVSRAM version: None
      Transferred on: None
    NVSRAM configured for batteries?: Yes
    Start cache flushing at (in percentage): 80
    Stop cache flushing at (in percentage): 80
    Cache block size (in KB): 4
    Media scan frequency (in days): Disabled
    Failover alert delay (in minutes): 5
    Feature enable identifier: 313931373700313931373700 41FE3B17
    Storage Subsystem worldwide name (ID):
600A0B8000134017000000041B48262

CONTROLLERS-----------------------------
    Number of controllers: 2

    Controller in Slot A
      Status: Online
      Current configuration
        Firmware version: 06.10.06.00
          Appware version: 06.10.06.00
          Bootware version: 06.10.01.00
        NVSRAM version: N1742F900R910V02
      Pending configuration
        Firmware version: None
          Appware version: None
          Bootware version: None
        NVSRAM version: None
        Transferred on: None
      Board ID: 5884
      Product ID: 1742-900
      Product revision: 0520
      Serial number: 1T35119155
      Date of manufacture: December 29, 2003
      Cache/processor size (MB): 1024/128
      Date/Time: Mon Mar 21 15:41:56 EST 2005
      Associated Logical Drives (* = Preferred Owner):
        RACK2_0*, RACK2_1*
      Ethernet port: 1
        MAC address: 00:a0:b8:13:3e:61
        Host name: RACK2_A
        Network configuration: Static
        IP address: 192.168.128.102
        Subnet mask: 255.255.255.0
        Gateway: 0.0.0.0
        Remote login: Disabled

      Drive interface: Fibre
        Channel: 1
        Current ID: 125/0x1
        Maximum data rate: 2 Gbps
        Current data rate: 2 Gbps
        Data rate control: Switch
        Link status: Up
      Drive interface: Fibre
        Channel: 2
        Current ID: 125/0x1
        Maximum data rate: 2 Gbps
        Current data rate: 2 Gbps
        Data rate control: Switch
        Link status: Up
      Drive interface: Fibre
        Channel: 3
        Current ID: 125/0x1
        Maximum data rate: 2 Gbps
        Current data rate: 2 Gbps
        Data rate control: Switch
        Link status: Up
      Drive interface: Fibre
        Channel: 4
        Current ID: 125/0x1
        Maximum data rate: 2 Gbps
        Current data rate: 2 Gbps
        Data rate control: Switch
        Link status: Up
      Host interface: Fibre
        Port: 1
        Current ID: Not applicable/0xFFFFFFFF
        Preferred ID: 126/0x0
        NL-Port ID: 0x010400
        Maximum data rate: 2 Gbps
        Current data rate: 2 Gbps
        Data rate control: Switch
        Link status: Up
        Topology: Fabric Attach
        World-wide port name: 20:02:00:a0:b8:13:40:18
        World-wide node name: 20:02:00:a0:b8:13:40:17
        Part type: HPFC-5400    revision 6
      Host interface: Fibre
        Port: 2
        Current ID: Not applicable/0xFFFFFFFF
        Preferred ID: 1/0xE8
        NL-Port ID: 0x000000
        Maximum data rate: 2 Gbps
        Current data rate: 1 Gbps
        Data rate control: Switch
        Link status: Down
        Topology: Not available
        World-wide port name: 20:02:00:a0:b8:13:40:19
        World-wide node name: 20:02:00:a0:b8:13:40:17
        Part type: HPFC-5400    revision 6

    Controller in Slot B
      Status: Online
      Current configuration
        Firmware version: 06.10.06.00
          Appware version: 06.10.06.00
          Bootware version: 06.10.01.00
        NVSRAM version: N1742F900R910V02
      Pending configuration
        Firmware version: None
          Appware version: None
          Bootware version: None
        NVSRAM version: None
        Transferred on: None
      Board ID: 5884
      Product ID: 1742-900
      Product revision: 0520
      Serial number: 1T35119177
      Date of manufacture: December 28, 2003
      Cache/processor size (MB): 1024/128
      Date/Time: Mon Mar 21 15:41:30 EST 2005
      Associated Logical Drives (* = Preferred Owner):
        RACK2_2*, RACK2_3*
      Ethernet port: 1
        MAC address: 00:a0:b8:13:40:17
        Host name: RACK2_B
        Network configuration: Static
        IP address: 192.168.128.103
        Subnet mask: 255.255.255.0
        Gateway: 0.0.0.0
        Remote login: Disabled

      Drive interface: Fibre
        Channel: 1
        Current ID: 124/0x2
        Maximum data rate: 2 Gbps
```

```
      Current data rate: 2 Gbps
      Data rate control: Switch
      Link status: Up
    Drive interface: Fibre
      Channel: 2
      Current ID: 124/0x2
      Maximum data rate: 2 Gbps
      Current data rate: 2 Gbps
      Data rate control: Switch
      Link status: Up
    Drive interface: Fibre
      Channel: 3
      Current ID: 124/0x2
      Maximum data rate: 2 Gbps
      Current data rate: 2 Gbps
      Data rate control: Switch
      Link status: Up
    Drive interface: Fibre
      Channel: 4
      Current ID: 124/0x2
      Maximum data rate: 2 Gbps
      Current data rate: 2 Gbps
      Data rate control: Switch
      Link status: Up
    Host interface: Fibre
      Port: 1
      Current ID: Not applicable/0xFFFFFFFF
      Preferred ID: 126/0x0
      NL-Port ID: 0x010500
      Maximum data rate: 2 Gbps
      Current data rate: 2 Gbps
      Data rate control: Switch
      Link status: Up
      Topology: Fabric Attach
      World-wide port name: 20:03:00:a0:b8:13:40:18
      World-wide node name: 20:03:00:a0:b8:13:40:17
      Part type: HPFC-5400    revision 6
    Host interface: Fibre
      Port: 2
      Current ID: Not applicable/0xFFFFFFFF
      Preferred ID: 3/0xE2
      NL-Port ID: 0x000000
      Maximum data rate: 2 Gbps
      Current data rate: 1 Gbps
      Data rate control: Switch
      Link status: Down
      Topology: Not available
      World-wide port name: 20:03:00:a0:b8:13:40:19
      World-wide node name: 20:03:00:a0:b8:13:40:17
      Part type: HPFC-5400    revision 6

ARRAYS-----------------------------
  Number of arrays: 4

  Array 1 (RAID 0)
    Status: Online
    Drive type: Fibre Channel
    Enclosure loss protection: No
    Current owner: Controller in slot A
    Associated logical drives and free capacities:
      RACK2_0 (935.238 GB)
    Associated drives (in piece order):
      Drive at Enclosure 0, Slot 1
      Drive at Enclosure 0, Slot 2
      Drive at Enclosure 0, Slot 3
      Drive at Enclosure 0, Slot 4
      Drive at Enclosure 0, Slot 5
      Drive at Enclosure 0, Slot 6
      Drive at Enclosure 0, Slot 7
      Drive at Enclosure 0, Slot 8
      Drive at Enclosure 0, Slot 9
      Drive at Enclosure 0, Slot 10
      Drive at Enclosure 0, Slot 11
      Drive at Enclosure 0, Slot 12
      Drive at Enclosure 0, Slot 13
      Drive at Enclosure 0, Slot 14
      Drive at Enclosure 1, Slot 1
      Drive at Enclosure 1, Slot 2
      Drive at Enclosure 1, Slot 3
      Drive at Enclosure 1, Slot 4
      Drive at Enclosure 1, Slot 5
      Drive at Enclosure 1, Slot 6
      Drive at Enclosure 1, Slot 7
      Drive at Enclosure 1, Slot 8
      Drive at Enclosure 1, Slot 9
      Drive at Enclosure 1, Slot 10
      Drive at Enclosure 1, Slot 11
      Drive at Enclosure 1, Slot 12
      Drive at Enclosure 1, Slot 13
      Drive at Enclosure 1, Slot 14
  Array 2 (RAID 0)
    Status: Online
    Drive type: Fibre Channel
    Enclosure loss protection: No
    Current owner: Controller in slot A
    Associated logical drives and free capacities:
      RACK2_1 (935.238 GB)
    Associated drives (in piece order):
      Drive at Enclosure 2, Slot 1
      Drive at Enclosure 2, Slot 2
      Drive at Enclosure 2, Slot 3
      Drive at Enclosure 2, Slot 4
      Drive at Enclosure 2, Slot 5
      Drive at Enclosure 2, Slot 6
      Drive at Enclosure 2, Slot 7
      Drive at Enclosure 2, Slot 8
      Drive at Enclosure 2, Slot 9
      Drive at Enclosure 2, Slot 10
      Drive at Enclosure 2, Slot 11
      Drive at Enclosure 2, Slot 12
      Drive at Enclosure 2, Slot 13
      Drive at Enclosure 2, Slot 14
      Drive at Enclosure 3, Slot 1
      Drive at Enclosure 3, Slot 2
      Drive at Enclosure 3, Slot 3
      Drive at Enclosure 3, Slot 4
      Drive at Enclosure 3, Slot 5
      Drive at Enclosure 3, Slot 6
      Drive at Enclosure 3, Slot 7
      Drive at Enclosure 3, Slot 8
      Drive at Enclosure 3, Slot 9
      Drive at Enclosure 3, Slot 10
      Drive at Enclosure 3, Slot 11
      Drive at Enclosure 3, Slot 12
      Drive at Enclosure 3, Slot 13
      Drive at Enclosure 3, Slot 14
  Array 3 (RAID 0)
    Status: Online
    Drive type: Fibre Channel
    Enclosure loss protection: No
    Current owner: Controller in slot B
    Associated logical drives and free capacities:
      RACK2_2 (935.238 GB)
    Associated drives (in piece order):
      Drive at Enclosure 10, Slot 1
      Drive at Enclosure 10, Slot 2
```

Drive at Enclosure 10, Slot 3
Drive at Enclosure 10, Slot 4
Drive at Enclosure 10, Slot 5
Drive at Enclosure 10, Slot 6
Drive at Enclosure 10, Slot 7
Drive at Enclosure 10, Slot 8
Drive at Enclosure 10, Slot 9
Drive at Enclosure 10, Slot 10
Drive at Enclosure 10, Slot 11
Drive at Enclosure 10, Slot 12
Drive at Enclosure 10, Slot 13
Drive at Enclosure 10, Slot 14
Drive at Enclosure 11, Slot 1
Drive at Enclosure 11, Slot 2
Drive at Enclosure 11, Slot 3
Drive at Enclosure 11, Slot 4
Drive at Enclosure 11, Slot 5
Drive at Enclosure 11, Slot 6
Drive at Enclosure 11, Slot 7
Drive at Enclosure 11, Slot 8
Drive at Enclosure 11, Slot 9
Drive at Enclosure 11, Slot 10
Drive at Enclosure 11, Slot 11
Drive at Enclosure 11, Slot 12
Drive at Enclosure 11, Slot 13
Drive at Enclosure 11, Slot 14
Array 4 (RAID 0)
Status: Online
Drive type: Fibre Channel
Enclosure loss protection: No
Current owner: Controller in slot B
Associated logical drives and free capacities:
RACK2_3 (935.238 GB)
Associated drives (in piece order):
Drive at Enclosure 12, Slot 1
Drive at Enclosure 12, Slot 2
Drive at Enclosure 12, Slot 3
Drive at Enclosure 12, Slot 4
Drive at Enclosure 12, Slot 5
Drive at Enclosure 12, Slot 6
Drive at Enclosure 12, Slot 7
Drive at Enclosure 12, Slot 8
Drive at Enclosure 12, Slot 9
Drive at Enclosure 12, Slot 10
Drive at Enclosure 12, Slot 11
Drive at Enclosure 12, Slot 12
Drive at Enclosure 12, Slot 13
Drive at Enclosure 12, Slot 14
Drive at Enclosure 13, Slot 1
Drive at Enclosure 13, Slot 2
Drive at Enclosure 13, Slot 3
Drive at Enclosure 13, Slot 4
Drive at Enclosure 13, Slot 5
Drive at Enclosure 13, Slot 6
Drive at Enclosure 13, Slot 7
Drive at Enclosure 13, Slot 8
Drive at Enclosure 13, Slot 9
Drive at Enclosure 13, Slot 10
Drive at Enclosure 13, Slot 11
Drive at Enclosure 13, Slot 12
Drive at Enclosure 13, Slot 13
Drive at Enclosure 13, Slot 14

STANDARD LOGICAL DRIVES----------

SUMMARY
Number of standard logical drives: 4
See other Logical Drives sub-tabs for premium feature information.

NAME	STATUS	CAPACITY	RAID LEVEL	ARRAY
RACK2_0	Optimal	935.238 GB	0	1
RACK2_1	Optimal	935.238 GB	0	2
RACK2_2	Optimal	935.238 GB	0	3
RACK2_3	Optimal	935.238 GB	0	4

DETAILS
Logical Drive name: RACK2_0
Logical Drive ID: 60:0a:0b:80:00:13:40:17:00:00:00:00:41:fe:02:84
Subsystem ID (SSID): 0
Status: Optimal
Drive type: Fibre Channel
Enclosure loss protection: No
Preferred owner: Controller in slot A
Current owner: Controller in slot A
Capacity: 935.238 GB
RAID level: 0
Segment size: 64 KB
Modification priority: High
Associated array: 1
Read cache: Disabled
Write cache: Disabled
Write cache without batteries: Disabled
Write cache with mirroring: Disabled
Flush write cache after (in seconds): 10.00
Cache read ahead multiplier: 0
Enable background media scan: Disabled
Media scan with redundancy check: Disabled

Logical Drive name: RACK2_1
Logical Drive ID: 60:0a:0b:80:00:13:40:17:00:00:00:05:41:bd:55:44
Subsystem ID (SSID): 1
Status: Optimal
Drive type: Fibre Channel
Enclosure loss protection: No
Preferred owner: Controller in slot A
Current owner: Controller in slot A
Capacity: 935.238 GB
RAID level: 0
Segment size: 64 KB
Modification priority: Highest
Associated array: 2
Read cache: Disabled
Write cache: Disabled
Write cache without batteries: Disabled
Write cache with mirroring: Disabled
Flush write cache after (in seconds): 10.00
Cache read ahead multiplier: 0
Enable background media scan: Disabled
Media scan with redundancy check: Disabled

Logical Drive name: RACK2_2
Logical Drive ID: 60:0a:0b:80:00:13:3e:61:00:00:00:01:41:bd:55:d1
Subsystem ID (SSID): 2
Status: Optimal
Drive type: Fibre Channel
Enclosure loss protection: No
Preferred owner: Controller in slot B
Current owner: Controller in slot B
Capacity: 935.238 GB
RAID level: 0
Segment size: 64 KB
Modification priority: Highest
Associated array: 3
Read cache: Disabled
Write cache: Disabled
Write cache without batteries: Disabled

Write cache with mirroring: Disabled
Flush write cache after (in seconds): 10.00
Cache read ahead multiplier: 0
Enable background media scan: Disabled
Media scan with redundancy check: Disabled

Logical Drive name: RACK2_3
Logical Drive ID: 60:0a:0b:80:00:13:3e:61:00:00:00:03:41:bd:56:03
Subsystem ID (SSID): 3
Status: Optimal
Drive type: Fibre Channel
Enclosure loss protection: No
Preferred owner: Controller in slot B
Current owner: Controller in slot B
Capacity: 935.238 GB
RAID level: 0
Segment size: 64 KB
Modification priority: Highest
Associated array: 4
Read cache: Disabled
Write cache: Disabled
Write cache without batteries: Disabled
Write cache with mirroring: Disabled
Flush write cache after (in seconds): 10.00
Cache read ahead multiplier: 0
Enable background media scan: Disabled
Media scan with redundancy check: Disabled

MISSING LOGICAL DRIVES----------
Number of missing logical drives: 0

DRIVES----------

SUMMARY
Number of drives: 112
Supported drive types: Fibre (112)

BASIC:

TRAY, SLOT	STATUS	CAPACITY	CURRENT DATA RATE	PRODUCT ID	FIRMWARE VERSION
0, 1	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 2	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 3	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 4	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 5	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 6	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 7	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 8	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 9	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 10	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 11	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 12	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 13	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 14	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 1	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 2	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 3	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 4	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 5	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 6	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 7	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 8	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 9	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 10	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 11	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 12	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 13	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 14	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 1	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 2	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 3	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 4	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 5	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 6	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 7	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 8	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 9	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 10	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 11	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 12	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 13	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 14	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 1	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 2	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 3	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 4	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 5	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954

3, 6	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
3, 7	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
3, 8	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
3, 9	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
3, 10	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
3, 11	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
3, 12	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
3, 13	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
3, 14	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
10, 1	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
10, 2	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
10, 3	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
10, 4	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
10, 5	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
10, 6	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
10, 7	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
10, 8	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
10, 9	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
10, 10	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
10, 11	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
10, 12	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
10, 13	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
10, 14	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 1	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 2	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 3	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 4	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 5	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 6	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 7	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 8	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 9	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 10	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 11	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 12	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 13	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 14	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 1	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 2	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 3	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 4	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 5	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 6	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 7	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 8	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 9	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 10	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 11	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 12	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 13	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 14	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 1	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 2	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 3	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 4	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 5	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 6	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 7	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 8	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 9	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 10	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 11	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 12	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 13	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 14	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954

DRIVE CHANNELS:

TRAY, SLOT	PREFERRED CHANNEL	REDUNDANT CHANNEL
0, 1	4	3
0, 2	3	4

0, 3	4	3
0, 4	3	4
0, 5	4	3
0, 6	3	4
0, 7	4	3
0, 8	3	4
0, 9	4	3
0, 10	3	4
0, 11	4	3
0, 12	3	4
0, 13	4	3
0, 14	3	4
1, 1	4	3
1, 2	3	4
1, 3	4	3
1, 4	3	4
1, 5	4	3
1, 6	3	4
1, 7	4	3
1, 8	3	4
1, 9	4	3
1, 10	3	4
1, 11	4	3
1, 12	3	4
1, 13	4	3
1, 14	3	4
2, 1	4	3
2, 2	3	4
2, 3	4	3
2, 4	3	4
2, 5	4	3
2, 6	3	4
2, 7	4	3
2, 8	3	4
2, 9	4	3
2, 10	3	4
2, 11	4	3
2, 12	3	4
2, 13	4	3
2, 14	3	4
3, 1	4	3
3, 2	3	4
3, 3	4	3
3, 4	3	4
3, 5	4	3
3, 6	3	4
3, 7	4	3
3, 8	3	4
3, 9	4	3
3, 10	3	4
3, 11	4	3
3, 12	3	4
3, 13	4	3
3, 14	3	4
10, 1	2	1
10, 2	1	2
10, 3	2	1
10, 4	1	2
10, 5	2	1
10, 6	1	2
10, 7	2	1
10, 8	1	2
10, 9	2	1
10, 10	1	2
10, 11	2	1
10, 12	1	2
10, 13	2	1
10, 14	1	2
11, 1	2	1
11, 2	1	2
11, 3	2	1
11, 4	1	2
11, 5	2	1
11, 6	1	2
11, 7	2	1
11, 8	1	2
11, 9	2	1
11, 10	1	2
11, 11	2	1
11, 12	1	2
11, 13	2	1
11, 14	1	2
12, 1	2	1
12, 2	1	2
12, 3	2	1
12, 4	1	2
12, 5	2	1
12, 6	1	2
12, 7	2	1
12, 8	1	2
12, 9	2	1
12, 10	1	2
12, 11	2	1
12, 12	1	2
12, 13	2	1
12, 14	1	2
13, 1	2	1
13, 2	1	2
13, 3	2	1
13, 4	1	2
13, 5	2	1
13, 6	1	2
13, 7	2	1
13, 8	1	2
13, 9	2	1
13, 10	1	2
13, 11	2	1
13, 12	1	2
13, 13	2	1
13, 14	1	2

HOT SPARE COVERAGE:
The following arrays are not protected: 1, 3, 4, 2

Total hot spare drives: 0
Standby: 0
In use: 0

DETAILS
Drive at Enclosure 0, Slot 1
Drive port: 1, Channel: 4, ID: 0/0xEF
Drive port: 2, Channel: 3, ID: 0/0xEF
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MY9X00007502BDZ0
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:3b
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned

Associated array: 1

Drive at Enclosure 0, Slot 2
Drive port: 1, Channel: 3, ID: 1/0xE8
Drive port: 2, Channel: 4, ID: 1/0xE8
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MA2Z00007502CX0Q
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:a8:e9
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 3
Drive port: 1, Channel: 4, ID: 2/0xE4
Drive port: 2, Channel: 3, ID: 2/0xE4
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N4SF00007502BTJF
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:af:6f
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 4
Drive port: 1, Channel: 3, ID: 3/0xE2
Drive port: 2, Channel: 4, ID: 3/0xE2
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NEQP00007502BU2L
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:ab
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 5
Drive port: 1, Channel: 4, ID: 4/0xE1
Drive port: 2, Channel: 3, ID: 4/0xE1
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NEJW000075029SKF
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:da
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 6
Drive port: 1, Channel: 3, ID: 5/0xE0
Drive port: 2, Channel: 4, ID: 5/0xE0
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E1RV00007447BW2F
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:d9:9e
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 7
Drive port: 1, Channel: 4, ID: 6/0xDC
Drive port: 2, Channel: 3, ID: 6/0xDC
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E9JB00007447RB4B
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d9:54
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 8
Drive port: 1, Channel: 3, ID: 7/0xDA
Drive port: 2, Channel: 4, ID: 7/0xDA
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2ED8C00007447BW2D
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d7:b3
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 9

Drive port: 1, Channel: 4, ID: 80/0x55
Drive port: 2, Channel: 3, ID: 80/0x55
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E2F600007447RBJB
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:db:1f
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 10
Drive port: 1, Channel: 3, ID: 96/0x3A
Drive port: 2, Channel: 4, ID: 96/0x3A
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2M8JX00007502CWMZ
Vendor: IBM-ESXS
Date of manufacture: July 22, 2004
World-wide name: 20:00:00:0c:50:45:b8:68
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 11
Drive port: 1, Channel: 4, ID: 64/0x72
Drive port: 2, Channel: 3, ID: 64/0x72
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EAKC00007447RBP5
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:c1
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 12
Drive port: 1, Channel: 3, ID: 72/0x67
Drive port: 2, Channel: 4, ID: 72/0x67
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EEGY00007447RB4C
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:d0:09
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 13
Drive port: 1, Channel: 4, ID: 88/0x4B
Drive port: 2, Channel: 3, ID: 88/0x4B
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DWS900007447QT7M
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d9:1d
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 14
Drive port: 1, Channel: 3, ID: 104/0x2E
Drive port: 2, Channel: 4, ID: 104/0x2E
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EAM400007447AY35
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d8:3e
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 1
Drive port: 1, Channel: 4, ID: 8/0xD9
Drive port: 2, Channel: 3, ID: 8/0xD9
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EEE00000744780V7
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d1:50
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 2
Drive port: 1, Channel: 3, ID: 9/0xD6
Drive port: 2, Channel: 4, ID: 9/0xD6
Drive path redundancy: OK

Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EC0900007447AYC9
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:cf:e3
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 3
Drive port: 1, Channel: 4, ID: 10/0xD5
Drive port: 2, Channel: 3, ID: 10/0xD5
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX27B7S00007440DNUK
Vendor: IBM-ESXS
Date of manufacture: May 31, 2004
World-wide name: 20:00:00:0c:50:d6:fc:da
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 4
Drive port: 1, Channel: 3, ID: 11/0xD4
Drive port: 2, Channel: 4, ID: 11/0xD4
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX27NAT00007440DPAN
Vendor: IBM-ESXS
Date of manufacture: May 31, 2004
World-wide name: 20:00:00:0c:50:d6:fd:cd
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 5
Drive port: 1, Channel: 4, ID: 12/0xD3
Drive port: 2, Channel: 3, ID: 12/0xD3
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DWS600007447PX1X
Vendor: IBM-ESXS
Date of manufacture: May 25, 2004
World-wide name: 20:00:00:0c:50:d6:ac:eb
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 6
Drive port: 1, Channel: 3, ID: 13/0xD2
Drive port: 2, Channel: 4, ID: 13/0xD2
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EC0600007447AYCV
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:cf:df
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 7
Drive port: 1, Channel: 4, ID: 14/0xD1
Drive port: 2, Channel: 3, ID: 14/0xD1
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N0Z000007502AZC9
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ad:17
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 8
Drive port: 1, Channel: 3, ID: 15/0xCE
Drive port: 2, Channel: 4, ID: 15/0xCE
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DDAV00007447NFCN
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d0:3d
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 9
Drive port: 1, Channel: 4, ID: 81/0x54
Drive port: 2, Channel: 3, ID: 81/0x54
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB

Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DMTB000074478XAF
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d0:53
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 10
Drive port: 1, Channel: 3, ID: 97/0x39
Drive port: 2, Channel: 4, ID: 97/0x39
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DXN600007447KUQ0
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:cf:95
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 11
Drive port: 1, Channel: 4, ID: 65/0x71
Drive port: 2, Channel: 3, ID: 65/0x71
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MRKW00007502AZ51
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ad:ca
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 12
Drive port: 1, Channel: 3, ID: 73/0x66
Drive port: 2, Channel: 4, ID: 73/0x66
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N4RR00007502CWF7
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:af:9e
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 13
Drive port: 1, Channel: 4, ID: 89/0x4A
Drive port: 2, Channel: 3, ID: 89/0x4A
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DD730000744780WR
Vendor: IBM-ESXS
Date of manufacture: May 25, 2004
World-wide name: 20:00:00:0c:50:d6:d0:83
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 14
Drive port: 1, Channel: 3, ID: 105/0x2D
Drive port: 2, Channel: 4, ID: 105/0x2D
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DJE200007447PXHG
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d0:57
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 2, Slot 1
Drive port: 1, Channel: 4, ID: 16/0xCD
Drive port: 2, Channel: 3, ID: 16/0xCD
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DXBS00007447AYBZ
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:cf:f9
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 2
Drive port: 1, Channel: 3, ID: 17/0xCC
Drive port: 2, Channel: 4, ID: 17/0xCC
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954

Serial number: 3HX2EEAS00007447AYFB
Vendor: IBM-ESXS
Date of manufacture: May 25, 2004
World-wide name: 20:00:00:0c:50:d6:cf:eb
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 3
Drive port: 1, Channel: 4, ID: 18/0xCB
Drive port: 2, Channel: 3, ID: 18/0xCB
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DYMN00007447NG3Q
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d0:3f
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 4
Drive port: 1, Channel: 3, ID: 19/0xCA
Drive port: 2, Channel: 4, ID: 19/0xCA
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX281EC00007440BYFC
Vendor: IBM-ESXS
Date of manufacture: May 31, 2004
World-wide name: 20:00:00:0c:50:d6:fd:55
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 5
Drive port: 1, Channel: 4, ID: 20/0xC9
Drive port: 2, Channel: 3, ID: 20/0xC9
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX282PP00007440DNLE
Vendor: IBM-ESXS
Date of manufacture: May 31, 2004
World-wide name: 20:00:00:0c:50:d6:fd:3f
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 6
Drive port: 1, Channel: 3, ID: 21/0xC7
Drive port: 2, Channel: 4, ID: 21/0xC7
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EG7Y000074478XM2
Vendor: IBM-ESXS
Date of manufacture: May 31, 2004
World-wide name: 20:00:00:0c:50:d6:f2:8c
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 7
Drive port: 1, Channel: 4, ID: 22/0xC6
Drive port: 2, Channel: 3, ID: 22/0xC6
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MS0400007502B0NV
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:af:0a
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 8
Drive port: 1, Channel: 3, ID: 23/0xC5
Drive port: 2, Channel: 4, ID: 23/0xC5
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N2NL00007502AZWM
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ad:bb
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 9
Drive port: 1, Channel: 4, ID: 82/0x53
Drive port: 2, Channel: 3, ID: 82/0x53
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MSBC00007502AZCW
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004

World-wide name: 20:00:00:0c:50:45:a9:71
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 10
Drive port: 1, Channel: 3, ID: 98/0x36
Drive port: 2, Channel: 4, ID: 98/0x36
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MGMW00007502CJ9N
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:a8:38
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 11
Drive port: 1, Channel: 4, ID: 66/0x6E
Drive port: 2, Channel: 3, ID: 66/0x6E
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NF2J00007502A7RA
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:75
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 12
Drive port: 1, Channel: 3, ID: 74/0x65
Drive port: 2, Channel: 4, ID: 74/0x65
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DNEH00007447AYFJ
Vendor: IBM-ESXS
Date of manufacture: May 25, 2004
World-wide name: 20:00:00:0c:50:d6:cf:dc
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 13
Drive port: 1, Channel: 4, ID: 90/0x49
Drive port: 2, Channel: 3, ID: 90/0x49
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DN4100007447LWHN
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:ce:9d
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 14
Drive port: 1, Channel: 3, ID: 106/0x2C
Drive port: 2, Channel: 4, ID: 106/0x2C
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DTHN00007447RB7R
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d9:40
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 1
Drive port: 1, Channel: 4, ID: 24/0xC3
Drive port: 2, Channel: 3, ID: 24/0xC3
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX27MP700007440BF4F
Vendor: IBM-ESXS
Date of manufacture: May 31, 2004
World-wide name: 20:00:00:0c:50:d6:fd:7e
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 2
Drive port: 1, Channel: 3, ID: 25/0xBC
Drive port: 2, Channel: 4, ID: 25/0xBC
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX27CBH00007440CCH1
Vendor: IBM-ESXS
Date of manufacture: May 31, 2004
World-wide name: 20:00:00:0c:50:d6:fd:81
Drive type: Fibre Channel
Speed: 15015 RPM

Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 3
Drive port: 1, Channel: 4, ID: 26/0xBA
Drive port: 2, Channel: 3, ID: 26/0xBA
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX283PR00007440DLWA
Vendor: IBM-ESXS
Date of manufacture: May 31, 2004
World-wide name: 20:00:00:0c:50:d6:fd:20
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 4
Drive port: 1, Channel: 3, ID: 27/0xB9
Drive port: 2, Channel: 4, ID: 27/0xB9
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N4BV00007502BERV
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:a7:d1
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 5
Drive port: 1, Channel: 4, ID: 28/0xB6
Drive port: 2, Channel: 3, ID: 28/0xB6
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NESE00007502AZS3
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:60
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 6
Drive port: 1, Channel: 3, ID: 29/0xB5
Drive port: 2, Channel: 4, ID: 29/0xB5
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2760N00007440P665
Vendor: IBM-ESXS
Date of manufacture: May 31, 2004
World-wide name: 20:00:00:0c:50:d6:fd:75
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 7
Drive port: 1, Channel: 4, ID: 30/0xB4
Drive port: 2, Channel: 3, ID: 30/0xB4
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX27MY900007440AT0U
Vendor: IBM-ESXS
Date of manufacture: May 31, 2004
World-wide name: 20:00:00:0c:50:d6:fd:a2
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 8
Drive port: 1, Channel: 3, ID: 31/0xB3
Drive port: 2, Channel: 4, ID: 31/0xB3
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX27ML000007440P64G
Vendor: IBM-ESXS
Date of manufacture: May 31, 2004
World-wide name: 20:00:00:0c:50:d6:fd:76
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 9
Drive port: 1, Channel: 4, ID: 83/0x52
Drive port: 2, Channel: 3, ID: 83/0x52
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2D5BF00007441HJ9M
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:ce:b8
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 10
Drive port: 1, Channel: 3, ID: 99/0x35
Drive port: 2, Channel: 4, ID: 99/0x35
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DY6Z00007447NFA4
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d0:a5
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 11
Drive port: 1, Channel: 4, ID: 67/0x6D
Drive port: 2, Channel: 3, ID: 67/0x6D
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E1RC00007447RBST
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d0:3a
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 12
Drive port: 1, Channel: 3, ID: 75/0x63
Drive port: 2, Channel: 4, ID: 75/0x63
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EAND00007442LPAD
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:cf:a2
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 13
Drive port: 1, Channel: 4, ID: 91/0x47
Drive port: 2, Channel: 3, ID: 91/0x47
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EE5W000074478X91
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d0:49
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 14
Drive port: 1, Channel: 3, ID: 107/0x2B
Drive port: 2, Channel: 4, ID: 107/0x2B
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX262SF00007440BFL4
Vendor: IBM-ESXS
Date of manufacture: May 31, 2004
World-wide name: 20:00:00:0c:50:d6:fd:b4
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 10, Slot 1
Drive port: 1, Channel: 2, ID: 0/0xEF
Drive port: 2, Channel: 1, ID: 0/0xEF
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EA8P00007447RBKV
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:db:44
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 2
Drive port: 1, Channel: 1, ID: 1/0xE8
Drive port: 2, Channel: 2, ID: 1/0xE8
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N4WV000075029SYK
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ac:18
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 3
Drive port: 1, Channel: 2, ID: 2/0xE4
Drive port: 2, Channel: 1, ID: 2/0xE4

Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N4Y000007502CJ7G
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:a8:3c
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 4
Drive port: 1, Channel: 1, ID: 3/0xE2
Drive port: 2, Channel: 2, ID: 3/0xE2
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MVW9000075029SK7
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ad:33
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 5
Drive port: 1, Channel: 2, ID: 4/0xE1
Drive port: 2, Channel: 1, ID: 4/0xE1
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MPLW00007502BESD
Vendor: IBM-ESXS
Date of manufacture: July 22, 2004
World-wide name: 20:00:00:0c:50:45:b8:5b
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 6
Drive port: 1, Channel: 1, ID: 5/0xE0
Drive port: 2, Channel: 2, ID: 5/0xE0
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2D91K00007447RBJU
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:f3
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 7
Drive port: 1, Channel: 2, ID: 6/0xDC
Drive port: 2, Channel: 1, ID: 6/0xDC
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NEPY00007502BE1L
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:43
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 8
Drive port: 1, Channel: 1, ID: 7/0xDA
Drive port: 2, Channel: 2, ID: 7/0xDA
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N39600007502BTPM
Vendor: IBM-ESXS
Date of manufacture: July 22, 2004
World-wide name: 20:00:00:0c:50:45:b9:40
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 9
Drive port: 1, Channel: 2, ID: 80/0x55
Drive port: 2, Channel: 1, ID: 80/0x55
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2KS7A00007502CJ0S
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:a9:64
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 10
Drive port: 1, Channel: 1, ID: 96/0x3A
Drive port: 2, Channel: 2, ID: 96/0x3A
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB

Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E9KN00007447NFH4
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d9:74
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 11
Drive port: 1, Channel: 2, ID: 64/0x72
Drive port: 2, Channel: 1, ID: 64/0x72
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N1GG000075029T0P
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ab:f1
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 12
Drive port: 1, Channel: 1, ID: 72/0x67
Drive port: 2, Channel: 2, ID: 72/0x67
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MF8400007502CWD5
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:a7:d5
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 13
Drive port: 1, Channel: 2, ID: 88/0x4B
Drive port: 2, Channel: 1, ID: 88/0x4B
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NEWF00007502BEWP
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:76
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 14
Drive port: 1, Channel: 1, ID: 104/0x2E
Drive port: 2, Channel: 2, ID: 104/0x2E
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NEHX000075029T3U
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:2a
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 1
Drive port: 1, Channel: 2, ID: 8/0xD9
Drive port: 2, Channel: 1, ID: 8/0xD9
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NEQF000075029SD6
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ad:09
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 2
Drive port: 1, Channel: 1, ID: 9/0xD6
Drive port: 2, Channel: 2, ID: 9/0xD6
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DEKT00007447NFXE
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:2a
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 3
Drive port: 1, Channel: 2, ID: 10/0xD5
Drive port: 2, Channel: 1, ID: 10/0xD5
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F

Firmware version: B954
Serial number: 3HX2N55700007502AZ2V
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:7d
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 4
Drive port: 1, Channel: 1, ID: 11/0xD4
Drive port: 2, Channel: 2, ID: 11/0xD4
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DKQC00007443EZ5G
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d9:6c
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 5
Drive port: 1, Channel: 2, ID: 12/0xD3
Drive port: 2, Channel: 1, ID: 12/0xD3
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N4FV00007502BFB8
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:af:e3
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 6
Drive port: 1, Channel: 1, ID: 13/0xD2
Drive port: 2, Channel: 2, ID: 13/0xD2
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2M2C500007502AZW9
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ab:5f
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 7
Drive port: 1, Channel: 2, ID: 14/0xD1
Drive port: 2, Channel: 1, ID: 14/0xD1
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E3AY00007447LWHH
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d8:e3
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 8
Drive port: 1, Channel: 1, ID: 15/0xCE
Drive port: 2, Channel: 2, ID: 15/0xCE
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EE7400007447BVSF
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:cf:c8
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 9
Drive port: 1, Channel: 2, ID: 81/0x54
Drive port: 2, Channel: 1, ID: 81/0x54
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DMTF00007447QT8E
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d9:ad
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 10
Drive port: 1, Channel: 1, ID: 97/0x39
Drive port: 2, Channel: 2, ID: 97/0x39
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2M64N00007502CVVD
Vendor: IBM-ESXS

Date of manufacture: July 22, 2004
World-wide name: 20:00:00:0c:50:45:b8:24
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 11
Drive port: 1, Channel: 2, ID: 65/0x71
Drive port: 2, Channel: 1, ID: 65/0x71
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E9Q9000074464197
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d9:0c
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 12
Drive port: 1, Channel: 1, ID: 73/0x66
Drive port: 2, Channel: 2, ID: 73/0x66
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DCVQ00007447KV8E
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:da:2c
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 13
Drive port: 1, Channel: 2, ID: 89/0x4A
Drive port: 2, Channel: 1, ID: 89/0x4A
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EAHV00007447RBJF
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:f5
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 14
Drive port: 1, Channel: 1, ID: 105/0x2D
Drive port: 2, Channel: 2, ID: 105/0x2D
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NF1Y00007502J0YA
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:de
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 12, Slot 1
Drive port: 1, Channel: 2, ID: 16/0xCD
Drive port: 2, Channel: 1, ID: 16/0xCD
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2ME0C00007502BTJH
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:af:69
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 2
Drive port: 1, Channel: 1, ID: 17/0xCC
Drive port: 2, Channel: 2, ID: 17/0xCC
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MEDG00007502BEHY
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ad:cd
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 3
Drive port: 1, Channel: 2, ID: 18/0xCB
Drive port: 2, Channel: 1, ID: 18/0xCB
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MY8600007502CWM2
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:aa:eb
Drive type: Fibre Channel

Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 4
Drive port: 1, Channel: 1, ID: 19/0xCA
Drive port: 2, Channel: 2, ID: 19/0xCA
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MY53000075029RG9
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:aa:95
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 5
Drive port: 1, Channel: 2, ID: 20/0xC9
Drive port: 2, Channel: 1, ID: 20/0xC9
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MWH800007502BE66
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ac:08
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 6
Drive port: 1, Channel: 1, ID: 21/0xC7
Drive port: 2, Channel: 2, ID: 21/0xC7
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DVQN00007447RB0L
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d8:cc
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 7
Drive port: 1, Channel: 2, ID: 22/0xC6
Drive port: 2, Channel: 1, ID: 22/0xC6
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DNCQ00007447AYH5
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:cf:db
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 8
Drive port: 1, Channel: 1, ID: 23/0xC5
Drive port: 2, Channel: 2, ID: 23/0xC5
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EAE800007447RBPY
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:eb
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 9
Drive port: 1, Channel: 2, ID: 82/0x53
Drive port: 2, Channel: 1, ID: 82/0x53
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MY8F00007502A7RV
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:aa:aa
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 10
Drive port: 1, Channel: 1, ID: 98/0x36
Drive port: 2, Channel: 2, ID: 98/0x36
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MDYX00007502BTGD
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:af:74
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 11
Drive port: 1, Channel: 2, ID: 66/0x6E
Drive port: 2, Channel: 1, ID: 66/0x6E
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E1MM0000744781ZV
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d8:68
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 12
Drive port: 1, Channel: 1, ID: 74/0x65
Drive port: 2, Channel: 2, ID: 74/0x65
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NET300007502A7UQ
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:1a
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 13
Drive port: 1, Channel: 2, ID: 90/0x49
Drive port: 2, Channel: 1, ID: 90/0x49
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2KZKW00007453EM8S
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ac:d7
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 14
Drive port: 1, Channel: 1, ID: 106/0x2C
Drive port: 2, Channel: 2, ID: 106/0x2C
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DPBZ00007447QTDP
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d9:bf
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 1
Drive port: 1, Channel: 2, ID: 24/0xC3
Drive port: 2, Channel: 1, ID: 24/0xC3
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DSWX0000744780X5
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d8:df
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 2
Drive port: 1, Channel: 1, ID: 25/0xBC
Drive port: 2, Channel: 2, ID: 25/0xBC
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N1H200007502CWE2
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:aa:89
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 3
Drive port: 1, Channel: 2, ID: 26/0xBA
Drive port: 2, Channel: 1, ID: 26/0xBA
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EC0Y000074411AR3
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d1:4e
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 4
Drive port: 1, Channel: 1, ID: 27/0xB9

Drive port: 2, Channel: 2, ID: 27/0xB9
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2CX6B00007447AYG8
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:aa
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 5
Drive port: 1, Channel: 2, ID: 28/0xB6
Drive port: 2, Channel: 1, ID: 28/0xB6
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EB3D00007447NFK7
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d9:76
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 6
Drive port: 1, Channel: 1, ID: 29/0xB5
Drive port: 2, Channel: 2, ID: 29/0xB5
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DZKD00007447829E
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:da:6a
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 7
Drive port: 1, Channel: 2, ID: 30/0xB4
Drive port: 2, Channel: 1, ID: 30/0xB4
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EADW00007447RAZW
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:be
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 8
Drive port: 1, Channel: 1, ID: 31/0xB3
Drive port: 2, Channel: 2, ID: 31/0xB3
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DP7E00007447NFLF
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:b2:08
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 9
Drive port: 1, Channel: 2, ID: 83/0x52
Drive port: 2, Channel: 1, ID: 83/0x52
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EDZM00007447BW5X
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d9:4c
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 10
Drive port: 1, Channel: 1, ID: 99/0x35
Drive port: 2, Channel: 2, ID: 99/0x35
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NDWP00007502E1AH
Vendor: IBM-ESXS
Date of manufacture: July 22, 2004
World-wide name: 20:00:00:0c:50:45:b9:76
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 11
Drive port: 1, Channel: 2, ID: 67/0x6D
Drive port: 2, Channel: 1, ID: 67/0x6D
Drive path redundancy: OK
Status: Optimal

Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MY9H00007502BECN
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:65
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 12
Drive port: 1, Channel: 1, ID: 75/0x63
Drive port: 2, Channel: 2, ID: 75/0x63
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MPTD00007502CJ8B
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:a8:36
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 13
Drive port: 1, Channel: 2, ID: 91/0x47
Drive port: 2, Channel: 1, ID: 91/0x47
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2ME4800007502BT7R
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:af:9c
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 14
Drive port: 1, Channel: 1, ID: 107/0x2B
Drive port: 2, Channel: 2, ID: 107/0x2B
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NEVK00007502B0QZ
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:39
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Rack 3

PROFILE FOR STORAGE SUBSYSTEM: RACK3 (3/21/05 3:44:04 PM)

SUMMARY----------
Number of controllers: 2
Number of arrays: 4
Total number of logical drives (includes an access logical drive): 5 of 2048 used
Number of standard logical drives: 4
Number of access logical drives: 1
Number of drives: 112
Supported drive types: Fibre (112)
Total hot spare drives: 0
Standby: 0
In use: 0
Access logical drive: None mapped
Default host type: Windows 2000/Server 2003 Non-Clustered (Host type index 2)
Current configuration
Firmware version: 06.10.06.00
NVSRAM version: N1742F900R910V02
Pending configuration
Staged firmware download supported?: Yes
Firmware version: None
NVSRAM version: None
Transferred on: None
NVSRAM configured for batteries?: Yes
Start cache flushing at (in percentage): 80
Stop cache flushing at (in percentage): 80
Cache block size (in KB): 4
Media scan frequency (in days): Disabled
Failover alert delay (in minutes): 5
Feature enable identifier: 313931353700000000000000041AF4222
Storage Subsystem worldwide name (ID): 600A0B8000133E5B0000000041B48482

CONTROLLERS----------
Number of controllers: 2

Controller in Slot A
Status: Online
Current configuration
Firmware version: 06.10.06.00
Appware version: 06.10.06.00
Bootware version: 06.10.01.00
NVSRAM version: N1742F900R910V02
Pending configuration
Firmware version: None
Appware version: None
Bootware version: None
NVSRAM version: None
Transferred on: None
Board ID: 5884
Product ID: 1742-900
Product revision: 0520
Serial number: 1T35119157
Date of manufacture: July 23, 2004
Cache/processor size (MB): 1024/128
Date/Time: Mon Mar 21 15:42:13 EST 2005
Associated Logical Drives (* = Preferred Owner):
RACK3_0*, RACK3_1*
Ethernet port: 1
MAC address: 00:a0:b8:13:3e:5b
Host name: RACK3_A

