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# **TPC Benchmark® C Full Disclosure Report**

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**HP ProLiant DL380 G7**

using Microsoft SQL Server 2005 Enterprise X64 Edition SP3  
on Microsoft Windows Server 2008 R2 Enterprise Edition for  
X64-Based Systems

First Edition  
May 11, 2010

First Edition - May 11, 2010

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

All performance data contained in this report was obtained in a rigorously controlled environment. Results obtained in other operating environments may vary significantly. Hewlett-Packard Company does not warrant or represent that a user can or will achieve similar performance expressed in transactions per minute (tpmC ®) or normalized price/performance (\$/tpmC ®). No warranty of system performance or price/performance is expressed or implied in this report.

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Printed in U.S.A., May 11, 2010

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# Abstract

## Overview

This report documents the methodology and results of the TPC Benchmark® C test conducted on the HP ProLiant DL380 G7 in a client/server configuration, using Microsoft SQL Server 2005 Enterprise X64 Edition SP3 and Microsoft COM+ Transaction Monitor. The operating system used for the benchmark was Microsoft Windows Server 2008 R2 Enterprise Edition for X64-Based Systems .

## TPC Benchmark® C Metrics

The standard TPC Benchmark ® C metrics, tpmC® (transactions per minute), price per tpmC ® (three year capital cost per measured tpmC® ), and the availability date are reported as required by the benchmark specification.


## Standard and Executive Summary Statements

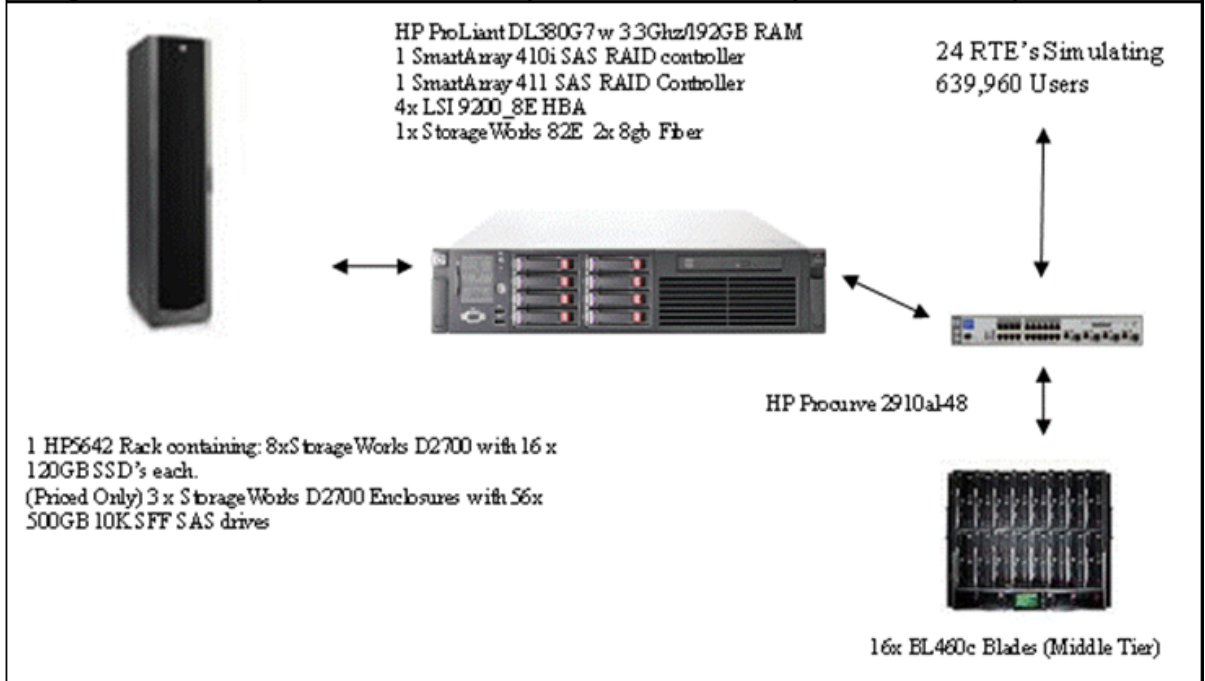
The following pages contain the executive summary of the benchmark results for the HP ProLiant DL380 G7 system. The Standard System Summary is given below.

Company Name	System Name	Database Software	Operating System
Hewlett-Packard Company	HP ProLiant DL380 G7	Microsoft SQL Server 2005 Enterprise X64 Edition SP3	Microsoft Windows Server 2008 R2 Enterprise Edition for X64-Based Systems
Total System Cost	TPC-C Throughput	Price/Performance	Availability Date
\$544,967 USD	803,068 tpmC	\$0.68 USD per tpmC	Sept 1, 2010

## Auditor

The benchmark configuration, environment and methodology used to produce and validate the test results, and the pricing model used to calculate the cost per tpmC® , were audited by Lorna Livingtree of Performance Metrics to verify compliance with the relevant TPC specifications.

	<b>HP ProLiant DL380 G7</b>			TPC-C Rev 5.11
				Pricing Rev 1.5
<b>Total System Cost</b>	<b>TPC Throughput</b>	<b>Price/Performance</b>	<b>Report Date</b>	<b>Availability Date</b>
\$544,967 USD	803,068 tpmC	\$0.68 USD per tpmC	May 11, 2010	Sept 1, 2010
<b>Procs/Cores/Threads</b>	<b>DataBase Manager</b>	<b>Operating System</b>	<b>Other Software</b>	<b>Number of Users</b>
Srvr - 2/12/24 Intel X5680 Hex Core Processors @ 3.3 GHz Client - 16 x 2/8/8 Intel Xeon E5520 @ 2.26 GHz	Microsoft SQL Server 2005 Enterprise X64 Edition SP3	Microsoft Windows Server 2008 R2 Enterprise Edition for X64-Based Systems	Microsoft Visual C++ Microsoft COM+ Transaction Monitor	639,960



System Components	Server		Each Client	
	Qty	Type	Qty	Type
<b>Procs/Cores/Thrds</b>	2/12/24	3.3 GHz	2/8/8	2.26 GHz Intel Xeon E5520
<b>Cache Memory</b>		12 MB L3 cache		8 Mbyte L3 Cache
<b>Memory</b>	12	16 Gbyte	1	8196 MB
<b>Disk Controllers</b>	4	LSI 9200_8e SAS Controller	1	SA 410i
	1	Smart Array P410i		
	1	Smart Array P411		
	1	StorageWorks 82E 2x8gb fiber		
<b>Disk Drives</b>	128	HP 120GB 2.5" SSD (data)	2	146 Gbyte disk
	12	HP 500GB DP 2.5" 7.2K RPM SAS (Log)		
	56	HP 500GB DP 2.5" 7.2K RPM SAS(60Day)		
	2	HP 72GB 15K SAS drives (OS)		
<b>Total Storage</b>		46810.00		146 Gbyte
<b>Terminals</b>	1	Console Terminal	1	Console Terminal

Hewlett-Packard Company	HP ProLiant DL380G7			TPC-C Rev. 5.11			
	Description	Part Number	Price Key	Unit Price	Qty	Extended Price	11-May-10 3 yr. Maint
<b>Server Hardware</b>							
HP DL380G7 SFF CTO Chassis, HP NC382i nic, Smart Array P410i Controller	583914-B21	1	1,591	1	1,591		
Intel Xeon X5680 3.33Ghz Hex Core 12MB L3 Cache Opt	587498-L21	1	2,299	2	4,598		
HP 16GB 4Rx4 PC3-8500R-7 Kit	500666-B21	1	1,549	12	18,588		
HP 750W CS HE Power Supply Kit	512327-B21	1	299	2	598		
HP DL380G6/G7 PCI-E 1x8 2x4 Riser Kit	500579-B21	1	99	1	99		
1GB Flash Backed Write Cache for P410i internal Disk Controller	534562-B21	1	529	1	529		
HP Smart Array P411/256 Controller	462830-B21	1	499	1	499		
HP 72GB 3G SAS 15K SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	418371-B21	1	349	2	698		
HP 3y 4h 24x7 ProLiant DL380 HW Support ,ProLiant Server DL380	U4545E	1	837	1			837
HP LE1851w 18.5-Inch wide Monitor	NK033AA#ABA	1	159	1	159		
HP PS/2 Keyboard And Mouse Bundle	RC464AA#ABA	1	39	1	39		
HP 5642 Pallet Unassembled Rack	358254-B21	1	865	1	865		
HP R1.5 kVA 1U NA UPS	AF419A	1	739	1	739		
HP StorageWorks 82E Dual Channel 8Gb PCI-e HBA	AJ763A	1	2,250	1	2,250		
2 m LC-LC Multi-Mode Fibre Channel Cable	221692-B21	1	75	2	150		
HP 500GB 6G SAS 7.2K SFF (2.5-inch) Dual Port Midline Hard Dr (Log)	507610-B21	1	419	12	5,028		
HP StorageWorks 2324fc G2 Dual Controller Modular Smart Array (SFF)	AJ797A	1	8,900	1	8,900		
HP 3y 4h 24x7 MSA2000 Array HWSupp ,MSA2000 Dual Controller	UJ675E	1	1,513	1			1,513
HP 120GB 3G SATA 2.5in MDL SSD (Data)	572073-B21	1	2,799	128	358,272		
HP StorageWorks D2700 Disk Enclosure	AJ941A	1*	3,399	11	37,389		
HP 3y SupportPlus24 D2000 Enclosures, 4h 24x7 onsite response	UQ105E	1	2,147	11			23,617
HP 500GB 6G SAS 7.2K SFF (2.5-inch) Dual Port Midline Hard Dr (Backup/60Day Space)	507610-B21	1	419	56	23,464		
LSI 9200_8e SAS HBA	LSI00188	4	328	4	1,312		
LSI 9200_8e SAS HBA (10% Spares)	LSI00188	4	328	2			656
					<b>Subtotal</b>	<b>465,767</b>	<b>26,623</b>
<b>Server Software</b>							
Microsoft SQL Server 2005 Enterprise X64 Edition	810-03134	2	23,432	2	46,864		Incl Below
Visual Studio 2008 Standard Edition	127-00116	2	275	1	275		Incl Below
Microsoft Windows Server 2008 R2 Enterprise Edition	P72-04217	2	2,280	1	2,280		Incl Below
Microsoft Problem Resolution Services		2	259	1			259
					<b>Subtotal</b>	<b>49,419</b>	<b>259</b>
<b>Client Hardware</b>							
HP BLc7000 Blade Enclosure 3 Inch LCD display	507019-B21	1	4,837	1	4,837		
Single Phase Power option for Blade Enclosure	413379-B21	1	175	1	175		
HP BLc 6x Active Cool 200 FIO Fan Option	517520-B21	1	894	1	894		
HP 2400W High Efficiency Power Supply	499243-B21	1	349	6	2,094		
HP BLc 1Gb Enet Pass Thru Mod Opt Kit	406740-B21	1	999	2	1,998		
HP ProLiant BL460C G6 E5520 2.26Ghz Quad Core Blade Server	507782-B21	1	2,489	16	39,824		
HP E5520 BL460c G6 FIO Kit	507799-B21	1	599	16	9,584		
HP 4GB 2Rx4 PC3-10600R-9 Memory Kit	500658-B21	1	230	32	7,360		
HP 146GB 15k 2.5 dual Port HP SAS Drive	418367-B21	1	269	32	8,608		
HP LE1851w 18.5-Inch wide Monitor	NK033AA#ABA	1	159	1	159		
HP PS/2 Keyboard And Mouse Bundle	RC464AA#ABA	1	39	1	39		
HP 1year 4h 24x7 B Series Blades HW Support 16 Blades	UB329E	1	612	3			1,836
					<b>Subtotal</b>	<b>75,572</b>	<b>1,836</b>
<b>Client Software</b>							
Windows Server 2008 Standard Edition (X64)	P73-04165	2	711	16	11,376		Incl. Above
					<b>Subtotal</b>	<b>11,376</b>	<b>0</b>
<b>User Connectivity</b>							
HP ProCurve Switch 2910al-48	J9147A	1	4,569	1	4,569		
3-year, 4-hour onsite, 24x7 Stack48 support	U2893E	1	1,307	1			1,307
CAT 6 7 Foot Gray Patch Cable	CB242-7GY	3	2	18	28		
CAT 6 7 Foot Gray Patch Cable (Spares)	CB242-7GY	3	2	2			3
					<b>Subtotal</b>	<b>4,597</b>	<b>1,310</b>
Large Purchase and Net 30 discount (See Note 1)	16.0%	1				<b>(\$87,135)</b>	<b>(\$4,658)</b>
					<b>Total</b>	<b>\$519,596</b>	<b>\$25,371</b>
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 pricing specifications. If you find that the stated prices are not available according to these terms, please inform the TPC at <a href="mailto:pricing@tpc.org">pricing@tpc.org</a> . Thank you.							
						<b>Three-Year Cost of Ownership: USD</b>	<b>\$544,967</b>
						<b>tpmC Rating:</b>	<b>803,068</b>
						<b>\$/ tpmC: USD</b>	<b>\$0.68</b>
Pricing: 1=HP Direct 800-203-6748 2= Microsoft 3= deepsurplus.com 4= Microland Electronics							
Note 1 = Discount based on HP Direct guidance applies to all lines where pricing = 1 * SSD drive support in this enclosure will be available Sept 1 2010 see appendix F							
Note 2 = The benchmark results were audited by Lorna Livingtree of Performance Metrics							

## Numerical Quantities Summary for HP ProLiant DL380 G7

**MQTH, Computed Maximum Qualified Throughput**

**803,068 tpmC**

### Response Times (in seconds)

	90th %-ile	Maximum	Average
New-Order	0.56s	15.69s	0.30s
Payment	0.50s	14.82s	0.25s
Order-Status	0.56s	12.64s	0.30s
Delivery (interactive portion)	0.24s	14.17s	0.14s
Delivery (deferred portion)	0.33s	5.24s	0.18s
Stock-Level	1.59s	10.42s	1.08s
Menu	0.24s	16.64s	0.14s

Response time delay added for emulated components 0.1 seconds

### Transaction Mix, in percent of total transactions

New-Order	44.95%
Payment	43.01%
Delivery	4.01%
Stock-Level	4.01%
Order-Status	4.01%

### Keying/Think Times

	Keying Time			Think Time		
	Min	Avg	Max	Min	Avg	Max
New-Order	18.00s	18.02s	18.03s	0.00s	12.06s	120.52s
Payment	3.00s	3.02s	3.03s	0.00s	12.06s	120.52s
Order-Status	2.00s	2.02s	2.03s	0.00s	10.06s	100.52s
Delivery (interactive)	2.00s	2.02s	2.03s	0.00s	5.07s	50.52s
Stock-Level	2.00s	2.02s	2.03s	0.00s	5.06s	50.52s

### Test Duration

Ramp up time	121 minutes
Measurement interval	120 minutes
Transactions during measurement interval	214375459
Ramp down time	5 minutes

### Checkpointing

Number of checkpoints in measurement interval	4
Checkpoint Interval	29.17 minutes

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# Preface

## Document Structure

This is the full disclosure report for a benchmark test of the HP ProLiant DL380 G7 using Microsoft SQL Server 2005 Enterprise X64 Edition SP3. It meets the requirements of the TPC Benchmark® C Standard Specification, Revision 5.11 dated February 2010. TPC Benchmark® C was developed by the Transaction Processing Performance Council (TPC). It is the intent of this group to develop a suite of benchmarks to measure the performance of computer systems executing a wide range of applications. Hewlett-Packard Company and Microsoft, Inc. are active participants in the TPC.

## TPC Benchmark® C Overview

TPC Benchmark® C is an **On Line Transaction Processing (OLTP)** workload. It is a mixture of read-only and update intensive transactions that mimic the activities found in complex OLTP application environments. It does so by exercising a breadth of system components associated with such 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 of data access and update

The performance metric reported by TPC-C® is a “business throughput” measurement of 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 other environments 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 benchmark when critical capacity planning and/or product evaluation decisions are contemplated.

Hewlett-Packard Company does not warrant or represent that a user can or will achieve performance similar to the benchmark results contained in this report. No warranty of system performance or price/performance is expressed or implied by this report.

## System Overview

The hardware configuration used in this TPC-C test was based on the HP ProLiant DL380 G7. The full configuration was built by adding additional memory, additional disk adapters and drives. The operating system used on the server was Microsoft Windows Server 2008 R2 Enterprise Edition for X64-Based Systems and the database was Microsoft SQL Server 2005 Enterprise X64 Edition SP3, Version 9.00.2047.00.

The processor architecture of the HP ProLiant DL380 G7 was designed for the Intel X5680 Hex Core Processors processor. The HP ProLiant DL380 G7 used in this test was powered by 2 3.3 GHz Intel X5680 Hex Core Processors processors, each with 12 MB of 3rd level cache. The 2 processors contain 12 cores, and threading was enabled. This configuration therefore presented 24 logical processors to the operating system.

This configuration used 192 GB of HP SDRAM.

The operating system, all executables and libraries, the master database, and swap space were contained in two 72 GB hard disks, attached to the internal HP SmartArray P410i and configured as a RAID1 boot pair. A partition was created on the same disc array as the log and was used for utility storage of scripts, the build environment, etc.

The database log drive storage was located on 1 HP StorageWorks MSA 2324fc. The HP StorageWorks MSA 2324fc held 12 HP 500GB DP 2.5" 7.2K RPM SAS hard drives. The HP StorageWorks MSA 2324fc disk array was connected to the HP ProLiant DL380 G7 using HP StorageWorks 82E Dual Channel 8Gb PCI-e HBA. The disks were configured as two RAID 1+0 arrays, and presented to the server as two LUN's, which were then software striped using the disc striping capabilities of the OS. The caches in the dual controllers in the 2324fc were configured as and active-active mirroring pair.

The TPC-C database storage consisted of 128 HP 120GB 2.5" SSD disk drives. HP StorageWorks D2700 Disk Enclosures were used to connect the disks. Each HP StorageWorks D2700 Disk Enclosure contained 16 HP 120GB 2.5" SSD drives. 2 D2700's were connected to each LSI 9200\_8e SAS Controller/HBA. Each disk appeared as a single RAID0 device. Windows partitions were created on the RAID0 volumes to contain the CS and MISC SQL filegroups. The partition sizes were the same on all 128 volumes.

Each of the 16 clients is an HP BladeSystem C7000/DL460c with 2 Intel Xeon E5520 Processors at 2.26 GHz, 8196 MB RAM and two HP 146GB 15k 2.5 dual Port HP SAS Drives connected to the internal SmartArray P410i (mirrored), running Microsoft Windows Server 2008 with IIS 7. Threading was disabled, so 8 logical processors were presented to the operating system.

The server and web-clients were networked together using standard Gigabit LAN connections from the web-clients to the network switch, and from the switch to the server. 24 remote terminal emulators (RTEs) emulated 639,960 users executing the standard TPC-C workload. Each web-client had two embedded Gigabit LAN adapters, one of which was used to connect to the RTEs running in Gigabit mode. HP DL140's were used as the RTE emulators.

Microsoft SQL Server 2005 Enterprise X64 Edition SP3 was configured to utilize "soft NUMA", a feature that allows network connections to be affined to specific groups of CPUs. SQL Server was configured with 4 SoftNUMA nodes. SoftNUMA nodes 1,2 and 4 were configured with 5 CPUs, SoftNUMA node 3 was configured with 6 CPUs. Processor 0 was used for network interrupts only, and the Microsoft interrupt affining tool, IntPolicy, was used to affine the LSI driver interrupts to processors 11 and 23. A script doing continuous checkpoints of 1750 seconds (29 minutes, 10 seconds) was started on the server.

## General Items

### Test Sponsor

*A statement identifying the sponsor of the Benchmark and any other companies who have participated.*

Hewlett-Packard Company was the test sponsor of this TPC Benchmark C.

### Application Code and Definition Statements

*The application program must be disclosed. This includes, but is not limited to, the code implementing the five transactions and the terminal input/output functions.*

The Section 3.0 entitled Clause 3 Related Items contains a brief discussion of the database design and loading. The database definition statements, distribution across disk drives, loading scripts, and tables are provided in Appendix B.

The program that implements the TPC Benchmark C translation and collects appropriate transaction statistics is referred to as the Remote Terminal Emulator (RTE) or Driver program. We have used the Microsoft BenchCraft RTE program that emulated a set of users entering TPC-C transactions through web browsers, and communicating with web-client machines running the Microsoft Internet Information Server (IIS) web server. The web-client machines used the COM+ transaction monitor (TM) to communicate with the database server.

On each web-client machine, IIS loads a custom Microsoft Internet Information Server Application Programming Interface dynamic link library (ISAPI DLL) application program that communicates with the emulated web browsers through the HTTP protocol and the database server through the COM+ TM and the Microsoft ODBC interface. The application supplies fill-in screens to the user for each transaction, then parses the data in each request, and makes a call on SQL Server through the COM+ layer, which manages a set of ODBC connections to the database server. The resulting data is passed back to the application where it is formatted into HTML and sent back to the user's browser. The *delivery* transaction is handled directly from the application to the database without the use of COM+.

### Parameter Settings

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

- *Database options*
- *Recover/commit options*
- *Consistency/locking options*
- *System parameter, application parameters, and configuration parameters.*

Appendix C contains all the database and operating system parameters used in this benchmark in addition to all the hardware configuration details.

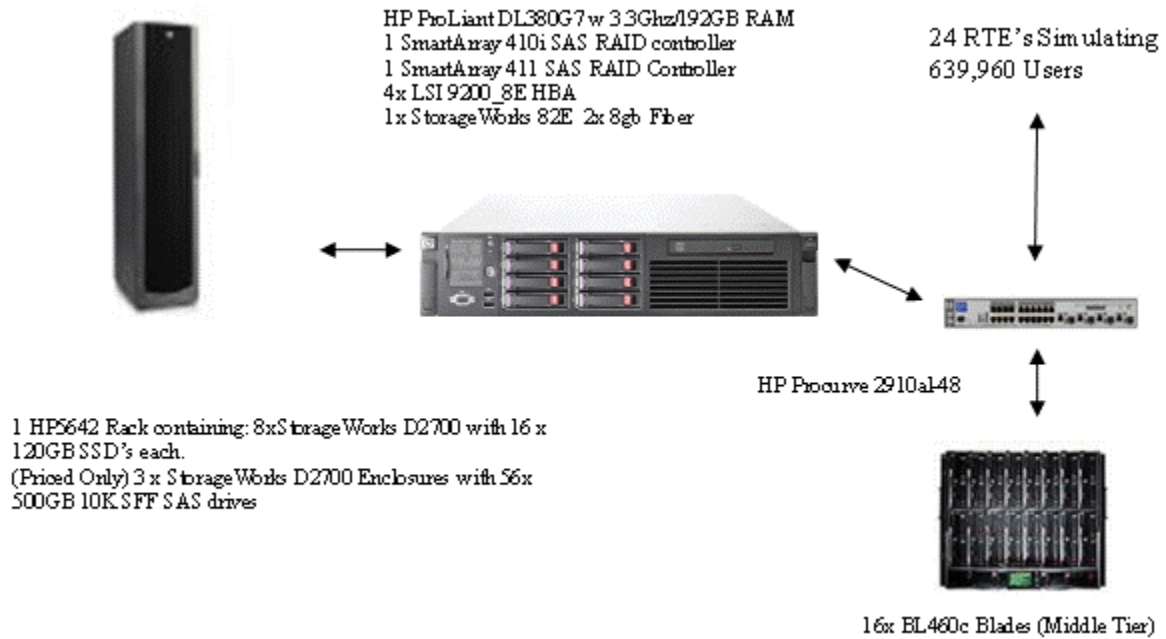
Appendix D contains the 60 day space calculations.

### Configuration Diagrams

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

The measured and priced client/server configuration is shown in Figures 1.

**Figure 1. Measured and Priced Configuration**



Priced configuration differed from Measured configuration in that additional 500gb drives and D2700 enclosures were priced, but were not active for the measurement run. The Measurement run was done entirely on the 120GB SSD disks, + the HP2324fc and 500 GB drives for the log. 56 500GB drives in 3 D2700 Enclosures were used only for backup and to meet 60 day space requirements, and not used for the measurement run.

# Chapter 1 Logical Database Design

## 1.1 Table Definitions

*A listing 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.

## 1.2 Physical Organization of the Database

*The physical organization of tables and indices within the database must be disclosed.*

The measured database configuration used a total of 196 disk drives, 128 HP 120GB 2.5" SSD, 12 HP 500GB DP 2.5" 7.2K RPM SAS drives for log, and 56 HP 500GB DP 2.5" 7.2K RPM SAS(s) for backup/60 Day space, and 2 146GB drives for the OS.

Each of the 128 HP 120GB 2.5" SSD drives were configured as a separate RAID0 device. Each volume held 2 partitions, one for the CS filegroup where the Customer and Stock tables were stored and one partition for MISC filegroup where all other tables were stored. Backup storage was on some of the HP 500GB DP 2.5" 7.2K RPM SAS(60Day) Drives.

## 1.3 Insert and Delete Operations

*It must be ascertained that insert and delete operations to any of the tables can occur concurrently with the TPC-C transaction mix. Furthermore, any restrictions 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 and verified during the entire benchmark.

## 1.4 Partitioning

*While there are a few restrictions placed upon horizontal or vertical partitioning of tables and rows in the TPC-C Benchmark, any such partitioning must be disclosed.*

Partitioning was not used on any table.

## 1.5 Replication, Duplication or Additions

*Replication of tables, if used, must be disclosed. Additional and/or duplicated attributes in any table must be disclosed along with a statement on the impact on performance.*

No replications, duplications or additional attributes were used.

## Chapter 2 Transaction and Terminal Profiles

### 2.1 Random Number Generation

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

The random number generation was done internal to the Microsoft BenchCraft RTE program, which was audited independently.

### 2.2 Input/Output Screen Layout

*The actual layout of the terminal input/output screens must be disclosed.*

The screen layouts are based on those in Clauses 2.4.3, 2.5.3, 2.6.3, 2.7.3, and 2.8.3 of the TPC-C® Standard Specification.

### 2.3 Priced Terminal Feature 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 for the demonstration in 8.1.3.3 must be disclosed and commercially available (including supporting software and maintenance).*

The terminal features were verified by allowing the auditor to manually execute each of the five transaction types, using the Microsoft Internet Explorer.

### 2.4 Transaction Statistics

*The transaction profiles must be disclosed as per Clauses 8.1.3.5 through 8.1.3.10.*

Table 1 shows the transaction statistics.

**Table 1. Transaction Statistics**

Type	Item	Value
New Order	Home warehouse items	99.00%
	Remote warehouse items	1.00%
	Rolled back transactions	1.00%
	Average items per order	10.00
Payment	Home warehouse	85.01%
	Remote warehouse	14.99%
	Non primary key access	60.00%
Order Status	Non primary key access	60.10%
Delivery	Skipped transactions	0
Transaction Mix	New Order	44.95%
	Payment	43.01%
	Delivery	4.01%
	Stock Level	4.01%
	Order Status	4.01%

## 2.5 Presentation Manager or Intelligent Terminal

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

**Comment 1:** *The intent of this clause is to describe any special manipulations performed by a local terminal or workstation to off-load work from the SUT. This includes, but is not limited to: screen presentations, message bundling, and local storage of TPC-C rows.*

**Comment 2:** *This disclosure also requires that all data manipulation functions performed by the local terminal to provide navigational aids for transaction(s) must also be described. Within this disclosure, the purpose of such additional function(s) must be explained.*

Application code running on the web-client implemented the TPC-C® user interface. Screen manipulation commands in the form of HTML were downloaded to the web browser, which handled input and output presentation graphics. A listing of this code is included in Appendix A. Microsoft Internet Information Service assisted in the processing and presentation of this data.

## 2.6 Queuing Mechanism

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

The application creates a semaphore-based thread pool consisting of a user-specified number of threads, which open ODBC connections on the database. When a *delivery* transaction is posted, one of these threads makes the database call while the transaction's original thread returns control to the user. Upon completion, the delivery thread writes an entry in the delivery log and returns to the thread pool.

The source code is listed in Appendix A.

## Chapter 3 Transaction and System Properties

### 3.1 Transaction System Properties (ACID Tests)

*Results of the ACID test must describe how the requirements were met. This includes disclosing which case was followed for the execution of Isolation Test 7.*

The TPC Benchmark C standard specification defines a set of transaction processing system properties that a System Under Test (SUT) must support during the execution of the benchmark. Those properties are Atomicity, Consistency, Isolation and Durability (ACID). The following subsections will define each of these properties and describe the series of tests that were performed by HP to demonstrate that the properties were met.

All of the specified ACID tests were successfully performed on the HP ProLiant DL380 G7, the System Under Test in this benchmark. A fully scaled database was used for all the durability tests.

### 3.2 Atomicity Tests

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

#### 3.2.1 COMMIT Transaction

The following steps were followed to demonstrate the COMMIT property of Atomicity:

A row was randomly selected from the Warehouse, District and Customer tables, and the present balances noted. The standard payment transaction was started against the above identifiers using a known amount. The transaction was committed and the rows were verified to contain the correct updated balances.

#### 3.2.2 ROLLBACK Transaction

The following steps were followed to demonstrate the ROLLBACK property of Atomicity:

A row was randomly selected from the Warehouse, District and Customer tables, and the present balances noted. The standard payment transaction was started against the above identifiers using a known amount. The transaction was rolled back and the rows were verified to contain the original balances.

### 3.3 Consistency Tests

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

Consistency conditions 1 through 4 were tested using a shell script to issue queries to the database. The results of the queries verified that the database was consistent for all four tests. A performance run was executed at rated speed. The shell script was executed again. The result of the same queries verified that the database remained consistent after the run.



## 3.4 Isolation Tests

*Operations of concurrent transactions must yield results which are indistinguishable from the results which would be obtained by forcing each transaction to be serially executed to completion in some order.*

*This property is commonly called serializability. Sufficient conditions must be enabled at either the system or application level to ensure serializability of transactions under any mix of arbitrary transactions.*

We ran a total of nine isolation tests. Seven of these tests are detailed in the TPC-C specification (clause 3.4.2.1 to 3.4.2.7). The additional two are to fully comply with the isolation requirements that are not directly specified in the TPC-C specification. These two tests are known as Phantom Protection One and Two. They demonstrate that the applications are protected from phantom inserts.

## 3.5 Durability Tests

*The tested system must guarantee the ability to preserve the effects of committed transactions and insure database consistency after recovery from any one of the failures listed in clause 3.5.3.1, 3.5.3.2, and 3.5.3.3.*

Three types of failures were tested to ensure the durability of the database: Loss of Data, Loss of Log, and Loss of System/Memory. All tests were performed on the full scale database..

### 3.5.1 Loss of Data

The standard driving mechanism was used to generate the transaction load of slightly more than 63,996 users for the test (10% of full load). To demonstrate recovery from a permanent failure of durable media containing TPC-C tables, the following steps were executed:

1. The database was backed up using SQLServer backup facilities.
2. A sum of D\_NEXT\_O\_ID was taken.
3. Slightly more than 63,996 (10%) users were logged in to the database and ran transactions.
4. After 5 minutes, one data disk drive was removed. Errors were noted on both the SQL log, OS log, and the RTE log.
5. The RTE monitor was used to verify that no users were lost.
6. The RTE was shutdown and a success file was created.
7. The database log was backed up to disc.
8. SQL was shut down, the disc re-inserted and the RAID0 volume recovered.
9. The database was restored from the original backup that was restored before the run, specifying recovery NOT be done after the restore.
10. The log was restored with recovery, effectively rolling forward all successful transactions from the run.
11. Transactions were exported from the success file. 6 New Orders were chosen at random and verified to exist in the database.

### 3.5.2 Loss of System / Memory and loss of Log

This was demonstrated on the full database with 68,000 warehouses in a single test. The standard driving mechanism was used to generate the transaction load of 639,960 users for this test. To demonstrate recovery the following steps were followed:

1. The full database was used.
2. A sum of D\_NEXT\_O\_ID was taken.
3. 639,960 users were logged in to the database and ran transactions.
4. Rampup was performed until the TPMC rate was 90% of the reported rate.
5. After 5 minutes, one of the (mirrored) log disk was removed from the system, processing transactions continued.
6. After another 5 minutes, the system was powered off using the build in Integrated Lights Out (ILO) capability.. This reset the hardware, reran memory initialization, and reloaded the Windows OS.
7. The RTE continued running and completed transactions enroute from the clients were recorded. Error messages began appearing on the RTE screen.
8. The RTE was stopped.
9. After Windows was finished booting, Microsoft SQL Server was restarted and performed an automatic recovery.
10. A new count of D\_NEXT\_O\_ID was taken.
11. This number was compared with the number of new orders reported by the RTE.
12. Samples were taken of the RTE log and verified against the database.

## Chapter 4 Scaling and Database Population

### 4.1 Database Layout

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

The measured (tested) and priced systems used 4 LSI 9200\_8e Disk Array Controllers. The HP StorageWorks MSA 2324fc disk array that held the database log was connected to an HP StorageWorks 82E Dual Channel 8Gb PCI-e HBA.

The measured database configuration used a total of 140 disk drives, 128 HP 120GB 2.5" SSD and 12 HP 500GB DP 2.5" 7.2K RPM SAS drives plus 2 146GB drives for the OS.

Each LSI 9200\_8e HBA was attached to 2 HPStorageWorks D2700 via 2 SAS cables, one on each of the two SAS ports on the LSI card. Each D2700 in turn had 16 HP 120GB 2.5" SSD drives. Each drive was presented to the OS as a separate device, and was divided into CS and MISC partitions.

Table 2a shows the complete data distribution.

The database log drive storage was located on 1HP StorageWorks MSA 2324fc. The HP StorageWorks MSA 2324fc held 12 HP 500GB DP 2.5" 7.2K RPM SAS hard drives. The HP StorageWorks MSA 2324fc disk array were connected to the HPDL380 G7 using HP StorageWorks 82E Dual Channel 8Gb PCI-e HBA. Each set of 6 disks were configured as RAID 1+0, with one set being owned by each of the two controllers the array. Each controller was attached to one fiber and each presented its RAID1+1 array to the OS as a separate LUN. The two LUNS were then software striped in Windows to appear as one large raw partition. The two battery backed up disk array controller caches were enabled and mirrored (active-active mirroring is on by default on this array) on each of the two controller caches. Not all the space visible to the OS on the log array was configured for the log in SQL, but could have been if needed. Table 2b shows the log distribution.

**Table 2a: Data Distribution**

LSI 9200_8e #1			
Dr ID	SAS Channels		
	SAS Chnl 0 (Encl 0)	Partition 0	Partition 1
0	120GB	G:\MNT\CS1 Raw 41.9 GB	G:\MNT\MISC1 Raw 21.5GB
1	120GB	G:\MNT\CS2 Raw 41.9 GB	G:\MNT\MISC2 Raw 21.5GB
2	120GB	G:\MNT\CS3 Raw 41.9 GB	G:\MNT\MISC3 Raw 21.5GB
3	120GB	G:\MNT\CS4 Raw 41.9 GB	G:\MNT\MISC4 Raw 21.5GB
4	120GB	G:\MNT\CS5 Raw 41.9 GB	G:\MNT\MISC5 Raw 21.5GB
5	120GB	G:\MNT\CS6 Raw 41.9 GB	G:\MNT\MISC6 Raw 21.5GB
6	120GB	G:\MNT\CS7 Raw 41.9 GB	G:\MNT\MISC7 Raw 21.5GB
7	120GB	G:\MNT\CS8 Raw 41.9 GB	G:\MNT\MISC8 Raw 21.5GB
8	120GB	G:\MNT\CS9 Raw 41.9 GB	G:\MNT\MISC9 Raw 21.5GB
9	120GB	G:\MNT\CS10 Raw 41.9 GB	G:\MNT\MISC10 Raw 21.5GB
10	120GB	G:\MNT\CS11 Raw 41.9 GB	G:\MNT\MISC11 Raw 21.5GB
11	120GB	G:\MNT\CS12 Raw 41.9 GB	G:\MNT\MISC12 Raw 21.5GB
12	120GB	G:\MNT\CS13 Raw 41.9 GB	G:\MNT\MISC13 Raw 21.5GB
13	120GB	G:\MNT\CS14 Raw 41.9 GB	G:\MNT\MISC14 Raw 21.5GB
14	120GB	G:\MNT\CS15 Raw 41.9 GB	G:\MNT\MISC15 Raw 21.5GB
15	120GB	G:\MNT\CS16 Raw 41.9 GB	G:\MNT\MISC16 Raw 21.5GB
Dr ID	SAS Channels		
	SAS Chnl 1 (Encl 1)	Partition 0	Partition 1
0	120GB	G:\MNT\CS17	G:\MNT\MISC17

		Raw 41.9 GB	Raw 21.5GB
1	120GB	G:\MNT\CS18 Raw 41.9 GB	G:\MNT\MISC18 Raw 21.5GB
2	120GB	G:\MNT\CS19 Raw 41.9 GB	G:\MNT\MISC19 Raw 21.5GB
3	120GB	G:\MNT\CS20 Raw 41.9 GB	G:\MNT\MISC20 Raw 21.5GB
4	120GB	G:\MNT\CS21 Raw 41.9 GB	G:\MNT\MISC21 Raw 21.5GB
5	120GB	G:\MNT\CS22 Raw 41.9 GB	G:\MNT\MISC22 Raw 21.5GB
6	120GB	G:\MNT\CS23 Raw 41.9 GB	G:\MNT\MISC23 Raw 21.5GB
7	120GB	G:\MNT\CS24 Raw 41.9 GB	G:\MNT\MISC24 Raw 21.5GB
8	120GB	G:\MNT\CS25 Raw 41.9 GB	G:\MNT\MISC25 Raw 21.5GB
9	120GB	G:\MNT\CS26 Raw 41.9 GB	G:\MNT\MISC26 Raw 21.5GB
10	120GB	G:\MNT\CS27 Raw 41.9 GB	G:\MNT\MISC27 Raw 21.5GB
11	120GB	G:\MNT\CS28 Raw 41.9 GB	G:\MNT\MISC28 Raw 21.5GB
12	120GB	G:\MNT\CS29 Raw 41.9 GB	G:\MNT\MISC29 Raw 21.5GB
13	120GB	G:\MNT\CS30 Raw 41.9 GB	G:\MNT\MISC30 Raw 21.5GB
14	120GB	G:\MNT\CS31 Raw 41.9 GB	G:\MNT\MISC31 Raw 21.5GB
15	120GB	G:\MNT\CS32 Raw 41.9 GB	G:\MNT\MISC32 Raw 21.5GB

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LSI 9200\_8e #4

LSI 9200_8e #4			
Dr ID	SAS Channels		
	SAS Chnl 0 (Encl 0)	Partition 0	Partition 1
0	120GB	G:\MNT\CS97 Raw 41.9 GB	G:\MNT\MISC97 Raw 21.5GB
1	120GB	G:\MNT\CS98 Raw 41.9 GB	G:\MNT\MISC98 Raw 21.5GB
2	120GB	G:\MNT\CS99 Raw 41.9 GB	G:\MNT\MISC99 Raw 21.5GB
3	120GB	G:\MNT\CS100 Raw 41.9 GB	G:\MNT\MISC100 Raw 21.5GB
4	120GB	G:\MNT\CS101 Raw 41.9 GB	G:\MNT\MISC101 Raw 21.5GB
5	120GB	G:\MNT\CS102 Raw 41.9 GB	G:\MNT\MISC102 Raw 21.5GB
6	120GB	G:\MNT\CS103 Raw 41.9 GB	G:\MNT\MISC103 Raw 21.5GB
7	120GB	G:\MNT\CS104 Raw 41.9 GB	G:\MNT\MISC104 Raw 21.5GB
8	120GB	G:\MNT\CS105 Raw 41.9 GB	G:\MNT\MISC105 Raw 21.5GB
9	120GB	G:\MNT\CS106 Raw 41.9 GB	G:\MNT\MISC106 Raw 21.5GB
10	120GB	G:\MNT\CS107 Raw 41.9 GB	G:\MNT\MISC107 Raw 21.5GB
11	120GB	G:\MNT\CS108 Raw 41.9 GB	G:\MNT\MISC108 Raw 21.5GB
12	120GB	G:\MNT\CS109 Raw 41.9 GB	G:\MNT\MISC109 Raw 21.5GB
13	120GB	G:\MNT\CS110 Raw 41.9 GB	G:\MNT\MISC110 Raw 21.5GB
14	120GB	G:\MNT\CS111 Raw 41.9 GB	G:\MNT\MISC111 Raw 21.5GB
15	120GB	G:\MNT\CS112 Raw 41.9 GB	G:\MNT\MISC112 Raw 21.5GB
Dr ID	SAS Channels		
	SAS Chnl 1 (Encl 1)	Partition 0	Partition 1
0	120GB	G:\MNT\CS113 Raw 41.9 GB	G:\MNT\MISC113 Raw 21.5GB
1	120GB	G:\MNT\CS114 Raw	G:\MNT\MISC114 Raw

		41.9 GB	21.5GB
2	120GB	G:\MNT\CS115 Raw 41.9 GB	G:\MNT\MISC115 Raw 21.5GB
3	120GB	G:\MNT\CS116 Raw 41.9 GB	G:\MNT\MISC116 Raw 21.5GB
4	120GB	G:\MNT\CS117 Raw 41.9 GB	G:\MNT\MISC117 Raw 21.5GB
5	120GB	G:\MNT\CS118 Raw 41.9 GB	G:\MNT\MISC118 Raw 21.5GB
6	120GB	G:\MNT\CS119 Raw 41.9 GB	G:\MNT\MISC119 Raw 21.5GB
7	120GB	G:\MNT\CS120 Raw 41.9 GB	G:\MNT\MISC120 Raw 21.5GB
8	120GB	G:\MNT\CS121 Raw 41.9 GB	G:\MNT\MISC121 Raw 21.5GB
9	120GB	G:\MNT\CS122 Raw 41.9 GB	G:\MNT\MISC122 Raw 21.5GB
10	120GB	G:\MNT\CS123 Raw 41.9 GB	G:\MNT\MISC123 Raw 21.5GB
11	120GB	G:\MNT\CS124 Raw 41.9 GB	G:\MNT\MISC124 Raw 21.5GB
12	120GB	G:\MNT\CS125 Raw 41.9 GB	G:\MNT\MISC125 Raw 21.5GB
13	120GB	G:\MNT\CS126 Raw 41.9 GB	G:\MNT\MISC126 Raw 21.5GB
14	120GB	G:\MNT\CS127 Raw 41.9 GB	G:\MNT\MISC127 Raw 21.5GB
15	120GB	G:\MNT\CS128 Raw 41.9 GB	G:\MNT\MISC128 Raw 21.5GB

**Table 2b: Log Distribution**

HP StorageWorks 82E Dual Channel 8Gb PCI-e HBA			WINDOWS.NET DISK ADMIN	
1 SW2324fc			DISK 1 (Dynamic)	
Slot ID	Controller		Partitions (RAID 1+0 30 TB)	
	0 (Fiber 1)	1 (Fiber 2)	0	1
0	500GB		L: RAW 2.63TB (DB log)	T: NTFS 100 GB (Tempdb log)
1	500GB			
2	500GB			
3	500GB			
4	500GB			
5	500GB			
6		500GB		
7		500GB		
8		500GB		
9		500GB		
10		500GB		
11		500GB		



## 4.2 Initial Cardinality of Tables

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

Table 3 shows the cardinality of the various tables.

**Table 3: Table Cardinality**

Table	Occurrences
Warehouse	68,000
District	680,000
Customer	2,040,000,000
History	2,040,000,000
Orders	2,040,000,000
New Orders	612,000,000
Order Line	2,040,000,000
Stock	6,800,000,000
Item	100,000

No rows were deleted for the benchmark runs.

## 4.3 60 Day Space

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 must be disclosed.

### 4.3.1 Transaction Log Space Requirements

To calculate the space required to sustain the database log for 8 hours of growth at steady state, the following steps were followed:

1. The free space on the logfile was queried using **dbcc sqlperf(logspace)**.
2. Transactions were run against the database with a full load of users.
3. The free space was again queried using **dbcc sqlperf(logspace)**.
4. The space used was calculated as the difference between the first and second query.
5. The number of NEW-ORDERS was verified from an RTE report covering the entire run.
6. The space used was divided by the number of NEW-ORDERS giving a space used per NEW-ORDER transaction.
7. The space used per transaction was multiplied by the measured tpmC rate times 480 minutes.

The result of the above steps yielded a requirement of 374.27 GB to sustain the log for 8 hours. Space available for the transaction log was 2,693.12 GB indicating that enough storage was configured to hold 8 hours of growth.

The same methodology was used to calculate the growth requirements for the other dynamic tables Order, Order-Line and History. The details of the 60ay growth calculation are shown in Appendix D.

## 4.4 Type of Database Used

*A statement must be provided that describes:*

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

Microsoft SQL Server 2005 Enterprise X64 Edition SP3 is a relational DBMS.

The interface was SQL Server stored procedures accessed with library calls embedded in C code.

## 4.5 Database Mapping

*The mapping of database partitions and replications must be described.*

The database was divided into 2 file groups misc\_fg and cs\_fg. cs\_fg consists of 128 partitions at 41.9 GB each and misc\_fg consist of 128 partitions at 21.9 GB each as shown in the createdb.sql. The log was configured with 400,000 MB at database creation, and was expanded to 1220 GB after database creation and load.

## Chapter 5 Performance Metrics and Response Time

### 5.1 Throughput

Measured tpmC® must be reported.

Measured TpmC®: 803,068  
Price per TpmC®: \$0.68 USD

### 5.2 Response Times

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

Table 3 shows the response times for all transaction types.

**Table 4: Transaction Response Times**

Response Times	Average	90th %-ile	Maximum
New-Order	0.30s	0.56s	15.69s
Payment	0.25s	0.50s	14.82s
Order-Status	0.30s	0.56s	12.64s
Delivery (interactive portion)	0.14s	0.24s	14.17s
Delivery (deferred portion)	0.18s	0.33s	5.24s
Stock-Level	1.08s	1.59s	10.42s
Menu	0.14s	0.24s	16.64s

### 5.3 Keying and Think Times

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

Tables 4 and 5 show the key times and think times for all transaction types.

**Table 5: Transaction Key Times**

Keying Times	Minimum	Average	Maximum
New Order	18.00	18.02s	18.03s
Payment	3.00	3.02s	3.03s
Order Status	2.00	2.02s	2.03s
Interactive Delivery	2.00	2.02s	2.03s
Stock Level	2.00	2.02s	2.03s

**Table 6: Transaction Think Times**

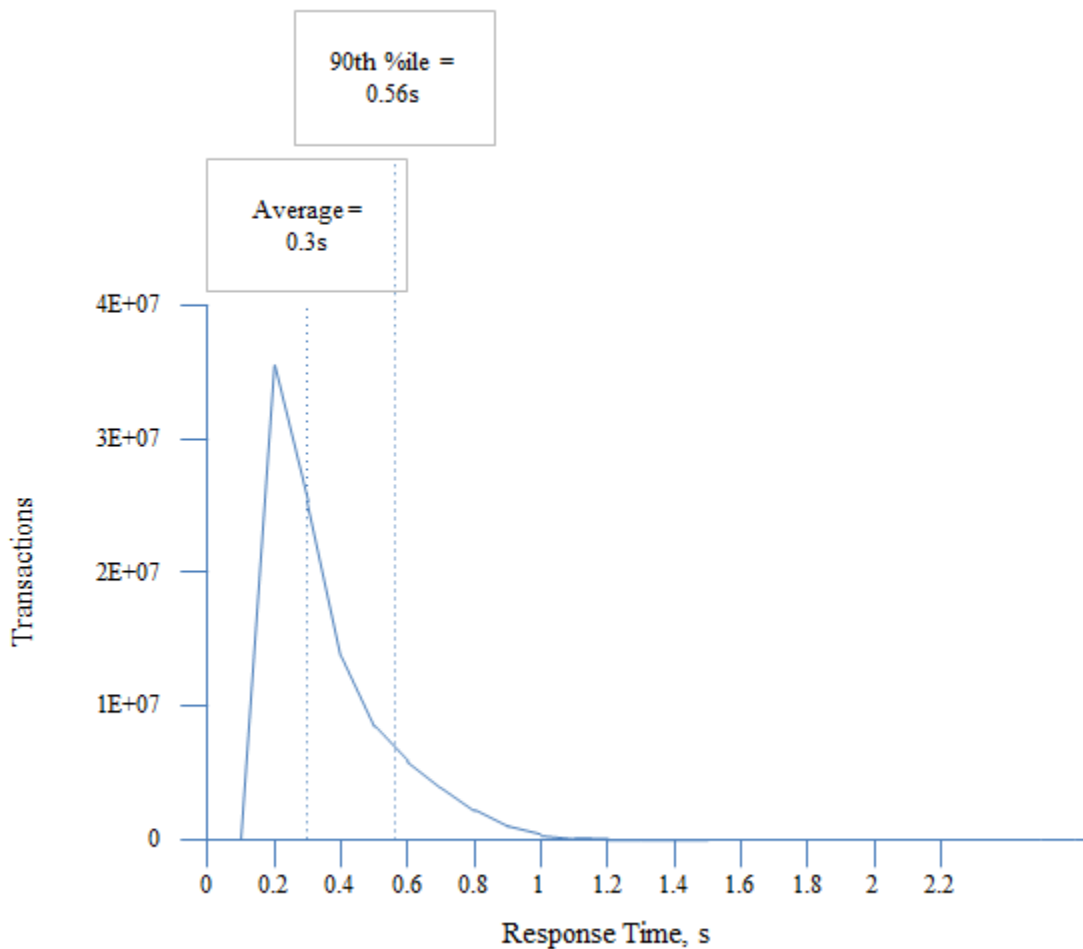
Think Times	Minimum	Average	Maximum
New Order	0	12.06s	120.52s
Payment	0	12.06s	120.52s
Order Status	0	10.06s	100.52s
Interactive Delivery	0	5.07s	50.52s
Stock Level	0	5.06s	50.52s

## 5.4 Response Time Frequency

Response Time frequency distribution curves (see Clause 5.6.1) must be reported for each transaction type. The performance curve for response times versus throughput (see Clause 5.6.2) must be reported for the New-Order transaction. Think Time frequency distribution curves (see Clause 5.6.3) must be reported for each transaction type. Keying Time frequency distribution curves (see Clause 5.6.4) must be reported for each transaction type. A graph of throughput versus elapsed time (see Clause 5.6.5) must be reported for the New-Order transaction.

### 5.4.1 New Order Response Time

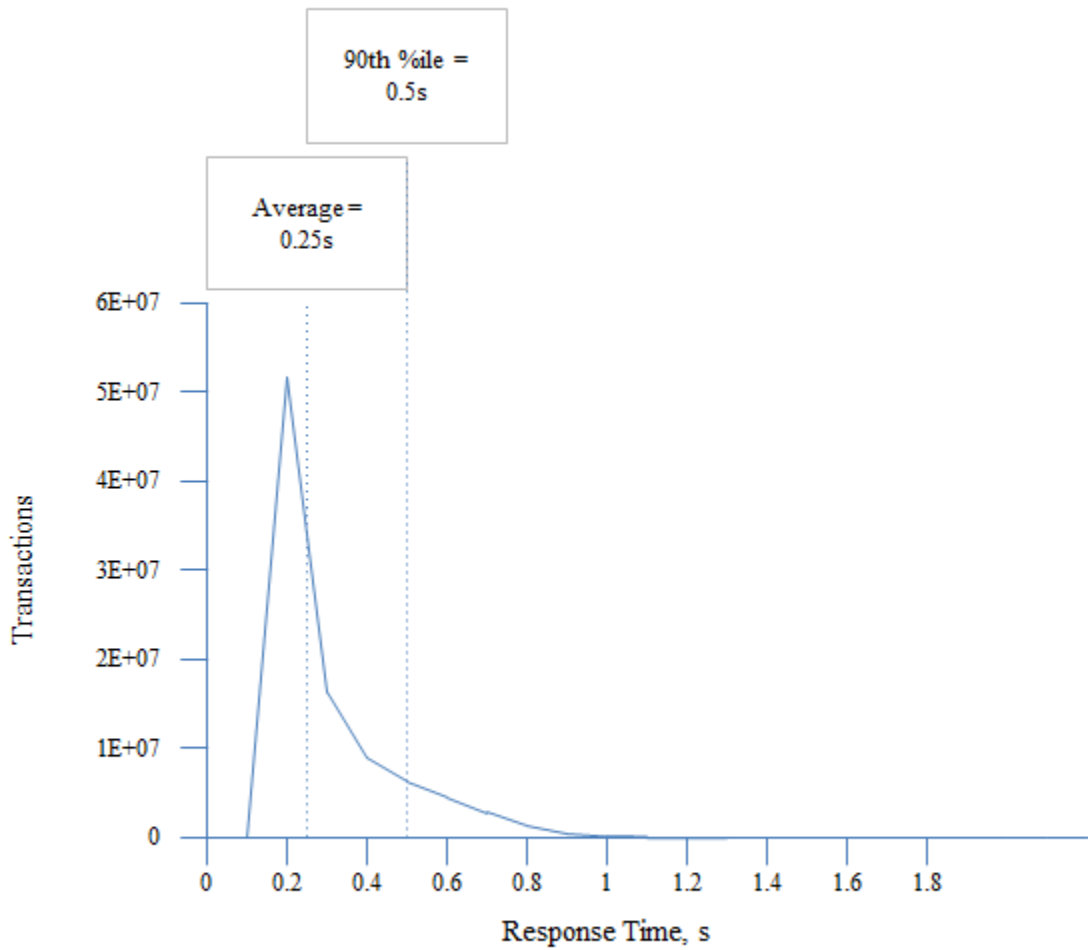
Figure 3: New Order Response Time Distribution



Response time frequency distribution for New Order transaction

## 5.4.2 Payment Response Time Distribution

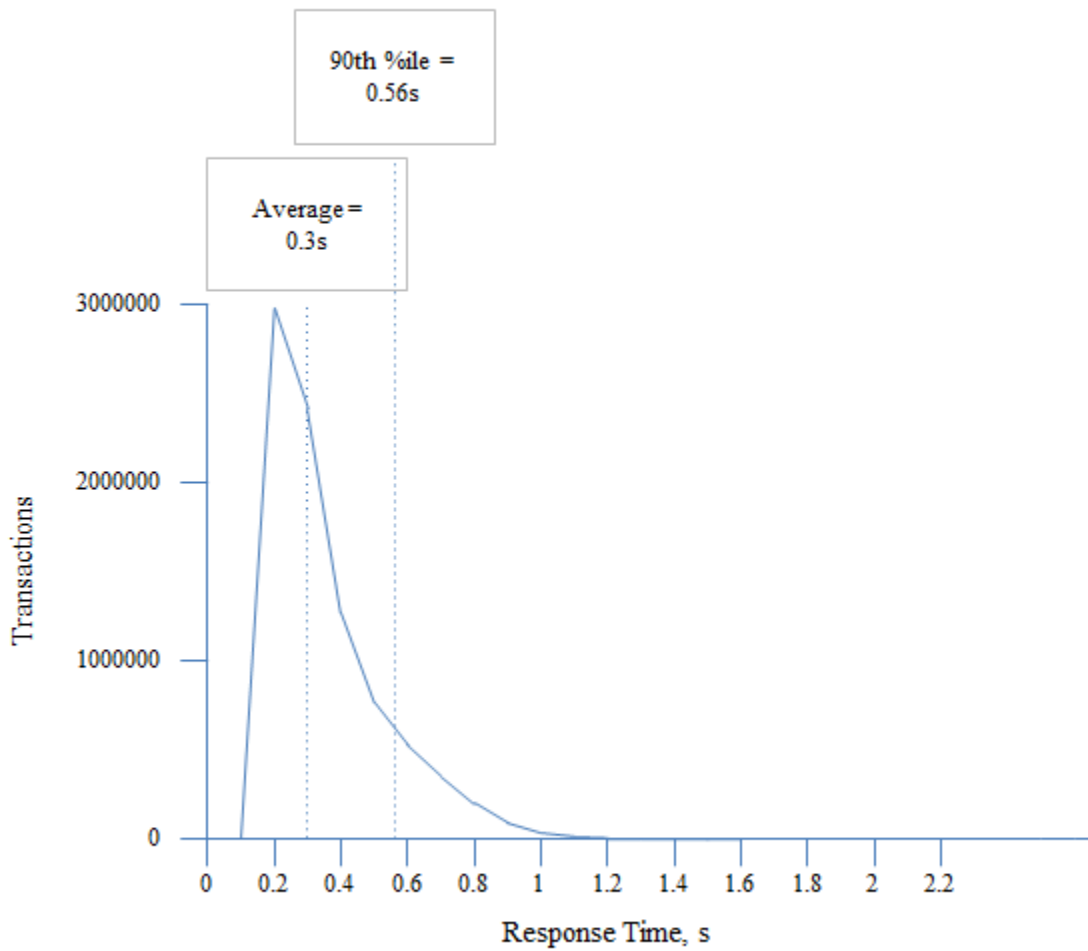
Figure 4: Payment Response Time Distribution



Response time frequency distribution for Payment transaction

### 5.4.3 Order Status Response Time

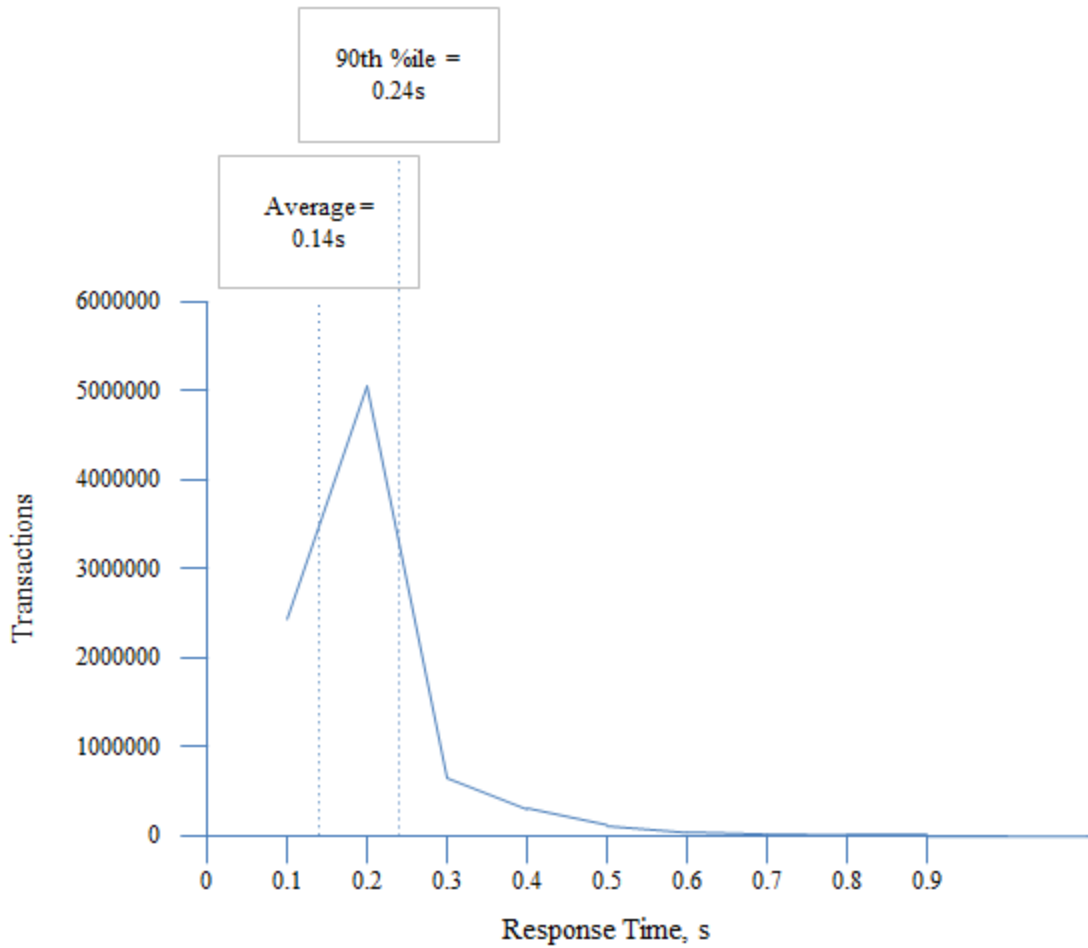
Figure 5: Order Status Response Time Distribution



Response time frequency distribution for Order Status transaction

#### 5.4.4 Delivery Response Time Distribution

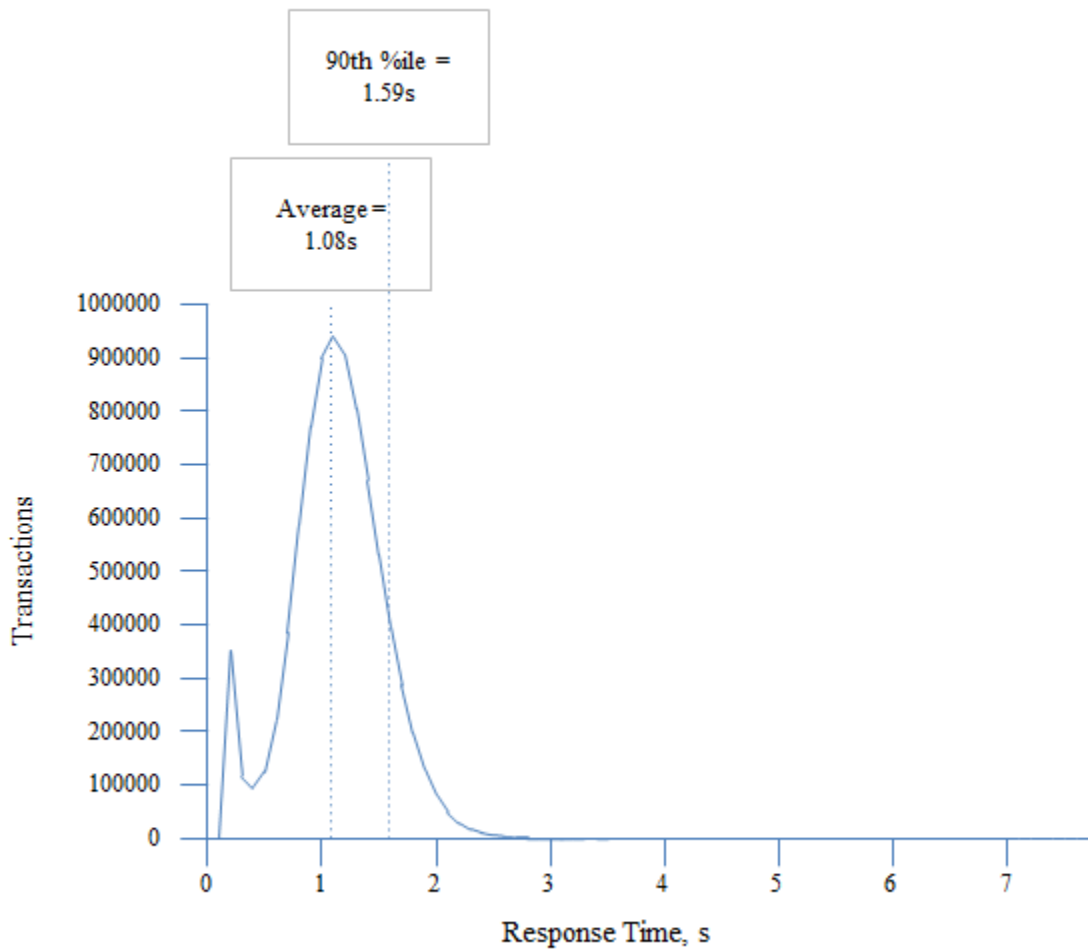
Figure 6: Delivery Response Time Distribution



Response time frequency distribution for Delivery transaction

### 5.4.5 Stock Level Response Time

Figure 7: Stock Level Response Time Distribution

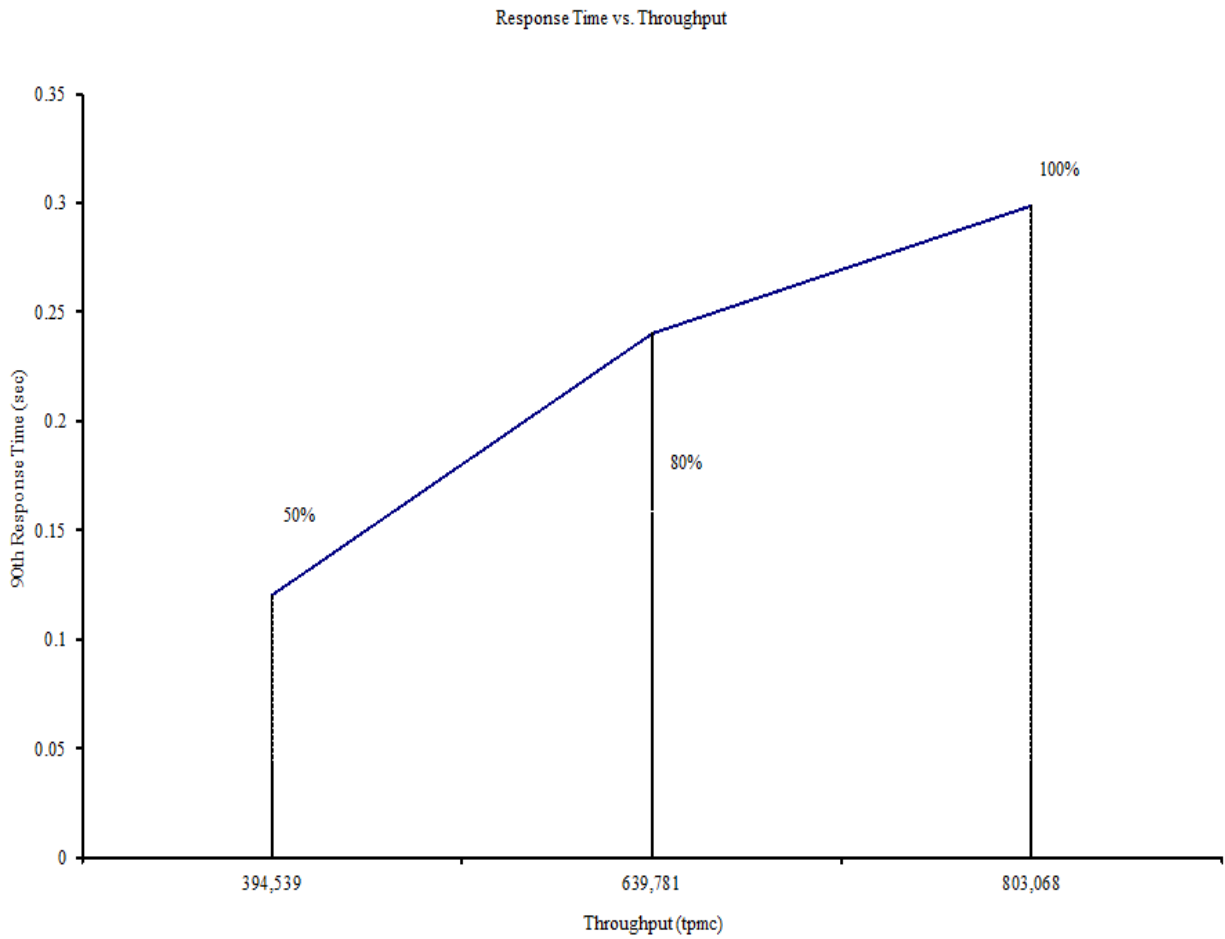


Response time frequency distribution for Stock Level transaction



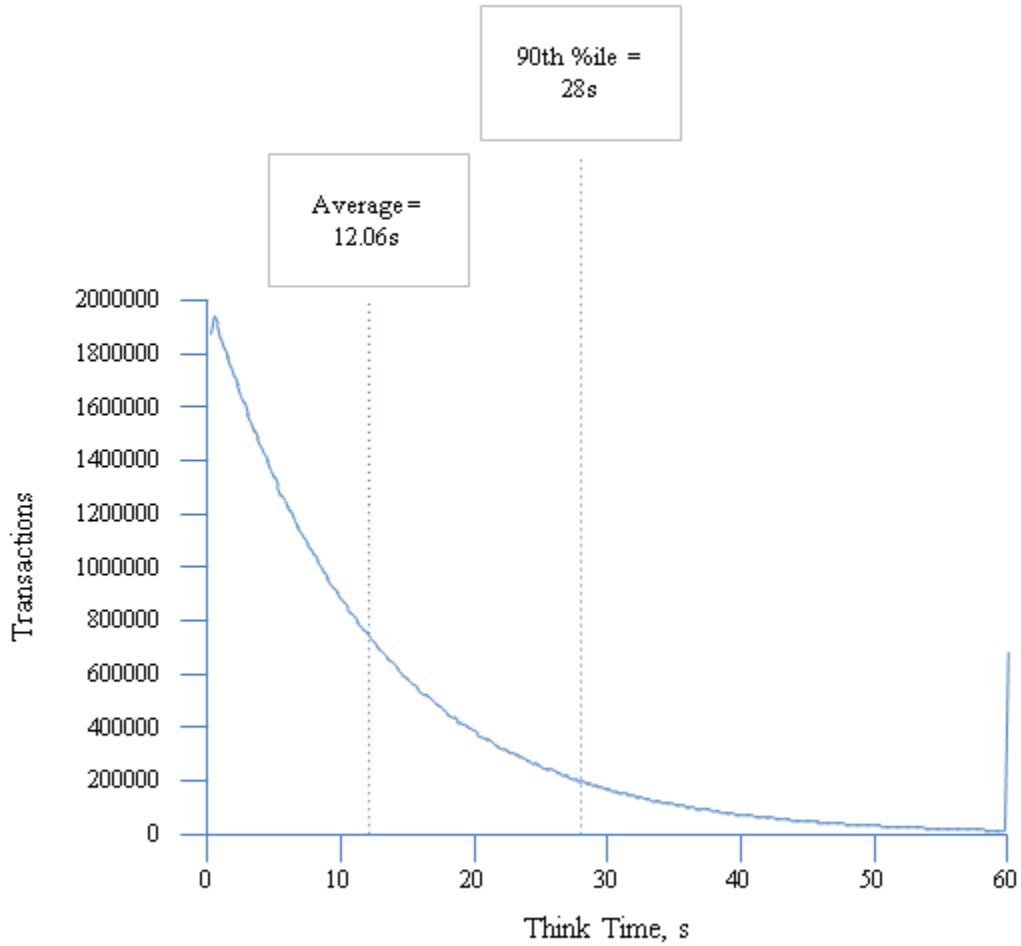
## 5.4.6 Response Time Versus Throughput

Figure 8: New Order Response Time Distribution



### 5.4.7 New Order Think Time Distribution

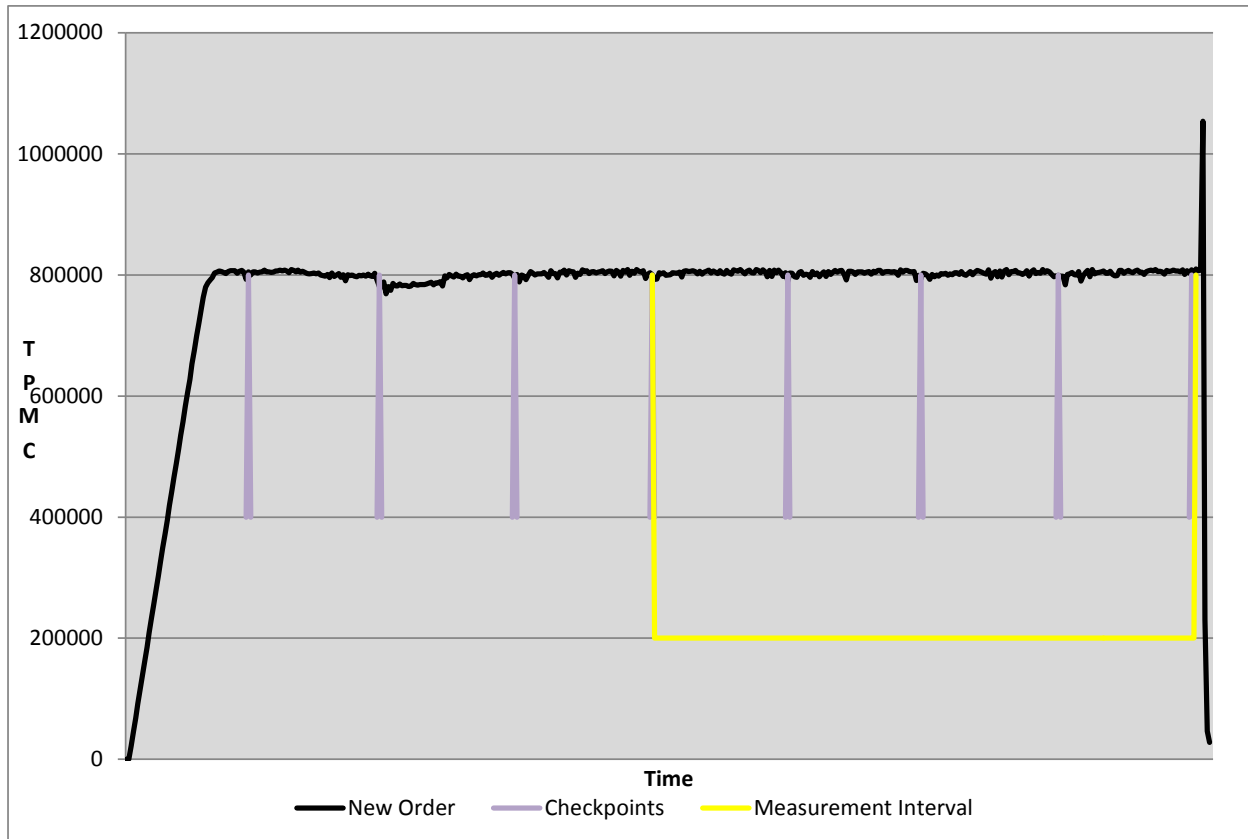
Figure 9: New Order Think Time Distribution



Think time frequency distribution for New Order transaction

## 5.4.8 Throughput Versus Time Distribution

Figure 10: New Order Throughput versus Time



## 5.5 Steady State Determination

*The method used to determine that the SUT had reached a steady state prior to commencing the measurement interval must be disclosed.*

The transaction throughput rate (tpmC®) and response time were relatively constant after the initial ‘ramp up’ period. The throughput and response time behaviors were determined by examining data reported for each interval over the duration of the benchmark. The corresponding graph is in Figure 10.