```
    Network configuration: Static
    IP address: 192.168.128.104
    Subnet mask: 255.255.255.0
    Gateway: 0.0.0.0
    Remote login: Disabled

  Drive interface: Fibre
    Channel: 1
    Current ID: 125/0x1
    Maximum data rate: 2 Gbps
    Current data rate: 2 Gbps
    Data rate control: Switch
    Link status: Up
  Drive interface: Fibre
    Channel: 2
    Current ID: 125/0x1
    Maximum data rate: 2 Gbps
    Current data rate: 2 Gbps
    Data rate control: Switch
    Link status: Up
  Drive interface: Fibre
    Channel: 3
    Current ID: 125/0x1
    Maximum data rate: 2 Gbps
    Current data rate: 2 Gbps
    Data rate control: Switch
    Link status: Up
  Drive interface: Fibre
    Channel: 4
    Current ID: 125/0x1
    Maximum data rate: 2 Gbps
    Current data rate: 2 Gbps
    Data rate control: Switch
    Link status: Up
  Host interface: Fibre
    Port: 1
    Current ID: Not applicable/0xFFFFFFFF
    Preferred ID: 126/0x0
    NL-Port ID: 0x010800
    Maximum data rate: 2 Gbps
    Current data rate: 2 Gbps
    Data rate control: Switch
    Link status: Up
    Topology: Fabric Attach
    World-wide port name: 20:02:00:a0:b8:13:3e:5c
    World-wide node name: 20:02:00:a0:b8:13:3e:5b
    Part type: HPFC-5400    revision 6
  Host interface: Fibre
    Port: 2
    Current ID: Not applicable/0xFFFFFFFF
    Preferred ID: 1/0xE8
    NL-Port ID: 0x000000
    Maximum data rate: 2 Gbps
    Current data rate: 1 Gbps
    Data rate control: Switch
    Link status: Down
    Topology: Not available
    World-wide port name: 20:02:00:a0:b8:13:3e:5d
    World-wide node name: 20:02:00:a0:b8:13:3e:5b
    Part type: HPFC-5400    revision 6

Controller in Slot B
  Status: Online
  Current configuration
    Firmware version: 06.10.06.00
      Appware version: 06.10.06.00
      Bootware version: 06.10.01.00
    NVSRAM version: N1742F900R910V02
  Pending configuration
    Firmware version: None
      Appware version: None
      Bootware version: None
    NVSRAM version: None
    Transferred on: None
  Board ID: 5884
  Product ID: 1742-900
  Product revision: 0520
  Serial number: 1T35119187
  Date of manufacture: December 26, 2003
  Cache/processor size (MB): 1024/128
  Date/Time: Mon Mar 21 15:42:39 EST 2005
  Associated Logical Drives (* = Preferred Owner):
    RACK3_2*, RACK3_3*
  Ethernet port: 1
    MAC address: 00:a0:b8:13:3e:79
    Host name: RACK3_B
    Network configuration: Static
    IP address: 192.168.128.105
    Subnet mask: 255.255.255.0
    Gateway: 0.0.0.0
    Remote login: Disabled

  Drive interface: Fibre
    Channel: 1
    Current ID: 124/0x2
    Maximum data rate: 2 Gbps
    Current data rate: 2 Gbps
    Data rate control: Switch
    Link status: Up
  Drive interface: Fibre
    Channel: 2
    Current ID: 124/0x2
    Maximum data rate: 2 Gbps
    Current data rate: 2 Gbps
    Data rate control: Switch
    Link status: Up
  Drive interface: Fibre
    Channel: 3
    Current ID: 124/0x2
    Maximum data rate: 2 Gbps
    Current data rate: 2 Gbps
    Data rate control: Switch
    Link status: Up
  Drive interface: Fibre
    Channel: 4
    Current ID: 124/0x2
    Maximum data rate: 2 Gbps
    Current data rate: 2 Gbps
    Data rate control: Switch
    Link status: Up
  Host interface: Fibre
    Port: 1
    Current ID: Not applicable/0xFFFFFFFF
    Preferred ID: 126/0x0
    NL-Port ID: 0x010900
    Maximum data rate: 2 Gbps
    Current data rate: 2 Gbps
    Data rate control: Switch
    Link status: Up
    Topology: Fabric Attach
    World-wide port name: 20:03:00:a0:b8:13:3e:5c
    World-wide node name: 20:03:00:a0:b8:13:3e:5b
    Part type: HPFC-5400    revision 6
  Host interface: Fibre
    Port: 2
    Current ID: Not applicable/0xFFFFFFFF
```

```
      Preferred ID: 3/0xE2
      NL-Port ID: 0x000000
      Maximum data rate: 2 Gbps
      Current data rate: 1 Gbps
      Data rate control: Switch
      Link status: Down
      Topology: Not available
      World-wide port name: 20:03:00:a0:b8:13:3e:5d
      World-wide node name: 20:03:00:a0:b8:13:3e:5b
      Part type: HPFC-5400    revision 6

ARRAYS-----------------------------
  Number of arrays: 4

  Array 1 (RAID 0)
    Status: Online
    Drive type: Fibre Channel
    Enclosure loss protection: No
    Current owner: Controller in slot A
    Associated logical drives and free capacities:
      RACK3_0 (935.238 GB)
    Associated drives (in piece order):
      Drive at Enclosure 0, Slot 1
      Drive at Enclosure 0, Slot 2
      Drive at Enclosure 0, Slot 3
      Drive at Enclosure 0, Slot 4
      Drive at Enclosure 0, Slot 5
      Drive at Enclosure 0, Slot 6
      Drive at Enclosure 0, Slot 7
      Drive at Enclosure 0, Slot 8
      Drive at Enclosure 0, Slot 9
      Drive at Enclosure 0, Slot 10
      Drive at Enclosure 0, Slot 11
      Drive at Enclosure 0, Slot 12
      Drive at Enclosure 0, Slot 13
      Drive at Enclosure 0, Slot 14
      Drive at Enclosure 1, Slot 1
      Drive at Enclosure 1, Slot 2
      Drive at Enclosure 1, Slot 3
      Drive at Enclosure 1, Slot 4
      Drive at Enclosure 1, Slot 5
      Drive at Enclosure 1, Slot 6
      Drive at Enclosure 1, Slot 7
      Drive at Enclosure 1, Slot 8
      Drive at Enclosure 1, Slot 9
      Drive at Enclosure 1, Slot 10
      Drive at Enclosure 1, Slot 11
      Drive at Enclosure 1, Slot 12
      Drive at Enclosure 1, Slot 13
      Drive at Enclosure 1, Slot 14
  Array 2 (RAID 0)
    Status: Online
    Drive type: Fibre Channel
    Enclosure loss protection: No
    Current owner: Controller in slot A
    Associated logical drives and free capacities:
      RACK3_1 (935.238 GB)
    Associated drives (in piece order):
      Drive at Enclosure 2, Slot 1
      Drive at Enclosure 2, Slot 2
      Drive at Enclosure 2, Slot 3
      Drive at Enclosure 2, Slot 4
      Drive at Enclosure 2, Slot 5
      Drive at Enclosure 2, Slot 6
      Drive at Enclosure 2, Slot 7
      Drive at Enclosure 2, Slot 8
      Drive at Enclosure 2, Slot 9
      Drive at Enclosure 2, Slot 10
      Drive at Enclosure 2, Slot 11
      Drive at Enclosure 2, Slot 12
      Drive at Enclosure 2, Slot 13
      Drive at Enclosure 2, Slot 14
      Drive at Enclosure 3, Slot 1
      Drive at Enclosure 3, Slot 2
      Drive at Enclosure 3, Slot 3
      Drive at Enclosure 3, Slot 4
      Drive at Enclosure 3, Slot 5
      Drive at Enclosure 3, Slot 6
      Drive at Enclosure 3, Slot 7
      Drive at Enclosure 3, Slot 8
      Drive at Enclosure 3, Slot 9
      Drive at Enclosure 3, Slot 10
      Drive at Enclosure 3, Slot 11
      Drive at Enclosure 3, Slot 12
      Drive at Enclosure 3, Slot 13
      Drive at Enclosure 3, Slot 14
  Array 3 (RAID 0)
    Status: Online
    Drive type: Fibre Channel
    Enclosure loss protection: No
    Current owner: Controller in slot B
    Associated logical drives and free capacities:
      RACK3_2 (935.238 GB)
    Associated drives (in piece order):
      Drive at Enclosure 10, Slot 1
      Drive at Enclosure 10, Slot 2
      Drive at Enclosure 10, Slot 3
      Drive at Enclosure 10, Slot 4
      Drive at Enclosure 10, Slot 5
      Drive at Enclosure 10, Slot 6
      Drive at Enclosure 10, Slot 7
      Drive at Enclosure 10, Slot 8
      Drive at Enclosure 10, Slot 9
      Drive at Enclosure 10, Slot 10
      Drive at Enclosure 10, Slot 11
      Drive at Enclosure 10, Slot 12
      Drive at Enclosure 10, Slot 13
      Drive at Enclosure 10, Slot 14
      Drive at Enclosure 11, Slot 1
      Drive at Enclosure 11, Slot 2
      Drive at Enclosure 11, Slot 3
      Drive at Enclosure 11, Slot 4
      Drive at Enclosure 11, Slot 5
      Drive at Enclosure 11, Slot 6
      Drive at Enclosure 11, Slot 7
      Drive at Enclosure 11, Slot 8
      Drive at Enclosure 11, Slot 9
      Drive at Enclosure 11, Slot 10
      Drive at Enclosure 11, Slot 11
      Drive at Enclosure 11, Slot 12
      Drive at Enclosure 11, Slot 13
      Drive at Enclosure 11, Slot 14
  Array 4 (RAID 0)
    Status: Online
    Drive type: Fibre Channel
    Enclosure loss protection: No
    Current owner: Controller in slot B
    Associated logical drives and free capacities:
      RACK3_3 (935.238 GB)
    Associated drives (in piece order):
      Drive at Enclosure 13, Slot 1
      Drive at Enclosure 13, Slot 2
      Drive at Enclosure 13, Slot 3
      Drive at Enclosure 13, Slot 4
      Drive at Enclosure 13, Slot 5
      Drive at Enclosure 13, Slot 6
```

Drive at Enclosure 13, Slot 7
Drive at Enclosure 13, Slot 8
Drive at Enclosure 13, Slot 9
Drive at Enclosure 13, Slot 10
Drive at Enclosure 13, Slot 11
Drive at Enclosure 13, Slot 12
Drive at Enclosure 13, Slot 13
Drive at Enclosure 13, Slot 14
Drive at Enclosure 12, Slot 1
Drive at Enclosure 12, Slot 2
Drive at Enclosure 12, Slot 3
Drive at Enclosure 12, Slot 4
Drive at Enclosure 12, Slot 5
Drive at Enclosure 12, Slot 6
Drive at Enclosure 12, Slot 7
Drive at Enclosure 12, Slot 8
Drive at Enclosure 12, Slot 9
Drive at Enclosure 12, Slot 10
Drive at Enclosure 12, Slot 11
Drive at Enclosure 12, Slot 12
Drive at Enclosure 12, Slot 13
Drive at Enclosure 12, Slot 14

STANDARD LOGICAL DRIVES----------

SUMMARY
Number of standard logical drives: 4
See other Logical Drives sub-tabs for premium feature information.

NAME	STATUS	CAPACITY	RAID LEVEL	ARRAY
RACK3_0	Optimal	935.238 GB	0	1
RACK3_1	Optimal	935.238 GB	0	2
RACK3_2	Optimal	935.238 GB	0	3
RACK3_3	Optimal	935.238 GB	0	4

DETAILS
Logical Drive name: RACK3_0
Logical Drive ID: 60:0a:0b:80:00:13:3e:5b:00:00:00:03:41:bd:56:aa
Subsystem ID (SSID): 0
Status: Optimal
Drive type: Fibre Channel
Enclosure loss protection: No
Preferred owner: Controller in slot A
Current owner: Controller in slot A
Capacity: 935.238 GB
RAID level: 0
Segment size: 64 KB
Modification priority: Highest
Associated array: 1
Read cache: Enabled
Write cache: Disabled
Write cache without batteries: Disabled
Write cache with mirroring: Disabled
Flush write cache after (in seconds): 10.00
Cache read ahead multiplier: 1
Enable background media scan: Disabled
Media scan with redundancy check: Disabled

Logical Drive name: RACK3_1
Logical Drive ID: 60:0a:0b:80:00:13:3e:5b:00:00:00:05:41:bd:56:e2
Subsystem ID (SSID): 1
Status: Optimal
Drive type: Fibre Channel
Enclosure loss protection: No
Preferred owner: Controller in slot A
Current owner: Controller in slot A
Capacity: 935.238 GB
RAID level: 0
Segment size: 64 KB
Modification priority: Highest
Associated array: 2
Read cache: Enabled
Write cache: Disabled
Write cache without batteries: Disabled
Write cache with mirroring: Disabled
Flush write cache after (in seconds): 10.00
Cache read ahead multiplier: 1
Enable background media scan: Disabled
Media scan with redundancy check: Disabled

Logical Drive name: RACK3_2
Logical Drive ID: 60:0a:0b:80:00:13:3e:79:00:00:00:01:41:bd:57:6b
Subsystem ID (SSID): 2
Status: Optimal
Drive type: Fibre Channel
Enclosure loss protection: No
Preferred owner: Controller in slot B
Current owner: Controller in slot B
Capacity: 935.238 GB
RAID level: 0
Segment size: 64 KB
Modification priority: Highest
Associated array: 3
Read cache: Enabled
Write cache: Disabled
Write cache without batteries: Disabled
Write cache with mirroring: Disabled
Flush write cache after (in seconds): 10.00
Cache read ahead multiplier: 1
Enable background media scan: Disabled
Media scan with redundancy check: Disabled

Logical Drive name: RACK3_3
Logical Drive ID: 60:0a:0b:80:00:13:3e:79:00:00:00:00:42:3e:c4:c9
Subsystem ID (SSID): 3
Status: Optimal
Drive type: Fibre Channel
Enclosure loss protection: No
Preferred owner: Controller in slot B
Current owner: Controller in slot B
Capacity: 935.238 GB
RAID level: 0
Segment size: 64 KB
Modification priority: High
Associated array: 4
Read cache: Enabled
Write cache: Disabled
Write cache without batteries: Disabled
Write cache with mirroring: Disabled
Flush write cache after (in seconds): 10.00
Cache read ahead multiplier: 1
Enable background media scan: Disabled
Media scan with redundancy check: Disabled

MISSING LOGICAL DRIVES----------
Number of missing logical drives: 0

DRIVES----------

SUMMARY
Number of drives: 112
Supported drive types: Fibre (112)

BASIC:

TRAY, SLOT	STATUS	CAPACITY	CURRENT DATA RATE	PRODUCT ID	FIRMWARE VERSION
0, 1	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 2	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 3	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 4	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 5	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 6	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 7	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 8	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 9	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 10	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 11	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 12	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 13	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
0, 14	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 1	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 2	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 3	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 4	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 5	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 6	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 7	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 8	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 9	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 10	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 11	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 12	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 13	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
1, 14	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 1	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 2	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 3	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 4	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 5	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 6	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 7	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 8	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 9	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 10	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 11	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 12	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 13	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
2, 14	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 1	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 2	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 3	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 4	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 5	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 6	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 7	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 8	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 9	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 10	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 11	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 12	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 13	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
3, 14	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
10, 1	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
10, 2	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
10, 3	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
10, 4	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
10, 5	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
10, 6	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
10, 7	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
10, 8	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
10, 9	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
10, 10	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954
10, 11	Optimal	33.902 GB	2 Gbps	ST336753FC	F B954

10, 12	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
10, 13	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
10, 14	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 1	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 2	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 3	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 4	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 5	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 6	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 7	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 8	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 9	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 10	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 11	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 12	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 13	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
11, 14	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 1	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 2	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 3	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 4	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 5	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 6	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 7	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 8	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 9	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 10	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 11	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 12	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 13	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
12, 14	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 1	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 2	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 3	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 4	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 5	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 6	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 7	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 8	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 9	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 10	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 11	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 12	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 13	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954
13, 14	Optimal	33.902 GB	2 Gbps	ST336753FC	F	B954

DRIVE CHANNELS:

TRAY, SLOT	PREFERRED CHANNEL	REDUNDANT CHANNEL
0, 1	4	3
0, 2	3	4
0, 3	4	3
0, 4	3	4
0, 5	4	3
0, 6	3	4
0, 7	4	3
0, 8	3	4
0, 9	4	3
0, 10	3	4
0, 11	4	3
0, 12	3	4
0, 13	4	3
0, 14	3	4
1, 1	4	3
1, 2	3	4
1, 3	4	3
1, 4	3	4
1, 5	4	3
1, 6	3	4
1, 7	4	3
1, 8	3	4
1, 9	4	3
1, 10	3	4
1, 11	4	3
1, 12	3	4
1, 13	4	3
1, 14	3	4
2, 1	4	3
2, 2	3	4
2, 3	4	3
2, 4	3	4
2, 5	4	3
2, 6	3	4
2, 7	4	3
2, 8	3	4
2, 9	4	3
2, 10	3	4
2, 11	4	3
2, 12	3	4
2, 13	4	3
2, 14	3	4

3, 1	4	3
3, 2	3	4
3, 3	4	3
3, 4	3	4
3, 5	4	3
3, 6	3	4
3, 7	4	3
3, 8	3	4
3, 9	4	3
3, 10	3	4
3, 11	4	3
3, 12	3	4
3, 13	4	3
3, 14	3	4
10, 1	2	1
10, 2	1	2
10, 3	2	1
10, 4	1	2
10, 5	2	1
10, 6	1	2
10, 7	2	1
10, 8	1	2
10, 9	2	1
10, 10	1	2
10, 11	2	1
10, 12	1	2
10, 13	2	1
10, 14	1	2
11, 1	2	1
11, 2	1	2
11, 3	2	1
11, 4	1	2
11, 5	2	1
11, 6	1	2
11, 7	2	1
11, 8	1	2
11, 9	2	1
11, 10	1	2
11, 11	2	1
11, 12	1	2
11, 13	2	1
11, 14	1	2
12, 1	2	1
12, 2	1	2
12, 3	2	1
12, 4	1	2
12, 5	2	1
12, 6	1	2
12, 7	2	1
12, 8	1	2
12, 9	2	1
12, 10	1	2
12, 11	2	1
12, 12	1	2
12, 13	2	1
12, 14	1	2
13, 1	2	1
13, 2	1	2
13, 3	2	1
13, 4	1	2
13, 5	2	1
13, 6	1	2
13, 7	2	1
13, 8	1	2
13, 9	2	1
13, 10	1	2
13, 11	2	1
13, 12	1	2
13, 13	2	1
13, 14	1	2

HOT SPARE COVERAGE:
The following arrays are not protected: 2, 1, 3, 4

Total hot spare drives: 0
Standby: 0
In use: 0

DETAILS
Drive at Enclosure 0, Slot 1
Drive port: 1, Channel: 4, ID: 0/0xEF
Drive port: 2, Channel: 3, ID: 0/0xEF
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NEQR00007453V8Y0
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:1f
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 2
Drive port: 1, Channel: 3, ID: 1/0xE8
Drive port: 2, Channel: 4, ID: 1/0xE8
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EEDY00007447PXCN
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d0:ba
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 3
Drive port: 1, Channel: 4, ID: 2/0xE4
Drive port: 2, Channel: 3, ID: 2/0xE4
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DJ3R000074411AY6
Vendor: IBM-ESXS
Date of manufacture: May 25, 2004
World-wide name: 20:00:00:0c:50:d6:cf:7b
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 4
Drive port: 1, Channel: 3, ID: 3/0xE2
Drive port: 2, Channel: 4, ID: 3/0xE2
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NF0600007502CX5N
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:1b
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 5
Drive port: 1, Channel: 4, ID: 4/0xE1
Drive port: 2, Channel: 3, ID: 4/0xE1
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2L4MX00007502CJK4
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:a8:e6
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 6
Drive port: 1, Channel: 3, ID: 5/0xE0
Drive port: 2, Channel: 4, ID: 5/0xE0
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NF1L00007502AZCD
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:d1
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 7
Drive port: 1, Channel: 4, ID: 6/0xDC
Drive port: 2, Channel: 3, ID: 6/0xDC
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NF3T00007502BEN2
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ab:e6
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 8
Drive port: 1, Channel: 3, ID: 7/0xDA
Drive port: 2, Channel: 4, ID: 7/0xDA
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2KVHY00007502BTKM
Vendor: IBM-ESXS
Date of manufacture: July 22, 2004
World-wide name: 20:00:00:0c:50:45:b9:4c
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 9
Drive port: 1, Channel: 4, ID: 80/0x55
Drive port: 2, Channel: 3, ID: 80/0x55
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MNRH00007502CJA9
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:a8:5d
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 10
Drive port: 1, Channel: 3, ID: 96/0x3A
Drive port: 2, Channel: 4, ID: 96/0x3A
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2BA9E00007447BW69
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d8:c9
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 11
Drive port: 1, Channel: 4, ID: 64/0x72
Drive port: 2, Channel: 3, ID: 64/0x72

Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MYAD000075029SB4
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:ca
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 12
Drive port: 1, Channel: 3, ID: 72/0x67
Drive port: 2, Channel: 4, ID: 72/0x67
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2BWTN00007445P58U
Vendor: IBM-ESXS
Date of manufacture: May 11, 2004
World-wide name: 20:00:00:0c:50:d6:16:85
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 13
Drive port: 1, Channel: 4, ID: 88/0x4B
Drive port: 2, Channel: 3, ID: 88/0x4B
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MWYY0000745266DN
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:aa
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 0, Slot 14
Drive port: 1, Channel: 3, ID: 104/0x2E
Drive port: 2, Channel: 4, ID: 104/0x2E
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NEXB000075029RTG
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:93
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 1
Drive port: 1, Channel: 4, ID: 8/0xD9
Drive port: 2, Channel: 3, ID: 8/0xD9
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NEM100007502CX3W
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:73
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 2
Drive port: 1, Channel: 3, ID: 9/0xD6
Drive port: 2, Channel: 4, ID: 9/0xD6
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EBTE00007416J0K6
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:d9:ca
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 3
Drive port: 1, Channel: 4, ID: 10/0xD5
Drive port: 2, Channel: 3, ID: 10/0xD5
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DX4000007447BVTT
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:db:21
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 4
Drive port: 1, Channel: 3, ID: 11/0xD4
Drive port: 2, Channel: 4, ID: 11/0xD4
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB

Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MYEK00007502CWAU
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:af:d6
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 5
Drive port: 1, Channel: 4, ID: 12/0xD3
Drive port: 2, Channel: 3, ID: 12/0xD3
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MZY900007502CJJN
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:a8:e8
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 6
Drive port: 1, Channel: 3, ID: 13/0xD2
Drive port: 2, Channel: 4, ID: 13/0xD2
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2LA5500007453W8BR
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ad:45
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 7
Drive port: 1, Channel: 4, ID: 14/0xD1
Drive port: 2, Channel: 3, ID: 14/0xD1
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NF1E00007502A7ER
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:42
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 8
Drive port: 1, Channel: 3, ID: 15/0xCE
Drive port: 2, Channel: 4, ID: 15/0xCE
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2C8XY00007447NFL0
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d8:97
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 9
Drive port: 1, Channel: 4, ID: 81/0x54
Drive port: 2, Channel: 3, ID: 81/0x54
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DJ9F00007447KUAW
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:cf:ba
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 10
Drive port: 1, Channel: 3, ID: 97/0x39
Drive port: 2, Channel: 4, ID: 97/0x39
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX23V8J000074478XPS
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:db:71
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 11
Drive port: 1, Channel: 4, ID: 65/0x71
Drive port: 2, Channel: 3, ID: 65/0x71
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F

Firmware version: B954
Serial number: 3HX2MN5H00007502CWZP
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:a8:a3
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 12
Drive port: 1, Channel: 3, ID: 73/0x66
Drive port: 2, Channel: 4, ID: 73/0x66
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MYA90000750293H5
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:5a
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 13
Drive port: 1, Channel: 4, ID: 89/0x4A
Drive port: 2, Channel: 3, ID: 89/0x4A
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX1ZG02000074293GC1
Vendor: IBM-ESXS
Date of manufacture: May 11, 2004
World-wide name: 20:00:00:0c:50:d6:14:d6
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 1, Slot 14
Drive port: 1, Channel: 3, ID: 105/0x2D
Drive port: 2, Channel: 4, ID: 105/0x2D
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N0TZ000075014MH5
Vendor: IBM-ESXS
Date of manufacture: July 22, 2004
World-wide name: 20:00:00:0c:50:45:b8:46
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 1

Drive at Enclosure 2, Slot 1
Drive port: 1, Channel: 4, ID: 16/0xCD
Drive port: 2, Channel: 3, ID: 16/0xCD
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MN9E00007502CJAG
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:a8:2f
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 2
Drive port: 1, Channel: 3, ID: 17/0xCC
Drive port: 2, Channel: 4, ID: 17/0xCC
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DKDP00007447AY97
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:cf:f7
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 3
Drive port: 1, Channel: 4, ID: 18/0xCB
Drive port: 2, Channel: 3, ID: 18/0xCB
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N3QR00007502CJMC
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ad:2b
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 4
Drive port: 1, Channel: 3, ID: 19/0xCA
Drive port: 2, Channel: 4, ID: 19/0xCA
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2D6X300007447BW5H
Vendor: IBM-ESXS

Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d9:2b
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 5
Drive port: 1, Channel: 4, ID: 20/0xC9
Drive port: 2, Channel: 3, ID: 20/0xC9
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NF7M00007453RMEY
Vendor: IBM-ESXS
Date of manufacture: July 22, 2004
World-wide name: 20:00:00:0c:50:45:b8:7e
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 6
Drive port: 1, Channel: 3, ID: 21/0xC7
Drive port: 2, Channel: 4, ID: 21/0xC7
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DGHH00007447KU4Q
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:82
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 7
Drive port: 1, Channel: 4, ID: 22/0xC6
Drive port: 2, Channel: 3, ID: 22/0xC6
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N52Y00007502BF4S
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ac:94
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 8
Drive port: 1, Channel: 3, ID: 23/0xC5
Drive port: 2, Channel: 4, ID: 23/0xC5
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MN4800007502BF1N
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:a8:2c
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 9
Drive port: 1, Channel: 4, ID: 82/0x53
Drive port: 2, Channel: 3, ID: 82/0x53
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DNAM0000744781JZ
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:cf:6b
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 10
Drive port: 1, Channel: 3, ID: 98/0x36
Drive port: 2, Channel: 4, ID: 98/0x36
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E1FA00007447AY6A
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d8:e6
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 11
Drive port: 1, Channel: 4, ID: 66/0x6E
Drive port: 2, Channel: 3, ID: 66/0x6E
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NDJ600007453RKTR
Vendor: IBM-ESXS
Date of manufacture: July 22, 2004
World-wide name: 20:00:00:0c:50:45:b8:79
Drive type: Fibre Channel

Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 12
Drive port: 1, Channel: 3, ID: 74/0x65
Drive port: 2, Channel: 4, ID: 74/0x65
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N2T100007502BTEU
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ad:b0
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 13
Drive port: 1, Channel: 4, ID: 90/0x49
Drive port: 2, Channel: 3, ID: 90/0x49
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N3EZ0000750294GA
Vendor: IBM-ESXS
Date of manufacture: July 22, 2004
World-wide name: 20:00:00:0c:50:45:b8:45
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 2, Slot 14
Drive port: 1, Channel: 3, ID: 106/0x2C
Drive port: 2, Channel: 4, ID: 106/0x2C
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E2NA00007447KUR0
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d0:b4
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 1
Drive port: 1, Channel: 4, ID: 24/0xC3
Drive port: 2, Channel: 3, ID: 24/0xC3
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MZGL00007502J101
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:a9:68
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 2
Drive port: 1, Channel: 3, ID: 25/0xBC
Drive port: 2, Channel: 4, ID: 25/0xBC
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2KQ5Z00007502CWLB
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:a9:25
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 3
Drive port: 1, Channel: 4, ID: 26/0xBA
Drive port: 2, Channel: 3, ID: 26/0xBA
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N04600007502BU14
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ad:1e
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 4
Drive port: 1, Channel: 3, ID: 27/0xB9
Drive port: 2, Channel: 4, ID: 27/0xB9
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX281RE00007441T2LT
Vendor: IBM-ESXS
Date of manufacture: May 31, 2004
World-wide name: 20:00:00:0c:50:d6:f0:71
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 5
Drive port: 1, Channel: 4, ID: 28/0xB6
Drive port: 2, Channel: 3, ID: 28/0xB6
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MZQE00007502AZ3Y
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:a7:d4
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 6
Drive port: 1, Channel: 3, ID: 29/0xB5
Drive port: 2, Channel: 4, ID: 29/0xB5
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MRXM00007502AZPG
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ad:29
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 7
Drive port: 1, Channel: 4, ID: 30/0xB4