## 5.6 Work Performed During Steady State

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

The RTEs generated the required input data to choose a transaction from the menu. This data was timestamped. The menu response time for the requested transaction was verified and timestamped 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 HTTP request to the client. The transmission was timestamped. The return of the screen with the required response data was

timestamped. The difference between these two timestamps 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 and starting another transaction.

### 5.6.1 Checkpoint

The checkpoint mechanism is an automatic means for guaranteeing that completed transactions are regularly written from SQL Server's disk cache to the database device. A checkpoint writes all "dirty pages"-cached pages that have been modified since the last checkpoint-to the database device.

### 5.6.2 Checkpoint Conditions

There are two types of checkpoints:

1. Checkpoints that are executed automatically by SQL Server.
2. Checkpoints that are forced by database owners with the CHECKPOINT statement.

Forcing dirty pages onto the database device means that all completed transactions are written out. By causing all completed transactions to be written out, the checkpoint shortens the time it takes to recover, since the database pages are current and there are no transactions that need to be rolled forward.

### 5.6.3 Checkpoint Implementation

A Windows command script was issued to start manual checkpoints back to back. The "CHECKPOINT 1750" syntax in Microsoft SQL Server 2005 Enterprise X64 Edition SP3 was used to force the checkpoints to an interval of 29 minutes, 10 seconds. By setting the TRACE FLAG #3502, SQL Server logged the checkpoint beginning and ending time in the ERRORLOG file.

At each checkpoint, Microsoft SQL Server 2005 Enterprise X64 Edition SP3 wrote to disk all memory pages that had been updated but not yet physically written to disk. Upon completion of the checkpoint, Microsoft SQL Server 2005 Enterprise X64 Edition SP3 wrote a special record to the recovery log to indicate that all disk operations had been satisfied to this point. The positioning of the checkpoint was verified to be clear of the guard zones.

## 5.7 Measurement Period Duration

*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.

## 5.8 Regulation of 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.*

The weighted average method of *Clause 5.2.4.1* was used. The weights were not adjusted during the run.

## 5.9 Transaction Mix

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

**Table 7: Transaction Mix**

Type	Percentage
New Order	44.95%
Payment	43.01%
Delivery	4.01%
Stock Level	4.01%
Order Status	4.01%

## 5.10 Transaction Statistics

*The percentage of New-Order transactions rolled back as a result of invalid item number must be disclosed. The average number of order-lines entered per New-Order transaction must be disclosed. The percentage of remote order-lines entered per New-Order transaction must be disclosed. The percentage of selections made by customer last name in the Payment and Order-Status transactions must be disclosed. The percentage of Delivery transactions skipped due to there being fewer than necessary orders in the New-Order table must be disclosed.*

Table 1 contains the required items.

## 5.11 Checkpoint Count and Location

*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.*

The measurement interval is 120 minutes. There are 4 checkpoints within the measurement interval and 2 checkpoint before the measurement interval.

**Table 8: Measurement Interval and Checkpoints**

Event	From	To
Measured Interval	7:29:25	9:29:25
Checkpoint	5:59:54	6:29:04
Checkpoint	6:29:44	6:58:54
Checkpoint	6:59:34	7:28:44
Checkpoint	7:29:25	7:58:35
Checkpoint	7:59:15	8:28:25
Checkpoint	8:29:05	8:58:15

## Chapter 6 SUT, Driver and Communications Definition

### 6.1 RTE Description

*If the RTE is commercially available, then its inputs must be specified. Otherwise, a description must be supplied of that input (e.g., scripts) to the RTE had been used. The RTE input parameters, code fragments, functions, et cetera used to generate each transaction input filed must be disclosed.*

The RTE used is Microsoft BenchCraft and is commercially available. The RTE input parameters are listed in Appendix C – Tunable Parameters.

### 6.2 Emulated Components

*It must be demonstrated that the functionality and performance of the components being used in the Driver System are equivalent to that of the priced system.*

No components were emulated.

### 6.3 Functional Diagram

*A complete functional diagram of the hardware and software of the benchmark configuration including the driver must be provided. the sponsor must list all hardware and software functionality of the driver and its interface to the SUT.*

Functional diagrams of the measured and priced systems are included in the “General Items” section at the beginning of this report.

### 6.4 Networks

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

The “General Items” section includes diagrams of the network configurations of the benchmark and configured systems, and represent the driver connected via LAN.

*The bandwidth of the networks used in the tested/priced configurations must be disclosed.*

A Gigabit network was used between the RTEs and the clients, another Gigabit network was used between the clients and the database server.

### 6.5 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 does not require any operator to sustain eight hours of the reported throughput.

## Chapter 7 Pricing

### 7.1 System Pricing

*A detailed list of hardware and software used in the priced system must be reported. Each separately orderable item must have vendor part number, description, and release/revision level, and either general availability status or committed delivery data. 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 and effective date(s) of price(s) must also be reported.*

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

The details of the hardware, software and maintenance components of this system are reported in the front of this report as part of the executive summary.

All 3rd party quotations are included at the end of this report in Appendix E.

### 7.2 General Availability, Throughput and Price Performance

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

*A statement of the measured tpmC as well as the respective calculations for the 5-year pricing, price/performance and the availability date must be included.*

**Table 9: Throughput, Price Performance and Availability**

<b>Maximum qualified throughput:</b>	803,068 tpmC
<b>Price per tpmC:</b>	\$0.68 USD per tpmC
<b>Availability:</b>	Sept 1, 2010

### 7.3 Country Specific Pricing

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

The system is being priced for the United States of America.

### 7.4 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:

- 2 Microsoft SQL Server 2005 Enterprise X64 Edition SP3 per-processor licenses.
- Microsoft Windows Server 2008 R2 Enterprise Edition for X64-Based Systems
- 16 Microsoft Windows Server 2008 Licenses
- 1 Microsoft Visual Studio Standard Edition

- 3 year support for hardware components

## **7.5 Testing**



## Chapter 8 Audit

### 8.1 Auditor's Information

*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.*

The test methodology and results of this TPC Benchmark C were audited by:

Performance Metrics  
PO Box 984  
140 Klamath Blvd  
Klamath, CA 95548  
(707) 482-0523  
Fax (707) 482-0575

The auditor was Lorna Livingtree.  
Requests for this Full Disclosure Report (FDR) should sent to:

Hewlett-Packard Company  
10955 Tantau Avenue  
Cupertino, CA 95014-0770 USA

A copy of the attestation letter received from the auditor follows:



May 10, 2010

MR. ERIC DEEHR  
PERFORMANCE ENGINEER  
Hewlett-Packard Company  
14475 NE 24<sup>th</sup> St.  
Bellevue, WA 98007

I have verified by remote the TPC Benchmark™ C for the following configuration:

Platform: HP ProLiant DL380 G7

Database Manager: Microsoft SQL Server 2005 Enterprise X64 Edition

Operating System: Microsoft Windows Server 2008 R2 Enterprise Edition X64

Transaction Monitor: Microsoft COM+

System Under Test:				
CPU's	Memory	Disks (total)	90% Response	TpmC
2 Intel Xeon 6 core @ 3.33 Ghz	Main: 192 GB	128 @ 120 GB 12 @ 500 GB 2 @ 72 GB	0.56	<b>803,068</b>
Clients: 16 BL460 G6				
2 Intel quad core @ 2.27 Ghz	8 GB	2 @ 146 GB	NA	<b>NA</b>

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

- The transactions were correctly implemented.
- The database files were properly sized.
- The database was properly scaled with 68,000 warehouses, of which 63,996 were active during the measured interval.
- The ACID properties were successfully demonstrated.
- Input data was generated according to the specified percentages.
- Eight hours of mirrored log space was present on the tested system.
- Eight hours of growth space for the dynamic tables was present on the tested system.
- The data for the 60 days space calculation was verified.
- The steady state portion of the test was 120 minutes.
- There was one complete checkpoint in steady state before the measured interval.
- There were 4 checkpoints started and completed inside the measured interval.
- The system pricing was checked for major components and maintenance.
- Third party quotes were verified for compliance.

Auditor Notes: None.

Sincerely,

A handwritten signature in black ink that reads "Lorna Livingtree". The signature is written in a cursive, flowing style.

Lorna Livingtree, Certified Auditor

# Appendix A Source Code

## Isapi\_dll/src/tpcc.def

```
LIBRARY TPCC.DLL
EXPORTS
    GetExtensionVersion @1
    HttpExtensionProc @2
    TerminateExtension @3
```

## Isapi\_dll/src/tpcc.h

```
/* FILE: TPCC.H
 *
 * Microsoft TPC-C Kit Ver. 4.20.000
 *
 * Copyright Microsoft, 1999
 * All Rights Reserved
 *
 * Version 4.10.000 audited by
 * Richard Gimarc, Performance Metrics, 3/17/99
 *
 * PURPOSE: Header file for ISAPI
 * TPCC.DLL, defines structures and functions used
 * in the isapi tpcc.dll.
 */
//VERSION RESOURCE DEFINES
#define _APS_NEXT_RESOURCE_VALUE 101
#define _APS_NEXT_COMMAND_VALUE 40001
#define _APS_NEXT_CONTROL_VALUE 1000
#define _APS_NEXT_SYMED_VALUE 101
#define TP_MAX_RETRIES 50
//note that the welcome form must be processed
//first as terminal ids assigned here, once the
//terminal id is assigned then the forms can be
//processed in any order.
#define WELCOME_FORM 1
//beginning form no term id
//assigned, form id
#define MAIN_MENU_FORM 2
//term id assigned main menu form
id
```

```
#define NEW_ORDER_FORM 3
//new order form id
#define PAYMENT_FORM 4
//payment form id
#define DELIVERY_FORM 5
//delivery form id
#define ORDER_STATUS_FORM 6 //order
status id
#define STOCK_LEVEL_FORM 7 //stock
level form id
//This macro is used to prevent the compiler
//error unused formal parameter
#define UNUSEDPARAM(x) (x = x)
//This structure defines the data necessary to
//keep distinct for each terminal or client
//connection.
typedef struct _CLIENTDATA
{
    int iNextFree; //index of next free
    element or -1 if this entry in use.
    int w_id; //warehouse id assigned at
    welcome form
    int d_id; //district
    id assigned at welcome form
    int iSyncId; //synchronization id
    int iTickCount; //time of last access;
    CTPCC_BASE *pTxn;
} CLIENTDATA, *PCLIENTDATA;
//This structure is used to define the operational
//interface for terminal id support
typedef struct _TERM
{
    int iNumEntries; //total
    allocated terminal array entries
    int iFreeList;
    //next available terminal array
    element or -1 if none
    int iMasterSyncId;
    //synchronization id
```

```
CLIENTDATA *pClientData;
//pointer to allocated client data
} TERM;
typedef TERM *PTERM;
//pointer to terminal
structure type
enum WEBERROR
{
    NO_ERR,
    ERR_COMMAND_UNDEFINED,
    ERR_D_ID_INVALID,
    ERR_DELIVERY_CARRIER_ID_RANGE,
    ERR_DELIVERY_CARRIER_INVALID,
    ERR_DELIVERY_MISSING_OCD_KEY,
    ERR_DELIVERY_THREAD_FAILED,
    ERR_GETPROCADDR_FAILED,
    ERR_HTML_ILL_FORMED,
    ERR_INVALID_SYNC_CONNECTION,
    ERR_INVALID_TERMID,
    ERR_LOADDLL_FAILED,
    ERR_MAX_CONNECTIONS_EXCEEDED,
    ERR_MEM_ALLOC_FAILED,
    ERR_MISSING_REGISTRY_ENTRIES,
    ERR_NEWORDER_CUSTOMER_INVALID,
    ERR_NEWORDER_CUSTOMER_KEY,
    ERR_NEWORDER_DISTRICT_INVALID,
    ERR_NEWORDER_FORM_MISSING_ID,
    ERR_NEWORDER_ITEMID_INVALID,
    ERR_NEWORDER_ITEMID_RANGE,
    ERR_NEWORDER_ITEMID_WITHOUT_SUPPW,
    ERR_NEWORDER_MISSING_IID_KEY,
    ERR_NEWORDER_MISSING_QTY_KEY,
    ERR_NEWORDER_MISSING_SUPPW_KEY,
```

```

ED,
ERR_NEWORDER_NOITEMS_ENTER
ERR_NEWORDER_QTY_INVALID,
ERR_NEWORDER_QTY_RANGE,
SUPPW,
ERR_NEWORDER_QTY_WITHOUT_
ERR_NEWORDER_SUPPW_INVALID
ERR_NO_SERVER_SPECIFIED,
ERR_ORDERSTATUS_CID_AND_CLT
ERR_ORDERSTATUS_CID_INVALID,
ERR_ORDERSTATUS_CLT_RANGE,
ERR_ORDERSTATUS_DID_INVALID,
ERR_ORDERSTATUS_MISSING_CID
_CLT,
ERR_ORDERSTATUS_MISSING_CID
_KEY,
ERR_ORDERSTATUS_MISSING_CLT
_KEY,
ERR_ORDERSTATUS_MISSING_DID
_KEY,
ERR_PAYMENT_CDI_INVALID,
ERR_PAYMENT_CID_AND_CLT,
ERR_PAYMENT_CUSTOMER_INVALI
D,
ERR_PAYMENT_CWI_INVALID,
ERR_PAYMENT_DISTRICT_INVALID
ERR_PAYMENT_HAM_INVALID,
ERR_PAYMENT_HAM_RANGE,
ONG,
ERR_PAYMENT_LAST_NAME_TO_L
ERR_PAYMENT_MISSING_CDI_KEY,
ERR_PAYMENT_MISSING_CID_CLT,
ERR_PAYMENT_MISSING_CID_KEY,
ERR_PAYMENT_MISSING_CLT,
ERR_PAYMENT_MISSING_CLT_KEY,
ERR_PAYMENT_MISSING_CWI_KEY
ERR_PAYMENT_MISSING_DID_KEY
ERR_PAYMENT_MISSING_HAM_KE
Y,

```

```

ERR_STOCKLEVEL_MISSING_THRE
SHOLD_KEY,
ERR_STOCKLEVEL_THRESHOLD_IN
VALID,
ERR_STOCKLEVEL_THRESHOLD_RA
NGE,
ERR_VERSION_MISMATCH,
ERR_W_ID_INVALID
};
class CWEBCLNT_ERR : public CBaseErr
{
public:
CWEBCLNT_ERR(WEBERROR Err)
{
m_Error
= Err;
m_szTextDetail = NULL;
m_SystemErr = 0;
m_szErrorText = NULL;
};
CWEBCLNT_ERR(WEBERROR Err,
char *szTextDetail, DWORD dwSystemErr)
{
m_Error
= Err;
m_szTextDetail = new
char[strlen(szTextDetail)+1];
strcpy(
m_szTextDetail, szTextDetail );
m_SystemErr = dwSystemErr;
m_szErrorText = NULL;
};
~CWEBCLNT_ERR()
{
if
(m_szTextDetail != NULL)
delete [] m_szTextDetail;
if
(m_szErrorText != NULL)
delete [] m_szErrorText;
};
WEBERROR m_Error;
char
*m_szTextDetail; //
char
*m_szErrorText;
DWORD
m_SystemErr;
int ErrorType()
{return ERR_TYPE_WEBDDL;};
int ErrorNum() {return
m_Error;};
char *ErrorText();

```

```

};
//These constants have already been defined in
engstut.h, but since we do
//not want to include it in the delisrv executable
#define TXN_EVENT_START
2
#define TXN_EVENT_STOP
4
#define TXN_EVENT_WARNING 6
//used to record a
warning into the log
//function prototypes
BOOL APIENTRY DllMain(HANDLE hModule,
DWORD ul_reason_for_call, LPVOID lpReserved);
void WriteMessageToEventLog(LPTSTR lpszMsg);
void
ProcessQueryString(EXTENSION_CONTROL_BLO
CK *pECB, int *pCmd, int *pFormId, int
*pTermId, int *pSyncId);
void
WelcomeForm(EXTENSION_CONTROL_BLOCK
*pECB, char *szBuffer);
void SubmitCmd(EXTENSION_CONTROL_BLOCK
*pECB, char *szBuffer);
void BeginCmd(EXTENSION_CONTROL_BLOCK
*pECB, int iFormId, int iTermId);
void ProcessCmd(EXTENSION_CONTROL_BLOCK
*pECB, int iFormId, int iTermId);
void StatsCmd(EXTENSION_CONTROL_BLOCK
*pECB, char *szBuffer);
void
ErrorMessage(EXTENSION_CONTROL_BLOCK
*pECB, int iError, int iErrorType, char *szMsg, int
iTermId);
void GetKeyValue(char **pQueryString, char
*pKey, char *pValue, int iMax, WEBERROR err);
int GetIntKeyValue(char **pQueryString, char
*pKey, WEBERROR NoKeyErr, WEBERROR
NotIntErr);
void TermInit(void);
void TermDeleteAll(void);
int TermAdd(void);
void TermDelete(int id);
void ErrorForm(EXTENSION_CONTROL_BLOCK
*pECB, int iType, int iErrorNum, int iTermId, int
iSyncId, char *szErrorText, char *szBuffer );
void MakeMainMenuForm(int iTermId, int
iSyncId, char *szForm);
void MakeStockLevelForm(int iTermId,
STOCK_LEVEL_DATA *pStockLevelData, BOOL
bInput, char *szForm);
void MakeNewOrderForm(int iTermId,
NEW_ORDER_DATA *pNewOrderData, BOOL
bInput, char *szForm);
void MakePaymentForm(int iTermId,
PAYMENT_DATA *pPaymentData, BOOL bInput,
char *szForm);
void MakeOrderStatusForm(int iTermId,
ORDER_STATUS_DATA *pOrderStatusData,
BOOL bInput, char *szForm);
void MakeDeliveryForm(int iTermId,
DELIVERY_DATA *pDeliveryData, BOOL bInput,
char *szForm);
void
ProcessNewOrderForm(EXTENSION_CONTROL_B
LOCK *pECB, int iTermId, char
*szBuffer);

```

```

void
ProcessPaymentForm(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, char *szBuffer);
void
ProcessOrderStatusForm(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, char *szBuffer);
void
ProcessDeliveryForm(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, char *szBuffer);
void
ProcessStockLevelForm(EXTENSION_CONTROL_BLOCK *pECB, int iTermId, char *szBuffer);
void GetNewOrderData(LPSTR lpszQueryString, NEW_ORDER_DATA *pNewOrderData);
void GetPaymentData(LPSTR lpszQueryString, PAYMENT_DATA *pPaymentData);
void GetOrderStatusData(LPSTR lpszQueryString, ORDER_STATUS_DATA *pOrderStatusData);
BOOL PostDeliveryInfo(long w_id, short o_carrier_id);
BOOL IsNumeric(char *ptr);
BOOL IsDecimal(char *ptr);
void DeliveryWorkerThread(void *ptr);

```

### Isapi\_dll/src/tpcc.rc

```

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

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

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

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

#ifdef _MAC
//
// Version
//

VS_VERSION_INFO VERSIONINFO
FILEVERSION 0,4,0,0
PRODUCTVERSION 0,4,0,0
FILEFLAGSMASK 0x3fL
#ifdef _DEBUG
FILEFLAGS 0x1L
#else
FILEFLAGS 0x0L

```

```

#endif
FILEOS 0x40004L
FILETYPE 0x2L
FILESUBTYPE 0x0L
BEGIN
BLOCK "StringFileInfo"
BEGIN
BLOCK "040904b0"
BEGIN
VALUE "Comments", "TPC-C HTML DLL Server (DBLIB)0"
VALUE "CompanyName", "Microsoft\0"
VALUE "FileDescription", "TPC-C HTML DLL Server (DBLIB)0"
VALUE "FileVersion", "0, 4, 0, 0\0"
VALUE "InternalName", "tpcc\0"
VALUE "LegalCopyright", "Copyright © 1997\0"
VALUE "OriginalFilename", "tpcc.dll\0"
VALUE "ProductName", "Microsoft tpcc\0"
VALUE "ProductVersion", "0, 4, 0, 0\0"
END
END
BLOCK "VarFileInfo"
BEGIN
VALUE "Translation", 0x409, 1200
END
END

#ifdef !_MAC

#ifdef APSTUDIO_INVOKED
//
// TEXTINCLUDE
//
1 TEXTINCLUDE DISCARDABLE
BEGIN
"resource.h\0"
END

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

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

#endif // APSTUDIO_INVOKED

//
// Dialog
//

IDD_DIALOG1 DIALOG DISCARDABLE 0, 0, 186, 95
STYLE DS_MODALFRAME | WS_POPUP | WS_CAPTION | WS_SYSMENU
CAPTION "Dialog"
FONT 8, "MS Sans Serif"
BEGIN
DEFPUSHBUTTON "OK",IDOK,129,7,50,14

```

```

PUSHBUTTON
"Cancel",IDCANCEL,129,24,50,14
END

//
// DESIGNINFO
//

#ifdef APSTUDIO_INVOKED
GUIDELINES DESIGNINFO DISCARDABLE
BEGIN
IDD_DIALOG1, DIALOG
BEGIN
LEFTMARGIN, 7
RIGHTMARGIN, 179
TOPMARGIN, 7
BOTTOMMARGIN, 88
END
END
#endif // APSTUDIO_INVOKED

#ifdef English (U.S.) resources
//
// Generated from the TEXTINCLUDE 3 resource.
//
#endif // not APSTUDIO_INVOKED

Isapi_dll/src/tpcc.cpp

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

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

```

```

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

#include <sqltypes.h>

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

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

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

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

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

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

#define LEN_ERR_STRING 256

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

char
szMyComputerName[MAX_COMPUTERNAME_LENGTH+1];

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

// The WEBCLIENT_VERSION string specifies the
version level of this web client interface.
// The RTE must be synchronized with the
interface level on login, otherwise the login
// will fail. This is a sanity check to catch
problems resulting from mismatched versions
// of the RTE and web client.
#define WEBCLIENT_VERSION "420"

```

```

static CRITICAL_SECTION
TermCriticalSection;
static HINSTANCE hLibInstanceTm = NULL;
static HINSTANCE hLibInstanceDb = NULL;

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

// For deferred Delivery txns:

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

HANDLE
hWorkerSemaphore
= INVALID_HANDLE_VALUE;

HANDLE
hDoneEvent
=

INVALID_HANDLE_VALUE;
HANDLE
*pDeliHandles
= NULL;

// configuration settings from registry
TPCCREGISTRYDATA Reg;

DWORD
dwNumDeliveryThreads = 4;
CRITICAL_SECTION
DelBuffCriticalSection;
//critical section for delivery
transactions cache
DELIVERY_TRANSACTION *pDelBuff
= NULL;

DWORD
dwDelBuffSize
= 100;
// size of circular buffer for delivery
txns
DWORD
dwDelBuffFreeCount;
// number of buffers free

DWORD
dwDelBuffBusyIndex
= 0; // index
position of entry waiting to be delivered
DWORD
dwDelBuffFreeIndex
= 0; // index
position of unused entry

// Critical section to synchronize connection open
and close.
//
CRITICAL_SECTION hConnectCriticalSection;

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

/* FUNCTION: DllMain
*

```

```

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

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

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

try
{
switch(
ul_reason_for_call )
{
case
DLL_PROCESS_ATTACH:
{
DWORD dwSize =
MAX_COMPUTERNAME_LENGTH+1;

GetComputerName(szMyComputerName,
&dwSize);

szMyComputerName[dwSize] = 0;
}

DisableThreadLibraryCalls((HMODULE)hModule);

InitializeCriticalSection(&TermCriticalSection);

if ( ReadTPCCRegistrySettings(
&Reg )

throw new
CWEBCLNT_ERR(
ERR_MISSING_REGISTRY_ENTRIES );

```

```

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

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

        TermInit();

        // load DLL for txn monitor
        if (Reg.eTxnMon == TUXEDO)
        {
                strcpy( szDllName,
Reg.szPath );

                strcat( szDllName,
"tpcc_tuxedo.dll");

                hLibInstanceTm =
LoadLibrary( szDllName );

                if (hLibInstanceTm
== NULL)

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

                // get function pointer
to wrapper for class constructor

                pCTPCC_TUXEDO_new =
(TYPE_CTPCC_TUXEDO*)
GetProcAddress(hLibInstanceTm,"CTPCC_TUXED
O_new");

                if
(pCTPCC_TUXEDO_new == NULL)

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

                }

                else if (Reg.eTxnMon == ENCINA)
                {

                        strcpy( szDllName,
Reg.szPath );

                        strcat( szDllName,
"tpcc_encina.dll");

                        hLibInstanceTm =
LoadLibrary( szDllName );

                        if (hLibInstanceTm
== NULL)

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

                }

```

```

                // get function pointer
to wrapper for class constructor

                pCTPCC_ENCINA_new
= (TYPE_CTPCC_ENCINA*)
GetProcAddress(hLibInstanceTm,"CTPCC_ENCIN
A_new");

                pCTPCC_ENCINA_post_init =
(TYPE_CTPCC_ENCINA*)
GetProcAddress(hLibInstanceTm,"CTPCC_ENCIN
A_post_init");

                if
(pCTPCC_ENCINA_new == NULL)

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

                }

                else if (Reg.eTxnMon == COM)
                {

                        strcpy( szDllName,
Reg.szPath );

                        strcat( szDllName,
"tpcc_com.dll");

                        hLibInstanceTm =
LoadLibrary( szDllName );

                        if (hLibInstanceTm
== NULL)

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

                // get function pointer
to wrapper for class constructor

                pCTPCC_COM_new =
(TYPE_CTPCC_COM*)
GetProcAddress(hLibInstanceTm,"CTPCC_COM_n
ew");

                if (pCTPCC_COM_new
== NULL)

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

                }

                // load DLL for database connection
                if ((Reg.eTxnMon == None) ||
(dwNumDeliveryThreads > 0))
                {

                        if (Reg.eDB_Protocol
== DBLIB)

```

```

                {

                        strcpy(
szDllName, Reg.szPath );

                        strcat(
szDllName, "tpcc_dblib.dll");

                        hLibInstanceDb = LoadLibrary(
szDllName );

                        if
(hLibInstanceDb == NULL)

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

                // get
function pointer to wrapper for class constructor

                pCTPCC_DBLIB_new =
(TYPE_CTPCC_DBLIB*)
GetProcAddress(hLibInstanceDb,"CTPCC_DBLIB_
new");

                if
(pCTPCC_DBLIB_new == NULL)

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

                }

                else if
(Reg.eDB_Protocol == ODBC)
                {

                        strcpy(
szDllName, Reg.szPath );

                        strcat(
szDllName, "tpcc_odbc.dll");

                        hLibInstanceDb = LoadLibrary(
szDllName );

                        if
(hLibInstanceDb == NULL)

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

                // get
function pointer to wrapper for class constructor

                pCTPCC_ODBC_new =
(TYPE_CTPCC_ODBC*)
GetProcAddress(hLibInstanceDb,"CTPCC_ODBC_
new");

```



```

        if
        (pCTPC_ODBC_new == NULL)

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

        }

        if (dwNumDeliveryThreads)
        {
            // Initialize delivery
            delay critical section

            //

            InitializeCriticalSection(&hConnectC
            riticalSection);

            // for deferred
            delivery txns:

            hDoneEvent =
            CreateEvent( NULL, TRUE /* manual reset */,
            FALSE /* initially not signalled */, NULL );

            InitializeCriticalSection(&DelBuffCritic
            alSection);

            hWorkerSemaphore =
            CreateSemaphore( NULL, 0, dwDelBuffSize, NULL
            );

            dwDelBuffFreeCount
            = dwDelBuffSize;

            InitJulianTime(NULL);

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

            SYSTEMTIME Time;

            GetLocalTime( &Time
            );

            wsprintf( szLogFile,
            "%sdelivery-%2.2d%2.2d%2.2d-%2.2d%2.2d%2.2d-
            %2.2ds%2.2dms.log",

            Reg.szPath, Time.wYear % 100,
            Time.wMonth, Time.wDay, Time.wHour,
            Time.wMinute, Time.wSecond,
            Time.wMilliseconds );

            txnDelilog = new
            CTxnLog(szLogFile, TXN_LOG_WRITE);

```

```

            //write event into txn
            log for START

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

            // allocate structures
            for delivery buffers and thread mgmt

            pDeliHandles = new
            HANDLE[dwNumDeliveryThreads];

            pDelBuff = new
            DELIVERY_TRANSACTION[dwDelBuffSize];

            // launch
            DeliveryWorkerThread to perform actual delivery
            txns

            for(i=0;
            i<dwNumDeliveryThreads; i++)
            {

                pDeliHandles[i] = (HANDLE)
                _beginthread( DeliveryWorkerThread, 0, NULL );

                if
                (pDeliHandles[i] == INVALID_HANDLE_VALUE)

                    throw new CWEBCLNT_ERR(
                    ERR_DELIVERY_THREAD_FAILED );

            }

            break;

            case
            DLL_PROCESS_DETACH:

                if (dwNumDeliveryThreads)
                {

                    if (txnDelilog !=
                    NULL)

                        {

                            //write
                            event into txn log for STOP

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

                            // This
                            will do a clean shutdown of the delivery log file

                            CTxnLog
                            *txnDelilogLocal = txnDelilog;

                            txnDelilog= NULL;

```

```

            delete
            txnDelilogLocal;

            }

            delete []
            pDeliHandles;

            delete [] pDelBuff;

            CloseHandle(
            hWorkerSemaphore );

            CloseHandle(
            hDoneEvent );

            DeleteCriticalSection(&DelBuffCritic
            alSection);

            // Delete delivery
            delay critical section

            //

            DeleteCriticalSection(&hConnectCritic
            alSection);

            DeleteCriticalSection(&TermCriticalS
            ection);

            if (hLibInstanceTm != NULL)
                FreeLibrary(
                hLibInstanceTm );

            hLibInstanceTm = NULL;

            if (hLibInstanceDb != NULL)
                FreeLibrary(
                hLibInstanceDb );

            hLibInstanceDb = NULL;

            Sleep(500);

            break;

            default:

                /* nothing */;
            }
            catch (CBaseErr *e)
            {
                TCHAR szMsg[256];

                _sntprintf(szMsg,
                sizeof(szMsg), "%s error, code %d: %s",
                e->ErrorTypeStr(), e->ErrorNum(),
                e->ErrorText());

                WriteMessageToEventLog( szMsg );

```

```

        delete e;

        TerminateExtension(0);
        return FALSE;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("Un
        handled exception. DLL could not load.));

        TerminateExtension(0);
        return FALSE;
    }

    return TRUE;
}

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

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

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

        pCTPCC_ENCINA_post_init();

    return TRUE;
}

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

BOOL WINAPI TerminateExtension( DWORD
dwFlags )
{
    if (pDeliHandles)
    {
        SetEvent( hDoneEvent
    );
        for(DWORD i=0;
i<dwNumDeliveryThreads; i++)

            WaitForSingleObject(
pDeliHandles[i], INFINITE );
    }
}

```

```

        TermDeleteAll();
        return TRUE;
    }

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

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

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

#ifdef ICECAP
    StartCAP();
#endif

    try
    {
        //process http query

        ProcessQueryString(pECB, &iCmd,
&FormId, &TermId, &iSyncId);

        if (TermId != 0)
        {
            if (
                TermId < 0 || TermId >= Term.iNumEntries ||
                Term.pClientData[TermId].iNextFree != -1 )
            {
                // debugging...
            }
        }
    }
}

```

```

    char szTmp[128];
    wsprintf( szTmp, "Invalid term ID;
TermId = %d", TermId );

    WriteMessageToEventLog( szTmp );

    throw new CWEBCLNT_ERR(
ERR_INVALID_TERMID );
}

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

    throw new CWEBCLNT_ERR(
ERR_INVALID_SYNC_CONNECTION );

//set use
time

Term.pClientData[TermId].iTickCount = GetTickCount();
}

switch(iCmd)
{
    case 0:
        WelcomeForm(pECB, szBuffer);
        break;
    case 1:
        FormId )
        switch(
        {
            case WELCOME_FORM:
            case MAIN_MENU_FORM:
                break;
            case NEW_ORDER_FORM:
                ProcessNewOrderForm(pECB,
TermId, szBuffer);
                break;
            case PAYMENT_FORM:
                ProcessPaymentForm(pECB,
TermId, szBuffer);
                break;
            case DELIVERY_FORM:
                ProcessDeliveryForm(pECB, TermId,
szBuffer);
                break;
            case ORDER_STATUS_FORM:
                ProcessOrderStatusForm(pECB,
TermId, szBuffer);
                break;
        }
    }
}

```

```

        break;
    case STOCK_LEVEL_FORM:
        ProcessStockLevelForm(pECB,
            TermId, szBuffer);
        break;
    }
    case 2:
        // new-
        order selected from menu; display new-order
        input form
        MakeNewOrderForm(TermId, NULL,
            INPUT_FORM, szBuffer);
        break;
    case 3:
        //
        payment selected from menu; display payment
        input form
        MakePaymentForm(TermId, NULL,
            INPUT_FORM, szBuffer);
        break;
    case 4:
        //
        delivery selected from menu; display delivery
        input form
        MakeDeliveryForm(TermId, NULL,
            INPUT_FORM, szBuffer);
        break;
    case 5:
        // order-
        status selected from menu; display order-status
        input form
        MakeOrderStatusForm(TermId,
            NULL, INPUT_FORM, szBuffer);
        break;
    case 6:
        // stock-
        level selected from menu; display stock-level
        input form
        MakeStockLevelForm(TermId,
            NULL, INPUT_FORM, szBuffer);
        break;
    case 7:
        //
        ExitCmd
        TermDelete(TermId);
        WelcomeForm(pECB, szBuffer);
        break;
    case 8:
        SubmitCmd(pECB, szBuffer);
        break;
    case 9:
        // menu
        MakeMainMenuForm(TermId,
            Term.pClientData[TermId].iSyncId, szBuffer);
        break;
    case 10:
        //
        CMD=Clear

```

```

        // resets
        all connections; should only be used when no
        other connections are active
        TermDeleteAll();
        TermInit();
        WelcomeForm(pECB, szBuffer);
        break;
    case 11:
        //
        CMD=Stats
        StatsCmd(pECB, szBuffer);
        break;
    }
    catch (CBaseErr *e)
    {
        ErrorForm( pECB, e-
        >ErrorType(), e->ErrorNum(), TermId, iSyncId,
        e->ErrorText(), szBuffer );
        delete e;
    }
    catch (...)
    {
        ErrorForm( pECB,
        ERR_TYPE_WEBDLL, 0, TermId, iSyncId, "Error:
        Unhandled exception in Web Client.", szBuffer );
    }
#ifdef ICECAP
    StopCAP();
#endif

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

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

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

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

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

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

    if (hEventSource != NULL)
    {

```

```

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

        (VOID)
        DeregisterEventSource(hEventSource);
    }
}

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

    DELIVERY_TRANSACTION
    delivery;
    PDELIVERY_DATA

    pDeliveryData;
    TXN_RECORD_TPCC_DELIV_DEF
    txnDelRec;

    DWORD
    index;

    HANDLE
    handles[2];

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

    assert(txnDelilog != NULL);

    try
    {
        if (Reg.eDB_Protocol
        == ODBC)
        {
            if
            (Reg.dwConnectDelay > 0)
            {
                // Synchronize connect (for VIA)

```

```

//
EnterCriticalSection(&hConnectCriticalSection);

Sleep(Reg.dwConnectDelay);

pTxn = pCTPCC_ODBC_new(
Reg.szDbServer, Reg.szDbUser,
Reg.szDbPassword,

szMyComputerName,
Reg.szDbName,

Reg.szSPPrefix,
Reg.bCallNoDuplicatesNewOrder );

LeaveCriticalSection(&hConnectCriticalSection);
}
else
{
if
(Reg.eDB_Protocol == DBLIB)

pTxn = pCTPCC_DBLIB_new(
Reg.szDbServer, Reg.szDbUser,
Reg.szDbPassword, szMyComputerName,
Reg.szDbName );
}
pDeliveryData =
pTxn->BuffAddr_Delivery();
}
catch (CBaseErr *e)
{
char szTmp[1024];
wsprintf( szTmp,
"Error in Delivery Txn thread. Could not connect
to database. "

"%s. Server=%s, User=%s,
Password=%s, Database=%s",

e->ErrorText(), Reg.szDbServer,
Reg.szDbUser, Reg.szDbPassword,
Reg.szDbName );

WriteMessageToEventLog( szTmp );
delete e;
goto ErrorExit;
}
catch (...)
{
WriteMessageToEventLog(TEXT("Un
handled exception caught in
DeliveryWorkerThread.));
goto ErrorExit;
}

while (TRUE)
{
try
{

```

```

//while
delivery thread running, i.e. user has not
requested termination while
(TRUE)
{
// need to wait for multiple objects:
program exit or worker semaphore;

handles[0] = hDoneEvent;
handles[1] = hWorkerSemaphore;

index = WaitForMultipleObjects( 2,
&handles[0], FALSE, INFINITE );

if (index == WAIT_OBJECT_0)
goto ErrorExit;

ZeroMemory(&txnDeliRec,
sizeof(txnDeliRec));

txnDeliRec.TxnType =
TXN_REC_TYPE_TPCC_DELIV_DEF;

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

EnterCriticalSection(&DelBuffCritical
Section);

delivery =
*(pDelBuff+dwDelBuffBusyIndex);

dwDelBuffFreeCount++;
dwDelBuffBusyIndex++;

if (dwDelBuffBusyIndex ==
dwDelBuffSize) // wrap-around if at
end of buffer
dwDelBuffBusyIndex
= 0;

LeaveCriticalSection(&DelBuffCritical
Section);

pDeliveryData->w_id =
delivery.w_id;

pDeliveryData->o_carrier_id =
delivery.o_carrier_id;

txnDeliRec.w_id = pDeliveryData-
>w_id;

txnDeliRec.o_carrier_id =
pDeliveryData->o_carrier_id;

txnDeliRec.TxnStartT0 =
Get64BitTime(&delivery.queue);

GetLocalTime( &trans_start );

pTxn->Delivery();

```

```

GetLocalTime( &trans_end );

//log txn

txnDeliRec.TxnStatus =
ERR_SUCCESS;

for (int i=0; i<10; i++)

txnDeliRec.o_id[i] =
pDeliveryData->o_id[i];

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

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

if (txnDeliLog != NULL)

txnDeliLog-
>WriteToLog(&txnDeliRec);
}
catch (CBaseErr *e)
{
char
szTmp[1024];
wsprintf(
szTmp, "%s Error (code %d) in Delivery Txn
thread. %s",

e->ErrorTypeStr(),
e->ErrorNum(), e->ErrorText() );

WriteMessageToEventLog( szTmp );

// log
the error txn

txnDeliRec.TxnStatus = e-
>ErrorType();

if
(txnDeliLog != NULL)

txnDeliLog-
>WriteToLog(&txnDeliRec);

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

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

ErrorExit:
if (Reg.dwConnectDelay > 0)
{
// Synchronize
disconnect (for VIA)
//

EnterCriticalSection(&hConnectCriticalSection);

```

```

Sleep(Reg.dwConnectDelay);

delete pTxn;

LeaveCriticalSection(&hConnectCriticalSection);
}

_endthread();
}

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

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

    EnterCriticalSection(&DelBuffCriticalSection);
    if (dwDelBuffFreeCount > 0)
    {
        bError = FALSE;

        (pDelBuff+dwDelBuffFreeIndex)-
        = w_id;

        (pDelBuff+dwDelBuffFreeIndex)-
        >o_carrier_id = o_carrier_id;

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

        dwDelBuffFreeCount--;

        dwDelBuffFreeIndex++;
        if
(dwDelBuffFreeIndex == dwDelBuffSize)

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

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

```

```

}
return bError;

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

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

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

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

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

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

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

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

```

```

        {
            *pCmd
= i+1;
            break;
        }
    }

/* FUNCTION: void WelcomeForm
*
*/

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

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

        "<B><BIG>Microsoft TPC-C Web
Client (ver 4.20)</BIG></B> <BR> <BR>"

        "<font
face=\\"Courier New\\""<PRE>"

        "Compiled: " __DATE__ ",
__TIME__ " <BR>"

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

        "</PRE></font>"

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

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

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

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

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

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

        "<INPUT
TYPE=\\"hidden\\"" NAME=\\"VERSION\\"" VALUE=\\"
WEBCLIENT_VERSION \\">"
    );

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

        "Txn Monitor
= <B>%s</B><BR>"

```

```

"Database protocol
= <B>%s</B><BR>"

"Max Connections
= <B>%d</B><BR>"

"# of Delivery
Threads = <B>%d</B><BR>"

"Max Pending
Deliveries = <B>%d</B><BR>"

szTxnMonNames[Reg.eTxnMon],
szDBNames[Reg.eDB_Protocol],

Reg.dwMaxConnections,
dwNumDeliveryThreads, dwDelBuffSize );
strcat( szBuffer, szTmp);

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

if (Reg.eTxnMon == None)
// connection options
may be specified when not using a txn monitor
sprintf( szTmp,
"Please enter your database options
for this connection:<BR>"

"DB
Server = <INPUT NAME=\"db_server\"
SIZE=20 VALUE=\"%s\"><BR>"

"DB User
ID = <INPUT NAME=\"db_user\" SIZE=20
VALUE=\"%s\"><BR>"

"DB
Password = <INPUT NAME=\"db_passwd\"
SIZE=20 VALUE=\"%s\"><BR>"

"DB
Name = <INPUT NAME=\"db_name\"
SIZE=20 VALUE=\"%s\"><BR>"

"</PRE></font>"

, Reg.szDbServer, Reg.szDbUser,
Reg.szDbPassword, Reg.szDbName );
else
// if using a txn
monitor, connection options are determined from
registry; can't
// set per user. show
options fyi
    sprintf( szTmp,
"Database options which will be
used by the transaction monitor:<BR>"

```

```

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

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

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

"DB
Name = <B>%s</B><BR>"

"</PRE></font>"

, Reg.szDbServer, Reg.szDbUser,
Reg.szDbPassword, Reg.szDbName );
strcat( szBuffer, szTmp);

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

"DB
Warehouse ID = <INPUT
NAME=\"w_id\" SIZE=6><BR>"

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

"</PRE></font><HR>"

"DB
SubmitCmd"
NAME="CMD"
VALUE="Submit"

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

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

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

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

// validate version field; the version
field ensures that the RTE is synchronized with
the web client

```

```

GetKeyValue(&ptr, "VERSION",
szVersion, sizeof(szVersion),
ERR_VERSION_MISMATCH);
WEBCLIENT_VERSION ) )
throw new
CWEBCLNT_ERR( ERR_VERSION_MISMATCH );

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

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

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

iNewTerm = TermAdd();

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

try
{
    if (Reg.eTxnMon ==
TUXEDO)

        Term.pClientData[iNewTerm].pTxn
= pCTPCC_TUXEDO_new();
    else if (Reg.eTxnMon
== ENCINA)

        Term.pClientData[iNewTerm].pTxn
= pCTPCC_ENCINA_new();
    else if (Reg.eTxnMon
== COM)

        Term.pClientData[iNewTerm].pTxn
= pCTPCC_COM_new( Reg.bCOM_SinglePool );
    else if
(Reg.eDB_Protocol == ODBC)

        Term.pClientData[iNewTerm].pTxn
= pCTPCC_ODBC_new( szServer, szUser,
szPassword, szMyComputerName,

```

```

szDatabase, Reg.szSPPrefix,

Reg.bCallNoDuplicatesNewOrder );
else if
(Reg.eDB_Protocol == DBLIB)

Term.pClientData[iNewTerm].pTxn
= pCTPCC_DBLIB_new( szServer, szUser,
szPassword, szMyComputerName, szDatabase );
}
catch (...)
{
TermDelete(iNewTerm);
throw;
// pass exception upward
}

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

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

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

EnterCriticalSection(&TermCriticalSe
ction);

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

iTotal++;
}

LeaveCriticalSection(&TermCriticalS
ection);

wsprintf( szBuffer,

"<HTML><HEAD><TITLE>TPC-C
Web Client Stats</TITLE></HEAD>"

"<BODY><B><BIG> Total Active
Connections: %d
</BIG></B><BR></BODY></HTML>"
, iTotal
);
}

char *CWEBCLNT_ERR::ErrorText()

```

```

{
static SERRORMSG errorMsgs[] =
{
{
ERR_COMMAND_UNDEFINED,
"Command
undefined."
},
{
ERR_D_ID_INVALID,
"Invalid District ID
Must be 1 to 10."
},
{
ERR_DELIVERY_CARRIER_ID_RAN
GE,
"Delivery
Carrier ID out of range must be 1 - 10."
},
{
ERR_DELIVERY_CARRIER_INVALID,
"Delivery
Carrier ID invalid must be numeric 1 - 10."
},
{
ERR_DELIVERY_MISSING_OCD_KE
Y,
"Delivery
missing Carrier ID key \"OCD*\"."
},
{
ERR_DELIVERY_THREAD_FAILED,
"Could not start delivery worker
thread."
},
{
ERR_GETPROCADDR_FAILED,
"Could not map proc
in DLL. GetProcAddr error. DLL="
},
{
ERR_HTML_ILL_FORMED,
"Required key field is missing from
HTML string."
},
{
ERR_INVALID_SYNC_CONNECTION,
"Invalid
Terminal Sync ID."
},
{
ERR_INVALID_TERMID,
"Invalid Terminal ID."
}
}
}

```

```

{
ERR_LOADDLL_FAILED,
"Load of DLL failed."
},
{
ERR_MAX_CONNECTIONS_EXCEED
ED,
"Max
connections available. Max Connections is
probably too low."
},
{
ERR_MISSING_REGISTRY_ENTRIES,
"Required registry entries are
missing. Rerun INSTALL to correct."
},
{
ERR_NEWORDER_CUSTOMER_INV
ALID,
"New
Order customer id invalid data type, range = 1 to
3000."
},
{
ERR_NEWORDER_CUSTOMER_KEY,
"New Order missing Customer key
\"CID*\"."
},
{
ERR_NEWORDER_DISTRICT_INVAL
ID,
"New
Order District ID Invalid range 1 - 10."
},
{
ERR_NEWORDER_FORM_MISSING_
DID,
"New
Order missing District key \"DID*\"."
},
{
ERR_NEWORDER_ITEMID_INVALID,
"New
Order Item Id is wrong data type, must be
numeric."
},
{
ERR_NEWORDER_ITEMID_RANGE,
"New Order Item Id is out of range.
Range = 1 to 999999."
},
{
ERR_NEWORDER_ITEMID_WITHOU
T_SUPPW,
"New Order Item_Id
field entered without a corresponding Supp_W."
},
{
ERR_NEWORDER_MISSING_IID_KE
Y,
"New
Order missing Item Id key \"IID*\"."
},
{
ERR_NEWORDER_MISSING_QTY_K
EY,
"New
Order Missing Qty key \"Qty##*\"."
}
}
}

```

```

    {
      ERR_NEWORDER_MISSING_SUPPW
      _KEY, "New
      Order missing Supp_W key \"SP##*\".
    },
    {
      ERR_NEWORDER_NOITEMS_ENTER
      ED, "New
      Order No order lines entered."
    },
    {
      ERR_NEWORDER_QTY_INVALID,
      "New Order Qty invalid must be
      numeric range 1 - 99."
    },
    {
      ERR_NEWORDER_QTY_RANGE,
      "New Order Qty is out
      of range. Range = 1 to 99."
    },
    {
      ERR_NEWORDER_QTY_WITHOUT_
      SUPPW, "New
      Order Qty field entered without a corresponding
      Supp_W."
    },
    {
      ERR_NEWORDER_SUPPW_INVALID
      ,
      "New Order Supp_W invalid data
      type must be numeric."
    },
    {
      ERR_NO_SERVER_SPECIFIED,
      "No Server name specified."
    },
    {
      ERR_ORDERSTATUS_CID_AND_CLT
      ,
      "Order
      Status Only Customer ID or Last Name may be
      entered, not both."
    },
    {
      ERR_ORDERSTATUS_CID_INVALID,
      "Order
      Status Customer ID invalid, range must be
      numeric 1 - 3000."
    },
    {
      ERR_ORDERSTATUS_CLT_RANGE,
      "Order Status Customer last name
      longer than 16 characters."
    },
    {
      ERR_ORDERSTATUS_DID_INVALID,
      "Order
      Status District invalid, value must be numeric 1 -
      10."
    },
    {
      ERR_ORDERSTATUS_MISSING_CID
      _CLT, "Order Status Either
      Customer ID or Last Name must be entered."
    },
  },

```

```

    {
      ERR_ORDERSTATUS_MISSING_CID
      _KEY, "Order Status missing
      Customer key \"CID*\".
    },
    {
      ERR_ORDERSTATUS_MISSING_CLT
      _KEY, "Order Status missing
      Customer Last Name key \"CLT*\".
    },
    {
      ERR_ORDERSTATUS_MISSING_DID
      _KEY, "Order Status missing
      District key \"DID*\".
    },
    {
      ERR_PAYMENT_CDI_INVALID,
      "Payment Customer district invalid
      must be numeric."
    },
    {
      ERR_PAYMENT_CID_AND_CLT,
      "Payment Only Customer ID or Last
      Name may be entered, not both."
    },
    {
      ERR_PAYMENT_CUSTOMER_INVALI
      D, "Payment Customer data type
      invalid, must be numeric."
    },
    {
      ERR_PAYMENT_CWI_INVALID,
      "Payment Customer Warehouse
      invalid, must be numeric."
    },
    {
      ERR_PAYMENT_DISTRICT_INVALID
      ,
      "Payment District ID is invalid, must
      be 1 - 10."
    },
    {
      ERR_PAYMENT_HAM_INVALID,
      "Payment Amount invalid data type
      must be numeric."
    },
    {
      ERR_PAYMENT_HAM_RANGE,
      "Payment Amount out
      of range, 0 - 9999.99."
    },
    {
      ERR_PAYMENT_LAST_NAME_TO_L
      ONG, "Payment Customer last name
      longer than 16 characters."
    },
    {
      ERR_PAYMENT_MISSING_CDI_KEY,
      "Payment missing Customer district
      key \"CDI*\".
    },
  },

```

```

    {
      ERR_PAYMENT_MISSING_CID_CLT,
      "Payment Either Customer ID or
      Last Name must be entered."
    },
    {
      ERR_PAYMENT_MISSING_CID_KEY,
      "Payment missing Customer Key
      \"CID*\".
    },
    {
      ERR_PAYMENT_MISSING_CLT_KEY,
      "Payment missing Customer Last
      Name key \"CLT*\".
    },
    {
      ERR_PAYMENT_MISSING_CWI_KEY
      ,
      "Payment missing Customer
      Warehouse key \"CWI*\".
    },
    {
      ERR_PAYMENT_MISSING_DID_KEY
      ,
      "Payment missing District Key
      \"DID*\".
    },
    {
      ERR_PAYMENT_MISSING_HAM_KE
      Y, "Payment missing Amount key
      \"HAM*\".
    },
    {
      ERR_STOCKLEVEL_MISSING_THRE
      SHOLD_KEY, "Stock Level; missing Threshold key
      \"TT*\".
    },
    {
      ERR_STOCKLEVEL_THRESHOLD_IN
      VALID, "Stock Level;
      Threshold value must be in the range = 1 - 99."
    },
    {
      ERR_STOCKLEVEL_THRESHOLD_RA
      NGE, "Stock
      Level Threshold out of range, range must be 1 -
      99."
    },
    {
      ERR_VERSION_MISMATCH,
      "Invalid version field.
      RTE and Web Client are probably out of sync."
    },
    {
      ERR_W_ID_INVALID,
      "Invalid Warehouse
      ID."
    },
  },

```



```

        {
            0,
            ""
        };
        char szTmp[256];
        int i = 0;
        while (TRUE)
        {
            if
            (errorMsgs[i].szMsg[0] == 0)
            {
                strcpy(
                szTmp, "Unknown error number. ");
                break;
            }
            if (m_Error ==
            errorMsgs[i].iError)
            {
                strcpy(
                szTmp, errorMsgs[i].szMsg );
                break;
            }
            i++;
        }
        if (m_szTextDetail)
            strcat( szTmp,
            m_szTextDetail );
        if (m_SystemErr)
            sprintf(
            szTmp+strlen(szTmp), " Error=%d",
            m_SystemErr );
        m_szErrorText = new
        char[strlen(szTmp)+1];
        strcpy( m_szErrorText, szTmp );
        return m_szErrorText;
    }
    /* FUNCTION: GetKeyValue
    *
    * PURPOSE: This function parses a http
    formatted string for specific key values.
    *
    * ARGUMENTS:      char
                    *pQueryString
                    http string from client browser
    *
    *                char
                    *pKey
                    key value to look for
    *
    *                char
                    *pValue
                    character array into which to place
    key's value
    *
    *                int
                    iMax
                    maximum length of
    key value array.
    *
    *                WEBERROR
                    err
                    error value to throw

```

```

* RETURNS:      nothing.
*
* ERROR:      if (the pKey value is
not found) then
*
*                if (err == 0)
*
*                                return
(empty string)
*
*                else
*
*                                throw
CWEBCLNT_ERR(err)
*
* COMMENTS:      http keys are
formatted either KEY=value& or KEY=value\0.
This DLL formats
*
*                TPC-C input fields in such a manner
that the keys can be extracted in the
*
*                above manner.
*/
void GetKeyValue(char **pQueryString, char
*pKey, char *pValue, int iMax, WEBERROR err)
{
    char *ptr;
    if ( !(ptr=strstr(*pQueryString,
    pKey)) )
        goto ErrorExit;
    ptr += strlen(pKey);
    if ( *ptr != '=' )
        goto ErrorExit;
    ptr++;
    iMax--; // one position is for
terminating null
    while( *ptr && *ptr != '&' && iMax)
    {
        *pValue++ = *ptr++;
        iMax--;
    }
    *pValue = 0; // terminating null
    *pQueryString = ptr;
    return;
ErrorExit:
    if (err != NO_ERR)
        throw new
    CWEBCLNT_ERR( err );
    *pValue = 0; // return empty
result string
}
/* FUNCTION: GetIntKeyValue
*
* PURPOSE: This function parses a http
formatted string for a specific key value.
*
* ARGUMENTS:      char
                    *pQueryString
                    http string from client browser
*
*                char
                    *pKey
                    key value to look for

```

```

*
*                WEBERROR
                    NoKeyErr
                    error
value to throw if key not found
*
*                WEBERROR
                    NotIntErr
                    error
value to throw if value not numeric
*
* RETURNS:      integer
*
* ERROR:      if (the pKey value is
not found) then
*
*                if (NoKeyErr !=
NO_ERR)
*
*                                throw
CWEBCLNT_ERR(err)
*
*                else
*
*                                return 0
*
*                else if (non-numeric char found)
then
*
*                if (NotIntErr !=
NO_ERR) then
*
*                                throw
CWEBCLNT_ERR(err)
*
*                else
*
*                                return 0
*
* COMMENTS:      http keys are
formatted either KEY=value& or KEY=value\0.
This DLL formats
*
*                TPC-C input fields in such a manner
that the keys can be extracted in the
*
*                above manner.
*/
int GetIntKeyValue(char **pQueryString, char
*pKey, WEBERROR NoKeyErr, WEBERROR
NotIntErr)
{
    char *ptr0;
    char *ptr;
    if ( !(ptr=strstr(*pQueryString,
    pKey)) )
        goto ErrorNoKey;
    ptr += strlen(pKey);
    if ( *ptr != '=' )
        goto ErrorNoKey;
    ptr++;
    ptr0 = ptr; //
remember starting point
// scan string until a terminator
(null or &) or a non-digit
    while( *ptr && *ptr != '&' &&
isdigit(*ptr) )
        ptr++;
    // make sure we stopped scanning
for the right reason
    if ((ptr0 == ptr) || (*ptr && *ptr !=
'&'))

```

```

    {
        if (NotIntErr !=
NO_ERR)
            throw
new CWEBCLNT_ERR( NoKeyErr );
        return 0;
    }

    *pQueryString = ptr;
    return atoi(ptr0);

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

/* FUNCTION: TermInit
 *
 * PURPOSE: This function initializes the client
terminal structure; it is called when the TPCC.DLL
 *
 * ARGUMENTS: none
 *
 * RETURNS: None
 *
 * COMMENTS: This function is called
only when the inet service unloads the TPCC.DLL
 */

void TermInit(void)
{
    EnterCriticalSection(&TermCriticalSe
ction);

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

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

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

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

    LeaveCriticalSection(&TermCriticalS
ection);
}

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

void TermDeleteAll(void)
{
    EnterCriticalSection(&TermCriticalSe
ction);

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

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

        free(Term.pClientData);
        Term.pClientData = NULL;

        LeaveCriticalSection(&TermCriticalS
ection);
    }

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

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

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

    EnterCriticalSection(&TermCriticalSe
ction);

    if (Term.iFreeList != 0)
    {
        // position is available
        iNewTerm =
Term.iFreeList;
        Term.iFreeList =
Term.pClientData[iNewTerm].iNextFree;

        Term.pClientData[iNewTerm].iNext
Free = -1; // indicates this position is in use
    }
    else
    {
        // no open slots, so
find the slot that hasn't been used in the longest
time and reuse it
        for(iNewTerm=1, i=1,
iTickCount=0x7FFFFFFF;
i<Reg.dwMaxConnections; i++)

```

```

    {
        if
(iTickCount > Term.pClientData[i].iTickCount)
    {
        iTickCount =
Term.pClientData[i].iTickCount;

        iNewTerm = i;
    }
    // if oldest term is less
than one minute old, it probably means that
more connections
// are being
attempted than were specified as "Max
Connections" at install. In this case,
// do not bump
existing connection; instead, return error to
requestor.
    if ((GetTickCount() -
iTickCount) < 60000)
    {
        LeaveCriticalSection(&TermCriticalS
ection);
        throw
new CWEBCLNT_ERR(
ERR_MAX_CONNECTIONS_EXCEEDED );
    }

    Term.pClientData[iNewTerm].iTickC
ount = GetTickCount();
    Term.pClientData[iNewTerm].iSyncI
d = Term.iMasterSyncId++;
    Term.pClientData[iNewTerm].pTxn
= NULL;

    LeaveCriticalSection(&TermCriticalS
ection);
    return iNewTerm;
}

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

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

        // put onto free list

        EnterCriticalSection(&TermCriticalSe
ction);

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

```

```

    {
        if
(iTickCount > Term.pClientData[i].iTickCount)
    {
        iTickCount =
Term.pClientData[i].iTickCount;

        iNewTerm = i;
    }
    // if oldest term is less
than one minute old, it probably means that
more connections
// are being
attempted than were specified as "Max
Connections" at install. In this case,
// do not bump
existing connection; instead, return error to
requestor.
    if ((GetTickCount() -
iTickCount) < 60000)
    {
        LeaveCriticalSection(&TermCriticalS
ection);
        throw
new CWEBCLNT_ERR(
ERR_MAX_CONNECTIONS_EXCEEDED );
    }

    Term.pClientData[iNewTerm].iTickC
ount = GetTickCount();
    Term.pClientData[iNewTerm].iSyncI
d = Term.iMasterSyncId++;
    Term.pClientData[iNewTerm].pTxn
= NULL;

    LeaveCriticalSection(&TermCriticalS
ection);
    return iNewTerm;
}

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

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

        // put onto free list

        EnterCriticalSection(&TermCriticalSe
ction);

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

```

```

        LeaveCriticalSection(&TermCriticalSection);
    }
}

/* FUNCTION: MakeErrorForm
*/

void ErrorForm(EXTENSION_CONTROL_BLOCK
*pECB, int iType, int iErrorNum, int iTermId, int
iSyncId, char *szErrorText, char *szBuffer )
{
    wsprintf(szBuffer,

        "<HTML><HEAD><TITLE>TPC-C
Error</TITLE></HEAD><BODY>"
        "<FORM
ACTION=\"tpcc.dll\" METHOD=\"GET\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"STATUSID\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"ERROR\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"FORMID\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"TERMINID\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"SYNCID\"
VALUE=\"%d\">"
        "<BOLD>An Error
Occurred</BOLD><BR><BR>"
        "%s"
        "<BR><BR><HR>"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..NewOrder..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Order-Status..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Stock-Level..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Exit..\">"

        "</FORM></BODY></HTML>"
        , iType, iErrorNum,
MAIN_MENU_FORM, iTermId, iSyncId,
szErrorText );
}

/* FUNCTION: MakeMainMenuForm
*/

void MakeMainMenuForm(int iTermId, int
iSyncId, char *szForm)
{
    wsprintf(szForm,

        "<HTML><HEAD><TITLE>TPC-C
Main Menu</TITLE></HEAD><BODY>"

```

```

        "Select Desired
Transaction.<BR><HR>" "<FORM
ACTION=\"tpcc.dll\" METHOD=\"GET\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"STATUSID\"
VALUE=\"0\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"ERROR\"
VALUE=\"0\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"FORMID\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"TERMINID\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"SYNCID\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..NewOrder..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Order-Status..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Stock-Level..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Exit..\">"

        "</FORM></BODY></HTML>"
        , MAIN_MENU_FORM,
iTermId, iSyncId);
}

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

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

    c = wsprintf(szForm,

        "<HTML><HEAD><TITLE>TPC-C
Stock Level</TITLE></HEAD><FORM
ACTION=\"tpcc.dll\" METHOD=\"GET\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"STATUSID\"
VALUE=\"0\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"ERROR\"
VALUE=\"0\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"FORMID\"
VALUE=\"%d\">"

```

```

        "<INPUT
TYPE=\"hidden\" NAME=\"TERMINID\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"SYNCID\"
VALUE=\"%d\">"
        "<PRE><font
face=\"Courier\">
Stock-
Level<BR>"
        "Warehouse: %6.6d
District: %2.2d<BR> <BR>,"
        STOCK_LEVEL_FORM,
iTermId, Term.pClientData[iTermId].iSyncId,
Term.pClientData[iTermId].w_id,
Term.pClientData[iTermId].d_id);
    if ( bInput )
    {
        strcpy(szForm+c,

            "Stock
Level Threshold: <INPUT NAME=\"TT*\"
SIZE=2><BR> <BR>"
            "low
stock: </font><BR> <BR> <BR> <BR>
<BR> <BR> <BR> <BR> <BR> <BR> <BR>"
            "<BR>
<BR> <BR> <BR> <BR> <BR> <BR>
<BR></PRE><HR>"
            "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Process\">"
            "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Menu\">"

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

            "</FORM></HTML>"

        ,
pStockLevelData->threshold, pStockLevelData-
>low_stock);
    }
}

```

```

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

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

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

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

c = sprintf(szForm,

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

if ( bInput )
{
c +=
sprintf(szForm+c, "Warehouse: %6.6d ",
Term.pClientData[iTermId].w_id );

strcpy( szForm+c,
"District:
<INPUT NAME="\"DID*"\" SIZE=1>
Date:<BR>"

"Customer: <INPUT
NAME="\"CID*"\" SIZE=4> Name:
Credit: %Disc:<BR>"

"Order
Number: Number of Lines: W_tax:
D_tax:<BR> <BR>"
);
}
}