Drive port: 2, Channel: 3, ID: 30/0xB4
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MY2Z00007502CJ9V
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:aa:fe
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 8
Drive port: 1, Channel: 3, ID: 31/0xB3
Drive port: 2, Channel: 4, ID: 31/0xB3
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DRS600007447KUAC
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:cf:92
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 9
Drive port: 1, Channel: 4, ID: 83/0x52
Drive port: 2, Channel: 3, ID: 83/0x52
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E02M00007447PXCP
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d0:93
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 10
Drive port: 1, Channel: 3, ID: 99/0x35
Drive port: 2, Channel: 4, ID: 99/0x35
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DY8900007447KTU5
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:b0:84
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 11
Drive port: 1, Channel: 4, ID: 67/0x6D
Drive port: 2, Channel: 3, ID: 67/0x6D
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EANN00007447AYHA
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:cf:e6
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 12
Drive port: 1, Channel: 3, ID: 75/0x63

Drive port: 2, Channel: 4, ID: 75/0x63
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NERY00007502BE45
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:8c
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 13
Drive port: 1, Channel: 4, ID: 91/0x47
Drive port: 2, Channel: 3, ID: 91/0x47
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E9H900007447RB36
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:bd
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 3, Slot 14
Drive port: 1, Channel: 3, ID: 107/0x2B
Drive port: 2, Channel: 4, ID: 107/0x2B
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DNCV0000744779K3
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:ce:b6
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 2

Drive at Enclosure 10, Slot 1
Drive port: 1, Channel: 2, ID: 0/0xEF
Drive port: 2, Channel: 1, ID: 0/0xEF
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NEJ5000075029T02
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ab:d9
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 2
Drive port: 1, Channel: 1, ID: 1/0xE8
Drive port: 2, Channel: 2, ID: 1/0xE8
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2CZHE00007447QTG5
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:da:55
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 3
Drive port: 1, Channel: 2, ID: 2/0xE4
Drive port: 2, Channel: 1, ID: 2/0xE4
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NEWP00007502AZJQ
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:aa:d4
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 4
Drive port: 1, Channel: 1, ID: 3/0xE2
Drive port: 2, Channel: 2, ID: 3/0xE2
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NF3B00007502CJDD
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:b8
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 5
Drive port: 1, Channel: 2, ID: 4/0xE1
Drive port: 2, Channel: 1, ID: 4/0xE1
Drive path redundancy: OK
Status: Optimal

Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EBVT00007447KU2Y
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d8:5c
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 6
Drive port: 1, Channel: 1, ID: 5/0xE0
Drive port: 2, Channel: 2, ID: 5/0xE0
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NEFY00007502BT8V
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:af:c0
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 7
Drive port: 1, Channel: 2, ID: 6/0xDC
Drive port: 2, Channel: 1, ID: 6/0xDC
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MT9000007502BER0
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ab:70
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 8
Drive port: 1, Channel: 1, ID: 7/0xDA
Drive port: 2, Channel: 2, ID: 7/0xDA
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E1YG00007447RAYV
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d8:75
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 9
Drive port: 1, Channel: 2, ID: 80/0x55
Drive port: 2, Channel: 1, ID: 80/0x55
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2CMQZ00007447QTDH
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:56
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 10
Drive port: 1, Channel: 1, ID: 96/0x3A
Drive port: 2, Channel: 2, ID: 96/0x3A
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NEZV00007502AZVP
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:c7
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 11
Drive port: 1, Channel: 2, ID: 64/0x72
Drive port: 2, Channel: 1, ID: 64/0x72
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E1F000007447KUF5
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:da:31
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 12
Drive port: 1, Channel: 1, ID: 72/0x67
Drive port: 2, Channel: 2, ID: 72/0x67
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps

Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EAQ000007447AY51
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:cf:97
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 13
Drive port: 1, Channel: 2, ID: 88/0x4B
Drive port: 2, Channel: 1, ID: 88/0x4B
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MDXZ00007502BEHJ
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:af:5b
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 10, Slot 14
Drive port: 1, Channel: 1, ID: 104/0x2E
Drive port: 2, Channel: 2, ID: 104/0x2E
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NEQG00007502CJKZ
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:af:d9
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 1
Drive port: 1, Channel: 2, ID: 8/0xD9
Drive port: 2, Channel: 1, ID: 8/0xD9
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DP4700007446XLD9
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:cf:d4
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 2
Drive port: 1, Channel: 1, ID: 9/0xD6
Drive port: 2, Channel: 2, ID: 9/0xD6
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E8Y200007447BWAP
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:d7
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 3
Drive port: 1, Channel: 2, ID: 10/0xD5
Drive port: 2, Channel: 1, ID: 10/0xD5
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N4S500007502CX47
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:a8:a2
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 4
Drive port: 1, Channel: 1, ID: 11/0xD4
Drive port: 2, Channel: 2, ID: 11/0xD4
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NELE00007502B0UF
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ad:1a
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 5
Drive port: 1, Channel: 2, ID: 12/0xD3
Drive port: 2, Channel: 1, ID: 12/0xD3
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2FTTB00007453RLB3

Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ae:f9
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 6
Drive port: 1, Channel: 1, ID: 13/0xD2
Drive port: 2, Channel: 2, ID: 13/0xD2
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2CDYP00007447KTZT
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:84
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 7
Drive port: 1, Channel: 2, ID: 14/0xD1
Drive port: 2, Channel: 1, ID: 14/0xD1
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EB5100007447BWC2
Vendor: IBM-ESXS
Date of manufacture: May 29, 2004
World-wide name: 20:00:00:0c:50:d6:da:ca
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 8
Drive port: 1, Channel: 1, ID: 15/0xCE
Drive port: 2, Channel: 2, ID: 15/0xCE
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MKBH00007502AZDH
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:af:4f
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 9
Drive port: 1, Channel: 2, ID: 81/0x54
Drive port: 2, Channel: 1, ID: 81/0x54
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N4BN00007453V8M8
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ac:2e
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 10
Drive port: 1, Channel: 1, ID: 97/0x39
Drive port: 2, Channel: 2, ID: 97/0x39
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MHAL00007502AZ90
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:a9:69
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 11
Drive port: 1, Channel: 2, ID: 65/0x71
Drive port: 2, Channel: 1, ID: 65/0x71
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MY3T00007502A7QQ
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:21
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 12
Drive port: 1, Channel: 1, ID: 73/0x66
Drive port: 2, Channel: 2, ID: 73/0x66
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2E0FP00007447NFHM
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d8:85

Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 13
Drive port: 1, Channel: 2, ID: 89/0x4A
Drive port: 2, Channel: 1, ID: 89/0x4A
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NF2100007502BEZM
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:3d
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 11, Slot 14
Drive port: 1, Channel: 1, ID: 105/0x2D
Drive port: 2, Channel: 2, ID: 105/0x2D
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2ME0R00007453RLTE
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:af:53
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 3

Drive at Enclosure 12, Slot 1
Drive port: 1, Channel: 2, ID: 16/0xCD
Drive port: 2, Channel: 1, ID: 16/0xCD
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2ME4700007502CJGG
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:b0:0b
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 2
Drive port: 1, Channel: 1, ID: 17/0xCC
Drive port: 2, Channel: 2, ID: 17/0xCC
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MY6G0000745266ES
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:aa:fa
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 3
Drive port: 1, Channel: 2, ID: 18/0xCB
Drive port: 2, Channel: 1, ID: 18/0xCB
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NEKG00007502CJDK
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:aa:a4
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 4
Drive port: 1, Channel: 1, ID: 19/0xCA
Drive port: 2, Channel: 2, ID: 19/0xCA
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MY6000007502CX2F
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:aa:af
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 5
Drive port: 1, Channel: 2, ID: 20/0xC9
Drive port: 2, Channel: 1, ID: 20/0xC9
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NEK1000075029T3J
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:61
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned

Associated array: 4

Drive at Enclosure 12, Slot 6
Drive port: 1, Channel: 1, ID: 21/0xC7
Drive port: 2, Channel: 2, ID: 21/0xC7
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MVNZ00007502AZX1
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:aa:ef
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 7
Drive port: 1, Channel: 2, ID: 22/0xC6
Drive port: 2, Channel: 1, ID: 22/0xC6
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NEJJ000075014L68
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:aa:d5
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 8
Drive port: 1, Channel: 1, ID: 23/0xC5
Drive port: 2, Channel: 2, ID: 23/0xC5
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NEMJ00007502BDUC
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:02
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 9
Drive port: 1, Channel: 2, ID: 82/0x53
Drive port: 2, Channel: 1, ID: 82/0x53
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N54Y00007502AZLM
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ac:14
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 10
Drive port: 1, Channel: 1, ID: 98/0x36
Drive port: 2, Channel: 2, ID: 98/0x36
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MY5R00007502J0KW
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:aa:9e
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 11
Drive port: 1, Channel: 2, ID: 66/0x6E
Drive port: 2, Channel: 1, ID: 66/0x6E
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX33NP500007516LQTX
Vendor: IBM-ESXS
Date of manufacture: October 25, 2004
World-wide name: 20:00:00:11:c6:23:90:9f
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 12
Drive port: 1, Channel: 1, ID: 74/0x65
Drive port: 2, Channel: 2, ID: 74/0x65
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MSQC00007502BTEB
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:af:b4
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 13

Drive port: 1, Channel: 2, ID: 90/0x49
Drive port: 2, Channel: 1, ID: 90/0x49
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MWZ000007502BU27
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:72
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 12, Slot 14
Drive port: 1, Channel: 1, ID: 106/0x2C
Drive port: 2, Channel: 2, ID: 106/0x2C
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MZYZ00007502CJ8F
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:a8:35
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 1
Drive port: 1, Channel: 2, ID: 24/0xC3
Drive port: 2, Channel: 1, ID: 24/0xC3
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2DDA90000744781AV
Vendor: IBM-ESXS
Date of manufacture: May 26, 2004
World-wide name: 20:00:00:0c:50:d6:d8:dd
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 2
Drive port: 1, Channel: 1, ID: 25/0xBC
Drive port: 2, Channel: 2, ID: 25/0xBC
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MY8C00007502CX1T
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:10
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 3
Drive port: 1, Channel: 2, ID: 26/0xBA
Drive port: 2, Channel: 1, ID: 26/0xBA
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N3L700007502A7SY
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:7c
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 4
Drive port: 1, Channel: 1, ID: 27/0xB9
Drive port: 2, Channel: 2, ID: 27/0xB9
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N3CY00007502AZYS
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ad:c5
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 5
Drive port: 1, Channel: 2, ID: 28/0xB6
Drive port: 2, Channel: 1, ID: 28/0xB6
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NEDQ0000750294N1
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:82
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 6
Drive port: 1, Channel: 1, ID: 29/0xB5
Drive port: 2, Channel: 2, ID: 29/0xB5
Drive path redundancy: OK

Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N61B00007502CWX5
Vendor: IBM-ESXS
Date of manufacture: July 22, 2004
World-wide name: 20:00:00:0c:50:45:b8:87
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 7
Drive port: 1, Channel: 2, ID: 30/0xB4
Drive port: 2, Channel: 1, ID: 30/0xB4
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2MV9600007502CX3B
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:af:04
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 8
Drive port: 1, Channel: 1, ID: 31/0xB3
Drive port: 2, Channel: 2, ID: 31/0xB3
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NEMP00007502AZ9N
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ab:e7
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 9
Drive port: 1, Channel: 2, ID: 83/0x52
Drive port: 2, Channel: 1, ID: 83/0x52
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N10M000075029S2S
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:aa:f0
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 10
Drive port: 1, Channel: 1, ID: 99/0x35
Drive port: 2, Channel: 2, ID: 99/0x35
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2N4AE00007502BEQ9
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:ab:e4
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 11
Drive port: 1, Channel: 2, ID: 67/0x6D
Drive port: 2, Channel: 1, ID: 67/0x6D
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX33N7A00007517B1WL
Vendor: IBM-ESXS
Date of manufacture: October 25, 2004
World-wide name: 20:00:00:11:c6:23:90:87
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 12
Drive port: 1, Channel: 1, ID: 75/0x63
Drive port: 2, Channel: 2, ID: 75/0x63
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2EDQP00007447NFFE
Vendor: IBM-ESXS
Date of manufacture: May 27, 2004
World-wide name: 20:00:00:0c:50:d6:d9:78
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 13
Drive port: 1, Channel: 2, ID: 91/0x47
Drive port: 2, Channel: 1, ID: 91/0x47
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB

Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2ME0L00007502CWGE
Vendor: IBM-ESXS
Date of manufacture: July 21, 2004
World-wide name: 20:00:00:0c:50:45:af:a6
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Drive at Enclosure 13, Slot 14
Drive port: 1, Channel: 1, ID: 107/0x2B
Drive port: 2, Channel: 2, ID: 107/0x2B
Drive path redundancy: OK
Status: Optimal
Raw capacity: 33.902 GB
Usable capacity: 33.402 GB
Current data rate: 2 Gbps
Product ID: ST336753FC F
Firmware version: B954
Serial number: 3HX2NEPG00007502J0WM
Vendor: IBM-ESXS
Date of manufacture: July 20, 2004
World-wide name: 20:00:00:0c:50:45:ab:a9
Drive type: Fibre Channel
Speed: 15015 RPM
Mode: Assigned
Associated array: 4

Client Configuration

Microsoft Windows 2000 Client System Information Report

Following is the system information report for Client 1. The system information report for clients 2-6 are identical to this one.

System Information report written at: 03/21/2005 04:25:57 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 4 Build 2195
OS Manufacturer	Microsoft Corporation
System Name	CLIENT20
System Manufacturer	IBM
System Model	IBM eServer x226-[86482BU]-
System Type	X86-based PC
Processor	x86 Family 15 Model 3 Stepping 4 GenuineIntel ~3200 Mhz
Processor	x86 Family 15 Model 4 Stepping 1 GenuineIntel ~3200 Mhz
Processor	x86 Family 15 Model 3 Stepping 4 GenuineIntel ~3200 Mhz
Processor	x86 Family 15 Model 4 Stepping 1 GenuineIntel ~3200 Mhz
BIOS Version	PhoenixBIOS 4.0 Release 6.1.U
Windows Directory	C:\WINNT
System Directory	C:\WINNT\system32
Boot Device	\Device\Harddisk0\Partition1
Locale	United States
User Name	CLIENT20\Administrator
Time Zone	Eastern Standard Time
Total Physical Memory	2,620,316 KB
Available Physical Memory	2,364,456 KB
Total Virtual Memory	7,176,064 KB
Available Virtual Memory	6,805,400 KB
Page File Space	4,555,748 KB
Page File	C:\pagefile.sys

[Hardware Resources]

[Following are sub-categories of this main category]

[Conflicts/Sharing]

Resource	Device
IRQ 16	Intel(R) E7525/E7520/E7320 PCI Express Root Port A0 - 3595
IRQ 16	Broadcom NetXtreme Gigabit Ethernet
IRQ 16	Intel(R) E7525/E7520/E7320 PCI Express Root Port A1 - 3596
IRQ 16	Intel(R) E7525/E7520 PCI Express Root Port B0 - 3597
IRQ 16	Intel(R) 82801EB USB Universal Host Controller - 24D2
IRQ 16	Intel(R) 82801EB USB Universal Host Controller - 24DE

[DMA]

Channel	Device	Status
4	Direct memory access controller	OK
2	Standard floppy disk controller	OK
3	ECP Printer Port (LPT1)	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
0x0D00-0xFFFF	PCI bus	OK
0x2000-0x4FFF	Intel(R) E7525/E7520/E7320 PCI Express Root Port A1 - 3596	OK
0x2000-0x4FFF	Intel(R) 6700PXH PCI Express-to-PCI Bridge A - 0329	OK
0x2000-0x4FFF	Adaptec AIC-7902B - Ultra320 SCSI	OK
0x3000-0x303F	Intel(R) PRO/1000 MT Dual Port Server Adapter	OK
0x3040-0x307F	Intel(R) PRO/1000 MT Dual Port Server Adapter #2	OK
0x3080-0x30BF	Intel(R) PRO/1000 MT Dual Port Server Adapter #3	OK
0x30C0-0x30FF	Intel(R) PRO/1000 MT Dual Port Server Adapter #4	OK
0x2400-0x24FF	Adaptec AIC-7902B - Ultra320 SCSI	OK
0x2C00-0x2CFF	Adaptec AIC-7902B - Ultra320 SCSI	OK
0x2800-0x28FF	Adaptec AIC-7902B - Ultra320 SCSI	OK
0x4000-0x4FFF	Intel(R) 6700PXH PCI Express-to-PCI Bridge B - 032A	OK
0x4000-0x4FFF	Intel(R) PRO/1000 MT Dual Port Server Adapter #5	OK
0x4040-0x407F	Intel(R) PRO/1000 MT Dual Port Server Adapter #6	OK
0x1400-0x141F	Intel(R) 82801EB USB Universal Host Controller - 24D2	OK
0x1420-0x143F	Intel(R) 82801EB USB Universal Host Controller - 24D4	OK
0x1440-0x145F	Intel(R) 82801EB USB Universal Host Controller - 24D7	OK
0x1460-0x147F	Intel(R) 82801EB USB Universal Host Controller - 24DE	OK
0x5000-0x50FF	RADEON 7000M (on board)	OK

0x03B0-0x03BB	RADEON 7000M (on board)	OK
0x03C0-0x03DF	RADEON 7000M (on board)	OK
0x0A79-0x0A79	ISAPNP Read Data Port	OK
0x0279-0x0279	ISAPNP Read Data Port	OK
0x0274-0x0277	ISAPNP Read Data Port	OK
0x0010-0x001F	Motherboard resources	OK
0x0024-0x0025	Motherboard resources	OK
0x0028-0x0029	Motherboard resources	OK
0x002C-0x002D	Motherboard resources	OK
0x002E-0x002F	Motherboard resources	OK
0x0030-0x0031	Motherboard resources	OK
0x0034-0x0035	Motherboard resources	OK
0x0038-0x0039	Motherboard resources	OK
0x003C-0x003D	Motherboard resources	OK
0x0050-0x0053	Motherboard resources	OK
0x0072-0x0077	Motherboard resources	OK
0x0080-0x0080	Motherboard resources	OK
0x0090-0x009F	Motherboard resources	OK
0x00A4-0x00A5	Motherboard resources	OK
0x00A8-0x00A9	Motherboard resources	OK
0x00AC-0x00AD	Motherboard resources	OK
0x00B0-0x00B5	Motherboard resources	OK
0x00B8-0x00B9	Motherboard resources	OK
0x00BC-0x00BD	Motherboard resources	OK
0x04D0-0x04D1	Motherboard resources	OK
0x1000-0x107F	Motherboard resources	OK
0x1180-0x118C	Motherboard resources	OK
0x118D-0x118D	Motherboard resources	OK
0x118F-0x118F	Motherboard resources	OK
0x1190-0x11BF	Motherboard resources	OK
0x0800-0x082F	Motherboard resources	OK
0xFE00-0xFE00	Motherboard resources	OK
0x0081-0x008F	Direct memory access controller	OK
0x00C0-0x00DF	Direct memory access controller	OK
0x00F0-0x00FE	Numeric data processor	OK
0x0020-0x0021	Programmable interrupt controller	OK
0x00A0-0x00A1	Programmable interrupt controller	OK
0x0070-0x0071	System CMOS/real time clock	OK
0x0061-0x0061	System speaker	OK
0x0040-0x0043	System timer	OK
0x118E-0x118E	Not Available	OK
0x03F0-0x03F5	Standard floppy disk controller	OK
0x03F7-0x03F7	Standard floppy disk controller	OK
0x0378-0x037F	ECP Printer Port (LPT1)	OK
0x0778-0x077F	ECP Printer Port (LPT1)	OK
0x03F8-0x03FF	Communications Port (COM1)	OK
0x02F8-0x02FF	Communications Port (COM2)	OK
0x0060-0x0060	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard	OK
0x0064-0x0064	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard	OK
0x14A0-0x14AF	Intel(R) 82801EB Ultra ATA Storage Controllers	OK
0x01F0-0x01F7	Primary IDE Channel	OK
0x03F6-0x03F6	Primary IDE Channel	OK
0x0170-0x0177	Secondary IDE Channel	OK
0x0376-0x0376	Secondary IDE Channel	OK
0x1100-0x111F	Intel(R) 82801EB SMBus Controller - 24D3	OK

[IRQs]

IRQ Number	Device
9	Microsoft ACPI-Compliant System
16	Intel(R) E7525/E7520/E7320 PCI Express Root Port A0 - 3595
16	Broadcom NetXtreme Gigabit Ethernet
16	Intel(R) E7525/E7520/E7320 PCI Express Root Port A1 - 3596
16	Intel(R) E7525/E7520 PCI Express Root Port B0 - 3597
16	Intel(R) 82801EB USB Universal Host Controller - 24D2
16	Intel(R) 82801EB USB Universal Host Controller - 24DE
28	Intel(R) PRO/1000 MT Dual Port Server Adapter
29	Intel(R) PRO/1000 MT Dual Port Server Adapter #2
24	Intel(R) PRO/1000 MT Dual Port Server Adapter #3
25	Intel(R) PRO/1000 MT Dual Port Server Adapter #4
30	Adaptec AIC-7902B - Ultra320 SCSI
31	Adaptec AIC-7902B - Ultra320 SCSI
48	Intel(R) PRO/1000 MT Dual Port Server Adapter #5
49	Intel(R) PRO/1000 MT Dual Port Server Adapter #6
19	Intel(R) 82801EB USB Universal Host Controller - 24D4
18	Intel(R) 82801EB USB Universal Host Controller - 24D7
23	Intel(R) 82801EB USB2 Enhanced Host Controller - 24DD
22	RADEON 7000M (on board)
13	Numeric data processor
8	System CMOS/real time clock
6	Standard floppy disk controller
4	Communications Port (COM1)
3	Communications Port (COM2)
12	PS/2 Compatible Mouse
1	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
14	Primary IDE Channel
15	Secondary IDE Channel
10	Intel(R) 82801EB SMBus Controller - 24D3

[Memory]

Range	Device	Status
0xA0000-0xBFFFF	PCI bus	OK
0xA0000-0xBFFFF	RADEON 7000M (on board)	OK
0xD8000-0xDBFFF	PCI bus	OK
0xDC000-0xDFFFF	PCI bus	OK
0xA0000000-0xFEBFFFFF	PCI bus	OK
0xD0100000-0xD01FFFFF	Intel(R) E7525/E7520/E7320 PCI Express Root Port A0 - 3595	OK
0xD0100000-0xD01FFFFF	Broadcom NetXtreme Gigabit Ethernet	OK
0xD0200000-0xD05FFFFF	Intel(R) E7525/E7520/E7320 PCI Express Root Port A1 - 3596	OK
0xD0200000-0xD05FFFFF	Intel(R) 6700PXH I/OxAPIC Interrupt Controller A - 0326	OK
0xD0300000-0xD04FFFFF	Intel(R) 6700PXH PCI Express-to-PCI Bridge A - 0329	OK
0xD0300000-0xD04FFFFF	Adaptec AIC-7902B - Ultra320 SCSI	OK
0xD0320000-0xD033FFFF	Intel(R) PRO/1000 MT Dual Port Server Adapter	OK
0xD0340000-0xD037FFFF	Intel(R) PRO/1000 MT Dual Port Server Adapter	OK
0xD0380000-0xD039FFFF	Intel(R) PRO/1000 MT Dual Port Server Adapter #2	OK
0xD03A0000-0xD03BFFFF	Intel(R) PRO/1000 MT Dual Port Server Adapter #3	OK
0xD03C0000-0xD03FFFFF	Intel(R) PRO/1000 MT Dual Port Server Adapter #3	OK
0xD0400000-0xD041FFFF	Intel(R) PRO/1000 MT Dual Port Server Adapter #4	OK
0xD0302000-0xD0303FFF	Adaptec AIC-7902B - Ultra320 SCSI	OK
0xD0500000-0xD05FFFFF	Intel(R) 6700PXH PCI Express-to-PCI Bridge B - 032A	OK
0xD0500000-0xD05FFFFF	Intel(R) PRO/1000 MT Dual Port Server Adapter #5	OK
0xD0540000-0xD055FFFF	Intel(R) PRO/1000 MT Dual Port Server Adapter #5	OK
0xD0560000-0xD057FFFF	Intel(R) PRO/1000 MT Dual Port Server Adapter #6	OK
0xD0201000-0xD0201FFF	Intel(R) 6700PXH I/OxAPIC Interrupt Controller B - 0327	OK

0xD0000000-0xD00003FF Intel(R) 82801EB USB2 Enhanced Host Controller - 24DD OK
0xD8000000-0xDFFFFFFF RADEON 7000M (on board) OK
0xD0600000-0xD060FFFF RADEON 7000M (on board) OK
0xE0000000-0xEFFFFFFF Motherboard resources OK
0xFEE00000-0xFEE0FFFF Motherboard resources OK
0xFEC81000-0xFEC81FFF Motherboard resources OK
0xFEC81400-0xFEC823FF Motherboard resources OK
0xFEBFFC00-0xFEBFFFFF Intel(R) 82801EB Ultra ATA Storage Controllers 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\lhacm.acm Microsoft Corporation
OK C:\WINNT\system32\LHACM.ACM 4.4.3385 33.27 KB (34,064 bytes) 11/3/2004 1:58:47 PM
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\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\imaadp32.acm Microsoft Corporation
OK C:\WINNT\system32\IMAADP32.ACM 5.00.2195.6612
16.27 KB (16,656 bytes) 11/3/2004 3:02:37 PM
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\msg723.acm Microsoft Corporation
OK C:\WINNT\system32\MSG723.ACM 4.4.3385 106.77 KB (109,328 bytes) 11/3/2004 1:58:46 PM
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

[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\msh261.drv Microsoft Corporation
OK C:\WINNT\system32\MSH261.DRV 4.4.3385 163.77 KB (167,696 bytes) 11/3/2004 1:58:46 PM
c:\winnt\system32\msh263.drv Microsoft Corporation
OK C:\WINNT\system32\MSH263.DRV 4.4.3385 252.27 KB (258,320 bytes) 11/3/2004 1:58:27 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\iccvid.dll Radius Inc. OK
C:\WINNT\system32\ICCVID.DLL 1.10.0.6 108.00 KB (110,592 bytes) 12/7/1999 7:00:00 AM
c:\winnt\system32\msrle32.dll Microsoft Corporation
OK C:\WINNT\system32\MSRLE32.DLL 5.00.2195.6612
10.77 KB (11,024 bytes) 11/3/2004 3:02:45 PM
c:\winnt\system32\ir32_32.dll Intel(R) Corporation OK
C:\WINNT\system32\IR32_32.DLL Not Available 194.50 KB (199,168 bytes) 12/7/1999 7:00:00 AM

[CD-ROM]

Item Value
Drive D:
Description CD-ROM Drive
Media Loaded False
Media Type CD-ROM
Name HL-DT-ST CD-ROM GCR-8482B
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-8482B_____1.04____\5&25B98AF5&0&0.0.0

[Sound Device]

Item Value
No sound devices

[Display]

Item Value
Name RADEON 7000M (on board)
PNP Device ID
PCI\VEN_1002&DEV_5159&SUBSYS_02C81014&REV_00\4&3A321F38&0&20F0
Adapter Type RADEON 7000 (0x5159), ATI Technologies Inc. compatible
Adapter Description RADEON 7000M (on board)
Adapter RAM 16.00 MB (16,777,216 bytes)
Installed Drivers ati2dvag.dll
Driver Version 5.2.3790.2
INF File oem6.inf (ati2mtag_RV100 section)
Color Planes 1
Color Table Entries 4294967296
Resolution 800 x 600 x 60 hertz
Bits/Pixel 32

[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\5&9583612&0
NumberOfFunctionKeys 12

[Pointing Device]

Item Value
Hardware Type PS/2 Compatible Mouse
Number of Buttons 5
Status OK
PNP Device ID ACPI\PNP0F13\5&9583612&0
Power Management Supported False
Double Click Threshold 6
Handedness Right Handed Operation

[Modem]

Item Value
No modems

[Network]

[Following are sub-categories of this main category]

[Adapter]

Item Value
Name [00000000] RAS Async Adapter
Adapter Type Not Available
Product Name RAS Async Adapter
Installed True
PNP Device ID Not Available
Last Reset 3/21/2005 6:29:28 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_L2TPMINIPORT\0000
Last Reset 3/21/2005 6:29:28 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, 5.00.2195.6655)

Name [00000002] WAN Miniport (PPTP)
Adapter Type Wide Area Network (WAN)
Product Name WAN Miniport (PPTP)
Installed True
PNP Device ID ROOT\MS_PPTPMINIPORT\0000
Last Reset 3/21/2005 6:29:28 AM
Index 2
Service Name PptpMiniport
IP Address Not Available
IP Subnet Not Available
Default IP Gateway Not Available
DHCP Enabled False
DHCP Server Not Available
DHCP Lease Expires Not Available
DHCP Lease Obtained Not Available
MAC Address 50:50:54:50:30:30
Service Name PptpMiniport
Driver c:\winnt\system32\drivers\raspptp.sys (48464, 5.00.2195.6711)

Name [00000003] Direct Parallel
Adapter Type Not Available
Product Name Direct Parallel
Installed True
PNP Device ID ROOT\MS_PTIMINIPORT\0000
Last Reset 3/21/2005 6:29:28 AM
Index 3
Service Name Raspti
IP Address Not Available
IP Subnet Not Available
Default IP Gateway Not Available
DHCP Enabled False
DHCP Server Not Available
DHCP Lease Expires Not Available
DHCP Lease Obtained Not Available
MAC Address Not Available
Service Name Raspti
Driver c:\winnt\system32\drivers\raspti.sys (16880, 5.00.2146.1)

Name [00000004] WAN Miniport (IP)
Adapter Type Not Available
Product Name WAN Miniport (IP)
Installed True
PNP Device ID ROOT\MS_NDISWANIP\0000
Last Reset 3/21/2005 6:29:28 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 (93360, 5.00.2195.6699)

Name [00000005] Intel(R) PRO/1000 MT Dual Port Server Adapter
Adapter Type Ethernet 802.3
Product Name Intel(R) PRO/1000 MT Dual Port Server Adapter
Installed True
PNP Device ID
PCI\VEN_8086&DEV_1079&SUBSYS_117A8086&REV_03\5&1EA3B137&0&080018
Last Reset 3/21/2005 6:29:28 AM
Index 5
Service Name E1000
IP Address 192.168.123.10
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 00:0E:0C:36:78:EC
Service Name E1000
IRQ Number 28
I/O Port 0x3000-0x303F
Driver c:\winnt\system32\drivers\e1000nt5.sys (170496, 8.4.21.0 built by: WinDDK)

Name [00000006] Intel(R) PRO/1000 MT Dual Port Server Adapter
Adapter Type Ethernet 802.3
Product Name Intel(R) PRO/1000 MT Dual Port Server Adapter
Installed True
PNP Device ID
PCI\VEN_8086&DEV_1079&SUBSYS_117A8086&REV_03\5&1EA3B137&0&090018
Last Reset 3/21/2005 6:29:28 AM
Index 6
Service Name E1000
IP Address 192.168.124.10
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 00:0E:0C:36:78:ED
Service Name E1000
IRQ Number 29
I/O Port 0x3040-0x307F
Driver c:\winnt\system32\drivers\e1000nt5.sys (170496, 8.4.21.0 built by: WinDDK)

Name [00000007] Intel(R) PRO/1000 MT Dual Port Server Adapter
Adapter Type Ethernet 802.3
Product Name Intel(R) PRO/1000 MT Dual Port Server Adapter
Installed True
PNP Device ID
PCI\VEN_8086&DEV_1079&SUBSYS_117A8086&REV_03\5&1EA3B137&0&100018
Last Reset 3/21/2005 6:29:28 AM
Index 7
Service Name E1000
IP Address 192.168.125.10
IP Subnet 255.255.255.0
Default IP Gateway Not Available
DHCP Enabled False
DHCP Server Not Available
DHCP Lease Expires Not Available
DHCP Lease Obtained Not Available
MAC Address 00:0E:0C:36:7B:60
Service Name E1000
IRQ Number 24
I/O Port 0x3080-0x30BF
Driver c:\winnt\system32\drivers\e1000nt5.sys (170496, 8.4.21.0 built by: WinDDK)

Name [00000008] Intel(R) PRO/1000 MT Dual Port Server Adapter
Adapter Type Ethernet 802.3
Product Name Intel(R) PRO/1000 MT Dual Port Server Adapter
Installed True
PNP Device ID
PCI\VEN_8086&DEV_1079&SUBSYS_117A8086&REV_03\5&1EA3B137&0&110018
Last Reset 3/21/2005 6:29:28 AM
Index 8
Service Name E1000
IP Address 192.168.50.225
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 00:0E:0C:36:7B:61
Service Name E1000
IRQ Number 25
I/O Port 0x30C0-0x30FF
Driver c:\winnt\system32\drivers\e1000nt5.sys (170496, 8.4.21.0 built by: WinDDK)

Name [00000009] Intel(R) PRO/1000 MT Dual Port Server Adapter
Adapter Type Ethernet 802.3
Product Name Intel(R) PRO/1000 MT Dual Port Server Adapter
Installed True
PNP Device ID
PCI\VEN_8086&DEV_1079&SUBSYS_117A8086&REV_03\5&A4D5A19&0&080218
Last Reset 3/21/2005 6:29:28 AM
Index 9
Service Name E1000
IP Address 192.168.121.10
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 00:0E:0C:36:78:B6
Service Name E1000
IRQ Number 48
I/O Port 0x4000-0x4FFF
Driver c:\winnt\system32\drivers\e1000nt5.sys (170496, 8.4.21.0 built by: WinDDK)

Name [00000010] Intel(R) PRO/1000 MT Dual Port Server Adapter
Adapter Type Ethernet 802.3
Product Name Intel(R) PRO/1000 MT Dual Port Server Adapter
Installed True
PNP Device ID
PCI\VEN_8086&DEV_1079&SUBSYS_117A8086&REV_03\5&A4D5A19&0&090218
Last Reset 3/21/2005 6:29:28 AM
Index 10
Service Name E1000
IP Address 192.168.222.10
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 00:0E:0C:36:78:B7
Service Name E1000
IRQ Number 49
I/O Port 0x4040-0x407F
Driver c:\winnt\system32\drivers\e1000nt5.sys (170496, 8.4.21.0 built by: WinDDK)

Name [00000011] Broadcom NetXtreme Gigabit Ethernet
Adapter Type Ethernet 802.3
Product Name Broadcom NetXtreme Gigabit Ethernet
Installed True
PNP Device ID
PCI\VEN_14E4&DEV_1659&SUBSYS_02C61014&REV_01\4&1855300&0&0010
Last Reset 3/21/2005 6:29:28 AM
Index 11

Service Name b57w2k
IP Address 192.168.122.20
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 00:0D:60:15:18:A3
Service Name b57w2k
IRQ Number 16
Driver c:\winnt\system32\drivers\b57w2k.sys (192215, 7.80.0.0)

[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_{0A116012-8A70-4813-A60F-1179D8F7AE88}] SEQPACKET 8
ConnectionlessService False
GuaranteesDelivery True
GuaranteesSequencing True
MaximumAddressSize 20 bytes
MaximumMessageSize 64000 bytes
MessageOriented True
MinimumAddressSize 20 bytes
PseudoStreamOriented False
SupportsBroadcasting False
SupportsConnectData False
SupportsDisconnectData False
SupportsEncryption False
SupportsExpeditedData False
SupportsGracefulClosing False
SupportsGuaranteedBandwidth False
SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT_Tcpip_{0A116012-8A70-4813-A60F-1179D8F7AE88}] DATAGRAM 8
ConnectionlessService True
GuaranteesDelivery False
GuaranteesSequencing False
MaximumAddressSize 20 bytes
MaximumMessageSize 64000 bytes
MessageOriented True
MinimumAddressSize 20 bytes
PseudoStreamOriented False
SupportsBroadcasting True
SupportsConnectData False
SupportsDisconnectData False
SupportsEncryption False
SupportsExpeditedData False
SupportsGracefulClosing False
SupportsGuaranteedBandwidth False
SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT_Tcpip_{29FD1170-E61B-4B40-A9F0-4BCEDEDBF8A3}] SEQPACKET 7
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_{29FD1170-E61B-4B40-A9F0-4BCEDEDBF8A3}]
DATAGRAM 7
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_{49CD30FF-A43F-4429-B4C6-DC5F2B3F2E53}]
SEQPACKET 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_{49CD30FF-A43F-4429-B4C6-DC5F2B3F2E53}]
DATAGRAM 6
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_{7B118AA5-DF50-4EB6-9CD2-D4FF625CDACB}]
SEQPACKET 5
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_{7B118AA5-DF50-4EB6-9CD2-D4FF625CDACB}]
DATAGRAM 5
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_{4FF97F97-C919-4FEB-87EA-6AF8D1BE84CF}]
SEQPACKET 4
ConnectionlessService False
GuaranteesDelivery True
GuaranteesSequencing True
MaximumAddressSize 20 bytes
MaximumMessageSize 64000 bytes
MessageOriented True
MinimumAddressSize20 bytes
PseudoStreamOriented False
SupportsBroadcasting False
SupportsConnectData False
SupportsDisconnectData False
SupportsEncryption False
SupportsExpeditedData False
SupportsGracefulClosing False
SupportsGuaranteedBandwidth False
SupportsMulticasting False

Name MSAFD NetBIOS
[\Device\NetBT_Tcpip_{4FF97F97-C919-4FEB-87EA-6AF8D1BE84CF}]
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_{72931A11-10E1-4813-9A35-A28A5575ED6F}]
SEQPACKET 3
ConnectionlessService False
GuaranteesDelivery True
GuaranteesSequencing True
MaximumAddressSize 20 bytes
MaximumMessageSize 64000 bytes
MessageOriented True
MinimumAddressSize20 bytes
PseudoStreamOriented False
SupportsBroadcasting False
SupportsConnectData False
SupportsDisconnectData False
SupportsEncryption False
SupportsExpeditedData False
SupportsGracefulClosing False
SupportsGuaranteedBandwidth False
SupportsMulticasting False

Name MSAFD NetBIOS
[\Device\NetBT_Tcpip_{72931A11-10E1-4813-9A35-A28A5575ED6F}]
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_{E6D306A6-B48E-4A25-841B-F670AE1A5D60}]
SEQPACKET 0
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_{E6D306A6-B48E-4A25-841B-F670AE1A5D60}]
DATAGRAM 0
ConnectionlessService True
GuaranteesDelivery False
GuaranteesSequencing False
MaximumAddressSize 20 bytes
MaximumMessageSize 64000 bytes
MessageOriented True
MinimumAddressSize20 bytes
PseudoStreamOriented False
SupportsBroadcasting True
SupportsConnectData False
SupportsDisconnectData False
SupportsEncryption False
SupportsExpeditedData False
SupportsGracefulClosing False
SupportsGuaranteedBandwidth False
SupportsMulticasting False

Name MSAFD NetBIOS
[\Device\NetBT_Tcpip_{19854BA0-8D07-490E-BE50-A95157216BD2}]
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_{19854BA0-8D07-490E-BE50-A95157216BD2}]
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_{E71C5B67-467D-4AAA-BFFB-3896F017D737}] SEQPACKET 2
ConnectionlessService False
GuaranteesDelivery True
GuaranteesSequencing True
MaximumAddressSize 20 bytes
MaximumMessageSize 64000 bytes
MessageOriented True
MinimumAddressSize 20 bytes
PseudoStreamOriented False
SupportsBroadcasting False
SupportsConnectData False
SupportsDisconnectData False
SupportsEncryption False
SupportsExpeditedData False
SupportsGracefulClosing False
SupportsGuaranteedBandwidth False
SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT_Tcpip_{E71C5B67-467D-4AAA-BFFB-3896F017D737}] DATAGRAM 2
ConnectionlessService True
GuaranteesDelivery False
GuaranteesSequencing False
MaximumAddressSize 20 bytes
MaximumMessageSize 64000 bytes
MessageOriented True
MinimumAddressSize 20 bytes
PseudoStreamOriented False
SupportsBroadcasting True
SupportsConnectData False
SupportsDisconnectData False
SupportsEncryption False
SupportsExpeditedData False
SupportsGracefulClosing False
SupportsGuaranteedBandwidth False
SupportsMulticasting False

[WinSock]

Item Value
File c:\winnt\system32\winsock.dll
Version 3.10
Size 2.80 KB (2,864 bytes)

File c:\winnt\system32\wsock32.dll
Version 5.00.2195.6603
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 (62736, 5.00.2195.6655)

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 (62736, 5.00.2195.6655)

[Parallel]

Item Value
Name LPT1
PNP Device ID ACPI\PNP0401\5&9583612&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 29.95 GB (32,154,103,808 bytes)
Volume Name
Volume Serial Number FC4C7C1B
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 SCSIBus 0
Drive SCSILogicalUnit 0
Drive SCSIPort 3
Drive SCSITargetId 0
Drive SectorsPerTrack 63
Drive Size 36396864000 bytes
Drive TotalCylinders 4425
Drive TotalSectors 71087625
Drive TotalTracks 1128375
Drive TracksPerCylinder 255

[SCSI]

Item Value
Name Adaptec AIC-7902B - Ultra320 SCSI
Caption Adaptec AIC-7902B - Ultra320 SCSI
Driver adpu320
Status OK
PNP Device ID
PCI\VEN_9005&DEV_801D&SUBSYS_02CC1014&REV_10\5&1EA3B137&0&180018
Device ID
PCI\VEN_9005&DEV_801D&SUBSYS_02CC1014&REV_10\5&1EA3B137&0&180018
Device Map Not Available
Index Not Available
Max Number Controlled Not Available
IRQ Number 30
I/O Port 0x2400-0x24FF
I/O Port 0x2000-0x4FFF
Driver c:\winnt\system32\drivers\adpu320.sys (132608, 3.0.000.000 built by: WinDDK)

Name Adaptec AIC-7902B - Ultra320 SCSI
Caption Adaptec AIC-7902B - Ultra320 SCSI
Driver adpu320
Status OK
PNP Device ID
PCI\VEN_9005&DEV_801D&SUBSYS_02CC1014&REV_10\5&1EA3B137&0&190018
Device ID
PCI\VEN_9005&DEV_801D&SUBSYS_02CC1014&REV_10\5&1EA3B137&0&190018
Device Map Not Available
Index Not Available
Max Number Controlled Not Available
IRQ Number 31
I/O Port 0x2C00-0x2CFF
I/O Port 0x2800-0x28FF
Driver c:\winnt\system32\drivers\adpu320.sys (132608, 3.0.000.000 built by: WinDDK)

[Printing]

Name Port Name Server Name
No printing information

[Problem Devices]

Device PNP Device ID Error Code
Not Available ACPI\ASF0001\2&DABA3FF&0 28
Not Available ACPI\IBM3737\4&369939D9&0 28

[USB]

Device PNP Device ID
Intel(R) 82801EB USB Universal Host Controller - 24D2
PCI\VEN_8086&DEV_24D2&SUBSYS_02ED1014&REV_02\3&61AAA01&0&E8
USB Root Hub USB\ROOT_HUB\4&39460DFB&0
Intel(R) 82801EB USB Universal Host Controller - 24D4
PCI\VEN_8086&DEV_24D4&SUBSYS_02ED1014&REV_02\3&61AAA01&0&E9
USB Root Hub USB\ROOT_HUB\4&31D97CBA&0
Intel(R) 82801EB USB Universal Host Controller - 24D7
PCI\VEN_8086&DEV_24D7&SUBSYS_02ED1014&REV_02\3&61AAA01&0&EA
USB Root Hub USB\ROOT_HUB\4&206D9F09&0
Intel(R) 82801EB USB Universal Host Controller - 24DE
PCI\VEN_8086&DEV_24DE&SUBSYS_02ED1014&REV_02\3&61AAA01&0&EB
USB Root Hub USB\ROOT_HUB\4&CAEE98E&0
Intel(R) 82801EB USB2 Enhanced Host Controller - 24DD
PCI\VEN_8086&DEV_24DD&SUBSYS_02ED1014&REV_02\3&61AAA01&0&EF

USB 2.0 Root Hub USB\ROOT_HUB20\4&34B50607&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 Running OK Normal
False True
acpiec ACPIEC c:\winnt\system32\drivers\acpiec.sys Kernel
Driver False Disabled Stopped OK Normal False
False
adpu160m adpu160m Not Available Kernel Driver False
Disabled Stopped OK Normal False False
adpu320 adpu320 c:\winnt\system32\drivers\adpu320.sys Kernel
Driver True Boot 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
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
asyncmac RAS Asynchronous Media Driver
c:\winnt\system32\drivers\asyncmac.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
ati2mtag ati2mtag c:\winnt\system32\drivers\ati2mtag.sys Kernel
Driver True Manual Running OK Ignore False
True
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 System Running OK Normal False
True
buslogic BusLogic Not Available Kernel Driver False
Disabled Stopped OK Normal False False
cd20xrnt cd20xrnt Not Available Kernel Driver False
Disabled Stopped OK Normal False False
cdaudio Cdaudio c:\winnt\system32\drivers\cdaudio.sys Kernel
Driver False System Stopped OK Ignore False
False
cdfs Cdfs c:\winnt\system32\drivers\cdfs.sys File System
Driver True Disabled Running OK Normal False
True
cdrom CD-ROM Driver c:\winnt\system32\drivers\cdrom.sys
Kernel Driver True System Running OK Normal
False True
changer Changer Not Available Kernel Driver False
System Stopped OK Ignore False False
cpqarray Cpqarray Not Available Kernel Driver False
Disabled Stopped OK Normal False False
cpqarry2 cpqarry2 Not Available Kernel Driver False
Disabled Stopped OK Normal False False
cpqfcalm cpqfcalm Not Available Kernel Driver False
Disabled Stopped OK Normal False False
cpqfws2e cpqfws2e Not Available Kernel Driver False
Disabled Stopped OK Normal False False
dac960nt dac960nt Not Available Kernel Driver False
Disabled Stopped OK Normal False False
deckzpsx deckzpsx Not Available Kernel Driver False
Disabled Stopped OK Normal False False
dfsdriver DfsDriver c:\winnt\system32\drivers\dfs.sys File System Driver
True Boot Running OK Normal False True
disk Disk Driver c:\winnt\system32\drivers\disk.sys
Kernel Driver True Boot Running OK Normal
False True
diskperf Diskperf c:\winnt\system32\drivers\diskperf.sys Kernel
Driver True Boot Running OK Normal False
True
dmboot dmboot c:\winnt\system32\drivers\dmboot.sys Kernel
Driver False Disabled Stopped OK Normal False
False
dmio Logical Disk Manager Driver
c:\winnt\system32\drivers\dmio.sys Kernel Driver True
Boot Running OK Normal False True
dmload dmload c:\winnt\system32\drivers\dmload.sys Kernel
Driver True Boot Running OK Normal False
True
e1000 Intel(R) PRO/1000 Network Connection Driver
c:\winnt\system32\drivers\e1000nt5.sys Kernel Driver True
Manual Running OK Normal False True
e100b Intel(R) PRO Adapter Driver
c:\winnt\system32\drivers\e100bnt5.sys Kernel Driver False
Manual Stopped OK Normal False False
efs EFS c:\winnt\system32\drivers\efs.sys File System Driver
True Disabled Running OK Normal False True
fastfat Fastfat c:\winnt\system32\drivers\fastfat.sys File System
Driver True Disabled Running OK Normal False
True
fd16_700 Fd16_700 Not Available Kernel Driver False
Disabled Stopped OK Normal False False
fdc Floppy Disk Controller Driver c:\winnt\system32\drivers\fdc.sys
Kernel Driver True Manual Running OK Normal
False True
fips Fips c:\winnt\system32\drivers\fips.sys Kernel
Driver True Auto Running OK Normal False
True
fireport fireport Not Available Kernel Driver False
Disabled Stopped OK Normal False False

flashpnt flashpnt Not Available Kernel Driver False
Disabled Stopped OK Normal False False
flpydisk Floppy Disk Driver c:\winnt\system32\drivers\flpydisk.sys
Kernel Driver True Manual Running OK Normal
False True
ftdisk Volume Manager Driver
c:\winnt\system32\drivers\ftdisk.sys Kernel Driver True
Boot Running OK Normal False True
gpc Generic Packet Classifier
c:\winnt\system32\drivers\msgpc.sys Kernel Driver True
Manual Running OK Normal False True
i8042prt i8042 Keyboard and PS/2 Mouse Port Driver
c:\winnt\system32\drivers\i8042prt.sys Kernel Driver True
System Running OK Normal False True
ibmfe IBM 10/100 Ethernet PCI Adapter NT Driver
c:\winnt\system32\drivers\ibmfent5.sys Kernel Driver False
Manual Stopped OK Normal False False
ini910u ini910u Not Available Kernel Driver False
Disabled Stopped OK Normal False False
intelide IntelIde Not Available Kernel Driver False
Disabled Stopped OK Normal False False
ipfilterdriver IP Traffic Filter Driver
c:\winnt\system32\drivers\ipfltdrv.sys Kernel Driver False
Manual Stopped OK Normal False False
ipinip IP in IP Tunnel Driverc:\winnt\system32\drivers\ipinip.sys
Kernel Driver False Manual Stopped OK Normal
False False
ipnat IP Network Address Translator c:\winnt\system32\drivers\ipnat.sys
Kernel Driver False Manual Stopped OK Normal
False False
ipsec IPSEC driver c:\winnt\system32\drivers\ipsec.sys
Kernel Driver True Manual Running OK Normal
False True
ipsraidn ipsraidn Not Available Kernel Driver False
Disabled Stopped OK Normal False False
irenum IR Enumerator Service
c:\winnt\system32\drivers\irenum.sys Kernel Driver False
Manual Stopped OK Normal False False
isapnp PnP ISA/EISA Bus Driver
c:\winnt\system32\drivers\isapnp.sys Kernel Driver True
Boot Running OK Critical False True
kbdclass Keyboard Class Driver
c:\winnt\system32\drivers\kbdclass.sys Kernel Driver True
System Running OK Normal False True
ksecdd KSecDD c:\winnt\system32\drivers\ksecdd.sys Kernel
Driver True Boot Running OK Normal False
True
lbrtfdc lbrtfdc Not Available Kernel Driver False
System Stopped OK Ignore False False
lp6nds35 lp6nds35 Not Available Kernel Driver False
Disabled Stopped OK Normal False False
mnmdd mnmdd c:\winnt\system32\drivers\mnmdd.sys Kernel
Driver True System Running OK Ignore False
True
modem Modem c:\winnt\system32\drivers\modem.sys Kernel
Driver False Manual Stopped OK Ignore False
False
mouclass Mouse Class Driver c:\winnt\system32\drivers\mouclass.sys
Kernel Driver True System Running OK Normal
False True
mountmgr MountMgr c:\winnt\system32\drivers\mountmgr.sys Kernel
Driver True Boot Running OK Normal False
True
mraid35x mraid35x Not Available Kernel Driver False
Disabled Stopped OK Normal False False
mrxsmb MRXSMB c:\winnt\system32\drivers\mrxsmb.sys File System
Driver True System Running OK Normal False
True
msfs Msfs c:\winnt\system32\drivers\msfs.sys File System
Driver True System Running OK Normal False
True
msksrv Microsoft Streaming Service Proxy
c:\winnt\system32\drivers\msksrv.sys Kernel Driver False
Manual Stopped OK Normal False False
mspclock Microsoft Streaming Clock Proxy
c:\winnt\system32\drivers\mspclock.sys Kernel Driver False
Manual Stopped OK Normal False False
mspqm Microsoft Streaming Quality Manager Proxy
c:\winnt\system32\drivers\mspqm.sys Kernel Driver False
Manual Stopped OK Normal False False
mup Mup c:\winnt\system32\drivers\mup.sys File System
Driver True Boot Running OK Normal False
True
nal Nal Service \??\c:\winnt\system32\drivers\iqvw32.sys
Kernel Driver False Manual Stopped OK Normal
False False
ncrc710 Ncrc710 Not Available Kernel Driver False
Disabled Stopped OK Normal False False
ndis NDIS System Driver c:\winnt\system32\drivers\ndis.sys
Kernel Driver True Boot Running OK Normal
False True
ndistapi Remote Access NDIS TAPI Driver
c:\winnt\system32\drivers\ndistapi.sys Kernel Driver True
Manual Running OK Normal False True
ndisuio NDIS Usermode I/O Protocol
c:\winnt\system32\drivers\ndisuio.sys Kernel Driver False
Manual Stopped OK Normal False False
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\netdtect.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
nwlnkflt IPX Traffic Filter Driver
c:\winnt\system32\drivers\nwlnkflt.sys Kernel Driver False
Manual Stopped OK Normal False False
nwlnkfwd IPX Traffic Forwarder Driver
c:\winnt\system32\drivers\nwlnkfwd.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
pdrframe PDRFRAME Not Available Kernel Driver
False Manual Stopped OK Ignore False False
pptpminiport WAN Miniport (PPTP)
c:\winnt\system32\drivers\raspptp.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
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
rdpdr Terminal Server Device Redirector Driver
c:\winnt\system32\drivers\rdpdr.sys Kernel Driver True
Manual Running OK Normal False True
rdpwd RDPWD c:\winnt\system32\drivers\rdpwd.sys Kernel
Driver True Manual Running OK Ignore False
True
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
sparrow Sparrow Not Available Kernel Driver False
Disabled Stopped OK Normal False False
spud Special Purpose Utility Driver c:\winnt\system32\drivers\spud.sys
Kernel Driver True Manual Running OK Normal
False True
srv Srv c:\winnt\system32\drivers\srv.sys File System Driver
True Manual Running OK Normal False True
swenum Software Bus Driver c:\winnt\system32\drivers\swenum.sys
Kernel Driver True Manual Running OK Normal
False True
symc810 symc810 Not Available Kernel Driver False
Disabled Stopped OK Normal False False
symc8xx symc8xx Not Available Kernel Driver False
Disabled Stopped OK Normal False False
sym_hi sym_hi Not Available Kernel Driver False
Disabled Stopped OK Normal False False
tcpip TCP/IP Protocol Driver c:\winnt\system32\drivers\tcpip.sys
Kernel Driver True System Running OK Normal
False True
tdasync TDASYNC c:\winnt\system32\drivers\tdasync.sys
Kernel Driver False Manual Stopped OK Ignore
False False
tdipx TDIPX c:\winnt\system32\drivers\tdipx.sys Kernel
Driver False Manual Stopped OK Ignore False
False
tdnetb TDNETB c:\winnt\system32\drivers\tdnetb.sys Kernel
Driver False Manual Stopped OK Ignore False
False
tdpipe TDPIPE c:\winnt\system32\drivers\tdpipe.sys Kernel
Driver False Manual Stopped OK Ignore False
False
tdspx TDSPX c:\winnt\system32\drivers\tdspx.sys Kernel
Driver False Manual Stopped OK Ignore False
False
tdtcp TDTCP c:\winnt\system32\drivers\tdtcp.sys Kernel
Driver True Manual Running OK Ignore False
True
termdd Terminal Device Driver
c:\winnt\system32\drivers\termdd.sys Kernel Driver True
Auto Running OK Normal False True
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
False
uhcd Microsoft USB Universal Host Controller Driver
c:\winnt\system32\drivers\uhcd.sys Kernel Driver True
Manual Running OK Normal False True
ultra66 ultra66 Not Available Kernel Driver False
Disabled Stopped OK Normal False False
update Microcode Update Driver
c:\winnt\system32\drivers\update.sys Kernel Driver True
Manual Running OK Normal False True
usbehci Microsoft USB 2.0 Enhanced Host Controller Miniport Driver
c:\winnt\system32\drivers\usbehci.sys Kernel Driver True
Manual Running OK Normal False True
usbhub Microsoft USB Standard Hub Driver
c:\winnt\system32\drivers\usbhub.sys Kernel Driver True
Manual Running OK Normal False True

usbhub20 USB 2.0 Root Hub Support
c:\winnt\system32\drivers\usbhub20.sys Kernel Driver True
Manual Running OK Normal False True
vgasave VgaSave c:\winnt\system32\drivers\vga.sys Kernel
Driver True System Running OK Ignore False
True
wanarp Remote Access IP ARP Driver
c:\winnt\system32\drivers\wanarp.sys Kernel Driver True
Manual Running OK Normal False True
wdica WDICA Not Available Kernel Driver False
Manual Stopped OK Ignore False False

[Environment Variables]

Variable Value User Name
CLASSPATH
.;C:\SQLLIB\java\db2java.zip;C:\SQLLIB\java\db2jcc.jar;C:\SQLLIB\java\db2
jcc_license_cu.jar;C:\SQLLIB\bin <SYSTEM>
ComSpec %SystemRoot%\system32\cmd.exe <SYSTEM>
DB2INSTANCE DB2 <SYSTEM>
DB2TEMPDIR C:\SQLLIB\ <SYSTEM>
NUMBER_OF_PROCESSORS 4 <SYSTEM>
OS Windows_NT <SYSTEM>
Os2LibPath %SystemRoot%\system32\os2\dll; <SYSTEM>
Path
%SystemRoot%\system32;%SystemRoot%;%SystemRoot%\System32\Wbem;
C:\SQLLIB\BIN;C:\SQLLIB\FUNCTION;c:\tools;c:\tools\util;C:\Program
Files\Intel\DMIX <SYSTEM>
PATHEXT
.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH <SYSTEM>
PROCESSOR_ARCHITECTURE x86 <SYSTEM>
PROCESSOR_IDENTIFIER x86 Family 15 Model 3 Stepping 4,
GenuineIntel <SYSTEM>
PROCESSOR_LEVEL 15 <SYSTEM>
PROCESSOR_REVISION 0304 <SYSTEM>
TEMP %SystemRoot%\TEMP <SYSTEM>
TMP %SystemRoot%\TEMP <SYSTEM>
windir %SystemRoot% <SYSTEM>
include C:\Program Files\Microsoft Visual
Studio\VC98\atl\include;C:\Program Files\Microsoft Visual
Studio\VC98\mfc\include;C:\Program Files\Microsoft Visual
Studio\VC98\include CLIENT20\Administrator
lib C:\Program Files\Microsoft Visual Studio\VC98\mfc\lib;C:\Program
Files\Microsoft Visual Studio\VC98\lib CLIENT20\Administrator
MSDevDirC:\Program Files\Microsoft Visual Studio\Common\MSDev98
CLIENT20\Administrator
path C:\Program Files\Microsoft Visual
Studio\Common\Tools\WinNT;C:\Program Files\Microsoft Visual
Studio\Common\MSDev98\Bin;C:\Program Files\Microsoft Visual
Studio\Common\Tools;C:\Program Files\Microsoft Visual Studio\VC98\bin
CLIENT20\Administrator
TEMP %USERPROFILE%\Local Settings\Temp
CLIENT20\Administrator
TMP %USERPROFILE%\Local Settings\Temp
CLIENT20\Administrator

[Jobs]

[Following are sub-categories of this main category]

[Print]

Document Size Owner Notify Status Time Submitted
Start Time Until Time Elapsed Time Pages Printed Job ID
Priority Parameters Driver Name Print Processor Host Print
Queue Data Type Name

No print jobs

[Network Connections]

Local Name Remote Name Type Status User Name
E: \\fsserv\ddrive Disk OK

[Running Tasks]

Name Path Process ID Priority Min Working Set Max
Working Set Start Time Version Size File Date
system idle process Not Available 0 0 Not
Available Not Available Not Available Unknown Unknown
Unknown
system Not Available 8 8 0 1413120
Not Available Unknown Unknown Unknown
smss.exe c:\winnt\system32\smss.exe 192 11 204800
1413120 3/21/2005 11:29:48 AM 5.00.2195.6601 44.77 KB
(45,840 bytes) 12/7/1999 7:00:00 AM
csrss.exe Not Available 216 13 Not Available
Not Available 3/21/2005 11:29:51 AM Unknown Unknown
Unknown
winlogon.exe c:\winnt\system32\winlogon.exe 212 13
204800 1413120 3/21/2005 11:29:52 AM 5.00.2195.6714
176.77 KB (181,008 bytes) 11/3/2004 3:03:01 PM
services.exe c:\winnt\system32\services.exe 268 9
204800 1413120 3/21/2005 11:29:53 AM 5.00.2195.6700
87.27 KB (89,360 bytes) 12/7/1999 7:00:00 AM
lsass.exe c:\winnt\system32\lsass.exe 280 9 204800
1413120 3/21/2005 11:29:53 AM 5.00.2195.6695 32.77 KB
(33,552 bytes) 12/7/1999 7:00:00 AM
termsrv.exe c:\winnt\system32\termsrv.exe 388 10
204800 1413120 3/21/2005 11:29:54 AM 5.00.2195.6696
139.27 KB (142,608 bytes) 11/3/2004 3:02:58 PM
svchost.exe c:\winnt\system32\svchost.exe 492 8
204800 1413120 3/21/2005 11:29:55 AM 5.00.2134.1
7.77 KB (7,952 bytes) 12/7/1999 7:00:00 AM
spoolsv.exe c:\winnt\system32\spoolsv.exe 528 8
204800 1413120 3/21/2005 11:29:55 AM 5.00.2195.6659
44.27 KB (45,328 bytes) 11/3/2004 8:42:04 AM
msdtc.exe c:\winnt\system32\msdtc.exe 556 8 204800
1413120 3/21/2005 11:29:55 AM 1999.9.3421.3 6.77 KB
(6,928 bytes) 11/3/2004 8:55:08 AM
db2sec.exe c:\sqllib\bin\db2sec.exe 720 8 204800
1413120 3/21/2005 11:29:56 AM 8.1.7.447 24.06 KB (24,638
bytes) 8/15/2004 9:33:16 PM
svchost.exe c:\winnt\system32\svchost.exe 736 8
204800 1413120 3/21/2005 11:29:57 AM 5.00.2134.1
7.77 KB (7,952 bytes) 12/7/1999 7:00:00 AM
llssrv.exe c:\winnt\system32\llssrv.exe 764 9 204800
1413120 3/21/2005 11:29:57 AM 5.00.2195.6697 81.77 KB
(83,728 bytes) 6/19/2003 1:05:04 PM
regsvc.exe c:\winnt\system32\regsvc.exe 840 8 204800
1413120 3/21/2005 11:29:58 AM 5.00.2195.6701 66.77 KB
(68,368 bytes) 11/3/2004 3:02:53 PM
mstask.exe c:\winnt\system32\mstask.exe 968 8 204800
1413120 3/21/2005 11:30:13 AM 4.71.2195.6704 116.77 KB
(119,568 bytes) 11/3/2004 3:02:46 PM
tcpsvcs.exe c:\winnt\system32\tcpsvcs.exe 1052 8
204800 1413120 3/21/2005 11:30:13 AM 5.00.2134.1
24.77 KB (25,360 bytes) 12/7/1999 7:00:00 AM
winmgmt.exe c:\winnt\system32\wbem\winmgmt.exe 1096 8
204800 1413120 3/21/2005 11:30:13 AM 1.50.1085.0100
192.10 KB (196,706 bytes) 11/3/2004 3:03:07 PM

svchost.exe c:\winnt\system32\svchost.exe 1112 8
204800 1413120 3/21/2005 11:30:14 AM 5.00.2134.1
7.77 KB (7,952 bytes) 12/7/1999 7:00:00 AM
inetinfo.exe c:\winnt\system32\inetsrv\inetinfo.exe 1124 8
204800 1413120 3/21/2005 11:30:14 AM 5.00.0984 14.27 KB
(14,608 bytes) 11/3/2004 3:03:22 PM
dfssvc.exe c:\winnt\system32\dfssvc.exe 1232 8 204800