```

```

"
Supp_W Item_Id Item Name Qty
Stock B/G Price Amount<BR>"
"<INPUT NAME="\"SP00*"\" SIZE=4> <INPUT
NAME="\"IID00*"\" SIZE=6>
<INPUT NAME="\"Qty00*"\" SIZE=1><BR>"
"
"<INPUT NAME="\"SP01*"\" SIZE=4> <INPUT
NAME="\"IID01*"\" SIZE=6>
<INPUT NAME="\"Qty01*"\" SIZE=1><BR>"
"
"<INPUT NAME="\"SP02*"\" SIZE=4> <INPUT
NAME="\"IID02*"\" SIZE=6>
<INPUT NAME="\"Qty02*"\" SIZE=1><BR>"
"
"<INPUT NAME="\"SP03*"\" SIZE=4> <INPUT
NAME="\"IID03*"\" SIZE=6>
<INPUT NAME="\"Qty03*"\" SIZE=1><BR>"
"
"<INPUT NAME="\"SP04*"\" SIZE=4> <INPUT
NAME="\"IID04*"\" SIZE=6>
<INPUT NAME="\"Qty04*"\" SIZE=1><BR>"
"
"<INPUT NAME="\"SP05*"\" SIZE=4> <INPUT
NAME="\"IID05*"\" SIZE=6>
<INPUT NAME="\"Qty05*"\" SIZE=1><BR>"
"
"<INPUT NAME="\"SP06*"\" SIZE=4> <INPUT
NAME="\"IID06*"\" SIZE=6>
<INPUT NAME="\"Qty06*"\" SIZE=1><BR>"
"
"<INPUT NAME="\"SP07*"\" SIZE=4> <INPUT
NAME="\"IID07*"\" SIZE=6>
<INPUT NAME="\"Qty07*"\" SIZE=1><BR>"
"
"<INPUT NAME="\"SP08*"\" SIZE=4> <INPUT
NAME="\"IID08*"\" SIZE=6>
<INPUT NAME="\"Qty08*"\" SIZE=1><BR>"
"
"<INPUT NAME="\"SP09*"\" SIZE=4> <INPUT
NAME="\"IID09*"\" SIZE=6>
<INPUT NAME="\"Qty09*"\" SIZE=1><BR>"
"
"<INPUT NAME="\"SP10*"\" SIZE=4> <INPUT
NAME="\"IID10*"\" SIZE=6>
<INPUT NAME="\"Qty10*"\" SIZE=1><BR>"
"
"<INPUT NAME="\"SP11*"\" SIZE=4> <INPUT
NAME="\"IID11*"\" SIZE=6>
<INPUT NAME="\"Qty11*"\" SIZE=1><BR>"
"
"<INPUT NAME="\"SP12*"\" SIZE=4> <INPUT
NAME="\"IID12*"\" SIZE=6>
<INPUT NAME="\"Qty12*"\" SIZE=1><BR>"
"
"<INPUT NAME="\"SP13*"\" SIZE=4> <INPUT
NAME="\"IID13*"\" SIZE=6>
<INPUT NAME="\"Qty13*"\" SIZE=1><BR>"
"
"<INPUT NAME="\"SP14*"\" SIZE=4> <INPUT
NAME="\"IID14*"\" SIZE=6>
<INPUT NAME="\"Qty14*"\" SIZE=1><BR>"
"
"Execution Status:
Total:<BR>"

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

"</FORM></HTML>"

```

```

}
else
{
c +=
sprintf(szForm+c, "Warehouse: %6.6d
District: %2.2d Date: ",
pNewOrderData->w_id,
pNewOrderData->d_id);

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

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

if ( bValid )
{
c +=
sprintf(szForm+c,
"%5.2f <BR>"
"Order
Number: %8.8d Number of Lines: %2.2d
W_tax: %5.2f D_tax: %5.2f <BR> <BR>"
,
pNewOrderData->w_tax,
pNewOrderData->d_tax);

c +=
sprintf(szForm+c, "100.0*pNewOrderData->c_discount,
pNewOrderData->o_id,
pNewOrderData->o_ol_cnt,
100.0 * pNewOrderData->w_tax,
100.0 * pNewOrderData->d_tax);

for(i=0;
i<pNewOrderData->o_ol_cnt; i++)
{
c += sprintf(szForm+c, "%6.6d
%6.6d %24s %2.2d %3.3d %1.1s
%5.2f %7.2f <BR>",

```

```

pNewOrderData-
>OL[i].ol_supply_w_id,
pNewOrderData-
>OL[i].ol_i_id,
pNewOrderData-
>OL[i].ol_i_name,
pNewOrderData-
>OL[i].ol_quantity,
pNewOrderData-
>OL[i].ol_stock,
pNewOrderData-
>OL[i].ol_brand_generic,
pNewOrderData-
>OL[i].ol_i_price,
pNewOrderData-
>OL[i].ol_amount );
    }
    else
    {
        c +=
wsprintf(szForm+c,
        "%Disc:<BR>"
        "Order Number: %8.8d Number of
Lines:    W_tax:    D_tax:<BR> <BR>"
        " Supp_W Item_Id Item Name
Qty Stock B/G Price Amount<BR>"
        , pNewOrderData->o_id);
        i = 0;
    }
    strncpy( szForm+c,
szBR, (15-i)*5 );
    c += (15-i)*5;
    if ( bValid )
        c +=
sprintf(szForm+c, "Execution Status: Transaction
committed.    Total: $%8.2f ",
        pNewOrderData->total_amount);
    else
        c +=
wsprintf(szForm+c, "Execution Status: Item
number is not valid.    Total:");
        strcpy(szForm+c,
"
<BR></font></PRE><HR>"
        "
        TYPE="submit" NAME="CMD"
VALUE="..NewOrder..">"
        "
        TYPE="submit" NAME="CMD"
VALUE="..Payment..">"
        "
        TYPE="submit" NAME="CMD"
VALUE="..Delivery..">"
        "
        TYPE="submit" NAME="CMD"
VALUE="..Order-Status..">"

```

```

"
        TYPE="submit" NAME="CMD"
VALUE="..Stock-Level..">"
        TYPE="submit" NAME="CMD"
VALUE="..Exit..">"
    }
}
);
}
}
/* FUNCTION: MakePaymentForm
*
* COMMENTS:    The internal client
buffer is created when the terminal id is assigned
and should not
*
        be freed except when the client
terminal id is no longer needed.
*/
void MakePaymentForm(int iTermId,
PAYMENT_DATA *pPaymentData, BOOL bInput,
char *szForm)
{
    int c;
    c = wsprintf(szForm,
        "<HTML><HEAD><TITLE>TPC-C
Payment</TITLE></HEAD><BODY>"
        "<FORM
ACTION="tpcc.dll" METHOD="GET">"
        "<INPUT
TYPE="hidden" NAME="STATUSID"
VALUE="0">"
        "<INPUT
TYPE="hidden" NAME="ERROR"
VALUE="0">"
        "<INPUT
TYPE="hidden" NAME="FORMID"
VALUE="%"d">"
        "<INPUT
TYPE="hidden" NAME="TERMINID"
VALUE="%"d">"
        "<INPUT
TYPE="hidden" NAME="SYNCID"
VALUE="%"d">"
        "<PRE><font
face="Courier"
Payment<BR>"
        "Date: "
        , PAYMENT_FORM,
iTermId, Term.pClientData[iTermId].iSyncId);
    if ( !bInput )
    {
        c +=
wsprintf(szForm+c, "%2.2d-%2.2d-%4.4d
%2.2d:%2.2d:%2.2d",
        pPaymentData->h_date.day,
        pPaymentData->h_date.month,
        pPaymentData->h_date.year,
        pPaymentData->h_date.hour,
        pPaymentData->h_date.minute,
        pPaymentData->h_date.second);
    }
    if ( bInput )

```

```

        {
            c +=
wsprintf(szForm+c,
        "<BR>Warehouse: %6.6d"
        "
        District: <INPUT NAME="DID*"
SIZE=1><BR>
<BR> <BR> <BR> <BR>"
        "Customer: <INPUT
NAME="CID*"
SIZE=4>"
        "Cust-
Warehouse: <INPUT NAME="CWI*"
SIZE=4>
"
        "Cust-
District: <INPUT NAME="CDI*"
SIZE=1><BR>"
        "Name:
<INPUT NAME="CLT*"
SIZE=16>
Since:<BR>"
        "
        Credit:<BR>"
        "
        Disc:<BR>"
        "
        Phone:<BR> <BR>"
        "Amount
Paid:    $<INPUT NAME="HAM*"
SIZE=7>
New Cust-Balance:<BR>"
        "Credit
Limit:<BR> <BR>Cust-Data: <BR> <BR> <BR>
<BR> <BR></font></PRE><HR>"
        "<INPUT
TYPE="submit" NAME="CMD"
VALUE="Process"><INPUT TYPE="submit"
NAME="CMD" VALUE="Menu">"
        "</BODY></FORM></HTML>"
        ,
        Term.pClientData[iTermId].w_id);
    }
    else
    {
        c +=
wsprintf(szForm+c,
        "<BR>Warehouse: %6.6d
District: %2.2d<BR>"
        "%-20s
%-20s<BR>"
        "%-20s
%-20s<BR>"
        "%-2s %5.5s-%4.4s    %-20s %-2s %5.5s-
%4.4s<BR> <BR>"
        "Customer: %4.4d Cust-
Warehouse: %6.6d Cust-District: %2.2d<BR>"
        "%-16s %-2s %-16s    Since: %2.2d-%2.2d-
%4.4d<BR>"
        "
        %-20s    Credit: %-2s<BR>"
        ,
        Term.pClientData[iTermId].w_id, pPaymentData-
>d_id
        pPaymentData->w_street_1, pPaymentData-
>d_street_1
        pPaymentData->w_street_2, pPaymentData-
>d_street_2

```

```

pPaymentData->w_city, pPaymentData-
>w_state, pPaymentData->w_zip,
pPaymentData->w_zip+5
pPaymentData->d_city, pPaymentData->d_state,
pPaymentData->d_zip, pPaymentData->d_zip+5
pPaymentData->c_id, pPaymentData->c_w_id,
pPaymentData->c_d_id
pPaymentData->c_first, pPaymentData-
>c_middle, pPaymentData->c_last
pPaymentData->c_since.day, pPaymentData-
>c_since.month, pPaymentData-
>c_since.year
pPaymentData->c_street_1, pPaymentData-
>c_credit
);
c += sprintf(szForm+c,
"
%-20s          %%Disc: %5.2f<BR>",
pPaymentData->c_street_2,
100.0*pPaymentData->c_discount);
c +=
wsprintf(szForm+c,
"
%-20s %-2s %5.5s-%4.4s Phone: %6.6s-
%3.3s-%3.3s-%4.4s<BR> <BR>",
pPaymentData->c_city,
pPaymentData->c_state, pPaymentData->c_zip,
pPaymentData->c_zip+5,
pPaymentData->c_phone,
pPaymentData->c_phone+6, pPaymentData-
>c_phone+9, pPaymentData->c_phone+12 );
c +=
sprintf(szForm+c,
"Amount
Paid:      $%7.2f  New Cust-Balance:
$%14.2f<BR>"
"Credit
Limit:  $%13.2f<BR> <BR>"
pPaymentData->h_amount, pPaymentData-
>c_balance
pPaymentData->c_credit_lim
);
if ( pPaymentData-
>c_credit[0] == 'B' && pPaymentData-
>c_credit[1] == 'C' )
c +=
wsprintf(szForm+c,
"Cust-Data: %-
50.50s<BR>          %-50.50s<BR>          %-
50.50s<BR>          %-50.50s<BR>",
pPaymentData-
>c_data, pPaymentData->c_data+50,
pPaymentData->c_data+100, pPaymentData-
>c_data+150 );
else
strcpy(szForm+c, "Cust-Data:
<BR> <BR> <BR> <BR>");

```

```

strcat(szForm,
" <BR></font></PRE><HR>"
" <INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..NewOrder..\">"
" <INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"
" <INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"
" <INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Order-Status..\">"
" <INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Stock-Level..\">"
" <INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Exit..\">"
</BODY></FORM></HTML>");
}
/* FUNCTION: MakeOrderStatusForm
*
* COMMENTS: The internal client
buffer is created when the terminal id is assigned
and should not
*
be freed except when the client
terminal id is no longer needed.
*/
void MakeOrderStatusForm(int iTermId,
ORDER_STATUS_DATA *pOrderStatusData,
BOOL bInput, char *szForm)
{
int i, c;
static char szBR[] = " <BR> <BR>
<BR> <BR> <BR> <BR> <BR> <BR> <BR>
<BR> <BR> <BR> <BR> <BR> <BR>";
c = wsprintf(szForm,
" <HTML><HEAD><TITLE>TPC-C
Order-Status</TITLE></HEAD><BODY>"
" <FORM
ACTION=\"tpcc.dll\" METHOD=\"GET\">"
" <INPUT
TYPE=\"hidden\" NAME=\"STATUSID\"
VALUE=\"0\">"
" <INPUT
TYPE=\"hidden\" NAME=\"ERROR\"
VALUE=\"0\">"
" <INPUT
TYPE=\"hidden\" NAME=\"FORMID\"
VALUE=\"%d\">"
" <INPUT
TYPE=\"hidden\" NAME=\"TERMINID\"
VALUE=\"%d\">"
" <INPUT
TYPE=\"hidden\" NAME=\"SYNCID\"
VALUE=\"%d\">"

```

```

" <PRE><font
face=\"Courier\"> Order-
Status<BR>" Warehouse: %6.6d
",
ORDER_STATUS_FORM, iTermId,
Term.pClientData[iTermId].iSyncId,
Term.pClientData[iTermId].w_id);
if ( bInput )
{
strcpy(szForm+c,
"District:
<INPUT NAME=\"DID*\" SIZE=1><BR>"
"Customer: <INPUT
NAME=\"CID*\" SIZE=4> Name:
<INPUT NAME=\"CLT*\" SIZE=23><BR>"
"Cust-
Balance:<BR> <BR>"
"Order-
Number: Entry-Date:
Carrier-Number:<BR>"
"Supply-
W Item-Id Qty Amount Delivery-
Date<BR> <BR> <BR> <BR> <BR>
" <BR>
<BR> <BR> <BR> <BR> <BR> <BR> <BR>
<BR> <BR> <BR></font></PRE>"
" <HR><INPUT TYPE=\"submit\"
NAME=\"CMD\" VALUE=\"Process\"><INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Menu\">"
" </BODY></FORM></HTML>" );
}
else
{
c +=
wsprintf(szForm+c,
"District:
%2.2d<BR>"
"Customer: %4.4d Name: %6.6s
%-2s %-16s<BR>",
pOrderStatusData->d_id,
pOrderStatusData->c_id,
pOrderStatusData->c_first,
pOrderStatusData->c_middle, pOrderStatusData-
>c_last);
c +=
sprintf(szForm+c, "Cust-Balance: $%9.2f<BR>
<BR>",
pOrderStatusData->c_balance);
c +=
wsprintf(szForm+c,
"Order-
Number: %8.8d Entry-Date: %2.2d-%2.2d-
%4.4d %2.2d:%2.2d:%2.2d Carrier-Number:
%2.2d<BR>"
"Supply-
W Item-Id Qty Amount Delivery-
Date<BR>",
pOrderStatusData->o_id,
pOrderStatusData->o_entry_d.day,

```

```

        pOrderStatusData->o_entry_d.month,
        pOrderStatusData->o_entry_d.year,
        pOrderStatusData->o_entry_d.hour,
        pOrderStatusData->o_entry_d.minute,
        pOrderStatusData->o_entry_d.second,
        pOrderStatusData->o_carrier_id);
    for(i=0; i<
pOrderStatusData->o_ol_cnt; i++)
    {
        c +=
sprintf(szForm+c, " %6.6d %6.6d %2.2d
$%8.2f %2.2d-%2.2d-%4.4d<BR>",
        pOrderStatusData->OL[i].ol_supply_w_id,
        pOrderStatusData->OL[i].ol_i_id,
        pOrderStatusData->OL[i].ol_quantity,
        pOrderStatusData->OL[i].ol_amount,
        pOrderStatusData->OL[i].ol_delivery_d_day,
        pOrderStatusData->OL[i].ol_delivery_d_month,
        pOrderStatusData->OL[i].ol_delivery_d_year);
    }
    strncpy( szForm+c,
szBR, (15-i)*5 );
    c += (15-i)*5;
    strcpy(szForm+c,
        "</font></PRE><HR><INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..NewOrder..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Order-Status..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Stock-Level..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Exit..\">"
        "</BODY></FORM></HTML>" );
}

```

```

/* FUNCTION: MakeDeliveryForm
* COMMENTS: The internal client
buffer is created when the terminal id is assigned
and should not
*
be freed except when the client
terminal id is no longer needed.
*/
void MakeDeliveryForm(int iTermId,
DELIVERY_DATA *pDeliveryData, BOOL bInput,
char *szForm)
{
    int c;
    c = wsprintf(szForm,
        "<HTML><HEAD><TITLE>TPC-C
Delivery</TITLE></HEAD><BODY>"
        "<FORM
ACTION=\"tpcc.dll\" METHOD=\"GET\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"STATUSID\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"ERROR\"
VALUE=\"0\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"FORMID\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"TERMINID\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"SYNCID\"
VALUE=\"%d\">"
        "<PRE><font
face=\"Courier\">
Delivery<BR>"
        "Warehouse:
%6.6d<BR> <BR>",
        (bInput &&
(pDeliveryData->exec_status_code != eOK)) ?
ERR_TYPE_DELIVERY_POST : 0,
        DELIVERY_FORM,
        iTermId, Term.pClientData[iTermId].iSyncId,
        Term.pClientData[iTermId].w_id);
    if ( bInput )
    {
        strcpy( szForm+c,
        "Carrier
Number: <INPUT NAME=\"OCD\"*\"
SIZE=1><BR> <BR>"
        "Execution Status: <BR> <BR>
<BR> <BR> <BR> <BR> <BR> <BR> <BR>
<BR> <BR> <BR> <BR> <BR> <BR> <BR>
</font></PRE><HR>"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Process\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Menu\">"
        "</BODY></FORM></HTML>" );
    }
    else
    {
        wsprintf( szForm+c,
        "Carrier
Number: %2.2d<BR> <BR>"

```

```

        "Execution Status: %s <BR> <BR>
<BR> <BR> <BR> <BR> <BR> <BR> <BR>
<BR> <BR> <BR> <BR> <BR> <BR> <BR>
</font></PRE>"
        "<HR><INPUT TYPE=\"submit\"
NAME=\"CMD\" VALUE=\"..NewOrder..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Order-Status..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Stock-Level..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Exit..\">"
        "</BODY></FORM></HTML>"
    }
    pDeliveryData->o_carrier_id,
    (pDeliveryData->exec_status_code
== eOK) ? "Delivery has been queued." :
"Delivery Post Failed "
    );
}
}
/* FUNCTION: ProcessNewOrderForm
*
* PURPOSE: This function gets and validates the
input data from the new order form
*
filling in
the required input variables. it then calls the
SQLNewOrder
*
transaction, constructs the output
form and writes it back to client
*
browser.
*/
void
ProcessNewOrderForm(EXTENSION_CONTROL_B
LOCK *pECB, int iTermId, char *szBuffer)
{
    PNEW_ORDER_DATA
pNewOrder;
    pNewOrder =
Term.pClientData[iTermId].pTxn-
>BuffAddr_NewOrder();
    ZeroMemory(pNewOrder,
sizeof(NEW_ORDER_DATA));
    pNewOrder->w_id =
Term.pClientData[iTermId].w_id;
    GetNewOrderData(pECB-
>lpszQueryString, pNewOrder);
    Term.pClientData[iTermId].pTxn-
>NewOrder();
    pNewOrder =
Term.pClientData[iTermId].pTxn-
>BuffAddr_NewOrder();
    MakeNewOrderForm(iTermId,
pNewOrder, OUTPUT_FORM, szBuffer);

```

```

}

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

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

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

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

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

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

```

```

*/

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

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

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

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

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

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

    PDELIVERY_DATA
    pDelivery;

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

    pDelivery->o_carrier_id =
GetIntKeyValue(&ptr, "OCD*",
ERR_DELIVERY_MISSING_OCD_KEY,
ERR_DELIVERY_CARRIER_INVALID);

```

```

    if ( pDelivery->o_carrier_id > 10 ||
pDelivery->o_carrier_id < $row new
CWEBCLNT_ERR(
ERR_DELIVERY_CARRIER_ID_RANGE );

    if (dwNumDeliveryThreads)
    {
        //post delivery info
        if (
PostDeliveryInfo(pDelivery->w_id, pDelivery-
>o_carrier_id )

        pDelivery->exec_status_code =
eDeliveryFailed;
        else
        pDelivery->exec_status_code =
eOK;
    }
    else // delivery is done
synchronously if no delivery threads configured

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

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

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

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

    PSTOCK_LEVEL_DATA
    pStockLevel;

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

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

```



```

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

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

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

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

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

void GetNewOrderData(LPSTR lpszQueryString,
NEW_ORDER_DATA *pNewOrderData)
{
    char        szTmp[26];
    int         i;
    short      items;
    int        ol_i_id,
ol_quantity;
    char       *ptr =
lpszQueryString;

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

```

```

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

        for(i=0, items=0;
i<MAX_OL_NEW_ORDER_ITEMS; i++)
        {
            GetKeyValue(&ptr,
szSP[i], szTmp, sizeof(szTmp),
ERR_NEWORDER_MISSING_SUPPW_KEY);
            if ( szTmp[0] )
            {
                if (
!IsNumeric(szTmp) )

                    throw new CWEBCLNT_ERR(
ERR_NEWORDER_SUPPW_INVALID );

                pNewOrderData-
>OL[items].ol_supply_w_id = atoi(szTmp);

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

                    throw new CWEBCLNT_ERR(
ERR_NEWORDER_ITEMID_RANGE );

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

                    throw new CWEBCLNT_ERR(
ERR_NEWORDER_QTY_RANGE );

                items++;
            }
            else
            {
                //
nothing entered for supply warehouse, so item id
and qty must also be blank

                GetKeyValue(&ptr, szIID[i], szTmp,
sizeof(szTmp),
ERR_NEWORDER_MISSING_IID_KEY);
                if (
szTmp[0] )

                    throw new CWEBCLNT_ERR(
ERR_NEWORDER_ITEMID_WITHOUT_SUPPW );

                GetKeyValue(&ptr, szQty[i], szTmp,
sizeof(szTmp),
ERR_NEWORDER_MISSING_QTY_KEY);
                if (
szTmp[0] )

```

```

            throw new CWEBCLNT_ERR(
ERR_NEWORDER_QTY_WITHOUT_SUPPW );
        }
        if ( items == 0 )
            throw new
CWEBCLNT_ERR(
ERR_NEWORDER_NOITEMS_ENTERED );

        pNewOrderData->o_ol_cnt = items;
    }

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

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

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

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

            throw
new CWEBCLNT_ERR(
ERR_PAYMENT_CUSTOMER_INVALID );
        pPaymentData->c_id
= atoi(szTmp);
    }

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

        if ( bCustIdBlank )

```

```

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

        _strupr( szTmp );
        if ( strlen(szTmp) >
LAST_NAME_LEN )
            throw
new CWEBCLNT_ERR(
ERR_PAYMENT_LAST_NAME_TO_LONG );

        strcpy(pPaymentData->
>c_last, szTmp);
        // pad with spaces so
that the client layer doesn't have to do it
        // before passing
parameters to stored procedure
        iLen =
strlen(pPaymentData->c_last);

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

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

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

```

```

        pOrderStatusData->d_id =
GetIntKeyValue(&ptr, "DID*",
ERR_ORDERSTATUS_MISSING_DID_KEY,
ERR_ORDERSTATUS_DID_INVALID);
        GetKeyValue(&ptr, "CID*", szTmp,
sizeof(szTmp),
ERR_ORDERSTATUS_MISSING_CID_KEY);
        if ( szTmp[0] == 0 )
            { // customer id is
blank, so last name must be entered
            pOrderStatusData->
>c_id = 0;
            GetKeyValue(&ptr,
"CLT*", szTmp, sizeof(szTmp),
ERR_ORDERSTATUS_MISSING_CLT_KEY);
            if ( szTmp[0] == 0 )
                throw
new CWEBCLNT_ERR(
ERR_ORDERSTATUS_MISSING_CID_CLT );
            _strupr( szTmp );
            if ( strlen(szTmp) >
LAST_NAME_LEN )
                throw
new CWEBCLNT_ERR(
ERR_ORDERSTATUS_CLT_RANGE );
            strcpy(pOrderStatusData->c_last,
szTmp);
            // pad with spaces so
that the client layer doesn't have to do it
            // before passing
parameters to stored procedure
            iLen =
strlen(pOrderStatusData->c_last);
            memset(pOrderStatusData->c_last
+ iLen, ' ', LAST_NAME_LEN - iLen);
            pOrderStatusData->
>c_last[LAST_NAME_LEN] = 0;
            }
        else
        { // parse customer id
and verify that last name was NOT entered
        if ( !IsNumeric(szTmp) )
            throw
new CWEBCLNT_ERR(
ERR_ORDERSTATUS_CID_INVALID );
        pOrderStatusData->
>c_id = atoi(szTmp);
        GetKeyValue(&ptr,
"CLT*", szTmp, sizeof(szTmp),
ERR_ORDERSTATUS_MISSING_CLT_KEY);
        if ( szTmp[0] != 0 )
            throw
new CWEBCLNT_ERR(
ERR_ORDERSTATUS_CID_AND_CLT );
        }
    }

/* FUNCTION: BOOL IsNumeric(char *ptr)
*
* PURPOSE: This function determines if a string
is numeric. It fails if any characters other
than
numeric and null terminator are present.
*
* ARGUMENTS:    char
                *ptr        pointer
to string to check.
*

```

```

* RETURNS:      BOOL        FALSE
*              if string is not all numeric
                TRUE
                if string contains only numeric
characters i.e. '0' - '9'
*/
BOOL IsNumeric(char *ptr)
{
    if ( *ptr == 0 )
        return FALSE;
    while( *ptr && isdigit(*ptr) )
        ptr++;
    return ( !*ptr );
}

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

    if ( *ptr == 0 )
        return FALSE;

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

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

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

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

```

```

}

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

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

#include <sqltypes.h>

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

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

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

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

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

```

```

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

#define LEN_ERR_STRING 256

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

char
szMyComputerName[MAX_COMPUTERNAME_LENGTH+1];

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

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

static CRITICAL_SECTION
TermCriticalSection;

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

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

// For deferred Delivery txns:
CTxnLog
*txnDelilog = NULL;
//used
to log delivery transaction information

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

// configuration settings from registry
TPCCREGISTRYDATA Reg;

DWORD
dwNumDeliveryThreads = 4;

```

```

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

// Critical section to synchronize connection open
and close.
//
CRITICAL_SECTION hConnectCriticalSection;

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

/* FUNCTION: DIIMain
 *
 * PURPOSE: This function is the entry point for
the DLL. This implementation is based on the
fact that
DLL_PROCESS_ATTACH is only called from the
inet service once.
 *
 * ARGUMENTS: HANDLE hModule
module handle
 *
DWORD ul_reason_for_call
reason for call
 *
LPVOID lpReserved
reserved for future
use
 *
 * RETURNS: BOOL FALSE
errors occurred in initialization
 *
TRUE
DLL successfully initialized
 */
BOOL APIENTRY DIIMain(HANDLE hModule,
DWORD ul_reason_for_call, LPVOID lpReserved)
{
DWORD i;
char szEvent[LEN_ERR_STRING] =
"\0";
char szLogFile[128];
char szDllName[128];

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

try
{
switch(
ul_reason_for_call )

```

```

        {
            case
DLL_PROCESS_ATTACH:
        {
            DWORD dwSize =
MAX_COMPUTERNAME_LENGTH+1;

            GetComputerName(szMyComputerN
ame, &dwSize);

            szMyComputerName[dwSize] = 0;
        }

        DisableThreadLibraryCalls((HMODU
LE)hModule);

        InitializeCriticalSection(&TermCritica
lSection);

        if ( ReadTPCCRegistrySettings(
&Reg ) )

            throw new
CWEBCLNT_ERR(
ERR_MISSING_REGISTRY_ENTRIES );

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

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

            TermInit();

            // load DLL for bxn monitor
            if (Reg.eTxnMon == TUXEDO)
            {
                strcpy( szDllName,
Reg.szPath );

                strcat( szDllName,
"tpcc_tuxedo.dll");

                hLibInstanceTm =
LoadLibrary( szDllName );

                if (hLibInstanceTm
== NULL)

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

                // get function pointer
to wrapper for class constructor

```

```

            pCTPCC_TUXEDO_new =
(TYPE_CTPCC_TUXEDO*)
GetProcAddress(hLibInstanceTm,"CTPCC_TUXED
O_new");

            if
(pCTPCC_TUXEDO_new == NULL)

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

            else if (Reg.eTxnMon == ENCINA)
            {
                strcpy( szDllName,
Reg.szPath );

                strcat( szDllName,
"tpcc_encina.dll");

                hLibInstanceTm =
LoadLibrary( szDllName );

                if (hLibInstanceTm
== NULL)

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

                // get function pointer
to wrapper for class constructor

                pCTPCC_ENCINA_new
= (TYPE_CTPCC_ENCINA*)
GetProcAddress(hLibInstanceTm,"CTPCC_ENCIN
A_new");

                pCTPCC_ENCINA_post_init =
(TYPE_CTPCC_ENCINA*)
GetProcAddress(hLibInstanceTm,"CTPCC_ENCIN
A_post_init");

                if
(pCTPCC_ENCINA_new == NULL)

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

            else if (Reg.eTxnMon == COM)
            {
                strcpy( szDllName,
Reg.szPath );

                strcat( szDllName,
"tpcc_com.dll");

                hLibInstanceTm =
LoadLibrary( szDllName );

                if (hLibInstanceTm
== NULL)

```

```

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

                // get function pointer
to wrapper for class constructor

                pCTPCC_COM_new =
(TYPE_CTPCC_COM*)
GetProcAddress(hLibInstanceTm,"CTPCC_COM_n
ew");

                if (pCTPCC_COM_new
== NULL)

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

                // load DLL for database connection
                if ((Reg.eTxnMon == None) ||
(dwNumDeliveryThreads > 0))
                {
                    if (Reg.eDB_Protocol
== DBLIB)
                    {
                        strcpy(
szDllName, Reg.szPath );

                        strcat(
szDllName, "tpcc_dblib.dll");

                        hLibInstanceDb = LoadLibrary(
szDllName );

                        if
(hLibInstanceDb == NULL)

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

                            // get
function pointer to wrapper for class constructor

                            pCTPCC_DBLIB_new =
(TYPE_CTPCC_DBLIB*)
GetProcAddress(hLibInstanceDb,"CTPCC_DBLIB_
new");

                            if
(pCTPCC_DBLIB_new == NULL)

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

```

```

else if
(Reg.eDB_Protocol == ODBC)
{
    strcpy(
szDllName, Reg.szPath );
    strcat(
szDllName, "tpcc_odbc.dll");
    hLibInstanceDb = LoadLibrary(
szDllName );
    if
(hLibInstanceDb == NULL)
        throw new CWEBCLNT_ERR(
ERR_LOADDLL_FAILED, szDllName,
GetLastError() );
    // get
function pointer to wrapper for class constructor
    pCTPCC_ODBC_new =
(TYPE_CTPCC_ODBC*)
GetProcAddress(hLibInstanceDb, "CTPCC_ODBC_
new");
    if
(pCTPCC_ODBC_new == NULL)
        throw new CWEBCLNT_ERR(
ERR_GETPROCADDR_FAILED, szDllName,
GetLastError() );
}
}
if (dwNumDeliveryThreads)
{
    // Initialize delivery
delay critical section
    //
    InitializeCriticalSection(&hConnectC
riticalSection);
    // for deferred
delivery txns:
    hDoneEvent =
CreateEvent( NULL, TRUE /* manual reset */,
FALSE /* initially not signalled */, NULL );
    InitializeCriticalSection(&DelBuffCritic
alSection);

```

```

hWorkerSemaphore =
CreateSemaphore( NULL, 0, dwDelBuffSize, NULL
);
dwDelBuffFreeCount
= dwDelBuffSize;
    InitJulianTime(NULL);
    // create unique log
file name based on delilog-yymmdd-hhmm.log
    SYSTEMTIME Time;
    GetLocalTime( &Time
);
    wsprintf( szLogFile,
"%sdelivery-%2.2d%2.2d-%2.2d-%2.2d-%2.2d-
%2.2ds%2.2dms.log",
    Reg.szPath, Time.wYear % 100,
Time.wMonth, Time.wDay, Time.wHour,
Time.wMinute, Time.wSecond,
Time.wMilliseconds );
    txnDelilog = new
CTxnLog(szLogFile, TXN_LOG_WRITE);
    //write event into txn
log for START
    txnDelilog-
>WriteCtrlRecToLog(TXN_EVENT_START,
szMyComputerName,
sizeof(szMyComputerName));
    // allocate structures
for delivery buffers and thread mgmt
    pDeliHandles = new
HANDLE[dwNumDeliveryThreads];
    pDelBuff = new
DELIVERY_TRANSACTION[dwDelBuffSize];
    // launch
DeliveryWorkerThread to perform actual delivery
txns
    for(i=0;
i<dwNumDeliveryThreads; i++)
    {
        pDeliHandles[i] = (HANDLE)
_beginthread( DeliveryWorkerThread, 0, NULL );
        if
(pDeliHandles[i] == INVALID_HANDLE_VALUE)
            throw new CWEBCLNT_ERR(
ERR_DELIVERY_THREAD_FAILED );
    }
}

```

```

break;
case
DLL_PROCESS_DETACH:
    if (dwNumDeliveryThreads)
    {
        if (txnDelilog !=
NULL)
            //write
event into txn log for STOP
            txnDelilog-
>WriteCtrlRecToLog(TXN_EVENT_STOP,
szMyComputerName,
sizeof(szMyComputerName));
            // This
will do a clean shutdown of the delivery log file
            CTxnLog
*txnDelilogLocal = txnDelilog;
            txnDelilog= NULL;
            delete
txnDelilogLocal;
        }
        delete []
pDeliHandles;
        delete [] pDelBuff;
        CloseHandle(
hWorkerSemaphore );
        CloseHandle(
hDoneEvent );
        DeleteCriticalSection(&DelBuffCritic
alSection);
        // Delete delivery
delay critical section
        //
        DeleteCriticalSection(&hConnectCritic
alSection);
        DeleteCriticalSection(&TermCriticalS
ection);
        if (hLibInstanceTm != NULL)

```

```

        FreeLibrary(
hLibInstanceTm );

        hLibInstanceTm = NULL;

        if (hLibInstanceDb != NULL)

                FreeLibrary(
hLibInstanceDb );

        hLibInstanceDb = NULL;

        Sleep(500);

        break;

                                default:

        /* nothing */;
    }
}
catch (CBaseErr *e)
{
        TCHAR szMsg[256];

        _sntprintf(szMsg,
sizeof(szMsg), "%s error, code %d: %s",
e->ErrorTypeStr(), e->ErrorNum(),
e->ErrorText());

        WriteMessageToEventLog( szMsg );
        delete e;

        TerminateExtension(0);
        return FALSE;
}
catch (...)
{
        WriteMessageToEventLog(TEXT("U
nhandled exception. DLL could not load."));

        TerminateExtension(0);
        return FALSE;
}

        return TRUE;
}

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

BOOL WINAPI
GetExtensionVersion(HSE_VERSION_INFO *pVer)
{
        pVer->dwExtensionVersion =
MAKELONG(HSE_VERSION_MINOR,
HSE_VERSION_MAJOR);

```

```

        Istrcpyn(pVer->lpszExtensionDesc,
"TPC-C Server.",
HSE_MAX_EXT_DLL_NAME_LEN);
        // TODO: why do we need this here
instead of in the DLL attach?
        if (Reg.eTxnMon == ENCINA)

                pCTPCC_ENCINA_post_init();

        return TRUE;
}

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

BOOL WINAPI TerminateExtension( DWORD
dwFlags )
{
        if (pDeliHandles)
        {
                SetEvent( hDoneEvent
);

                for(DWORD i=0;
i<dwNumDeliveryThreads; i++)

                        WaitForSingleObject(
pDeliHandles[i], INFINITE );

                TermDeleteAll();
                return TRUE;
        }

/* FUNCTION: HttpExtensionProc
*
* PURPOSE: This function is the main entry point
for the TPCC DLL. The internet service
calls this
function passing in the http string.
*
* ARGUMENTS:
        EXTENSION_CONTROL_BLOCK
        *pECB      structure pointer to
passed in internet
service
information.
*
* RETURNS:        DWORD
HSE_STATUS_SUCCESS

        connection can be dropped if error

*
        HSE_STATUS_SUCCESS_AND_KEEP
_CONN      keep connect valid comment sent
*
* COMMENTS:      None
*/

DWORD WINAPI
HttpExtensionProc(EXTENSION_CONTROL_BLOC
K *pECB)

```

```

{
        int
iCmd, FormId, TermId, iSyncId;
        char
szBuffer[4096];

        int
lpbSize;
        static char  szHeader[] = "200
Ok";

        DWORD      dwSize
= 6; // initial value is
strlen(szHeader)
        char
szHeader1[4096];

#ifdef ICECAP
        StartCAP();
#endif

        try
        {
                //process http query

                ProcessQueryString(pECB, &iCmd,
&FormId, &TermId, &iSyncId);

                if (TermId != 0)
                {
                        if (
TermId < 0 || TermId >= Term.iNumEntries ||
Term.pClientData[TermId].iNextFree != -1 )
                        {
                                // debugging...

                                char szTmp[128];

                                wsprintf( szTmp, "Invalid term ID;
TermId = %d", TermId );

                                WriteMessageToEventLog( szTmp );

                                throw new CWEBCLNT_ERR(
ERR_INVALID_TERMID );
                        }

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

                                throw new CWEBCLNT_ERR(
ERR_INVALID_SYNC_CONNECTION );

                        //set use
time

                                Term.pClientData[TermId].iTickCou
nt = GetTickCount();
                }

                switch(iCmd)
                {
                        case 0:

                                WelcomeForm(pECB, szBuffer);
                                break;

                        case 1:

                                switch(
FormId )
                                {

```

```

case WELCOME_FORM:
case MAIN_MENU_FORM:
    break;
case NEW_ORDER_FORM:
    ProcessNewOrderForm(pECB,
TermId, szBuffer);
    break;
case PAYMENT_FORM:
    ProcessPaymentForm(pECB,
TermId, szBuffer);
    break;
case DELIVERY_FORM:
    ProcessDeliveryForm(pECB, TermId,
szBuffer);
    break;
case ORDER_STATUS_FORM:
    ProcessOrderStatusForm(pECB,
TermId, szBuffer);
    break;
case STOCK_LEVEL_FORM:
    ProcessStockLevelForm(pECB,
TermId, szBuffer);
    break;
}
case 2:
    // new-
order selected from menu; display new-order
input form
    MakeNewOrderForm(TermId, NULL,
INPUT_FORM, szBuffer);
    break;
case 3:
    //
payment selected from menu; display payment
input form
    MakePaymentForm(TermId, NULL,
INPUT_FORM, szBuffer);
    break;
case 4:
    //
delivery selected from menu; display delivery
input form
    MakeDeliveryForm(TermId, NULL,
INPUT_FORM, szBuffer);
    break;
case 5:

```

```

// order-
status selected from menu; display order-status
input form
    MakeOrderStatusForm(TermId,
NULL, INPUT_FORM, szBuffer);
    break;
case 6:
    // stock-
level selected from menu; display stock-level
input form
    MakeStockLevelForm(TermId,
NULL, INPUT_FORM, szBuffer);
    break;
case 7:
    //
ExitCmd
    TermDelete(TermId);
    WelcomeForm(pECB, szBuffer);
    break;
case 8:
    SubmitCmd(pECB, szBuffer);
    break;
case 9:
    // menu
    MakeMainMenuForm(TermId,
Term.pClientData[TermId].iSyncId, szBuffer);
    break;
case 10:
    //
CMD=Clear
    // resets
all connections; should only be used when no
other connections are active
    TermDeleteAll();
    TermInit();
    WelcomeForm(pECB, szBuffer);
    break;
case 11:
    //
CMD=Stats
    StatsCmd(pECB, szBuffer);
    break;
}
catch (CBaseErr *e)
{
    ErrorForm( pECB, e-
>ErrorType(), e->ErrorNum(), TermId, iSyncId,
e->ErrorText(), szBuffer );
    delete e;
}
catch (...)
{
    ErrorForm( pECB,
ERR_TYPE_WEBDLL, 0, TermId, iSyncId, "Error:
Unhandled exception in Web Client.", szBuffer );
}
#ifdef ICECAP
    StopCAP();
#endif
lpbSize = strlen(szBuffer);
wsprintf(szHeader1,
"Content-Type: text/html\r\n"

```

```

"Content-Length: %d\r\n"
"Connection: Keep-Alive\r\n\r\n" ,
lpbSize);
    strcat( szHeader1, szBuffer );
    (*pECB-
>ServerSupportFunction)(pECB->ConnID,
HSE_REQ_SEND_RESPONSE_HEADER, szHeader,
(LPDWORD) &dwSize, (LPDWORD)szHeader1);
    //finish up and keep connection
pECB->dwHttpStatusCode = 200;
return
HSE_STATUS_SUCCESS_AND_KEEP_CONN;
}
void WriteMessageToEventLog(LPTSTR lpszMsg)
{
    TCHAR szMsg[256];
    HANDLE hEventSource;
    LPTSTR lpszStrings[2];
    // Use event logging to log the error.
    //
    hEventSource = RegisterEventSource(NULL,
TEXT("TPCC.DLL"));
    _stprintf(szMsg, TEXT("Error in TPCC.DLL: "));
    lpszStrings[0] = szMsg;
    lpszStrings[1] = lpszMsg;
    if (hEventSource != NULL)
    {
        ReportEvent(hEventSource, // handle of
event source
        EVENTLOG_ERROR_TYPE, // event type
        0, // event category
        0, // event ID
        NULL, // current user's SID
        2, // strings in lpszStrings
        0, // no bytes of raw data
        (LPTSTR *)lpszStrings, // array of
error strings
        NULL); // no raw data
    }
    (VOID)
DeregisterEventSource(hEventSource);
}
}
/* FUNCTION: DeliveryWorkerThread
*
* PURPOSE: This function processes deferred
delivery txns. There are typically several
* threads
running this routine. The number of threads is
determined by an entry
* read
from the registry. The thread waits for work by
waiting on semaphore.
* When a
delivery txn is posted, the semaphore is released.
After processing
* the
delivery txn, information is logged to record the
txn status and execution
* time.
*/
/*static*/ void DeliveryWorkerThread(void *ptr)
{

```

```

NULL; CTPCC_BASE *pTxn =

DELIVERY_TRANSACTION
delivery;
PDELIVERY_DATA

pDeliveryData;
TXN_RECORD_TPCC_DELIV_DEF
txnDeliRec;

DWORD index;
HANDLE

handles[2];

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

assert(txnDeliLog != NULL);

try
{
    if (Reg.eDB_Protocol
== ODBC)
    {
        if
(Reg.dwConnectDelay > 0)
        {
            // Synchronize connect (for VIA)

            //
            EnterCriticalSection(&hConnectCriticalSection);

            Sleep(Reg.dwConnectDelay);

            pTxn = pCTPCC_ODBC_new(
Reg.szDbServer, Reg.szDbUser,
Reg.szDbPassword,

            szMyComputerName,
Reg.szDbName,

            Reg.szSPPrefix,
Reg.bCallNoDuplicatesNewOrder );

            LeaveCriticalSection(&hConnectCriticalSection);
        }
        else
        {
            if
(Reg.eDB_Protocol == DBLIB)

            pTxn = pCTPCC_DBLIB_new(
Reg.szDbServer, Reg.szDbUser,
Reg.szDbPassword, szMyComputerName,
Reg.szDbName );
        }
    }
}

```

```

pDeliveryData =
pTxn->BuffAddr_Delivery();
catch (CBaseErr *e)
{
    char szTmp[1024];
    wsprintf( szTmp,
"Error in Delivery Txn thread. Could not connect
to database. "

"%s. Server=%s, User=%s,
Password=%s, Database=%s",

e->ErrorText(), Reg.szDbServer,
Reg.szDbUser, Reg.szDbPassword,
Reg.szDbName );

    WriteMessageToEventLog( szTmp );
    delete e;
    goto ErrorExit;
}
catch (...)
{
    WriteMessageToEventLog(TEXT("U
nhandled exception caught in
DeliveryWorkerThread."));
    goto ErrorExit;
}

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

        while
(TRUE)
        {
            // need to wait for multiple objects:
            program exit or worker semaphore;

            handles[0] = hNoneEvent;

            handles[1] = hWorkerSemaphore;

            index = WaitForMultipleObjects( 2,
&handles[0], FALSE, INFINITE );

            if (index == WAIT_OBJECT_0)
                goto ErrorExit;

            ZeroMemory(&txnDeliRec,
sizeof(txnDeliRec));

            txnDeliRec.TxnType =
TXN_REC_TYPE_TPCC_DELIV_DEF;

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

            EnterCriticalSection(&DelBuffCritical
Section);

            delivery =
*(pDelBuff+dwDelBuffBusyIndex);

            dwDelBuffFreeCount++;

            dwDelBuffBusyIndex++;
        }
    }
}

```

```

if (dwDelBuffBusyIndex ==
dwDelBuffSize) // wrap-around if at
end of buffer
    dwDelBuffBusyIndex
= 0;

LeaveCriticalSection(&DelBuffCritical
Section);

pDeliveryData->w_id =
delivery.w_id;

pDeliveryData->o_carrier_id =
delivery.o_carrier_id;

txnDeliRec.w_id = pDeliveryData-
>w_id;

txnDeliRec.o_carrier_id =
pDeliveryData->o_carrier_id;

txnDeliRec.TxnStartT0 =
Get64BitTime(&delivery.queueue);

GetLocalTime( &trans_start );

pTxn->Delivery();

GetLocalTime( &trans_end );

//log txn

txnDeliRec.TxnStatus =
ERR_SUCCESS;

for (int i=0; i<10; i++)

    txnDeliRec.o_id[i] =
pDeliveryData->o_id[i];

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

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

if (txnDeliLog != NULL)

    txnDeliLog-
>WriteToLog(&txnDeliRec);
}
catch (CBaseErr *e)
{
    char
szTmp[1024];
    wsprintf(
szTmp, "%s Error (code %d) in Delivery Txn
thread. %s",

e->ErrorTypeStr(),
e->ErrorNum(), e->ErrorText() );

    WriteMessageToEventLog( szTmp );
}

```



```

// log
the error txn
    txnDelRec.TxnStatus = e-
->ErrorType();
    if
(txnDelilog != NULL)
        txnDelilog-
->WriteToLog(&txnDelRec);
        delete e;
    }
    catch (...)
    {
//
unhandled exception; shouldn't happen; not
much we can do...
        WriteMessageToEventLog(TEXT("U
nhandled exception caught in
DeliveryWorkerThread.));
    }
}
ErrorExit:
    if (Reg.dwConnectDelay > 0)
    {
// Synchronize
disconnect (for VIA)
//
        EnterCriticalSection(&hConnectCriti
calSection);
        Sleep(Reg.dwConnectDelay);
        delete pTxn;
        LeaveCriticalSection(&hConnectCriti
calSection);
    }
    _endthread();
}
/* FUNCTION: PostDeliveryInfo
*
* PURPOSE: This function enters the delivery txn
into the deferred delivery buffer.
*
* RETURNS:          BOOL    FALSE
                  delivery information posted
successfully
*
                  TRUE
                  error cannot post delivery info
*/
BOOL PostDeliveryInfo(long w_id, short
o_carrier_id)
{
    BOOL bError;
    EnterCriticalSection(&DelBuffCritical
Section);
    if (dwDelBuffFreeCount > 0)
    {
        bError = FALSE;
        (pDelBuff+dwDelBuffFreeIndex)-
->w_id
= w_id;

```

```

(pDelBuff+dwDelBuffFreeIndex)-
->o_carrier_id= o_carrier_id;
        GetLocalTime(&(pDelBuff+dwDelBu
ffFreeIndex)->queue);
    ;
        dwDelBuffFreeCount--
;
        dwDelBuffFreeIndex++;
        if
(dwDelBuffFreeIndex == dwDelBuffSize)
            dwDelBuffFreeIndex = 0;
        // wrap-around if at end of buffer
    }
    else
        // No free buffers.
        Return an error, which indicates that the delivery
buffer is full.
        // Most likely, the
        number of delivery worker threads needs to be
        increased to keep up
        // with the txn rate.
        bError = TRUE;
        LeaveCriticalSection(&DelBuffCritical
Section);
        if (!bError)
            // increment worker
            semaphore to wake up a worker thread
            ReleaseSemaphore(
hWorkerSemaphore, 1, NULL );
        return bError;
    }
}
/* FUNCTION: ProcessQueryString
*
* PURPOSE: This function extracts the relevent
information out of the http command passed in
from
the
browser.
*
* COMMENTS:      If this is the initial
connection i.e. client is at welcome screen then
there will not be a terminal id or
current form id. If this is the case
then the pTermid and pFormid
return values are undefined.
*/
void
ProcessQueryString(EXTENSION_CONTROL_BLO
CK *pECB, int *pCmd, int *pFormId, int
*pTermId, int *pSyncId)
{
    char *ptr = pECB-
->lpszQueryString;
    char szBuffer[25];
    int i;
    //allowable client command strings
    i.e. CMD=command
    static char *szCmds[] =
    {
        "Process",
        "..NewOrder..", "..Payment..", "..Delivery..",
        "..Order-Status..", "..Stock-Level..",
        "..Exit..", "Submit",
        "Menu", "Clear", "Stats", ""
    };

```

```

*pCmd = 0;
// default is the login screen
*pTermId = 0;
// if no params (i.e., empty query
string), then return login screen
if (strlen(pECB->lpszQueryString)
== 0)
    return;
// parse FORMID, TERMID, and
SYNCID
*pFormId = GetIntKeyValue(&ptr,
"FORMID", NO_ERR, NO_ERR);
*pTermId = GetIntKeyValue(&ptr,
"TERMID", NO_ERR, NO_ERR);
*pSyncId = GetIntKeyValue(&ptr,
"SYNCID", NO_ERR, NO_ERR);
// parse CMD
GetIntKeyValue(&ptr, "CMD", szBuffer,
sizeof(szBuffer), ERR_COMMAND_UNDEFINED);
// see which command it matches
for(i=0; ; i++)
{
    if (szCmds[i][0] == 0)
        // no
        throw
new CWEBCLNT_ERR(
ERR_COMMAND_UNDEFINED );
    if ( !strcmp(szCmds[i],
szBuffer) )
        *pCmd
= i+1;
        break;
    }
}
/* FUNCTION: void WelcomeForm
*
*/
void
WelcomeForm(EXTENSION_CONTROL_BLOCK
*pECB, char *szBuffer)
{
    char szTmp[1024];
    //welcome to tpc-c html form
buffer, this is first form client sees.
    strcpy( szBuffer,
"<HTML><HEAD><TITLE>TPC-C
Web Client</TITLE></HEAD><BODY>"
"<B><BIG>Microsoft TPC-C Web
Client (ver 4.20)</BIG></B> <BR> <BR>"
" <font
face=\"Courier New\"><PRE>"
"Compiled: " "__DATE__",
"__TIME__ " <BR>"
"Source:
"__FILE__ ("__TIMESTAMP__") <BR>"
"</PRE></font>"

```

```

" <FORM
ACTION=\tpcc.dll" METHOD=\GET">"
" <INPUT
TYPE=\hidden\ NAME=\STATUSID\
VALUE=\0">"
" <INPUT
TYPE=\hidden\ NAME=\ERROR\
VALUE=\0">"
" <INPUT
TYPE=\hidden\ NAME=\FORMID\
VALUE=\1">"
" <INPUT
TYPE=\hidden\ NAME=\TERMid\
VALUE=\0">"
" <INPUT
TYPE=\hidden\ NAME=\SYNCID\
VALUE=\0">"
" <INPUT
TYPE=\hidden\ NAME=\VERSION\ VALUE=\""
WEBCLIENT_VERSION "\">"
);
    sprintf( szTmp,
    "Configuration Settings: <BR><font
face=\Courier New\ color=\blue\ "><PRE>"
    "Txn Monitor
= <B>%s</B><BR>"
    "Database protocol
= <B>%s</B><BR>"
    "Max Connections
= <B>%d</B><BR>"
    "# of Delivery
Threads = <B>%d</B><BR>"
    "Max Pending
Deliveries = <B>%d</B><BR>"
    ,
    szTxnMonNames[Reg.eTxnMon],
    szDBNames[Reg.eDB_Protocol],
    Reg.dwMaxConnections,
    dwNumDeliveryThreads, dwDelBuffSize );
    strcat( szBuffer, szTmp);
    if (Reg.eTxnMon == COM)
    {
        sprintf( szTmp,
        "COM Single Pool
=
<B>%s</B><BR>",
        Reg.bCOM_SinglePool ? "YES" :
"NO" );
        strcat( szBuffer,
szTmp);
    }
    strcat( szBuffer,
" </PRE></font>");
    if (Reg.eTxnMon == None)
    // connection options
    may be specified when not using a txn monitor
    sprintf( szTmp,
    "Please enter your database options
for this connection:<BR>"

```

```

" <font
face=\Courier New\ color=\blue\ "><PRE>"
"DB
Server = <INPUT NAME=\db_server\
SIZE=20 VALUE=\%s\ "><BR>"
"DB User
ID = <INPUT NAME=\db_user\ SIZE=20
VALUE=\%s\ "><BR>"
"DB
Password = <INPUT NAME=\db_passwd\
SIZE=20 VALUE=\%s\ "><BR>"
"DB
Name = <INPUT NAME=\db_name\
SIZE=20 VALUE=\%s\ "><BR>"
" </PRE></font>"
, Reg.szDbServer, Reg.szDbUser,
Reg.szDbPassword, Reg.szDbName );
else
    // if using a txn
    monitor, connection options are determined from
    registry; can't
    // set per user. show
    options fyi
    sprintf( szTmp,
    "Database options which will be
used by the transaction monitor:<BR>"
    " <font
face=\Courier New\ color=\blue\ "><PRE>"
"DB
Server = <B>%s</B><BR>"
"DB User
ID = <B>%s</B><BR>"
"DB
Password = <B>%s</B><BR>"
"DB
Name = <B>%s</B><BR>"
" </PRE></font>"
, Reg.szDbServer, Reg.szDbUser,
Reg.szDbPassword, Reg.szDbName );
    strcat( szBuffer, szTmp);
    sprintf( szTmp,
    "Please
enter your Warehouse and District for this
session:<BR>"
    " <font face=\Courier
New\ color=\blue\ "><PRE>" );
    strcat( szBuffer, szTmp);
    strcat( szBuffer,
"Warehouse ID = <INPUT
NAME=\w_id\ SIZE=6><BR>"
"District
ID = <INPUT NAME=\d_id\ SIZE=2><BR>"
" </PRE></font><HR>"

```

```

" <INPUT
TYPE=\submit\ NAME=\CMD\
VALUE=\Submit">"
" </FORM></BODY></HTML>";
}
/* FUNCTION: SubmitCmd
*
* PURPOSE: This function allocated a new
terminal id in the Term structure array.
*
*/
void SubmitCmd(EXTENSION_CONTROL_BLOCK
*pECB, char *szBuffer)
{
    int
    iNewTerm;
    char
    *ptr = pECB-
>lpszQueryString;
    char
    szVersion[32]
    = { 0 };
    char
    szServer[32] = { 0 };
    char
    szUser[32]
    = "sa";
    char
    szPassword[32]
    = { 0 };
    char
    szDatabase[32]
    = "tpcc";
    // validate version field; the version
    field ensures that the RTE is synchronized with
    the web client
    GetKeyValue(&ptr, "VERSION",
szVersion, sizeof(szVersion),
ERR_VERSION_MISMATCH);
    if ( strcmp( szVersion,
WEBCLIENT_VERSION ) )
        throw new
CWEBCLNT_ERR( ERR_VERSION_MISMATCH );
    if (Reg.eTxnMon == None)
    {
        // parse Server name
        GetKeyValue(&ptr,
"db_server", szServer, sizeof(szServer),
ERR_NO_SERVER_SPECIFIED);
        // parse User name
        GetKeyValue(&ptr,
"db_user", szUser, sizeof(szUser), NO_ERR);
        // parse Password
        GetKeyValue(&ptr,
"db_passwd", szPassword, sizeof(szPassword),
NO_ERR);
        // parse Database
        name
        GetKeyValue(&ptr,
"db_name", szDatabase, sizeof(szDatabase),
NO_ERR);
    }
    // parse warehouse ID
    int w_id = GetIntKeyValue(&ptr,
"w_id", ERR_HTML_ILL_FORMED,
ERR_W_ID_INVALID);
    if ( w_id < 1 )
        throw new
CWEBCLNT_ERR( ERR_W_ID_INVALID );
    // parse district ID

```

```

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

        iNewTerm = TermAdd();
        Term.pClientData[iNewTerm].w_id
        = w_id;
        Term.pClientData[iNewTerm].d_id
        = d_id;

        try
        {
            if (Reg.eTxnMon ==
            TUXEDO)

                Term.pClientData[iNewTerm].pTxn
                = pCTPCC_TUXEDO_new();
            else if (Reg.eTxnMon
            == ENCINA)

                Term.pClientData[iNewTerm].pTxn
                = pCTPCC_ENCINA_new();
            else if (Reg.eTxnMon
            == COM)

                Term.pClientData[iNewTerm].pTxn
                = pCTPCC_COM_new( Reg.bCOM_SinglePool );
            else if
            (Reg.eDB_Protocol == ODBC)

                Term.pClientData[iNewTerm].pTxn
                = pCTPCC_ODBC_new( szServer, szUser,
                szPassword, szMyComputerName,

                szDatabase, Reg.szSPPrefix,

                Reg.bCallNoDuplicatesNewOrder );
            else if
            (Reg.eDB_Protocol == DBLIB)

                Term.pClientData[iNewTerm].pTxn
                = pCTPCC_DBLIB_new( szServer, szUser,
                szPassword, szMyComputerName, szDatabase );
        }
        catch (...)
        {
            TermDelete(iNewTerm);
            throw;
            // pass exception upward
        }

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

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

```

```

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

        EnterCriticalSection(&TermCriticalSe
        ction);

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

                iTTotal++;
        }

        LeaveCriticalSection(&TermCriticalS
        ection);

        wsprintf( szBuffer,

        "<HTML><HEAD><TITLE>TPC-C
        Web Client Stats</TITLE></HEAD>"

        "<BODY><B><BIG> Total Active
        Connections: %d
        </BIG></B><BR></BODY></HTML>"
        , iTTotal
        );
    }

    char *CWEBCLNT_ERR::ErrorText()
    {
        static SERRORMSG errorMsgs[] =
        {
            {
                ERR_COMMAND_UNDEFINED,

                "Command
                undefined."
            },
            {
                ERR_D_ID_INVALID,

                "Invalid District ID
                Must be 1 to 10."
            },
            {
                ERR_DELIVERY_CARRIER_ID_RAN
                GE,

                "Delivery
                Carrier ID out of range must be 1 - 10."
            },
            {
                ERR_DELIVERY_CARRIER_INVALID,

                "Delivery
                Carrier ID invalid must be numeric 1 - 10."
            },
            {
                ERR_DELIVERY_MISSING_OCD_KE
                Y,

                "Delivery
                missing Carrier ID key \"OCD*\"."
            },
        },
    }

```

```

        {
            ERR_DELIVERY_THREAD_FAILED,

            "Could not start delivery worker
            thread."
        },
        {
            ERR_GETPROCADDR_FAILED,

            "Could not map proc
            in DLL. GetProcAddr error. DLL="
            },
        {
            ERR_HTML_ILLL_FORMED,

            "Required key field is missing from
            HTML string."
        },
        {
            ERR_INVALID_SYNC_CONNECTION
            ,

            "Invalid
            Terminal Sync ID."
        },
        {
            ERR_INVALID_TERMID,

            "Invalid Terminal ID."
        },
        {
            ERR_LOADDLL_FAILED,

            "Load of DLL failed.
            DLL="
        },
        {
            ERR_MAX_CONNECTIONS_EXCEED
            ED,

            "No
            connections available. Max Connections is
            probably too low."
        },
        {
            ERR_MISSING_REGISTRY_ENTRIES
            ,

            "Required registry entries are
            missing. Rerun INSTALL to correct."
        },
        {
            ERR_NEWORDER_CUSTOMER_INV
            ALID,

            "New
            Order customer id invalid data type, range = 1 to
            3000."
        },
        {
            ERR_NEWORDER_CUSTOMER_KEY,

            "New Order missing Customer key
            \"CID*\"."
        },
        {
            ERR_NEWORDER_DISTRICT_INVAL
            ID,

            "New
            Order District ID Invalid range 1 - 10."
        },
        {
            ERR_NEWORDER_FORM_MISSING_
            DID,

            "New
            Order missing District key \"DID*\"."
        },
    }

```

```

    {
      ERR_NEWORDER_ITEMID_INVALID
      "New
      Order Item Id is wrong data type, must be
      numeric."
    },
    {
      ERR_NEWORDER_ITEMID_RANGE,
      "New Order Item Id is out of range.
      Range = 1 to 999999."
    },
    {
      ERR_NEWORDER_ITEMID_WITHOU
      T_SUPPW, "New Order Item_Id
      field entered without a corresponding Supp_W."
    },
    {
      ERR_NEWORDER_MISSING_IID_KE
      Y, "New
      Order missing Item Id key \"IID*\"."
    },
    {
      ERR_NEWORDER_MISSING_QTY_K
      EY, "New
      Order Missing Qty key \"Qty##*\"."
    },
    {
      ERR_NEWORDER_MISSING_SUPPW
      _KEY, "New
      Order missing Supp_W key \"SP##*\"."
    },
    {
      ERR_NEWORDER_NOITEMS_ENTER
      ED, "New
      Order No order lines entered."
    },
    {
      ERR_NEWORDER_QTY_INVALID,
      "New Order Qty invalid must be
      numeric range 1 - 99."
    },
    {
      ERR_NEWORDER_QTY_RANGE,
      "New Order Qty is out
      of range. Range = 1 to 99."
    },
    {
      ERR_NEWORDER_QTY_WITHOUT_
      SUPPW, "New
      Order Qty field entered without a corresponding
      Supp_W."
    },
    {
      ERR_NEWORDER_SUPPW_INVALID
      "New Order Supp_W invalid data
      type must be numeric."
    },
    {
      ERR_NO_SERVER_SPECIFIED,
      "No Server name specified."
    }
  },

```

```

    {
      ERR_ORDERSTATUS_CID_AND_CLT
      "Order
      Status Only Customer ID or Last Name may be
      entered, not both."
    },
    {
      ERR_ORDERSTATUS_CID_INVALID,
      "Order
      Status Customer ID invalid, range must be
      numeric 1 - 3000."
    },
    {
      ERR_ORDERSTATUS_CLT_RANGE,
      "Order Status Customer last name
      longer than 16 characters."
    },
    {
      ERR_ORDERSTATUS_DID_INVALID,
      "Order
      Status District invalid, value must be numeric 1 -
      10."
    },
    {
      ERR_ORDERSTATUS_MISSING_CID
      _CLT, "Order Status Either
      Customer ID or Last Name must be entered."
    },
    {
      ERR_ORDERSTATUS_MISSING_CID
      _KEY, "Order Status missing
      Customer key \"CID*\"."
    },
    {
      ERR_ORDERSTATUS_MISSING_CLT
      _KEY, "Order Status missing
      Customer Last Name key \"CLT*\"."
    },
    {
      ERR_ORDERSTATUS_MISSING_DID
      _KEY, "Order Status missing
      District key \"DID*\"."
    },
    {
      ERR_PAYMENT_CDI_INVALID,
      "Payment Customer district invalid
      must be numeric."
    },
    {
      ERR_PAYMENT_CID_AND_CLT,
      "Payment Only Customer ID or Last
      Name may be entered, not both."
    },
    {
      ERR_PAYMENT_CUSTOMER_INVALI
      D, "Payment Customer data type
      invalid, must be numeric."
    },
    {
      ERR_PAYMENT_CWI_INVALID,
      "Payment Customer Warehouse
      invalid, must be numeric."
    },
    {
      ERR_PAYMENT_DISTRICT_INVALID
      "Payment District ID is invalid, must
      be 1 - 10."
    }
  },

```

```

    {
      ERR_PAYMENT_HAM_INVALID,
      "Payment Amount invalid data type
      must be numeric."
    },
    {
      ERR_PAYMENT_HAM_RANGE,
      "Payment Amount out
      of range, 0 - 9999.99."
    },
    {
      ERR_PAYMENT_LAST_NAME_TO_L
      ONG, "Payment Customer last name
      longer than 16 characters."
    },
    {
      ERR_PAYMENT_MISSING_CDI_KEY,
      "Payment missing Customer district
      key \"CDI*\"."
    },
    {
      ERR_PAYMENT_MISSING_CID_CLT,
      "Payment Either Customer ID or
      Last Name must be entered."
    },
    {
      ERR_PAYMENT_MISSING_CID_KEY,
      "Payment missing Customer Key
      \"CID*\"."
    },
    {
      ERR_PAYMENT_MISSING_CLT_KEY,
      "Payment missing Customer Last
      Name key \"CLT*\"."
    },
    {
      ERR_PAYMENT_MISSING_CWI_KEY
      "Payment missing Customer
      Warehouse key \"CWI*\"."
    },
    {
      ERR_PAYMENT_MISSING_DID_KEY
      "Payment missing District Key
      \"DID*\"."
    },
    {
      ERR_PAYMENT_MISSING_HAM_KE
      Y, "Payment missing Amount key
      \"HAM*\"."
    },
    {
      ERR_STOCKLEVEL_MISSING_THRE
      SHOLD_KEY, "Stock Level; missing Threshold key
      \"TT*\"."
    },
    {
      ERR_STOCKLEVEL_THRESHOLD_IN
      VALID, "Stock Level;
      Threshold value must be in the range = 1 - 99."
    }
  },

```

```

        {
            ERR_STOCKLEVEL_THRESHOLD_RA
NGE, "Stock
Level Threshold out of range, range must be 1 -
99."
        },
        {
            ERR_VERSION_MISMATCH,
                "Invalid version field.
RTE and Web Client are probably out of sync."
        },
        {
            ERR_W_ID_INVALID,
                "Invalid Warehouse
ID."
        }
    },
    {
        0,
        ""
    }
};

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

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

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

/* FUNCTION: GetKeyValue
*
* PURPOSE: This function parses a http
formatted string for specific key values.
*
* ARGUMENTS:      char
                  *pQueryString
                  http string from client browser

```

```

*
char
*pKey
key value to look for
char
*pValue
character array into which to place
key's value
*
int
iMax
maximum length of
key value array.
*
WEBERROR      err
error value to throw
*
* RETURNS:      nothing.
*
* ERROR:        if (the pKey value is
not found) then
*
if (err == 0)
return
(empty string)
*
else
throw
CWEBCLNT_ERR(err)
*
* COMMENTS:      http keys are
formatted either KEY=value& or KEY=value\0.
This DLL formats
TPC-C input fields in such a manner
that the keys can be extracted in the
above manner.
*/

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

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

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

    *pQueryString = ptr;
    return;

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

```

```

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

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

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

```

```

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

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

        *pQueryString = ptr;
        return atoi(ptr0);

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

/* FUNCTION: TermInit
*
* PURPOSE: This function initializes the client
terminal structure; it is called when the TPCC.DLL
*
* ARGUMENTS: none
*
* RETURNS: None
*
* COMMENTS: This function is called
only when the inet service unloads the TPCC.DLL
*/

void TermInit(void)
{
        EnterCriticalSection(&TermCriticalSe
ction);

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

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

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

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

```

```

        for(int i=0; i<Term.iNumEntries;
i++)
                Term.pClientData[i].iNextFree = i-
1;

        LeaveCriticalSection(&TermCriticalS
ection);
}

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

void TermDeleteAll(void)
{
        EnterCriticalSection(&TermCriticalSe
ction);

        for(int i=1; i<Term.iNumEntries;
i++)
        {
                if
(Term.pClientData[i].iNextFree == -1)
                        delete
Term.pClientData[i].pTxn;
                Term.iFreeList
= 0;
                Term.iNumEntries      = 0;
                if ( Term.pClientData )
                        free(Term.pClientData);
                Term.pClientData      = NULL;

                LeaveCriticalSection(&TermCriticalS
ection);
}

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

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

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

        EnterCriticalSection(&TermCriticalSe
ction);

        if (Term.iFreeList != 0)
        {
                // position is available
                iNewTerm =
Term.iFreeList;

```

```

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

                Term.pClientData[iNewTerm].iTickC
ount = GetTickCount();
                Term.pClientData[iNewTerm].iSyncI
d = Term.iMasterSyncId++;
                Term.pClientData[iNewTerm].pTxn
= NULL;

                LeaveCriticalSection(&TermCriticalS
ection);
                return iNewTerm;
        }

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

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

```

```

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

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

LeaveCriticalSection(&TermCriticalSection);
}
}

/* FUNCTION: MakeErrorForm
*/
void ErrorForm(EXTENSION_CONTROL_BLOCK
*pECB, int iType, int iErrorNum, int iTermId, int
iSyncId, char *szErrorText, char *szBuffer )
{
    wsprintf(szBuffer,

        "<HTML><HEAD><TITLE>TPC-C
Error</TITLE></HEAD><BODY>"
        "<FORM
ACTION=\"tpcc.dll\" METHOD=\"GET\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"STATUSID\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"ERROR\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"FORMID\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"TERMINID\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"SYNCID\"
VALUE=\"%d\">"
        "<BOLD>An Error
Occurred</BOLD><BR><BR>"
        "%s"
        "<BR><BR><HR>"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..NewOrder..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Order-Status..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Stock-Level..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Exit..\">"

        "</FORM></BODY></HTML>"
        , iType, iErrorNum,
MAIN_MENU_FORM, iTermId, iSyncId,
szErrorText );
}