1413120 3/21/2005 11:30:22 AM 5.00.2195.6664 88.77 KB
(90,896 bytes) 11/3/2004 3:02:32 PM
explorer.exe c:\winnt\explorer.exe 1444 8 204800
1413120 3/21/2005 11:31:22 AM 5.00.3700.6690 237.77 KB
(243,472 bytes) 11/3/2004 3:03:02 PM
mdm.exe c:\winnt\system32\mdm.exe 1632 8 204800
1413120 3/21/2005 11:31:24 AM 6.00.8424 121.29 KB (124,200
bytes) 11/3/2004 8:56:48 AM
svchost.exe c:\winnt\system32\svchost.exe 1680 8
204800 1413120 3/21/2005 11:31:27 AM 5.00.2134.1
7.77 KB (7,952 bytes) 12/7/1999 7:00:00 AM
csrss.exe Not Available 172 13 Not Available
Not Available 3/21/2005 4:21:03 PM Unknown Unknown
Unknown
winlogon.exe c:\winnt\system32\winlogon.exe 1468 13
204800 1413120 3/21/2005 4:21:03 PM 5.00.2195.6714
176.77 KB (181,008 bytes) 11/3/2004 3:03:01 PM
rdpclip.exec:\winnt\system32\rdpclip.exe 512 8 204800
1413120 3/21/2005 4:21:09 PM 5.00.2174.1 39.77 KB
(40,720 bytes) 11/3/2004 8:55:10 AM
explorer.exe c:\winnt\explorer.exe 876 8 204800
1413120 3/21/2005 4:21:09 PM 5.00.3700.6690 237.77 KB
(243,472 bytes) 11/3/2004 3:03:02 PM
mmc.exe c:\winnt\system32\mmc.exe 1164 8 204800
1413120 3/21/2005 4:22:05 PM 5.00.2195.6601 589.27 KB
(603,408 bytes) 11/3/2004 3:02:41 PM
mdm.exe c:\winnt\system32\mdm.exe 1316 8 204800
1413120 3/21/2005 4:22:37 PM 6.00.8424 121.29 KB (124,200
bytes) 11/3/2004 8:56:48 AM
rsvp.exe c:\winnt\system32\rsvp.exe 1928 8 204800
1413120 3/21/2005 4:23:43 PM 5.00.2195.6663 172.77 KB
(176,912 bytes) 11/3/2004 3:02:54 PM

[Loaded Modules]

Name Version Size File Date Manufacturer Path
rsvp.exe 5.00.2195.6663 172.77 KB (176,912 bytes) 11/3/2004
3:02:54 PM Microsoft Corporation
c:\winnt\system32\rsvp.exe
wbemprox.dll 1.50.1085.0100 40.10 KB (41,061 bytes)
11/3/2004 3:03:07 PM Microsoft Corporation
c:\winnt\system32\wbem\wbemprox.dll
olepro32.dll 5.0.4522 160.27 KB (164,112 bytes) 11/3/2004
3:02:51 PM Microsoft Corporation
c:\winnt\system32\olepro32.dll
dmocx.dll 5.00.2134.1 23.27 KB (23,824 bytes) 12/7/1999
7:00:00 AM Microsoft Corporation
c:\winnt\system32\dmocx.dll
rassapi.dll 5.00.2195.6604 14.27 KB (14,608 bytes) 11/3/2004
3:02:53 PM Microsoft Corporation
c:\winnt\system32\rassapi.dll
adsnt.dll 5.00.2195.6658 196.77 KB (201,488 bytes) 11/3/2004
3:02:26 PM Microsoft Corporation
c:\winnt\system32\adsnt.dll
dbghelp.dll 5.00.2195.6613 159.27 KB (163,088 bytes)
6/19/2003 1:05:04 PM Microsoft Corporation
c:\winnt\system32\dbghelp.dll
localsec.dll 5.00.2195.6623 240.27 KB (246,032 bytes)
11/3/2004 3:02:40 PM Microsoft Corporation
c:\winnt\system32\localsec.dll
devmgr.dll 5.00.2195.6619 216.77 KB (221,968 bytes) 11/3/2004
3:02:32 PM Microsoft Corporation
c:\winnt\system32\devmgr.dll
filemgmt.dll 5.00.2195.6601 287.77 KB (294,672 bytes)
11/3/2004 3:02:35 PM Microsoft Corporation
c:\winnt\system32\filemgmt.dll
pdh.dll 5.00.2195.6660 148.27 KB (151,824 bytes) 11/3/2004
3:02:51 PM Microsoft Corporation
c:\winnt\system32\pdh.dll
smlogcfg.dll 5.00.2195.6612 278.77 KB (285,456 bytes)
11/3/2004 3:02:56 PM Microsoft Corporation
c:\winnt\system32\smlogcfg.dll
cabinet.dll 5.00.2147.1 54.77 KB (56,080 bytes) 12/7/1999
7:00:00 AM Microsoft Corporation
c:\winnt\system32\cabinet.dll
msinfo32.dll 5.00.2195.6601 312.27 KB (319,760 bytes)
11/3/2004 3:03:09 PM Microsoft Corporation c:\program
files\common files\microsoft shared\msinfo\msinfo32.dll
riched20.dll 5.30.23.1215 421.77 KB (431,888 bytes)
11/3/2004 3:02:53 PM Microsoft Corporation
c:\winnt\system32\riched20.dll
riched32.dll 5.00.2134.1 3.77 KB (3,856 bytes) 12/7/1999
7:00:00 AM Microsoft Corporation
c:\winnt\system32\riched32.dll
els.dll 5.00.2195.6610 154.27 KB (157,968 bytes) 11/3/2004
3:02:34 PM Microsoft Corporation
c:\winnt\system32\els.dll
ntmsmgr.dll 1,0,0,1 427.77 KB (438,032 bytes) 12/7/1999
7:00:00 AM Microsoft Corporation and HighGround Systems, Inc.
c:\winnt\system32\ntmsmgr.dll
mmfutil.dll1.50.1085.0000 32.06 KB (32,829 bytes) 12/7/1999
7:00:00 AM Microsoft Corporation
c:\winnt\system32\mmfutil.dll
logdrive.dll 1.50.1085.0000 200.06 KB (204,863 bytes)
12/7/1999 7:00:00 AM Microsoft Corporation
c:\winnt\system32\logdrive.dll
dfrgres.dll 5.00.2150.1 27.50 KB (28,160 bytes) 12/7/1999
7:00:00 AM Executive Software International, Inc.
c:\winnt\system32\dfrgres.dll
dfrgsnap.dll 5.00.2195.6605 41.77 KB (42,768 bytes)
11/3/2004 3:02:32 PM Executive Software International, Inc.
c:\winnt\system32\dfrgsnap.dll
dmdskres.dll 2195.6605.297.3 119.50 KB (122,368 bytes)
11/3/2004 3:02:33 PM Microsoft Corp., VERITAS Software
c:\winnt\system32\dmdskres.dll
dmutil.dll 2195.6605.297.3 42.27 KB (43,280 bytes) 11/3/2004
3:02:33 PM VERITAS Software Corp.
c:\winnt\system32\dmutil.dll
ntmsapi.dll5.00.1948.1 52.27 KB (53,520 bytes) 11/3/2004
3:02:49 PM Microsoft Corporation
c:\winnt\system32\ntmsapi.dll
dmdskmgr.dll 2195.6605.297.3 159.77 KB (163,600 bytes)
11/3/2004 3:02:33 PM Microsoft Corp., VERITAS Software
c:\winnt\system32\dmdskmgr.dll
mycomput.dll 5.00.2195.6601 107.77 KB (110,352 bytes)
11/3/2004 3:02:47 PM Microsoft Corporation
c:\winnt\system32\mycomput.dll
mmcndmgr.dll 5.00.2195.6601 816.27 KB (835,856 bytes)
11/3/2004 3:02:41 PM Microsoft Corporation
c:\winnt\system32\mmcndmgr.dll
mmc.exe 5.00.2195.6601 589.27 KB (603,408 bytes) 11/3/2004
3:02:41 PM Microsoft Corporation
c:\winnt\system32\mmc.exe
mshtmled.dll 5.00.3700.6699 229.77 KB (235,280 bytes)
11/3/2004 3:02:44 PM Microsoft Corporation
c:\winnt\system32\mshtmled.dll

netplwiz.dll 5.00.2195.6601 169.77 KB (173,840 bytes) 11/3/2004 3:02:48 PM Microsoft Corporation c:\winnt\system32\netplwiz.dll
netmsg.dll 5.00.2137.1 152.50 KB (156,160 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\netmsg.dll
netui2.dll 5.00.2134.1 280.27 KB (286,992 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\netui2.dll
mprui.dll 5.00.2195.6601 54.77 KB (56,080 bytes) 11/3/2004 3:02:42 PM Microsoft Corporation c:\winnt\system32\mprui.dll
hhsetup.dll 5.2.3644.0 37.00 KB (37,888 bytes) 11/3/2004 3:02:37 PM Microsoft Corporation c:\winnt\system32\hhsetup.dll
mmcshext.dll 5.00.2153.1 24.27 KB (24,848 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\mmcshext.dll
rdpclip.exe 5.00.2174.1 39.77 KB (40,720 bytes) 11/3/2004 8:55:10 AM Microsoft Corporation c:\winnt\system32\rdpclip.exe
mscms.dll 5.00.2180.1 68.27 KB (69,904 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\mscms.dll
printui.dll 5.00.2195.6702 372.77 KB (381,712 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\printui.dll
h323.tsp 5.00.2195.6699 248.77 KB (254,736 bytes) 11/3/2004 3:02:36 PM Microsoft Corporation c:\winnt\system32\h323.tsp
ipconf.tsp 5.00.2143.1 10.77 KB (11,024 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\ipconf.tsp
ndptsp.tsp 5.00.2143.1 38.27 KB (39,184 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\ndptsp.tsp
kmddsp.tsp 5.00.2150.1 17.77 KB (18,192 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\kmddsp.tsp
uniplat.dll 5.00.2195.6601 14.27 KB (14,608 bytes) 11/3/2004 3:02:59 PM Microsoft Corporation c:\winnt\system32\uniplat.dll
unimdm.tsp 5.00.2195.6601 199.27 KB (204,048 bytes) 11/3/2004 3:02:59 PM Microsoft Corporation c:\winnt\system32\unimdm.tsp
tapisrv.dll 5.00.2195.6666 169.27 KB (173,328 bytes) 11/3/2004 3:02:58 PM Microsoft Corporation c:\winnt\system32\tapisrv.dll
mdm.exe 6.00.8424 121.29 KB (124,200 bytes) 11/3/2004 8:56:48 AM Microsoft Corporation c:\winnt\system32\mdm.exe
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
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
avifil32.dll 5.00.2195.6612 76.77 KB (78,608 bytes) 11/3/2004 3:02:27 PM Microsoft Corporation c:\winnt\system32\avifil32.dll
msvfw32.dll 5.00.2195.6612 113.77 KB (116,496 bytes) 11/3/2004 3:02:46 PM 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
imgutil.dll 5.00.3700.6682 30.77 KB (31,504 bytes) 11/3/2004 3:02:37 PM Microsoft Corporation c:\winnt\system32\imgutil.dll
mydocs.dll 5.00.3502.6601 55.77 KB (57,104 bytes) 11/3/2004 3:02:47 PM Microsoft Corporation c:\winnt\system32\mydocs.dll
webvw.dll 5.00.2920.0000 1.06 MB (1,115,408 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\webvw.dll
imm32.dll 5.00.2195.6655 94.27 KB (96,528 bytes) 11/3/2004 3:02:37 PM Microsoft Corporation c:\winnt\system32\imm32.dll
msls31.dll 3.10.337.0 145.27 KB (148,752 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\msls31.dll
msdbg.dll 6.00.8424 67.50 KB (69,120 bytes) 11/3/2004 8:56:48 AM Microsoft Corporation c:\winnt\system32\msdbg.dll
shdoclc.dll 5.00.3700.6668 324.50 KB (332,288 bytes) 11/3/2004 3:02:55 PM Microsoft Corporation c:\winnt\system32\shdoclc.dll
pdm.dll 6.00.8424 179.27 KB (183,574 bytes) 11/3/2004 8:56:49 AM Microsoft Corporation c:\winnt\system32\pdm.dll
mshtml.dll 5.00.3700.6699 2.24 MB (2,353,936 bytes) 11/3/2004 3:02:43 PM Microsoft Corporation c:\winnt\system32\mshtml.dll
mlang.dll 5.00.3700.6655 510.77 KB (523,024 bytes) 11/3/2004 3:02:41 PM Microsoft Corporation c:\winnt\system32\mlang.dll
urlmon.dll 5.00.3700.6705 442.77 KB (453,392 bytes) 11/3/2004 3:02:59 PM Microsoft Corporation c:\winnt\system32\urlmon.dll
powrprof.dll 5.00.3502.6601 13.27 KB (13,584 bytes) 11/3/2004 3:02:52 PM Microsoft Corporation c:\winnt\system32\powrprof.dll
batmeter.dll 5.00.3502.6601 20.27 KB (20,752 bytes) 11/3/2004 3:02:28 PM Microsoft Corporation c:\winnt\system32\batmeter.dll
stobject.dll 5.00.2195.6601 79.27 KB (81,168 bytes) 11/3/2004 3:02:57 PM Microsoft Corporation c:\winnt\system32\stobject.dll
msi.dll 2.0.2600.1183 1.92 MB (2,017,792 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\msi.dll
webcheck.dll 5.00.3502.6601 251.77 KB (257,808 bytes) 11/3/2004 3:03:00 PM Microsoft Corporation c:\winnt\system32\webcheck.dll
browselc.dll 5.00.3700.6661 34.50 KB (35,328 bytes) 11/3/2004 3:02:28 PM Microsoft Corporation c:\winnt\system32\browselc.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
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
browseui.dll 5.00.3700.6661 789.27 KB (808,208 bytes) 11/3/2004 3:02:28 PM Microsoft Corporation c:\winnt\system32\browseui.dll
shdocvw.dll 5.00.3700.6668 1.06 MB (1,107,728 bytes) 11/3/2004 3:02:55 PM Microsoft Corporation c:\winnt\system32\shdocvw.dll
explorer.exe 5.00.3700.6690 237.77 KB (243,472 bytes) 11/3/2004 3:03:02 PM Microsoft Corporation c:\winnt\explorer.exe
dfssvc.exe 5.00.2195.6664 88.77 KB (90,896 bytes) 11/3/2004 3:02:32 PM Microsoft Corporation c:\winnt\system32\dfssvc.exe
iislog.dll 5.00.0984 75.27 KB (77,072 bytes) 11/3/2004 3:03:21 PM Microsoft Corporation c:\winnt\system32\inetsrv\iislog.dll
ilsdbx.dll 5.00.0984 56.27 KB (57,616 bytes) 3/15/2005 3:51:03 PM Microsoft Corporation c:\winnt\system32\inetsrv\ilsdbx.dll

msrd3x40.dll 4.00.6508.0 308.27 KB (315,664 bytes) 11/3/2004 3:02:45 PM Microsoft Corporation c:\winnt\system32\msrd3x40.dll
odbccp32.dll 3.520.7713.0 92.00 KB (94,208 bytes) 11/3/2004 5:27:34 PM Microsoft Corporation c:\winnt\system32\odbccp32.dll
mtxdm.dll 2000.2.3504.0 22.77 KB (23,312 bytes) 11/3/2004 3:02:47 PM Microsoft Corporation c:\winnt\system32\mtxdm.dll
odbcji32.dll 4.0.6200.0 52.27 KB (53,520 bytes) 11/3/2004 3:02:50 PM Microsoft Corporation c:\winnt\system32\odbcji32.dll
odbcjt32.dll 4.0.6200.0 264.27 KB (270,608 bytes) 11/3/2004 3:02:50 PM Microsoft Corporation c:\winnt\system32\odbcjt32.dll
msdasqlr.dll 2.70.7713.0 built by: Lab06_N(dagbuild) 16.00 KB (16,384 bytes) 11/3/2004 5:27:34 PM Microsoft Corporation c:\program files\common files\system\ole db\msdasqlr.dll
msdatl3.dll2.70.7713.0 built by: Lab06_N(dagbuild) 84.00 KB (86,016 bytes) 11/3/2004 5:27:34 PM Microsoft Corporation c:\program files\common files\system\ole db\msdatl3.dll
msdasql.dll 2.70.7713.0 built by: Lab06_N(dagbuild) 296.00 KB (303,104 bytes) 11/3/2004 5:27:34 PM Microsoft Corporation c:\program files\common files\system\ole db\msdasql.dll
ldapdbx.dll 5.00.0984 73.27 KB (75,024 bytes) 3/15/2005 3:51:03 PM Microsoft Corporation c:\winnt\system32\inetsrv\ldapdbx.dll
dscomobx.dll 5.00.0984 188.77 KB (193,296 bytes) 3/15/2005 3:51:03 PM Microsoft Corporation c:\winnt\system32\inetsrv\dscomobx.dll
httpext.dll 5.00.0984 240.77 KB (246,544 bytes) 11/3/2004 3:03:21 PM Microsoft Corporation c:\winnt\system32\inetsrv\httpext.dll
rpcproxy.dll 5.00.2195.6701 16.27 KB (16,656 bytes) 11/3/2004 3:04:06 PM Microsoft Corporation c:\winnt\system32\rpcproxy\rpcproxy.dll
fpexedll.dll 4.0.2.7523 20.06 KB (20,541 bytes) 11/3/2004 3:03:13 PM Microsoft Corporation c:\program files\common files\microsoft shared\web server extensions\40\bin\fpexedll.dll
md5filt.dll 5.00.0984 32.77 KB (33,552 bytes) 11/3/2004 3:03:23 PM Microsoft Corporation c:\winnt\system32\inetsrv\md5filt.dll
gzip.dll 5.00.0984 30.27 KB (30,992 bytes) 11/3/2004 3:03:21 PM Microsoft Corporation c:\winnt\system32\inetsrv\gzip.dll
compfilt.dll 5.00.0984 22.77 KB (23,312 bytes) 11/3/2004 3:03:21 PM Microsoft Corporation c:\winnt\system32\inetsrv\compfilt.dll
odbcint.dll 3.520.7713.0 88.00 KB (90,112 bytes) 11/3/2004 5:27:33 PM Microsoft Corporation c:\winnt\system32\odbcint.dll
odbc32.dll 3.520.7713.0 196.00 KB (200,704 bytes) 11/3/2004 5:27:34 PM Microsoft Corporation c:\winnt\system32\odbc32.dll
ldapaclx.dll 5.00.0984 8.27 KB (8,464 bytes) 3/15/2005 3:51:03 PM Microsoft Corporation c:\winnt\system32\inetsrv\ldapaclx.dll
storedbx.dll 5.00.0984 251.27 KB (257,296 bytes) 11/3/2004 3:03:26 PM Microsoft Corporation c:\winnt\system32\inetsrv\storedbx.dll
ladminx.dll 5.00.0984 61.27 KB (62,736 bytes) 11/3/2004 3:04:05 PM Microsoft Corporation c:\winnt\system32\inetsrv\ladminx.dll
sspifilt.dll 5.00.0984 42.77 KB (43,792 bytes) 11/3/2004 3:03:23 PM Microsoft Corporation c:\winnt\system32\inetsrv\sspifilt.dll
iscomlog.dll 5.00.0984 24.27 KB (24,848 bytes) 11/3/2004 3:03:22 PM Microsoft Corporation c:\winnt\system32\inetsrv\iscomlog.dll
lonsint.dll 5.00.0984 11.77 KB (12,048 bytes) 11/3/2004 3:03:22 PM Microsoft Corporation c:\winnt\system32\inetsrv\lonsint.dll
inetsloc.dll5.00.0984 20.27 KB (20,752 bytes) 11/3/2004 3:02:38 PM Microsoft Corporation c:\winnt\system32\inetsloc.dll
w3svc.dll 5.00.0984 338.27 KB (346,384 bytes) 11/3/2004 3:03:23 PM Microsoft Corporation c:\winnt\system32\inetsrv\w3svc.dll
staxmem.dll 5.00.0984 8.27 KB (8,464 bytes) 11/3/2004 3:02:57 PM Microsoft Corporation c:\winnt\system32\staxmem.dll
exstrace.dll 5.00.0984 13.77 KB (14,096 bytes) 11/3/2004 8:55:28 AM Microsoft Corporation c:\winnt\system32\exstrace.dll
iisfecnv.dll5.00.0984 7.27 KB (7,440 bytes) 11/3/2004 8:55:27 AM Microsoft Corporation c:\winnt\system32\inetsrv\iisfecnv.dll
isatq.dll 5.00.0984 61.27 KB (62,736 bytes) 11/3/2004 3:03:22 PM Microsoft Corporation c:\winnt\system32\inetsrv\isatq.dll
infocomm.dll 5.00.0984 242.27 KB (248,080 bytes) 11/3/2004 3:03:22 PM Microsoft Corporation c:\winnt\system32\inetsrv\infocomm.dll
ldapsvcx.dll 5.00.0984 126.77 KB (129,808 bytes) 11/3/2004 3:03:33 PM Microsoft Corporation c:\winnt\system32\inetsrv\ldapsvcx.dll
security.dll5.00.2154.1 5.77 KB (5,904 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\security.dll
svcext.dll 5.00.0984 39.77 KB (40,720 bytes) 11/3/2004 3:03:23 PM Microsoft Corporation c:\winnt\system32\inetsrv\svcext.dll
admexs.dll 5.00.0984 27.77 KB (28,432 bytes) 11/3/2004 3:03:20 PM Microsoft Corporation c:\winnt\system32\inetsrv\admexs.dll
wamreg.dll5.00.0984 45.77 KB (46,864 bytes) 11/3/2004 3:03:24 PM Microsoft Corporation c:\winnt\system32\inetsrv\wamreg.dll
metadata.dll 5.00.0984 68.77 KB (70,416 bytes) 11/3/2004 3:03:23 PM Microsoft Corporation c:\winnt\system32\inetsrv\metadata.dll
iismap.dll 5.00.0984 56.27 KB (57,616 bytes) 11/3/2004 3:02:37 PM Microsoft Corporation c:\winnt\system32\iismap.dll
nsepm.dll 5.00.0984 43.27 KB (44,304 bytes) 11/3/2004 3:03:23 PM Microsoft Corporation c:\winnt\system32\inetsrv\nsepm.dll
admwprox.dll 5.00.0984 31.77 KB (32,528 bytes) 11/3/2004 8:55:27 AM Microsoft Corporation c:\winnt\system32\admwprox.dll
coadmin.dll 5.00.0984 39.77 KB (40,720 bytes) 11/3/2004 3:03:21 PM Microsoft Corporation c:\winnt\system32\inetsrv\coadmin.dll
iisadmin.dll 5.00.0984 15.77 KB (16,144 bytes) 11/3/2004 3:03:21 PM Microsoft Corporation c:\winnt\system32\inetsrv\iisadmin.dll
rpcref.dll 5.00.0984 4.27 KB (4,368 bytes) 11/3/2004 3:03:23 PM Microsoft Corporation c:\winnt\system32\inetsrv\rpcref.dll
iisrtl.dll 5.00.0984 121.27 KB (124,176 bytes) 11/3/2004 3:02:37 PM Microsoft Corporation c:\winnt\system32\iisrtl.dll
inetinfo.exe 5.00.0984 14.27 KB (14,608 bytes) 11/3/2004 3:03:22 PM Microsoft Corporation c:\winnt\system32\inetsrv\inetinfo.exe
winhttp.dll 5.1.2600.1188 (xpsp2.030318-2132) 303.50 KB (310,784 bytes) 11/3/2004 3:03:20 PM Microsoft Corporation c:\winnt\system32\winhttp.dll
wininet.dll 5.00.3700.6713 455.77 KB (466,704 bytes) 11/3/2004 3:03:01 PM Microsoft Corporation c:\winnt\system32\wininet.dll
utildll.dll 5.00.2195.6701 25.77 KB (26,384 bytes) 11/3/2004 3:02:59 PM 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 5.00.3502.6601 86.77 KB (88,848 bytes) 11/3/2004 3:02:26 PM Microsoft Corporation c:\winnt\system32\advpack.dll
wuaueng.dll 5.4.3630.2554 built by: lab04_n 188.00 KB (192,512 bytes) 11/3/2004 3:03:20 PM Microsoft Corporation c:\winnt\system32\wuaueng.dll

wuauserv.dll 5.4.3630.2554 built by: lab04_n 9.00 KB (9,216 bytes) 11/3/2004 3:03:20 PM Microsoft Corporation c:\winnt\system32\wuauserv.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 5.00.2195.6601 70.27 KB (71,952 bytes) 11/3/2004 3:02:48 PM Microsoft Corporation c:\winnt\system32\netui0.dll
ntlanman.dll 5.00.2195.6601 35.27 KB (36,112 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\ntlanman.dll
wshnetbs.dll 5.00.2134.1 7.77 KB (7,952 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\wshnetbs.dll
provthrd.dll 1.50.1085.0000 68.07 KB (69,708 bytes) 11/3/2004 1:58:37 PM Microsoft Corporation c:\winnt\system32\wbem\provthrd.dll
ntevt.dll 1.50.1085.0072 192.06 KB (196,671 bytes) 11/3/2004 3:03:06 PM Microsoft Corporation c:\winnt\system32\wbem\ntevt.dll
perfos.dll 5.00.2155.1 21.27 KB (21,776 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\perfos.dll
psapi.dll 5.00.2134.1 28.27 KB (28,944 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\psapi.dll
framedyn.dll 1.50.1085.0076 164.07 KB (168,009 bytes) 11/3/2004 3:03:06 PM Microsoft Corporation c:\winnt\system32\wbem\framedyn.dll
cimwin32.dll 1.50.1085.0103 1.04 MB (1,089,637 bytes) 11/3/2004 3:03:05 PM Microsoft Corporation c:\winnt\system32\wbem\cimwin32.dll
wbemsvc.dll 1.50.1085.0007 40.07 KB (41,036 bytes) 11/3/2004 3:03:07 PM Microsoft Corporation c:\winnt\system32\wbem\wbemsvc.dll
wbemess.dll 1.50.1085.0100 364.09 KB (372,825 bytes) 11/3/2004 3:03:07 PM Microsoft Corporation c:\winnt\system32\wbem\wbemess.dll
fastprox.dll 1.50.1085.0100 152.10 KB (155,749 bytes) 11/3/2004 3:03:06 PM Microsoft Corporation c:\winnt\system32\wbem\fastprox.dll
wbemcore.dll 1.50.1085.0100 632.09 KB (647,257 bytes) 11/3/2004 3:03:06 PM Microsoft Corporation c:\winnt\system32\wbem\wbemcore.dll
wbemcomn.dll 1.50.1085.0100 692.09 KB (708,696 bytes) 11/3/2004 3:03:06 PM Microsoft Corporation c:\winnt\system32\wbem\wbemcomn.dll
winmgmt.exe 1.50.1085.0100 192.10 KB (196,706 bytes) 11/3/2004 3:03:07 PM Microsoft Corporation c:\winnt\system32\wbem\winmgmt.exe
simptcp.dll 5.00.2134.1 19.27 KB (19,728 bytes) 3/15/2005 3:51:03 PM 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 4.71.2195.6704 116.77 KB (119,568 bytes) 11/3/2004 3:02:46 PM Microsoft Corporation c:\winnt\system32\mstask.exe
regsvc.exe 5.00.2195.6701 66.77 KB (68,368 bytes) 11/3/2004 3:02:53 PM Microsoft Corporation c:\winnt\system32\regsvc.exe
llsrpc.dll 5.00.2195.6601 47.77 KB (48,912 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\llsrpc.dll
llssrv.exe 5.00.2195.6697 81.77 KB (83,728 bytes) 6/19/2003 1:05:04 PM Microsoft Corporation c:\winnt\system32\llssrv.exe
ipbootp.dll 5.00.2168.1 33.77 KB (34,576 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\ipbootp.dll
cryptui.dll 5.131.2195.6628 433.27 KB (443,664 bytes) 11/3/2004 3:02:31 PM Microsoft Corporation c:\winnt\system32\cryptui.dll
rastls.dll 5.00.2195.6680 98.27 KB (100,624 bytes) 11/3/2004 3:02:53 PM Microsoft Corporation c:\winnt\system32\rastls.dll
raschap.dll 5.00.2195.6663 59.27 KB (60,688 bytes) 11/3/2004 3:02:52 PM Microsoft Corporation c:\winnt\system32\raschap.dll
rasppp.dll 5.00.2195.6626 194.27 KB (198,928 bytes) 11/3/2004 3:02:53 PM Microsoft Corporation c:\winnt\system32\rasppp.dll
rastapi.dll 5.00.2195.6604 52.77 KB (54,032 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\rastapi.dll
rasdlg.dll 5.00.2195.6625 516.77 KB (529,168 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\rasdlg.dll
netcfgx.dll 5.00.2195.6604 534.77 KB (547,600 bytes) 11/3/2004 3:02:47 PM Microsoft Corporation c:\winnt\system32\netcfgx.dll
rasmans.dll 5.00.2195.6696 149.77 KB (153,360 bytes) 11/3/2004 3:02:52 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 5.00.2195.6604 466.27 KB (477,456 bytes) 11/3/2004 3:02:48 PM Microsoft Corporation c:\winnt\system32\netshell.dll
netman.dll 5.00.2195.6660 93.27 KB (95,504 bytes) 11/3/2004 3:02:48 PM Microsoft Corporation c:\winnt\system32\netman.dll
comsvcs.dll 2000.2.3504.0 1.38 MB (1,448,208 bytes) 11/3/2004 3:02:30 PM Microsoft Corporation c:\winnt\system32\comsvcs.dll
ntmsdba.dll 5.00.2195.6655 169.27 KB (173,328 bytes) 11/3/2004 3:02:49 PM Microsoft Corporation c:\winnt\system32\ntmsdba.dll
sens.dll 5.00.2195.6627 37.27 KB (38,160 bytes) 11/3/2004 3:02:54 PM Microsoft Corporation c:\winnt\system32\sens.dll
iashlpr.dll 5.00.2184.1 33.27 KB (34,064 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\iashlpr.dll
iasacct.dll 5.00.2195.6603 28.27 KB (28,944 bytes) 11/3/2004 3:02:37 PM Microsoft Corporation c:\winnt\system32\iasacct.dll
iasuserr.dll 5.00.2195.6622 19.77 KB (20,240 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\iasuserr.dll
iasnap.dll 5.00.2195.6601 58.77 KB (60,176 bytes) 11/3/2004 3:02:37 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 6.0.9589 372.03 KB (380,957 bytes) 11/3/2004 3:02:35 PM Microsoft Corporation c:\winnt\system32\expsrv.dll
vbajet32.dll 6.1.9431 30.03 KB (30,749 bytes) 11/3/2004 3:02:59 PM Microsoft Corporation c:\winnt\system32\vbajet32.dll

msjtes40.dll 4.00.7328.0 236.27 KB (241,936 bytes) 11/3/2004 3:02:45 PM Microsoft Corporation c:\winnt\system32\msjtes40.dll
oledb32r.dll 2.70.7713.0 built by: Lab06_N(dagbuild) 64.00 KB (65,536 bytes) 11/3/2004 5:27:34 PM Microsoft Corporation c:\program files\common files\system\ole db\oledb32r.dll
comdlg32.dll 5.00.3700.6693 235.77 KB (241,424 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\comdlg32.dll
msdart.dll 2.70.7713.0 built by: Lab06_N(dagbuild) 124.00 KB (126,976 bytes) 11/3/2004 5:27:34 PM Microsoft Corporation c:\winnt\system32\msdart.dll
oledb32.dll 2.70.7713.0 built by: Lab06_N(dagbuild) 404.00 KB (413,696 bytes) 11/3/2004 5:27:34 PM Microsoft Corporation c:\program files\common files\system\ole db\oledb32.dll
msjint40.dll 4.00.6508.0 148.27 KB (151,824 bytes) 11/3/2004 3:02:45 PM Microsoft Corporation c:\winnt\system32\msjint40.dll
msjter40.dll 4.00.6508.0 52.27 KB (53,520 bytes) 11/3/2004 3:02:45 PM Microsoft Corporation c:\winnt\system32\msjter40.dll
mswstr10.dll 4.00.6508.0 600.27 KB (614,672 bytes) 11/3/2004 3:02:47 PM Microsoft Corporation c:\winnt\system32\mswstr10.dll
msjet40.dll4.00.7328.0 1.44 MB (1,507,600 bytes) 11/3/2004 3:02:44 PM Microsoft Corporation c:\winnt\system32\msjet40.dll
msjetoledb40.dll 4.00.6807.0 340.27 KB (348,432 bytes) 11/3/2004 3:02:45 PM Microsoft Corporation c:\winnt\system32\msjetoledb40.dll
iasrad.dll 5.00.2195.6601 94.77 KB (97,040 bytes) 11/3/2004 3:02:37 PM Microsoft Corporation c:\winnt\system32\iasrad.dll
iassam.dll 5.00.2195.6601 98.27 KB (100,624 bytes) 11/3/2004 3:02:37 PM Microsoft Corporation c:\winnt\system32\iassam.dll
iasads.dll 5.00.2195.6601 73.77 KB (75,536 bytes) 11/3/2004 3:02:37 PM Microsoft Corporation c:\winnt\system32\iasads.dll
iaspolcy.dll 5.00.2134.1 25.27 KB (25,872 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\iaspolcy.dll
iassvcs.dll 5.00.2195.6601 58.77 KB (60,176 bytes) 11/3/2004 3:02:37 PM Microsoft Corporation c:\winnt\system32\iassvcs.dll
iassdo.dll 5.00.2195.6601 263.27 KB (269,584 bytes) 11/3/2004 3:02:37 PM Microsoft Corporation c:\winnt\system32\iassdo.dll
ntmssvc.dll 5.00.2195.6655 391.77 KB (401,168 bytes) 11/3/2004 3:02:49 PM Microsoft Corporation c:\winnt\system32\ntmssvc.dll
ias.dll 5.00.2134.1 7.27 KB (7,440 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\ias.dll
es.dll 2000.2.3504.0 227.77 KB (233,232 bytes) 11/3/2004 3:02:34 PM Microsoft Corporation c:\winnt\system32\es.dll
ntmarta.dll 5.00.2195.6666 100.27 KB (102,672 bytes) 11/3/2004 3:02:49 PM Microsoft Corporation c:\winnt\system32\ntmarta.dll
db2trcapi.dll 8.1.7.447 36.07 KB (36,938 bytes) 8/15/2004 9:30:48 PM International Business Machines Corporation c:\sqllib\bin\db2trcapi.dll
db2sec.dll 8.1.7.447 32.07 KB (32,840 bytes) 8/15/2004 9:33:28 PM International Business Machines Corporation c:\sqllib\bin\db2sec.dll
db2osse_db2.dll 8.1.7.447 160.08 KB (163,917 bytes) 8/15/2004 9:33:28 PM International Business Machines Corporation c:\sqllib\bin\db2osse_db2.dll
db2dascmn.dll 8.1.7.447 84.07 KB (86,087 bytes) 8/15/2004 9:32:24 PM International Business Machines Corporation c:\sqllib\bin\db2dascmn.dll
db2install.dll 8.1.7.447 28.06 KB (28,738 bytes) 8/15/2004 9:30:48 PM International Business Machines Corporation c:\sqllib\bin\db2install.dll
db2genreg.dll 8.1.7.447 156.07 KB (159,818 bytes) 8/15/2004 9:30:46 PM International Business Machines Corporation c:\sqllib\bin\db2genreg.dll
db2g11n.dll 8.1.7.447 412.06 KB (421,951 bytes) 8/15/2004 9:30:48 PM International Business Machines Corporation c:\sqllib\bin\db2g11n.dll
db2locale.dll 8.1.7.447 48.06 KB (49,217 bytes) 8/15/2004 9:30:48 PM International Business Machines Corporation c:\sqllib\bin\db2locale.dll
db2osse.dll 8.1.7.447 1.60 MB (1,675,336 bytes) 8/15/2004 9:33:28 PM International Business Machines Corporation c:\sqllib\bin\db2osse.dll
db2app.dll 8.1.7.447 6.63 MB (6,950,974 bytes) 8/15/2004 9:32:38 PM International Business Machines Corporation c:\sqllib\bin\db2app.dll
db2sysp.dll 8.1.7.447 132.06 KB (135,232 bytes) 8/15/2004 9:33:22 PM International Business Machines Corporation c:\sqllib\bin\db2sysp.dll
db2wint.dll 8.1.7.447 48.06 KB (49,215 bytes) 8/15/2004 9:33:24 PM International Business Machines Corporation c:\sqllib\bin\db2wint.dll
db2sys.dll 8.1.7.447 1.32 MB (1,384,510 bytes) 8/15/2004 9:33:22 PM International Business Machines Corporation c:\sqllib\bin\db2sys.dll
db2sec.exe8.1.7.447 24.06 KB (24,638 bytes) 8/15/2004 9:33:16 PM International Business Machines Corporation c:\sqllib\bin\db2sec.exe
mtxoci.dll 2000.2.3504.0 103.27 KB (105,744 bytes) 11/3/2004 3:02:47 PM Microsoft Corporation c:\winnt\system32\mtxoci.dll
resutils.dll 5.00.2195.6702 39.77 KB (40,720 bytes) 11/3/2004 3:02:53 PM Microsoft Corporation c:\winnt\system32\resutils.dll
clusapi.dll 5.00.2195.6683 54.27 KB (55,568 bytes) 11/3/2004 3:02:30 PM Microsoft Corporation c:\winnt\system32\clusapi.dll
msvcp50.dll 5.00.7051 552.50 KB (565,760 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\msvcp50.dll
xolehlp.dll 1999.9.3421.3 17.27 KB (17,680 bytes) 11/3/2004 8:55:08 AM Microsoft Corporation c:\winnt\system32\xolehlp.dll
msdtclog.dll 2000.2.3504.0 86.77 KB (88,848 bytes) 11/3/2004 3:02:42 PM Microsoft Corporation c:\winnt\system32\msdtclog.dll
mtxclu.dll 2000.2.3504.0 51.27 KB (52,496 bytes) 11/3/2004 3:02:47 PM Microsoft Corporation c:\winnt\system32\mtxclu.dll
msdtcprx.dll 2000.2.3504.0 690.77 KB (707,344 bytes) 11/3/2004 3:02:42 PM Microsoft Corporation c:\winnt\system32\msdtcprx.dll
txfaux.dll 2000.2.3504.0 388.27 KB (397,584 bytes) 11/3/2004 3:02:58 PM Microsoft Corporation c:\winnt\system32\txfaux.dll
msdtctm.dll 2000.2.3504.0 1.08 MB (1,131,280 bytes) 11/3/2004 3:02:42 PM Microsoft Corporation c:\winnt\system32\msdtctm.dll
msdtc.exe 1999.9.3421.3 6.77 KB (6,928 bytes) 11/3/2004 8:55:08 AM Microsoft Corporation c:\winnt\system32\msdtc.exe
inetpp.dll 5.00.2195.6707 65.27 KB (66,832 bytes) 11/3/2004 3:02:38 PM Microsoft Corporation c:\winnt\system32\inetpp.dll
win32spl.dll 5.00.2195.6681 94.77 KB (97,040 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\win32spl.dll

usbmon.dll5.00.2195.6684 11.27 KB (11,536 bytes) 11/3/2004 3:02:59 PM Microsoft Corporation c:\winnt\system32\usbmon.dll
tcpmon.dll 5.00.2195.6659 40.77 KB (41,744 bytes) 11/3/2004 3:02:58 PM Microsoft Corporation c:\winnt\system32\tcpmon.dll
pjlmon.dll 5.00.2165.1 12.77 KB (13,072 bytes) 11/30/1999 6:39:36 PM Microsoft Corporation c:\winnt\system32\pjlmon.dll
cnbjmon.dll 5.00.2134.1 43.77 KB (44,816 bytes) 11/30/1999 6:38:48 PM Microsoft Corporation c:\winnt\system32\cnbjmon.dll
localspl.dll5.00.2195.6714 253.27 KB (259,344 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\localspl.dll
spoolss.dll 5.00.2195.6704 79.77 KB (81,680 bytes) 11/3/2004 8:42:04 AM Microsoft Corporation c:\winnt\system32\spoolss.dll
spoolsv.exe 5.00.2195.6659 44.27 KB (45,328 bytes) 11/3/2004 8:42:04 AM Microsoft Corporation c:\winnt\system32\spoolsv.exe
rasadhlp.dll 5.00.2168.1 7.27 KB (7,440 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\rasadhlp.dll
winrnr.dll 5.00.2160.1 18.77 KB (19,216 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\winrnr.dll
rpcss.dll 5.00.2195.6702 233.77 KB (239,376 bytes) 11/3/2004 3:02:53 PM Microsoft Corporation c:\winnt\system32\rpcss.dll
svchost.exe 5.00.2134.1 7.77 KB (7,952 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\svchost.exe
rdpwsx.dll 5.00.2195.6697 97.90 KB (100,248 bytes) 11/3/2004 3:02:53 PM Microsoft Corporation c:\winnt\system32\rdpwsx.dll
ntlsapi.dll 5.00.2195.6601 6.77 KB (6,928 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\ntlsapi.dll
mstlsapi.dll 5.00.2195.6659 25.77 KB (26,384 bytes) 11/3/2004 3:02:46 PM Microsoft Corporation c:\winnt\system32\mstlsapi.dll
icaapi.dll 5.00.2195.6654 122.77 KB (125,712 bytes) 11/3/2004 3:02:37 PM Microsoft Corporation c:\winnt\system32\icaapi.dll
regapi.dll 5.00.2195.6602 35.27 KB (36,112 bytes) 11/3/2004 3:02:53 PM Microsoft Corporation c:\winnt\system32\regapi.dll
termsrv.exe 5.00.2195.6696 139.27 KB (142,608 bytes) 11/3/2004 3:02:58 PM Microsoft Corporation c:\winnt\system32\termsrv.exe
dssenh.dll 5.00.2195.6612 143.77 KB (147,216 bytes) 11/3/2004 3:03:16 PM Microsoft Corporation c:\winnt\system32\dssenh.dll
wshtcpip.dll 5.00.2195.6601 17.27 KB (17,680 bytes) 11/3/2004 3:03:01 PM Microsoft Corporation c:\winnt\system32\wshtcpip.dll
msafd.dll 5.00.2195.6602 106.27 KB (108,816 bytes) 11/3/2004 3:02:42 PM Microsoft Corporation c:\winnt\system32\msafd.dll
oakley.dll 5.00.2195.6662 435.77 KB (446,224 bytes) 11/3/2004 3:02:49 PM Microsoft Corporation c:\winnt\system32\oakley.dll
mfc42u.dll 6.00.9586.0 988.05 KB (1,011,764 bytes) 11/3/2004 3:02:41 PM Microsoft Corporation c:\winnt\system32\mfc42u.dll
polagent.dll 5.00.2195.6655 109.27 KB (111,888 bytes) 11/3/2004 3:02:52 PM Microsoft Corporation c:\winnt\system32\polagent.dll
scecli.dll 5.00.2195.6704 111.77 KB (114,448 bytes) 11/3/2004 3:02:54 PM Microsoft Corporation c:\winnt\system32\scecli.dll
esent.dll 6.1.3940.31 1.08 MB (1,135,376 bytes) 11/3/2004 3:02:34 PM Microsoft Corporation c:\winnt\system32\esent.dll
mswsock.dll 5.00.2195.6603 62.77 KB (64,272 bytes) 11/3/2004 3:02:47 PM Microsoft Corporation c:\winnt\system32\mswsock.dll
ntdsatq.dll 5.00.2195.6620 31.27 KB (32,016 bytes) 11/3/2004 3:02:49 PM Microsoft Corporation c:\winnt\system32\ntdsatq.dll
ntdsa.dll 5.00.2195.6697 1016.27 KB (1,040,656 bytes) 11/3/2004 3:02:48 PM Microsoft Corporation c:\winnt\system32\ntdsa.dll
kdcsvc.dll 5.00.2195.6627 144.77 KB (148,240 bytes) 11/3/2004 3:02:40 PM Microsoft Corporation c:\winnt\system32\kdcsvc.dll
sfmapi.dll 5.00.2134.1 38.77 KB (39,696 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\sfmapi.dll
rassfm.dll 5.00.2195.6604 21.27 KB (21,776 bytes) 11/3/2004 3:02:53 PM Microsoft Corporation c:\winnt\system32\rassfm.dll
rsabase.dll 5.00.2195.6619 129.27 KB (132,368 bytes) 6/19/2003 1:05:04 PM Microsoft Corporation c:\winnt\system32\rsabase.dll
schannel.dll 5.00.2195.6705 144.27 KB (147,728 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\schannel.dll
netlogon.dll 5.00.2195.6695 363.27 KB (371,984 bytes) 11/3/2004 3:02:48 PM Microsoft Corporation c:\winnt\system32\netlogon.dll
kerberos.dll 5.00.2195.6666 207.77 KB (212,752 bytes) 11/3/2004 3:02:40 PM Microsoft Corporation c:\winnt\system32\kerberos.dll
msprivs.dll5.00.2195.6695 46.00 KB (47,104 bytes) 11/3/2004 3:02:45 PM Microsoft Corporation c:\winnt\system32\msprivs.dll
samsrv.dll 5.00.2195.6697 380.77 KB (389,904 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\samsrv.dll
lsasrv.dll 5.00.2195.6695 506.77 KB (518,928 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\lsasrv.dll
lsass.exe 5.00.2195.6695 32.77 KB (33,552 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\lsass.exe
rnr20.dll 5.00.2195.6603 35.77 KB (36,624 bytes) 11/3/2004 3:02:53 PM Microsoft Corporation c:\winnt\system32\rnr20.dll
wmicore.dll 5.00.2195.6611 72.77 KB (74,512 bytes) 11/3/2004 3:03:01 PM Microsoft Corporation c:\winnt\system32\wmicore.dll
xactsrv.dll 5.00.2195.6662 90.27 KB (92,432 bytes) 11/3/2004 3:03:02 PM Microsoft Corporation c:\winnt\system32\xactsrv.dll
browser.dll 5.00.2195.6693 67.27 KB (68,880 bytes) 11/3/2004 3:02:28 PM Microsoft Corporation c:\winnt\system32\browser.dll
alrsvc.dll 5.00.2134.1 17.77 KB (18,192 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\alrsvc.dll
trkwks.dll 5.00.2195.6623 88.27 KB (90,384 bytes) 11/3/2004 3:02:58 PM Microsoft Corporation c:\winnt\system32\trkwks.dll

seclogon.dll 5.00.2195.6707 16.77 KB (17,168 bytes)
11/3/2004 3:02:54 PM Microsoft Corporation
c:\winnt\system32\seclogon.dll
psbase.dll 5.00.2195.6661 112.77 KB (115,472 bytes) 11/3/2004
3:02:52 PM Microsoft Corporation
c:\winnt\system32\psbase.dll
cryptsvc.dll 5.00.2195.6661 74.27 KB (76,048 bytes)
11/3/2004 3:02:31 PM Microsoft Corporation
c:\winnt\system32\cryptsvc.dll
cryptdll.dll5.00.2195.6607 43.27 KB (44,304 bytes) 11/3/2004
3:02:31 PM Microsoft Corporation
c:\winnt\system32\cryptdll.dll
wkssvc.dll 5.00.2195.6692 95.77 KB (98,064 bytes) 12/7/1999
7:00:00 AM Microsoft Corporation
c:\winnt\system32\wkssvc.dll
srvsvc.dll 5.00.2195.6697 81.77 KB (83,728 bytes) 12/7/1999
7:00:00 AM Microsoft Corporation
c:\winnt\system32\srvsvc.dll
cfgmgr32.dll 5.00.2134.1 16.77 KB (17,168 bytes)
12/7/1999 7:00:00 AM Microsoft Corporation
c:\winnt\system32\cfgmgr32.dll
dmserver.dll 2195.6605.297.3 11.77 KB (12,048 bytes)
11/3/2004 3:02:33 PM VERITAS Software Corp.
c:\winnt\system32\dmserver.dll
lmhsvc.dll 5.00.2195.6601 9.77 KB (10,000 bytes) 12/7/1999
7:00:00 AM Microsoft Corporation
c:\winnt\system32\lmhsvc.dll
dnsrslvr.dll 5.00.2195.6663 90.27 KB (92,432 bytes)
11/3/2004 3:02:33 PM Microsoft Corporation
c:\winnt\system32\dnsrslvr.dll
tapi32.dll 5.00.2195.6664 123.77 KB (126,736 bytes) 11/3/2004
3:02:58 PM Microsoft Corporation
c:\winnt\system32\tapi32.dll
rasman.dll 5.00.2195.6604 54.77 KB (56,080 bytes) 12/7/1999
7:00:00 AM Microsoft Corporation
c:\winnt\system32\rasman.dll
rasapi32.dll 5.00.2195.6625 192.77 KB (197,392 bytes)
12/7/1999 7:00:00 AM Microsoft Corporation
c:\winnt\system32\rasapi32.dll
rtutils.dll 5.00.2168.1 43.77 KB (44,816 bytes) 12/7/1999
7:00:00 AM Microsoft Corporation
c:\winnt\system32\rtutils.dll
adsldpc.dll 5.00.2195.6701 130.77 KB (133,904 bytes) 11/3/2004
3:02:26 PM Microsoft Corporation
c:\winnt\system32\adsldpc.dll
activeds.dll 5.00.2195.6601 177.77 KB (182,032 bytes)
11/3/2004 3:02:22 PM Microsoft Corporation
c:\winnt\system32\activeds.dll
mprapi.dll 5.00.2181.1 79.27 KB (81,168 bytes) 12/7/1999
7:00:00 AM Microsoft Corporation
c:\winnt\system32\mprapi.dll
iphlpapi.dll 5.00.2195.6602 68.27 KB (69,904 bytes)
11/3/2004 3:02:38 PM Microsoft Corporation
c:\winnt\system32\iphlpapi.dll
icmp.dll 5.00.2134.1 7.27 KB (7,440 bytes) 12/7/1999 7:00:00 AM
Microsoft Corporation c:\winnt\system32\icmp.dll
dhcpcsvc.dll 5.00.2195.6685 90.77 KB (92,944 bytes)
12/7/1999 7:00:00 AM Microsoft Corporation
c:\winnt\system32\dhcpcsvc.dll
eventlog.dll 5.00.2195.6716 46.77 KB (47,888 bytes)
11/3/2004 3:02:35 PM Microsoft Corporation
c:\winnt\system32\eventlog.dll
ntdsapi.dll 5.00.2195.6666 56.27 KB (57,616 bytes) 11/3/2004
3:02:48 PM Microsoft Corporation
c:\winnt\system32\ntdsapi.dll
scesrv.dll 5.00.2195.6704 248.77 KB (254,736 bytes) 11/3/2004
3:02:54 PM Microsoft Corporation
c:\winnt\system32\scesrv.dll
umpnpmgr.dll 5.00.2182.1 86.27 KB (88,336 bytes)
12/7/1999 7:00:00 AM Microsoft Corporation
c:\winnt\system32\umpnpmgr.dll
services.exe 5.00.2195.6700 87.27 KB (89,360 bytes)
12/7/1999 7:00:00 AM Microsoft Corporation
c:\winnt\system32\services.exe
clbcatq.dll 2000.2.3504.0 498.27 KB (510,224 bytes) 11/3/2004
3:02:30 PM Microsoft Corporation
c:\winnt\system32\clbcatq.dll
wzcsapi.dll 5.00.2195.6604 29.27 KB (29,968 bytes)
11/3/2004 3:03:18 PM Microsoft Corporation
c:\winnt\system32\wzcsapi.dll
oleaut32.dll 2.40.4522 612.27 KB (626,960 bytes) 12/7/1999
7:00:00 AM Microsoft Corporation
c:\winnt\system32\oleaut32.dll
wzcdlg.dll 5.00.2195.6604 51.27 KB (52,496 bytes) 11/3/2004
3:03:18 PM Microsoft Corporation
c:\winnt\system32\wzcdlg.dll
cscui.dll 5.00.2195.6705 237.27 KB (242,960 bytes) 11/3/2004
3:02:31 PM Microsoft Corporation
c:\winnt\system32\cscui.dll
msv1_0.dll5.00.2195.6680 114.77 KB (117,520 bytes) 12/7/1999
7:00:00 AM Microsoft Corporation
c:\winnt\system32\msv1_0.dll
mpr.dll 5.00.2195.6611 53.77 KB (55,056 bytes) 11/3/2004
3:02:42 PM Microsoft Corporation
c:\winnt\system32\mpr.dll
winspool.drv 5.00.2195.6659 111.27 KB (113,936 bytes)
12/7/1999 7:00:00 AM Microsoft Corporation
c:\winnt\system32\winspool.drv
winscard.dll 5.00.2195.6609 77.27 KB (79,120 bytes)
11/3/2004 3:03:01 PM Microsoft Corporation
c:\winnt\system32\winscard.dll
atl.dll 3.00.9435 73.06 KB (74,810 bytes) 11/3/2004 3:02:27 PM
Microsoft Corporation c:\winnt\system32\atl.dll
certcli.dll 5.00.2195.6619 132.27 KB (135,440 bytes) 11/3/2004
3:02:29 PM Microsoft Corporation
c:\winnt\system32\certcli.dll
wlnotify.dll 5.00.2195.6706 56.27 KB (57,616 bytes)
11/3/2004 3:03:01 PM Microsoft Corporation
c:\winnt\system32\wlnotify.dll
cscdll.dll 5.00.2195.6713 98.77 KB (101,136 bytes) 11/3/2004
3:02:31 PM Microsoft Corporation
c:\winnt\system32\cscdll.dll
lz32.dll 5.00.2195.6611 9.77 KB (10,000 bytes) 11/3/2004
3:02:40 PM Microsoft Corporation
c:\winnt\system32\lz32.dll
version.dll 5.00.2195.6623 15.77 KB (16,144 bytes) 11/3/2004
3:03:00 PM Microsoft Corporation
c:\winnt\system32\version.dll
rsaenh.dll 5.00.2195.6611 131.77 KB (134,928 bytes) 11/3/2004
3:03:17 PM Microsoft Corporation
c:\winnt\system32\rsaenh.dll
mscat32.dll 5.131.2134.1 7.77 KB (7,952 bytes) 12/7/1999
7:00:00 AM Microsoft Corporation
c:\winnt\system32\mscat32.dll
ole32.dll 5.00.2195.6692 972.77 KB (996,112 bytes) 11/3/2004
3:02:51 PM Microsoft Corporation
c:\winnt\system32\ole32.dll
imagehlp.dll 5.00.2195.6613 125.77 KB (128,784 bytes)
12/7/1999 7:00:00 AM Microsoft Corporation
c:\winnt\system32\imagehlp.dll
msasn1.dll 5.00.2195.6666 51.77 KB (53,008 bytes) 12/7/1999
7:00:00 AM Microsoft Corporation
c:\winnt\system32\msasn1.dll
crypt32.dll 5.131.2195.6661 468.27 KB (479,504 bytes) 11/3/2004
3:02:31 PM Microsoft Corporation
c:\winnt\system32\crypt32.dll

wintrust.dll 5.131.2195.6624 162.27 KB (166,160 bytes) 11/3/2004 3:03:01 PM Microsoft Corporation c:\winnt\system32\wintrust.dll
shlwapi.dll 5.00.3502.6601 282.77 KB (289,552 bytes) 11/3/2004 3:02:56 PM Microsoft Corporation c:\winnt\system32\shlwapi.dll
shell32.dll 5.00.3700.6705 2.27 MB (2,383,632 bytes) 11/3/2004 3:02:55 PM Microsoft Corporation c:\winnt\system32\shell32.dll
msgina.dll 5.00.2195.6669 326.27 KB (334,096 bytes) 11/3/2004 3:02:43 PM Microsoft Corporation c:\winnt\system32\msgina.dll
comctl32.dll 5.81 537.77 KB (550,672 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\comctl32.dll
setupapi.dll 5.00.2195.6622 556.77 KB (570,128 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\setupapi.dll
winmm.dll 5.00.2161.1 184.77 KB (189,200 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\winmm.dll
winsta.dll 5.00.2195.6701 38.27 KB (39,184 bytes) 11/3/2004 3:03:01 PM Microsoft Corporation c:\winnt\system32\winsta.dll
wsock32.dll 5.00.2195.6603 21.27 KB (21,776 bytes) 11/3/2004 3:03:02 PM Microsoft Corporation c:\winnt\system32\wsock32.dll
dnsapi.dll 5.00.2195.6680 131.77 KB (134,928 bytes) 11/3/2004 3:02:33 PM Microsoft Corporation c:\winnt\system32\dnsapi.dll
wldap32.dll 5.00.2195.6666 158.27 KB (162,064 bytes) 11/3/2004 3:03:01 PM Microsoft Corporation c:\winnt\system32\wldap32.dll
ws2help.dll 5.00.2134.1 17.77 KB (18,192 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\ws2help.dll
ws2_32.dll 5.00.2195.6601 68.27 KB (69,904 bytes) 11/3/2004 3:03:01 PM Microsoft Corporation c:\winnt\system32\ws2_32.dll
samlib.dll 5.00.2195.6666 48.77 KB (49,936 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\samlib.dll
netrap.dll 5.00.2134.1 11.27 KB (11,536 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\netrap.dll
netapi32.dll 5.00.2195.6601 304.27 KB (311,568 bytes) 11/3/2004 3:02:47 PM Microsoft Corporation c:\winnt\system32\netapi32.dll
profmap.dll 5.00.2195.6610 29.27 KB (29,968 bytes) 11/3/2004 3:02:52 PM Microsoft Corporation c:\winnt\system32\profmap.dll
secur32.dll 5.00.2195.6695 47.77 KB (48,912 bytes) 11/3/2004 3:02:54 PM Microsoft Corporation c:\winnt\system32\secur32.dll
sfc.dll 5.00.2195.6673 92.80 KB (95,024 bytes) 11/3/2004 3:02:54 PM Microsoft Corporation c:\winnt\system32\sfc.dll
nddeapi.dll 5.00.2195.6661 15.77 KB (16,144 bytes) 11/3/2004 3:02:47 PM Microsoft Corporation c:\winnt\system32\nddeapi.dll
userenv.dll 5.00.2195.6711 380.77 KB (389,904 bytes) 11/3/2004 3:02:59 PM Microsoft Corporation c:\winnt\system32\userenv.dll
user32.dll 5.00.2195.6688 393.77 KB (403,216 bytes) 11/3/2004 3:02:59 PM Microsoft Corporation c:\winnt\system32\user32.dll
gdi32.dll 5.00.2195.6660 228.27 KB (233,744 bytes) 11/3/2004 3:02:36 PM Microsoft Corporation c:\winnt\system32\gdi32.dll
rpcrt4.dll 5.00.2195.6701 443.77 KB (454,416 bytes) 11/3/2004 3:02:53 PM Microsoft Corporation c:\winnt\system32\rpcrt4.dll
advapi32.dll 5.00.2195.6710 378.27 KB (387,344 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\advapi32.dll
kernel32.dll 5.00.2195.6688 725.77 KB (743,184 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\kernel32.dll
msvcrt.dll 6.10.9844.0 280.05 KB (286,773 bytes) 6/19/2003 1:05:04 PM Microsoft Corporation c:\winnt\system32\msvcrt.dll
winlogon.exe 5.00.2195.6714 176.77 KB (181,008 bytes) 11/3/2004 3:03:01 PM Microsoft Corporation c:\winnt\system32\winlogon.exe
sfcfiles.dll 5.00.2195.6717 948.27 KB (971,024 bytes) 11/3/2004 3:02:55 PM Microsoft Corporation c:\winnt\system32\sfcfiles.dll
ntdll.dll 5.00.2195.6685 480.27 KB (491,792 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\ntdll.dll
smss.exe 5.00.2195.6601 44.77 KB (45,840 bytes) 12/7/1999 7:00:00 AM Microsoft Corporation c:\winnt\system32\smss.exe

[Services]

Display Name Name State Start ModeService Type Path Error Control Start NameTag ID
Alerter Alerter Running Auto Share Process c:\winnt\system32\services.exe Normal LocalSystem 0
Application Management AppMgmt Stopped Manual Share Process c:\winnt\system32\services.exe Normal LocalSystem 0
Background Intelligent Transfer Service BITS Stopped Manual 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 Disabled Share Process c:\winnt\system32\cisvc.exe Normal LocalSystem 0
ClipBook ClipSrv Stopped Manual Own Process c:\winnt\system32\clipsrv.exe Normal LocalSystem 0
DB2 JDBC Applet Server DB2JDS Stopped Manual Own Process "c:\sqllib\bin\db2jds.exe" Normal LocalSystem 0
DB2 Security Server DB2NTSECSERVER Running Auto Own Process "c:\sqllib\bin\db2sec.exe" Normal LocalSystem 0
Distributed File System Dfs Running Auto Own Process c:\winnt\system32\dfssvc.exe Normal LocalSystem 0
DHCP Client Dhcp Running Auto Share Process c:\winnt\system32\services.exe Normal LocalSystem 0
Logical Disk Manager Administrative Service dmadmin Stopped Manual Share Process c:\winnt\system32\dmadmin.exe /com Normal LocalSystem 0
Logical Disk Managerdmserver 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\inetsrv\inetinfo.exe Normal
LocalSystem 0
Intersite Messaging IsmServ Stopped Disabled Own Process
c:\winnt\system32\ismserv.exe Normal LocalSystem 0
Kerberos Key Distribution Center kdc Stopped Disabled
Share Process c:\winnt\system32\lsass.exe Normal
LocalSystem 0
Server lanmanserver Running Auto Share Process
c:\winnt\system32\services.exe Normal LocalSystem 0
Workstation lanmanworkstation Running Auto Share
Process c:\winnt\system32\services.exe Normal LocalSystem 0
Site Server ILS Service LDAPSVCX Running Auto
Share Process c:\winnt\system32\inetsrv\inetinfo.exe Normal
LocalSystem 0
License Logging Service LicenseService Running Auto
Own Process c:\winnt\system32\llssrv.exe Normal
LocalSystem 0
TCP/IP NetBIOS Helper Service LmHosts Running Auto Share
Process c:\winnt\system32\services.exe Normal LocalSystem 0
Messenger Messenger Stopped Manual Share Process
c:\winnt\system32\services.exe Normal LocalSystem 0
NetMeeting Remote Desktop Sharing mnmsrvc Stopped Manual
Own Process c:\winnt\system32\mnmsrvc.exe Normal
LocalSystem 0
Distributed Transaction Coordinator MSDTC Running Auto
Own Process c:\winnt\system32\msdtc.exe Normal
LocalSystem 0
Windows Installer MSIServer Stopped Manual Share Process
c:\winnt\system32\msiexec.exe /v Normal LocalSystem 0
Network DDE NetDDE Stopped Manual Share Process
c:\winnt\system32\netdde.exe Normal LocalSystem 0
Network DDE DSDM NetDDEdsdm Stopped Manual Share
Process c:\winnt\system32\netdde.exe Normal LocalSystem 0
Net Logon Netlogon Stopped Manual Share Process
c:\winnt\system32\lsass.exe Normal LocalSystem 0
Network Connections Netman Running Manual Share Process
c:\winnt\system32\svchost.exe -k netsvcs Normal LocalSystem 0
File Replication NtFrs Stopped Manual Own Process
c:\winnt\system32\ntfrs.exe Ignore LocalSystem 0
NT LM Security Support Provider NtLmSsp Stopped Manual
Share Process c:\winnt\system32\lsass.exe Normal
LocalSystem 0
Removable Storage NtmsSvc Running Auto Share Process
c:\winnt\system32\svchost.exe -k netsvcs Normal LocalSystem 0
Plug and Play PlugPlay Running Auto Share Process
c:\winnt\system32\services.exe Normal LocalSystem 0
IPSEC Policy Agent PolicyAgent Running Auto Share
Process c:\winnt\system32\lsass.exe Normal LocalSystem 0
Protected Storage ProtectedStorage Running Auto Share
Process c:\winnt\system32\services.exe Normal LocalSystem 0
Remote Access Auto Connection Manager RasAuto Stopped Manual
Share Process c:\winnt\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
Remote Access Connection Manager RasMan Running Manual
Share Process c:\winnt\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
Routing and Remote Access RemoteAccess Stopped Disabled
Share Process c:\winnt\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
Remote Registry Service RemoteRegistry Running Auto
Own Process c:\winnt\system32\regsvc.exe Normal
LocalSystem 0
Remote Procedure Call (RPC) Locator RpcLocator Stopped
Manual Own Process c:\winnt\system32\locator.exe Normal
LocalSystem 0
Remote Procedure Call (RPC) RpcSs Running Auto Share
Process c:\winnt\system32\svchost -k rpcss Normal
LocalSystem 0
QoS Admission Control (RSVP) RSVP Running Auto Own
Process c:\winnt\system32\rsvp.exe -s Normal LocalSystem 0
Security Accounts Manager SamSs Running Auto Share
Process c:\winnt\system32\lsass.exe Normal LocalSystem 0
Smart Card Helper SCardDrv Stopped Manual Share Process
c:\winnt\system32\scardsvr.exe Ignore LocalSystem 0
Smart Card SCardSvr Stopped Manual Share Process
c:\winnt\system32\scardsvr.exe Ignore LocalSystem 0
Task Scheduler Schedule Running Auto Share Process
c:\winnt\system32\mstask.exe Normal LocalSystem 0
RunAs Service seclogon Running Auto Share Process
c:\winnt\system32\services.exe Ignore LocalSystem 0
System Event Notification SENS Running Auto Share
Process c:\winnt\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
Internet Connection Sharing SharedAccess Stopped Manual
Share Process c:\winnt\system32\svchost.exe -k netsvcs Normal
LocalSystem 0
Simple TCP/IP Services SimpTcp Running Auto Share
Process c:\winnt\system32\tcpsvcs.exe Normal LocalSystem 0
Print Spooler Spooler Running Auto Own Process
c:\winnt\system32\spoolsv.exe Normal LocalSystem 0
Performance Logs and Alerts SysmonLog Stopped Manual
Own Process c:\winnt\system32\smlogsvc.exe Normal
LocalSystem 0
Telephony TapiSrv Running Manual Share Process
c:\winnt\system32\svchost.exe -k tapisrv Normal LocalSystem 0
Terminal Services TermService Running Auto Own
Process c:\winnt\system32\termsrv.exe Normal LocalSystem 0
Telnet TlntSvr Stopped Manual Own Process
c:\winnt\system32\tlntsvr.exe Normal LocalSystem 0
Distributed Link Tracking Server TrkSvr Stopped Manual Share
Process c:\winnt\system32\services.exe Normal LocalSystem 0
Distributed Link Tracking Client TrkWks Running Auto Share
Process c:\winnt\system32\services.exe Normal LocalSystem 0
Uninterruptible Power Supply UPS Stopped Manual Own
Process c:\winnt\system32\ups.exe Normal LocalSystem 0
Utility Manager UtilMan Stopped Manual Own Process
c:\winnt\system32\utilman.exe Normal LocalSystem 0
Windows Time W32Time Stopped Manual Share Process
c:\winnt\system32\services.exe Normal LocalSystem 0
World Wide Web Publishing Service W3SVC Running Auto
Share Process c:\winnt\system32\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 wuauserv Running Auto Share Process
c:\winnt\system32\svchost.exe -k wugroup Normal LocalSystem 0
Wireless Configuration WZCSVC Stopped Manual Share
Process c:\winnt\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
Accessories\System Tools Default User:Accessories\System Tools Default User
Startup Default User:Startup Default User
Accessories All Users:Accessories All Users
Accessories\Communications All Users:Accessories\Communications All Users
Accessories\Entertainment All Users:Accessories\Entertainment All Users
Accessories\Microsoft Script Debugger All Users:Accessories\Microsoft Script Debugger All Users
Accessories\System Tools All Users:Accessories\System Tools All Users
Administrative Tools All Users:Administrative Tools All Users
IBM DB2 All Users:IBM DB2 All Users
IBM DB2\Command Line Tools All Users:IBM DB2\Command Line Tools All Users
Microsoft Visual C++ 6.0 All Users:Microsoft Visual C++ 6.0 All Users
Microsoft Visual C++ 6.0\Microsoft Visual C++ 6.0 Tools All Users:Microsoft Visual C++ 6.0\Microsoft Visual C++ 6.0 Tools All Users
Startup All Users:Startup All Users
Accessories CLIENT20\Administrator:Accessories CLIENT20\Administrator
Accessories\Accessibility CLIENT20\Administrator:Accessories\Accessibility CLIENT20\Administrator
Accessories\Entertainment CLIENT20\Administrator:Accessories\Entertainment CLIENT20\Administrator
Accessories\System Tools CLIENT20\Administrator:Accessories\System Tools CLIENT20\Administrator
Administrative Tools CLIENT20\Administrator:Administrative Tools CLIENT20\Administrator
Startup CLIENT20\Administrator:Startup CLIENT20\Administrator

[Startup Programs]

Program Command User NameLocation
synctime synctime.bat CLIENT20\Administrator Startup

[OLE Registration]

Object Local Server
Sound (OLE2) sndrec32.exe
Media Clip mplay32.exe
Video Clip mplay32.exe /avi
MIDI Sequence mplay32.exe /mid
Sound Not Available
Media Clip Not Available
Image Document "C:\Program Files\Windows NT\Accessories\ImageVue\KodakImg.exe"
WordPad Document "%ProgramFiles%\Windows NT\Accessories\WORDPAD.EXE"
Windows Media Services DRM Storage object Not Available
Bitmap Image mspaint.exe

[Internet Explorer 5]

[Following are sub-categories of this main category]

[Summary]

Item Value
Version 5.00.3700.1000
Build 53700.1000
Product ID 51876-270-4893362-05373
Application Path C:\Program Files\Internet Explorer
Language English (United States)
Active Printer Not Available

Cipher Strength 168-bit
Content Advisor Disabled
IEAK Install No

[File Versions]

File Version Size Date Path Company
advapi32.dll 5.0.2195.6710 378 KB 6/19/2003 12:05:04 PM C:\WINNT\system32 Microsoft Corporation
advpack.dll 5.0.3502.6601 87 KB 6/19/2003 12:05:04 PM C:\WINNT\system32 Microsoft Corporation
browselc.dll 5.0.3700.6661 35 KB 6/19/2003 12:05:04 PM C:\WINNT\system32 Microsoft Corporation
browseui.dll 5.0.3700.6661 789 KB 6/19/2003 12:05:04 PM C:\WINNT\system32 Microsoft Corporation
ckcnv.exe 5.0.2189.1 9 KB 12/7/1999 7:00:00 AM C:\WINNT\system32 Microsoft Corporation
comctl32.dll 5.81.3502.6601 538 KB 6/19/2003 12:05:04 PM C:\WINNT\system32 Microsoft Corporation
crypt32.dll 5.131.2195.6661 468 KB 6/19/2003 12:05:04 PM C:\WINNT\system32 Microsoft Corporation
enhsig.dll <File Missing> Not Available Not Available Not Available Not Available
iemigrat.dll <File Missing> Not Available Not Available Not Available Not Available
iesetup.dll 5.0.3502.6601 57 KB 6/19/2003 12:05:04 PM C:\WINNT\system32 Microsoft Corporation
iexplore.exe 5.0.2920.0 59 KB 12/7/1999 7:00:00 AM C:\Program Files\Internet Explorer Microsoft Corporation
imagehlp.dll 5.0.2195.6613 126 KB 6/19/2003 12:05:04 PM C:\WINNT\system32 Microsoft Corporation
imghelp.dll <File Missing> Not Available Not Available Not Available Not Available
inseng.dll 5.0.3502.6601 72 KB 6/19/2003 12:05:04 PM C:\WINNT\system32 Microsoft Corporation
jobexec.dll 5.0.0.1 47 KB 12/7/1999 7:00:00 AM C:\WINNT\system32 Microsoft Corporation
jscript.dll 5.1.0.8513 476 KB 6/19/2003 12:05:04 PM C:\WINNT\system32 Microsoft Corporation
jsproxy.dll 5.0.2920.0 13 KB 12/7/1999 7:00:00 AM C:\WINNT\system32 Microsoft Corporation
msaahtml.dll <File Missing> Not Available Not Available Not Available Not Available
mshtml.dll 5.0.3700.6699 2299 KB 6/19/2003 12:05:04 PM C:\WINNT\system32 Microsoft Corporation
msoss.dll <File Missing> Not Available Not Available Not Available Not Available
msxml.dll 8.0.6730.0 502 KB 6/19/2003 12:05:04 PM C:\WINNT\system32 Microsoft Corporation
occache.dll 5.0.3502.6601 86 KB 6/19/2003 12:05:04 PM C:\WINNT\system32 Microsoft Corporation
ole32.dll 5.0.2195.6692 973 KB 6/19/2003 12:05:04 PM C:\WINNT\system32 Microsoft Corporation
oleaut32.dll 2.40.4522.0 612 KB 6/19/2003 12:05:04 PM C:\WINNT\system32 Microsoft Corporation
olepro32.dll 5.0.4522.0 160 KB 6/19/2003 12:05:04 PM C:\WINNT\system32 Microsoft Corporation
rsabase.dll 5.0.2195.6619 129 KB 6/19/2003 12:05:04 PM C:\WINNT\system32 Microsoft Corporation
rsaenh.dll 5.0.2195.6611 132 KB 6/19/2003 12:05:04 PM C:\WINNT\system32 Microsoft Corporation
rsapi32.dll <File Missing> Not Available Not Available Not Available Not Available

rsasig.dll <File Missing> Not Available Not Available
Not Available Not Available
schannel.dll 5.1.2195.6705 144 KB 6/19/2003 12:05:04 PM
C:\WINNT\system32 Microsoft Corporation
shdoc401.dll <File Missing> Not Available Not
Available Not Available Not Available
shdocvw.dll 5.0.3700.6668 1082 KB 6/19/2003 12:05:04 PM
C:\WINNT\system32 Microsoft Corporation
shell32.dll 5.0.3700.6705 2328 KB 6/19/2003 12:05:04 PM
C:\WINNT\system32 Microsoft Corporation
shlwapi.dll 5.0.3502.6601 283 KB 6/19/2003 12:05:04 PM
C:\WINNT\system32 Microsoft Corporation
url.dll 5.0.3502.6601 82 KB 6/19/2003 12:05:04 PM
C:\WINNT\system32 Microsoft Corporation
urlmon.dll 5.0.3700.6705 443 KB 6/19/2003 12:05:04 PM
C:\WINNT\system32 Microsoft Corporation
vbscript.dll 5.1.0.7426 428 KB 6/19/2003 12:05:04 PM
C:\WINNT\system32 Microsoft Corporation
webcheck.dll 5.0.3502.6601 252 KB 6/19/2003 12:05:04 PM
C:\WINNT\system32 Microsoft Corporation
win.com 5.0.2134.1 24 KB 12/7/1999 7:00:00 AM
C:\WINNT\system32 Microsoft Corporation
wininet.dll 5.0.3700.6713 456 KB 6/19/2003 12:05:04 PM
C:\WINNT\system32 Microsoft Corporation
winsock.dll 3.10.0.103 3 KB 12/7/1999 7:00:00 AM
C:\WINNT\system32 Microsoft Corporation
wintrust.dll 5.131.2195.6624 162 KB 6/19/2003 12:05:04 PM
C:\WINNT\system32 Microsoft Corporation
wsock.vxd <File Missing> Not Available Not Available
Not Available Not Available
wsock32.dll 5.0.2195.6603 21 KB 6/19/2003 12:05:04 PM
C:\WINNT\system32 Microsoft Corporation
wsock32n.dll <File Missing> Not Available Not
Available Not Available Not Available

[Connectivity]

Item Value
Connection Preference Never dial
EnableHttp1.1 1
ProxyHttp1.1 0

LAN Settings

AutoConfigProxy wininet.dll
AutoProxyDetectMode Disabled
AutoConfigURL
Proxy Disabled
ProxyServer
ProxyOverride

[Cache]

[Following are sub-categories of this main category]

[Summary]

Item Value
Page Refresh Type Automatic
Temporary Internet Files Folder C:\Documents and
Settings\Administrator\Local Settings\Temporary Internet Files
Total Disk Space 34710 MB
Available Disk Space 30664 MB
Maximum Cache Size 1084 MB
Available Cache Size 1084 MB

[List of Objects]

Program File Status CodeBase
No cached object information available

[Content]

[Following are sub-categories of this main category]

[Summary]

Item Value
Content Advisor Disabled

[Personal Certificates]

Issued To Issued By Validity Signature Algorithm
Administrator Administrator 11/3/2004 to 10/10/2104
sha1RSA

[Other People Certificates]

Issued To Issued By Validity Signature Algorithm
No other people certificate information available

[Publishers]

Name
No publisher information available

[Security]

Zone Security Level
Local intranet Medium-low
Trusted sites Low
Internet Medium
Restricted sites High

Client Configuration Parameters

Client Configuration Parameters

COM+ Settings

tpccCom.tpcc_com.1:
Activation:
Enable Object Pooling selected
Minimum Pool Size: 50
Maximum Pool Size: 50
Creating Timeout: 60,000
Enable Just in Time Activation
Concurrency:
Concurrency Required

Microsoft Windows 2000 Client Registry Parameters

TPCC Application Registry Parameters

[HKEY_LOCAL_MACHINE\SOFTWARE\TPCC]
"dbType"="DB2"
"dlvyLogPath"="c:\\inetpub\\wwwroot\\tpcc\\dlvy"
"dlvyQueueLen"=dword:00004e20
"nullDB"=dword:00000000
"dbName"="tpcc"
"errorLogFile"="c:\\inetpub\\wwwroot\\tpcc\\errorLog.txt"
"htmlTraceLogFile"="c:\\inetpub\\wwwroot\\tpcc\\htmlTrace.txt"