```

```

/*FUNCTION: MakeMainMenuForm

void MakeMainMenuForm(int iTermId, int
iSyncId, char *szForm)
{
    wsprintf(szForm,

        "<HTML><HEAD><TITLE>TPC-C
Main Menu</TITLE></HEAD><BODY>"
        "Select Desired
Transaction.<BR><HR>"
        "<FORM
ACTION=\"tpcc.dll\" METHOD=\"GET\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"STATUSID\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"ERROR\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"FORMID\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"TERMINID\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"SYNCID\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..NewOrder..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Order-Status..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Stock-Level..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Exit..\">"

        "</FORM></BODY></HTML>"
        , MAIN_MENU_FORM,
iTermId, iSyncId);
}

/* FUNCTION: MakeStockLevelForm
*
* PURPOSE: This function constructs the Stock
Level HTML page.
*
* COMMENTS: The internal client
buffer is created when the terminal id is assigned
and should not
*
be freed except when the client
terminal id is no longer needed.
*/
void MakeStockLevelForm(int iTermId,
STOCK_LEVEL_DATA *pStockLevelData, BOOL
bInput, char *szForm)
{
    int c;

    c = wsprintf(szForm,

```

```

"<HTML><HEAD><TITLE>TPC-C
Stock Level</TITLE></HEAD><FORM
ACTION=\"tpcc.dll\" METHOD=\"GET\">"
TYPE=\"hidden\" NAME=\"STATUSID\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"ERROR\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"FORMID\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"TERMINID\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"SYNCID\"
VALUE=\"%d\">"
        "<PRE><font
face=\"Courier\">
Stock-
Level<BR>"
        "Warehouse: %6.6d
District: %2.2d<BR><BR>"
        STOCK_LEVEL_FORM,
iTermId, Term.pClientData[iTermId].iSyncId,
Term.pClientData[iTermId].w_id,
Term.pClientData[iTermId].d_id);

    if ( bInput )
    {
        strcpy(szForm+c,

            "Stock
Level Threshold: <INPUT NAME=\"TT*\"
SIZE=2><BR><BR>"
            "low
stock: </font><BR><BR><BR><BR>
<BR><BR><BR><BR><BR><BR>"
            "<BR>
<BR><BR><BR><BR><BR>
<BR></PRE><HR>"
            "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Process\">"
            "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Menu\">"

            "</FORM></HTML>" );
    }
    else
    {
        wsprintf(szForm+c,

            "Stock
Level Threshold: %2.2d<BR><BR>"
            "low
stock: %3.3d</font><BR><BR><BR><BR>
<BR><BR><BR><BR><BR><BR>"
            "<BR>
<BR><BR><BR><BR><BR>
<BR></PRE><HR>"
            "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..NewOrder..\">"
            "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"
            "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"
            "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Order-Status..\">"

```

```

" <INPUT
TYPE="submit" NAME="CMD"
VALUE="..Stock-Level..">
" <INPUT
TYPE="submit" NAME="CMD"
VALUE="..Exit..">
" </FORM></HTML>"

pStockLevelData->threshold, pStockLevelData-
>low_stock);
}
}

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

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

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

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

c = sprintf(szForm,

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

if ( bInput )
{

```

```

c +=
sprintf(szForm+c, "Warehouse: %6.6d ",
Term.pClientData[iTermId].w_id );
strcpy( szForm+c,
"District:
" <INPUT NAME="DID" SIZE=1>
Date: <BR>"

"Customer: <INPUT
NAME="CID" SIZE=4> Name:
Credit: %Disc: <BR>"

"Order
Number: Number of Lines: W_tax:
D_tax: <BR> <BR>"

"
Supp_W Item_Id Item Name Qty
Stock B/G Price Amount<BR>"

"
" <INPUT NAME="SP00" SIZE=4> <INPUT
NAME="IID00" SIZE=6>
" <INPUT NAME="Qty00" SIZE=1> <BR>"

"
" <INPUT NAME="SP01" SIZE=4> <INPUT
NAME="IID01" SIZE=6>
" <INPUT NAME="Qty01" SIZE=1> <BR>"

"
" <INPUT NAME="SP02" SIZE=4> <INPUT
NAME="IID02" SIZE=6>
" <INPUT NAME="Qty02" SIZE=1> <BR>"

"
" <INPUT NAME="SP03" SIZE=4> <INPUT
NAME="IID03" SIZE=6>
" <INPUT NAME="Qty03" SIZE=1> <BR>"

"
" <INPUT NAME="SP04" SIZE=4> <INPUT
NAME="IID04" SIZE=6>
" <INPUT NAME="Qty04" SIZE=1> <BR>"

"
" <INPUT NAME="SP05" SIZE=4> <INPUT
NAME="IID05" SIZE=6>
" <INPUT NAME="Qty05" SIZE=1> <BR>"

"
" <INPUT NAME="SP06" SIZE=4> <INPUT
NAME="IID06" SIZE=6>
" <INPUT NAME="Qty06" SIZE=1> <BR>"

"
" <INPUT NAME="SP07" SIZE=4> <INPUT
NAME="IID07" SIZE=6>
" <INPUT NAME="Qty07" SIZE=1> <BR>"

"
" <INPUT NAME="SP08" SIZE=4> <INPUT
NAME="IID08" SIZE=6>
" <INPUT NAME="Qty08" SIZE=1> <BR>"

"
" <INPUT NAME="SP09" SIZE=4> <INPUT
NAME="IID09" SIZE=6>
" <INPUT NAME="Qty09" SIZE=1> <BR>"

"
" <INPUT NAME="SP10" SIZE=4> <INPUT
NAME="IID10" SIZE=6>
" <INPUT NAME="Qty10" SIZE=1> <BR>"

"
" <INPUT NAME="SP11" SIZE=4> <INPUT
NAME="IID11" SIZE=6>
" <INPUT NAME="Qty11" SIZE=1> <BR>"

"
" <INPUT NAME="SP12" SIZE=4> <INPUT
NAME="IID12" SIZE=6>
" <INPUT NAME="Qty12" SIZE=1> <BR>"

"
" <INPUT NAME="SP13" SIZE=4> <INPUT
NAME="IID13" SIZE=6>
" <INPUT NAME="Qty13" SIZE=1> <BR>"

```

```

"
" <INPUT NAME="SP14" SIZE=4> <INPUT
NAME="IID14" SIZE=6>
" <INPUT NAME="Qty14" SIZE=1> <BR>"
"Execution Status:
Total: <BR>"

" </font></PRE><HR>"
" <INPUT
TYPE="submit" NAME="CMD"
VALUE="Process">"
" <INPUT
TYPE="submit" NAME="CMD"
VALUE="Menu">"

" </FORM></HTML>"
);
}
else
{
c +=
sprintf(szForm+c, "Warehouse: %6.6d
District: %2.2d Date: ",
pNewOrderData->w_id,
pNewOrderData->d_id);
if ( bValid )
{
c +=
sprintf(szForm+c, "%2.2d-%2.2d-%4.4d
%2.2d:%2.2d:%2.2d",
pNewOrderData->o_entry_d.day,
pNewOrderData-
>o_entry_d.month,
pNewOrderData->o_entry_d.year,
pNewOrderData->o_entry_d.hour,
pNewOrderData-
>o_entry_d.minute,
pNewOrderData-
>o_entry_d.second);
}
c +=
sprintf(szForm+c, " <BR>Customer: %4.4d
Name: %16s Credit: %2s ",
pNewOrderData->c_id,
pNewOrderData->c_last, pNewOrderData-
>c_credit);
if ( bValid )
{
c +=
sprintf(szForm+c,
"%Disc: %5.2f <BR>"
"Order
Number: %8.8d Number of Lines: %2.2d
W_tax: %5.2f D_tax: %5.2f <BR> <BR>"
"
Supp_W Item_Id Item Name Qty
Stock B/G Price Amount<BR>",

```



```

100.0*pNewOrderData-
>c_discount,
pNewOrderData->o_id,
pNewOrderData->o_ol_cnt,
100.0 * pNewOrderData->w_tax,
100.0 * pNewOrderData->d_tax);
for(i=0;
i<pNewOrderData->o_ol_cnt; i++)
{
c += sprintf(szForm+c, "%6.6d
%6.6d %-24s %2.2d %3.3d %1.1s
$%6.2f $%7.2f <BR>",
pNewOrderData-
>OL[i].ol_supply_w_id,
pNewOrderData-
>OL[i].ol_i_id,
pNewOrderData-
>OL[i].ol_i_name,
pNewOrderData-
>OL[i].ol_quantity,
pNewOrderData-
>OL[i].ol_stock,
pNewOrderData-
>OL[i].ol_brand_generic,
pNewOrderData-
>OL[i].ol_i_price,
pNewOrderData-
>OL[i].ol_amount );
}
else
{
c +=
sprintf(szForm+c,
"%Disc:<BR>"
"Order Number: %8.8d Number of
W_tax: D_tax:<BR> <BR>"
" Supp_W Item_Id Item Name
Qty Stock B/G Price Amount<BR>"
, pNewOrderData->o_id);
i = 0;
}
strcpy( szForm+c,
szBR, (15-i)*5 );
c += (15-i)*5;
if ( bValid )
c +=
sprintf(szForm+c, "Execution Status: Transaction
committed. Total: $%8.2f ",
pNewOrderData->total_amount);
else

```

```

c +=
sprintf(szForm+c, "Execution Status: Item
number is not valid. Total:");
strcpy(szForm+c,
"
<BR></font></PRE><HR>"
"<INPUT
TYPE='submit' NAME='CMD\
VALUE='..NewOrder..'>"
"<INPUT
TYPE='submit' NAME='CMD\
VALUE='..Payment..'>"
"<INPUT
TYPE='submit' NAME='CMD\
VALUE='..Delivery..'>"
"<INPUT
TYPE='submit' NAME='CMD\
VALUE='..Order-Status..'>"
"<INPUT
TYPE='submit' NAME='CMD\
VALUE='..Stock-Level..'>"
"<INPUT
TYPE='submit' NAME='CMD\
VALUE='..Exit..'>"
"
</FORM></HTML>"
);
}
/* FUNCTION: MakePaymentForm
*
* COMMENTS: The internal client
buffer is created when the terminal id is assigned
and should not
*
be freed except when the client
terminal id is no longer needed.
*/
void MakePaymentForm(int iTermId,
PAYMENT_DATA *pPaymentData, BOOL bInput,
char *szForm)
{
int c;
c = sprintf(szForm,
"<HTML><HEAD><TITLE>TPC-C
Payment</TITLE></HEAD><BODY>"
"<FORM
ACTION='tpcc.dll' METHOD='GET'">"
"<INPUT
TYPE='hidden' NAME='STATUSID\
VALUE='0\>"
"<INPUT
TYPE='hidden' NAME='ERROR\
VALUE='0\>"
"<INPUT
TYPE='hidden' NAME='FORMID\
VALUE='%d\>"
"<INPUT
TYPE='hidden' NAME='TERMID\
VALUE='%d\>"
"<INPUT
TYPE='hidden' NAME='SYNCID\
VALUE='%d\>"
"
face='Courier'">
Payment<BR>"
"Date: "
, PAYMENT_FORM,
iTermId, Term.pClientData[i.TermId].iSyncId);

```

```

if ( !bInput )
c +=
sprintf(szForm+c, "%2.2d-%2.2d-%4.4d
%2.2d:%2.2d:%2.2d",
pPaymentData->h_date.day,
pPaymentData->h_date.month,
pPaymentData->h_date.year,
pPaymentData->h_date.hour,
pPaymentData->h_date.minute,
pPaymentData->h_date.second);
}
if ( bInput )
{
c +=
sprintf(szForm+c,
"<BR>Warehouse: %6.6d"
"
District: <INPUT NAME='DID*' SIZE=1><BR>
<BR> <BR> <BR> <BR>"
"Customer: <INPUT
NAME='CID*' SIZE=4>"
"Cust-
Warehouse: <INPUT NAME='CWI*' SIZE=4>
"
"Cust-
District: <INPUT NAME='CDI*'
SIZE=1><BR>"
"Name:
<INPUT NAME='CLT*' SIZE=16>
Since:<BR>"
"
Credit:<BR>"
"
Disc:<BR>"
"
Phone:<BR> <BR>"
"Amount
Paid: $<INPUT NAME='HAM*' SIZE=7>
New Cust-Balance:<BR>"
"Credit
Limit:<BR> <BR>Cust-Data: <BR> <BR> <BR>
<BR> <BR></font></PRE><HR>"
"<INPUT
TYPE='submit' NAME='CMD\
VALUE='Process\> <INPUT TYPE='submit\
NAME='CMD\ VALUE='Menu\>"
"
</BODY></FORM></HTML>"
,
Term.pClientData[i.TermId].w_id);
}
else
{
c +=
sprintf(szForm+c,
"<BR>Warehouse: %6.6d
District: %2.2d<BR>"
"%-20s
%-20s<BR>"
"%-20s
%-20s<BR>"
"%-20s
%-2s %5.5s-%4.4s %-20s %-2s %5.5s-
%4.4s<BR> <BR>"

```

```

"Customer: %4.4d Cust-
Warehouse: %6.6d Cust-District: %2.2d<BR>"
"Name:
%-16s %-2s %-16s Since: %2.2d-%2.2d-
%4.4d<BR>"
%-20s Credit: %-2s<BR>"

Term.pClientData[iTermId].w_id, pPaymentData-
>d_id

pPaymentData->w_street_1, pPaymentData-
>d_street_1

pPaymentData->w_street_2, pPaymentData-
>d_street_2

pPaymentData->w_city, pPaymentData-
>w_state, pPaymentData->w_zip,
pPaymentData->w_zip+5

pPaymentData->d_city, pPaymentData->d_state,
pPaymentData->d_zip, pPaymentData->d_zip+5

pPaymentData->c_id, pPaymentData->c_w_id,
pPaymentData->c_d_id

pPaymentData->c_first, pPaymentData-
>c_middle, pPaymentData->c_last

pPaymentData->c_since.day, pPaymentData-
>c_since.month, pPaymentData-
>c_since.year

pPaymentData->c_street_1, pPaymentData-
>c_credit
);

c += sprintf(szForm+c,
"
%-20s %%Disc: %5.2f<BR>",

pPaymentData->c_street_2,
100.0*pPaymentData->c_discount);

c +=

wsprintf(szForm+c,
"
%-20s %-2s %5.5s-%4.4s Phone: %6.6s-
%3.3s-%3.3s-%4.4s<BR> <BR>",

pPaymentData->c_city,
pPaymentData->c_state, pPaymentData->c_zip,
pPaymentData->c_zip+5,

pPaymentData->c_phone,
pPaymentData->c_phone+6, pPaymentData-
>c_phone+9, pPaymentData->c_phone+12 );

c +=

sprintf(szForm+c,
"Amount
Paid: $%7.2f New Cust-Balance:
$%14.2f<BR>"

"Credit
Limit: $%13.2f<BR> <BR>"

pPaymentData->h_amount, pPaymentData-
>c_balance

pPaymentData->c_credit_lim
);

```

```

if ( pPaymentData-
>c_credit[0] == 'B' && pPaymentData-
>c_credit[1] == 'C' ) c +=
wsprintf(szForm+c,

"Cust-Data: %-
50.50s<BR> %-50.50s<BR> %-
50.50s<BR> %-50.50s<BR>",

pPaymentData-
>c_data, pPaymentData->c_data+50,
pPaymentData->c_data+100, pPaymentData-
>c_data+150 );

else

strcpy(szForm+c, "Cust-Data:
<BR> <BR> <BR> <BR>");

strcat(szForm,
" <BR></font></PRE><HR>"

" <INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..NewOrder..\">"

" <INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"

" <INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"

" <INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Order-Status..\">"

" <INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Stock-Level..\">"

" <INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Exit..\">"

}

}

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

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

c = wsprintf(szForm,

"<HTML><HEAD><TITLE>TPC-C
Order-Status</TITLE></HEAD><BODY>"

```

```

"<FORM
ACTION=\"tpcc.dll\" METHOD=\"POST\">"
TYPE=\"hidden\" NAME=\"STATUSID\"
VALUE=\"0\">"

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

" <INPUT
TYPE=\"hidden\" NAME=\"FORMID\"
VALUE=\"%d\">"

" <INPUT
TYPE=\"hidden\" NAME=\"TERMINID\"
VALUE=\"%d\">"

" <INPUT
TYPE=\"hidden\" NAME=\"SYNCDID\"
VALUE=\"%d\">"

" <PRE><font
face=\"Courier\"> Order-
Status<BR>"

"Warehouse: %6.6d
",

ORDER_STATUS_FORM, iTermId,
Term.pClientData[iTermId].iSyncId,
Term.pClientData[iTermId].w_id);

if ( bInput )
{
strcpy(szForm+c,

"District:
<INPUT NAME=\"DID*\" SIZE=1><BR>"

"Customer: <INPUT
NAME=\"CID*\" SIZE=4> Name:
<INPUT NAME=\"CLT*\" SIZE=23><BR>"

"Cust-
Balance:<BR> <BR>"

"Order-
Number: Entry-Date:
Carrier-Number:<BR>"

"Supply-
W Item-Id Qty Amount Delivery-
Date<BR> <BR> <BR> <BR> <BR> <BR>
" <BR>
<BR> <BR> <BR> <BR> <BR> <BR>
<BR> <BR> <BR></font></PRE>"

" <HR><INPUT TYPE=\"submit\"
NAME=\"CMD\" VALUE=\"Process\"><INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Menu\">"

" </BODY></FORM></HTML>" );
}
else
{
c +=

wsprintf(szForm+c,

"District:
%2.2d<BR>"

"Customer: %4.4d Name: %-16s
%-2s %-16s<BR>",

pOrderStatusData->d_id,
pOrderStatusData->c_id,

pOrderStatusData->c_first,
pOrderStatusData->c_middle, pOrderStatusData-
>c_last);

c +=

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

```

```

        pOrderStatusData->c_balance);
        c +=
wsprintf(szForm+c,
        "Order-
Number: %8.8d Entry-Date: %2.2d-%2.2d-
%4.4d %2.2d:%2.2d:%2.2d Carrier-Number:
%2.2d<BR>"
        "Supply-
W Item-Id Qty Amount Delivery-
Date<BR>",
        pOrderStatusData->o_id,
        pOrderStatusData->o_entry_d.day,
        pOrderStatusData-
>o_entry_d.month,
        pOrderStatusData->o_entry_d.year,
        pOrderStatusData-
>o_entry_d.hour,
        pOrderStatusData-
>o_entry_d.minute,
        pOrderStatusData-
>o_entry_d.second,
        pOrderStatusData->o_carrier_id);
        for(i=0; i<
pOrderStatusData->o_ol_cnt; i++)
        {
                c +=
sprintf(szForm+c, " %6.6d %6.6d %2.2d
%8.2f %2.2d-%2.2d-%4.4d<BR>",
                pOrderStatusData-
>OL[i].ol_supply_w_id,
                pOrderStatusData->OL[i].ol_i_id,
                pOrderStatusData-
>OL[i].ol_quantity,
                pOrderStatusData-
>OL[i].ol_amount,
                pOrderStatusData-
>OL[i].ol_delivery_d.day,
                pOrderStatusData-
>OL[i].ol_delivery_d.month,
                pOrderStatusData-
>OL[i].ol_delivery_d.year);
        }
        strncpy( szForm+c,
szBR, (15-i)*5 );
        c += (15-i)*5;
        strcpy(szForm+c,
        "</font></PRE><HR><INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..NewOrder..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"

```

```

        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Order-Status..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Stock-Level..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Exit..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..NewOrder..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Order-Status..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Stock-Level..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Exit..\">"
        "</BODY></FORM></HTML>" );
    }
}
/* FUNCTION: MakeDeliveryForm
*
* COMMENTS: The internal client
buffer is created when the terminal id is assigned
and should not
*
be freed except when the client
terminal id is no longer needed.
*/
void MakeDeliveryForm(int iTermId,
DELIVERY_DATA *pDeliveryData, BOOL bInput,
char *szForm)
{
        int c;
        c = wsprintf(szForm,
        "<HTML><HEAD><TITLE>TPC-C
Delivery</TITLE></HEAD><BODY>"
        "<FORM
ACTION=\"tpcc.dll\" METHOD=\"GET\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"STATUSID\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"ERROR\"
VALUE=\"0\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"FORMID\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"TERMINID\"
VALUE=\"%d\">"
        "<INPUT
TYPE=\"hidden\" NAME=\"SYNCID\"
VALUE=\"%d\">"
        "<PRE><font
face=\"Courier\">
Delivery<BR>"
        "Warehouse:
%6.6d<BR> <BR>",
        (!bInput &&
(pDeliveryData->exec_status_code != eOK)) ?
ERR_TYPE_DELIVERY_POST : 0,
        DELIVERY_FORM,
iTermId, Term.pClientData[iTermId].iSyncId,
Term.pClientData[iTermId].w_id);
        if ( bInput )
        {
                strcpy( szForm+c,
        "Carrier
Number: <INPUT NAME=\"OCD\"*
SIZE=1><BR> <BR>"
        "Execution Status: <BR> <BR>
<BR> <BR> <BR> <BR> <BR> <BR>"

```

```

        "<BR>
<BR> <BR> <BR> <BR> <BR> <BR>
</font></PRE><HR>"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Process\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Menu\">"
        "</BODY></FORM></HTML>" );
    }
else
    {
        wsprintf( szForm+c,
        "Carrier
Number: %2.2d<BR> <BR>"
        "Execution Status: %s <BR> <BR>
<BR> <BR> <BR> <BR> <BR> <BR>"
        "<BR>
<BR> <BR> <BR> <BR> <BR> <BR> <BR>
</font></PRE>"
        "<HR><INPUT TYPE=\"submit\"
NAME=\"CMD\" VALUE=\"..NewOrder..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Payment..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Delivery..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Order-Status..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Stock-Level..\">"
        "<INPUT
TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"..Exit..\">"
        "</BODY></FORM></HTML>"
        ,
        pDeliveryData->o_carrier_id,
        (pDeliveryData->exec_status_code
== eOK) ? "Delivery has been queued." :
"Delivery Post Failed "
        );
    }
}
/* FUNCTION: ProcessNewOrderForm
*
* PURPOSE: This function gets and validates the
input data from the new order form
*
filling in
the required input variables. it then calls the
SQLNewOrder
*
transaction, constructs the output
form and writes it back to client
*
browser.
*/
void
ProcessNewOrderForm(EXTENSION_CONTROL_B
LOCK *pECB, int iTermId, char *szBuffer)
{
        PNEW_ORDER_DATA
pNewOrder;

```

```

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

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

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

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

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

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

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

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

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

/* FUNCTION: ProcessOrderStatusForm
*

```

```

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

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

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

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

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

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

void
ProcessDeliveryForm(EXTENSION_CONTROL_BL
OCK *pECB, int iTermId, char *szBuffer)

```

```

{
        char
*ptr = pECB-
>lpszQueryString;

        PDELIVERY_DATA
pDelivery;

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

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

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

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

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

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

```

```

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

    PSTOCK_LEVEL_DATA
pStockLevel;

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

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

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

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

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

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

void GetNewOrderData(LPSTR lpszQueryString,
NEW_ORDER_DATA *pNewOrderData)
{
    char szTmp[26];
    int i;
    short items;
    int ol_i_id,
ol_quantity;
    char *ptr =
lpszQueryString;

    static char
szSP[MAX_OL_NEW_ORDER_ITEMS][6] =
{ "SP00*", "SP01*",
"SP02*", "SP03*", "SP04*",

```

```

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

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

    for(i=0, items=0;
i<MAX_OL_NEW_ORDER_ITEMS; i++)
    {
        GetKeyValue(&ptr,
szSP[i], szTmp, sizeof(szTmp),
ERR_NEWORDER_MISSING_SUPPW_KEY);
        if ( szTmp[0] )
            if (
!IsNumeric(szTmp) )
                throw new CWEBClnt_Err(
ERR_NEWORDER_SUPPW_INVALID );

        pNewOrderData-
>OL[items].ol_supply_w_id = atoi(szTmp);

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

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

        items++;
    }
    else

```

```

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

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

    pNewOrderData->o_ol_cnt = items;
}

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

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

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

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

```

```

)
    if ( !IsNumeric(szTmp)
        throw
    new CWEBCLNT_ERR(
        ERR_PAYMENT_CUSTOMER_INVALID );
    pPaymentData->c_id
    = atoi(szTmp);
    }

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

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

    _strupr( szTmp );
    if ( strlen(szTmp) >
    LAST_NAME_LEN )
        throw
    new CWEBCLNT_ERR(
    ERR_PAYMENT_LAST_NAME_TO_LONG );

    strcpy(pPaymentData-
    >c_last, szTmp);
    // pad with spaces so
    that the client layer doesn't have to do it
    // before passing
    parameters to stored procedure
    iLen =
    strlen(pPaymentData->c_last);

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

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

```

```

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

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

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

    _strupr( szTmp );
    if ( strlen(szTmp) >
    LAST_NAME_LEN )
        throw
    new CWEBCLNT_ERR(
    ERR_ORDERSTATUS_CLT_RANGE );

    strcpy(pOrderStatusData->c_last,
    szTmp);
    // pad with spaces so
    that the client layer doesn't have to do it
    // before passing
    parameters to stored procedure
    iLen =
    strlen(pOrderStatusData->c_last);

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

```

```

    if ( szTmp[0] == 0 )
    new CWEBCLNT_ERR(
    ERR_ORDERSTATUS_CID_AND_CLT );
    }
    }

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

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

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

        if ( *ptr == 0 )
            return FALSE;

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

```

```

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

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

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

```

#### Isapi\_dll/src/resource.h

```

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

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

```

#### common/src/ReadRegistry.h

```

/*      FILE:
        ReadRegistry.h

        Microsoft TPC-C Kit Ver. 4.20.000

        Copyright Microsoft, 1999
        All Rights Reserved

        not audited

        PURPOSE:  Header for registry
related code.

        * Change history:
        *              4.20.000 - first
version
*/

```

```

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

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

//This structure defines the data necessary to
keep distinct for each terminal or client
connection.
typedef struct _TPCCREGISTRYDATA
{
    enum DBPROTOCOL eDB_Protocol;
    enum TXNMON eTxnMon;
    BOOL bCOM_SinglePool;
    DWORD dwMaxConnections;
    DWORD dwMaxPendingDeliveries;
    DWORD
dwNumberOfDeliveryThreads;
    char szPath[128];
    char szDbServer[32];
    char szDbName[32];
    char szDbUser[32];
    char szDbPassword[32];
    wchar_t szSPPrefix[32];
    //tpcc_odbc.dll stored procedures
    prefix
    DWORD dwConnectDelay; // delay
in ms to use in pacing connection open and close
    BOOL bCallNoDuplicatesNewOrder;
    // whether to check for non-
duplicate item ids and call a different New Order
SP
} TPCCREGISTRYDATA, *PTPCREGISTRYDATA;

BOOL ReadTPCCRegistrySettings(
TPCCREGISTRYDATA *pReg );

```

#### ReadRegistry.cpp

```

/*      FILE:
        READREGISTRY.CPP

        Microsoft TPC-C Kit Ver. 4.20.000

        Copyright Microsoft, 1999
        All Rights Reserved

        not yet audited

        PURPOSE:  Implementation for
TPC-C Tuxedo class.
        * Contact:  Charles Levine
(clevine@microsoft.com)

        * Change history:
        *              4.20.000 - first
version
*/

/* FUNCTION: ReadTPCCRegistrySettings
*
* PURPOSE: This function reads the NT registry
for startup parameters. There parameters are

```

```

*
*      under
the TPCC key.
* RETURNS FALSE = no errors
*              TRUE =
error reading registry
*/
BOOL ReadTPCCRegistrySettings(
TPCCREGISTRYDATA *pReg )
{
    HKEY    hKey;
    DWORD   size;
    DWORD   type;
    DWORD   dwTmp;
    char    szTmp[256];

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

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

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

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

    pReg->dwMaxConnections = 0;

```

```

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

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

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

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

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

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

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

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

        size = sizeof( pReg->szSPPrefix );
        if ( RegQueryValueEx(hKey,
L"SPPrefix", 0, &type, (BYTE *)&pReg-
>szSPPrefix, &size) != ERROR_SUCCESS )
            pReg->szSPPrefix[0]
= L'\0';

        pReg->dwConnectDelay = 0;
        size = sizeof(dwTmp);

```

```

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

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

        RegCloseKey(hKey);

        return FALSE;
    }

```

#### common\src\error.h

```

/*      FILE:
      ERROR.H

      *      Microsoft TPC-C Kit Ver. 4.20.000

      *      Copyright Microsoft, 1999
      *      All Rights Reserved

      *      Version 4.10.000 audited by
      *      Richard Gimarc, Performance Metrics, 3/17/99
      *
      *      PURPOSE:  Header file for error
      *      exception classes.
      *
      *      Change history:
      *      *      4.20.000 - updated
      *      rev number to match kit
      *      *      4.21.000 - fixed bug:
      *      ~CBaseErr needed to be declared virtual
      */

#pragma once

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

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

//error message structure used in ErrorText
routines
typedef struct _SERRORMSG
{
    int                iError;

    //error id of message
    char               szMsg[256];
    //message to sent to
    browser
} SERRORMSG;

```

```

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

#define ERR_TYPE_LOGIC
-1
//logic error in program; internal
error
#define ERR_SUCCESS
0
//success (a non-error
error)
#define ERR_BAD_ITEM_ID
1
//expected abort
record in txnRecord
#define ERR_TYPE_DELIVERY_POST
2
//expected delivery post failed
#define ERR_TYPE_WEBDLL
3
//tpcc web generated
error
#define ERR_TYPE_SQL
4
//sql server generated
error
#define ERR_TYPE_DBLIB
5
//dblib generated
error
#define ERR_TYPE_ODBC
6
//odbc generated
error
#define ERR_TYPE_SOCKET
7
//error on
communication socket client rte only
#define ERR_TYPE_DEADLOCK
8
//dblib and odbc only deadlock
condition
#define ERR_TYPE_COM
9
//error from COM call
#define ERR_TYPE_TUXEDO
10
//tuxedo error
#define ERR_TYPE_OS
11
//operating system
error

```



```

#define ERR_TYPE_MEMORY
//memory allocation
12
error
#define ERR_TYPE_TPCC_ODBC
13
//error from tpcc odbc txn module
#define ERR_TYPE_TPCC_DBLIB
14
//error from tpcc dblib txn module
#define ERR_TYPE_DELISRV
15
//delivery server error
#define ERR_TYPE_TXNLOG
16
//txn log error
#define ERR_TYPE_BCCONN
17
//Benchcraft
connection class
#define ERR_TYPE_TPCC_CONN
18
//Benchcraft connection class
#define ERR_TYPE_ENCINA
19
//Encina error
#define ERR_TYPE_COMPONENT
20
//error from COM component
#define ERR_TYPE_RTE
21
//Benchcraft rte
#define ERR_TYPE_AUTOMATION
22
//Benchcraft automation errors
#define ERR_TYPE_DRIVER
23
//Driver engine errors
#define ERR_TYPE_RTE_BASE
24
//Framework errors
#define ERR_BUF_OVERFLOW
25
//Buffer overflow during receive
#define ERR_TYPE_SOAP_HTTP
26
//HTTP/SOAP dll generated error
#define ERR_TYPE_OLEDB
27
//OLE-DB generated error
#define ERR_TYPE_TPCC_OLEDB
28
//error from tpcc ole-db txn module
// TPC-W error types
#define ERR_TYPE_TPCW_CONN
50
//Benchcraft connection class

```

```

#define ERR_TYPE_TPCW_HTML
51
//error from TPCW HTML dll
#define ERR_TYPE_TPCW_USER
52
//error from TPC-W user class
#define ERR_TYPE_TPCW_ENG_BASE
53
#define ERR_TYPE_TPCW_ENG_OS
54
#define ERR_TYPE_HTML_RESP
55
#define ERR_TYPE_TPCC_ODBC
56
#define ERR_TYPE_SCHANNEL
57
#define ERR_TYPE_THINK_LIST
58
//----- end TPC-W -----
#define ERR_TYPE_XML_PROFILE
59
// TPC-E error types
#define ERR_TYPE_TPCE_CONN
60
//TPC-E pipe connection errors
#define ERR_TYPE_TPCE_RTE
61
//TPC-E Rte errors
#define ERR_TYPE_TPCE_ENG_BASE
62
//Tpce
Driver engine errors
#define ERR_TYPE_TPCE_ENG_OS
63
//Tpce
Driver engine system errors
//#define ERR_TYPE_TPCE_MEE_ENG_BASE
64
//Tpce
MEE Driver engine errors
//#define ERR_TYPE_TPCE_MEE_ENG_OS
65
//Tpce
MEE Driver engine system errors
#define ERR_INS_MEMORY
"Insufficient Memory
to continue."
#define ERR_UNKNOWN
"Unknown error."
#define ERR_MSG_BUF_SIZE
512
#define INV_ERROR_CODE
-1
#define ERR_INS_BUF_OVERFLOW
"Insufficient Buffer size to receive HTML pages."

class CBaseErr
{
public:
enum Action
{
eNone = 0

```

```

};
CBaseErr(LPCTSTR szLoc = NULL)
{
m_idMsg
= GetLastError(); //take
the error code immediately before it is reset by
other functions

if (szLoc)
{
m_szLoc
= new char[strlen(szLoc)+1/*m_szLoc_size*/];
strcpy(m_szLoc, szLoc);
}
else
m_szLoc
= NULL;

m_szApp
= new char[m_szApp_size];

GetModuleFileName(GetModuleHan
dle(NULL), m_szApp, m_szApp_size);
}

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

if (szLoc)
{
m_szLoc
= new char[strlen(szLoc)+1/*m_szLoc_size*/];
strcpy(m_szLoc, szLoc);
}
else
m_szLoc
= NULL;

m_szApp
= new char[m_szApp_size];

GetModuleFileName(GetModuleHan
dle(NULL), m_szApp, m_szApp_size);
}

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

if (m_szLoc)
delete []
m_szLoc;
};

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

if (szStr)

```

```

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

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

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

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

        virtual int ErrorType() = 0; // a
value which distinguishes the kind of error that
occurred
        virtual char *ErrorTypeStr() = 0; //
text representation of the error type
        virtual char *ErrorText() = 0; // a
string (i.e., human readable) representation of
the error
        virtual int ErrorAction() { return
eNone; } // the function call that caused the
error

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

        //short m_errType;
};

class CSocketErr : public CBaseErr
{
public:
        enum Action
        {
                eNone = 0,
                eSend,
                eSocket,
                eBind,
                eConnect,
                eListen,
                eHost,
                eRecv,
                eGetHostByName,
                eWSACreateEvent,
                eWSASend,

                eWSAGetOverlappedResult,
                eWSARecv,

                eWSAWaitForMultipleEvents,
                eWSAStartup,
                eWSAResetEvent,

```

```

eWSAEnumNetworkEvents,
eWSAEventSelect,
eSelect,
eAccept,
eNonRetryable
};

        CSocketErr(Action eAction,
LPCTSTR szLocation = NULL);

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

        Action m_eAction;
        char *m_szErrorText;

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

        int
ErrorAction() { return
(int)m_eAction; }
};

class CSystemErr : public CBaseErr
{
public:
        enum Action
        {
                eNone = 0,
                eTransactNamedPipe,
                eWaitNamedPipe,

                eSetNamedPipeHandleState,
                eCreateFile,
                eCreateProcess,
                eCallNamedPipe,
                eCreateEvent,
                eCreateThread,
                eVirtualAlloc,
                eReadFile = 10,
                eWriteFile,
                eMapViewOfFile,
                eCreateFileMapping,

                eInitializeSecurityDescriptor,

                eSetSecurityDescriptorDacl,
                eCreateNamedPipe,
                eConnectNamedPipe,
                eWaitForSingleObject,
                eRegOpenKeyEx,
                eRegQueryValueEx =
20,

                ebeginthread,
                eRegEnumValue,
                eRegSetValueEx,
                eRegCreateKeyEx,

                eWaitForMultipleObjects,
                eRegisterClassEx,
                eCreateWindow,
                eCreateSemaphore,
                eReleaseSemaphore,
                eFSeek,
                eFRead,

```

```

eWriteFile,
eFile,
eSetFilePointer,
eNew,
eCloseHandle,
eGetOverlappedResult
};

        CSystemErr(Action eAction,
LPCTSTR szLocation);

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

        Action m_eAction;

private:
        char
m_szMsg[ERR_MSG_BUF_SIZE];
};

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

        int
ErrorType() {return
ERR_TYPE_MEMORY; }
        char* ErrorTypeStr() {
return "OUT OF MEMORY"; }
        char* ErrorText() {return
ERR_INS_MEMORY; }
};

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

        int
ErrorType() {return
ERR_BUF_OVERFLOW; }
        char* ErrorTypeStr() {
return "BUFFER OVERFLOW"; }
        char* ErrorText() {return
ERR_INS_BUF_OVERFLOW; }
};

// Exception type for XML profiles
class CXMLProfileErr : public CBaseErr
{
public:
        enum Action
        {
                LoadProfile = 1,

                LoadSchema,

                ValidateProfile,

                SaveProfile,

```

```

LoadFromXML,
SaveToXML,
ApplyProcessingInstruction,
ApplyAttribute,
ApplyNode
};

CXMLProfileErr(Action
eAction, int eCode, LPCTSTR szLocation)
{
    m_eAction = eAction;
    m_eCode = eCode;
    m_bOverload = true;
};
CXMLProfileErr(Action
eAction, int eCode, LPCTSTR szLocation, char *
szMsg)
{
    m_eAction = eAction;
    m_eCode = eCode;
    strcpy(m_szMsg, szMsg);
    m_bOverload = false;
};

virtual int
ErrorType() { return
ERR_TYPE_XML_PROFILE;};
virtual char
*ErrorTypeStr() { return "XML
PROFILE"; };
virtual char
*ErrorText();
virtual int
ErrorCode() { return m_eCode; };
int

ErrorAction() { return
(int)m_eAction; }

//virtual void
Draw(HWND hwnd, LPCTSTR szStr
= NULL)

//{
//
//::MessageBox(hwnd, szStr,
m_szLoc, MB_OK);

//};

private:
char
m_szMsg[ERR_MSG_BUF_SIZE];
LPCTSTR m_szLoc;
int
m_eCode;
bool
m_bOverload;
Action
m_eAction;
};

```

**common\src\trans.h**

```

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

#pragma once

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

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

//error message structure used in ErrorText
routines
typedef struct _SERRORMSG
{
    int iError;

    //error id of message
    char szMsg[256];
    //message to sent to
    browser
} SERRORMSG;

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

#define ERR_TYPE_LOGIC

-1
//logic error in program; internal
error
#define ERR_SUCCESS

0
//success (a non-error
error)
#define ERR_BAD_ITEM_ID

1
//expected abort

record in txnRecord

```

```

#define ERR_TYPE_DELIVERY_POST

2
//expected delivery post failed
error
#define ERR_TYPE_DELIVERY_POST_FAILED

3
//tpcc web generated
error
#define ERR_TYPE_SQL

4
//sql server generated
error
#define ERR_TYPE_DBLIB

5
//dblib generated
error
#define ERR_TYPE_ODBC

6
//odbc generated
error
#define ERR_TYPE_SOCKET

7
//error on
communication socket client rte only
#define ERR_TYPE_DEADLOCK

8
//dblib and odbc only deadlock
condition
#define ERR_TYPE_COM

9
//error from COM call
#define ERR_TYPE_TUXEDO

10
//tuxedo error
#define ERR_TYPE_OS

11
//operating system
error
#define ERR_TYPE_MEMORY

12
//memory allocation
error
#define ERR_TYPE_TPCC_ODBC

13
//error from tpcc odbc txn module
#define ERR_TYPE_TPCC_DBLIB

14
//error from tpcc dblib txn module
#define ERR_TYPE_DELISRV

15
//delivery server error
#define ERR_TYPE_TXNLOG

16
//txn log error
#define ERR_TYPE_BCCONN

17
//Benchcraft
connection class

```

```

#define ERR_TYPE_TPCC_CONN
18
//Benchcraft connection class
#define ERR_TYPE_ENCINA
19
//Encina error
#define ERR_TYPE_COMPONENT
20
//error from COM component
#define ERR_TYPE_RTE
21
//Benchcraft rte
#define ERR_TYPE_AUTOMATION
22
//Benchcraft automation errors
#define ERR_TYPE_DRIVER
23
//Driver engine errors
#define ERR_TYPE_RTE_BASE
24
//Framework errors
#define ERR_BUF_OVERFLOW
25
//Buffer overflow during receive
#define ERR_TYPE_SOAP_HTTP
26
//HTTP/SOAP dll generated error
#define ERR_TYPE_OLEDB
27
//OLE-DB generated error
#define ERR_TYPE_TPCC_OLEDB
28
//error from tpcc ole-db txn module
// TPC-W error types
#define ERR_TYPE_TPCW_CONN
50
//Benchcraft connection class
#define ERR_TYPE_TPCW_HTML
51
//error from TpcwHtml dll
#define ERR_TYPE_TPCW_USER
52
//error from TPC-W user class
#define ERR_TYPE_TPCW_ENG_BASE
53
#define ERR_TYPE_TPCW_ENG_OS
54
#define ERR_TYPE_HTML_RESP
55
#define ERR_TYPE_TPCW_ODBC
56
#define ERR_TYPE_SCHANNEL
57
#define ERR_TYPE_THINK_LIST
58

```

```

#define ERR_TYPE_XML_PROFILE
59
// TPC-E error types
#define ERR_TYPE_TPCE_CONN
60
//TPC-E pipe connection errors
#define ERR_TYPE_TPCE_RTE
61
//TPC-E Rte errors
#define ERR_TYPE_TPCE_ENG_BASE
62
//Tpce
Driver engine errors
#define ERR_TYPE_TPCE_ENG_OS
63
//Tpce
Driver engine system errors
#define ERR_TYPE_TPCE_MEE_ENG_BASE
64
//Tpce
MEE Driver engine errors
#define ERR_TYPE_TPCE_MEE_ENG_OS
65
//Tpce
MEE Driver engine system errors
#define ERR_INS_MEMORY
"Insufficient Memory
to continue."
#define ERR_UNKNOWN
"Unknown error."
#define ERR_MSG_BUF_SIZE
512
#define INV_ERROR_CODE
-1
#define ERR_INS_BUF_OVERFLOW
"Insufficient Buffer size to receive HTML pages."

class CBaseErr
{
public:
enum Action
{
eNone = 0
};

CBaseErr(LPCTSTR szLoc = NULL)
{
m_idMsg
= GetLastError(); //take
the error code immediately before it is reset by
other functions

if (szLoc)
{
m_szLoc
= new char[strlen(szLoc)+1/*m_szLoc_size*/];

strcpy(m_szLoc, szLoc);
}
else
m_szLoc
= NULL;

m_szApp
= new char[m_szApp_size];

GetModuleFileName(GetModuleHan
dle(NULL), m_szApp, m_szApp_size);

```

```

}

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

if (szLoc)
{
m_szLoc
= new char[strlen(szLoc)+1/*m_szLoc_size*/];

strcpy(m_szLoc, szLoc);
}
else
m_szLoc
= NULL;

m_szApp
= new char[m_szApp_size];

GetModuleFileName(GetModuleHan
dle(NULL), m_szApp, m_szApp_size);
}

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

if (m_szLoc)
delete []
m_szLoc;
};

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

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

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

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

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

```

```

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

        virtual int ErrorAction() { return
eNone; } // the function call that caused the
error

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

        //short m_errType;
};

class CSocketErr : public CBaseErr
{
public:
        enum Action
        {
                eNone = 0,
                eSend,
                eSocket,
                eBind,
                eConnect,
                eListen,
                eHost,
                eRecv,
                eGetHostByName,
                eWSACreateEvent,
                eWSASend,

                eWSAGetOverlappedResult,
                eWSARecv,

                eWSAWaitForMultipleEvents,
                eWSAStartup,
                eWSAResetEvent,

                eWSAEnumNetworkEvents,
                eWSAEventSelect,
                eSelect,
                eAccept,
                eNonRetryable
        };

        CSocketErr(Action eAction,
LPCTSTR szLocation = NULL);

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

        Action m_eAction;
        char *m_szErrorText;

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

```

```

        int
ErrorAction() { return
(int)m_eAction; }
};

class CSystemErr : public CBaseErr
{
public:
        enum Action
        {
                eNone = 0,
                eTransactNamedPipe,
                eWaitNamedPipe,

                eSetNamedPipeHandleState,
                eCreateFile,
                eCreateProcess,
                eCallNamedPipe,
                eCreateEvent,
                eCreateThread,
                eVirtualAlloc,
                eReadFile = 10,
                eWriteFile,
                eMapViewOfFile,
                eCreateFileMapping,

                eInitializeSecurityDescriptor,

                eSetSecurityDescriptorDacl,
                eCreateNamedPipe,
                eConnectNamedPipe,
                eWaitForSingleObject,
                eRegOpenKeyEx,
                eRegQueryValueEx =
20,

                ebeginthread,
                eRegEnumValue,
                eRegSetValueEx,
                eRegCreateKeyEx,

                eWaitForMultipleObjects,
                eRegisterClassEx,
                eCreateWindow,
                eCreateSemaphore,
                eReleaseSemaphore,
                eFSeek,
                eFRead,
                eFWrite,
                eTmpFile,
                eSetFilePointer,
                eNew,
                eCloseHandle,
                eGetOverlappedResult
        };

        CSystemErr(Action eAction,
LPCTSTR szLocation);

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

        Action m_eAction;
};

```

```

private: char
m_szMsg[ERR_MSG_BUF_SIZE];
};

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

        int
ErrorType() {return
ERR_TYPE_MEMORY;};
        char* ErrorTypeStr() {
return "OUT OF MEMORY"; }
        char* ErrorText() {return
ERR_INS_MEMORY;};
};

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

        int
ErrorType() {return
ERR_BUF_OVERFLOW;};
        char* ErrorTypeStr() {
return "BUFFER OVERFLOW"; }
        char* ErrorText() {return
ERR_INS_BUF_OVERFLOW;};
};

// Exception type for XML profiles
class CXMLProfileErr : public CBaseErr
{
public:
        enum Action
        {
                LoadProfile = 1,
                LoadSchema,
                ValidateProfile,
                SaveProfile,
                LoadFromXML,
                SaveToXML,
                ApplyProcessingInstruction,
                ApplyAttribute,
                ApplyNode
        };

        CXMLProfileErr(Action
eAction, int eCode, LPCTSTR szLocation)
        {
                m_eAction = eAction;
                m_eCode = eCode;
                m_bOverload = true;
        };

        CXMLProfileErr(Action
eAction, int eCode, LPCTSTR szLocation, char *
szMsg)
        {
                m_eAction = eAction;
};

```

```

m_eCode = eCode;

strcpy(m_szMsg, szMsg);

m_bOverload = false;
};

virtual int
ErrorType() { return
ERR_TYPE_XML_PROFILE;};
virtual char
*ErrorTypeStr() { return "XML
PROFILE"; };
virtual char
*ErrorText();
virtual int
ErrorCode() { return m_eCode; };
int

ErrorAction() { return
(int)m_eAction; }
//virtual void
Draw(HWND hwnd, LPCTSTR szStr
= NULL)
{
//
//
::MessageBox(hwnd, szStr,
m_szLoc, MB_OK);
};
private:
char
m_szMsg[ERR_MSG_BUF_SIZE];
LPCTSTR m_szLoc;
int
m_eCode;
bool
m_bOverload;
Action
m_eAction;
};

```

#### Common\src\txn\_base.h

```

/* FILE:
TXN_BASE.H
*
* Microsoft TPC-C Kit Ver. 4.20.000
*
* Copyright Microsoft, 1999
* All Rights Reserved
*
* Version 4.10.000 audited by
Richard Gimarc, Performance Metrics, 3/17/99
*
* PURPOSE: Header file for TPC-C
txn class implementation.
*
* Change history:
* 4.20.000 - updated
rev number to match kit
*/

#pragma once

// need to declare functions for import, unless
define has already been created
// by the DLL's .cpp module for export.

```

```

#ifdef DllDecl __declspec( dllimport )
#endif
class DllDecl CTPCC_BASE
{
public:
CTPCC_BASE(void)
};
~CTPCC_BASE(void) {};
virtual
PNEW_ORDER_DATA
BuffAddr_NewOrder()
= 0;
virtual
PPAYMENT_DATA
BuffAddr_Payment()
= 0;
virtual
PDELIVERY_DATA
BuffAddr_Delivery()
= 0;
virtual
PSTOCK_LEVEL_DATA
BuffAddr_StockLevel()
= 0;
virtual
PORDER_STATUS_DATA
BuffAddr_OrderStatus() = 0;
virtual void NewOrder
() = 0;
virtual void Payment
() = 0;
virtual void Delivery
() = 0;
virtual void StockLevel
() = 0;
virtual void
OrderStatus () = 0;
};

```

#### Common\txnlog\include\rtetime.h

```

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

//FILE: RTETIME.H

#define MAX_JULIAN_TIME
0x7FFFFFFFFFFFFFFF
#define JULIAN_TIME __int64
#define TC_TIME DWORD

```

```

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

```

#### Common\txnlog\include\spinlock.h

```

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

#ifdef _INC_Spinlock

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

/*****
*****
* Spinlock and Semaphore
locking.
*
* This class provides a very
conservative locking scheme.
* The assumption behind the
code is that locks will be
* held for a very short time.
When a lock is taken a memory
* location is exchanged. All other
threads that want this
* lock wait by spinning and
sometimes sleeping on a semaphore

```

```

        * until it becomes free again.
The only other choice is not
        * to wait at all and move on to do
something else. This
        * module should normally be
used in conjunction with cache
        * aligned memory in minimize
cache line misses.
        *
*****
*****/

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

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

    Spinlock( void );

    inline
BOOL ClaimLock( BOOL Wait = TRUE );
    inline
void ReleaseLock( void );

    ~Spinlock( void );
    //
Disabled operations.

    Spinlock( const Spinlock & Copy );
void
operator=( const Spinlock & Copy );

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

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

```

```

        *
*****
*****/

inline BOOL
Spinlock::ClaimSpinlock( volatile LONG *Spinlock
)
{
    #ifdef _DEBUG

    InterlockedIncrement( (LPLONG) &
TotalLocks );
    #endif
    return ( (*Spinlock
== LockOpen) && (InterlockedExchange(
(LPLONG)Spinlock, LockClosed ) == LockOpen)
);
}

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

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

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

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

#define _INC_Spinlock

#endif

```

```

\common\txnlog\include\txnlog.h

```

```

/* FILE:
TXNLOG.H
*
Microsoft TPC-C Kit Ver. 4.10.000
*
not yet audited
*
PURPOSE: Header file for txn log
class
*
Copyright Microsoft, 1999
All Rights Reserved
*
*/
#include <stdio.h>
//needed for FILE

#define DRIVER_NAME_LEN
32 //max length of the
driver engine name - must be the same as in
engstut.h!
#define TXN_LOG_INCORRECTLY_SHUT_DOWN
100 //ctrl rec subtype
generated by the txn log when reading an
abruptly shut down log

#pragma once

typedef struct _TXN_NEWORDER
{
    BYTE OL_Count; //range 0 to 31
    BYTE OL_Remote_Count; //range 0 to
31
    WORD c_id;
    int o_id;
} TXN_NEWORDER;

typedef struct _TXN_PAYMENT
{
    BYTE CustByName;
    BYTE IsRemote;
} TXN_PAYMENT;

typedef struct _TXN_ORDERSTATUS
{
    BYTE
CustByName;
} TXN_ORDERSTATUS;

typedef union _TXN_DETAILS
{
    TXN_NEWORDER
NewOrder;
    TXN_PAYMENT
Payment;
    TXN_ORDERSTATUS
OrderStatus;
} TXN_DETAILS;

// Common header for all records in
txn log. The TxnType field is
// a switch which identifies the
particular variant.
#define TXN_REC_TYPE_CONTROL
1 //
#define TXN_REC_TYPE_TPCC
2
// replaces
TRANSACTION_TYPE_TPCC

```

```

#define
TXN_REC_TYPE_TPCC_DELIV_DEF 3

#define TXN_REC_TYPE_TPCW
4

// replaces
TRANSACTION_TYPE_TPCW

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

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

// number of bytes after this field
} TXN_RECORD_CONTROL,
*PTXN_RECORD_CONTROL;

// TPC-C Txn Record Layout:
//
//TxnStartT0' is a Julian timestamp
corresponding to the moment the
//txn is sent to the SUT, i.e., beginning of
response time. Deltas
//are in milliseconds. Note that if RTDelay >
0, then the txn was
//delayed by this amount. The delay occurs at
the beginning of the
//response time. So if RTDelay > 0, then the
txn was actually sent
//at TxnStartT0 + RTDelay.
//
//Graphically:
//
// time -->
//
// |--- Menu ---|--- Keying ---|--- Response ---
|--- Think ---|
// <- DeltaT1 -> <- DeltaT2 -> <- DeltaT4
-> <- DeltaT3 ->
//
// ^
// ^ TxnStartT0
//

```

```

//RTDelay is the amount of response time
delay, included in DeltaT4.
//RTDelay is recorded per txn because this
value can be changed on
the fly, and so may vary from txn to txn.
//
//TxnStatus is the txn completion code. It is
used to indicate errors.
//For example, in the New Order txn, 1% of
txns abort. TxnStatus will
//reflect this.

typedef struct
_TXN_RECORD_TPCC
{
// common header;
must exactly match TXN_RECORD_HEADER
    JULIAN_TIME
    TxnStartT0; // start
of txn
    BYTE
    TxnType;
// = TXN_REC_TYPE_TPCC
    BYTE
    TxnSubType;
// depends on TxnType
// end of common
header
    int DeltaT1;
// menu time (ms)
    int DeltaT2;
// keying time (ms)
    int DeltaT3;
// think time (ms)
    int DeltaT4;
// response time (ms)
    int RTDelay;
// response time delay
(ms)
    int
    TxnError; // error
code providing more detail for TxnStatus
    int
    w_id;
// warehouse ID
    BYTE d_id;
//
assigned district ID for this thread
    BYTE
    d_id_ThisTxn; //
district ID chosen for this particular
    BYTE
    TxnStatus; //
completion status for txn to indicate errors
    BYTE
    reserved; // for
word alignment
    TXN_DETAILS
    TxnDetails; //
    bool
    IsSuccessRecord() { return (TxnStatus ==
ERR_SUCCESS || TxnStatus ==
ERR_BAD_ITEM_ID || TxnStatus ==
ERR_TYPE_DELIVERY_POST); }
*PTXN_RECORD_TPCC;

// TPC-C Deferred Delivery Txn
Record Layout:
//
//Incorporating delivery transaction
information into the above

```

```

//structure would increase the size
of TXN_DETAILS structure by 2 bytes
//
typedef struct
_TXN_RECORD_TPCC_DELIV_DEF
{
// common header;
must exactly match TXN_RECORD_HEADER
    JULIAN_TIME
    TxnStartT0; // start
of txn
    BYTE
    TxnType;
// =
TXN_REC_TYPE_TPCC_DELIV_DEF
    BYTE
    TxnSubType;
// = 0
// end of common
header
    int DeltaT4;
// response time (ms)
    int
    DeltaTxnExec; //
execution time (ms)
    int
    w_id;
// warehouse ID
    BYTE
    TxnStatus; //
completion status for txn to indicate errors
    BYTE
    reserved; // for
word alignment
    short o_carrier_id;
// carrier id
    long
    o_id[10]; //
returned delivery transaction ids
    bool
    IsSuccessRecord() { return (TxnStatus ==
ERR_SUCCESS || TxnStatus ==
ERR_BAD_ITEM_ID || TxnStatus ==
ERR_TYPE_DELIVERY_POST); }
*PTXN_RECORD_TPCC_DELIV_DEF;

//
//TPC-W records.
//
typedef struct
_TXN_RECORD_TPCW
{
// common header;
must exactly match TXN_RECORD_HEADER
    JULIAN_TIME
    TxnStartT0; // start
of txn
    BYTE
    TxnType;
// = TXN_REC_TYPE_TPCW
    BYTE
    TxnSubType;
// depends on TxnType
// end of common
header
    int ThinkTime;
// think time (ms)

```



```

int WIRT;
// response time (ms)
int
TxnError; // error
code providing more detail for TxnStatus
BYTE
TxnStatus; //
completion status for txn to indicate errors
//This field below
depends on the txn sub type:
//- for Home
interaction: it indicates whether the user was a
new customer (or returning)
//- for Buy Confirm:
it indicates whether
the shipping address was updated
//- for Search
Request: it indicates the search
type (Author, Title, or Subject)
//This statistics needs
to be reported according to 5.5.5.1 clause in the
specs.
//Because this field
occupies 1 byte, the record structure is already
aligned on word boundary.
union {
newCustomer; BYTE
addrUpdated; BYTE
searchType; BYTE
intrDetails; }
//This field is mostly
for informational/debugging purposes.
//It indicates what
user performed this web interaction and what
instance (session) of that use it was.
//The first 22 bits
indicate the user #, and the top 10 bits indicate
instance (session) #.
unsigned __int32
uiUser;
bool
IsSuccessRecord() { return (TxnStatus ==
ERR_SUCCESS); }
} TXN_RECORD_TPCW,
*PTXN_RECORD_TPCW;
//
// Data part of a control
record written when a user is created (or it's new
session) - to record USMD
typedef struct
_TXN_RECORD_TPCW_USER_DATA
{
unsigned __int32
uiUser;
// user number
JULIAN_TIME
USMD;
// USMD for this user
BYTE
bRetCust;
// returning customer?
}
TXN_RECORD_TPCW_USER_DATA,
*PTXN_RECORD_TPCW_USER_DATA;

```

```

//The entire TPCW User control
record structure
typedef struct
_TXN_RECORD_TPCW_USER
{
// common header;
must exactly match TXN_RECORD_HEADER
JULIAN_TIME
TxnStartT0; // start
of txn
BYTE
TxnType;
// = TXN_REC_TYPE_CONTROL
BYTE
TxnSubType;
// depends on TxnType
// end of common
header
DWORD Len;
// number of bytes after this field
//The fields above
must exactly match TXN_RECORD_CONTROL
//The fields below
must exactly match
TXN_RECORD_TPCW_USER_DATA
unsigned __int32
uiUser;
// user number
JULIAN_TIME
USMD;
// USMD for this user
BYTE
bRetCust;
// returning customer?
} TXN_RECORD_TPCW_USER,
*PTXN_RECORD_TPCW_USER;
#define USER_INDEX_NBITS
22
#define USER_INDEX_MASK
0x003fffff
//lower 22 bits mask for user field
in TPCW record
#define USER_SESSION_MASK
0xffc00000 //upper
10 bits mask for user field in TPCW record
#define USER_CREATE_REC
254
//subtype for the control record
written when a user is created
#define TXN_LOG_VERSION
2
#define TXN_DATA_START
4096 // offset
in log file where log records start
#define TXN_LOG_EYE_CATCHER "BC"
// signature bytes at the start of log
file
////////////////////////////////////
////////////////////////////////////
// The transaction log has a header
as the first 4K block.
//
typedef struct _TXN_LOG_HEADER
{

```

```

char
EyeCatcher[2];
// signature bytes; should always
be "BC"
int
LogVersion; // set to
TXN_LOG_VERSION
JULIAN_TIME
BeginTxnTS;
// timestamp of first (lowest) txn
start
JULIAN_TIME
EndTxnTS;
// timestamp of last (highest) txn
completion time
int
iRecCount; //
number of records in log file
BOOL
bLogSorted;
int
iFileSize;
// file size in bytes
// driver engine that
created this log file
char
szDriverEngineName[DRIVER_NAM
E_LEN];
// the record map
provides a fast way to get close to a particular
timestamp in a sorted log file.
//
// struct
// {
//
JULIAN_TIME
TS;
// timestamp of record
//
int
iPos; // byte
position in file
//
}
RecMap[RecMapSize];
//#define RecMapSize
200
} TXN_LOG_HEADER,
*PTXN_LOG_HEADER;
/* Header of the sorted pointers
blocks in Temp file (in merging). */
typedef struct BLOCK_HEADER {
long
BlockPos;
__int64 CurPos;
DWORD
BytesRead;
int
nRecords;
BYTE *offset;
// offset of pointers to records in
the log file */
} BLOCK_HEADER,
*PBLOCK_HEADER;
#define READ_BUFFER_SIZE
64*1024
//#define WRITE_BUFFER_SIZE
8*1024

```

```

#define WRITE_BUFFER_SIZE
128*1024

#define NUM_READ_BUFFERS
1

#define NUM_WRITE_BUFFERS
2

#define MAX_NUM_BUFFERS
2

// flags passed in to the constructor
#define TXN_LOG_WRITE
0x01
#define TXN_LOG_READ
0x02
#define TXN_LOG_SORTED
0x04
#define TXN_LOG_CRASHOPEN 0x08
// if set, invalid
headers will be tolerated; used for recovery

#define TXN_LOG_OS_ERROR 1
#define TXN_LOG_NOT_SORTED 2

#define SKIP_CTRL_RECS 1

class CTxnLog
{
private:
    DWORD
    iBufferSize;
    //buffer allocated size
    DWORD
    iBytesFreeInBuffer;
    //total bytes available for use in
    buffer
        int
        iNumBuffers;
        //buffers in use
        int
        iActiveBuffer;
        //indicates which
        buffer is active: 0 or 1
        int
        iIoBuffer;
        //buffer
        for any pending IO operation
        //
        int
        iFilePointer;
        //position in file.
        LARGE_INTEGER
        iFilePointer;
        //position in file.
        int
        iNextRec;
        //when
        reading, ordinal value of next record
        // A "save point" is
        remembered each time GetNextRecord is called
        with a start time specified.
        // The next time it is
        called, if start time is after the save point, we
        start scanning from the
        // save point. This is
        particularly useful in FindBestInterval, where the
        log is scanned repeatedly.
        JULIAN_TIME
        SavePtTime;
        int
        //
        iSavePtFilePointer;
        LARGE_INTEGER
        iSavePtFilePointer;

```

```

int
iSavePtNextRec;
JULIAN_TIME
lastTTS;
//when
writing sorted output, used to verify records are
sorted
    BOOL
    bWrite;
//writing
log file
    BOOL
    bCrashOpen;
// tolerate bad
headers and consistency checks
    BOOL
    bLogSorted;
// is log file sorted?
applies to both input and output
    JULIAN_TIME
    BeginTxnTS;
// timestamp of first
(lowest) txn start
    JULIAN_TIME
    EndTxnTS;
// timestamp of last
(highest) txn completion time
    int
    iRecCount;
// number of records in log file
// To write a
checkpoint information into the header, need to
know the EndTxnTS for the
// last record written
to the disk. It is not necessarily the last record in
the
// last written buffer,
as the last record may be only partially in the
buffer.
// So remember the
timestamps for 2 last records that begin in the
buffer - one of
// them will the last
complete record written to disk.
    JULIAN_TIME
    PrevEndTxnTS;
// timestamp of the
previous to last record
    union {
        TXN_LOG_HEADER
        HeaderForCheckpoint;// header
        written on every checkpoint
        char
        szHeaderBuffer[512]; // 512
        bytes is the minimum we can write to the disk
        } HeaderBuffer;
//need the union because can't
write sizeof(TXN_LOG_HEADER) - too few bytes
// Control record
returned from GetNextRecord if the file
// currently opened
for read was not properly shut down
    struct
    {
        TXN_RECORD_CONTROL
        RecHeader;

```

```

char
szDriverName[DRIVER_NAME_LEN]
};
IncorrectShutDownRec;
    BYTE
    *pCurrent;
//ptr to current buffer
    BYTE
    *pBuffer[MAX_NUM_BUFFERS];
PTXN_RECORD_HEADER
*TxnArray;
//transaction record pointer array
for sort
    DWORD
    dwError;
    DWORD
    dwCheckpointError;
//error in checkpoint thread
    HANDLE
    hTxnFile;
//handle to log file
    HANDLE
    hMapFile;
//map file used when
sorting the log
    HANDLE
    hIoComplete;
//event to signify that there are no
pending IOs
    HANDLE
    hLogFileIo;
//event to signal the
IO thread to write the inactive buffer
    HANDLE
    hStopCheckpointThread; //event
to signal the checkpoint thread to exit
    Spinlock Spin;
//spin lock to protect
the txn log file buffers
    Spinlock
    WriteSpin;
//spin lock to protect
the WriteFile operation between IO and
Checkpoint threads
    FILE
    *tmpFile; //temp
file for merging sorted pieces
    PBLOCK_HEADER
    tmpHeaders;
//sorted pointers block header
    BYTE
    **recPointers; //record
pointer buffers for each sorted block
    PTXN_RECORD_HEADER
    *recBuffers; //record buffers for
each sorted block
    int
    *PointersRead; // # of
pointers processed in each block
    BOOL
    *BlockAvailable;
//whether to check a
particular block for jmin

```

```

        int
nBlocks;
        int
jmin;

//index (block-wise) of the lowest
timestamp record
        int
iAvgRecordLen;

//average record length

        int
iSortedReturnedCount;
//keeps track of the # of sorted
records returned through GetSortedRecord()

        BOOL
bIncorrectShutDown;
// indicates whether
the log opened for read was not correctly shut
down

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

        void LoadBuffers(int //used in
sort/merge to load record buffers

        static void
CheckpointThread(CTXnLog *); //
checkpointing thread

        public:

                CTxnLog(LPCTSTR
szFileName, DWORD dwOpts, char *szDriver =
NULL);
                ~CTXnLog(void);

                int
WriteToLog(PTXN_RECORD_TPCC pTxnRcrd);
                int
WriteToLog(PTXN_RECORD_TPCC_DELIV_DEF
pTxnRcrd);
                int
WriteToLog(PTXN_RECORD_CONTROL pCtrlRec);
                int
WriteToLog(PTXN_RECORD_HEADER pCtrlRec);
                int
WriteToLog(PTXN_RECORD_TPCW pTxnRcrd);
                //support for TPC-W

                int
WriteCtrlRecToLog(BYTE SubType, LPTSTR lpStr,
DWORD dwLen);

                void
CloseTransactionLogFile(void);

                PTXN_RECORD_HEADER
GetNextRecord(BOOL bSkipCtrlRecs = FALSE);

                PTXN_RECORD_HEADER
GetNextRecord(JULIAN_TIME SeekTimeT0, BOOL
bSkipCtrlRecs = FALSE);

                int Sort(void);

```

```

                PTXN_RECORD_HEADER
GetSortedRecord();
                inline BOOL
IsSorted(void) { return bLogSorted; };
                inline JULIAN_TIME
BeginTS(void) { return BeginTxnTS; };
                inline JULIAN_TIME
EndTS(void) { return EndTxnTS; };
                inline int
RecordCount(void) { return iRecCount; };

};

class CTXNLOG_ERR : public CBaseErr
{
        public:
                enum
CTXNLOG_ERRS
                {
                        ERR_BAD_FILE_FORMAT,
                        // "File format is invalid."

                        ERR_UNKNOWN_LOG_VERSION,
                        // "Log file version is unknown."

                        ERR_BROKEN_LOG_FILE,
                        // "Log file is broken."

                        ERR_LOG_NOT_SORTED,
                        // "Log file is not
sorted"

                        ERR_INVALID_TIME_SEQ,
                        // "Internal Error: Record Time
Sequence invalid."
                };

                CTXNLOG_ERR(int
iErr) : CBaseErr(iErr) {};

                int ErrorType()
{return ERR_TYPE_TXNLOG;};
                char *ErrorTypeStr() {
return "TXN LOG"; }

                char *ErrorText()
                {
                static
char *szMsgs[] = {

                        "File format is invalid.",

                        "Log file version is unknown.",

                        "Log file is broken.",

                        "Log file is not sorted",

                        "Internal Error: Record Time
Sequence invalid.",

                        ""
                };

                for(int i
= 0; szMsgs[i][0]; i++)
                {
                        if ( m_idMsg == i )
                                break;
                }

```

```

                return(szMsgs[i][0] ? szMsgs[i] :
ERR_UNKNOWN);
};