```
"numUsers"=dword:00007530
"dbUserName"="Administrator"
"dbPassword"="tpcc"
"dbInterfacePath"="C:\\inetpub\\wwwroot\\tpcc\\db2glue.dll"
"dlvyThreads"=dword:0000000a

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\InetInfo]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\InetInfo\P
arameters]
"ListenBackLog"=dword:00000096
"DispatchEntries"=hex(7):4c,00,44,00,41,00,50,00,53,00,56,00,43,00,00,00,4c,
00,\
  44,00,41,00,50,00,53,00,56,00,43,00,58,00,00,00,00,00
"PoolThreadLimit"=dword:000000be
"ThreadTimeout"=dword:00015180

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\InetInfo\P
erformance]
"Library"="infoctrs.dll"
"Open"="OpenINFOPerformanceData"
"Close"="CloseINFOPerformanceData"
"Collect"="CollectINFOPerformanceData"
"Last Counter"=dword:00000842
"Last Help"=dword:00000843
"First Counter"=dword:00000802
"First Help"=dword:00000803
"Library Validation
Code"=hex:bc,b6,7c,11,e0,c1,c4,01,10,25,00,00,00,00,00,00
"WbemAdapFileTime"=hex:00,a0,38,ed,84,36,c3,01
"WbemAdapFileSize"=dword:00002510
"WbemAdapStatus"=dword:00000000


[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\IISADMI
N]
"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"="IIS Admin Service"
"DependOnService"=hex(7):52,00,50,00,43,00,53,00,53,00,00,00,50,00,72,00,6
f,00,\
  74,00,65,00,63,00,74,00,65,00,64,00,53,00,74,00,6f,00,72,00,61,00,67,00,65,\
  00,00,00,00,00
"DependOnGroup"=hex(7):00,00
"ObjectName"="LocalSystem"
"Description"="Allows administration of Web and FTP services through the
Internet Information Services snap-in."
"FailureCommand"="\"C:\\WINNT\\System32\\iisreset.exe\" /fail=%1%"
"FailureActions"=hex:80,51,01,00,88,ca,0a,00,98,ca,0a,00,03,00,00,00,f4,ca,0a,
\
  00,03,00,00,00,01,00,00,00,03,00,00,00,01,00,00,00,03,00,00,00,01,00,00,00

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\IISADMI
N\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,\
  00,01,01,00,00,00,00,00,00,05,12,00,00,00

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\IISADMI
N\Enum]
"0"="Root\\LEGACY_IISADMIN\\0000"
"Count"=dword:00000001
"NextInstance"=dword:00000001

[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."

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\
ASP]
"NOTE"="This is for backward compatibility only."

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\
ASP\LanguageEngines]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\
ASP\LanguageEngines\PerlScript]
"Write"="$Response->write(|);"
"WriteBlock"="$Response->writeblock(|);"

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\
ASP\Parameters]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\P
arameters]
"MajorVersion"=dword:00000005
"MinorVersion"=dword:00000000
"InstallPath"="C:\\WINNT\\System32\\inetsrv"
"CertMapList"="C:\\WINNT\\System32\\inetsrv\\iiscrmap.dll"
"AccessDeniedMessage"="Error: Access is Denied."
"Filter DLLs"=""
"LogFileDirectory"="C:\\WINNT\\System32\\LogFiles"
"AcceptExOutstanding"=dword:00000028

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\P
arameters\ADCLaunch]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\P
arameters\ADCLaunch\AdvancedDataFactory]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\P
arameters\ADCLaunch\RDSServer.DataFactory]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\P
arameters\Script Map]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\P
arameters\Virtual Roots]
"/"="c:\\inetpub\\wwwroot,,207"
"/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"
"/Printers"="C:\\WINNT\\web\\printers,,201"
"/tpcc"="c:\\inetpub\\wwwroot\\tpcc,,207"
"/Rpc"="C:\\WINNT\\System32\\RpcProxy,,4"

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\P
erformance]
"Library"="w3ctrs.dll"
"Open"="OpenW3PerformanceData"
"Close"="CloseW3PerformanceData"
"Collect"="CollectW3PerformanceData"
"Last Counter"=dword:000008e6
"Last Help"=dword:000008e7
"First Counter"=dword:00000844
"First Help"=dword:00000845
"Library Validation
Code"=hex:ba,71,6e,c7,ac,c1,c4,01,10,3d,00,00,00,00,00,00
"WbemAdapFileTime"=hex:00,a0,38,ed,84,36,c3,01
"WbemAdapFileSize"=dword:00001d10
"WbemAdapStatus"=dword:00000000

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\S
ecurity]
"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\E
num]
"0"="Root\\LEGACY_W3SVC\\0000"
"Count"=dword:00000001
"NextInstance"=dword:00000001
```

RTE Input Parameters

IBM BenchMaster benchmark profile. DO NOT CHANGE THE SPACING IN THIS FILE!

```
30          ** Number of slaves (all must be defined directly below)

SEGMENT         MACHINE         LOG DIRECTORY   ODBC
WEBSERVER       DB SERVER       STARTWH         ENDWH
#USERS
v51     vrte150     c:\rtelogs  tpcc        client1501 db2serv1_tcp         1
400     4000
v52     vrte150     c:\rtelogs  tpcc        client1502 db2serv1_tcp
401     800     4000
v53     vrte150     c:\rtelogs  tpcc        client1503 db2serv1_tcp
801     1200    4000
v54     vrte150     c:\rtelogs  tpcc        client1504 db2serv1_tcp
1201    1600    4000
v55     vrte150     c:\rtelogs  tpcc        client1505 db2serv1_tcp
1601    2000    4000
v61     vrte160     c:\rtelogs  tpcc        client1601 db2serv1_tcp
2001    2400    4000
v62     vrte160     c:\rtelogs  tpcc        client1602 db2serv1_tcp
2401    2800    4000
v63     vrte160     c:\rtelogs  tpcc        client1603 db2serv1_tcp
2801    3200    4000
v64     vrte160     c:\rtelogs  tpcc        client1604 db2serv1_tcp
3201    3600    4000
v65     vrte160     c:\rtelogs  tpcc        client1605 db2serv1_tcp
3601    4000    4000
v41     rte40       c:\rtelogs  tpcc        client401  db2serv1_tcp
4001    4400    4000
v42     rte40       c:\rtelogs  tpcc        client402  db2serv1_tcp
4401    4800    4000
v43     rte40       c:\rtelogs  tpcc        client403  db2serv1_tcp
4801    5200    4000
v44     rte40       c:\rtelogs  tpcc        client404  db2serv1_tcp
5201    5600    4000
v45     rte40       c:\rtelogs  tpcc        client405  db2serv1_tcp
5601    6000    4000
v21     rte20       c:\rtelogs  tpcc        client201  db2serv1_tcp
6001    6400    4000
v22     rte20       c:\rtelogs  tpcc        client202  db2serv1_tcp
6401    6800    4000
v23     rte20       c:\rtelogs  tpcc        client203  db2serv1_tcp
6801    7200    4000
v24     rte20       c:\rtelogs  tpcc        client204  db2serv1_tcp
7201    7600    4000
v25     rte20       c:\rtelogs  tpcc        client205  db2serv1_tcp
7601    8000    4000
v31     rte30       c:\rtelogs  tpcc        client301  db2serv1_tcp
8001    8400    4000
v32     rte30       c:\rtelogs  tpcc        client302  db2serv1_tcp
8401    8800    4000
v33     rte30       c:\rtelogs  tpcc        client303  db2serv1_tcp
8801    9200    4000
v34     rte30       c:\rtelogs  tpcc        client304  db2serv1_tcp
9201    9600    4000
v35     rte30       c:\rtelogs  tpcc        client305  db2serv1_tcp
9601    10000   4000
v11     rte10       c:\rtelogs  tpcc        client101  db2serv1_tcp
10001   10400   4000
v12     rte10       c:\rtelogs  tpcc        client102  db2serv1_tcp
10401   10800   4000
v13     rte10       c:\rtelogs  tpcc        client103  db2serv1_tcp
10801   11200   4000
v14     rte10       c:\rtelogs  tpcc        client104  db2serv1_tcp
11201   11600   4000
v15     rte10       c:\rtelogs  tpcc        client105  db2serv1_tcp
11601   12000   4000


1000        ** Connect rate - rate users log in to the database (users per minute)

300         ** Run rate- rate users ramp in (users per minute)

0           "** Ramp-in type (0 = linear, 1 = 5 step descending rate)"
1           "** Web client (ignored for 2-tier;  0 = Microsoft's web client, 1 =
IBM pSeries web client)"

12000       ** Total number of warehouses

0           "** Run type (0 = 3-tier, 1 = 2-tier)"

173         "** C_LOAD (0-255) - NURAND ""C"" value that WAS used for
customer last name generation during database LOAD, usually 123 for SQL
Server"
88          "** C_RUN (0-255) - NURAND ""C"" value to be used for
customer last name generation when running.  abs(C_LOAD - C_RUN) must be
```

65 to 119, inclusive, but not 96 or 112. TIP: Set C_RUN so abs(C_LOAD - C_RUN) is 85."
208 "** C_C_ID (0-1023) - NURAND ""C"" value to be used for customer ID generation when running"

208 "** C_OL_I_ID (0-8191) - NURAND ""C"" value to be used for orderline item ID generation when running"

administrator ** Database user name

tpcc ** Database password

TOTAL	NEWORD	PAYMENT		DELI	STCKLV	LORDSTAT
0	44950	43020	4010	4010	4010	"** Transaction mix percentages (must add to 100,000)"
0	12030	12030	5030	5030	10030	** 3-tier think times (milliseconds)
0	0	0	0	0	0	** 2-tier think times (milliseconds)
0	18000	3000	2000	2000	2000	** 3-tier key times (milliseconds)
0	0	0	0	0	0	** 2-tier key times (milliseconds)
0	5000	5000	5000	20000	5000	** 90th percentile values (milliseconds)
0	100	100	100	100	100	** Browser painting menu delay (milliseconds)
0	100	100	100	100	100	** Browser painting response time delay (milliseconds)

2000 ** 90th percentile value for menu transactions (milliseconds)

Appendix D: 60-Day Space

60-Day Space Computation					
All data sizes in MB unless otherwise stated					
Warehouses	12,600				
Measured TpmC	150,704.91				
Table	**Rows**	**Table**	**Index**	**5% Space**	**Total Space**
Warehouse	12,600	2	0	0	2
District	126,000	15	0	1	15
Item	100,000	11	0	1	11
Stock	1,260,000,000	410,186	0	20,509	430,695
Customer	378,000,000	295,344	18,242	15,679	329,265
New-Order	113,400,000	8,764	0	0	8,764
Orders	378,000,000	13,876	10,562	0	24,438
Order-Line	5,670,000,000	372,400	0	0	372,400
History	378,000,000	23,272	0	0	23,272
Free Space	77,436		30 Minute log Computations		
Dynamic Space	409,548		Log Written (KB)		12,505,344
Static Space	779,315		Total New-Order Txns		4,521,147
Daily Growth	78,376		Log Written per New-Order (KB)		2.77
Daily Spread	0				
Data Storage Requirement					
60 Days (MB)	5,481,858				
60 Days (GB)	5,353				
Log Storage Requirement					
8 Hours (GB)	190.82				
Disk Sizing					
	Formatted	**SUT**		**Priced**	
Disk Type	**Capacity (GB)**	**# of Disks**	**Capacity (GB)**	**# of Disks**	**Capacity (GB)**
DB FastT RAID 0 (36GB disks)	33.90	336	11,390	336	11,390
LOG FastT RAID 10 (36GB disks)	16.95	14	237	14	237
OS Fast RAID 0 (36GB disks)	33.90	1	34	1	34
Total Capacity					11,662

Appendix E: Third-Party Quotations

Microsoft Corporation
One Microsoft Way
Redmond, WA 98052-6399

Tel 425 882 8080
Fax 425 936 7329
http://www.microsoft.com/

Microsoft

March 23, 2005

IBM Corporation
Chris King
3079 Cornwallis Road
Durham, 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
P72-00264	**Windows Server 2003, Enterprise x64 Edition** *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.*	$2,399	1	$2,399
C11-00821	**Windows 2000 Server** *Server License Only - No CALs* *Discount Schedule: Open Program - No Level* *Unit Price reflects a 8% discount from the retail unit price of $799.*	$738	6	$4,428
254-00170	**Visual C++ Standard Edition** *Discount Schedule: No Discounts Applied*	$109	1	$109
	Microsoft Problem Resolution Services *Professional Support* *(1 incident)*	$245	1	$245

Some products may not be currently orderable but will be available through Microsoft's normal distribution channels by May 6, 2005.

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.

Reference ID: PCchki0402124827.
Please include this Reference ID in any correspondence regarding this price quote.

Your Shopping Cart

Qty	Product Description		Unit Price
Network - Cables			
9 UPDATE	**Arrow Micro 14ft Cat 5E Blue Cable, Model "CC5E-B14B"** Item# N82E16812105305 Status: **In Stock**	Save to Buy Later Remove Item	**$1.80**
Network - Switches			
1 UPDATE	**NETGEAR 8-Port 10/100/1000Mbps Copper Gigabit Switch, Model GS108 - Retail** Item# N82E16833122111 Status: **In Stock**	Save to Buy Later Remove Item	**$99.99**

This item is warranted through the product **manufacturer only.

$-10.00 Mail-In Rebate
Purchase this Item and Receive a $-10.00 rebate by mail.
Rebate form may be downloaded here.

Produc

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PRINT VERSION | UPDATE CART | SAVE CART TO WISH LIST | CLEAR SHOPPING CART | CONT

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SELECT SHIPPING METHOD AND CHOOSE STATE, THEN CLICK "CALCULATE".
HOW NEWEGG.COM DETERMINES SHIPPING CHARGES.
NOTE: ANY COMBO DISCOUNT WILL NOT BE SHOWN UNTIL YOU CHECK OUT.
TAX INSTRUCTIONS FOR RESELLERS **CLICK HERE.**

Important Shipping Instructions

All Orders Must Be Place

- All orders shipped within **CA,TN,PR and NJ will be charged sales tax.**
- FedEx express saver: 3-4 business days plus processing time.