```

```

db dblink dll\src\tpcc dlib.
cpp

```

```

/*      FILE:
TPCC_DBLIB.CPP

*      Microsoft TPC-C Kit Ver. 4.42.000

*      Copyright Microsoft, 2002
All Rights Reserved

*      Version 4.10.000 audited by
Richard Gimarc, Performance Metrics, 3/17/99

*      PURPOSE:  Implements dblink calls
for TPC-C txns.
*      Contact:   Charles Levine
(clevine@microsoft.com)
*
*      Change history:
*              4.42.000 - changed
w_id fields from short to long to support >32K
warehouses
*              4.20.000 - updated
rev number to match kit
*              4.10.001 - not
deleting error class in catch handler on deadlock
retry;
*
*      not a functional bug, but a
memory leak
*
*      - had to tweak some declarations
to compile with latest SDK; no functional change
*/

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

#define DBNTWIN32
#include <sqlfront.h>
#include <sqldb.h>

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

// need to declare functions for export
#define DllDecl __declspec( dllexport )

#include "..\..\common\src\error.h"
#include "..\..\common\src\trans.h"
#include "..\..\common\src\txn_base.h"
#include "tpcc_dblink.h"

#define DEFCLPACKSIZE
4096

// version string; must match return value from
tpcc_version stored proc
const char sVersion[] = "4.20.000";

```

```

const
    iMaxRetries = 10;
    // how many retries on deadlock
static long iConnectionCount = 0;
// number of current dblib connections

const int iErrOleDbProvider = 7312;
const char sErrTimeoutExpired[] = "Timeout
expired";

BOOL APIENTRY DllMain(HMODULE hModule,
DWORD ul_reason_for_call, LPVOID lpReserved)
{
    switch( ul_reason_for_call )
    {
        case
            DLL_PROCESS_ATTACH:
                DisableThreadLibraryCalls(hModule)
;
                dbinit();
                // initialize dblib
                break;
        case
            DLL_PROCESS_DETACH:
                dbexit();
                // close all dblib
                break;
        default:
            /*
nothing */;
    }
    return TRUE;
}

int err_handler(DBPROCESS *dbproc, int severity,
int dberr, int oserr, LPCSTR dberrstr, LPCSTR
oserrstr)
{
    CTPCC_DBLIB
    *pConn;

    assert(dbproc != NULL);
    pConn =
(CTPCC_DBLIB*)dbgetuserdata(dbproc);

    if (pConn != NULL)
    {
        pConn-
>SetDbLibError( severity, dberr, oserr, dberrstr,
oserrstr );
    }
    return INT_CANCEL;
}

/* FUNCTION: int msg_handler(DBPROCESS
*dbproc, DBINT msgno, int msgstate, int
severity, char *msgtext)
*
* PURPOSE: This function handles DB-Library
SQL Server error messages
*
* ARGUMENTS:
    DBPROCESS
    *dbproc
    DBPROCESS id pointer
*
    DBINT
    msgno
    message number

```

```

*
    int
        msgstate
        message state
*
    int
        severity
        message severity
*
    char
    *msgtext
        printable
    message description
*
* RETURNS:
    int

    INT_CONTINUE
        continue
    if error is SQLETIME else INT_CANCEL action
*
    INT_CANCEL
        cancel operation
*
* COMMENTS:
    This function also sets
the dead lock dbproc variable if necessary.
*
*/

// typedef INT (SQLAPI
*DBMSGHANDLE_PROC)(PDBPROCESS, DBINT,
INT, INT, LPCSTR, LPCSTR, LPCSTR,
DBUSMALLINT);

int msg_handler(DBPROCESS *dbproc, DBINT
msgno, int msgstate, int severity,
LPCSTR msgtext, LPCSTR srvname,
LPCSTR procname, DBUSMALLINT line)
{
    CTPCC_DBLIB
    *pConn;

    assert(dbproc != NULL);
    pConn =
(CTPCC_DBLIB*)dbgetuserdata(dbproc);

    if (pConn != NULL)
    {
        pConn->SetSqlError(
msgno, msgstate, severity, msgtext );
    }

    return 0;
}

/* FUNCTION: void UtilStrCpy(char * pDest, char
* pSrc, int n)
*
* PURPOSE: This function copies n characters
from string pSrc to pDst and places a
null
character at the end of the destination string.
*
* ARGUMENTS:
    char
    *pDest
        destination string pointer
*
    char
    *pSrc
        source string pointer
*
    int
        n
        number of characters to copy
*
* RETURNS:
    None

```

```

* COMMENTS:
    Unlike strncpy this
function ensures that the result string is
*
    always null terminated.
*
*/

inline static void UtilStrCpy(char * pDest, const
BYTE * pSrc, int n)
{
    strncpy(pDest, (char *)pSrc, n);
    pDest[n] = '\0';

    return;
}

/* FUNCTION: CTPCC_DBLIB_ERR::ErrorText
*
*/

char* CTPCC_DBLIB_ERR::ErrorText(void)
{
    int i;

    static SERRORMSG errorMsgs[] =
    {
        {
            ERR_WRONG_SP_VERSION,
            "Wrong version of stored procs on
database server"
        },
        {
            ERR_INVALID_CUST,
            "Invalid Customer id,name."
        },
        {
            ERR_NO_SUCH_ORDER,
            "No
orders found for customer."
        },
        {
            ERR_RETRIED_TRANS,
            "Retries
before transaction succeeded."
        },
        {
            0,
            ""
        }
    };

    static char szNotFound[] =
"Unknown error number.";

    for(i=0; errorMsgs[i].szMsg[0];
i++)
    {
        if ( m_erno ==
errorMsgs[i].iError )
            break;
    }
    if ( !errorMsgs[i].szMsg[0] )
        return szNotFound;
    else
        return
errorMsgs[i].szMsg;
}

// wrapper routine for class constructor

```

```

__declspec(dllexport) CTPCC_DBLIB*
CTPCC_DBLIB_new(
    LPCSTR szServer,
    // name of SQL server
    LPCSTR szUser,
    // user name for login
    LPCSTR szPassword,
    // password for login
    LPCSTR szHost,
    // workstation name;
shows up in sp_who; max 30 chars, only first 10
kept by SQL Server
    LPCSTR szDatabase )
    // name of database to use
{
    return new CTPCC_DBLIB(
szServer, szUser, szPassword, szHost,
szDatabase );
}

CTPCC_DBLIB::CTPCC_DBLIB (
    LPCSTR szServer,
    // name of SQL server
    LPCSTR szUser,
    // user name for login
    LPCSTR szPassword,
    // password for login
    LPCSTR szHost,
    // workstation name;
shows up in sp_who; max 30 chars, only first 10
kept by SQL Server
    LPCSTR szDatabase )
    // name of database to use
{
    LOGINREC *login;
    const BYTE *pData;

    // initialization
    m_dbproc = NULL;
    m_DbLibErr = (CDBLIBERR*)NULL;
    m_SqlErr = (CSQLERR*)NULL;

    m_MaxRetries = 10;
    // how many retries on deadlock

    // increase max number of
connections if getting close
    if ( dbgetmaxprocs() <
(iConnectionCount+5) )
    {
        if (
dbsetmaxprocs(iConnectionCount+10) == FAIL )
            ThrowError(CDBLIBERR::eDbSetMa
xProcs);
    }

    // allocate a login structure
    login = dblogin();
    if (login == NULL)

        ThrowError(CDBLIBERR::eLogin);
    InterlockedIncrement(
&iConnectionCount );

    // register error and message
handler functions
    if (dbprocerrhandle(login,
err_handler) == NULL)

        ThrowError(CDBLIBERR::eDbProch
andler);

```

```

        if (dbprocmsghandle(login,
msg_handler) == NULL)
            ThrowError(CDBLIBERR::eDbProch
andler);

        DBSETLUSER(login, szUser);
        DBSETLPWD(login, szPassword);
        DBSETLHOST(login, szHost);
        DBSETLPACKET(login, (unsigned
short)DEFCLPACKSIZE);
        DBSETLVERSION(login, DBVER60);
        // use dblib ver 6.0
client behavior

        // set time to wait for login
if (dbsetlogintime(60) == FAIL)

            ThrowError(CDBLIBERR::eDbSet);

        // set time to wait for statement
execution
if (dbsettime(180) == FAIL)

            ThrowError(CDBLIBERR::eDbSet);

        m_dbproc = dbopen(login,
szServer);

        // deallocate login structure before
checking for success
        dbfreelogin( login );

        if (m_dbproc == NULL)

            ThrowError(CDBLIBERR::eDbOpen)
;

        // save address of class instance so
that the message and error handler
        // can get to data.
        dbsetuserdata(m_dbproc,
(LPVOID)this);

        // Use the the right database
if (dbuse(m_dbproc, szDatabase)
== FAIL)

            ThrowError(CDBLIBERR::eDbUse);

        dbcmd(m_dbproc, "set nocount on
"); // do not
return row counts
        dbcmd(m_dbproc, "set
XACT_ABORT ON"); //
rollback transaction on abort

        if (dbsqlexec(m_dbproc) == FAIL)

            ThrowError(CDBLIBERR::eDbSqlExe
c);

        DiscardNextResults(2);

        // verify that version of stored procs
on server is correct
        dbrpcinit(m_dbproc, "tpcc_version",
0);

        if (dbrpcexec(m_dbproc) == FAIL)

            ThrowError(CDBLIBERR::eDbRpcEx
ec);

```

```

        if (dbresults(m_dbproc) !=
SUCCEEDED)
            ThrowError(CDBLIBERR::eDbResult
s);

        if (dbnextrow(m_dbproc) !=
REG_ROW)

            ThrowError(CDBLIBERR::eDbNextR
ow);

        char szSrvVersion[16];
        pData=dbdata(m_dbproc, 1);
        if (pData)

            UtilStrCpy(szSrvVersion, pData,
dbdatalen(m_dbproc, 1));
            else
                szSrvVersion[0]=0;
            if (strcmp(szSrvVersion,sVersion))
                throw new
CTPCC_DBLIB_ERR(
CTPCC_DBLIB_ERR::ERR_WRONG_SP_VERSION
);

            DiscardNextRows(0);
            DiscardNextResults(0);
        }

CTPCC_DBLIB::~CTPCC_DBLIB( void )
{
    // close db connection and
deallocate resources
    dbclose(m_dbproc);
    InterlockedDecrement(
&iConnectionCount );
    if (m_DbLibErr != NULL)
        delete m_DbLibErr;
    if (m_SqlErr != NULL)
        delete m_SqlErr;
}

void CTPCC_DBLIB::SetDbLibError(int severity,
int dberr, int oserr, LPCSTR dberrstr, LPCSTR
oserrstr)
{
    delete m_DbLibErr;
    m_DbLibErr = new
CDBLIBERR(CDBLIBERR::eUnknown, severity,
dberr, oserr);

    if (dberrstr != NULL)
    {
        m_DbLibErr-
>m_dberrstr = new char[ strlen(dberrstr)+1 ];
        strcpy( m_DbLibErr-
>m_dberrstr, dberrstr );
    }

    if (oserrstr != NULL)
    {
        m_DbLibErr-
>m_oserrstr = new char[ strlen(oserrstr)+1 ];
        strcpy( m_DbLibErr-
>m_oserrstr, oserrstr );
    }
}

void CTPCC_DBLIB::SetSqlError( int /*DBINT*/
msgno, int msgstate, int severity, LPCSTR
msgtext )
{

```

```

        if (m_SqlErr == NULL)
            m_SqlErr = new
CSQLERR();

        m_SqlErr->m_msgno = msgno;
        m_SqlErr->m_msgstate =
msgstate;
        m_SqlErr->m_severity = severity;

        delete [] m_SqlErr->m_msgtext;
        if (msgtext != NULL)
        {
            m_SqlErr-
>m_msgtext = new char[ strlen(msgtext)+1 ];
            strcpy( m_SqlErr-
>m_msgtext, msgtext );
        }
    }

void CTPCC_DBLIB::ThrowError(
CDBLIBERR::ACTION eAction )
{
    // discard anything still in return
buffer
    DiscardNextRows(-1);
    DiscardNextResults(-1);

    // check for SQL Server error first;
if yes, throw it and ignore any DBLib error.
    if (m_SqlErr != NULL)
    {
        CSQLERR
        *pSqlErr;
        pSqlErr = m_SqlErr;
        m_SqlErr = NULL;

        // clear our pointer to instance;
catch handler will delete
        throw pSqlErr;
    }

    CDBLIBERR *pDbLibErr;
    if (m_DbLibErr == NULL)
        // this case isn't
expected to happen, since it means that an error
was returned
        // but the error
handlers were not called.
        pDbLibErr = new
CDBLIBERR(eAction);
    else
    {
        pDbLibErr =
m_DbLibErr;
        pDbLibErr-
>m_eAction = eAction;
        m_DbLibErr = NULL;
        // clear our pointer to
instance; catch handler will delete
    }

    throw pDbLibErr;

    // Read and discard rows until no more. Throw
an exception if number of rows read doesn't
// match number of rows expected. The row
count will be ignored if the expected count value
// passed in is negative. A typical use of this
routine is to verify that there are no more
// rows to be read.
void CTPCC_DBLIB::DiscardNextRows(int
iExpectedCount)
{
    int
iRowsRead = 0;

```

```

        RETCODE rc;
        while (TRUE)
        {
            rc =
dbnextrow(m_dbproc);
            if (rc ==
NO_MORE_ROWS)
                break;
            if (rc == FAIL)
            {
                if
                (iExpectedCount >= 0)
                    ThrowError(CDBLIBERR::eDbNextR
ow);
                else
                    break;
            }
            iRowsRead++;
        }

        if ((iExpectedCount >= 0) &&
(iExpectedCount !=
iRowsRead))
            ThrowError(CDBLIBERR::eWrongRo
wCount);
    }

    // Read and discard results until no more. Throw
an exception if number of result sets read doesn't
// match number expected. The result set count
will be ignored if the expected count value
// passed in is negative. A typical use of this
routine is to verify that there are no more
// result sets to be read.
void CTPCC_DBLIB::DiscardNextResults(int
iExpectedCount)
{
    int
iResultsRead = 0;
    RETCODE rc;

    while (TRUE)
    {
        rc =
dbresults(m_dbproc);
        if (rc ==
NO_MORE_RESULTS)
            break;
        if (rc == FAIL)
        {
            if
            (iExpectedCount >= 0)
                ThrowError(CDBLIBERR::eDbResult
s);
            else
                break;
        }
        DiscardNextRows(-1);
        iResultsRead++;
    }

    if ((iExpectedCount >= 0) &&
(iExpectedCount !=
iResultsRead))
        ThrowError(CDBLIBERR::eWrongRo
wCount);
    }

```

```

void CTPCC_DBLIB::StockLevel()
int
iTryCount = 0;
const BYTE *pData;

ResetError();

while (TRUE)
{
    try
    {
        dbrpcinit(m_dbproc,
"tpcc_stocklevel", 0);

        dbrpcparam(m_dbproc, NULL, 0,
SQLINT4, -1, -1, (BYTE *)
&m_txn.StockLevel.w_id); //
@w_id int

        dbrpcparam(m_dbproc, NULL, 0,
SQLINT1, -1, -1, (BYTE *)
&m_txn.StockLevel.d_id); // @d_id
tinyint

        dbrpcparam(m_dbproc, NULL, 0,
SQLINT2, -1, -1, (BYTE *)
&m_txn.StockLevel.threshold); // @threshold
smallint

        if
        (dbrpcexec(m_dbproc) == FAIL)
            ThrowError(CDBLIBERR::eDbRpcEx
ec);

        if
        (dbresults(m_dbproc) != SUCCEED)
            ThrowError(CDBLIBERR::eDbResult
s);

        if
        (dbnextrow(m_dbproc) != REG_ROW)
            ThrowError(CDBLIBERR::eDbNextR
ow);

        if
        (pData=dbdata(m_dbproc, 1))
            m_txn.StockLevel.low_stock =
*((long *) pData);

        DiscardNextRows(0);
        DiscardNextResults(0);

        m_txn.StockLevel.exec_status_code
= eOK;
        return;
    }
    catch (CSQLERR *e)
    {
        if ((e-
>m_msgno == 1205 ||
(e->m_msgno ==
iErrOleDbProvider &&
strstr(e->m_msgtext,
sErrTimeoutExpired) != NULL)) &&

```

```

        (++iTryCount <= iMaxRetries)
        {
            // hit deadlock; backoff for
            increasingly longer period

            delete e;

            Sleep(10 * iTryCount);
        }
        else
            throw;
    }
} // while (TRUE)

//if (iTryCount)
//    throw new
CTPCC_DBLIB_ERR(CTPCC_DBLIB_ERR::ERR_RE
TRIED_TRANS, iTryCount);
}

```

```

void CTPCC_DBLIB::NewOrder()
{

```

```

    int
    i;
    DBINT
    commit_flag;
    DBDATETIME datetime;
    DBDATEREC daterec;

    int
    iTryCount = 0;
    const BYTE *pData;

    ResetError();

    while (TRUE)
    {
        try
        {
            dbrpcinit(m_dbproc,
"tpcc_neworder", 0);

            dbrpcparam(m_dbproc, NULL, 0,
SQLINT4, -1, -1, (BYTE *)
&m_txn.NewOrder.w_id);

            dbrpcparam(m_dbproc, NULL, 0,
SQLINT1, -1, -1, (BYTE *)
&m_txn.NewOrder.d_id);

            dbrpcparam(m_dbproc, NULL, 0,
SQLINT4, -1, -1, (BYTE *)
&m_txn.NewOrder.c_id);

            dbrpcparam(m_dbproc, NULL, 0,
SQLINT1, -1, -1, (BYTE *)
&m_txn.NewOrder.o_ol_cnt);

            // check
            whether any order lines are for a remote
            warehouse

            m_txn.NewOrder.o_all_local = 1;
            for (i =
0; i < m_txn.NewOrder.o_ol_cnt; i++)
            {

```

```

                if
                (m_txn.NewOrder.OL[i].ol_supply_w_id !=
m_txn.NewOrder.w_id)
                {
                    m_txn.NewOrder.o_all_local = 0;
                    // at least one remote warehouse

                    break;
                }
            }

            dbrpcparam(m_dbproc, NULL, 0,
SQLINT1, -1, -1, (BYTE *)
&m_txn.NewOrder.o_all_local);

            for (i =
0; i < m_txn.NewOrder.o_ol_cnt; i++)
            {
                dbrpcparam(m_dbproc, NULL, 0,
SQLINT4, -1, -1, (BYTE *)
&m_txn.NewOrder.OL[i].ol_i_id);

                dbrpcparam(m_dbproc, NULL, 0,
SQLINT4, -1, -1, (BYTE *)
&m_txn.NewOrder.OL[i].ol_supply_w_id);

                dbrpcparam(m_dbproc, NULL, 0,
SQLINT2, -1, -1, (BYTE *)
&m_txn.NewOrder.OL[i].ol_quantity);
            }

            if
            (dbrpcexec(m_dbproc) == FAIL)
                ThrowError(CDBLIBERR::eDbRpcEx
ec);

            // Get
            order line results

            m_txn.NewOrder.total_amount = 0;
            for (i =
0; i < m_txn.NewOrder.o_ol_cnt; i++)
            {
                if (dbresults(m_dbproc) !=
SUCCEED)
                    ThrowError(CDBLIBERR::eDbResult
s);

                if (dbnumcols(m_dbproc) != 5)
                    ThrowError(CDBLIBERR::eWrongNu
mCols);

                if (dbnextrow(m_dbproc) !=
REG_ROW)
                    ThrowError(CDBLIBERR::eDbNextR
ow);
            }

```

```

            if(pData=dbdata(m_dbproc, 1))

                UtilStrCpy(m_txn.NewOrder.OL[i].ol
_i_name, pData, dbdatlen(m_dbproc, 1));

            if(pData=dbdata(m_dbproc, 2))

                m_txn.NewOrder.OL[i].ol_stock =
(*(DBSMALLINT *) pData);

            if(pData=dbdata(m_dbproc, 3))

                UtilStrCpy(m_txn.NewOrder.OL[i].ol
_brand_generic, pData, dbdatlen(m_dbproc, 3));

            if(pData=dbdata(m_dbproc, 4))

                dbconvert(m_dbproc,
SQLNUMERIC, (LPCBYTE)pData,
dbdatlen(m_dbproc,4),
SQLFLT8, (BYTE
*)&m_txn.NewOrder.OL[i].ol_i_price, 8);

            if(pData=dbdata(m_dbproc, 5))

                dbconvert(m_dbproc,
SQLNUMERIC, (LPCBYTE)pData,
dbdatlen(m_dbproc,5),
SQLFLT8, (BYTE
*)&m_txn.NewOrder.OL[i].ol_amount, 8);

            m_txn.NewOrder.total_amount =
m_txn.NewOrder.total_amount +
m_txn.NewOrder.OL[i].ol_amount;

            DiscardNextRows(0);
        }

        // get
        remaining values for w_tax, d_tax, o_id, c_last,
c_discount, c_credit, o_entry_d, commit_flag
        if
        (dbresults(m_dbproc) != SUCCEED)
            ThrowError(CDBLIBERR::eDbResult
s);

            if
            (dbnextrow(m_dbproc) != REG_ROW)
                ThrowError(CDBLIBERR::eDbNextR
ow);

            if
            (dbnumcols(m_dbproc) != 8)
                ThrowError(CDBLIBERR::eWrongNu
mCols);

```

```

        if
        (pData=dbdata(m_dbproc, 1))

        dbconvert(m_dbproc,
SQLNUMERIC, (LPCBYTE)pData,
dbdatlen(m_dbproc,1), SQLFLT8, (BYTE
*)&m_txn.NewOrder.w_tax, 8);
        if
        (pData=dbdata(m_dbproc, 2))

        dbconvert(m_dbproc,
SQLNUMERIC, (LPCBYTE)pData,
dbdatlen(m_dbproc,2), SQLFLT8, (BYTE
*)&m_txn.NewOrder.d_tax, 8);
        if
        (pData=dbdata(m_dbproc, 3))

        m_txn.NewOrder.o_id = (*(DBINT
*) pData);
        if
        (pData=dbdata(m_dbproc, 4))

        UtilStrCpy(m_txn.NewOrder.c_last,
pData, dbdatlen(m_dbproc, 4));
        if
        (pData=dbdata(m_dbproc, 5))

        dbconvert(m_dbproc,
SQLNUMERIC, (LPCBYTE)pData,
dbdatlen(m_dbproc,5), SQLFLT8, (BYTE
*)&m_txn.NewOrder.c_discount, 8);
        if
        (pData=dbdata(m_dbproc, 6))

        UtilStrCpy(m_txn.NewOrder.c_credi
t, pData, dbdatlen(m_dbproc, 6));
        if
        (pData=dbdata(m_dbproc, 7))

        {
            datetime = *((DBDATETIME *)
pData);

            dbdatecrack(m_dbproc, &daterec,
&datetime);

            m_txn.NewOrder.o_entry_d.year
= daterec.year;

            m_txn.NewOrder.o_entry_d.month
= daterec.month;

            m_txn.NewOrder.o_entry_d.day
= daterec.day;

            m_txn.NewOrder.o_entry_d.hour
= daterec.hour;

            m_txn.NewOrder.o_entry_d.minute
= daterec.minute;

            m_txn.NewOrder.o_entry_d.second
= daterec.second;
        }
        if
        (pData=dbdata(m_dbproc, 8))

```

```

        commit_flag = (*(DBTINYINT *)
pData);

        DiscardNextRows(0);

        DiscardNextResults(0);

        if
        (commit_flag == 1)

        {
            m_txn.NewOrder.total_amount *=
((1 + m_txn.NewOrder.w_tax +
m_txn.NewOrder.d_tax) * (1 -
m_txn.NewOrder.c_discount));

            m_txn.NewOrder.exec_status_code
= eOK;
        }
        else
        {
            m_txn.NewOrder.exec_status_code
= eInvalidItem;

            return;
        }
        catch (CSQLERR *e)
        {
            if ((e-
>m_msgno == 1205 ||

            (e->m_msgno ==
iErrOleDbProvider &&

            strstr(e->m_msgtext,
sErrTimeoutExpired) != NULL) &&

            (++iTryCount <= iMaxRetries))
            {
                // hit deadlock; backoff for
increasingly longer period

                delete e;

                Sleep(10 * iTryCount);
            }
            else
            {
                throw;
            }
        }
        // while (TRUE)
        if (iTryCount)
        throw new
CTPCC_DBLIB_ERR(CTPCC_DBLIB_ERR::ERR_RE
TRIED_TRANS, iTryCount);
    }

    void CTPCC_DBLIB::Payment()
    {
        DBDATETIME datetime;
        DBDATEREC daterec;

        int
        iTryCount = 0;
        const BYTE *pData;

        ResetError();

        while (TRUE)

```

```

        {
            try
            {
                dbrpcinit(m_dbproc,
"tpcc_payment", 0);

                dbrpcparam(m_dbproc, NULL, 0,
SQLINT4, -1, -1, (BYTE *)
&m_txn.Payment.w_id);

                dbrpcparam(m_dbproc, NULL, 0,
SQLINT4, -1, -1, (BYTE *)
&m_txn.Payment.c_w_id);

                dbrpcparam(m_dbproc, NULL, 0,
SQLFLT8, -1, -1, (BYTE *)
&m_txn.Payment.h_amount);

                dbrpcparam(m_dbproc, NULL, 0,
SQLINT1, -1, -1, (BYTE *)
&m_txn.Payment.d_id);

                dbrpcparam(m_dbproc, NULL, 0,
SQLINT1, -1, -1, (BYTE *)
&m_txn.Payment.c_d_id);

                dbrpcparam(m_dbproc, NULL, 0,
SQLINT4, -1, -1, (BYTE *)
&m_txn.Payment.c_id);

                // if
customer id is zero, then payment is by name
if
(m_txn.Payment.c_id == 0)

                dbrpcparam(m_dbproc, NULL, 0,
SQLCHAR, -1, strlen(m_txn.Payment.c_last),
(unsigned char *)m_txn.Payment.c_last);

                if
                (dbrpcexec(m_dbproc) == FAIL)

                ThrowError(CDBLIBERR::eDbRpcEx
ec);

                if
                (dbresults(m_dbproc) != SUCCEED)

                ThrowError(CDBLIBERR::eDbResult
s);

                if
                (dbnextrow(m_dbproc) != REG_ROW)

                ThrowError(CDBLIBERR::eDbNextR
ow);

                if
                (dbnumcols(m_dbproc) != 27)

                ThrowError(CDBLIBERR::eWrongNu
mCols);

                if
                (pData=dbdata(m_dbproc, 1))

                m_txn.Payment.c_id = (*(DBINT *)
pData);

                if
                (pData=dbdata(m_dbproc, 2))

```



```

        UtilStrCpy(m_txn.Payment.c_last,
pData, dbdatlen(m_dbproc, 2));
        if
(pData=dbdata(m_dbproc, 3))
        {
            datetime = *((DBDATETIME *)
pData);
            dbdatecrack(m_dbproc, &daterec,
&datetime);
            m_txn.Payment.h_date.year =
daterec.year;
            m_txn.Payment.h_date.month =
daterec.month;
            m_txn.Payment.h_date.day =
daterec.day;
            m_txn.Payment.h_date.hour =
daterec.hour;
            m_txn.Payment.h_date.minute =
daterec.minute;
            m_txn.Payment.h_date.second =
daterec.second;
        }
        if
(pData=dbdata(m_dbproc, 4))
            UtilStrCpy(m_txn.Payment.w_street
_1, pData, dbdatlen(m_dbproc, 4));
        if
(pData=dbdata(m_dbproc, 5))
            UtilStrCpy(m_txn.Payment.w_street
_2, pData, dbdatlen(m_dbproc, 5));
        if
(pData=dbdata(m_dbproc, 6))
            UtilStrCpy(m_txn.Payment.w_city,
pData, dbdatlen(m_dbproc, 6));
        if
(pData=dbdata(m_dbproc, 7))
            UtilStrCpy(m_txn.Payment.w_state,
pData, dbdatlen(m_dbproc, 7));
        if
(pData=dbdata(m_dbproc, 8))
            UtilStrCpy(m_txn.Payment.w_zip,
pData, dbdatlen(m_dbproc, 8));
        if
(pData=dbdata(m_dbproc, 9))
            UtilStrCpy(m_txn.Payment.d_street
_1, pData, dbdatlen(m_dbproc, 9));
        if
(pData=dbdata(m_dbproc, 10))
            UtilStrCpy(m_txn.Payment.d_street
_2, pData, dbdatlen(m_dbproc, 10));
        if
(pData=dbdata(m_dbproc, 11))
            UtilStrCpy(m_txn.Payment.d_city,
pData, dbdatlen(m_dbproc, 11));
        if
(pData=dbdata(m_dbproc, 12))

```

```

        UtilStrCpy(m_txn.Payment.d_state,
pData, dbdatlen(m_dbproc, 12));
        if
(pData=dbdata(m_dbproc, 13))
            UtilStrCpy(m_txn.Payment.d_zip,
pData, dbdatlen(m_dbproc, 13));
        if
(pData=dbdata(m_dbproc, 14))
            UtilStrCpy(m_txn.Payment.c_first,
pData, dbdatlen(m_dbproc, 14));
        if
(pData=dbdata(m_dbproc, 15))
            UtilStrCpy(m_txn.Payment.c_middle
, pData, dbdatlen(m_dbproc, 15));
        if
(pData=dbdata(m_dbproc, 16))
            UtilStrCpy(m_txn.Payment.c_street
_1, pData, dbdatlen(m_dbproc, 16));
        if
(pData=dbdata(m_dbproc, 17))
            UtilStrCpy(m_txn.Payment.c_street
_2, pData, dbdatlen(m_dbproc, 17));
        if
(pData=dbdata(m_dbproc, 18))
            UtilStrCpy(m_txn.Payment.c_city,
pData, dbdatlen(m_dbproc, 18));
        if
(pData=dbdata(m_dbproc, 19))
            UtilStrCpy(m_txn.Payment.c_state,
pData, dbdatlen(m_dbproc, 19));
        if
(pData=dbdata(m_dbproc, 20))
            UtilStrCpy(m_txn.Payment.c_zip,
pData, dbdatlen(m_dbproc, 20));
        if
(pData=dbdata(m_dbproc, 21))
            UtilStrCpy(m_txn.Payment.c_phone,
pData, dbdatlen(m_dbproc, 21));
        if
(pData=dbdata(m_dbproc, 22))
        {
            datetime = *((DBDATETIME *)
pData);
            dbdatecrack(m_dbproc, &daterec,
&datetime);
            m_txn.Payment.c_since.year =
daterec.year;
            m_txn.Payment.c_since.month =
daterec.month;
            m_txn.Payment.c_since.day =
daterec.day;
            m_txn.Payment.c_since.hour =
daterec.hour;
            m_txn.Payment.c_since.minute =
daterec.minute;
            m_txn.Payment.c_since.second =
daterec.second;
        }

```

```

        if(pData=dbdata(m_dbproc, 23))
            UtilStrCpy(m_txn.Payment.c_credit,
pData, dbdatlen(m_dbproc, 23));
        if(pData=dbdata(m_dbproc, 24))
            dbconvert(m_dbproc,
SQLNUMERIC, (LPCBYTE)pData,
dbdatlen(m_dbproc,24), SQLFLT8, (BYTE
*)&m_txn.Payment.c_credit_lim, 8);
        if(pData=dbdata(m_dbproc, 25))
            dbconvert(m_dbproc,
SQLNUMERIC, (LPCBYTE)pData,
dbdatlen(m_dbproc,25), SQLFLT8, (BYTE
*)&m_txn.Payment.c_discount, 8);
        if(pData=dbdata(m_dbproc, 26))
            dbconvert(m_dbproc,
SQLNUMERIC, (LPCBYTE)pData,
dbdatlen(m_dbproc,26), SQLFLT8, (BYTE
*)&m_txn.Payment.c_balance, 8);
        if(pData=dbdata(m_dbproc, 27))
            UtilStrCpy(m_txn.Payment.c_data,
pData, dbdatlen(m_dbproc, 27));
        DiscardNextRows(0);
        DiscardNextResults(0);
        if
(m_txn.Payment.c_id == 0)
            throw new CTPCC_DBLIB_ERR(
CTPCC_DBLIB_ERR::ERR_INVALID_CUST );
        else
            m_txn.Payment.exec_status_code
= eOK;
        return;
    }
    catch (CSQLERR *e)
    {
        if ((e-
>m_msgno == 1205 ||
        (e->m_msgno ==
iErrOleDbProvider &&
        strstr(e->m_msgtext,
sErrTimeoutExpired) != NULL) &&
        (++iTryCount <= iMaxRetries))
        {
            // hit deadlock; backoff for
increasingly longer period
            delete e;
            Sleep(10 * iTryCount);
        }
        else
            throw;
    }
} // while (TRUE)

```

```

//          if (iTryCount)
//          throw new
CTPCC_DBLIB_ERR(CTPCC_DBLIB_ERR::ERR_RE
TRIED_TRANS, iTryCount);
}

void CTPCC_DBLIB::OrderStatus()
{
    int
    i;
    DBDATETIME datetime;
    DBDATEREC daterec;

    int
    iTryCount = 0;
    RETCODE      rc;
    const BYTE   *pData;

    ResetError();

    while (TRUE)
    {
        try
        {
            dbrpcinit(m_dbproc,
"tpcc_orderstatus", 0);

            dbrpcparam(m_dbproc, NULL, 0,
SQLINT4, -1, -1, (BYTE *)
&m_txn.OrderStatus.w_id);

            dbrpcparam(m_dbproc, NULL, 0,
SQLINT1, -1, -1, (BYTE *)
&m_txn.OrderStatus.d_id);

            dbrpcparam(m_dbproc, NULL, 0,
SQLINT4, -1, -1, (BYTE *)
&m_txn.OrderStatus.c_id);

// if
customer id is zero, then order status is by name
if
(m_txn.OrderStatus.c_id == 0)

            dbrpcparam(m_dbproc, NULL, 0,
SQLCHAR, -1, strlen(m_txn.OrderStatus.c_last),
(unsigned char *)m_txn.OrderStatus.c_last);

            if
(dbrpcexec(m_dbproc) == FAIL)

                ThrowError(CDBLIBERR::eDbRpcEx
ec);

// Get
order lines
if
(dbresults(m_dbproc) != SUCCEEDED)
{
    if ((m_DbLibErr == NULL) &&
(m_SqlErr == NULL))

        throw new
CTPCC_DBLIB_ERR(
CTPCC_DBLIB_ERR::ERR_NO_SUCH_ORDER );

    else

```

```

        ThrowError(CDBLIBERR::eDbResult
s);

        if
(dbnumcols(m_dbproc) != 5)

            ThrowError(CDBLIBERR::eWrongNu
mCols);

        i = 0;
        while
(TRUE)
        {
            rc = dbnextrow(m_dbproc);

            if (rc == NO_MORE_ROWS)

                break;

            if (rc != REG_ROW)

                ThrowError(CDBLIBERR::eDbNextR
ow);

            if(pData=dbdata(m_dbproc, 1))

                m_txn.OrderStatus.OL[i].ol_supply_
w_id = (*(DBSMALLINT *) pData);

            if(pData=dbdata(m_dbproc, 2))

                m_txn.OrderStatus.OL[i].ol_i_id =
(*(DBINT *) pData);

            if(pData=dbdata(m_dbproc, 3))

                m_txn.OrderStatus.OL[i].ol_quantit
y = (*(DBSMALLINT *) pData);

            if(pData=dbdata(m_dbproc, 4))

                dbconvert(m_dbproc,
SQLNUMERIC, (LPCBYTE)pData,
dbdatlen(m_dbproc,4),

                SQLFLT8, (BYTE
*)&m_txn.OrderStatus.OL[i].ol_amount, 8);

            if(pData=dbdata(m_dbproc, 5))
            {
                datetime =
(*(DBDATETIME *) pData);

                dbdatecrack(m_dbproc, &daterec,
&datetime);

                m_txn.OrderStatus.OL[i].ol_delivery
_d.year = daterec.year;

                m_txn.OrderStatus.OL[i].ol_delivery
_d.month = daterec.month;

```

```

                m_txn.OrderStatus.OL[i].ol_delivery
_d.day = daterec.day;

                m_txn.OrderStatus.OL[i].ol_delivery
_d.hour = daterec.hour;

                m_txn.OrderStatus.OL[i].ol_delivery
_d.minute = daterec.minute;

                m_txn.OrderStatus.OL[i].ol_delivery
_d.second = daterec.second;
            }

            i++;

            m_txn.OrderStatus.o_ol_cnt = i;

            if
(dbresults(m_dbproc) != SUCCEEDED)

                ThrowError(CDBLIBERR::eDbResult
s);

            if
(dbnextrow(m_dbproc) != REG_ROW)

                ThrowError(CDBLIBERR::eDbNextR
ow);

            if
(dbnumcols(m_dbproc) != 8)

                ThrowError(CDBLIBERR::eWrongNu
mCols);

            if(pData=dbdata(m_dbproc, 1))

                m_txn.OrderStatus.c_id = (*(DBINT
*) pData);

            if(pData=dbdata(m_dbproc, 2))

                UtilStrCpy(m_txn.OrderStatus.c_last
, pData, dbdatlen(m_dbproc,2));

            if(pData=dbdata(m_dbproc, 3))

                UtilStrCpy(m_txn.OrderStatus.c_firs
t, pData, dbdatlen(m_dbproc,3));

            if(pData=dbdata(m_dbproc, 4))

                UtilStrCpy(m_txn.OrderStatus.c_mi
ddle, pData, dbdatlen(m_dbproc, 4));

            if(pData=dbdata(m_dbproc, 5))
            {
                datetime = (*(DBDATETIME *)
pData);

                dbdatecrack(m_dbproc, &daterec,
&datetime);

                m_txn.OrderStatus.o_entry_d.year
= daterec.year;

```

```

        m_txn.OrderStatus.o_entry_d.mont
h = daterec.month;

        m_txn.OrderStatus.o_entry_d.day
= daterec.day;

        m_txn.OrderStatus.o_entry_d.hour
= daterec.hour;

        m_txn.OrderStatus.o_entry_d.minut
e = daterec.minute;

        m_txn.OrderStatus.o_entry_d.secon
d = daterec.second;
    }

    if(pData=dbdata(m_dbproc, 6))

        m_txn.OrderStatus.o_carrier_id =
(*(DBSMALLINT *) pData);

        if(pData=dbdata(m_dbproc, 7))

            dbconvert(m_dbproc,
SQLNUMERIC, (LPCBYTE)pData,
dbdatlen(m_dbproc,7),

SQLFLT8, (BYTE
*)&m_txn.OrderStatus.c_balance, 8);

        if(pData=dbdata(m_dbproc, 8))

            m_txn.OrderStatus.o_id =
(*(DBINT *) pData);

            DiscardNextRows(0);

            DiscardNextResults(0);

            if
(m_txn.OrderStatus.o_ol_cnt == 0)

                throw new CTPCC_DBLIB_ERR(
CTPCC_DBLIB_ERR::ERR_NO_SUCH_ORDER );
            else if
(m_txn.OrderStatus.c_id == 0 &&
m_txn.OrderStatus.c_last[0] == 0)

                throw new CTPCC_DBLIB_ERR(
CTPCC_DBLIB_ERR::ERR_INVALID_CUST );
            else

                m_txn.OrderStatus.exec_status_cod
e = eOK;

                return;
            }
        catch (CSQLERR *e)
        {
            if ((e-
>m_msgno == 1205 ||

                (e->m_msgno ==
iErrOleDbProvider &&

                    strstr(e->m_msgtext,
sErrTimeoutExpired) != NULL)) &&

                        (++iTryCount <= iMaxRetries))
                {

```

```

        // hit deadlock; backoff for
increasingly longer period
delete e;

        Sleep(10 * iTryCount);
    }
    else

        throw;
    }
} // while (TRUE)

// if (iTryCount)
// throw new
CTPCC_DBLIB_ERR(CTPCC_DBLIB_ERR::ERR_RE
TRIED_TRANS, iTryCount);
}

void CTPCC_DBLIB::Delivery()
{
    int
i;
    int
iTryCount = 0;
    const BYTE *pData;

    ResetError();

    while (TRUE)
    {
        try
        {

            dbrpcinit(m_dbproc,
"tpcc_delivery", 0);

            dbrpcparam(m_dbproc, NULL, 0,
SQLINT4, -1, -1, (BYTE *)
&m_txn.Delivery.w_id);

            dbrpcparam(m_dbproc, NULL, 0,
SQLINT1, -1, -1, (BYTE *)
&m_txn.Delivery.o_carrier_id);

            if
(dbrpcexec(m_dbproc) == FAIL)

                ThrowError(CDBLIBERR::eDbRpcEx
ec);

            if
(dbresults(m_dbproc) != SUCCEEDED)

                ThrowError(CDBLIBERR::eDbResult
s);

            if
(dbnextrow(m_dbproc) != REG_ROW)

                ThrowError(CDBLIBERR::eDbNextR
ow);

            if
(dbnumcols(m_dbproc) != 10)

                ThrowError(CDBLIBERR::eWrongNu
mCols);

            for (i=0;
i<10; i++)

```

```

        if (pData = dbdata(m_dbproc, i+1))
            m_txn.Delivery.o_id[i]
= (*(DBINT *)pData);
        }

        DiscardNextRows(0);

        DiscardNextResults(0);

        m_txn.Delivery.exec_status_code =
eOK;

        return;
    }
    catch (CSQLERR *e)
    {
        if ((e-
>m_msgno == 1205 ||

            (e->m_msgno ==
iErrOleDbProvider &&

                strstr(e->m_msgtext,
sErrTimeoutExpired) != NULL)) &&

                    (++iTryCount <= iMaxRetries))
            {

                // hit deadlock; backoff for
increasingly longer period

                delete e;

                Sleep(10 * iTryCount);
            }
        else

            throw;
    }
} // while (TRUE)

// if (iTryCount)
// throw new
CTPCC_DBLIB_ERR(CTPCC_DBLIB_ERR::ERR_RE
TRIED_TRANS, iTryCount);
}

void CTPCC_DBLIB::ResetError()
{
    if (m_DbLibErr != NULL)
    {
        delete m_DbLibErr;
        m_DbLibErr =
(CDBLIBERR*)NULL;
    }

    if (m_SqlErr != NULL)
    {
        delete m_SqlErr;
        m_SqlErr =
(CSQLERR*)NULL;
    }

    return;
}

Db dblink tpcc_dblink.h

```

```

/* FILE:
TPCC_DBLIB.H
*
* Microsoft TPC-C Kit Ver. 4.20.000
*
* Copyright Microsoft, 1999
* All Rights Reserved
*
* Version 4.10.000 audited by
Richard Gimarc, Performance Metrics, 3/17/99
*
* PURPOSE: Header file for TPC-C
txn class implementation.
*
* Change history:
* 4.20.000 - updated
rev number to match kit
*/
#pragma once

#ifndef PDBPROCESS
#define DBPROCESS void // dbprocess
structure type
typedef DBPROCESS * PDBPROCESS;
#endif

// need to declare functions for import, unless
define has already been created
// by the DLL's .cpp module for export.
#ifndef DllDecl
#define DllDecl __declspec( dllimport )
#endif

class CSQLERR : public CBaseErr
{
public:
    CSQLERR(void)
    {
        m_msgno = 0;
        m_msgstate = 0;
        m_severity = 0;
        m_msgtext = NULL;
    };
    ~CSQLERR()
    {
        delete []
m_msgtext;
    };
    int
m_msgno;
    int
m_msgstate;
    int
m_severity;
    char *m_msgtext;

    int
    ErrorType() {return
ERR_TYPE_SQL;};
    char*
    ErrorTypeStr() { return "SQL"; }
    int
    ErrorNum() {return m_msgno;};
    char*
    ErrorText() {return m_msgtext;};
};

```

```

class CDBLIBERR : public CBaseErr
{
public:
    enum ACTION
    {
        eNone,
        eUnknown,
        eLogin,
        // error from dblogin
        eDbOpen,
        // error from dbopen
        eDbUse,
        // error from dbuse
        eDbSqlExec,
        // error from dbsqlexec
        eDbSet,
        // error from one of the dbset*
        routines
        eDbNextRow,
        // error from dbnextrow
        eWrongRowCount,
        // more or less rows returned than
        expected
        eWrongNumCols,
        // more or less columns returned
        than expected
        eDbResults,
        // error from dbresults
        eDbRpcExec,
        // error from dbrpcexec
        eDbSetMaxProcs,
        // error from dbsetmaxprocs
        eDbProcHandler
        // error from either dbprocerrhandle
        or dbprocmsgshandle
    };
    CDBLIBERR(ACTION
eAction, int severity = 0, int dberror = 0, int
oserr = 0)
    {
        m_eAction = eAction;
        m_severity = severity;
        m_dberror = dberror;
        m_oserr
= oserr;
        m_dberrstr = NULL;
        m_oserrstr = NULL;
    };
    ~CDBLIBERR()
    {
        delete []
m_dberrstr;
        delete []
m_oserrstr;
    };
};

```

```

};
ACTION
m_eAction;
int
m_severity;
int
m_dberror;
int
m_oserr;
char *m_dberrstr;
char *m_oserrstr;

int
ErrorType() {return
ERR_TYPE_DBLIB;};
char*
ErrorTypeStr() { return "DBLIB"; }
int
ErrorNum() {return m_dberror;};
char*
ErrorText() {return m_dberrstr;};
int
ErrorAction() { return
(int)m_eAction; }
};

class CTPCC_DBLIB_ERR : public CBaseErr
{
public:
    enum
CTPCC_DBLIB_ERRS
    {
        ERR_WRONG_SP_VERSION = 1,
        // "Wrong version of stored procs
on database server"
        ERR_INVALID_CUST,
        // "Invalid Customer
id,name."
        ERR_NO_SUCH_ORDER,
        // "No orders found
for customer."
        ERR_RETRIED_TRANS,
        // "Retries before
transaction succeeded."
    };
    CTPCC_DBLIB_ERR(
int iErr ) { m_erno = iErr; m_iTryCount = 0; };
    CTPCC_DBLIB_ERR(
int iErr, int iTryCount ) { m_erno = iErr;
m_iTryCount = iTryCount; };
    int
m_erno;
    int
m_iTryCount;

    int
    ErrorType() {return
ERR_TYPE_TPCC_DBLIB;};
    char*
    ErrorTypeStr() { return "TPCC
DBLIB"; }
    int
    ErrorNum() {return m_erno;};
    char*
    ErrorText();
};

```

```

class DllDecl CTPCC_DBLIB : public CTPCC_BASE
{
private:
    // declare variables
    and private functions here...
    PDBPROCESS
    m_dbproc;
    CDBLIBERR
    *m_DbLibErr;
    // not allocated until needed
    (maybe never)
    CSQLERR
    *m_SqlErr;
    // not allocated until needed
    (maybe never)
    int
    m_MaxRetries;
    // retry count on
    deadlock

    void
    DiscardNextRows(int iExpectedCount);
    void
    DiscardNextResults(int iExpectedCount);
    void ThrowError(
    CDBLIBERR::ACTION eAction );
    void ResetError();

    union
    {
        NEW_ORDER_DATA
        NewOrder;

        PAYMENT_DATA
        Payment;

        DELIVERY_DATA
        Delivery;

        STOCK_LEVEL_DATA
        StockLevel;

        ORDER_STATUS_DATA
        OrderStatus;
    }
    m_txn;

public:
    CTPCC_DBLIB(LPCSTR szServer,
    LPCSTR szUser, LPCSTR szPassword, LPCSTR
    szHost, LPCSTR szDatabase );
    ~CTPCC_DBLIB(void);

    inline
    PNEW_ORDER_DATA
    BuffAddr_NewOrder()
    { return &m_txn.NewOrder; };
    inline
    PPAYMENT_DATA
    BuffAddr_Payment()
    { return &m_txn.Payment; };
    inline
    PDELIVERY_DATA
    BuffAddr_Delivery()
    { return &m_txn.Delivery; };
    inline
    PSTOCK_LEVEL_DATA BuffAddr_StockLevel()
    { return &m_txn.StockLevel; };
    inline
    PORDER_STATUS_DATA
    BuffAddr_OrderStatus() { return
    &m_txn.OrderStatus; };

```

```

void NewOrder
();
void Payment
();
void Delivery
();
void StockLevel
();
void OrderStatus
();

// these are public
because they must be called from the dblib
err_handler and msg_hangler
// outside of the class
void SetDbLibError(int
severity, int dberr, int oserr, LPCSTR dberrstr,
LPCSTR oserrstr);
void SetSqlError( int
msgno, int msgstate, int severity, LPCSTR
msgtext );
};

extern "C" DllDecl CTPCC_DBLIB*
CTPCC_DBLIB_new
( LPCSTR szServer, LPCSTR szUser,
LPCSTR szPassword, LPCSTR szHost, LPCSTR
szDatabase );

typedef CTPCC_DBLIB*
(TYPE_CTPCC_DBLIB)(LPCSTR, LPCSTR, LPCSTR,
LPCSTR, LPCSTR);

```

**db\_odbc.dll tpcc\_odbc.dll**

```

/* FILE:
TPCC_ODBC.CPP

Microsoft TPC-C Kit Ver. 4.42.000

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Version 4.10.000 audited by
Richard Gimarc, Performance Metrics, 3/17/99
*
* PURPOSE: Implements ODBC
calls for TPC-C txns.
* Contact: Charles Levine
(clevine@microsoft.com)
*
* Change history:
* 4.42.000 - changed
w_id fields from short to long to support >32K
warehouses
* 4.20.000 - updated
rev number to match kit
* 4.10.001 - not
deleting error class in catch handler on deadlock
retry;
*
not a functional bug, but a
memory leak
*/

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

```

```

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

// #define COMPILE_FOR_SNAC // define
that to compile for SQL Native Client; comment
out to use MDAC

#ifndef COMPILE_FOR_SNAC
#include <odbcss.h>
#else
// Compile for SNAC
#include <sqlncli.h>
#endif

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

// need to declare functions for export
#define DllDecl __declspec( dllexport )

#include "..\..\common\src\error.h"
#include "..\..\common\src\trans.h"
#include "..\..\common\src\txn_base.h"
#include "tpcc_odbc.h"

// version string; must match return value from
tpcc_version stored proc
const char sVersion[] = "4.20.000";

const iMaxRetries = 10; // how
many retries on deadlock

const int iErrOleDbProvider = 7312;
const char sErrTimeoutExpired[] = "Timeout
expired";

static SQLHENV henv = SQL_NULL_HENV;

// ODBC environment handle

BOOL APIENTRY DllMain(HMODULE hModule,
DWORD ul_reason_for_call, LPVOID lpReserved)
{
switch( ul_reason_for_call )
{
case
DLL_PROCESS_ATTACH:
DisableThreadLibraryCalls(hModule)
;
if (
SQLAllocHandleStd(SQL_HANDLE_ENV,
SQL_NULL_HANDLE, &henv) != SQL_SUCCESS )
return FALSE;
break;
case
DLL_PROCESS_DETACH:
if (henv
!= NULL)
SQLFreeEnv(henv);
break;
default:
/*
nothing */;
}
return TRUE;
}

```

```

/* FUNCTION: CTPCC_ODBC_ERR::ErrorText
 *
 */
char* CTPCC_ODBC_ERR::ErrorText(void)
{
    int i;

    static SERRORMSG errorMsgs[] =
    {
        {
            ERR_WRONG_SP_VERSION,
            "Wrong version of stored procs on
            database server"
        },
        {
            ERR_INVALID_CUST,
            "Invalid Customer id,name."
        }
    },
    {
        ERR_NO_SUCH_ORDER,
        "No
        orders found for customer."
    },
    {
        ERR_RETRIED_TRANS,
        "Retries
        before transaction succeeded."
    },
    { 0,
      ""
    }
    };

    static char szNotFound[] =
    "Unknown error number.";

    for(i=0; errorMsgs[i].szMsg[0];
    i++)
    {
        if ( m_erno ==
        errorMsgs[i].iError )
            break;
    }
    if ( !errorMsgs[i].szMsg[0] )
        return szNotFound;
    else
        return
        errorMsgs[i].szMsg;
    }

// wrapper routine for class constructor
__declspec(dllexport) CTPCC_ODBC*
CTPCC_ODBC_new(
    LPCSTR szServer,
    // name of SQL server
    LPCSTR szUser,
    // user name for login
    LPCSTR szPassword,
    // password for login
    LPCSTR szHost,
    // not used
    LPCSTR szDatabase,
    // name of database to use
    LPCWSTR szSPPrefix, // prefix
    to append to the stored procedure names
    BOOL bCallNoDuplicatesNewOrder )
// whether to check for non-duplicate items in
NewOrder and call a new SP
{

```

```

        return new CTPCC_ODBC( szServer,
        szUser, szPassword, szHost, szDatabase,
        szSPPrefix, bCallNoDuplicatesNewOrder );

CTPCC_ODBC::CTPCC_ODBC (
    LPCSTR szServer,
    // name
    of SQL server
    LPCSTR szUser,
    // user name for login
    LPCSTR szPassword,
    //
    password for login
    LPCSTR szHost,
    // not used
    LPCSTR szDatabase,
    // name
    of database to use
    LPCWSTR szSPPrefix,
    // prefix
    to append to the stored procedure names
    BOOL
    bCallNoDuplicatesNewOrder //
    whether to check for non-duplicate items in
    NewOrder and call a new SP
    )
:
    m_bCallNoDuplicatesNewOrder(bCallNoDuplicates
    NewOrder)
{
    RETCODE          rc;

    // initialization
    m_hdbc = SQL_NULL_HDBC;
    m_hstmt = SQL_NULL_HSTMT;

    m_hstmtNewOrder =
    SQL_NULL_HSTMT;
    m_hstmtPayment =
    SQL_NULL_HSTMT;
    m_hstmtDelivery =
    SQL_NULL_HSTMT;
    m_hstmtOrderStatus =
    SQL_NULL_HSTMT;
    m_hstmtStockLevel =
    SQL_NULL_HSTMT;

    m_descNewOrderCols1 =
    SQL_NULL_HDESC;
    m_descNewOrderCols2 =
    SQL_NULL_HDESC;
    m_descOrderStatusCols1 =
    SQL_NULL_HDESC;
    m_descOrderStatusCols2 =
    SQL_NULL_HDESC;

    wcsncpy(m_szSPPrefix, szSPPrefix,
    sizeof(m_szSPPrefix)/sizeof(m_szSPPrefix[0]));

    if (
    SQLAllocHandle(SQL_HANDLE_DBC, henv,
    &m_hdbc) != SQL_SUCCESS )
        ThrowError(CODBCERR::eAllocHand
        le);

    if ( SQLSetConnectOption(m_hdbc,
    SQL_PACKET_SIZE, 4096) != SQL_SUCCESS )
        ThrowError(CODBCERR::eConnOpti
        on);

```

```

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

        #ifndef COMPILE_FOR_SNAC
            sprintf( szConnectStr,
            "DRIVER=SQL
            Server;SERVER=%s;UID=%s;PWD=%s;DATABA
            SE=%s",
            szServer, szUser, szPassword,
            szDatabase );
        #else
            // Compile for SNAC
            sprintf( szConnectStr,
            "DRIVER=SQL Native
            Client;SERVER=%s;UID=%s;PWD=%s;DATABA
            E=%s",
            szServer, szUser, szPassword,
            szDatabase );
        #endif

        rc =
        SQLDriverConnect(m_hdbc, NULL,
        (SQLCHAR*)szConnectStr, sizeof(szConnectStr),
        (SQLCHAR*)szOutStr,
        sizeof(szOutStr), &iOutStrLen,
        SQL_DRIVER_NOPROMPT );

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

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

    {
        char
        buffer[128];

        // set some options
        affecting connection behavior
        strcpy(buffer, "set
        nocount on set XACT_ABORT ON");
        rc =
        SQLExecDirect(m_hstmt, (unsigned char
        *)buffer, SQL_NTS);

        if (rc !=
        SQL_SUCCESS && rc !=
        SQL_SUCCESS_WITH_INFO)
            ThrowError(CODBCERR::eExecDirec
            t);

        // verify that version
        of stored procs on server is correct
        char
        db_sp_version[10];
        strcpy(buffer, "{call
        tpcc_version}");
        rc =
        SQLExecDirect(m_hstmt, (unsigned char
        *)buffer, SQL_NTS);

```

```

        if (rc !=
SQL_SUCCESS && rc !=
SQL_SUCCESS_WITH_INFO)

        ThrowError(CODBCERR::eExecDirec
t);

        if (
SQLBindCol(m_hstmt, 1, SQL_C_CHAR,
&db_sp_version, sizeof(db_sp_version), NULL) !=
SQL_SUCCESS )

        ThrowError(CODBCERR::eBindCol);

SQLFetch(m_hstmt) == SQL_ERROR )

        ThrowError(CODBCERR::eFetch);
if
(strcmp(db_sp_version,sVersion))
throw
new CTPCC_ODBC_ERR(
CTPCC_ODBC_ERR::ERR_WRONG_SP_VERSION
);

SQLFreeHandle(SQL_HANDLE_STM
T, m_hstmt);
}

// Bind parameters for each of the
transactions
InitNewOrderParams();
InitPaymentParams();
InitOrderStatusParams();
InitDeliveryParams();
InitStockLevelParams();
}

CTPCC_ODBC::~CTPCC_ODBC( void )
{
// note: descriptors are
automatically released when the connection is
dropped
SQLFreeHandle(SQL_HANDLE_STM
T, m_hstmtNewOrder);
SQLFreeHandle(SQL_HANDLE_STM
T, m_hstmtPayment);
SQLFreeHandle(SQL_HANDLE_STM
T, m_hstmtDelivery);
SQLFreeHandle(SQL_HANDLE_STM
T, m_hstmtOrderStatus);
SQLFreeHandle(SQL_HANDLE_STM
T, m_hstmtStockLevel);

SQLDisconnect(m_hdbc);
SQLFreeHandle(SQL_HANDLE_DBC,
m_hdbc);
}

void CTPCC_ODBC::ThrowError(
CODBCERR::ACTION eAction )
{
        RETCODE          rc;
        SDWORD
        INativeError;
        char
        szState[6];
        char
        szMsg[SQL_MAX_MESSAGE_LEN
T];
        char
        szTmp[6*SQL_MAX_MESSAGE_LEN
GTH];

```

```

        CODBCERR *pODBCErr;
// not allocated until
needed (maybe never)

        pODBCErr = new CODBCERR();

        pODBCErr->m_NativeError = 0;
        pODBCErr->m_eAction = eAction;
        pODBCErr->m_bDeadLock =
FALSE;

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

// check for deadlock
if (INativeError ==
1205 || (INativeError == iErrOleDbProvider &&
strstr(szMsg, sErrTimeoutExpired)
!= NULL))
                pODBCErr->m_bDeadLock = TRUE;

// capture the (first)
database error
                if (pODBCErr-
>m_NativeError == 0 && INativeError != 0)
                        pODBCErr->m_NativeError =
INativeError;

// quit if there isn't
enough room to concatenate error text
                if ( (strlen(szMsg) +
2) > (sizeof(szTmp) - strlen(szTmp)) )
                        break;

// include line break
after first error msg
                if (szTmp[0] != 0)
                        strcat(
szTmp, "\n");
                strcat( szTmp, szMsg
);
        }

        if (pODBCErr->m_odbcerrstr !=
NULL)
        {
                delete [] pODBCErr-
>m_odbcerrstr;
                pODBCErr-
>m_odbcerrstr = NULL;
        }

        if (strlen(szTmp) > 0)
        {
                pODBCErr-
>m_odbcerrstr = new char[ strlen(szTmp)+1 ];
                strcpy( pODBCErr-
>m_odbcerrstr, szTmp );
        }

```

```

        SQLFreeStmt(m_hstmt,
SQL_CLOSE);throw pODBCErr;
}

void CTPCC_ODBC::InitStockLevelParams()
{
        if (
SQLAllocHandle(SQL_HANDLE_STMT, m_hdbc,
&m_hstmtStockLevel) != SQL_SUCCESS )

        ThrowError(CODBCERR::eAllocHand
le);

        m_hstmt = m_hstmtStockLevel;

        int i = 0;
        if ( SQLBindParameter(m_hstmt,
++i, SQL_PARAM_INPUT, SQL_C_SLONG,
SQL_INTEGER, 0, 0, &m_txn.StockLevel.w_id, 0,
NULL) != SQL_SUCCESS
                ||
SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT,
SQL_TINYINT, 0, 0, &m_txn.StockLevel.d_id, 0,
NULL) != SQL_SUCCESS
                ||
SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SSHORT,
SQL_SMALLINT, 0, 0,
&m_txn.StockLevel.threshold, 0, NULL) !=
SQL_SUCCESS
                )
                ThrowError(CODBCERR::eBindPara
m);

        if ( SQLBindCol(m_hstmt, 1,
SQL_C_SLONG, &m_txn.StockLevel.low_stock, 0,
NULL) != SQL_SUCCESS )

        ThrowError(CODBCERR::eBindCol);

//Compose Stock Level statement
        _snwprintf(m_szStockLevelComman
d,
sizeof(m_szStockLevelCommand)/sizeof(m_szSto
ckLevelCommand[0]),
                L"(call
%stpcc_stocklevel (?,?,?)", m_szSPPrefix);
}

void CTPCC_ODBC::StockLevel()
{
        RETCODE          rc;
        int
        iTryCount = 0;

        m_hstmt = m_hstmtStockLevel;

        while (TRUE)
        {
                try
                {
                        rc =
SQLExecDirectW(m_hstmt,
m_szStockLevelCommand, SQL_NTS);

                        if (rc !=
SQL_SUCCESS && rc !=
SQL_SUCCESS_WITH_INFO)

```

```

        ThrowError(CODBCERR::eExecDirec
t);

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

        SQLFreeStmt(m_hstmt,
SQL_CLOSE);

        m_txn.StockLevel.exec_status_code
= eOK;
            break;
        }
        catch (CODBCERR *e)
        {
            if ((!e-
>m_bDeadLock) || (++iTryCount >
iMaxRetries))
                throw;

            // hit
            deadlock; backoff for increasingly longer period
            delete e;
            Sleep(10)

        }
        * iTryCount;
    }

    //      if (iTryCount)
    //      throw new
    CTPCC_ODBC_ERR(CTPCC_ODBC_ERR::ERR_RE
TRIED_TRANS, iTryCount);
}

void CTPCC_ODBC::InitNewOrderParams()
{
    if (
SQLAllocHandle(SQL_HANDLE_STMT, m_hdbc,
&m_hstmtNewOrder) != SQL_SUCCESS
        ||
SQLAllocHandle(SQL_HANDLE_STMT, m_hdbc,
&m_hstmtNewOrderNoDuplicates) !=
SQL_SUCCESS
        ||
SQLAllocHandle(SQL_HANDLE_DESC, m_hdbc,
&m_descNewOrderCols1) != SQL_SUCCESS
        ||
SQLAllocHandle(SQL_HANDLE_DESC, m_hdbc,
&m_descNewOrderCols2) != SQL_SUCCESS
        ||
SQLAllocHandle(SQL_HANDLE_DESC, m_hdbc,
&m_descNewOrderNoDuplicatesCols1) !=
SQL_SUCCESS
        ||
SQLAllocHandle(SQL_HANDLE_DESC, m_hdbc,
&m_descNewOrderNoDuplicatesCols2) !=
SQL_SUCCESS
    )
        ThrowError(CODBCERR::eAllocHand
le);

    m_hstmt = m_hstmtNewOrder;

    if ( SQLSetStmtAttrW( m_hstmt,
SQL_ATTR_APP_ROW_DESC,
m_descNewOrderCols1, SQL_IS_POINTER ) !=
SQL_SUCCESS )

```

```

        ThrowError(CODBCERR::eSetStmtAt
tr);

        int i = 0;
        if ( SQLBindParameter(m_hstmt,
++i, SQL_PARAM_INPUT, SQL_C_SLONG,
SQL_INTEGER, 0, 0, &m_txn.NewOrder.w_id, 0,
NULL) != SQL_SUCCESS
            ||
SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT,
SQL_TINYINT, 0, 0, &m_txn.NewOrder.d_id, 0,
NULL) != SQL_SUCCESS
            ||
SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SLONG,
SQL_INTEGER, 0, 0, &m_txn.NewOrder.c_id, 0,
NULL) != SQL_SUCCESS
            ||
SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT,
SQL_TINYINT, 0, 0, &m_txn.NewOrder.o_ol_cnt,
0, NULL) != SQL_SUCCESS
            ||
SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT,
SQL_TINYINT, 0, 0,
&m_txn.NewOrder.o_all_local, 0, NULL) !=
SQL_SUCCESS
        )
            ThrowError(CODBCERR::eBindPara
m);

        for (int j=0;
j<MAX_OL_NEW_ORDER_ITEMS; j++)
        {
            if (
SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SLONG,
SQL_INTEGER, 0, 0,
&m_txn.NewOrder.OL[j].ol_i_id, 0, NULL) !=
SQL_SUCCESS
                ||
SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SLONG,
SQL_INTEGER, 0, 0,
&m_txn.NewOrder.OL[j].ol_supply_w_id, 0,
NULL) != SQL_SUCCESS
                ||
SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SSHORT,
SQL_SMALLINT, 0, 0,
&m_txn.NewOrder.OL[j].ol_quantity, 0, NULL) !=
SQL_SUCCESS
            )
                ThrowError(CODBCERR::eBindPara
m);

            // set the bind offset pointer
            if ( SQLSetStmtAttrW( m_hstmt,
SQL_ATTR_ROW_BIND_OFFSET_PTR,
&m_BindOffset, SQL_IS_POINTER ) !=
SQL_SUCCESS )
                ThrowError(CODBCERR::eSetStmtAt
tr);

            i = 0;

```

```

            if ( SQLBindCol(m_hstmt, ++i,
SQL_C_CHAR,
&m_txn.NewOrder.OL[0].ol_i_name,
sizeof(m_txn.NewOrder.OL[0].ol_i_name), NULL)
!= SQL_SUCCESS
                ||
SQLBindCol(m_hstmt, ++i, SQL_C_SSHORT,
&m_txn.NewOrder.OL[0].ol_stock, 0, NULL) !=
SQL_SUCCESS
                ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.NewOrder.OL[0].ol_brand_generic,
sizeof(m_txn.NewOrder.OL[0].ol_brand_generic),
NULL) != SQL_SUCCESS
                ||
SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.NewOrder.OL[0].ol_i_price, 0, NULL) !=
SQL_SUCCESS
                ||
SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.NewOrder.OL[0].ol_amount, 0, NULL) !=
SQL_SUCCESS
            )
                ThrowError(CODBCERR::eBindCol);

            // associate the column bindings for
            the second result set
            if ( SQLSetStmtAttrW( m_hstmt,
SQL_ATTR_APP_ROW_DESC,
m_descNewOrderCols2, SQL_IS_POINTER ) !=
SQL_SUCCESS )
                ThrowError(CODBCERR::eSetStmtAt
tr);

            i = 0;
            if ( SQLBindCol(m_hstmt, ++i,
SQL_C_DOUBLE, &m_txn.NewOrder.w_tax, 0,
NULL) != SQL_SUCCESS
                ||
SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.NewOrder.d_tax, 0, NULL) !=
SQL_SUCCESS
                ||
SQLBindCol(m_hstmt, ++i, SQL_C_SLONG,
&m_txn.NewOrder.o_id, 0, NULL) !=
SQL_SUCCESS
                ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.NewOrder.c_last,
sizeof(m_txn.NewOrder.c_last), NULL) !=
SQL_SUCCESS
                ||
SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.NewOrder.c_discount, 0, NULL) !=
SQL_SUCCESS
                ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.NewOrder.c_credit,
sizeof(m_txn.NewOrder.c_credit), NULL) !=
SQL_SUCCESS
                ||
SQLBindCol(m_hstmt, ++i,
SQL_C_TYPE_TIMESTAMP,
&m_txn.NewOrder.o_entry_d, 0, NULL) !=
SQL_SUCCESS
                ||
SQLBindCol(m_hstmt, ++i, SQL_C_SLONG,
&m_no_commit_flag, 0, NULL) != SQL_SUCCESS
            )
                ThrowError(CODBCERR::eBindCol);

            //Compose the New Order
            statement

```



```

        _snwprintf(m_szNewOrderComman
d,
sizeof(m_szNewOrderCommand)/sizeof(m_szNew
OrderCommand[0]),
// 0 1 2
//
012345678901234567890123456789
L"{call
%stpc_neworder(?,?,?,?,?,?,?,?,?,?,?,?,
?,?,?,?,?)",
L"?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,
?,?,?,?,?)}" , m_szSPPrefix);

m_iBeginNewOrderVariablePart =
29 + wcslen(m_szSPPrefix); // fixed
part + prefix part

////////////////////////////////////
////////////////////////////////////
//
// Now initialize New
Order that works on no duplicate (w_id,i_id)
pairs
// and returns one result
set for lineitem details.
//
//
m_hstmt =
m_hstmtNewOrderNoDuplicates;

if ( SQLSetStmtAttrW( m_hstmt,
SQL_ATTR_APP_ROW_DESC,
m_descNewOrderNoDuplicatesCols1,
SQL_IS_POINTER ) != SQL_SUCCESS )

ThrowError(CODBCERR::eSetStmtAt
tr);

i = 0;
if ( SQLBindParameter(m_hstmt,
++i, SQL_PARAM_INPUT, SQL_C_SLONG,
SQL_INTEGER, 0, 0, &m_txn.NewOrder.w_id, 0,
NULL) != SQL_SUCCESS

||
SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT,
SQL_TINYINT, 0, 0, &m_txn.NewOrder.d_id, 0,
NULL) != SQL_SUCCESS

||
SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SLONG,
SQL_INTEGER, 0, 0, &m_txn.NewOrder.c_id, 0,
NULL) != SQL_SUCCESS

||
SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT,
SQL_TINYINT, 0, 0, &m_txn.NewOrder.o_ol_cnt,
0, NULL) != SQL_SUCCESS

||
SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT,
SQL_TINYINT, 0, 0,
&m_txn.NewOrder.o_all_local, 0, NULL) !=
SQL_SUCCESS

)

ThrowError(CODBCERR::eBindPara
m);

for (int j=0;
j<MAX_OL_NEW_ORDER_ITEMS; j++)
{

```

```

        if (
SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SLONG,
SQL_INTEGER, 0, 0,
&m_txn.NewOrder.OL[j].ol_i_id, 0, NULL) !=
SQL_SUCCESS

||
SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SLONG,
SQL_INTEGER, 0, 0,
&m_txn.NewOrder.OL[j].ol_supply_w_id, 0,
NULL) != SQL_SUCCESS

||
SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SSHORT,
SQL_SMALLINT, 0, 0,
&m_txn.NewOrder.OL[j].ol_quantity, 0, NULL) !=
SQL_SUCCESS

)

ThrowError(CODBCERR::eBindPara
m);

}

// set row-wise binding
if ( SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_ROW_BIND_TYPE,
(SQLPOINTER)sizeof(m_txn.NewOrder.OL[0]),
SQL_IS_UIINTEGER) != SQL_SUCCESS

||
SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_ROWS_FETCHED_PTR,
&m_RowsFetched, 0) != SQL_SUCCESS )

ThrowError(CODBCERR::eSetStmtAt
tr);

i = 0;
if ( SQLBindCol(m_hstmt, ++i,
SQL_C_CHAR,
&m_txn.NewOrder.OL[0].ol_i_name,
sizeof(m_txn.NewOrder.OL[0].ol_i_name), NULL)
!= SQL_SUCCESS

||
SQLBindCol(m_hstmt, ++i, SQL_C_SSHORT,
&m_txn.NewOrder.OL[0].ol_stock, 0, NULL) !=
SQL_SUCCESS

||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.NewOrder.OL[0].ol_brand_generic,
sizeof(m_txn.NewOrder.OL[0].ol_brand_generic),
NULL) != SQL_SUCCESS

||
SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.NewOrder.OL[0].ol_i_price, 0, NULL) !=
SQL_SUCCESS

||
SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.NewOrder.OL[0].ol_amount, 0, NULL) !=
SQL_SUCCESS

)

ThrowError(CODBCERR::eBindCol);

// associate the column bindings for
the second result set
if ( SQLSetStmtAttrW( m_hstmt,
SQL_ATTR_APP_ROW_DESC,
m_descNewOrderNoDuplicatesCols2,
SQL_IS_POINTER ) != SQL_SUCCESS )

ThrowError(CODBCERR::eSetStmtAt
tr);

```

```

        if( 0)SQLBindCol(m_hstmt, ++i,
SQL_C_DOUBLE, &m_txn.NewOrder.w_tax, 0,
NULL) != SQL_SUCCESS

||
SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.NewOrder.d_tax, 0, NULL) !=
SQL_SUCCESS

||
SQLBindCol(m_hstmt, ++i, SQL_C_SLONG,
&m_txn.NewOrder.o_id, 0, NULL) !=
SQL_SUCCESS

||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.NewOrder.c_last,
sizeof(m_txn.NewOrder.c_last), NULL) !=
SQL_SUCCESS

||
SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.NewOrder.c_discount, 0, NULL) !=
SQL_SUCCESS

||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.NewOrder.c_credit,
sizeof(m_txn.NewOrder.c_credit), NULL) !=
SQL_SUCCESS

||
SQLBindCol(m_hstmt, ++i,
SQL_C_TYPE_TIMESTAMP,
&m_txn.NewOrder.o_entry_d, 0, NULL) !=
SQL_SUCCESS

||
SQLBindCol(m_hstmt, ++i, SQL_C_SLONG,
&m_no_commit_flag, 0, NULL) != SQL_SUCCESS

)

ThrowError(CODBCERR::eBindCol);

//Compose the New Order
statement
_snwprintf(m_szNewOrderNoDuplic
atesCommand,
sizeof(m_szNewOrderNoDuplicatesCommand)/siz
eof(m_szNewOrderNoDuplicatesCommand[0]),
L"{call
%stpc_neworder_new(?,?,?,?,?,?,?,?,?,
?,?,?,?,?)",
L"?,?,?,?,?,?,?,?,?,?,?,?,
?,?,?,?,?)}" , m_szSPPrefix);

m_iBeginNewOrderNoDuplicatesVari
ablePart = 33 + wcslen(m_szSPPrefix); // fixed
part + prefix part
}

//
// Returns true if there are duplicate
(warehouse_id, item_id)
// lineitem pairs in New Order input
parameters.
//
bool CTPCC_ODBC::DuplicatesInNewOrder()
{
    int i, j;

    for (i = 0; i <
m_txn.NewOrder.o_ol_cnt; ++i)
    {
        for (j = i+1; j <
m_txn.NewOrder.o_ol_cnt; ++j)
        {
            if
(m_txn.NewOrder.OL[i].ol_i_id ==
m_txn.NewOrder.OL[j].ol_i_id)
            {

```

```

return true;
    }
}
return false;
}

void CTPCC_ODBC::NewOrder()
{
    if (m_bCallNoDuplicatesNewOrder)
    {
        if
        (DuplicatesInNewOrder())
        {
            NewOrderDuplicates();
        }
        else
        {
            NewOrderNoDuplicates();
        }
    }
    else
    {
        NewOrderDuplicates();
    }
}

void CTPCC_ODBC::NewOrderDuplicates()
{
    int
    RETCODE
    rc;
    int
    iTryCount = 0;

    // 0 1 2

    //
    012345678901234567890123456789
    wchar_t

    szSqlTemplate[iMAX_SP_NAME_LEN
];

L"{call tpcc_neworder(?,?,?,?" //
L"?,?,?,?,?,?,?,?,?,?,?" //
L"?,?,?,?,?,?,?,?,?,?,?" //
L"?,?,?,?,?,?,?,?,?,?,?);" //

    m_hstmt = m_hstmtNewOrder;

    // associate the parameter and
    column bindings for this transaction

        if ( SQLSetStmtAttrW( m_hstmt,
SQL_ATTR_APP_ROW_DESC,
m_descNewOrderCols1, SQL_IS_POINTER ) !=
SQL_SUCCESS )
            ThrowError(CODBCERR::eSetStmtAt
tr);

        // clip statement buffer based on
number of parameters
        // fixed part is 29 chars and
variable part is 6 chars per line item
        wcsncpy(szSqlTemplate,
m_szNewOrderCommand);
        i = m_iBeginNewOrderVariablePart
+ m_txn.NewOrder.o_ol_cnt*6;
        wcsncpy( &szSqlTemplate[i], L"1)" );

        // check whether any order lines
are for a remote warehouse
        m_txn.NewOrder.o_all_local = 1;
        for (i = 0; i <
m_txn.NewOrder.o_ol_cnt; i++)
        {
            if
            (m_txn.NewOrder.OL[i].ol_supply_w_id !=
m_txn.NewOrder.w_id)
            {
                m_txn.NewOrder.o_all_local = 0;
                // at least one remote warehouse
                break;
            }
        }

        while (TRUE)
        {
            try
            {
                m_BindOffset = 0;
                rc =
SQLExecDirectW(m_hstmt, szSqlTemplate,
SQL_NTS);
                if (rc !=
SQL_SUCCESS && rc !=
SQL_SUCCESS_WITH_INFO)
                    ThrowError(CODBCERR::eExecDirec
t);

                // Get
                order line results
                m_txn.NewOrder.total_amount = 0;
                for (i =
0; i < m_txn.NewOrder.o_ol_cnt; i++)
                {
                    // set the bind offset value...
                    m_BindOffset = i *
sizeof(m_txn.NewOrder.OL[0]);

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

                    // move to the next resultset
                    if ( SQLMoreResults(m_hstmt) ==
SQL_ERROR )
                        ThrowError(CODBCERR::eMoreResu
lts);

                    m_txn.NewOrder.total_amount +=
m_txn.NewOrder.OL[i].ol_amount;
                }

                //
                associate the column bindings for the second
result set
                if (
SQLSetStmtAttrW( m_hstmt,
SQL_ATTR_APP_ROW_DESC,
m_descNewOrderCols2, SQL_IS_POINTER ) !=
SQL_SUCCESS )
                    ThrowError(CODBCERR::eSetStmtAt
tr);

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

                SQLFreeStmt(m_hstmt,
SQL_CLOSE);

                if
                (m_no_commit_flag == 1)
                {
                    m_txn.NewOrder.total_amount *=
((1 + m_txn.NewOrder.w_tax +
m_txn.NewOrder.d_tax) * (1 -
m_txn.NewOrder.c_discount));

                    m_txn.NewOrder.exec_status_code
= eOK;
                }
                else
                {
                    m_txn.NewOrder.exec_status_code
= eInvalidItem;
                    break;
                }
            }
            catch (CODBCERR *e)
            {
                if ((!e-
>m_bDeadLock) || (++iTryCount >
iMaxRetries))
                    throw;

                // hit
                deadlock; backoff for increasingly longer period
                delete e;
                Sleep(10
                * iTryCount);
            }
        }

        //
        // if (iTryCount)
        // throw new
        CTPCC_ODBC_ERR(CTPCC_ODBC_ERR::ERR_RE
TRIED_TRANS, iTryCount);
    }

    //
    // No lineitem duplicates optimized
    // version.
    //
}

```

```

void CTPCC_ODBC::NewOrderNoDuplicates()
{
    int
        RETCODE
        rc;
    int
        iTryCount = 0;

    // 0 1 2 3

    //
    0123456789012345678901234567890123
    wchar_t

    szSqlTemplate[iMAX_SP_NAME_LEN
];

    L"{call tpcc_neworder_new(?,?,?,?" //
    L"?,?,?,?,?,?,?,?,?,?,?" //
    L"?,?,?,?,?,?,?,?,?,?,?" //
    L"?,?,?,?,?,?,?,?,?,?,?)}";

    m_hstmt =
    m_hstmtNewOrderNoDuplicates;

    // associate the parameter and
    column bindings for this transaction
    if ( SQLSetStmtAttrW( m_hstmt,
    SQL_ATTR_APP_ROW_DESC,
    m_descNewOrderNoDuplicatesCols1,
    SQL_IS_POINTER ) != SQL_SUCCESS )

        ThrowError(CODBCERR::eSetStmtAt
tr);

    // clip statement buffer based on
    number of parameters
    // fixed part is 33 chars and
    variable part is 6 chars per line item
    wcsncpy(szSqlTemplate,
    m_szNewOrderNoDuplicatesCommand);
    i =
    m_iBeginNewOrderNoDuplicatesVariablePart +
    m_txn.NewOrder.o_ol_cnt*6;
    wcsncpy( &szSqlTemplate[i], L"");

    // check whether any order lines
    are for a remote warehouse
    m_txn.NewOrder.o_all_local = 1;
    for (i = 0; i <
    m_txn.NewOrder.o_ol_cnt; i++)
    {
        if
    (m_txn.NewOrder.OL[i].ol_supply_w_id !=
    m_txn.NewOrder.w_id)
    {

```

```

        m_txn.NewOrder.o_all_local = 0;
    // at least one remote warehouse break;
    }
    }

    while (TRUE)
    {
        try
        {
            //
            configure block cursor
            if (
            SQLSetStmtAttrW(m_hstmt,
            SQL_ATTR_ROW_ARRAY_SIZE, (SQLPOINTER)1,
            0) != SQL_SUCCESS )

                ThrowError(CODBCERR::eSetStmtAt
tr);

            rc =
            SQLExecDirectW(m_hstmt, szSqlTemplate,
            SQL_NTS);

            if (rc !=
            SQL_SUCCESS && rc !=
            SQL_SUCCESS_WITH_INFO)

                ThrowError(CODBCERR::eExecDirec
t);

            //
            configure block cursor
            if
            (SQLSetStmtAttrW(m_hstmt,
            SQL_ATTR_ROW_ARRAY_SIZE,
            (SQLPOINTER)MAX_OL_NEW_ORDER_ITEMS, 0)
            != SQL_SUCCESS)

                ThrowError(CODBCERR::eSetStmtAt
tr);

            // Get
            order line results

            if (
            SQLFetch(m_hstmt) == SQL_ERROR)

                ThrowError(CODBCERR::eFetch);

            m_txn.NewOrder.total_amount = 0;
            for (i =
            0; i < m_txn.NewOrder.o_ol_cnt; i++)
            {
                m_txn.NewOrder.total_amount +=
                m_txn.NewOrder.OL[i].ol_amount;
            }

            //
            associate the column bindings for the second
            result set

            if (
            SQLSetStmtAttrW( m_hstmt,
            SQL_ATTR_APP_ROW_DESC,
            m_descNewOrderNoDuplicatesCols2,
            SQL_IS_POINTER ) != SQL_SUCCESS )

                ThrowError(CODBCERR::eSetStmtAt
tr);

```

```

        // move
        if (
        SQLMoreResults(m_hstmt) == SQL_ERROR )

            ThrowError(CODBCERR::eMoreResu
lts);

        if (
        SQLFetch(m_hstmt) == SQL_ERROR)

            ThrowError(CODBCERR::eFetch);

        SQLFreeStmt(m_hstmt,
        SQL_CLOSE);

        if
        (m_no_commit_flag == 1)
        {
            m_txn.NewOrder.total_amount *=
            ((1 + m_txn.NewOrder.w_tax +
            m_txn.NewOrder.d_tax) * (1 -
            m_txn.NewOrder.c_discount));

            m_txn.NewOrder.exec_status_code
            = eOK;
        }
        else
            m_txn.NewOrder.exec_status_code
            = eInvalidItem;

            break;
        }
        catch (CODBCERR *e)
        {
            if (!(e-
            >m_bDeadLock) || (++iTryCount >
            iMaxRetries))

                throw;

            // hit
            deadlock; backoff for increasingly longer period
            delete e;
            Sleep(10
            * iTryCount);
        }
    }

    //
    if (iTryCount)
    //
    // throw new
    CTPCC_ODBC_ERR(CTPCC_ODBC_ERR::ERR_RE
    TRIED_TRANS, iTryCount);
}

void CTPCC_ODBC::InitPaymentParams()
{
    if (
    SQLAllocHandle(SQL_HANDLE_STMT, m_hdbc,
    &m_hstmtPayment) != SQL_SUCCESS )

        ThrowError(CODBCERR::eAllocHand
le);

    m_hstmt = m_hstmtPayment;

    int i = 0;
    if ( SQLBindParameter(m_hstmt,
    ++i, SQL_PARAM_INPUT, SQL_C_SLONG,
    SQL_INTEGER, 0, 0, &m_txn.Payment.w_id, 0,
    NULL) != SQL_SUCCESS

```

```

        ||
SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SLONG,
SQL_INTEGER, 0, 0, &m_txn.Payment.c_w_id, 0,
NULL) != SQL_SUCCESS
        ||
SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_DOUBLE,
SQL_NUMERIC, 6, 2,
&m_txn.Payment.h_amount, 0, NULL) !=
SQL_SUCCESS
        ||
SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT,
SQL_TINYINT, 0, 0, &m_txn.Payment.d_id, 0,
NULL) != SQL_SUCCESS
        ||
SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT,
SQL_TINYINT, 0, 0, &m_txn.Payment.c_d_id, 0,
NULL) != SQL_SUCCESS
        ||
SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SLONG,
SQL_INTEGER, 0, 0, &m_txn.Payment.c_id, 0,
NULL) != SQL_SUCCESS
        ||
SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_CHAR, SQL_CHAR,
sizeof(m_txn.Payment.c_last), 0,
&m_txn.Payment.c_last,
sizeof(m_txn.Payment.c_last), NULL) !=
SQL_SUCCESS
    )
        ThrowError(CODBCERR::eBindPara
m);

    i = 0;
    if ( SQLBindCol(m_hstmt, ++i,
SQL_C_SLONG, &m_txn.Payment.c_id,
0, NULL) !=
SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_last,
sizeof(m_txn.Payment.c_last),
NULL) != SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.h_date, 0, NULL)
!= SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.w_street_1,
sizeof(m_txn.Payment.w_street_1),
NULL) != SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.w_street_2,
sizeof(m_txn.Payment.w_street_2),
NULL) != SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.w_city,
sizeof(m_txn.Payment.w_city),
NULL) != SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.w_state,
sizeof(m_txn.Payment.w_state),
NULL) != SQL_SUCCESS

```

```

        ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.w_zip,
sizeof(m_txn.Payment.w_zip),
NULL) != SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.d_street_1,
sizeof(m_txn.Payment.d_street_1),
NULL) != SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.d_street_2,
sizeof(m_txn.Payment.d_street_2),
NULL) != SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.d_city,
sizeof(m_txn.Payment.d_city),
NULL) != SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.d_state,
sizeof(m_txn.Payment.d_state),
NULL) != SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.d_zip,
sizeof(m_txn.Payment.d_zip),
NULL) != SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_first,
sizeof(m_txn.Payment.c_first),
NULL) != SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_middle,
sizeof(m_txn.Payment.c_middle),
NULL) != SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_street_1,
sizeof(m_txn.Payment.c_street_1),
NULL) != SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_street_2,
sizeof(m_txn.Payment.c_street_2),
NULL) != SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_city,
sizeof(m_txn.Payment.c_city),
NULL) != SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_state,
sizeof(m_txn.Payment.c_state),
NULL) != SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_zip,
sizeof(m_txn.Payment.c_zip),
NULL) != SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_phone,
sizeof(m_txn.Payment.c_phone),
NULL) != SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i,
SQL_C_TYPE_TIMESTAMP,
&m_txn.Payment.c_since, 0, NULL)
!= SQL_SUCCESS

```

```

        ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_credit,
sizeof(m_txn.Payment.c_credit),
NULL) != SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.Payment.c_credit_lim, 0, NULL) !=
SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.Payment.c_discount, 0, NULL)
!= SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.Payment.c_balance, 0, NULL)
!= SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.Payment.c_data,
sizeof(m_txn.Payment.c_data),
NULL) != SQL_SUCCESS
    )
        ThrowError(CODBCERR::eBindCol);

        //Compose Payment statement
        _snwprintf(m_szPaymentCommand,
sizeof(m_szPaymentCommand)/sizeof(m_szPaym
entCommand[0]),
        L"call
%stpc_payment(?,?,?,?,,?)", m_szSPPrefix);
    }

void CTPCC_ODBC::Payment()
{
    RETCODE rc;
    int
iTryCount = 0;

    m_hstmt = m_hstmtPayment;

    if (m_txn.Payment.c_id != 0)

        m_txn.Payment.c_last[0] = 0;

    while (TRUE)
    {
        try
        {
            rc =
SQLExecDirectW(m_hstmt,
m_szPaymentCommand, SQL_NTS);

            if (rc !=
SQL_SUCCESS && rc !=
SQL_SUCCESS_WITH_INFO)

                ThrowError(CODBCERR::eExecDirec
t);

            if (
SQLFetch(m_hstmt) == SQL_ERROR)

                ThrowError(CODBCERR::eFetch);

            SQLFreeStmt(m_hstmt,
SQL_CLOSE);

            if
(m_txn.Payment.c_id == 0)

                throw new CTPCC_ODBC_ERR(
CTPCC_ODBC_ERR::ERR_INVALID_CUST );

```

```

else
    m_txn.Payment.exec_status_code
= eOK;
        break;
    }
    catch (COBDCERR *e)
    {
        if (!(!e-
>m_bDeadLock) || (++iTryCount >
iMaxRetries))
            throw;

        // hit
        deadlock; backoff for increasingly longer period
        delete e;
        Sleep(10)
    }
    * iTryCount);
}

// if (iTryCount)
// throw new
CTPCC_ODBC_ERR(CTPCC_ODBC_ERR::ERR_RE
TRIED_TRANS, iTryCount);
}

void CTPCC_ODBC::InitOrderStatusParams()
{
    if (
SQLAllocHandle(SQL_HANDLE_STMT, m_hdbc,
&m_hstmtOrderStatus) != SQL_SUCCESS
        ||
SQLAllocHandle(SQL_HANDLE_DESC, m_hdbc,
&m_descOrderStatusCols1) != SQL_SUCCESS
        ||
SQLAllocHandle(SQL_HANDLE_DESC, m_hdbc,
&m_descOrderStatusCols2) != SQL_SUCCESS
    )
        ThrowError(COBCERR::eAllocHand
le);

    m_hstmt = m_hstmtOrderStatus;

    if ( SQLSetStmtAttrW( m_hstmt,
SQL_ATTR_APP_ROW_DESC,
m_descOrderStatusCols1, SQL_IS_POINTER ) !=
SQL_SUCCESS )
        ThrowError(COBCERR::eSetStmtAt
tr);

    int i = 0;
    if ( SQLBindParameter(m_hstmt,
++, SQL_PARAM_INPUT, SQL_C_SLONG,
SQL_INTEGER, 0, 0, &m_txn.OrderStatus.w_id,
0, NULL) != SQL_SUCCESS
        ||
SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT,
SQL_TINYINT, 0, 0, &m_txn.OrderStatus.d_id, 0,
NULL) != SQL_SUCCESS
        ||
SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SLONG,
SQL_INTEGER, 0, 0, &m_txn.OrderStatus.c_id, 0,
NULL) != SQL_SUCCESS

```

```

        ||
SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_CHAR, SQL_CHAR,
sizeof(m_txn.OrderStatus.c_last), 0,
&m_txn.OrderStatus.c_last,
sizeof(m_txn.OrderStatus.c_last), NULL) !=
SQL_SUCCESS
    )
        ThrowError(COBCERR::eBindPara
m);

    // configure block cursor
    if ( SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_ROW_BIND_TYPE,
(SQLPOINTER)sizeof(m_txn.OrderStatus.OL[0]),
0) != SQL_SUCCESS
        ||
SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_ROWS_FETCHED_PTR,
&m_RowsFetched, 0) != SQL_SUCCESS
    )
        ThrowError(COBCERR::eSetStmtAt
tr);

    i = 0;
    if ( SQLBindCol(m_hstmt, ++i,
SQL_C_SLONG,
&m_txn.OrderStatus.OL[0].ol_supply_w_id, 0,
NULL) != SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_SLONG,
&m_txn.OrderStatus.OL[0].ol_i_id, 0, NULL) !=
SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_SSHORT,
&m_txn.OrderStatus.OL[0].ol_quantity, 0, NULL)
!= SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.OrderStatus.OL[0].ol_amount, 0, NULL)
!= SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i,
SQL_C_TYPE_TIMESTAMP,
&m_txn.OrderStatus.OL[0].ol_delivery_d, 0,
NULL) != SQL_SUCCESS
    )
        ThrowError(COBCERR::eBindCol);

    if ( SQLSetStmtAttrW( m_hstmt,
SQL_ATTR_APP_ROW_DESC,
m_descOrderStatusCols2, SQL_IS_POINTER ) !=
SQL_SUCCESS )
        ThrowError(COBCERR::eSetStmtAt
tr);

    i = 0;
    if ( SQLBindCol(m_hstmt, ++i,
SQL_C_SLONG, &m_txn.OrderStatus.c_id, 0,
NULL) != SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.OrderStatus.c_last,
sizeof(m_txn.OrderStatus.c_last), NULL) !=
SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.OrderStatus.c_first,
sizeof(m_txn.OrderStatus.c_first), NULL) !=
SQL_SUCCESS

```

```

        ||
SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.OrderStatus.c_middle,
sizeof(m_txn.OrderStatus.c_middle), NULL) !=
SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i,
SQL_C_TYPE_TIMESTAMP,
&m_txn.OrderStatus.o_entry_d, 0, NULL) !=
SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_SSHORT,
&m_txn.OrderStatus.o_carrier_id, 0, NULL) !=
SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_DOUBLE,
&m_txn.OrderStatus.c_balance, 0, NULL) !=
SQL_SUCCESS
        ||
SQLBindCol(m_hstmt, ++i, SQL_C_SLONG,
&m_txn.OrderStatus.o_id, 0, NULL) !=
SQL_SUCCESS
    )
        ThrowError(COBCERR::eBindCol);

    //Compose Order Status statement
    _snwprintf(m_szOrderStatusComma
nd,
sizeof(m_szOrderStatusCommand)/sizeof(m_szOr
derStatusCommand[0]),
L"%call
%stppcc_orderstatus (?,?,?,?)", m_szSPPrefix);
}

void CTPCC_ODBC::OrderStatus()
{
    int
        iTryCount = 0;
        RETCODE
            rc;

    m_hstmt = m_hstmtOrderStatus;

    if ( SQLSetStmtAttrW( m_hstmt,
SQL_ATTR_APP_ROW_DESC,
m_descOrderStatusCols1, SQL_IS_POINTER ) !=
SQL_SUCCESS )
        ThrowError(COBCERR::eSetStmtAt
tr);

    if (m_txn.OrderStatus.c_id != 0)
        m_txn.OrderStatus.c_last[0] = 0;

    while (TRUE)
    {
        try
        {
            //
            configure block cursor
            if (
SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_ROW_ARRAY_SIZE, (SQLPOINTER)1,
0) != SQL_SUCCESS )
                ThrowError(COBCERR::eSetStmtAt
tr);

            rc =
SQLExecDirectW(m_hstmt,
m_szOrderStatusCommand, SQL_NTS);

```

```

        if ( ((rc
== SQL_SUCCESS_WITH_INFO) &&
(m_RowsFetched != 0) || (rc == SQL_ERROR) )
            ThrowError(CODBCERR::eExecDirec
t);

        //
configure block cursor
        if (
SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_ROW_ARRAY_SIZE,
(SQLPOINTER)MAX_OL_ORDER_STATUS_ITEMS,
0) != SQL_SUCCESS )
            ThrowError(CODBCERR::eSetStmtAt
tr);

        rc =
SQLFetchScroll( m_hstmt, SQL_FETCH_NEXT, 0
);
        if ( ((rc
== SQL_SUCCESS_WITH_INFO) &&
(m_RowsFetched != 0) || (rc == SQL_ERROR) )
            ThrowError(CODBCERR::eFetchScro
ll);

        m_txn.OrderStatus.o_ol_cnt =
(short)m_RowsFetched;

        if
(m_txn.OrderStatus.o_ol_cnt != 0)
        {
            if ( SQLSetStmtAttrW( m_hstmt,
SQL_ATTR_APP_ROW_DESC,
m_descOrderStatusCols2, SQL_IS_POINTER ) !=
SQL_SUCCESS )
                ThrowError(CODBCERR::eSetStmtAt
tr);

            if ( SQLMoreResults(m_hstmt) ==
SQL_ERROR )
                ThrowError(CODBCERR::eMoreResu
lts);

            if ( (rc = SQLFetch(m_hstmt)) ==
SQL_ERROR)
                ThrowError(CODBCERR::eFetch);
        }

        SQLFreeStmt(m_hstmt,
SQL_CLOSE);

        if
(m_txn.OrderStatus.o_ol_cnt == 0)
            throw new CTPCC_ODBC_ERR(
CTPCC_ODBC_ERR::ERR_NO_SUCH_ORDER );
        else if
(m_txn.OrderStatus.c_id == 0 &&
m_txn.OrderStatus.c_last[0] == 0)

```

```

            throw new CTPCC_ODBC_ERR(
CTPCC_ODBC_ERR::ERR_INVALID_CUSTE
r);
        m_txn.OrderStatus.exec_status_cod
e = eOK;

        break;
    }
    catch (CODBCERR *e)
    {
        if ((le-
>m_bDeadLock) || (++iTryCount >
iMaxRetries))
            throw;

        // hit
        deadlock; backoff for increasingly longer period
        delete e;
        Sleep(10

        * iTryCount);
    }
}

// if (iTryCount)
// throw new
CTPCC_ODBC_ERR(CTPCC_ODBC_ERR::ERR_RE
TRIED_TRANS, iTryCount);
}

void CTPCC_ODBC::InitDeliveryParams()
{
    if (
SQLAllocHandle(SQL_HANDLE_STMT, m_hdbc,
&m_hstmtDelivery) != SQL_SUCCESS )
        ThrowError(CODBCERR::eAllocHand
le);

    m_hstmt = m_hstmtDelivery;

    int i = 0;
    if ( SQLBindParameter(m_hstmt,
++i, SQL_PARAM_INPUT, SQL_C_SLONG,
SQL_INTEGER, 0, 0, &m_txn.Delivery.w_id, 0,
NULL) != SQL_SUCCESS
        ||
SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SSHORT,
SQL_SMALLINT, 0, 0,
&m_txn.Delivery.o_carrier_id, 0, NULL) !=
SQL_SUCCESS
    )
        ThrowError(CODBCERR::eBindPara
m);

    for (i=0;i<10;i++)
    {
        if (
SQLBindCol(m_hstmt, (UWORD)(i+1),
SQL_C_SLONG, &m_txn.Delivery.o_id[i], 0,
NULL) != SQL_SUCCESS )
            ThrowError(CODBCERR::eBindCol);
    }

    //Compose Delivery statement

    _snwprintf(m_szDeliveryCommand,
sizeof(m_szDeliveryCommand)/sizeof(m_szDelive
ryCommand[0]),
        L"{call
%stpc_delivery(?,?)", m_szSPPrefix);

```

```

}
void CTPCC_ODBC::Delivery()
{
    RETCODE rc;
    int
iTryCount = 0;

    m_hstmt = m_hstmtDelivery;

    while (TRUE)
    {
        try
        {
            rc =
SQLExecDirectW(m_hstmt,
m_szDeliveryCommand, SQL_NTS);
            if (rc !=
SQL_SUCCESS && rc !=
SQL_SUCCESS_WITH_INFO)
                ThrowError(CODBCERR::eExecDirec
t);

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

            SQLFreeStmt(m_hstmt,
SQL_CLOSE);

            m_txn.Delivery.exec_status_code =
eOK;

            break;
        }
        catch (CODBCERR *e)
        {
            if ((le-
>m_bDeadLock) || (++iTryCount >
iMaxRetries))
                throw;

            // hit
            deadlock; backoff for increasingly longer period
            delete e;
            Sleep(10

            * iTryCount);
        }
    }

    // if (iTryCount)
    // throw new
CTPCC_ODBC_ERR(CTPCC_ODBC_ERR::ERR_RE
TRIED_TRANS, iTryCount);
}

```

```
db_odbc.dll tpcodbc.h
```

```

/* FILE:
TPCC_ODBC.H
*
* Microsoft TPC-C Kit Ver. 4.20.000
*
* Copyright Microsoft, 1999
* All Rights Reserved
*

```

```

*
*      Version 4.10.000 audited by
Richard Gimarc, Performance Metrics, 3/17/99
*
*      PURPOSE:  Header file for TPC-C
txn class implementation.
*
*      Change history:
*
*      4.20.000 - updated
rev number to match kit
*/
#pragma once

// need to declare functions for import, unless
define has already been created
// by the DLL's .cpp module for export.
#ifdef DllDecl
#define DllDecl __declspec( dllimport )
#endif

#define IMAX_SP_NAME_LEN 256
//maximum length of a stored
procedure name with parameters

class CODBCERR : public CBaseErr
{
public:
    enum ACTION
    {
        eNone,

        eUnknown,

        eAllocConn,
// error from SQLAllocConnect
        eAllocHandle, // error
from SQLAllocHandle

        eConnOption,
// error from SQLSetConnectOption

        eConnect,
// error from SQLConnect

        eAllocStmt,
// error from SQLAllocStmt

        eExecDirect, // error
from SQLExecDirect

        eBindParam,
// error from SQLBindParameter

        eBindCol,
// error from SQLBindCol
        eFetch,

// error from SQLFetch

        eFetchScroll, // error
from SQLFetchScroll

        eMoreResults,
// error from SQLMoreResults

        ePrepare,
// error from SQLPrepare

        eExecute,
// error from SQLExecute

        eSetEnvAttr, // error
from SQLSetEnvAttr

```

```

        eSetStmtAttr // error
from SQLSetStmtAttr };

        CODBCERR(void)
        {
            m_eAction = eNone;

            m_NativeError = 0;

            m_bDeadLock = FALSE;

            m_odbcerrstr = NULL;
        };

        ~CODBCERR()
        {
            if
(m_odbcerrstr != NULL)

            delete [] m_odbcerrstr;
        };

        ACTION
        m_eAction;
        int
        m_NativeError;
        BOOL
        m_bDeadLock;
        char *m_odbcerrstr;

        int
        ErrorType() {return
ERR_TYPE_ODBC;};
        char*
        ErrorTypeStr() { return "ODBC"; }
        int
        ErrorNum() {return
m_NativeError;};
        char*
        ErrorText() {return m_odbcerrstr;};
        int
        ErrorAction() { return
(int)m_eAction; }
};

class CTPCC_ODBC_ERR : public CBaseErr
{
public:
    enum
TPCC_ODBC_ERRS
    {
        ERR_WRONG_SP_VERSION = 1,
// "Wrong version of stored procs
on database server"

        ERR_INVALID_CUST,
// "Invalid Customer
id,name."

        ERR_NO_SUCH_ORDER,
// "No orders found
for customer."

        ERR_RETRIED_TRANS,
// "Retries before
transaction succeeded."
    };

        CTPCC_ODBC_ERR(
int iErr ) { m_erno = iErr; m_iTryCount = 0; };

```

```

        CTPCC_ODBC_ERR(
int iErr, int iTryCount ) { m_erno = iErr;
m_iTryCount = iTryCount; };
        int
        m_erno;
        int
        m_iTryCount;

        int
        ErrorType() {return
ERR_TYPE_TPCC_ODBC;};
        char*
        ErrorTypeStr() { return "TPCC
ODBC"; }
        int
        ErrorNum() {return m_erno;};
        char*
        ErrorText();
};

class DllDecl CTPCC_ODBC : public CTPCC_BASE
{
private:
// declare variables
and private functions here...
        BOOL
        m_bDeadlock;
// transaction was selected as
deadlock victim
        int
        m_MaxRetries;
// retry count on
deadlock

        SQLHENV
        m_henv;
// ODBC environment
handle
        SQLHDBC
        m_hdbc;
        SQLHSTMT
        m_hstmt;
// the current hstmt

        SQLHSTMT
        m_hstmtNewOrder;
        SQLHSTMT
        m_hstmtNewOrderNoDuplicates;
// NewOrder with one result set for
lineitem details
        SQLHSTMT
        m_hstmtPayment;
        SQLHSTMT
        m_hstmtDelivery;
        SQLHSTMT
        m_hstmtOrderStatus;
        SQLHSTMT
        m_hstmtStockLevel;

        SQLHDESC
        m_descNewOrderCols1;
        SQLHDESC
        m_descNewOrderCols2;
        SQLHDESC
        m_descNewOrderNoDuplicatesCols1
;
// NewOrder with one result set for
lineitem details
        SQLHDESC
        m_descNewOrderNoDuplicatesCols2
;
// NewOrder with one result set for
lineitem details
        SQLHDESC
        m_descOrderStatusCols1;

```

```

        SQLHDESC
        m_descOrderStatusCols2;

        wchar_t
        m_szSPPrefix[32]; // stored
        procedures prefix

        wchar_t
        m_szNewOrderCommand[iMAX_SP_
        NAME_LEN];

        wchar_t
        m_szNewOrderNoDuplicatesComma
        nd[iMAX_SP_NAME_LEN];
        int

        m_iBeginNewOrderVariablePart;
        // beginning of the variable part in
        NewOrder statement
        int

        m_iBeginNewOrderNoDuplicatesVari
        ablePart; // beginning of the variable part in
        NewOrder statement
        wchar_t
        m_szPaymentCommand[iMAX_SP_N
        AME_LEN];

        wchar_t
        m_szDeliveryCommand[iMAX_SP_N
        AME_LEN];

        wchar_t
        m_szOrderStatusCommand[iMAX_S
        P_NAME_LEN];

        wchar_t
        m_szStockLevelCommand[iMAX_SP
        _NAME_LEN];

        // new-order specific
        fields
        SQLINTEGER
        m_BindOffset;
        SQLINTEGER
        m_RowsFetched;
        int
        m_no_commit_flag;

        // tpcc_neworder_new
        flag
        BOOL
        m_bCallNoDuplicatesNewOrder;

        void ThrowError(
        CODBCERR::ACTION eAction );

        void
        InitNewOrderParams();
        void
        InitPaymentParams();
        void
        InitDeliveryParams();
        void
        InitStockLevelParams();
        void
        InitOrderStatusParams();

        union
        {
                NEW_ORDER_DATA
                NewOrder;

                PAYMENT_DATA
                Payment;

                DELIVERY_DATA
                Delivery;

```

```

        STOCK_LEVEL_DATA
        StockLevel;
        ORDER_STATUS_DATA
        OrderStatus;
        }
        m_txn;

        bool
        DuplicatesInNewOrder();
        void
        NewOrderDuplicates();
        void
        NewOrderNoDuplicates();

        public:
                CTPCC_ODBC(
                LPCSTR szServer, LPCSTR szUser,
                LPCSTR szPassword,

                LPCSTR szDatabase,
                LPCSTR szHost,

                LPCWSTR szSPPrefix,
                BOOL bCallNoDuplicatesNewOrder);
                ~CTPCC_ODBC(void);

        inline
        PNEW_ORDER_DATA
        BuffAddr_NewOrder()
        { return &m_txn.NewOrder; };
        inline
        PPAYMENT_DATA
        BuffAddr_Payment()
        { return &m_txn.Payment; };
        inline
        PDELIVERY_DATA
        BuffAddr_Delivery()
        { return &m_txn.Delivery; };
        inline
        PSTOCK_LEVEL_DATA
        BuffAddr_StockLevel()
        { return &m_txn.StockLevel; };
        inline
        PORDER_STATUS_DATA
        BuffAddr_OrderStatus() { return
        &m_txn.OrderStatus; };

        void NewOrder
        ();
        void Payment
        ();
        void Delivery
        ();
        void StockLevel
        ();
        void OrderStatus
        ();

};

// wrapper routine for class constructor
extern "C" DllDecl CTPCC_ODBC*
CTPCC_ODBC_new
(
        LPCSTR szServer,
        LPCSTR szUser, LPCSTR szPassword,
        LPCSTR szHost,
        LPCSTR szDatabase,
        LPCWSTR szSPPrefix,
        BOOL bCallNoDuplicatesNewOrder );

typedef CTPCC_ODBC*
(TYPE_CTPCC_ODBC)(LPCSTR, LPCSTR, LPCSTR,
LPCSTR, LPCSTR, LPCWSTR, BOOL);

```

tm\_com\_dll\src\tpcc\_com.h

```

/*      FILE:
        TPCC_COM.H

        *
        *      Microsoft TPC-C Kit Ver. 4.20.000

        *
        *      Copyright Microsoft, 1999
        *      All Rights Reserved

        *
        *      not yet audited

        *
        *      PURPOSE:  Header file for TPC-C
        *      COM+ class implementation.
        *
        *      Change history:
        *      4.20.000 - first
        version
        */

#pragma once

#include <stdio.h>
#include "..\..\tpcc_com_ps\src\tpcc_com_ps.h"

// need to declare functions for import, unless
define has already been created
// by the DLL's .cpp module for export.
#ifndef DllDecl
#define DllDecl __declspec( dllimport )
#endif

class CCOMERR : public CBaseErr
{
        private:
                char
                m_szErrorText[64];

        public:
                // use this interface
                for genuine COM errors
                CCOMERR( HRESULT
                hr )
                {
                        m_hr =
                hr;

                        m_iErrorType = 0;
                        m_iError
                = 0;
                }

                // use this interface to
                impersonate a non-COM error type
                CCOMERR( int
                iErrorType, int iError )
                {
                        m_iErrorType = iErrorType;
                        m_iError
                = iError;
                        m_hr =
                S_OK;
                }

                int
                m_hr;
                int
                m_iErrorType;
                int
                m_iError;

```



```

// A CCOMERR class
can impersonate another class, which happens if
the error
// was not actually a
COM Services error, but was simply transmitted
back via COM.
int ErrorType()
{
    if
(m_iErrorType == 0)
        return ERR_TYPE_COM;
    else
        return m_iErrorType;
}
char *ErrorTypeStr() {
return "COM"; }
int ErrorNum() {return
m_hr;}
char *ErrorText()
{
    if (m_hr
== S_OK)
        sprintf( m_szErrorText, "Error:
Class %d, error # %d", m_iErrorType, m_iError
);
    else
        sprintf( m_szErrorText, "Error: COM
HRESULT %x", m_hr );
    return
m_szErrorText;
}
};
class DllDecl CTPCC_COM : public CTPCC_BASE
{
private:
    BOOL m_bSinglePool;
// COM Interface
pointers
    ITPCC*
    m_pNewOrder;
    ITPCC*
    m_pPayment;
    ITPCC*
    m_pStockLevel;
    ITPCC*
    m_pOrderStatus;
    struct COM_DATA
    {
        int
ErrorType;
        int error;
        union
        {
            NEW_ORDER_DATA
            NewOrder;
            PAYMENT_DATA
            Payment;
            DELIVERY_DATA
            Delivery;
            STOCK_LEVEL_DATA
            StockLevel;
        }
    };
};

```

```

ORDER_STATUS_DATA
OrderStatus; } *m_pTxn;
};
public:
    VARIANT m_vTxn;
    CTPCC_COM(BOOL
bSinglePool);
    ~CTPCC_COM(void);
    inline
    PNEW_ORDER_DATA
    BuffAddr_NewOrder()
    { return &m_pTxn->u.NewOrder;
};
    inline
    PPAYMENT_DATA
    BuffAddr_Payment()
    { return &m_pTxn->u.Payment;
};
    inline
    PDELIVERY_DATA
    BuffAddr_Delivery()
    { return &m_pTxn->u.Delivery; };
    inline
    PSTOCK_LEVEL_DATA
    BuffAddr_StockLevel()
    { return &m_pTxn->u.StockLevel;
};
    inline
    PORDER_STATUS_DATA
    BuffAddr_OrderStatus() { return
&m_pTxn->u.OrderStatus; };
    void NewOrder
();
    void Payment
();
    void StockLevel
();
    void OrderStatus
();
    void Delivery
() { throw new
CCOMERR(E_NOTIMPL); } // not supported
};
inline void ReleaseInterface(IUnknown *pUnk)
{
    if (pUnk)
    {
        pUnk->Release();
        pUnk = NULL;
    }
}
// wrapper routine for class constructor
extern "C" __declspec(dllexport) CTPCC_COM*
CTPCC_COM_new(BOOL);
typedef CTPCC_COM*
(TYPE_CTPCC_COM)(BOOL);

```

**db\_oledb\_dll\tpcc\_oledb.h**

```

/*
FILE:
TPCC_OLEDB.H
*
Microsoft TPC-C Kit Ver. 4.20.000
*
Copyright Microsoft, 1999-2004
*
Written by Sergey Vasilevskiy
*
All Rights Reserved
*
*
PURPOSE: Header file for TPC-C
txn class OLE DB implementation.
*
*/
#pragma once
// need to declare functions for import, unless
define has already been created
// by the DLL's .cpp module for export.
#ifdef DllDecl
#define DllDecl __declspec( dllimport )
#endif
#define iMAX_SP_NAME_LEN 256
//maximum length of a stored
procedure name with parameters
// Type of parameter and result set column
bindings.
enum eBindingType
{
    eInputParameter,
    eOutputParameter,
    eInputOutputParameter,
    eOutputColumn
};
class COLEDBERR : public CBaseErr
{
public:
    enum ACTION
    {
        eNone,
        eUnknown,
        eQueryInterface,
        // error from
QueryInterface
        eCreateSession,
        eCreateCommand,
        eSetCommandText,
        eExecute,
        // = 6
        eCreateAccessor,
        ePrepare,
        eGetNextRows,
        eGetData,
        eGetResult
        // = 11
    };
};

```

```

        COLEDBERR(LPCTSTR
szLoc)
        :
CBaseErr(szLoc)
    {
        m_eAction = eNone;
        m_NativeError = 0;
        m_bDeadLock = FALSE;
        m_OLEDBErrStr = NULL;
    };
    ~COLEDBERR()
    {
        if
(m_OLEDBErrStr != NULL)
        delete [] m_OLEDBErrStr;
    };
        ACTION
        m_eAction;
        int
        m_NativeError;
        BOOL
        m_bDeadLock;
        char
        *m_OLEDBErrStr;
        int
        ErrorType() {return
ERR_TYPE_OLEDB;};
        char*
        ErrorTypeStr() { return "OLEDB"; }
        int
        ErrorNum() {return
m_NativeError;};
        char*
        ErrorText() {return
m_OLEDBErrStr;};
        int
        ErrorAction() { return
(int)m_eAction; }
    };
class CTPCC_OLEDB_ERR : public CBaseErr
{
    public:
        enum
        TPCC_OLEDB_ERRS
        {
            ERR_WRONG_SP_VERSION = 1,
            // "Wrong version of stored procs
on database server"
            ERR_INVALID_CUST,
            // "Invalid Customer
id,name."
            ERR_NO_SUCH_ORDER,
            // "No orders found
for customer."
            ERR_RETRIED_TRANS,
            // "Retries before
transaction succeeded."
        };
        CTPCC_OLEDB_ERR(
int iErr ) { m_erno = iErr; m_iTryCount = 0; };

```

```

        CTPCC_OLEDB_ERR(
int iErr, int iTryCount ) { m_erno = iErr;
m_iTryCount = iTryCount; };
        int
        m_erno;
        int
        m_iTryCount;
        int
        ErrorType() {return
ERR_TYPE_TPCC_OLEDB;};
        char*
        ErrorTypeStr() { return "TPCC
OLEDB"; }
        int
        ErrorNum() {return m_erno;};
        char*
        ErrorText();
    };
class DllDecl CTPCC_OLEDB : public CTPCC_BASE
{
    private:
        // declare variables
and private functions here...
        BOOL
        m_bDeadlock;
        // transaction was selected as
deadlock victim
        int
        m_MaxRetries;
        // retry count on
deadlock
        DBPROPSET
        m_rgInitPropSet;
        // initialization property set used to
establish a connection
        DBPROP
        m_InitProperties[4]; //
individual initialization properties
        IDBCreateSession*
        m_pIDBCreateSession; //
session (connection) interface
        IDBCreateCommand*
        m_pIDBCreateCommand; // SQL
command creation interface
        IMalloc*
        m_pIMalloc;
        // Needed to release
error strings.
        // StockLevel
ICommandText*
        m_pIStockLevelCommand;
        HACCESSOR
        m_hStockLevelInputAccessor;
        // accessor to bind input
parameters

```

```

        HACCESSOR
        m_hStockLevelOutputAccessor;
        // accessor to bind output columns
        DBPARAMS
        m_StockLevelExecuteParams;
        // parameter structure
for Execute
        // NewOrder
// One prepared
command for each possible number of new order
line items
        ICommandText*
        m_pINewOrderCommand[MAX_OL_
NEW_ORDER_ITEMS];
        // accessors to bind
input parameters
        // one for each
possible number of new order line items
        HACCESSOR
        m_hNewOrderInputAccessor[MAX_
OL_NEW_ORDER_ITEMS];
        // accessor to bind
output columns of the first rowset
        HACCESSOR
        m_hNewOrderOutputAccessor[MAX_
OL_NEW_ORDER_ITEMS];
        // accessor to bind
output columns of the second rowset
        HACCESSOR
        m_hNewOrderOutputAccessor2[MA
X_OL_NEW_ORDER_ITEMS];
        // parameter structure
for Execute
        DBPARAMS
        m_NewOrderExecuteParams[MAX_
OL_NEW_ORDER_ITEMS];
        // Payment
ICommandText*
        m_pIPaymentCommand;
        HACCESSOR
        m_hPaymentInputAccessor;
        // accessor to bind input
parameters
        HACCESSOR
        m_hPaymentOutputAccessor;
        // accessor to bind output columns
        DBPARAMS
        m_PaymentExecuteParams;
        // parameter structure
for Execute
        // OrderStatus
ICommandText*
        m_pIOrderStatusCommand;
        HACCESSOR
        m_hOrderStatusInputAccessor;
        // accessor to bind input
parameters

```

```

HACCESSOR
m_hOrderStatusOutputAccessor;
// accessor to bind output columns
HACCESSOR

m_hOrderStatusOutputAccessor2;
// accessor to bind output columns
DBPARAMS

m_OrderStatusExecuteParams;
// parameter structure
for Execute

// Delivery
ICommandText*

m_pIDeliveryCommand;
HACCESSOR

m_hDeliveryInputAccessor;
// accessor to bind input
parameters

HACCESSOR

m_hDeliveryOutputAccessor;
// accessor to bind output columns
DBPARAMS

m_DeliveryExecuteParams;//
parameter structure for Execute

wchar_t

m_szSPPrefix[32]; // stored
procedures prefix

// new-order specific
fields
int

m_no_commit_flag;

void ThrowError(
IUnknown* pObjectWithError,
COLEDBERR::ACTION eAction, LPCWSTR
szLocation );

void

CheckSPVersion();

void

InitNewOrderParams();

void

InitPaymentParams();

void

InitDeliveryParams();

void

InitStockLevelParams();

void

InitOrderStatusParams();

// Helper function to
create and prepare a command
void
CreateCommand(wchar_t* szSQLCommand,
ICommandText** ppICommandText);
// Helper function to
prepare a command
void
PrepareCommand(ICommandText* pICommand);

// Helper function to
fill one binding

```

```

// Used for both input
parameter and output column bindings
SetBinding(DBBINDING* pDBBinding, size_t
obValue, size_t cbMaxLen, DBTYPE wType);

// Helper function to
initialize an array of bindings
void
InitBindings(DBBINDING* pDBBindings, int
iCount, eBindingType BindingType);

union
{
NEW_ORDER_DATA
NewOrder;

PAYMENT_DATA
Payment;

DELIVERY_DATA
Delivery;

STOCK_LEVEL_DATA
StockLevel;

ORDER_STATUS_DATA
OrderStatus;
}
m_txn;

public:
CTPCC_OLEDB(LPCWSTR szServer,
LPCWSTR szUser, LPCWSTR szPassword, LPCWSTR
szHost, LPCWSTR szDatabase, LPCWSTR
szSPPrefix);

~CTPCC_OLEDB(void);

inline
PNEW_ORDER_DATA
BuffAddr_NewOrder()
{ return &m_txn.NewOrder; };
inline

PPAYMENT_DATA
BuffAddr_Payment()
{ return &m_txn.Payment; };
inline

PDELIVERY_DATA
BuffAddr_Delivery()
{ return &m_txn.Delivery; };
inline

PSTOCK_LEVEL_DATA BuffAddr_StockLevel()
{ return &m_txn.StockLevel; };
inline

PORDER_STATUS_DATA
BuffAddr_OrderStatus() { return
&m_txn.OrderStatus; };

void NewOrder
();
void Payment
();
void Delivery
();
void StockLevel
();
void OrderStatus
();

};

// wrapper routine for class constructor

```

```

extern "C" DllDecl CTPCC_OLEDB*
CTPCC_OLEDB(LPCWSTR szServer, LPCWSTR szUser,
LPCWSTR szPassword, LPCWSTR szHost, LPCWSTR
szDatabase, LPCWSTR szSPPrefix );

```

```

typedef CTPCC_OLEDB*
(TYPE_CTPCC_OLEDB)(LPCWSTR, LPCWSTR,
LPCWSTR, LPCWSTR, LPCWSTR, LPCWSTR);

```

```

db oledb dll\src\tpcc oledb
.cpp

```

```

/* FILE:
TPCC_OLEDB.CPP
*
Microsoft TPC-C Kit Ver. 4.42.000
*
Copyright Microsoft, 2004
*
Written by Sergey Vasilevsky
All Rights Reserved
*
*
*
* PURPOSE: Implements OLEDB
calls for TPC-C txns.
* Contact: Charles Levine
(clevine@microsoft.com)
*
*/

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

#define DBINITCONSTANTS
#include <oledb.h>
#include <sqloledb.h> // Use MDAC
#include <sqlncli.h> // Use SNAC
#include <oledberr.h>

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

// need to declare functions for export
#define DllDecl __declspec( dlllexport )

#include "..\..\common\src\error.h"
#include "..\..\common\src\trans.h"
#include "..\..\common\src\txn_base.h"
#include "tpcc_oledb.h"

#ifdef SQL_MAX_MESSAGE_LENGTH
#define SQL_MAX_MESSAGE_LENGTH 512
#endif

// version string; must match return value from
tpcc_version stored proc
const char sVersion[] = "4.20.000";

const iMaxRetries = 10; // how
many retries on deadlock

const int iErrOleDbProvider = 7312;

```

```

const char sErrTimeoutExpired[] = "Timeout
expired";

// this needs to be the same as the max length of
machine/database/user/password in Benchcraft
(engstut.h)
const static int      iMaxNameLen = 32;

BOOL APIENTRY DllMain(HMODULE hModule,
DWORD ul_reason_for_call, LPVOID lpReserved)
{
    switch( ul_reason_for_call )
    {
        case
DLL_PROCESS_ATTACH:
            DisableThreadLibraryCalls(hModule)
;
            break;

        case
DLL_PROCESS_DETACH:
            break;

        default:
            /*
nothing */;
    }
    return TRUE;
}

/* FUNCTION: CTPCC_OLEDB_ERR::ErrorText
*/
char* CTPCC_OLEDB_ERR::ErrorText(void)
{
    int i;

    static SERRORMSG errorMsgs[] =
    {
        {
ERR_WRONG_SP_VERSION,
        "Wrong version of stored procs on
database server"
        },
        {
ERR_INVALID_CUST,
        "Invalid Customer id,name."
        },
        {
ERR_NO_SUCH_ORDER,
        "No
orders found for customer."
        },
        {
ERR_RETRIED_TRANS,
        "Retries
before transaction succeeded."
        },
        { 0,
        ""
        }
    };

    static char szNotFound[] =
"Unknown error number.";

    for(i=0; errorMsgs[i].szMsg[0];
i++)

```

```

        {
            if ( m_erno ==
errorMsgs[i].Error )
                break;
        }
        if ( !errorMsgs[i].szMsg[0] )
            return szNotFound;
        else
            return
errorMsgs[i].szMsg;
    }

// wrapper routine for class constructor
_declspec(dllexport) CTPCC_OLEDB*
CTPCC_OLEDB_new(
    LPCSTR szServer,
// name of SQL server
    LPCSTR szUser,
// user name for login
    LPCSTR szPassword,
// password for login
    LPCSTR szHost,
// not used
    LPCSTR szDatabase,
// name of database to use
    LPCWSTR szSPPrefix )
// prefix to append to the stored
procedure names
{
    return new CTPCC_OLEDB(
szServer, szUser, szPassword, szHost,
szDatabase, szSPPrefix );
}

CTPCC_OLEDB::CTPCC_OLEDB (
    LPCSTR szServer,
// name
of SQL server
    LPCSTR szUser,
// user name for login
    LPCSTR szPassword,
//
password for login
    LPCSTR szHost,
//
// not used
    LPCSTR szDatabase,
// name
of database to use
    LPCWSTR szSPPrefix
// prefix
to append to the stored procedure names
)
: m_pIMalloc(NULL)
{
    int
iRc;
    int
i;
    HRESULT
hr;
    IDBInitialize*
pIDBInitialize = NULL;
// data source interface
    IDBProperties*
pIDBProperties = NULL;
    ICommandText*
pICommandText;

    command without parameters
// SQL

```

```

    wchar_t
szwServer[iMaxNameLen];
// Unicode string used to convert to
wchar_t
BSTR
szwDatabase[iMaxNameLen];
// Unicode string used to convert to
wchar_t
BSTR
wchar_t
szwUser[iMaxNameLen];
// Unicode string used to convert to
wchar_t
BSTR
wchar_t
szwPassword[iMaxNameLen];
// Unicode string used to convert to
BSTR
// Copy stored procedures prefix
wcsncpy(m_szspprefix, szspprefix,
sizeof(m_szspprefix)/sizeof(m_szspprefix[0]));

// Convert single byte ANSI strings
to Unicode (for later conversion to BSTR)
iRc =
MultiByteToWideChar(CP_THREAD_ACP,
MB_PRECOMPOSED, szServer,
(int)strlen(szServer)+1, szwServer,
iMaxNameLen);
iRc =
MultiByteToWideChar(CP_THREAD_ACP,
MB_PRECOMPOSED, szDatabase,
(int)strlen(szDatabase)+1, szwDatabase,
iMaxNameLen);
iRc =
MultiByteToWideChar(CP_THREAD_ACP,
MB_PRECOMPOSED, szUser,
(int)strlen(szUser)+1, szwUser, iMaxNameLen);
iRc =
MultiByteToWideChar(CP_THREAD_ACP,
MB_PRECOMPOSED, szPassword,
(int)strlen(szPassword)+1, szwPassword,
iMaxNameLen);

// Initialize COM library to be able
to use OLE-DB interfaces
CoInitialize(NULL);

// Initialization - create SQLOLEDB
component
//hr =
CoCreateInstance(CLSID_SQLOLEDB, // GUID of
SQLOLEDB component
// Compile for SNAC
hr =
CoCreateInstance(CLSID_SQLNCLI, // GUID
of SQLNCLI component
NULL,
// not defining an
aggregate component, so NULL
CLSCTX_INPROC_SERVER,
// run the component in our
process
IID_IDBInitialize,
(void **) &pIDBInitialize);

/*
Initialize the property values needed
to establish the connection.
*/
for(i = 0; i < 4; i++)
    VariantInit(&m_InitProperties[i].vValue);
//Server name.

```

```

    m_InitProperties[0].dwPropertyID =
DBPROP_INIT_DATASOURCE;
    m_InitProperties[0].vValue.vt = VT_BSTR;
    m_InitProperties[0].vValue.bstrVal=
SysAllocString(szwServer);
    m_InitProperties[0].dwOptions =
DBPROPOPTIONS_REQUIRED;
    m_InitProperties[0].colid = DB_NULLID;
    //Database.
    m_InitProperties[1].dwPropertyID =
DBPROP_INIT_CATALOG;
    m_InitProperties[1].vValue.vt = VT_BSTR;
    m_InitProperties[1].vValue.bstrVal=
SysAllocString(szwDatabase);
    m_InitProperties[1].dwOptions =
DBPROPOPTIONS_REQUIRED;
    m_InitProperties[1].colid = DB_NULLID;
    //Username (login).
    m_InitProperties[2].dwPropertyID =
DBPROP_AUTH_USERID;
    m_InitProperties[2].vValue.vt = VT_BSTR;
    m_InitProperties[2].vValue.bstrVal=
SysAllocString(szwUser);
    m_InitProperties[2].dwOptions =
DBPROPOPTIONS_REQUIRED;
    m_InitProperties[2].colid = DB_NULLID;
    //Password.
    m_InitProperties[3].dwPropertyID =
DBPROP_AUTH_PASSWORD;
    m_InitProperties[3].vValue.vt = VT_BSTR;
    m_InitProperties[3].vValue.bstrVal=
SysAllocString(szwPassword);
    m_InitProperties[3].dwOptions =
DBPROPOPTIONS_REQUIRED;
    m_InitProperties[3].colid = DB_NULLID;
    /*
    Construct the DBPROPSET
    structure(m_rgInitPropSet). The
    DBPROPSET structure is used to pass an array
    of DBPROP
    structures (m_InitProperties) to the
    SetProperties method.
    */
    m_rgInitPropSet.guidPropertySet =
DBPROPSET_DBINIT;
    m_rgInitPropSet.cProperties = 4;
    m_rgInitPropSet.rgProperties =
m_InitProperties;
    //Set initialization properties.
    if (FAILED(hr = pIDBInitialize-
>QueryInterface(IID_IDBProperties,
(void
***)&pIDBProperties)))
    {
        ThrowError(pIDBInitialize,
COLEDBERR::eQueryInterface,
"CTPCC_OLEDB()");
    }

    hr = pIDBProperties->SetProperties(1,
&m_rgInitPropSet);

    pIDBProperties->Release();
    //Now establish the connection to the data
    source.
    hr = pIDBInitialize->Initialize();

    // Free BSTR property strings
    for(i = 0; i < 4; i++)
    {

```

```

SysFreeString(m_InitProperties[i].vValue.bstrVal)
;
    }

    hr = pIDBInitialize-
>QueryInterface(IID_IDBCreateSession, (void
***)&m_pIDBCreateSession);

    // Releasing this has no effect on
    the SQL Server connection
    // of the data source object because of the
    reference maintained by
    // m_pIDBCreateSession.
    pIDBInitialize->Release();
    pIDBInitialize = NULL;

    hr = m_pIDBCreateSession-
>CreateSession(NULL, IID_IDBCreateCommand,
(IUnknown ***)&m_pIDBCreateCommand);
    if (FAILED(hr))
    {
        ThrowError(m_pIDBCreateSession,
COLEDBERR::eCreateSession,
"CTPCC_OLEDB()");
    }

    hr = m_pIDBCreateCommand-
>CreateCommand(NULL, IID ICommandText,
(IUnknown ***)&pICommandText);
    if (FAILED(hr))
    {
        ThrowError(m_pIDBCreateComman
d, COLEDBERR::eCreateCommand,
"CTPCC_OLEDB()");
    }

    hr = pICommandText-
>SetCommandText(DBGUID_SQL, L"set nocount
on set XACT_ABORT ON");
    if (FAILED(hr))
    {
        ThrowError(pICommandText,
COLEDBERR::eSetCommandText,
"CTPCC_OLEDB()");
    }

    hr = pICommandText-
>Execute(NULL, IID_NULL, NULL, NULL, NULL);
    if (FAILED(hr))
    {
        ThrowError(pICommandText,
COLEDBERR::eExecute, "CTPCC_OLEDB()");
    }

    pICommandText->Release();

    // verify that version of stored procs
    on server is correct
    CheckSPVersion();

    // Get IMalloc interface
    hr = CoGetMalloc(1, (LPMAALLOC
***)&m_pIMalloc);

    // Bind parameters for each of the
    transactions
    InitNewOrderParams();
    InitPaymentParams();
    InitOrderStatusParams();
    InitDeliveryParams();
    InitStockLevelParams();

```

```

}
CTPCC_OLEDB::~~CTPCC_OLEDB( void )
{
    if (m_pIMalloc != NULL)
    {
        m_pIMalloc-
>Release();
    }
    m_pIPaymentCommand-
>Release();
    m_pIDBCreateCommand-
>Release();
    m_pIDBCreateSession->Release();

    CoUninitialize(); //
    uninitialize COM library
}

/*
 * Check stored procedures version on
the server.
*/
void CTPCC_OLEDB::CheckSPVersion()
{
    HRESULT
hr;
    char
db_sp_version[10];
    ICommandText*
pICommandText;
    IAccessor*
pIAccessor;
    IRowset*
pRowset;
    const ULONG
nOutputParams = 1; // output
1st result set columns
    HACCESSOR
hTpcVersionOutputAccessor;
    // Structure to bind in accessor
    DBBINDING
acOutputDBBinding[nOutputParams
];
    DBBINDSTATUS
acOutputDBBindStatus[nOutputPara
ms];
    LONG
cRows = 1; // number of rows
returned in the rowset
    ULONG
cRowsObtained;
    HROW
rghRow;
    //returned row handles
    HROW*
prghRow = &rghRow;

    hr = m_pIDBCreateCommand-
>CreateCommand(NULL, IID ICommandText,
(IUnknown ***)&pICommandText);
    if (FAILED(hr))
    {
        ThrowError(m_pIDBCreateComman
d, COLEDBERR::eCreateCommand,
"CheckSPVersion()");
    }

    hr = pICommandText-
>SetCommandText(DBGUID_SQL, L"call
tpcc_version");
    if (FAILED(hr))
    {

```

```

        ThrowError(pICommandText,
COLEDBERR::eSetCommandText,
"CheckSPVersion()");
    }

    hr = pICommandText-
>QueryInterface(IID_IAccessor, (void
**)&pIAccessor);
    if (FAILED(hr))
    {

        ThrowError(pICommandText,
COLEDBERR::eQueryInterface,
"CheckSPVersion()");
    }

    // Now fill the binding information
for result set 1 output columns
    InitBindings(&acOutputDBBinding[0
], nOutputParams, eOutputColumn);

    // Binding for a rowset
    SetBinding(&acOutputDBBinding[0],
0, sizeof(db_sp_version), DBTYPE_STR);

    hr = pIAccessor->CreateAccessor(
DBACCESSOR_ROWDATA,
nOutputParams,
acOutputDBBinding,
sizeof(db_sp_version),

&hTpcVersionOutputAccessor,
acOutputDBBindStatus);
    if (FAILED(hr))
    {

        ThrowError(pIAccessor,
COLEDBERR::eCreateAccessor,
"CheckSPVersion()");
    }

    hr = pICommandText-
>Execute(NULL, IID_IRowset, NULL, NULL,
(IUnknown **)&pRowset);
    if (FAILED(hr))
    {

        ThrowError(pICommandText,
COLEDBERR::eExecute, "CheckSPVersion()");
    }

    // Fetch the result row handle(s)
    hr = pRowset-
>GetNextRows(DB_NULL_HCHAPTER, 0, cRows,
&cRowsObtained, &prghRow);
    if (FAILED(hr))
    {

        ThrowError(pICommandText,
COLEDBERR::eGetNextRows,
"CheckSPVersion()");
    }

    // Fetch the actual row data by
handle
    hr = pRowset->GetData(rghRow,
hTpcVersionOutputAccessor, &db_sp_version);
    if (FAILED(hr))
    {

        ThrowError(pICommandText,
COLEDBERR::eGetData, "CheckSPVersion()");
    }

```

```

        hr = pRowset->Release();
        pICommandText->Release();

        // Check the retrieved version
if (strcmp(db_sp_version,sVersion))
            throw
new CTPCC_OLEDB_ERR(
CTPCC_OLEDB_ERR::ERR_WRONG_SP_VERSION
);
    }

void CTPCC_OLEDB::ThrowError( IUnknown*
pObjectWithError, COLEDBERR::ACTION eAction,
LPCTSTR szLocation)
{
    HRESULT                hr;
    //char
    szState[6];
    char
    szMsg[SQL_MAX_MESSAGE_LEN
H];
    char
    szTmp[6*SQL_MAX_MESSAGE_LEN
GTH];
    COLEDBERR
        *pOLEDBErr;
    // not allocated until
needed (maybe never)
    int
    iLen;
    // Interfaces
IErrorInfo*          pIErrorInfoAll
= NULL;
    IErrorInfo*
pIErrorInfoRecord   = NULL;
    IErrorRecords*
pIErrorRecords      = NULL;
    ISupportErrorInfo*
pISupportErrorInfo  = NULL;
    ISQLServerErrorInfo*
pISQLServerErrorInfo = NULL;
    ISQLErrorInfo*
pISQLErrorInfo      =
NULL;

    // Information used when cannot
get custom error object
    ERRORINFO
        BasicErrorInfo;
    BSTR
    bstrDescription;
    // Number of error records.
    ULONG    nRecs;
    ULONG    nRec;

    // SQL Server error information
from ISQLServerErrorInfo.
    SSERRORINFO*
pSSErrorInfo = NULL;
    OLECHAR*
pSSErrorStrings = NULL;

    assert(pObjectWithError != NULL);

    pOLEDBErr = new
COLEDBERR(szLocation);

    pOLEDBErr->m_NativeError = 0;

```

```

        pOLEDBErr->m_OLEDBErrAction;
FALSE;

    szTmp[0] = 0;

    // Only ask for error information if
the interface supports it.
    // Note: SQLOLEDB provider
supports error interface, so this check is
    // for good style only.
    hr = pObjectWithError-
>QueryInterface(IID_ISupportErrorInfo, (void**)
&pISupportErrorInfo);
    if (FAILED(hr))
    {
        _snprintf(szMsg,
sizeof(szMsg), "SupportErrorInfo interface not
supported (hr=0x%X)", hr);
        pOLEDBErr-
>m_OLEDBErrStr = new char[strlen(szMsg)+1];
        strcpy(pOLEDBErr-
>m_OLEDBErrStr, szMsg);
        throw pOLEDBErr;
    }
    /*if (FAILED(pISupportErrorInfo-
>InterfaceSupportsErrorInfo(IID_InterfaceWithEr
ror)))
    {
        _snprintf(szMsg,
sizeof(szMsg), "InterfaceWithError interface not
supported");
        pOLEDBErr-
>m_OLEDBErrStr = new char[strlen(szMsg)+1];
        strcpy(pOLEDBErr-
>m_OLEDBErrStr, szMsg);
        return;
    }*/

    // Do not test the return of
GetErrorInfo. It can succeed and return
    // a NULL pointer in pIErrorInfoAll.
Simply test the pointer.
    GetErrorInfo(0, &pIErrorInfoAll);

    if (pIErrorInfoAll != NULL)
    {
        // Test to see if it's a
valid OLE DB IErrorInfo interface
        // exposing a list of
records.
        if
(SUCCEEDED(pIErrorInfoAll-
>QueryInterface(IID_IErrorRecords, (void**)
&pIErrorRecords)))
        {
            pIErrorRecords-
>GetRecordCount(&nRecs);

            // Within
each record, retrieve information from each
// of the
defined interfaces.
            for
(nRec = 0; nRec < nRecs; nRec++)
            {

                // Request the generic SQL error
interface.

                pIErrorRecords-
>GetCustomErrorObject(nRec,

```

```

IID_ISQLErrorInfo, //
generic SQL error interface
(IUnknown**)
&pISQLErrorInfo);

if (pISQLErrorInfo != NULL)
{
    // Request SQL
    Server-specific error interface, not the generic
    SQL error interface.

    pISQLErrorInfo-
    >QueryInterface(

        IID_ISQLServerErrorInfo, // SQL
        Server error interface

        (void**)
        &pISQLServerErrorInfo);
}

// Test to ensure the reference is
valid, then

// get error information from
ISQLServerErrorInfo.

if (pISQLServerErrorInfo != NULL)
{
    pISQLServerErrorInfo-
    >GetErrorInfo(&pSSErrorInfo, &pSSErrorStrings);

    //
    ISQLServerErrorInfo::GetErrorInfo succeeds
    // even when it has
    nothing to return. Test the
    // pointers before
    using.

    if (pSSErrorInfo)
    {
        // First,
        add the error message.

        //
        Convert Unicode error string to ANSI.

        WideCharToMultiByte(CP_THREAD_
        ACP, 0,

        pSSErrorInfo->pwszMessage, -1,

        szMsg, sizeof(szMsg),

```

```

NULL, NULL);

// quit if
there isn't enough room to concatenate error text

if (
    (strlen(szMsg) + 2) > (sizeof(szTmp) -
    strlen(szTmp)) )

    break;

//
include line break after first error msg

if
(szTmp[0] != 0)

    strcat( szTmp, "\r\n");

//
concatenate the error record to the overall error
message

    strcat(
szTmp, szMsg );

//
Second, add the stored procedure name and line
number, if available.

if
(wcslen(pSSErrorInfo->pwszProcedure)>0)
{
    // Prefix with a line break

    iLen = sprintf(szMsg,
"\r\nProcedure: ");

    // Convert Unicode error string to
    ANSI.

    WideCharToMultiByte(CP_THREAD_
    ACP, 0,

    pSSErrorInfo-
    >pwszProcedure, -1,

    &szMsg[iLen],
    sizeof(szMsg) - iLen,

    NULL, NULL);

    // Check if have space to add the
    line number.

```

```

// Assume the line number takes no
more than 3 digits.

if ((strlen(szMsg) + 4) <
sizeof(szMsg))
{
    _snprintf(&szMsg[strlen(szMsg)],
    sizeof(szMsg),

    "%d",
    pSSErrorInfo->wLineNumber);
}

// quit if there isn't enough room to
concatenate error text

if ( ( strlen(szMsg) + 2) >
(sizeof(szTmp) - strlen(szTmp)) )

    break;

// concatenate the error record to
the overall error message

    strcat( szTmp, szMsg );

// copy the overall error string to
the exception

    pOLEDBErr->m_OLEDBErrStr =
    new char[strlen(szTmp)+1];

    strcpy(pOLEDBErr-
    >m_OLEDBErrStr, szTmp);
}

// Third,
capture the (first) database error

if
(pOLEDBErr->m_NativeError == 0 &&
pSSErrorInfo->INative != 0)
{
    pOLEDBErr->m_NativeError =
    pSSErrorInfo->INative;

```

```

        // Check for deadlock error code
        and set the deadlock flag

        if (pSSErrorInfo->INative == 1205)

        {

                pOLEDBErr-
                >m_bDeadLock = TRUE;

        }

        //
        IMalloc::Free needed to release references
        // on
        returned values.

        if
        (m_pIMalloc != NULL)

        {

                m_pIMalloc-
                >Free(pSSErrorStrings);

                m_pIMalloc->Free(pSSErrorInfo);

        }

        pISQLServerErrorInfo-
        >Release();

        else

        {

                // Custom error object
                is not supported.

                // Use general OLE-
                DB error interface.

                // Get the numeric
                error code

                pIErrorRecords-
                >GetBasicErrorInfo(nRec, &BasicErrorInfo);

                if (pOLEDBErr-
                >m_NativeError == 0)

                {

                        // Get
                        the failed call HRESULT code, which is not really
                        the native error

```

```

                pOLEDBErr->m_NativeError =
                BasicErrorInfo.hrError;

        }

        // Try to get the string
        description of the error.

        pIErrorRecords-
        >GetErrorInfo(nRec, LOCALE_USER_DEFAULT,
        (IErrorInfo**)&pIErrorInfoRecord);

        if (pIErrorInfoRecord)

        {

                pIErrorInfoRecord-
                >GetDescription(&bstrDescription);

                //
                Convert Unicode error string to ANSI.

                WideCharToMultiByte(CP_THREAD_
                ACP, 0,

                bstrDescription, -1,

                szMsg, sizeof(szMsg),

                NULL, NULL);

                pOLEDBErr->m_OLEDBErrStr =
                new char[strlen(szMsg)+1];

                strcpy(pOLEDBErr-
                >m_OLEDBErrStr, szMsg);

        }

        }

        // for()

        } // if
        (SUCCEEDED(pIErrorInfoAll-
        >QueryInterface(IID_IErrorRecords, (void**)
        &pIErrorRecords)))

        else

        {

                // No
                IErrorRecords interface supported. Use default
                IErrorInfo.

                // Note:
                SQLOLEDB supports IErrorRecords, so this check
                is for good style only.

                _snprintf(szMsg, sizeof(szMsg),
                "IErrorRecords interface not supported");

                pOLEDBErr->m_OLEDBErrStr =
                new char[strlen(szMsg)+1];

```

```

                strcpy(pOLEDBErr-
                >m_OLEDBErrStr, szMsg); }

                pIErrorInfoAll-
                >Release();

        } // if (pIErrorInfoAll !=
        NULL)

        else

        {

                // No IErrorInfo
                interface supported.

                // Note: SQLOLEDB
                supports IErrorInfo, so this check is for good
                style only.

                _snprintf(szMsg,
                sizeof(szMsg), "IErrorInfo interface not
                supported");

                pOLEDBErr-
                >m_OLEDBErrStr = new char[strlen(szMsg)+1];
                strcpy(pOLEDBErr-
                >m_OLEDBErrStr, szMsg);

        }

        throw pOLEDBErr;

}

/*
 *
 * Create a new command object from
 * the SQL text passed in.
 *
 */
void CTPCC_OLEDB::CreateCommand(wchar_t*
szSQLCommand,
// I: SQL query for the command

ICommandText**
ppICommandText // O: returned
command object

)

{

        HRESULT
        hr;

        // Create a new command object
        hr = m_pIDBCCreateCommand-
        >CreateCommand(NULL, IID ICommandText,
        (IUnknown**)ppICommandText);
        if (FAILED(hr))

        {

                ThrowError(m_pIDBCCreateComman-
                d, COLEDBERR::eCreateCommand,
                "CTPCC_OLEDB::CreateCommand");

        }

        // Set command text
        hr = (*ppICommandText)-
        >SetCommandText(DBGUID_SQL,
        szSQLCommand);
        if (FAILED(hr))

        {

                ThrowError(*ppICommandText,
                COLEDBERR::eSetCommandText,
                "CTPCC_OLEDB::CreateCommand");

        }

        // Prepare the command

```



```

        PrepareCommand(*ppICommandText);
    }

/*
 * QueryInterface and Prepare in one
 * function for simplicity.
 * DEFERRED PREPARE property is set
 * to off to prepare immediately.
 */
void
CTPCC_OLEDB::PrepareCommand(ICommandText* pICommandText)
{
    HRESULT
        hr;
    ICommandPrepare*
        pICommandPrepare;
    ICommandProperties*
        pICommandProperties;
    DBPROPSET
        rowSetPropSet;
    DBPROP
        rowSetProp;

    // Set the deferred prepare
    // property to false.
    rowSetProp.dwPropertyID =
    SSPROP_DEFERPREPARE;
    memset(&rowSetProp.vValue, 0,
    sizeof(rowSetProp.vValue));
    rowSetProp.dwOptions =
    DBPROPOPTIONS_REQUIRED;
    rowSetProp.colid = DB_NULLID;

    rowSetPropSet.cProperties = 1;
    rowSetPropSet.guidPropertySet =
    DBPROPSET_SQLSERVERROWSET;
    rowSetPropSet.rgProperties =
    &rowSetProp;

    // Query interface for setting
    // properties
    hr = pICommandText-
    >QueryInterface(IID_ICommandProperties, (void
    **)&pICommandProperties);
    if (FAILED(hr))
    {
        ThrowError(pICommandText,
        COLEDBERR::eQueryInterface,
        "CTPCC_OLEDB::PrepareCommand");
    }

    // Set the property set
    hr = pICommandProperties-
    >SetProperties(1, &rowSetPropSet);
    if (FAILED(hr))
    {
        ThrowError(pICommandText,
        COLEDBERR::eQueryInterface,
        "CTPCC_OLEDB::PrepareCommand");
    }

    // Get interface for preparing
    // commands
    hr = pICommandText-
    >QueryInterface(IID_ICommandPrepare, (void
    **)&pICommandPrepare);
    if (FAILED(hr))
    {

```

```

        ThrowError(pICommandText,
        COLEDBERR::eQueryInterface,
        "CTPCC_OLEDB::PrepareCommand");

        // Prepare Payment command
        hr = pICommandPrepare-
        >Prepare(0xFFFFFFFF);
        if (FAILED(hr))
        {
            ThrowError(pICommandPrepare,
            COLEDBERR::ePrepare,
            "CTPCC_OLEDB::PrepareCommand");
        }
    }

/*
 * Initialize fields of an array of
 * bindings structures.
 * Needs to be called before setting
 * individual parameter/column bindings.
 */
void CTPCC_OLEDB::InitBindings(DBBINDING*
pDBBindings, // IO: array of bindings

    int iCount, // I:
    number of elements in the array

    eBindingType BindingType // I: what the bindings will be used
    for (parameters/columns)
    {
        int i;

        for(i = 0; i < iCount; i++)
        {
            pDBBindings[i].iOrdinal = i + 1;
            pDBBindings[i].obLength = 0;
            pDBBindings[i].obStatus = 0;
            pDBBindings[i].pTypeInfo = NULL;
            pDBBindings[i].pObject = NULL;
            pDBBindings[i].pBindExt = NULL;
            pDBBindings[i].dwPart = DBPART_VALUE;

            switch (BindingType)
            {
                case
                    eInputParameter:
                    pDBBindings[i].eParamIO =
                    DBPARAMIO_INPUT;
                    break;

                    case
                        eOutputParameter:
                        pDBBindings[i].eParamIO =
                        DBPARAMIO_OUTPUT;
                        break;

                        case
                            eInputOutputParameter:
                            pDBBindings[i].eParamIO =
                            DBPARAMIO_INPUT | DBPARAMIO_OUTPUT;
                            break;
                            case eOutputColumn:
                                pDBBindings[i].eParamIO =
                                DBPARAMIO_NOTPARAM;
                                break;

                                default:

```

```

        assert(false); // this should never
        happen
    }

    pDBBindings[i].dwMemOwner =
    DBMEMOWNER_CLIENTOWNED;
    pDBBindings[i].dwFlags = 0;

    pDBBindings[i].bPrecision = 0;
    pDBBindings[i].bScale = 0;
}
}

/*
 * Perform binding for one parameter
 * or output column.
 *
 */
void CTPCC_OLEDB::SetBinding(DBBINDING*
pDBBinding, // I: binding row structure

    size_t obValue, // I: parameter
    (column) offset in the user buffer

    size_t cbMaxLen, // I: parameter (column) length

    DBTYPE wType // I: parameter
    (column) type

)
{
    pDBBinding->obValue =
    (ULONG)obValue;
    pDBBinding->cbMaxLen =
    (ULONG)cbMaxLen;
    pDBBinding->wType = wType;
}

void CTPCC_OLEDB::InitStockLevelParams()
{
    int
        i;
    HRESULT
        hr;
    wchar_t
        szName[IMAX_SP_NAME_LEN];
    IAccessor*
        pIAccessor;

    const ULONG
        nInputParams = 3;
        // input parameters
        const ULONG
        nOutputParams = 1;
        // output 1st result set columns

    // Structure to bind in accessor
    DBBINDING
        acInputDBBinding[nInputParams];
        DBBINDSTATUS
        acInputDBBindStatus[nInputParams];
};

```

```

DBBINDING
acOutputDBBinding[nOutputParams
];
DBBINDSTATUS
acOutputDBBindStatus[nOutputPara
ms];

// Set command text
_snwprintf(szName,
sizeof(szName)/sizeof(szName[0]),
L"%{call
%stpcck_stocklevel(?,?,?)", m_szSPPrefix);

// Create and Prepare a new
command object for StockLevel.
CreateCommand(szName,
&m_pIStockLevelCommand);

// Describe the consumer buffer by
filling in the array
// of DBBINDING structures. Each binding
associates
// a single parameter to the consumer's buffer.
InitBindings(&acInputDBBinding[0],
nInputParams, eInputParameter);

i = 0;
// StockLevel parameter 1
SetBinding(&acInputDBBinding[i++
], offsetof(STOCK_LEVEL_DATA, w_id),
sizeof(m_txn.StockLevel.w_id), DBTYPE_I4);

// StockLevel parameter 2
SetBinding(&acInputDBBinding[i++
], offsetof(STOCK_LEVEL_DATA, d_id),
sizeof(m_txn.StockLevel.d_id), DBTYPE_UI1);

// StockLevel parameter 3
SetBinding(&acInputDBBinding[i++
], offsetof(STOCK_LEVEL_DATA, threshold),
sizeof(m_txn.StockLevel.threshold), DBTYPE_I2);

hr = m_pIStockLevelCommand-
>QueryInterface(IID_IAccessor, (void
**)&pIAccessor);
if (FAILED(hr))
{
ThrowError(m_pIStockLevelComma
nd, COLEDBERR::eQueryInterface,
"InitStockLevelParams()");
}

hr = pIAccessor->CreateAccessor(
DBACCESSOR_PARAMETERDATA,
nInputParams,
acInputDBBinding,
sizeof(STOCK_LEVEL_DATA),

&m_hStockLevelInputAccessor,
acInputDBBindStatus);
if (FAILED(hr))
{
ThrowError(pIAccessor,
COLEDBERR::eCreateAccessor,
"InitStockLevelParams()");
}

m_StockLevelExecuteParams.cPara
mSets = 1;

```

```

m_StockLevelExecuteParams.hAcce
ssor = m_hStockLevelExecuteParams.pData
= &m_txn.StockLevel;

// Now fill the binding information
for result set 1 output columns
InitBindings(&acOutputDBBinding[0
], nOutputParams, eOutputColumn);

// Binding for a rowset that may
return more than one row.
i = 0;
// StockLevel output column 1
SetBinding(&acOutputDBBinding[i+
+], offsetof(STOCK_LEVEL_DATA, low_stock),
sizeof(m_txn.StockLevel.low_stock),
DBTYPE_I4);

hr = pIAccessor->CreateAccessor(
DBACCESSOR_ROWDATA |
DBACCESSOR_OPTIMIZED,
nOutputParams,
acOutputDBBinding,
sizeof(STOCK_LEVEL_DATA),

&m_hStockLevelOutputAccessor,
acOutputDBBindStatus);
if (FAILED(hr))
{
ThrowError(pIAccessor,
COLEDBERR::eCreateAccessor,
"InitStockLevelParams()");
}

void CTPCC_OLEDB::StockLevel()
{
HRESULT
hr;
int
iTryCount = 0;

IRowset*
pRowset;
LONG
cRows = 1; // number of rows
returned in the rowset
ULONG
cRowsObtained;
HROW
rghRow;
//returned row handles
HROW*
prghRow = &rghRow;

while (TRUE)
{
try
{
//
Execute the prepared command
hr =
m_pIStockLevelCommand->Execute(NULL,
IID_IRowset, &m_StockLevelExecuteParams,
NULL,

(IUnknown
**)&pRowset);
if
(FAILED(hr))
{

```

```

ThrowError(m_pIStockLevelComma
nd, COLEDBERR::eExecute, "StockLevel()");
// Fetch
the result row handle(s)
hr =
pRowset->GetNextRows(DB_NULL_HCHAPTER,
0, cRows, &cRowsObtained, &rghRow);
if
(FAILED(hr))
{
ThrowError(m_pIStockLevelComma
nd, COLEDBERR::eGetNextRows, "StockLevel()");
}
// Fetch
the actual row data by handle
hr =
pRowset->GetData(rghRow,
m_hStockLevelOutputAccessor,
&m_txn.StockLevel);
if
(FAILED(hr))
{
ThrowError(m_pIStockLevelComma
nd, COLEDBERR::eGetData, "StockLevel()");
}
//
Release row(s)
hr =
pRowset->ReleaseRows(cRowsObtained,
prghRow, NULL, NULL, NULL);
//
Release rowset
hr =
pRowset->Release();

m_txn.StockLevel.exec_status_code
= eOK;
break;
}
catch (COLEDBERR
*e)
{
if ((le-
>m_bDeadLock) || (++iTryCount >
iMaxRetries))
throw;

// hit
deadlock; backoff for increasingly longer period
delete e;
Sleep(10
*iTryCount);
}
}

//
if (iTryCount)
throw new
CTPCC_OLEDB_ERR(CTPCC_OLEDB_ERR::ERR_R
ETRIED_TRANS, iTryCount);
}

void CTPCC_OLEDB::InitNewOrderParams()
{
int
i, j, iOLCount;

```

```

HRESULT
        hr;

wchar_t
        szName[iMAX_SP_NAME_LEN];
IAccessor*
        pIAccessor;

const ULONG
        nInputParams = 5 +
3*MAX_OL_NEW_ORDER_ITEMS; // input
parameters
const ULONG
        nOutputParams = 5;
// output 1st result set columns
const ULONG
        nOutputParams2 = 8;
// output 2nd result set columns
// Structure to bind in accessor
DBBINDING
        acInputDBBinding[nInputParams];
DBBINDSTATUS
        acInputDBBindStatus[nInputParams
];
DBBINDING
        acOutputDBBinding[nOutputParams
];
DBBINDSTATUS
        acOutputDBBindStatus[nOutputPara
ms];
DBBINDING
        acOutputDBBinding2[nOutputParam
s2];
DBBINDSTATUS
        acOutputDBBindStatus2[nOutputPar
ams2];

// Describe the consumer buffer by
filling in the array
// of DBBINDING structures. Each binding
associates
// a single parameter to the consumer's buffer.
InitBindings(&acInputDBBinding[0],
nInputParams, eInputParameter);

i = 0;
// NewOrder parameter 1
SetBinding(&acInputDBBinding[i++
], offsetof(NEW_ORDER_DATA, w_id),
sizeof(m_txn.NewOrder.w_id), DBTYPE_I4);

// NewOrder parameter 2
SetBinding(&acInputDBBinding[i++
], offsetof(NEW_ORDER_DATA, d_id),
sizeof(m_txn.NewOrder.d_id), DBTYPE_UI1);

// NewOrder parameter 3
SetBinding(&acInputDBBinding[i++
], offsetof(NEW_ORDER_DATA, c_id),
sizeof(m_txn.NewOrder.c_id), DBTYPE_I4);

// NewOrder parameter 4
SetBinding(&acInputDBBinding[i++
], offsetof(NEW_ORDER_DATA, o_ol_cnt),
sizeof(m_txn.NewOrder.o_ol_cnt), DBTYPE_UI1);

// NewOrder parameter 5

```

```

SetBinding(&acInputDBBinding[i++
], offsetof(NEW_ORDER_DATA, o_all_local),
sizeof(m_txn.NewOrder.o_all_local),
DBTYPE_UI1);
for (j=0;
j<MAX_OL_NEW_ORDER_ITEMS; j++)
{
SetBinding(&acInputDBBinding[i++
], offsetof(NEW_ORDER_DATA, OL[j].ol_i_id),
sizeof(m_txn.NewOrder.OL[j].ol_i_id),
DBTYPE_I4);

SetBinding(&acInputDBBinding[i++
], offsetof(NEW_ORDER_DATA,
OL[j].ol_supply_w_id),
sizeof(m_txn.NewOrder.OL[j].ol_supply_w_id),
DBTYPE_I4);

SetBinding(&acInputDBBinding[i++
], offsetof(NEW_ORDER_DATA,
OL[j].ol_quantity),
sizeof(m_txn.NewOrder.OL[j].ol_quantity),
DBTYPE_I2);
}

// Now fill the binding information
for result set 1 output columns
InitBindings(&acOutputDBBinding[0
], nOutputParams, eOutputColumn);

// Binding for the order line rowsets
(each consist of one row).
// Bind to offsets of the
OL_NEW_ORDER_DATA structure instead of
NEW_ORDER_DATA.
// IRowset::GetData() will be
passed individual array slots OL[i] to fetch the
data
// from the row set.

i = 0;
// NewOrder output column 1
SetBinding(&acOutputDBBinding[i+
+], offsetof(OL_NEW_ORDER_DATA, ol_i_name),
sizeof(m_txn.NewOrder.OL[0].ol_i_name),
DBTYPE_STR);

// NewOrder output column 2
SetBinding(&acOutputDBBinding[i+
+], offsetof(OL_NEW_ORDER_DATA, ol_stock),
sizeof(m_txn.NewOrder.OL[0].ol_stock),
DBTYPE_I2);

// NewOrder output column 3
SetBinding(&acOutputDBBinding[i+
+], offsetof(OL_NEW_ORDER_DATA,
ol_brand_generic),
sizeof(m_txn.NewOrder.OL[0].ol_brand_generic),
DBTYPE_STR);

// NewOrder output column 4
SetBinding(&acOutputDBBinding[i+
+], offsetof(OL_NEW_ORDER_DATA, ol_i_price),
sizeof(m_txn.NewOrder.OL[0].ol_i_price),
DBTYPE_R8);

// NewOrder output column 5
SetBinding(&acOutputDBBinding[i+
+], offsetof(OL_NEW_ORDER_DATA,
ol_amount),
sizeof(m_txn.NewOrder.OL[0].ol_amount),
DBTYPE_R8);

```

```

// Now fill the binding information
for result set 2 output columns
InitBindings(&acOutputDBBinding2[
0], nOutputParams2, eOutputColumn);

i = 0;
// NewOrder output column 1
SetBinding(&acOutputDBBinding2[i
++], offsetof(NEW_ORDER_DATA, w_tax),
sizeof(m_txn.NewOrder.w_tax), DBTYPE_R8);

// NewOrder output column 2
SetBinding(&acOutputDBBinding2[i
++], offsetof(NEW_ORDER_DATA, d_tax),
sizeof(m_txn.NewOrder.d_tax), DBTYPE_R8);

// NewOrder output column 3
SetBinding(&acOutputDBBinding2[i
++], offsetof(NEW_ORDER_DATA, o_id),
sizeof(m_txn.NewOrder.o_id), DBTYPE_I4);

// NewOrder output column 4
SetBinding(&acOutputDBBinding2[i
++], offsetof(NEW_ORDER_DATA, c_last),
sizeof(m_txn.NewOrder.c_last), DBTYPE_STR);

// NewOrder output column 5
SetBinding(&acOutputDBBinding2[i
++], offsetof(NEW_ORDER_DATA, c_discount),
sizeof(m_txn.NewOrder.c_discount),
DBTYPE_R8);

// NewOrder output column 6
SetBinding(&acOutputDBBinding2[i
++], offsetof(NEW_ORDER_DATA, c_credit),
sizeof(m_txn.NewOrder.c_credit), DBTYPE_STR);

// NewOrder output column 7
SetBinding(&acOutputDBBinding2[i
++], offsetof(NEW_ORDER_DATA, o_entry_d),
sizeof(m_txn.NewOrder.o_entry_d),
DBTYPE_DBTIMESTAMP);

// NewOrder output column 8
SetBinding(&acOutputDBBinding2[i
++], offsetof(NEW_ORDER_DATA,
o_commit_flag),
sizeof(m_txn.NewOrder.o_commit_flag),
DBTYPE_I2);

for (j=0;
j<MAX_OL_NEW_ORDER_ITEMS; j++)
{
// Set command text
first
// Print the fixed first
portion of parameters
i =
_snowprintf(szName,
sizeof(szName)/sizeof(szName[0]),
L"{call
%stpc_neworder (?,?,?,?," m_szSPPrefix);

// Now print the
variable portion depending on the number of
order line parameters
for (iOLCount = 0;
iOLCount <= j; ++iOLCount)
{
i +=
_snowprintf(&szName[i],
sizeof(szName)/sizeof(szName[0]) - i, L",?,?,?");
}
}

```

```

    }
    // Print the fixed end
    if (j !=
MAX_OL_NEW_ORDER_ITEMS - 1)
    {
        //
append 'default' for the parameters that are not
used
        i +=
        _snwprintf(&szName[i],
sizeof(szName)/sizeof(szName[0]) - i,
L",default)");
    }
    else // using
all 15 order line parameters
    {
        i +=
        _snwprintf(&szName[i],
sizeof(szName)/sizeof(szName[0]) - i, L"");
    }

    // Create and Prepare
a new command object for NewOrder.

    CreateCommand(szName,
&m_pINewOrderCommand[j]);

    // Now create the
input accessor for this prepared command
    hr =
m_pINewOrderCommand[j]-
>QueryInterface(IID_IAccessor, (void
**)&pIAccessor);
    if (FAILED(hr))
    {

        ThrowError(m_pINewOrderComma
nd[j], COLEDBERR::eQueryInterface,
"InitNewOrderParams()");
    }

    hr = pIAccessor-
>CreateAccessor(

        DBACCESSOR_PARAMETERDATA,

        5 + 3 * (j + 1),

        acInputDBBinding,

        sizeof(NEW_ORDER_DATA),

        &m_hNewOrderInputAccessor[j],

        acInputDBBindStatus);
    if (FAILED(hr))
    {

```

```

        ThrowError(pIAccessor,
COLEDBERR::eCreateAccessor,
"InitNewOrderParams()"); }

        m_NewOrderExecuteParams[j].cPar
amSets = 1;
        //
m_NewOrderExecuteParams.hAccessor is set
dynamically at run-time
        // based on the
number of new order items for the particular
transaction call.

        m_NewOrderExecuteParams[j].hAcc
essor = m_hNewOrderInputAccessor[j];

        m_NewOrderExecuteParams[j].pDat
a = &m_txn.NewOrder;

        // Create accessor for
the first rowset
        hr = pIAccessor-
>CreateAccessor(

            DBACCESSOR_ROWDATA |
DBACCESSOR_OPTIMIZED,

            nOutputParams,

            acOutputDBBinding,

            sizeof(OL_NEW_ORDER_DATA),

            &m_hNewOrderOutputAccessor[j],

            acOutputDBBindStatus);
        if (FAILED(hr))
        {

            ThrowError(pIAccessor,
COLEDBERR::eCreateAccessor,
"InitNewOrderParams()");
        }

        // Create accessor for
the second rowset
        hr = pIAccessor-
>CreateAccessor(

            DBACCESSOR_ROWDATA, //
cannot be optimized too because #1 accessor is

            nOutputParams2,

            acOutputDBBinding2,

            sizeof(NEW_ORDER_DATA),

            &m_hNewOrderOutputAccessor2[j],

            acOutputDBBindStatus2);
        if (FAILED(hr))
        {

            ThrowError(pIAccessor,
COLEDBERR::eCreateAccessor,
"InitNewOrderParams()");
        }

        pIAccessor-
>Release();

```

```

    }
    }

void CTPCC_OLEDBB::NewOrder()
{
    HRESULT
    hr;

    int

    iTryCount = 0;
    IMultipleResults*
pMultipleResults;
    IRowset*
pRowset;
    IRowset*
pRowset2;
    LONG

        cRows = 1; //
number of rows returned in the 1st rowset
        ULONG
        cRowsObtained;

        HROW
        rghRows;

        //returned row handles for the 1st
result set
        HROW*
        prghRows =
&rghRows;
        LONG
        cRows2 = 1; //
number of rows returned in the 2nd rowset
        ULONG
        cRowsObtained2;

        HROW
        rghRows2;

        //returned row handle for the 2nd
result set
        HROW*
        prghRows2 =
&rghRows2;
        int
        i;

        long
        lRowsAffected;

        // the number of affected rows for
a rowset
        int

        iHandleIndex; // index
into the handle arrays based on the orders count

        // check whether any order lines
are for a remote warehouse
        m_txn.NewOrder.o_all_local = 1;
        for (i = 0; i <
m_txn.NewOrder.o_ol_cnt; i++)
        {
            if
(m_txn.NewOrder.OL[i].ol_supply_w_id !=
m_txn.NewOrder.w_id)
            {

                m_txn.NewOrder.o_all_local = 0;
                // at least one remote warehouse
                break;
            }
        }

        iHandleIndex =
m_txn.NewOrder.o_ol_cnt - 1; // for
convenience

        while (TRUE)
        {
            try

```

```

        {
            //
            Execute the prepared command (according to the
            number of new orders)
            // Ask
            for IMultipleResults because it returns 2 rowsets.
            hr =
            m_pINewOrderCommand[iHandleIndex]-
            >Execute(

                NULL,

                IID_IMultipleResults,

                &m_NewOrderExecuteParams[iHan
                dleIndex],

                NULL,

                (IUnknown
                **)&pMultipleResults);
            if
            (FAILED(hr))
            {
                ThrowError(m_pINewOrderComma
                nd[iHandleIndex], COLEDBERR::eExecute,
                "NewOrder()");
            }

            //////////////////////////////////////
            // Get
            order line results

            //////////////////////////////////////
            m_txn.NewOrder.total_amount = 0;
            for (i =
            0; i < m_txn.NewOrder.o_ol_cnt; ++i)
            {
                // Get the first rowset object

                hr = pMultipleResults-
                >GetResult(NULL, 0, IID_IRowset,
                &IRowsAffected, (IUnknown **)&pRowset);

                if (FAILED(hr))

                {

                    char szTmp[256];

                    _snprintf(szTmp,
                    sizeof(szTmp), "NewOrder() result set %d,
                    hr=0x%X", i, hr);

                    ThrowError(m_pINewOrderComma
                    nd[m_txn.NewOrder.o_ol_cnt - 1],
                    COLEDBERR::eGetResult, szTmp);

                }
            }

```

```

            // Fetch the result row handle(s)
            hr = pRowset-
            >GetNextRows(DB_NULL_HCHAPTER, 0, cRows,
            &cRowsObtained, &prghRows);

            if (FAILED(hr))

            {

                ThrowError(m_pINewOrderComma
                nd[iHandleIndex], COLEDBERR::eGetNextRows,
                "NewOrder()");

            }

            // Fetch the actual row data by
            handle

            hr = pRowset->GetData(rghRows,
            m_hNewOrderOutputAccessor[iHandleIndex],
            &m_txn.NewOrder.OL[i]);

            if (FAILED(hr))

            {

                ThrowError(m_pINewOrderComma
                nd[iHandleIndex], COLEDBERR::eGetData,
                "NewOrder()");

            }

            m_txn.NewOrder.total_amount +=
            m_txn.NewOrder.OL[i].ol_amount;

            // Release row(s)

            hr = pRowset-
            >ReleaseRows(cRowsObtained, prghRows, NULL,
            NULL, NULL);

            // Release rowset

            hr = pRowset->Release();

        }

            //////////////////////////////////////
            // Get
            the second rowset object

            //////////////////////////////////////
            hr =
            pMultipleResults->GetResult(NULL, 0,
            IID_IRowset, &IRowsAffected, (IUnknown
            **)&pRowset2);

            if

            (FAILED(hr))

            {

                char szTmp[256];

                _snprintf(szTmp, sizeof(szTmp),
                "NewOrder() result set %d, hr=%d", i, hr);

```

```

                ThrowError(m_pINewOrderComma
                nd[iHandleIndex], COLEDBERR::eGetResult,
                szTmp);
            }

            // Fetch
            the result row handle(s)

            hr =
            pRowset2->GetNextRows(DB_NULL_HCHAPTER,
            0, cRows2, &cRowsObtained2, &prghRows2);
            if
            (FAILED(hr))

            {

                ThrowError(m_pINewOrderComma
                nd[iHandleIndex], COLEDBERR::eGetNextRows,
                "NewOrder()");

            }

            // Fetch
            the actual row data by handle

            hr =
            pRowset2->GetData(rghRows2,
            m_hNewOrderOutputAccessor2[iHandleIndex],
            &m_txn.NewOrder);

            if
            (FAILED(hr))

            {

                ThrowError(m_pINewOrderComma
                nd[iHandleIndex], COLEDBERR::eGetData,
                "NewOrder()");

            }

            //
            Release row(s)

            hr =
            pRowset2->ReleaseRows(cRowsObtained2,
            prghRows2, NULL, NULL, NULL);

            //
            Release rowset

            hr =
            pRowset2->Release();

            //
            Release the common MultipleResults interface

            hr =
            pMultipleResults->Release();

            if
            (m_txn.NewOrder.o_all_local == 1)

            {

                m_txn.NewOrder.total_amount *=
                ((1 + m_txn.NewOrder.w_tax +
                m_txn.NewOrder.d_tax) * (1 -
                m_txn.NewOrder.c_discount));

                m_txn.NewOrder.exec_status_code
                = eOK;

            }
            else
            {

                m_txn.NewOrder.exec_status_code
                = eInvalidItem;

            }

            break;

        }
        catch (COLEDBERR
        *e)
        {

```

```

        if ((!e-
>m_bDeadLock) || (++iTryCount >
iMaxRetries))
            throw;

        // hit
        deadlock; backoff for increasingly longer period
        delete e;
        Sleep(10)
    * iTryCount);
    }
}

// if (iTryCount)
// throw new
// CTPCC_OLEDB_ERR(CTPCC_OLEDB_ERR::ERR_R
// ETRIED_TRANS, iTryCount);
}

void CTPCC_OLEDB::InitPaymentParams()
{
    int
    i;
    HRESULT
    hr;
    wchar_t
    szName[IMAX_SP_NAME_LEN];
    IAcessor*
    pIAccessor;

    const ULONG
        nInputParams = 7;
    // input parameters
    const ULONG
        nOutputParams = 27;
    // output result set columns
    // Structure to bind in accessor
    DBBINDING
    acInputDBBinding[nInputParams];
    DBBINDSTATUS
    acInputDBBindStatus[nInputParams
];
    DBBINDING
    acOutputDBBinding[nOutputParams
];
    DBBINDSTATUS
    acOutputDBBindStatus[nOutputPara
ms];

    // Set command text
    _snwprintf(szName,
sizeof(szName)/sizeof(szName[0]), L"{call
%stpc_payment(?,?,?,?,?)", m_szSPPrefix);

    // Create and Prepare a new
    command object for Payment.
    CreateCommand(szName,
&m_pIPaymentCommand);

    // Describe the consumer buffer by
    filling in the array
    // of DBBINDING structures. Each binding
    associates
    // a single parameter to the consumer's buffer.
    InitBindings(&acInputDBBinding[0],
nInputParams, eInputParameter);

    i = 0;

```

```

        // Payment parameter 1
        SetBinding(&acInputDBBinding[i++
], offsetof(PAYMENT_DATA, w_id),
sizeof(m_txn.Payment.w_id), DBTYPE_I4);

        // Payment parameter 2
        SetBinding(&acInputDBBinding[i++
], offsetof(PAYMENT_DATA, c_w_id),
sizeof(m_txn.Payment.c_w_id), DBTYPE_I4);

        // Payment parameter 3
        SetBinding(&acInputDBBinding[i++
], offsetof(PAYMENT_DATA, h_amount),
sizeof(m_txn.Payment.h_amount), DBTYPE_R8);

        // Payment parameter 4
        SetBinding(&acInputDBBinding[i++
], offsetof(PAYMENT_DATA, d_id),
sizeof(m_txn.Payment.d_id), DBTYPE_UI1);

        // Payment parameter 5
        SetBinding(&acInputDBBinding[i++
], offsetof(PAYMENT_DATA, c_d_id),
sizeof(m_txn.Payment.c_d_id), DBTYPE_UI1);

        // Payment parameter 6
        SetBinding(&acInputDBBinding[i++
], offsetof(PAYMENT_DATA, c_id),
sizeof(m_txn.Payment.c_id), DBTYPE_I4);

        // Payment parameter 7
        SetBinding(&acInputDBBinding[i++
], offsetof(PAYMENT_DATA, c_last),
sizeof(m_txn.Payment.c_last), DBTYPE_STR);

        hr = m_pIPaymentCommand-
>QueryInterface(IID_IAccessor, (void
**) &pIAccessor);
        if (FAILED(hr))
        {
            ThrowError(m_pIPaymentCommand
, COLEDBERR::eQueryInterface,
"InitPaymentParams()");
        }

        hr = pIAccessor->CreateAccessor(
DBACCESSOR_PARAMETERDATA,
nInputParams,
acInputDBBinding,
sizeof(PAYMENT_DATA),
&m_hPaymentInputAccessor,
acInputDBBindStatus);
        if (FAILED(hr))
        {
            ThrowError(pIAccessor,
COLEDBERR::eCreateAccessor,
"InitPaymentParams()");
        }

        m_PaymentExecuteParams.cParam
Sets = 1;
        m_PaymentExecuteParams.hAccess
or = m_hPaymentInputAccessor;
        m_PaymentExecuteParams.pData =
&m_txn.Payment;

        // Now fill the binding information
        for output columns
        InitBindings(&acOutputDBBinding[0
], nOutputParams, eOutputColumn);

        i = 0;

```

```

        // Payment output column 1
        SetBinding(&acOutputDBBinding[i+
+], offsetof(PAYMENT_DATA, c_id),
sizeof(m_txn.Payment.c_id), DBTYPE_I4);

        // Payment output column 2
        SetBinding(&acOutputDBBinding[i+
+], offsetof(PAYMENT_DATA, c_last),
sizeof(m_txn.Payment.c_last), DBTYPE_STR);

        // Payment output column 3
        SetBinding(&acOutputDBBinding[i+
+], offsetof(PAYMENT_DATA, h_date),
sizeof(m_txn.Payment.h_date),
DBTYPE_DBTIMESTAMP);

        // Payment output column 4
        SetBinding(&acOutputDBBinding[i+
+], offsetof(PAYMENT_DATA, w_street_1),
sizeof(m_txn.Payment.w_street_1),
DBTYPE_STR);

        // Payment output column 5
        SetBinding(&acOutputDBBinding[i+
+], offsetof(PAYMENT_DATA, w_street_2),
sizeof(m_txn.Payment.w_street_2),
DBTYPE_STR);

        // Payment output column 6
        SetBinding(&acOutputDBBinding[i+
+], offsetof(PAYMENT_DATA, w_city),
sizeof(m_txn.Payment.w_city), DBTYPE_STR);

        // Payment output column 7
        SetBinding(&acOutputDBBinding[i+
+], offsetof(PAYMENT_DATA, w_state),
sizeof(m_txn.Payment.w_state), DBTYPE_STR);

        // Payment output column 8
        SetBinding(&acOutputDBBinding[i+
+], offsetof(PAYMENT_DATA, w_zip),
sizeof(m_txn.Payment.w_zip), DBTYPE_STR);

        // Payment output column 9
        SetBinding(&acOutputDBBinding[i+
+], offsetof(PAYMENT_DATA, d_street_1),
sizeof(m_txn.Payment.d_street_1),
DBTYPE_STR);

        // Payment output column 10
        SetBinding(&acOutputDBBinding[i+
+], offsetof(PAYMENT_DATA, d_street_2),
sizeof(m_txn.Payment.d_street_2),
DBTYPE_STR);

        // Payment output column 11
        SetBinding(&acOutputDBBinding[i+
+], offsetof(PAYMENT_DATA, d_city),
sizeof(m_txn.Payment.d_city), DBTYPE_STR);

        // Payment output column 12
        SetBinding(&acOutputDBBinding[i+
+], offsetof(PAYMENT_DATA, d_state),
sizeof(m_txn.Payment.d_state), DBTYPE_STR);

        // Payment output column 13
        SetBinding(&acOutputDBBinding[i+
+], offsetof(PAYMENT_DATA, d_zip),
sizeof(m_txn.Payment.d_zip), DBTYPE_STR);

        // Payment output column 14
        SetBinding(&acOutputDBBinding[i+
+], offsetof(PAYMENT_DATA, c_first),
sizeof(m_txn.Payment.c_first), DBTYPE_STR);

```

```

// Payment output column 15
SetBinding(&acOutputDBBinding[+
+], offsetof(PAYMENT_DATA, c_middle),
sizeof(m_txn.Payment.c_middle), DBTYPE_STR);

// Payment output column 16
SetBinding(&acOutputDBBinding[+
+], offsetof(PAYMENT_DATA, d_street_1),
sizeof(m_txn.Payment.d_street_1),
DBTYPE_STR);

// Payment output column 17
SetBinding(&acOutputDBBinding[+
+], offsetof(PAYMENT_DATA, d_street_2),
sizeof(m_txn.Payment.d_street_2),
DBTYPE_STR);

// Payment output column 18
SetBinding(&acOutputDBBinding[+
+], offsetof(PAYMENT_DATA, d_city),
sizeof(m_txn.Payment.d_city), DBTYPE_STR);

// Payment output column 19
SetBinding(&acOutputDBBinding[+
+], offsetof(PAYMENT_DATA, d_state),
sizeof(m_txn.Payment.d_state), DBTYPE_STR);

// Payment output column 20
SetBinding(&acOutputDBBinding[+
+], offsetof(PAYMENT_DATA, d_zip),
sizeof(m_txn.Payment.d_zip), DBTYPE_STR);

// Payment output column 21
SetBinding(&acOutputDBBinding[+
+], offsetof(PAYMENT_DATA, c_phone),
sizeof(m_txn.Payment.c_phone), DBTYPE_STR);

// Payment output column 22
SetBinding(&acOutputDBBinding[+
+], offsetof(PAYMENT_DATA, c_since),
sizeof(m_txn.Payment.c_since),
DBTYPE_DBTIMESTAMP);

// Payment output column 23
SetBinding(&acOutputDBBinding[+
+], offsetof(PAYMENT_DATA, c_credit),
sizeof(m_txn.Payment.c_credit), DBTYPE_STR);

// Payment output column 24
SetBinding(&acOutputDBBinding[+
+], offsetof(PAYMENT_DATA, c_credit_lim),
sizeof(m_txn.Payment.c_credit_lim),
DBTYPE_R8);

// Payment output column 25
SetBinding(&acOutputDBBinding[+
+], offsetof(PAYMENT_DATA, c_discount),
sizeof(m_txn.Payment.c_discount), DBTYPE_R8);

// Payment output column 26
SetBinding(&acOutputDBBinding[+
+], offsetof(PAYMENT_DATA, c_balance),
sizeof(m_txn.Payment.c_balance), DBTYPE_R8);

// Payment output column 27
SetBinding(&acOutputDBBinding[+
+], offsetof(PAYMENT_DATA, c_data),
sizeof(m_txn.Payment.c_data), DBTYPE_STR);

hr = pIAccessor->CreateAccessor(
DBACCESSOR_ROWDATA |
DBACCESSOR_OPTIMIZED,
nOutputParams,
acOutputDBBinding,
sizeof(PAYMENT_DATA),

```

```

&m_hPaymentOutputAccessorDBBindStatus);
if (FAILED(hr))
{
    ThrowError(pIAccessor,
COLEDBERR::eCreateAccessor,
"InitPaymentParams()");
}

void CTPCC_OLEDB::Payment()
{
    HRESULT
hr;
int
iTryCount = 0;
IRowset*
pRowset;
LONG
cRows = 1; // number of rows
returned in the rowset
ULONG
cRowsObtained;
HROW
rghRow;
//returned row handles
HROW*
prghRow = &rghRow;

if (m_txn.Payment.c_id != 0)

m_txn.Payment.c_last[0] = 0;

while (TRUE)
{
    try
    {
        Execute the prepared command

        hr =
m_pIPaymentCommand->Execute(NULL,
IID_IRowset, &m_PaymentExecuteParams,
NULL,

(IUnknown
**)&pRowset);

if
(FAILED(hr))
{
    ThrowError(m_pIPaymentCommand
, COLEDBERR::eExecute, "Payment()");
}

// Fetch
the result row handle(s)

hr =
pRowset->GetNextRows(DB_NULL_HCHAPTER,
0, cRows, &cRowsObtained, &prghRow);

if
(FAILED(hr))
{
    ThrowError(m_pIPaymentCommand
, COLEDBERR::eGetNextRows, "Payment()");
}

// Fetch
the actual row data by handle

```

```

hr =
pRowset->GetData(rghRow,
m_hPaymentOutputAccessor, &m_txn.Payment);
(FAILED(hr))
{
    ThrowError(m_pIPaymentCommand
, COLEDBERR::eGetData, "Payment()");
}

//
Release row(s)

hr =
pRowset->ReleaseRows(cRowsObtained,
prghRow, NULL, NULL, NULL);

//
Release rowset

hr =
pRowset->Release();

if
(m_txn.Payment.c_id == 0)

throw new CTPCC_OLEDB_ERR(
CTPCC_OLEDB_ERR::ERR_INVALID_CUST );
else

m_txn.Payment.exec_status_code
= eOK;

break;
}
catch (COLEDBERR
*e)
{
    if ((le-
>m_bDeadLock) || (++iTryCount >
iMaxRetries))

throw;

// hit
deadlock; backoff for increasingly longer period
delete e;
Sleep(10
* iTryCount);
}

//
if (iTryCount)
//
throw new
CTPCC_OLEDB_ERR(CTPCC_OLEDB_ERR::ERR_R
ETRIED_TRANS, iTryCount);
}

void CTPCC_OLEDB::InitOrderStatusParams()
{
    int
i;
HRESULT
hr;
wchar_t
szName[iMAX_SP_NAME_LEN];
IAccessor*
pIAccessor;

const ULONG
nInputParams = 4;
// input parameters
const ULONG
nOutputParams = 5;
// output 1st result set columns

```

```

const ULONG
    nOutputParams2 = 8;
// output 2nd result set columns
// Structure to bind in accessor
DBBINDING
acInputDBBinding[nInputParams];
DBBINDSTATUS
acInputDBBindStatus[nInputParams
];
DBBINDING
acOutputDBBinding[nOutputParams
];
DBBINDSTATUS
acOutputDBBindStatus[nOutputPara
ms];
DBBINDING
acOutputDBBinding2[nOutputParam
s2];
DBBINDSTATUS
acOutputDBBindStatus2[nOutputPar
ams2];
// Set command text
_snwprintf(szName,
sizeof(szName)/sizeof(szName[0]),
L"{call
%stpc_orderstatus (?,?,?,?)", m_szSPPrefix);
// Create and Prepare a new
command object for OrderStatus.
CreateCommand(szName,
&m_piOrderStatusCommand);
// Describe the consumer buffer by
filling in the array
// of DBBINDING structures. Each binding
associates
// a single parameter to the consumer's buffer.
InitBindings(&acInputDBBinding[0],
nInputParams, eInputParameter);
i = 0;
// OrderStatus parameter 1
SetBinding(&acInputDBBinding[i++
], offsetof(ORDER_STATUS_DATA, w_id),
sizeof(m_txn.OrderStatus.w_id), DBTYPE_I4);
// OrderStatus parameter 2
SetBinding(&acInputDBBinding[i++
], offsetof(ORDER_STATUS_DATA, d_id),
sizeof(m_txn.OrderStatus.d_id), DBTYPE_UI1);
// OrderStatus parameter 3
SetBinding(&acInputDBBinding[i++
], offsetof(ORDER_STATUS_DATA, c_id),
sizeof(m_txn.OrderStatus.c_id), DBTYPE_I4);
// OrderStatus parameter 4
SetBinding(&acInputDBBinding[i++
], offsetof(ORDER_STATUS_DATA, c_last),
sizeof(m_txn.OrderStatus.c_last), DBTYPE_STR);
hr = m_piOrderStatusCommand
->QueryInterface(IID_IAccessor, (void
**) &piAccessor);
if (FAILED(hr))
{

```

```

ThrowError(m_piOrderStatusComm
and, COLEDBERR::eQueryInterface,
"InitOrderStatusParams()");
hr = piAccessor->CreateAccessor(
DBACCESSOR_PARAMETERDATA,
nInputParams,
acInputDBBinding,
sizeof(ORDER_STATUS_DATA),
&m_hOrderStatusInputAccessor,
acInputDBBindStatus);
if (FAILED(hr))
{
ThrowError(piAccessor,
COLEDBERR::eCreateAccessor,
"InitOrderStatusParams()");
}
m_OrderStatusExecuteParams.cPar
amSets = 1;
m_OrderStatusExecuteParams.hAcc
essor = m_hOrderStatusInputAccessor;
m_OrderStatusExecuteParams.pDat
a = &m_txn.OrderStatus;
// Now fill the binding information
for result set 1 output columns
InitBindings(&acOutputDBBinding[0
], nOutputParams, eOutputColumn);
// Binding for a rowset that may
return more than one row.
// Bind to offsets of the
OL_ORDER_STATUS_DATA structure instead of
ORDER_STATUS_DATA.
// IRowset::GetData() will be
passed individual array slots OL[i] to fetch the
data
// from the row set.
i = 0;
// OrderStatus output column 1
SetBinding(&acOutputDBBinding[i+
+], offsetof(OL_ORDER_STATUS_DATA,
ol_supply_w_id),
sizeof(m_txn.OrderStatus.OL[0].ol_supply_w_id),
DBTYPE_I4);
// OrderStatus output column 2
SetBinding(&acOutputDBBinding[i+
+], offsetof(OL_ORDER_STATUS_DATA, ol_i_id),
sizeof(m_txn.OrderStatus.OL[0].ol_i_id),
DBTYPE_I4);
// OrderStatus output column 3
SetBinding(&acOutputDBBinding[i+
+], offsetof(OL_ORDER_STATUS_DATA,
ol_quantity),
sizeof(m_txn.OrderStatus.OL[0].ol_quantity),
DBTYPE_I2);
// OrderStatus output column 4
SetBinding(&acOutputDBBinding[i+
+], offsetof(OL_ORDER_STATUS_DATA,
ol_amount),
sizeof(m_txn.OrderStatus.OL[0].ol_amount),
DBTYPE_R8);
// OrderStatus output column 5

```

```

SetBinding(&acOutputDBBinding[i+
+], offsetof(OL_ORDER_STATUS_DATA,
ol_delivery_d),
sizeof(m_txn.OrderStatus.OL[0].ol_delivery_d),
DBTYPE_DBTIMESTAMP);
hr = piAccessor->CreateAccessor(
DBACCESSOR_ROWDATA |
DBACCESSOR_OPTIMIZED,
nOutputParams,
acOutputDBBinding,
sizeof(OL_ORDER_STATUS_DATA),
&m_hOrderStatusOutputAccessor,
acOutputDBBindStatus);
if (FAILED(hr))
{
ThrowError(piAccessor,
COLEDBERR::eCreateAccessor,
"InitOrderStatusParams()");
}
// Now fill the binding information
for result set 2 output columns
InitBindings(&acOutputDBBinding[2
0], nOutputParams2, eOutputColumn);
i = 0;
// OrderStatus output column 1
SetBinding(&acOutputDBBinding[2i
++], offsetof(ORDER_STATUS_DATA, c_id),
sizeof(m_txn.OrderStatus.c_id), DBTYPE_I4);
// OrderStatus output column 2
SetBinding(&acOutputDBBinding[2i
++], offsetof(ORDER_STATUS_DATA, c_last),
sizeof(m_txn.OrderStatus.c_last), DBTYPE_STR);
// OrderStatus output column 3
SetBinding(&acOutputDBBinding[2i
++], offsetof(ORDER_STATUS_DATA, c_first),
sizeof(m_txn.OrderStatus.c_first), DBTYPE_STR);
// OrderStatus output column 4
SetBinding(&acOutputDBBinding[2i
++], offsetof(ORDER_STATUS_DATA, c_middle),
sizeof(m_txn.OrderStatus.c_middle),
DBTYPE_STR);
// OrderStatus output column 5
SetBinding(&acOutputDBBinding[2i
++], offsetof(ORDER_STATUS_DATA,
o_entry_d),
sizeof(m_txn.OrderStatus.o_entry_d),
DBTYPE_DBTIMESTAMP);
// OrderStatus output column 7
SetBinding(&acOutputDBBinding[2i
++], offsetof(ORDER_STATUS_DATA,
o_carrier_id),
sizeof(m_txn.OrderStatus.o_carrier_id),
DBTYPE_I2);
// OrderStatus output column 8
SetBinding(&acOutputDBBinding[2i
++], offsetof(ORDER_STATUS_DATA,
c_balance), sizeof(m_txn.OrderStatus.c_balance),
DBTYPE_R8);
// OrderStatus output column 9
SetBinding(&acOutputDBBinding[2i
++], offsetof(ORDER_STATUS_DATA, o_id),
sizeof(m_txn.OrderStatus.o_id), DBTYPE_I4);

```



```

        hr = pIAccessor->CreateAccessor(
            DBACCESSOR_ROWDATA, //
            cannot be optimized too because #1 accessor is
            nOutputParams2,
            acOutputDBBinding2,
            sizeof(NEW_ORDER_DATA),

            &m_hOrderStatusOutputAccessor2,
            acOutputDBBindStatus2);
        if (FAILED(hr))
        {
            ThrowError(pIAccessor,
                COLEDBERR::eCreateAccessor,
                "InitOrderStatusParams()");
        }
    }

void CTPCC_OLEDB::OrderStatus()
{
    HRESULT hr;
    int
        iTryCount = 0;
    IMultipleResults*
    pMultipleResults;
    IRowset*
    pRowset;
    IRowset*
    pRowset2;
    LONG
        cRows =
        MAX_OL_ORDER_STATUS_ITEMS; //
        number of rows returned in the 1st rowset
        ULONG
            cRowsObtained;
        HROW
            rghRows[MAX_OL_ORDER_STATUS
                _ITEMS]; //returned row
            handles for the 1st result set
            HROW*
                prghRows =
                &rghRows[0];
                LONG
                    cRows2 = 1; //
                    number of rows returned in the 2nd rowset
                    ULONG
                        cRowsObtained2;
                        HROW
                            rghRows2;
                            //returned row handle for the 2nd
                            result set
                            HROW*
                                prghRows2 =
                                &rghRows2;
                                int
                                    i;
                                    long
                                        IRowsAffected;
                                        // the number of affected rows for
                                        a rowset

                                if (m_txn.OrderStatus.c_id != 0)
                                    m_txn.OrderStatus.c_last[0] = 0;

                                while (TRUE)
                                {
                                    try
                                    {
                                        //
                                        Execute the prepared command

```

```

// Ask
for IMultipleResults because it returns 2 rowsets.
m_pOrderStatusCommand->Execute(NULL,
IID_IMultipleResults,
&m_OrderStatusExecuteParams, NULL,

(IUnknown
**)&pMultipleResults);
if
(FAILED(hr))
{
    ThrowError(m_pOrderStatusComm
and, COLEDBERR::eExecute, "OrderStatus()");
}

////////////////////////////////////
// Get
order line results

////////////////////////////////////
// Get
the first rowset object
hr =
pMultipleResults->GetResult(NULL, 0,
IID_IRowset, &IRowsAffected, (IUnknown
**)&pRowset);
if
(FAILED(hr))
{
    ThrowError(m_pOrderStatusComm
and, COLEDBERR::eGetResult, "OrderStatus()");
}

// Fetch
the result row handle(s)
hr =
pRowset->GetNextRows(DB_NULL_HCHAPTER,
0, cRows, &cRowsObtained, &prghRows);
if
(FAILED(hr))
{
    ThrowError(m_pOrderStatusComm
and, COLEDBERR::eGetNextRows,
"OrderStatus()");
}

m_txn.OrderStatus.o_ol_cnt =
(short)cRowsObtained;

// Get
the data from multiple rows in this rowset
for (i =
0; i < m_txn.OrderStatus.o_ol_cnt; ++i)
{
    // Fetch the actual row data by
    handle
    hr = pRowset-
>GetData(rghRows[i],
m_hOrderStatusOutputAccessor,
&m_txn.OrderStatus.OL[i]);

    if (FAILED(hr))
    {

```

```

        ThrowError(m_pOrderStatusComm
and, COLEDBERR::eGetData, "OrderStatus()");
    }
}

//
Release row(s)
hr =
pRowset->ReleaseRows(cRowsObtained,
prghRows, NULL, NULL, NULL);
//
Release rowset
hr =
pRowset->Release();

////////////////////////////////////
// Get
the second rowset object

////////////////////////////////////
if
(m_txn.OrderStatus.o_ol_cnt > 0)
{
    hr = pMultipleResults-
>GetResult(NULL, 0, IID_IRowset,
&IRowsAffected, (IUnknown **)&pRowset2);
    if (FAILED(hr))
    {
        ThrowError(m_pOrderStatusComm
and, COLEDBERR::eGetResult, "OrderStatus()");
    }

    // Fetch the result row handle(s)
    hr = pRowset2-
>GetNextRows(DB_NULL_HCHAPTER, 0, cRows2,
&cRowsObtained2, &prghRows2);

    if (FAILED(hr))
    {
        ThrowError(m_pOrderStatusComm
and, COLEDBERR::eGetNextRows,
"OrderStatus()");
    }

    // Fetch the actual row data by
    handle
    hr = pRowset2-
>GetData(rghRows2,
m_hOrderStatusOutputAccessor2,
&m_txn.OrderStatus);

    if (FAILED(hr))
    {
        ThrowError(m_pOrderStatusComm
and, COLEDBERR::eGetData, "OrderStatus()");
    }
}

```

```

    }

    // Release row(s)

    hr = pRowset2->Release();
    }

    //
    Release the common MultipleResults interface
    hr =
pMultipleResults->Release();

    if
(m_txn.OrderStatus.o_ol_cnt == 0)

        throw new CTPCC_OLEDB_ERR(
CTPCC_OLEDB_ERR::ERR_NO_SUCH_ORDER );
    else if
(m_txn.OrderStatus.c_id == 0 &&
m_txn.OrderStatus.c_last[0] == 0)

        throw new CTPCC_OLEDB_ERR(
CTPCC_OLEDB_ERR::ERR_INVALID_CUST );
    else

        m_txn.OrderStatus.exec_status_cod
e = eOK;

        break;
    }
    catch (COLEDBERR
*e)
    {
        if (!(e-
>m_bDeadLock) || (++iTryCount >
iMaxRetries))

            throw;

        // hit
        deadlock; backoff for increasingly longer period
        delete e;
        Sleep(10
* iTryCount);
    }

    //
    if (iTryCount)
    //
    // throw new
CTPCC_OLEDB_ERR(CTPCC_OLEDB_ERR::ERR_R
ETRIED_TRANS, iTryCount);
}

void CTPCC_OLEDB::InitDeliveryParams()
{
    int
i;
    HRESULT
hr;
    wchar_t
szName[IMAX_SP_NAME_LEN];
    IAccessor*
pIAccessor;

    const ULONG
nInputParams = 2;
    // input parameters

```

```

const ULONG
nOutputParams = 10;
// output 1st result set columns
// Structure to bind in accessor
DBBINDING
acInputDBBinding[nInputParams];
DBBINDSTATUS
acInputDBBindStatus[nInputParams
];
DBBINDING
acOutputDBBinding[nOutputParams
];
DBBINDSTATUS
acOutputDBBindStatus[nOutputPara
ms];

// Set command text
_snwprintf(szName,
sizeof(szName)/sizeof(szName[0]),
L"(call
%stpc_delivery (?,?))", m_szSPPrefix);

// Create and Prepare a new
command object for Delivery.
CreateCommand(szName,
&m_pIDeliveryCommand);

// Describe the consumer buffer by
filling in the array
// of DBBINDING structures. Each binding
associates
// a single parameter to the consumer's buffer.
InitBindings(&acInputDBBinding[0],
nInputParams, eInputParameter);

    i = 0;
    // Delivery parameter 1
    SetBinding(&acInputDBBinding[i++
], offsetof(DELIVERY_DATA, w_id),
sizeof(m_txn.Delivery.w_id), DBTYPE_I4);

    // Delivery parameter 2
    SetBinding(&acInputDBBinding[i++
], offsetof(DELIVERY_DATA, o_carrier_id),
sizeof(m_txn.Delivery.o_carrier_id), DBTYPE_I2);

    hr = m_pIDeliveryCommand-
>QueryInterface(IID_IAccessor, (void
**)&pIAccessor);
    if (FAILED(hr))
    {
        ThrowError(m_pIDeliveryCommand,
COLEDBERR::eQueryInterface,
"InitDeliveryParams()");
    }

    hr = pIAccessor->CreateAccessor(
DBACCESSOR_PARAMETERDATA,
nInputParams,
acInputDBBinding,
sizeof(DELIVERY_DATA),
&m_hDeliveryInputAccessor,
acInputDBBindStatus);
    if (FAILED(hr))
    {
        ThrowError(pIAccessor,
COLEDBERR::eCreateAccessor,
"InitDeliveryParams()");

```

```

    }
    m_DeliveryExecuteParams.cParamS
ets = 1;
    m_DeliveryExecuteParams.hAccesso
r = m_hDeliveryInputAccessor;
    m_DeliveryExecuteParams.pData =
&m_txn.Delivery;

    // Now fill the binding information
for result set 1 output columns
    InitBindings(&acOutputDBBinding[0
], nOutputParams, eOutputColumn);

    // Binding for a rowset that may
return more than one row.
    for (i = 0; i < 10; ++i)
    {
        // Delivery output
column 1

        SetBinding(&acOutputDBBinding[i],
offsetof(DELIVERY_DATA, o_id[i]),
sizeof(m_txn.Delivery.o_id[i]), DBTYPE_I4);
    }

    hr = pIAccessor->CreateAccessor(
DBACCESSOR_ROWDATA |
DBACCESSOR_OPTIMIZED,
nOutputParams,
acOutputDBBinding,
sizeof(DELIVERY_DATA),

&m_hDeliveryOutputAccessor,
acOutputDBBindStatus);
    if (FAILED(hr))
    {
        ThrowError(pIAccessor,
COLEDBERR::eCreateAccessor,
"InitDeliveryParams()");
    }

void CTPCC_OLEDB::Delivery()
{
    HRESULT
hr;
    int
iTryCount = 0;

    IRowset*
pRowset;
    LONG
cRows = 1; // number of rows
returned in the rowset
    ULONG
cRowsObtained;
    HROW
rghRow;
    //returned row handles
    HROW*
prghRow = &rghRow;

    while (TRUE)
    {
        try
        {
            //
            Execute the prepared command

            hr =
m_pIDeliveryCommand->Execute(NULL,
IID_IRowset, &m_DeliveryExecuteParams, NULL,

```

```

(IUnknown
**)&pRowset);
(FAILED(hr))
    {
        ThrowError(m_pIDeliveryCommand,
COLEDBERR::eExecute, "Delivery()");
    }
    // Fetch
the result row handle(s)
    hr =
pRowset->GetNextRows(DB_NULL_HCHAPTER,
0, cRows, &cRowsObtained, &prghRow);
(FAILED(hr))
    {
        ThrowError(m_pIDeliveryCommand,
COLEDBERR::eGetNextRows, "Delivery()");
    }
    // Fetch
the actual row data by handle
    hr =
pRowset->GetData(rgRow,
m_hDeliveryOutputAccessor, &m_txn.Delivery);
(FAILED(hr))
    {
        ThrowError(m_pIDeliveryCommand,
COLEDBERR::eGetData, "Delivery()");
    }
    //
Release row(s)
    hr =
pRowset->ReleaseRows(cRowsObtained,
prghRow, NULL, NULL, NULL);
    //
Release rowset
    hr =
pRowset->Release();

    m_txn.Delivery.exec_status_code =
eOK;
        break;
    }
    catch (COLEDBERR
*e)
    {
        if ((!e-
>m_bDeadLock) || (++iTryCount >
iMaxRetries))
            throw;

        // hit
deadlock; backoff for increasingly longer period
delete e;
Sleep(10)

    }
    }
}
// if (iTryCount)

```

```

// throw new
CTPCC_OLEDB_ERR(CTPCC_OLEDB_ERR::ERR_R
ETRIED_TRANS, iTryCount);

```

```

tm_com_dll\src\tpcc_com.cpp

```

```

/* FILE:
TPCC_COM.CPP

Microsoft TPC-C Kit Ver. 4.20.000

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not yet audited

PURPOSE: Source file for TPC-C
COM+ class implementation.
Contact: Charles Levine
(clevine@microsoft.com)

Change history:
4.20.000 - first
version
*/

// needed for CoInitializeEx
#define _WIN32_WINNT 0x0400

#include <windows.h>

// need to declare functions for export
#define DllDecl __declspec( dllexport )

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

#include "..\..\tpcc_com_ps\src\tpcc_com_ps_i.c"
#include "..\..\tpcc_com_all\src\tpcc_com_all_i.c"

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

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

    m_pTxn
    = NULL;
    m_pNewOrder
    = NULL;
    m_pPayment
    = NULL;
    m_pStockLevel
    = NULL;
    m_pOrderStatus
    = NULL;

    m_bSinglePool
    =
bSinglePool;

```

```

ulTmpSize = (ULONG)
sizeof(COM_DATA)*ulTmpSize;
m_vTxn.vt = VT_SAFEARRAY;

m_vTxn.parray =
SafeArrayCreateVector(VT_UI1, ulTmpSize,
ulTmpSize);
if (!m_vTxn.parray)
    throw new CCOMERR(
E_FAIL );

memset((void*)m_vTxn.parray-
>pvData,0,ulTmpSize);
m_pTxn =
(COM_DATA*)m_vTxn.parray->pvData;

hr = CoInitializeEx(NULL,
COINIT_MULTITHREADED);
if (FAILED(hr))
    {
        throw new CCOMERR(
hr );
    }

// create components
if (m_bSinglePool)
    {
        hr =
CoCreateInstance(CLSID_TPCC, NULL,
CLSCTX_SERVER, IID_ITPCC, (void
***)&m_pNewOrder);
        if (FAILED(hr))
            throw
new CCOMERR(hr);

        // all txns will use
same component
m_pPayment =
m_pNewOrder;
m_pStockLevel =
m_pNewOrder;
m_pOrderStatus =
m_pNewOrder;
    }
    else
    {
        // use different
components for each txn

        hr =
CoCreateInstance(CLSID_NewOrder, NULL,
CLSCTX_SERVER, IID_ITPCC, (void
***)&m_pNewOrder);
        if (FAILED(hr))
            throw
new CCOMERR(hr);

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

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

```

```

        hr =
CoCreateInstance(CLSID_OrderStatus, NULL,
CLSCTX_SERVER, IID_ITPCC, (void
**) &m_pOrderStatus);
        if (FAILED(hr))
            throw
new CCOMERR(hr);
    }

    // call setcomplete to release each
component back into pool
    hr = m_pNewOrder-
>CallSetComplete();
    if (FAILED(hr))
        throw new
CCOMERR(hr);

    if (!m_bSinglePool)
    {
        hr = m_pPayment-
>CallSetComplete();
        if (FAILED(hr))
            throw
new CCOMERR(hr);

        hr = m_pStockLevel-
>CallSetComplete();
        if (FAILED(hr))
            throw
new CCOMERR(hr);

        hr = m_pOrderStatus-
>CallSetComplete();
        if (FAILED(hr))
            throw
new CCOMERR(hr);
    }
}

CTPCC_COM::~~CTPCC_COM()
{
    if (m_pTxn)
        SafeArrayDestroy(m_vTxn.parray);

    ReleaseInterface(m_pNewOrder);
    if (!m_bSinglePool)
    {
        ReleaseInterface(m_pPayment);

        ReleaseInterface(m_pStockLevel);

        ReleaseInterface(m_pOrderStatus);
    }
    CoUninitialize();
}

void CTPCC_COM::NewOrder()
{
    VARIANT vTxn_out;

    HRESULT hr = m_pNewOrder-
>NewOrder(m_vTxn, &vTxn_out);
    if (FAILED(hr))
        throw new CCOMERR(
hr );
    memcpy(m_pTxn, (void
*)vTxn_out.parray->pvData, vTxn_out.parray-
>rgsabound[0].cElements);
    SafeArrayDestroy(vTxn_out.parray)
;

    if ( m_pTxn->ErrorType !=
ERR_SUCCESS )

```

```

        throw new CCOMERR(
m_pTxn->ErrorType, m_pTxn->error );

void CTPCC_COM::Payment()
{
    VARIANT vTxn_out;

    HRESULT hr = m_pPayment-
>Payment(m_vTxn, &vTxn_out);
    if (FAILED(hr))
        throw new CCOMERR(
hr );
    memcpy(m_pTxn, (void
*)vTxn_out.parray->pvData, vTxn_out.parray-
>rgsabound[0].cElements);
    SafeArrayDestroy(vTxn_out.parray)
;

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

void CTPCC_COM::StockLevel()
{
    VARIANT vTxn_out;

    HRESULT hr = m_pStockLevel-
>StockLevel(m_vTxn, &vTxn_out);
    if (FAILED(hr))
        throw new CCOMERR(
hr );
    memcpy(m_pTxn, (void
*)vTxn_out.parray->pvData, vTxn_out.parray-
>rgsabound[0].cElements);
    SafeArrayDestroy(vTxn_out.parray)
;

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

void CTPCC_COM::OrderStatus()
{
    VARIANT vTxn_out;

    HRESULT hr = m_pOrderStatus-
>OrderStatus(m_vTxn, &vTxn_out);
    if (FAILED(hr))
        throw new CCOMERR(
hr );
    memcpy(m_pTxn, (void
*)vTxn_out.parray->pvData, vTxn_out.parray-
>rgsabound[0].cElements);
    SafeArrayDestroy(vTxn_out.parray)
;

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

/* FILE:
METHODS.H

```

```

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

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

class CCOMPONENT_ERR : public CBaseErr
{
public:
    CCOMPONENT_ERR(COMPONENT_
ERROR Err)
    {
        m_Error
= Err;

        m_szTextDetail = NULL;
        m_SystemErr = 0;
        m_szErrorText = NULL;
    };

    CCOMPONENT_ERR(COMPONENT_
ERROR Err, char *szTextDetail, DWORD
dwSystemErr)
    {
        m_Error
= Err;

        m_szTextDetail = new
char[strlen(szTextDetail)+1];
        strcpy(
m_szTextDetail, szTextDetail );
        m_SystemErr = dwSystemErr;
        m_szErrorText = NULL;
    };

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

```

`\\tpcc_com_all\src\methods.h`

```

        COMPONENT_ERROR
    m_Error;

    char
        *m_szTextDetail;
    char
        *m_szErrorText;
    DWORD
        m_SystemErr;

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

};

static void WriteMessageToEventLog(LPTSTR
lpszMsg);

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

    CTPCC_Common();
    ~CTPCC_Common();

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

    HRESULT __stdcall
    CallSetComplete();

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

```

```

// IObjectConstruct
Construct(IDispatch * pUnk);

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

    struct COM_DATA
    {
        int retval;
        int error;
        union
        {
            NEW_ORDER_DATA
            NewOrder;

            PAYMENT_DATA
            Payment;

            DELIVERY_DATA
            Delivery;

            STOCK_LEVEL_DATA
            StockLevel;

            ORDER_STATUS_DATA
            OrderStatus;
        } u;
    };

};

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

    BEGIN_COM_MAP(CTPCC)
        //COM_INTERFACE_ENTRY2(IUnkno
        wn,
        CComObjectRootEx<CComSingleThreadModel>)
        COM_INTERFACE_ENTRY2(IUnkno
        wn, ITPCC)
        COM_INTERFACE_ENTRY_CHAIN(C
        TPCC_Common)
    END_COM_MAP()
};

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

    BEGIN_COM_MAP(CNewOrder)
        //
        COM_INTERFACE_ENTRY2(IUnkno
        wn, CComObjectRootEx)
}

```

```

        COM_INTERFACE_ENTRY2(IUnkno
        wn, ITPCC)
        COM_INTERFACE_ENTRY_CHAIN(C
        TPCC_Common)
    END_COM_MAP()

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

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

    BEGIN_COM_MAP(COrderStatus)
        //
        COM_INTERFACE_ENTRY2(IUnkno
        wn, CComObjectRootEx)
        COM_INTERFACE_ENTRY2(IUnkno
        wn, ITPCC)
        COM_INTERFACE_ENTRY_CHAIN(C
        TPCC_Common)
    END_COM_MAP()

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

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

    BEGIN_COM_MAP(CPayment)
}

```

```
//
    COM_INTERFACE_ENTRY2(IUnkno
wn, CComObjectRootEx)
    COM_INTERFACE_ENTRY2(IUnkno
wn, ITPCC)
    COM_INTERFACE_ENTRY_CHAIN(C
TPCC_Common)
END_COM_MAP()

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

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

BEGIN_COM_MAP(CStockLevel)
//
    COM_INTERFACE_ENTRY2(IUnkno
wn, CComObjectRootEx)
    COM_INTERFACE_ENTRY2(IUnkno
wn, ITPCC)
    COM_INTERFACE_ENTRY_CHAIN(C
TPCC_Common)
END_COM_MAP()

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

```
\tpcc com all\src\resource.
h
```

```
///  
//{{NO_DEPENDENCIES}}
```

```
// Microsoft Developer Studio generated include
file used by tpcc_com_all.rc
//
#define IDS_PROJNAME            100
#define IDR_TPCC                101
#define IDR_NEWORDER            102
#define IDR_ORDERSTATUS        103
#define IDR_PAYMENT             104
#define IDR_STOCKLEVEL         105

// Next default values for new objects
//
#ifdef APSTUDIO_INVOKED
#ifdef APSTUDIO_READONLY_SYMBOLS
#define _APS_NEXT_RESOURCE_VALUE 202
#define _APS_NEXT_COMMAND_VALUE 32768
#define _APS_NEXT_CONTROL_VALUE 201
#define _APS_NEXT_SYMED_VALUE 106
#endif
#endif
```

```
\tpcc com all\src\tpcc com
all.cpp
```

```
/* FILE:
TPCC_COM_ALL.CPP

Microsoft TPC-C Kit Ver. 4.20.000

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Version 4.10.000 audited by
Richard Gimarc, Performance Metrics, 3/17/99
*
* PURPOSE: Implementation for
TPC-C Tuxedo class.
* Contact: Charles Levine
(clevine@microsoft.com)
*
* Change history:
* 4.20.000 - updated
rev number to match kit
*/

#define STRICT
#define _WIN32_WINNT 0x0400
#define _ATL_APARTMENT_THREADED

#include <stdio.h>
#include <atbase.h>
//You may derive a class from CComModule and
use it if you want to override
//something, but do not change the name of
_Module
extern CComModule _Module;

#include <atcom.h>
#include <initguid.h>
#include <transact.h>
//include <atimpl.cpp>
#include <comsvcs.h>

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

```
#include "tpcc_com_all\src\trans.h"

//tpckit transaction header contains
definitions of structures specific to TPC-C
#include "..\..\common\src\txn_base.h"
#include "..\..\common\src\error.h"
#include "..\..\common\src\ReadRegistry.h"
#include "..\..\db_dblib_dll\src\tpcc_dblib.h"
// DBLIB
implementation of TPC-C txns
#include "..\..\db_odbc_dll\src\tpcc_odbc.h"
// ODBC
implementation of TPC-C txns

#include "resource.h"
#include "tpcc_com_all.h"
#include "tpcc_com_all_i.c"
#include "Methods.h"
#include "..\..\tpcc_com_ps\src\tpcc_com_ps_i.c"
#include "..\..\common\src\ReadRegistry.cpp"
```

```
CComModule _Module;

BEGIN_OBJECT_MAP(ObjectMap)
    OBJECT_ENTRY(CLSID_TPCC,
CTPCC)
    OBJECT_ENTRY(CLSID_NewOrder,
CNewOrder)
    OBJECT_ENTRY(CLSID_OrderStatus,
COrderStatus)
    OBJECT_ENTRY(CLSID_Payment,
CPayment)
    OBJECT_ENTRY(CLSID_StockLevel,
CStockLevel)
END_OBJECT_MAP()

// configuration settings from registry
TPCCREGISTRYDATA Reg;
char
szMyComputerName[MAX_COMPUT
ERNAME_LENGTH+1];

static HINSTANCE hLibInstanceDb = NULL;

TYPE_CTPCC_DBLIB
*pCTPCC_DBLIB_new;
TYPE_CTPCC_ODBC
*pCTPCC_ODBC_new;

// Critical section to synchronize connection open
and close.
//
CRITICAL_SECTION hConnectCriticalSection;

////////////////////////////////////
////////////////////////////////////
// DLL Entry Point

extern "C"
BOOL WINAPI DllMain(HINSTANCE hInstance,
DWORD dwReason, LPVOID /*lpReserved*/)
{
    char szDllName[128];

    try
    {
        if (dwReason ==
DLL_PROCESS_ATTACH)
        {
            _Module.Init(ObjectMap,
hInstance);
```

```

        DisableThreadLibraryCalls(hInstance);

        DWORD dwSize = MAX_COMPUTERNAME_LENGTH+1;
        GetComputerName(szMyComputerName, &dwSize);
        szMyComputerName[dwSize] = 0;

        if (ReadTPCCRegistrySettings( &Reg ))
        {
            throw new CCOMPONENT_ERR(
                ERR_MISSING_REGISTRY_ENTRIES );

            if (Reg.eDB_Protocol == DBLIB)
            {
                strcpy( szDllName, Reg.szPath );
                strcat( szDllName, "tpcc_dblib.dll");

                hLibInstanceDb = LoadLibrary(
                    szDllName );

                if (hLibInstanceDb == NULL)
                {
                    throw new
                    CCOMPONENT_ERR( ERR_LOADDLL_FAILED,
                    szDllName, GetLastError() );

                    // get function pointer to wrapper
                    for class constructor

                    pCTPCC_DBLIB_new =
                    (TYPE_CTPCC_DBLIB*)
                    GetProcAddress(hLibInstanceDb, "CTPCC_DBLIB_
                    new");

                    if (pCTPCC_DBLIB_new == NULL)
                    {
                        throw new
                        CCOMPONENT_ERR(
                        ERR_GETPROCADDR_FAILED, szDllName,
                        GetLastError() );
                    }
                    else if
                    (Reg.eDB_Protocol == ODBC)
                    {
                        strcpy( szDllName, Reg.szPath );
                        strcat( szDllName, "tpcc_odbc.dll");

                        hLibInstanceDb = LoadLibrary(
                            szDllName );

                        if (hLibInstanceDb == NULL)
                        {
                            throw new
                            CCOMPONENT_ERR( ERR_LOADDLL_FAILED,
                            szDllName, GetLastError() );

                            // get function pointer to wrapper
                            for class constructor

```

```

                pCTPCC_ODBC_new =
                (TYPE_CTPCC_ODBC*)
                GetProcAddress(hLibInstanceDb, "CTPCC_ODBC_
                new");

                if (pCTPCC_ODBC_new == NULL)
                {
                    throw new
                    CCOMPONENT_ERR(
                    ERR_GETPROCADDR_FAILED, szDllName,
                    GetLastError() );
                }
                else
                {
                    throw new CCOMPONENT_ERR(
                    ERR_UNKNOWN_DB_PROTOCOL );

                    if
                    (Reg.dwConnectDelay > 0)
                    {
                        InitializeCriticalSection(&hConnectC
                        riticalSection);
                    }
                    else if (dwReason ==
                    DLL_PROCESS_DETACH)
                    {
                        _Module.Term();
                    }
                }
                catch (CBaseErr *e)
                {
                    TCHAR szMsg[256];

                    _sntprintf(szMsg,
                    sizeof(szMsg), "%s error, code %d: %s",
                    e->ErrorTypeStr(), e->ErrorNum(),
                    e->ErrorText());

                    WriteMessageToEventLog( szMsg );

                    delete e;
                    return FALSE;
                }
                catch (...)
                {
                    WriteMessageToEventLog(TEXT("U
                    nhandled exception in object DllMain"));
                    return FALSE;
                }

                return TRUE; // OK
            }
        }

        // Used to determine whether the DLL can be
        unloaded by OLE

        STDAPI DllCanUnloadNow(void)
        {
            return
            (_Module.GetLockCount()==0) ? S_OK :
            S_FALSE;
        }

        // Returns a class factory to create an object of
        the requested type

```

```

        STDAPI DllGetObject(REFCLSID rclsid,
        &EFIID riid, LPVOID* ppv)
        {
            return
            _Module.GetObject(rclsid, riid, ppv);
        }

        // DllRegisterServer - Adds entries to the system
        registry

        STDAPI DllRegisterServer(void)
        {
            // registers object, typelib and all
            interfaces in typelib
            return
            _Module.RegisterServer(TRUE);
        }

        // DllUnregisterServer - Removes entries from the
        system registry

        STDAPI DllUnregisterServer(void)
        {
            _Module.UnregisterServer();
            return S_OK;
        }

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

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

            _sntprintf(szMsg, TEXT("Error in COM+ TPC-C
            Component: "));
            lpszStrings[0] = szMsg;
            lpszStrings[1] = lpszMsg;

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

                (VOID)
                DeregisterEventSource(hEventSource);
            }
        }

        inline void ReleaseInterface(IUnknown *pUnk)
        {
            if (pUnk)
            {
                pUnk->Release();
                pUnk = NULL;
            }
        }

```

```

/* FUNCTION: CCOMPONENT_ERR::ErrorText
 *
 */
char* CCOMPONENT_ERR::ErrorText(void)
{
    static SERRORMSG errorMsgs[] =
    {
        {
            ERR_MISSING_REGISTRY_ENTRIES,
            "Required entries missing from
            registry."
        },
        {
            ERR_LOADDLL_FAILED,
            "Load of DLL failed. DLL="
        },
        {
            ERR_GETPROCADDR_FAILED,
            "Could not map proc in DLL.
            GetProcAddr error. DLL="
        },
        {
            ERR_UNKNOWN_DB_PROTOCOL,
            "Unknown database protocol
            specified in registry."
        },
        { 0, ""
        }
    };

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

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

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

CTPCC_Common::CTPCC_Common()

```

```

{
    m_pTxn = NULL;
    m_bCanBePooled = TRUE;
}

CTPCC_Common::~CTPCC_Common()
{
    // Pace connection close for VIA.
    //
    if (Reg.dwConnectDelay > 0)
    {
        EnterCriticalSection(&hConnectCriticalSection);

        Sleep(Reg.dwConnectDelay);
    }

    if (m_pTxn)
    {
        delete m_pTxn;
    }

    if (Reg.dwConnectDelay > 0)
    {
        LeaveCriticalSection(&hConnectCriticalSection);
    }
}

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

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

//
// called by the ctor activator

//
// STDMETHODCALLTYPE
CTPCC_Common::Construct(IDispatch * pUnk)
{
    // Code to access construction
    string, if needed later...
    //
    if (!pUnk)
        return
        E_UNEXPECTED;
    //
    IObjectConstructString * pString =
    NULL;
    //
    HRESULT hr = pUnk-
    >QueryInterface(IID_IObjectConstructString,
    (void **)&pString);
    //
    pString->Release();

    try
    {
        // Pace connection
        creation for VIA.
        //
        if
        (Reg.dwConnectDelay > 0)
        {

```

```

            EnterCriticalSection(&hConnectCriticalSection);

            Sleep(Reg.dwConnectDelay);
        }

        if (Reg.eDB_Protocol
        == ODBC)
            m_pTxn
            = pCTPCC_ODBC_new( Reg.szDbServer,
            Reg.szDbUser, Reg.szDbPassword,

            szMyComputerName,
            Reg.szDbName,

            Reg.szSPPrefix,
            Reg.bCallNoDuplicatesNewOrder );
        else if
        (Reg.eDB_Protocol == DBLIB)
            m_pTxn
            = pCTPCC_DBLIB_new( Reg.szDbServer,
            Reg.szDbUser, Reg.szDbPassword,
            szMyComputerName, Reg.szDbName );

        if
        (Reg.dwConnectDelay > 0)
        {
            LeaveCriticalSection(&hConnectCriticalSection);
        }
        catch (CBaseErr *e)
        {
            TCHAR szMsg[256];

            _sntprintf(szMsg,
            sizeof(szMsg), "%s error in
            CTPCC_Common::Construct, code %d: %s",

            e->ErrorTypeStr(), e->ErrorNum(),
            e->ErrorText());

            WriteMessageToEventLog( szMsg );
            delete e;
            return E_FAIL;
        }
        catch (...)
        {
            WriteMessageToEventLog(TEXT("U
            nhandled exception in object ::Construct"));
            return E_FAIL;
        }

        return S_OK;
    }

    HRESULT CTPCC_Common::NewOrder(VARIANT
    txn_in, VARIANT* txn_out)
    {
        PNEW_ORDER_DATA
        pNewOrder;
        COM_DATA *pData;
        try
        {
            pData =
            (COM_DATA*)txn_in.parray->pvData;
            pNewOrder =
            m_pTxn->BuffAddr_NewOrder();

```



```

        memcpy(pNewOrder,
&pData->u.NewOrder,
sizeof(NEW_ORDER_DATA));

        m_pTxn-
>NewOrder(); // do the
actual txn

        VariantInit(txn_out);
txn_out->vt =
VT_SAFEARRAY;
SafeArrayCreateVector(VT_UI1,
txn_in.parray->rgsabound-
>cElements,
txn_in.parray->rgsabound-
>cElements);
        pData =
(COM_DATA*) txn_out->parray->pvData;
        memcpy( &pData-
>u.NewOrder, pNewOrder,
sizeof(NEW_ORDER_DATA));
        pData->retval =
ERR_SUCCESS;
        pData->error = 0;
return S_OK;
    }
    catch (CBaseErr *e)
    {
        // check for lost
database connection; if yes, component is toast
if ((e->ErrorType()
== ERR_TYPE_DBLIB) && (e->ErrorNum() ==
10005)) ||
        ((e-
>ErrorType() == ERR_TYPE_ODBC) && (e-
>ErrorNum() == 10054))
        m_bCanBePooled = FALSE;
        pData->retval = e-
>ErrorType();
        pData->error = e-
>ErrorNum();
        delete e;
return E_FAIL;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("U
nhandled exception."));
        pData->retval =
ERR_TYPE_LOGIC;
        pData->error = 0;
m_bCanBePooled =
FALSE;
        return E_FAIL;
    }
}

HRESULT CTPCC_Common::Payment(VARIANT
txn_in, VARIANT* txn_out)
{
    PPAYMENT_DATA
pPayment;
COM_DATA
*pData;
    try

```

```

        {
            pData =
(COM_DATA*)txn_in.parray->pvData;
            pPayment = m_pTxn-
>BuffAddr_Payment();
            memcpy(pPayment,
&pData->u.Payment, sizeof(PAYMENT_DATA));
            m_pTxn->Payment();
// do the actual txn
            VariantInit(txn_out);
txn_out->vt =
VT_SAFEARRAY;
SafeArrayCreateVector( VT_UI1,
txn_in.parray->rgsabound-
>cElements,
txn_in.parray->rgsabound-
>cElements);
            pData =
(COM_DATA*) txn_out->parray->pvData;
            memcpy( &pData-
>u.Payment, pPayment,
sizeof(PAYMENT_DATA));
            pData->retval =
ERR_SUCCESS;
            pData->error = 0;
return S_OK;
        }
        catch (CBaseErr *e)
        {
            // check for lost
database connection; if yes, component is toast
if ((e->ErrorType()
== ERR_TYPE_DBLIB) && (e->ErrorNum() ==
10005)) ||
            ((e-
>ErrorType() == ERR_TYPE_ODBC) && (e-
>ErrorNum() == 10054))
            m_bCanBePooled = FALSE;
            pData->retval = e-
>ErrorType();
            pData->error = e-
>ErrorNum();
            delete e;
return E_FAIL;
        }
        catch (...)
        {
            WriteMessageToEventLog(TEXT("U
nhandled exception."));
            pData->retval =
ERR_TYPE_LOGIC;
            pData->error = 0;
m_bCanBePooled =
FALSE;
            return E_FAIL;
        }
    }

HRESULT CTPCC_Common::StockLevel(VARIANT
txn_in, VARIANT* txn_out)
{
    PSTOCK_LEVEL_DATA
pStockLevel;

```

```

        COM_DATA
*pData;
        try
        {
            pData =
(COM_DATA*)txn_in.parray->pvData;
            pStockLevel =
m_pTxn->BuffAddr_StockLevel();
            memcpy(pStockLevel,
&pData->u.StockLevel,
sizeof(STOCK_LEVEL_DATA));
            m_pTxn-
>StockLevel();
            VariantInit(txn_out);
txn_out->vt =
VT_SAFEARRAY;
            txn_out->parray =
SafeArrayCreateVector( VT_UI1,
txn_in.parray->rgsabound-
>cElements,
txn_in.parray->rgsabound-
>cElements);
            pData =
(COM_DATA*)txn_out->parray->pvData;
            memcpy( &pData-
>u.StockLevel, pStockLevel,
sizeof(STOCK_LEVEL_DATA));
            pData->retval =
ERR_SUCCESS;
            {
                pData->error = 0;
return S_OK;
            }
            catch (CBaseErr *e)
            {
                // check for lost
database connection; if yes, component is toast
if ((e->ErrorType()
== ERR_TYPE_DBLIB) && (e->ErrorNum() ==
10005)) ||
                ((e-
>ErrorType() == ERR_TYPE_ODBC) && (e-
>ErrorNum() == 10054))
                m_bCanBePooled = FALSE;
                pData->retval = e-
>ErrorType();
                pData->error = e-
>ErrorNum();
                delete e;
return E_FAIL;
            }
            catch (...)
            {
                WriteMessageToEventLog(TEXT("U
nhandled exception."));
                pData->retval =
ERR_TYPE_LOGIC;
                pData->error = 0;
m_bCanBePooled =
FALSE;
                return E_FAIL;
            }
        }
    }

```

```

HRESULT
CTPCC_Common::OrderStatus(VARIANT txn_in,
VARIANT* txn_out)
{
    PORDER_STATUS_DATA
    pOrderStatus;
    COM_DATA
    *pData;
    try
    {
        pData =
        (COM_DATA*)txn_in.parray->pvData;
        pOrderStatus =
        m_pTxn->BuffAddr_OrderStatus();

        memcpy(pOrderStatus, &pData-
>u.OrderStatus, sizeof(ORDER_STATUS_DATA));

        m_pTxn-
>OrderStatus();

        VariantInit(txn_out);
        txn_out->vt =
VT_SAFEARRAY;
        txn_out->parray =
SafeArrayCreateVector( VT_UI1,

        txn_in.parray->rgsabound-
>cElements,

        txn_in.parray->rgsabound-
>cElements);
        pData =
        (COM_DATA*)txn_out->parray->pvData;

        memcpy( &pData-
>u.OrderStatus, pOrderStatus,
sizeof(ORDER_STATUS_DATA));

        pData->retval =
ERR_SUCCESS;
        pData->error = 0;
        return S_OK;
    }
    catch (CBaseErr *e)
    {
        // check for lost
        database connection; if yes, component is toast
        if ((e->ErrorType()
== ERR_TYPE_DBLIB) && (e->ErrorNum() ==
10005)) ||
        ((e-
>ErrorType() == ERR_TYPE_ODBC) && (e-
>ErrorNum() == 10054))
        m_bCanBePooled = FALSE;

        pData->retval = e-
>ErrorType();
        pData->error = e-
>ErrorNum();
        delete e;
        return E_FAIL;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("U
nhandled exception.));
        pData->retval =
ERR_TYPE_LOGIC;
        pData->error = 0;
    }
}

```

```

FALSE;
    }
}

}

\tpcc com all\src\tpcc com
all.def

/* FILE:
TPCC_COM_ALL.CPP

* Microsoft TPC-C Kit Ver. 4.20.000

* Copyright Microsoft, 1999
* All Rights Reserved

* Version 4.10.000 audited by
Richard Gimarc, Performance Metrics, 3/17/99
*
* PURPOSE: Implementation for
TPC-C Tuxedo class.
* Contact: Charles Levine
(clevine@microsoft.com)
* Change history:
* 4.20.000 - updated
rev number to match kit
*/

#define STRICT
#define _WIN32_WINNT 0x0400
#define _ATL_APARTMENT_THREADED

#include <stdio.h>
#include <atbase.h>
//You may derive a class from CComModule and
use it if you want to override
//something, but do not change the name of
_Module
extern CComModule _Module;

#include <atcom.h>
#include <initguid.h>
#include <transact.h>
//include <atimpl.cpp>
#include <comsvcs.h>

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

#include "tpcc_com_ps.h"
#include "..\..\common\src\trans.h"

//tpckit transaction header contains
definitions of structures specific to TPC-C
#include "..\..\common\src\txn_base.h"
#include "..\..\common\src\error.h"
#include "..\..\common\src\ReadRegistry.h"
#include "..\..\db_dblib_dll\src\tpcc_dblib.h"
// DBLIB
implementation of TPC-C txns
#include "..\..\db_odbc_dll\src\tpcc_odbc.h"
// ODBC
implementation of TPC-C txns

#include "resource.h"
#include "tpcc_com_all.h"
#include "tpcc_com_all_i.c"

```

```

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

CComModule _Module;

BEGIN_OBJECT_MAP(ObjectMap)
    OBJECT_ENTRY(CLSID_TPCC,
CTPCC)
    OBJECT_ENTRY(CLSID_NewOrder,
CNewOrder)
    OBJECT_ENTRY(CLSID_OrderStatus
, COrderStatus)
    OBJECT_ENTRY(CLSID_Payment,
CPayment)
    OBJECT_ENTRY(CLSID_StockLevel,
CStockLevel)
END_OBJECT_MAP()

// configuration settings from registry
TPCCREGISTRYDATA Reg;
char
szMyComputerName[MAX_COMPUT
ERNAME_LENGTH+1];
static HINSTANCE hLibInstanceDb = NULL;

TYPE_CTPCC_DBLIB
*pCTPCC_DBLIB_new;
TYPE_CTPCC_ODBC
*pCTPCC_ODBC_new;

// Critical section to synchronize connection open
and close.
//
CRITICAL_SECTION hConnectCriticalSection;

////////////////////////////////////
////////////////////////////////////
// DLL Entry Point

extern "C"
BOOL WINAPI DllMain(HINSTANCE hInstance,
DWORD dwReason, LPVOID /*lpReserved*/)
{
    char szDllName[128];

    try
    {
        if (dwReason ==
DLL_PROCESS_ATTACH)
        {
            _Module.Init(ObjectMap,
hInstance);

            DisableThreadLibraryCalls(hInstanc
e);

            DWORD
dwSize = MAX_COMPUTERNAME_LENGTH+1;

            GetComputerName(szMyComputerN
ame, &dwSize);

            szMyComputerName[dwSize] = 0;

            if (
ReadTPCCRegistrySettings( &Reg ))
            throw new CCOMPONENT_ERR(
ERR_MISSING_REGISTRY_ENTRIES );
        }
    }
}

```

```

        if
(Reg.eDB_Protocol == DBLIB)
    {
        strcpy( szDllName, Reg.szPath );
        strcat( szDllName, "tpcc_dblib.dll");
        hLibInstanceDb = LoadLibrary(
szDllName );
        if (hLibInstanceDb == NULL)
            throw new
CCOMPONENT_ERR( ERR_LOADDLL_FAILED,
szDllName, GetLastError() );

        // get function pointer to wrapper
for class constructor

        pCTPCC_DBLIB_new =
(TYPE_CTPCC_DBLIB*)
GetProcAddress(hLibInstanceDb, "CTPCC_DBLIB_
new");
        if (pCTPCC_DBLIB_new == NULL)
            throw new
CCOMPONENT_ERR(
ERR_GETPROCADDR_FAILED, szDllName,
GetLastError() );
    }
    else if
(Reg.eDB_Protocol == ODBC)
    {
        strcpy( szDllName, Reg.szPath );
        strcat( szDllName, "tpcc_odbc.dll");
        hLibInstanceDb = LoadLibrary(
szDllName );
        if (hLibInstanceDb == NULL)
            throw new
CCOMPONENT_ERR( ERR_LOADDLL_FAILED,
szDllName, GetLastError() );

        // get function pointer to wrapper
for class constructor

        pCTPCC_ODBC_new =
(TYPE_CTPCC_ODBC*)
GetProcAddress(hLibInstanceDb, "CTPCC_ODBC_
new");
        if (pCTPCC_ODBC_new == NULL)
            throw new
CCOMPONENT_ERR(
ERR_GETPROCADDR_FAILED, szDllName,
GetLastError() );
    }
    else
        throw new CCOMPONENT_ERR(
ERR_UNKNOWN_DB_PROTOCOL );
    if
(Reg.dwConnectDelay > 0)
    {

```

```

        InitializeCriticalSection(&hConnectC
riticalSection);
    }
    else if (dwReason ==
DLL_PROCESS_DETACH)
        _Module.Term();
    }
    catch (CBaseErr *e)
    {
        TCHAR szMsg[256];
        _sntprintf(szMsg,
sizeof(szMsg), "%s error, code %d: %s",
e->ErrorTypeStr(), e->ErrorNum(),
e->ErrorText());
        WriteMessageToEventLog( szMsg );
        delete e;
        return FALSE;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("U
nhandled exception in object DllMain"));
        return FALSE;
    }
    return TRUE; // OK
}

////////////////////////////////////
////////////////////////////////////
// Used to determine whether the DLL can be
unloaded by OLE

STDAPI DllCanUnloadNow(void)
{
    return
(_Module.GetLockCount()==0) ? S_OK :
S_FALSE;
}

////////////////////////////////////
////////////////////////////////////
// Returns a class factory to create an object of
the requested type

STDAPI DllGetClassObject(REFCLSID rclsid,
REFIID riid, LPVOID* ppv)
{
    return
_Module.GetClassObject(rclsid, riid, ppv);
}

////////////////////////////////////
////////////////////////////////////
// DllRegisterServer - Adds entries to the system
registry

STDAPI DllRegisterServer(void)
{
    // registers object, typelib and all
interfaces in typelib
    return
_Module.RegisterServer(TRUE);
}

```

```

////////////////////////////////////
////////////////////////////////////
// DllUnregisterServer - Removes entries from the
system registry

STDAPI DllUnregisterServer(void)
{
    _Module.UnregisterServer();
    return S_OK;
}

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

    // Use event logging to log the error.
    //
    hEventSource = RegisterEventSource(NULL,
TEXT("tpcc_com_all.dll"));
    _sntprintf(szMsg, TEXT("Error in COM+ TPC-C
Component: "));
    lpszStrings[0] = szMsg;
    lpszStrings[1] = lpszMsg;

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

        (VOID)
DeregisterEventSource(hEventSource);
    }
}

inline void ReleaseInterface(IUnknown *pUnk)
{
    if (pUnk)
    {
        pUnk->Release();
        pUnk = NULL;
    }
}

/* FUNCTION: CCOMPONENT_ERR::ErrorText
*
*/

char* CCOMPONENT_ERR::ErrorText(void)
{
    static SERRORMSG errorMsgs[] =
    {
        {
            ERR_MISSING_REGISTRY_ENTRIES,
            "Required entries missing from
registry,"
        },
        {
            ERR_LOADDLL_FAILED,
            "Load of DLL failed. DLL="
        }
    },
};

```

```

        {
ERR_GETPROCADDR_FAILED,
        "Could not map proc in DLL.
GetProcAddr error. DLL=",
        },
ERR_UNKNOWN_DB_PROTOCOL,
        "Unknown database protocol
specified in registry.",
        },
        { 0,
        },
        ""
    };

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

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

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

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

CTPCC_Common::~CTPCC_Common()
{
    // Pace connection close for VIA.
    //
    if (Reg.dwConnectDelay > 0)
    {
        EnterCriticalSection(&hConnectCritic
alSection);

        Sleep(Reg.dwConnectDelay);
    }

    if (m_pTxn)

```

```

        {
            delete m_pTxn;
        }

        if (Reg.dwConnectDelay > 0)
        {
            LeaveCriticalSection(&hConnectCritic
alSection);
        }
    }

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

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

    //
    // called by the ctor activator
    //
    STDMETHODIMP
CTPCC_Common::Construct(IDispatch * pUnk)
    {
        // Code to access construction
        string, if needed later...
        //
        // if (!pUnk)
        //
        // return
        E_UNEXPECTED;
        //
        // IObjectConstructString * pString =
NULL;
        //
        // HRESULT hr = pUnk-
>QueryInterface(IID_IObjectConstructString,
(void **) &pString);
        //
        // pString->Release();

        try
        {
            // Pace connection
            creation for VIA.
            //
            if
(Reg.dwConnectDelay > 0)
            {
                EnterCriticalSection(&hConnectCritic
alSection);

                Sleep(Reg.dwConnectDelay);
            }

            if (Reg.eDB_Protocol
== ODBC)
            {
                m_pTxn
= pCTPCC_ODBC_new( Reg.szDbServer,
Reg.szDbUser, Reg.szDbPassword,

                szMyComputerName,
Reg.szDbName,

```

```

                Reg.szSPPrefix,
Reg.bCallNoDuplicatesNewObjectIf);
                (Reg.eDB_Protocol == DBLIB)
                m_pTxn
= pCTPCC_DBLIB_new( Reg.szDbServer,
Reg.szDbUser, Reg.szDbPassword,
szMyComputerName, Reg.szDbName );

                if
(Reg.dwConnectDelay > 0)
                {
                    LeaveCriticalSection(&hConnectCritic
alSection);
                }
            }
            catch (CBaseErr *e)
            {
                TCHAR szMsg[256];

                _snprintf(szMsg,
sizeof(szMsg), "%s error in
CTPCC_Common::Construct, code %d: %s",
e->ErrorTypeStr(), e->ErrorNum(),
e->ErrorText());

                WriteMessageToEventLog( szMsg );
                delete e;
                return E_FAIL;
            }
            catch (...)
            {
                WriteMessageToEventLog(TEXT("U
nhandled exception in object ::Construct"));
                return E_FAIL;
            }

            return S_OK;
        }

        HRESULT CTPCC_Common::NewOrder(VARIANT
txn_in, VARIANT* txn_out)
        {
            PNEW_ORDER_DATA
pNewOrder;
            COM_DATA
*pData;
            try
            {
                pData =
(COM_DATA*)txn_in.parray->pvData;
                pNewOrder =
m_pTxn->BuffAddr_NewOrder();

                memcpy(pNewOrder,
&pData->u.NewOrder,
sizeof(NEW_ORDER_DATA));

                m_pTxn-
>NewOrder(); // do the
actual txn

                VariantInit(txn_out);
                txn_out->vt =
VT_SAFEARRAY;
                txn_out->parray =
SafeArrayCreateVector(VT_UI1,

                txn_in.parray->rgsabound-
>cElements,

```

```

        txn_in.parray->rgsabout-
>cElements);
        pData =
(COM_DATA*) txn_out->parray->pvData;

        memcpy( &pData-
>u.NewOrder, pNewOrder,
sizeof(NEW_ORDER_DATA));

        pData->retval =
ERR_SUCCESS;
        pData->error = 0;
        return S_OK;
    }
    catch (CBaseErr *e)
    {
        // check for lost
database connection; if yes, component is toast
        if ( ((e->ErrorType()
== ERR_TYPE_DBLIB) && (e->ErrorNum() ==
10005)) ||
        ((e-
>ErrorType() == ERR_TYPE_ODBC) && (e-
>ErrorNum() == 10054)) )

            m_bCanBePooled = FALSE;

        pData->retval = e-
>ErrorType();
        pData->error = e-
>ErrorNum();
        delete e;
        return E_FAIL;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("U
nhandled exception.));
        pData->retval =
ERR_TYPE_LOGIC;
        pData->error = 0;
        m_bCanBePooled =
FALSE;
        return E_FAIL;
    }
}

HRESULT CTPCC_Common::Payment(VARIANT
txn_in, VARIANT* txn_out)
{
    PPAYMENT_DATA
    pPayment;
    COM_DATA          *pData;
    try
    {
        pData =
(COM_DATA*)txn_in.parray->pvData;
        pPayment = m_pTxn-
>BuffAddr_Payment();

        memcpy(pPayment,
&pData->u.Payment, sizeof(PAYMENT_DATA));

        m_pTxn->Payment();
        // do the actual txn

        VariantInit(txn_out);
        txn_out->vt =

VT_SAFEARRAY;
        txn_out->parray =
SafeArrayCreateVector( VT_UI1,

```

```

        txn_in.parray->rgsabout-
>cElements,
        pData =
(COM_DATA*) txn_out->parray->pvData;

        memcpy( &pData-
>u.Payment, pPayment,
sizeof(PAYMENT_DATA));

        pData->retval =
ERR_SUCCESS;
        pData->error = 0;
        return S_OK;
    }
    catch (CBaseErr *e)
    {
        // check for lost
database connection; if yes, component is toast
        if ( ((e->ErrorType()
== ERR_TYPE_DBLIB) && (e->ErrorNum() ==
10005)) ||
        ((e-
>ErrorType() == ERR_TYPE_ODBC) && (e-
>ErrorNum() == 10054)) )

            m_bCanBePooled = FALSE;

        pData->retval = e-
>ErrorType();
        pData->error = e-
>ErrorNum();
        delete e;
        return E_FAIL;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("U
nhandled exception.));
        pData->retval =
ERR_TYPE_LOGIC;
        pData->error = 0;
        m_bCanBePooled =
FALSE;
        return E_FAIL;
    }
}

HRESULT CTPCC_Common::StockLevel(VARIANT
txn_in, VARIANT* txn_out)
{
    PSTOCK_LEVEL_DATA
    pStockLevel;
    COM_DATA          *pData;
    try
    {
        pData =
(COM_DATA*)txn_in.parray->pvData;
        pStockLevel =
m_pTxn->BuffAddr_StockLevel();

        memcpy(pStockLevel,
&pData->u.StockLevel,
sizeof(STOCK_LEVEL_DATA));

        m_pTxn-
>StockLevel();

```

```

        VariantInit(txn_out);
        VT_SAFEARRAY;
        txn_out->parray =
SafeArrayCreateVector( VT_UI1,

        txn_in.parray->rgsabout-
>cElements,
        pData =
(COM_DATA*)txn_out->parray->pvData;

        memcpy( &pData-
>u.StockLevel, pStockLevel,
sizeof(STOCK_LEVEL_DATA));

        pData->retval =
ERR_SUCCESS;
        pData->error = 0;
        return S_OK;
    }
    catch (CBaseErr *e)
    {
        // check for lost
database connection; if yes, component is toast
        if ( ((e->ErrorType()
== ERR_TYPE_DBLIB) && (e->ErrorNum() ==
10005)) ||
        ((e-
>ErrorType() == ERR_TYPE_ODBC) && (e-
>ErrorNum() == 10054)) )

            m_bCanBePooled = FALSE;

        pData->retval = e-
>ErrorType();
        pData->error = e-
>ErrorNum();
        delete e;
        return E_FAIL;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("U
nhandled exception.));
        pData->retval =
ERR_TYPE_LOGIC;
        pData->error = 0;
        m_bCanBePooled =
FALSE;
        return E_FAIL;
    }
}

HRESULT
CTPCC_Common::OrderStatus(VARIANT txn_in,
VARIANT* txn_out)
{
    PORDER_STATUS_DATA
    pOrderStatus;
    COM_DATA          *pData;
    try
    {
        pData =
(COM_DATA*)txn_in.parray->pvData;
        pOrderStatus =
m_pTxn->BuffAddr_OrderStatus();

```

```

        memcpy(pOrderStatus, &pData-
>u.OrderStatus, sizeof(ORDER_STATUS_DATA));

        m_pTxn-
>OrderStatus();

        VariantInit(txn_out);
        txn_out->vt =
VT_SAFEARRAY;
        txn_out->parray =
SafeArrayCreateVector( VT_UI1,

        txn_in.parray->rgsabound-
>cElements,

        txn_in.parray->rgsabound-
>cElements);

        pData =
(COM_DATA*)txn_out->parray->pvData;

        memcpy( &pData-
>u.OrderStatus, pOrderStatus,
sizeof(ORDER_STATUS_DATA));

        pData->retval =
ERR_SUCCESS;

        pData->error = 0;
        return S_OK;
    }
    catch (CBaseErr *e)
    {
        // check for lost
database connection; if yes, component is toast
        if ((e->ErrorType()
== ERR_TYPE_DBLIB) && (e->ErrorNum() ==
10005)) ||
        ((e-
>ErrorType() == ERR_TYPE_ODBC) && (e-
>ErrorNum() == 10054)) )

        m_bCanBePooled = FALSE;

        pData->retval = e-
>ErrorType();
        pData->error = e-
>ErrorNum();

        delete e;
        return E_FAIL;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("U
nhandled exception.));
        pData->retval =
ERR_TYPE_LOGIC;
        pData->error = 0;
        m_bCanBePooled =
FALSE;
        return E_FAIL;
    }
}

```

```

\tpcc_com_all.h

```

```

#pragma warning( disable: 4049 ) /* more than
64k source lines */
/* this ALWAYS GENERATED file contains the
definitions for the interfaces */

```

```

/* File created by MIDL compiler version
6.00.0347 */
/* at Fri Apr 15 14:48:53 2005
*/
/* Compiler settings for .\src\tpcc_com_all.idl:
Oicf, W1, Zp8, env=Win32 (32b run)
protocol : dce , ms_ext, c_ext
error checks: allocation ref bounds_check
enum stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany),
__declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
@@@MIDL_FILE_HEADERING( )

```

```

/* verify that the <rpcndr.h> version is high
enough to compile this file*/
#ifndef __REQUIRED_RPCNDR_H_VERSION__
#define __REQUIRED_RPCNDR_H_VERSION__
440
#endif

```

```

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

```

```

#ifndef __tpcc_com_all_h__
#define __tpcc_com_all_h__

```

```

#if defined(_MSC_VER) && (_MSC_VER >=
1020)
#pragma once
#endif

```

```

/* Forward Declarations */

```

```

#ifndef __TPCC_FWD_DEFINED__
#define __TPCC_FWD_DEFINED__

```

```

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

```

```

#endif /* __TPCC_FWD_DEFINED__ */

```

```

#ifndef __NewOrder_FWD_DEFINED__
#define __NewOrder_FWD_DEFINED__

```

```

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

```

```

#endif /* __NewOrder_FWD_DEFINED__
*/

```

```

#ifndef __OrderStatus_FWD_DEFINED__
#define __OrderStatus_FWD_DEFINED__

```

```

#ifdef __cplusplus
typedef class OrderStatus OrderStatus;
#else
typedef struct OrderStatus OrderStatus;

```

```

#endif /* __cplusplus */
#endif /* __OrderStatus_FWD_DEFINED__
*/

```

```

#ifndef __Payment_FWD_DEFINED__
#define __Payment_FWD_DEFINED__

```

```

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

```

```

#endif /* __Payment_FWD_DEFINED__ */

```

```

#ifndef __StockLevel_FWD_DEFINED__
#define __StockLevel_FWD_DEFINED__

```

```

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

```

```

#endif /* __StockLevel_FWD_DEFINED__
*/

```

```

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

```

```

#ifdef __cplusplus
extern "C"{
#endif

```

```

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

```

```

/* interface __MIDL_itf_tpcc_com_all_0000 */
/* [local] */

```

```

extern RPC_IF_HANDLE
__MIDL_itf_tpcc_com_all_0000_v0_0_c_ifspec;
extern RPC_IF_HANDLE
__MIDL_itf_tpcc_com_all_0000_v0_0_s_ifspec;

```

```

#ifndef __TPCClib_LIBRARY_DEFINED__
#define __TPCClib_LIBRARY_DEFINED__

```

```

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

```

```

EXTERN_C const IID LIBID_TPCClib;

```

```

EXTERN_C const CLSID CLSID_TPCC;

```

```

#ifdef __cplusplus

```

```

class DECLSPEC_UUID("122A3128-2520-11D3-
BA71-00C04FBFE08B")
TPCC;
#endif

```

```

EXTERN_C const CLSID CLSID_NewOrder;

#ifdef __cplusplus

class DECLSPEC_UUID("975BAABF-84A7-11D2-
BA47-00C04FBFE08B")
NewOrder;
#endif

EXTERN_C const CLSID CLSID_OrderStatus;

#ifdef __cplusplus

class DECLSPEC_UUID("266836AD-A50D-11D2-
BA4E-00C04FBFE08B")
OrderStatus;
#endif

EXTERN_C const CLSID CLSID_Payment;

#ifdef __cplusplus

class DECLSPEC_UUID("CD02F7EF-A4FA-11D2-
BA4E-00C04FBFE08B")
Payment;
#endif

EXTERN_C const CLSID CLSID_StockLevel;

#ifdef __cplusplus

class DECLSPEC_UUID("2668369E-A50D-11D2-
BA4E-00C04FBFE08B")
StockLevel;
#endif
#endif /* __TPCClib_LIBRARY_DEFINED__ */

/* Additional Prototypes for ALL interfaces */

/* end of Additional Prototypes */

#ifdef __cplusplus
}
#endif

#endif

```

```

\tpcc com all\src\tpcc com
all.idl

```

```

/* FILE: TPCC.IDL
*
* Microsoft TPC-C Kit Ver. 4.20.000
*
* Copyright Microsoft, 1999
* All Rights Reserved
*
* not yet audited
*
* PURPOSE: IDL source for
TPCC.dll. This file is processed by the MIDL tool
to
produce the type library (TPCC.tlb)
and marshalling code.
*
* Change history:

```

```

* 4.20.000 - first
version

interface TPCC;
interface NewOrder;
interface OrderStatus;
interface Payment;
interface StockLevel;

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

[
    uuid(122A3117-2520-11D3-BA71-
00C04FBFE08B),
    version(1.0),
    helpstring("TPC-C 1.0 Type
Library")
]
library TPCClib
{
    importlib("stdole32.tlb");
    importlib("stdole2.tlb");

    [
        uuid(122A3128-2520-
11D3-BA71-00C04FBFE08B),
        helpstring("All Txns
Class")
    ]
    coclass TPCC
    {
        [default] interface
ITPCC;
    };

    [
        uuid(975BAABF-84A7-
11D2-BA47-00C04FBFE08B),
        helpstring("NewOrder
Class")
    ]
    coclass NewOrder
    {
        [default] interface
ITPCC;
    };

    [
        uuid(266836AD-A50D-
11D2-BA4E-00C04FBFE08B),
        helpstring("OrderStatus Class")
    ]
    coclass OrderStatus
    {
        [default] interface
ITPCC;
    };

    [
        uuid(CD02F7EF-A4FA-
11D2-BA4E-00C04FBFE08B),
        helpstring("Payment
Class")
    ]
    coclass Payment
    {
        [default] interface
ITPCC;
    };
}

```

```

};

[
    uuid(2668369E-A50D-
11D2-BA4E-00C04FBFE08B),
    helpstring("StockLevel
Class")
]
coclass StockLevel
{
    [default] interface
ITPCC;
};

```

```

\tpcc com all\src\tpcc com
all.rc

```

```

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

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

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

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

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

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

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

2 TEXTINCLUDE DISCARDABLE
BEGIN
    "#include ""winres.h""\r\n"
    "\0"
END

3 TEXTINCLUDE DISCARDABLE
BEGIN
    "1 TYPelib ""tpcc_com_all.tlb""\r\n"
    "\0"

```

```

END

#endif // APSTUDIO_INVOKED

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

VS_VERSION_INFO VERSIONINFO
FILEVERSION 1,0,0,1
PRODUCTVERSION 1,0,0,1
FILEFLAGSMASK 0x3fL
#ifdef _DEBUG
FILEFLAGS 0x1L
#else
FILEFLAGS 0x0L
#endif
FILEOS 0x4L
FILETYPE 0x2L
FILESUBTYPE 0x0L
BEGIN
    BLOCK "StringFileInfo"
    BEGIN
        BLOCK "040904B0"
        BEGIN
            VALUE "CompanyName", "\0"
            VALUE "FileDescription", "tpcc_com_all
Module\0"
            VALUE "FileVersion", "1, 0, 0, 1\0"
            VALUE "InternalName",
"TPCCNEWORDER\0"
            VALUE "LegalCopyright", "Copyright
1997\0"
            VALUE "OriginalFilename",
"tpcc_com_all.DLL\0"
            VALUE "ProductName", "tpcc_com_all
Module\0"
            VALUE "ProductVersion", "1, 0, 0, 1\0"
            VALUE "OLESelfRegister", "\0"
        END
    END
    BLOCK "VarFileInfo"
    BEGIN
        VALUE "Translation", 0x409, 1200
    END
END

#endif // !_MAC

////////////////////////////////////
////////////////////////////////////
//
// REGISTRY
//

IDR_TPCC            REGISTRY DISCARDABLE
"tpcc_com_all.rgs"
IDR_NEWORDER       REGISTRY
DISCARDABLE "tpcc_com_no.rgs"
IDR_ORDERSTATUS    REGISTRY
DISCARDABLE "tpcc_com_os.rgs"
IDR_PAYMENT        REGISTRY DISCARDABLE
"tpcc_com_pay.rgs"
IDR_STOCKLEVEL     REGISTRY
DISCARDABLE "tpcc_com_sl.rgs"

////////////////////////////////////
////////////////////////////////////
//
// String Table

```

```

//
STRINGTABLE DISCARDABLE
BEGIN
    IDS_PROJNAME        "tpcc_com_all"
END

#ifdef // English (U.S.) resources
////////////////////////////////////
////////////////////////////////////
//
// Generated from the TEXTINCLUDE 3 resource.
//
1 TYPELIB "tpcc_com_all.tlb"

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

```

```

\tpcc com all\src\tpcc com
all.rgs

```

```

HKCR
{
    TPCC.AllTxns.1 = s 'All Txns Class'
    {
        CLSID = s
        '{122A3128-2520-11D3-BA71-00C04FBFE08B}'
    }
    TPCC.AllTxns = s 'TPCC Class'
    {
        CurVer = s
        'TPCC.AllTxns.1'
    }
    NoRemove CLSID
    {
        ForceRemove
        {122A3128-2520-11D3-BA71-00C04FBFE08B} =
        s 'TPCC Class'
    }
    ProgID
    = s 'TPCC.AllTxns.1'
    VersionIndependentProgID = s
    'TPCC.AllTxns'
    InprocServer32 = s '%MODULE%'
    {
        val ThreadingModel = s 'Both'
    }
}

```

```

\tpcc com all\src\tpcc com
all_i.c

```

```

#pragma warning( disable: 4049 ) /* more than
64k source lines */

```

```

/* this ALWAYS GENERATED file contains the
IIDs and CLSIDs */

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

/* File created by MIDL compiler version
6.00.0347 */
/* at Fri Apr 15 14:48:53 2005
*/
/* Compiler settings for .\src\tpcc_com_all.idl:
Oicf, W1, Zp8, env=Win32 (32b run)
protocol : dce , ms_ext, c_ext
error checks: allocation ref bounds_check
enum stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany),
__declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@@MIDL_FILE_HEADING( )

#ifdef _IA64 && !defined(_M_AMD64)

#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,b
3,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,b
3,b4,b5,b6,b7,b8) \
const type name =
{1,w1,w2,{b1,b2,b3,b4,b5,b6,b7,b8}}

```



```

#endif !_MIDL_USE_GUIDDEF_

MIDL_DEFINE_GUID(IID,
LIBID_TPCCLib,0x122A3117,0x2520,0x11D3,0xBA,
A,0x71,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_TPCC,0x122A3128,0x2520,0x11D3,0xBA,0
x71,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_NewOrder,0x975BAABF,0x84A7,0x11D2,0
xBA,0x47,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_OrderStatus,0x266836AD,0xA50D,0x11D2
,0xBA,0x4E,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_Payment,0xCD02F7EF,0xA4FA,0x11D2,0x
BA,0x4E,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_StockLevel,0x2668369E,0xA50D,0x11D2,0
xBA,0x4E,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

#undef MIDL_DEFINE_GUID

#ifdef __cplusplus
}
#endif

#endif /* !defined(_M_IA64) &&
!defined(_M_AMD64)*/

#pragma warning( disable: 4049 ) /* more than
64k source lines */

/* this ALWAYS GENERATED file contains the
IIDs and CLSIDs */

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

/* File created by MIDL compiler version
6.00.0347 */
/* at Fri Apr 15 14:48:53 2005
*/
/* Compiler settings for .\src\tpcc_com_all.idl:
Oicf, W1, Zp8, env=Win64 (32b
run,append)
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(notvably)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@@MIDL_FILE_HEADERING( )

#ifdef defined(_M_IA64) || defined(_M_AMD64)

#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,b
3,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,b
3,b4,b5,b6,b7,b8) \
    const type name =
    {l,w1,w2,{b1,b2,b3,b4,b5,b6,b7,b8}}

#endif !_MIDL_USE_GUIDDEF_

MIDL_DEFINE_GUID(IID,
LIBID_TPCCLib,0x122A3117,0x2520,0x11D3,0xBA,
A,0x71,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_TPCC,0x122A3128,0x2520,0x11D3,0xBA,0
x71,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_NewOrder,0x975BAABF,0x84A7,0x11D2,0
xBA,0x47,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_OrderStatus,0x266836AD,0xA50D,0x11D2
,0xBA,0x4E,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_Payment,0xCD02F7EF,0xA4FA,0x11D2,0x
BA,0x4E,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_StockLevel,0x2668369E,0xA50D,0x11D2,0
xBA,0x4E,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

```

```

MIDL_DEFINE_GUID(CLSID,
CLSID_StockLevel,0x2668369E,0xA50D,0x11D2,0
xBA,0x4E,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);
#undef MIDL_DEFINE_GUID

#ifdef __cplusplus
}
#endif

#endif /* defined(_M_IA64) ||
defined(_M_AMD64)*/

```

```

\tpcc_com_all\src\tpcc_com
no.rgs

```

```

HKCR
{
    TPCC.NewOrder.1 = s 'NewOrder
Class'
    {
        CLSID = s
        '{975BAABF-84A7-11D2-BA47-00C04FBFE08B}'
    }
    TPCC.NewOrder = s 'NewOrder
Class'
    {
        CurVer = s
        'TPCC.NewOrder.1'
    }
    NoRemove CLSID
    {
        ForceRemove
        {975BAABF-84A7-11D2-BA47-00C04FBFE08B} =
s 'NewOrder Class'
    }
    ProgID
    = s 'TPCC.NewOrder.1'

    VersionIndependentProgID = s
    'TPCC.NewOrder'

    InprocServer32 = s '%MODULE%'
    {
        val ThreadingModel = s 'Both'
    }
    }
}

```

```

\tpcc_com_all\src\tpcc_com
os.rgs

```

```

HKCR
{
    TPCC.OrderStatus.1 = s
'OrderStatus Class'
    {
        CLSID = s
        '{266836AD-A50D-11D2-BA4E-00C04FBFE08B}'
    }
    TPCC.OrderStatus = s 'OrderStatus
Class'

```

```

    {
        CurVer = s
    }
    'TPCC.OrderStatus.1'
    }
    NoRemove CLSID
    {
        ForceRemove
    }
    {266836AD-A50D-11D2-BA4E-00C04FBFE08B} =
    s 'OrderStatus Class'
    {
        ProgID
    }
    = s 'TPCC.OrderStatus.1'
    VersionIndependentProgID = s
    'TPCC.OrderStatus'
    InprocServer32 = s '%MODULE%'
    {
        val ThreadingModel = s 'Both'
    }
    }
}

```

**\tpcc com all\src\tpcc com  
pay.rgs**

```

HKCR
{
    Class'
    {
        CLSID = s
        '{CD02F7EF-A4FA-11D2-BA4E-00C04FBFE08B}'
    }
    TPCC.Payment = s 'Payment Class'
    {
        CurVer = s
    }
    'TPCC.Payment.1'
    }
    NoRemove CLSID
    {
        ForceRemove
    }
    {CD02F7EF-A4FA-11D2-BA4E-00C04FBFE08B} =
    s 'Payment Class'
    {
        ProgID
    }
    = s 'TPCC.Payment.1'
    VersionIndependentProgID = s
    'TPCC.Payment'
    InprocServer32 = s '%MODULE%'
    {
        val ThreadingModel = s 'Both'
    }
    }
}

```

**\tpcc com all\src\tpcc com  
ps.h**

```

#pragma warning( disable: 4049 ) /* more than
64k source lines */

```

```

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

```

```

/* File created by MIDL compiler version
6.00.0347 */
/* at Fri Apr 15 14:48:43 2005
*/
/* Compiler settings for .\src\tpcc_com_ps.idl:
Oicf, W1, Zp8, env=Win32 (32b run)
protocol : dce , ms_ext, c_ext
error checks: allocation ref bounds_check
enum stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany),
__declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@@MIDL_FILE_HEADERING( )

```

```

/* verify that the <rpcndr.h> version is high
enough to compile this file*/
#ifndef __REQUIRED_RPCNDR_H_VERSION__
#define __REQUIRED_RPCNDR_H_VERSION__
440
#endif

```

```

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

```

```

#ifndef __RPCNDR_H_VERSION__
#error this stub requires an updated version of
<rpcndr.h>
#endif // __RPCNDR_H_VERSION__

```

```

#ifndef COM_NO_WINDOWS_H
#include "windows.h"
#include "ole2.h"
#endif /*COM_NO_WINDOWS_H*/

```

```

#ifndef __tpcc_com_ps_h__
#define __tpcc_com_ps_h__

#if defined(_MSC_VER) && (_MSC_VER >=
1020)
#pragma once
#endif

```

```

/* Forward Declarations */

#ifndef __ITPCC_FWD_DEFINED__
#define __ITPCC_FWD_DEFINED__
typedef interface ITPCC ITPCC;
#endif /* __ITPCC_FWD_DEFINED__ */

```

```

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

```

```

#ifdef __cplusplus
extern "C"{
#endif

```

```

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

```

```

/* interface __MIDL_itf_tpcc_com_ps_0000 */
/* [local] */

```

```

extern RPC_IF_HANDLE
__MIDL_itf_tpcc_com_ps_0000_v0_0_c_ifspec;
extern RPC_IF_HANDLE
__MIDL_itf_tpcc_com_ps_0000_v0_0_s_ifspec;

```

```

#ifndef __ITPCC_INTERFACE_DEFINED__
#define __ITPCC_INTERFACE_DEFINED__

```

```

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

```

```

EXTERN_C const IID IID_ITPCC;

```

```

#ifdef __cplusplus &&
!defined(CINTERFACE)

```

```

MIDL_INTERFACE("FEEE6AA2-84B1-11d2-
BA47-00C04FBFE08B")
ITPCC : public IUnknown

```

```

{
public:
virtual HRESULT STDMETHODCALLTYPE NewOrder(
/* [in] */ VARIANT *tx_in,
/* [out] */ VARIANT *tx_out) = 0;

virtual HRESULT STDMETHODCALLTYPE Payment(
/* [in] */ VARIANT *tx_in,
/* [out] */ VARIANT *tx_out) = 0;

```

```

virtual HRESULT STDMETHODCALLTYPE Delivery(
/* [in] */ VARIANT *tx_in,
/* [out] */ VARIANT *tx_out) = 0;

```

```

virtual HRESULT STDMETHODCALLTYPE StockLevel(
/* [in] */ VARIANT *tx_in,
/* [out] */ VARIANT *tx_out) = 0;

```

```

virtual HRESULT STDMETHODCALLTYPE OrderStatus(
/* [in] */ VARIANT *tx_in,
/* [out] */ VARIANT *tx_out) = 0;

```

```

virtual HRESULT STDMETHODCALLTYPE CallSetComplete(
void) = 0;
};

```

```

#ifdef __cplusplus
#endif /* C style interface */

```

```

typedef struct ITPCCVtbl
{
BEGIN_INTERFACE

```

```

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

```

```

ULONG ( STDMETHODCALLTYPE *AddRef
)(
ITPCC * This);

```

```

ULONG ( STDMETHODCALLTYPE *Release
)(
ITPCC * This);

```

```

HRESULT ( STDMETHODCALLTYPE *NewOrder )(
ITPCC * This,
/* [in] */ VARIANT *tx_in,
/* [out] */ VARIANT *tx_out);

```

```

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

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

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

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

HRESULT ( STDMETHODCALLTYPE )(
    ITPCC * This);

END_INTERFACE
} ITPCCVtbl;

interface ITPCC
{
    CONST_VTBL struct ITPCCVtbl *lpVtbl;
};

#ifdef COBJMACROS

#define
ITPCC_QueryInterface(This,riid,ppvObject)
    (This->lpVtbl->QueryInterface(This,riid,ppvObject)

#define ITPCC_AddRef(This) \
    (This->lpVtbl->AddRef(This)

#define ITPCC_Release(This) \
    (This->lpVtbl->Release(This)

#define ITPCC_NewOrder(This,txn_in,txn_out)
    (This->lpVtbl->NewOrder(This,txn_in,txn_out)

#define ITPCC_Payment(This,txn_in,txn_out)
    (This->lpVtbl->Payment(This,txn_in,txn_out)

#define ITPCC_Delivery(This,txn_in,txn_out)
    (This->lpVtbl->Delivery(This,txn_in,txn_out)

#define ITPCC_StockLevel(This,txn_in,txn_out)
    (This->lpVtbl->StockLevel(This,txn_in,txn_out)

#define ITPCC_OrderStatus(This,txn_in,txn_out)
    (This->lpVtbl->OrderStatus(This,txn_in,txn_out)

#define ITPCC_CallSetComplete(This) \

```

```

(This->lpVtbl->CallSetComplete(This)
#ifdef COBJMACROS */

#endif /* C style interface */

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

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

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

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

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

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

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

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

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

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

HRESULT STDMETHODCALLTYPE
ITPCC_CallSetComplete_Proxy(

```

```

ITPCC * This);

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

#ifdef /*
__ITPCC_INTERFACE_DEFINED */

/* Additional Prototypes for ALL interfaces */

unsigned long __RPC_USER
VARIANT_UserSize( unsigned long *, unsigned
long
, VARIANT * );
unsigned char __RPC_USER
VARIANT_UserMarshal( unsigned long *,
unsigned char *, VARIANT * );
unsigned char __RPC_USER
VARIANT_UserUnmarshal( unsigned long *,
unsigned char *, VARIANT * );
void __RPC_USER
VARIANT_UserFree( unsigned long *,
VARIANT * );

/* end of Additional Prototypes */

#ifdef __cplusplus
}
#endif

#endif

```

```

\tpcc com all\src\tpcc com
sl.rgs

```

```

HKCR
{
    TPCC.StockLevel.1 = s 'StockLevel
Class'
    {
        CLSID = s
' {2668369E-A50D-11D2-BA4E-00C04FBFE08B}'
    }
    TPCC.StockLevel = s 'StockLevel
Class'
    {
        CurVer = s
'TPCC.StockLevel.1'
        NoRemove CLSID
        {
            ForceRemove
            {2668369E-A50D-11D2-BA4E-00C04FBFE08B} =
s 'StockLevel Class'
        }
        ProgID
        = s 'TPCC.StockLevel.1'
        VersionIndependentProgID = s
'TPCC.StockLevel'
        InprocServer32 = s '%MODULE%'
        {
            val ThreadingModel = s 'Both'

```

```

    }
  }
}

```

```

\tpcc_com_ps\src\dlldata.c

```

```

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

DO NOT ALTER THIS FILE

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

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

*****
*****/

#include <rpcproxy.h>

#ifdef __cplusplus
extern "C" {
#endif

EXTERN_PROXY_FILE( tpcc_com_ps )

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

DLLDATA_ROUTINES( aProxyFileList,
GET_DLL_CLSID )

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

/* end of generated dlldata file */

```

```

tpcc_com_ps\src\tpcc_com_ps
.def

```

```

LIBRARY "tpcc_com_ps"

DESCRIPTION 'Proxy/Sub DLL'

EXPORTS
    DllGetObject @1 PRIVATE
    DllCanUnloadNow @2
    PRIVATE
    GetProxyDllInfo @3 PRIVATE

```

```

DllRegisterServer
@4 InRegisterServer PRIVATE
@5 PRIVATE

```

```

tpcc_com_ps\src\tpcc_com_ps
.h

```

```

#pragma warning( disable: 4049 ) /* more than
64k source lines */

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

/* File created by MIDL compiler version
6.00.0347 */
/* at Fri Apr 15 14:48:43 2005
*/
/* Compiler settings for .\src\tpcc_com_ps.idl:
Oicf, W1, Zp8, env=Win32 (32b run)
protocol : dce , ms_ext, c_ext
error checks: allocation ref bounds_check
enum stub_data
VC __declspec( decoration level:
__declspec(uuid()), __declspec(selectany),
__declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
)
/@@@MIDL_FILE_HEADERING( )

/* verify that the <rpcndr.h> version is high
enough to compile this file*/
#ifdef _REQUIRED_RPCNDR_H_VERSION__
#define _REQUIRED_RPCNDR_H_VERSION__
440
#endif

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

#ifdef _RPCNDR_H_VERSION__
#error this stub requires an updated version of
<rpcndr.h>
#endif // _RPCNDR_H_VERSION__

#ifdef COM_NO_WINDOWS_H
#include "windows.h"
#include "ole2.h"
#endif /*COM_NO_WINDOWS_H*/

#ifdef _tpcc_com_ps_h__
#define _tpcc_com_ps_h__

#ifdef _MSC_VER && (_MSC_VER >=
1020)
#pragma once
#endif

/* Forward Declarations */

#ifdef _ITPCC_FWD_DEFINED__
#define _ITPCC_FWD_DEFINED__
typedef interface ITPCC ITPCC;
#endif /* _ITPCC_FWD_DEFINED__ */

/* header files for imported files */
#include "oaidl.h"

```

```

#include "ocidl.h"
#ifdef __cplusplus
extern "C"{
#endif

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

/* interface __MIDL_itf_tpcc_com_ps_0000 */
/* [local] */

extern RPC_IF_HANDLE
__MIDL_itf_tpcc_com_ps_0000_v0_0_c_ifspec;
extern RPC_IF_HANDLE
__MIDL_itf_tpcc_com_ps_0000_v0_0_s_ifspec;

#ifdef _ITPCC_INTERFACE_DEFINED__
#define _ITPCC_INTERFACE_DEFINED__

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

EXTERN_C const IID IID_ITPCC;

#ifdef __cplusplus &&
!defined(CINTERFACE)

MIDL_INTERFACE("FEEE6AA2-84B1-11d2-
BA47-00C04FBFE08B")
ITPCC : public IUnknown
{
public:
    virtual HRESULT STDMETHODCALLTYPE NewOrder(
/* [in] */ VARIANT txn_in,
/* [out] */ VARIANT *txn_out) = 0;

    virtual HRESULT STDMETHODCALLTYPE Payment(
/* [in] */ VARIANT txn_in,
/* [out] */ VARIANT *txn_out) = 0;

    virtual HRESULT STDMETHODCALLTYPE Delivery(
/* [in] */ VARIANT txn_in,
/* [out] */ VARIANT *txn_out) = 0;

    virtual HRESULT STDMETHODCALLTYPE StockLevel(
/* [in] */ VARIANT txn_in,
/* [out] */ VARIANT *txn_out) = 0;

    virtual HRESULT STDMETHODCALLTYPE OrderStatus(
/* [in] */ VARIANT txn_in,
/* [out] */ VARIANT *txn_out) = 0;

    virtual HRESULT STDMETHODCALLTYPE CallSetComplete(
void) = 0;

};

#else /* C style interface */

typedef struct ITPCCVtbl
{
    BEGIN_INTERFACE

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

```

```

    ULONG ( STDMETHODCALLTYPE *AddRef
)(
    ITPCC * This);

    ULONG ( STDMETHODCALLTYPE *Release
)(
    ITPCC * This);

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

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

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

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

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

    HRESULT ( STDMETHODCALLTYPE *CallSetComplete )(
    ITPCC * This);

    END_INTERFACE
} ITPCCVtbl;

interface ITPCC
{
    CONST_VTBL struct ITPCCVtbl *lpVtbl;
};

#ifdef COBJMACROS

#define
ITPCC_QueryInterface(This,riid,ppvObject)
    (This->lpVtbl->QueryInterface(This,riid,ppvObject)

#define ITPCC_AddRef(This) \
    (This->lpVtbl->AddRef(This)

#define ITPCC_Release(This) \
    (This->lpVtbl->Release(This)

#define ITPCC_NewOrder(This,txn_in,txn_out)
    (This->lpVtbl->NewOrder(This,txn_in,txn_out)

#define ITPCC_Payment(This,txn_in,txn_out)
    (This->lpVtbl->Payment(This,txn_in,txn_out)

#define ITPCC_Delivery(This,txn_in,txn_out)
    (This->lpVtbl->Delivery(This,txn_in,txn_out)

```

```

#define ITPCC_StockLevel(This,txn_in,txn_out)
    (This->lpVtbl->StockLevel(This,txn_in,txn_out)

#define ITPCC_OrderStatus(This,txn_in,txn_out)
    (This->lpVtbl->OrderStatus(This,txn_in,txn_out)

#define ITPCC_CallSetComplete(This) \
    (This->lpVtbl->CallSetComplete(This)

#ifdef COBJMACROS

#ifdef C style interface */

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

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

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

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

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

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

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

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

HRESULT STDMETHODCALLTYPE ITPCC_OrderStatus_Proxy(
    ITPCC * This,
    /* [in] */ VARIANT txn_in,

```

```

    /* [out] */ VARIANT *txn_out);

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

HRESULT STDMETHODCALLTYPE
ITPCC_CallSetComplete_Proxy(
    ITPCC * This);

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

#ifdef C style interface */
__ITPCC_INTERFACE_DEFINED__

/* Additional Prototypes for ALL interfaces */

unsigned long __RPC_USER
VARIANT_UserSize( unsigned long *, unsigned
long
, VARIANT * );
unsigned char * __RPC_USER
VARIANT_UserMarshal( unsigned long *,
unsigned char *, VARIANT * );
unsigned char * __RPC_USER
VARIANT_UserUnmarshal( unsigned long *,
unsigned char *, VARIANT * );
void __RPC_USER
VARIANT_UserFree( unsigned long *,
VARIANT * );

/* end of Additional Prototypes */

#ifdef cplusplus
}
#endif
#endif

```

```

tpcc com ps\src\tpcc com ps
.idl

```

```

FILE:
ITPCC.IDL

*
Microsoft TPC-C Kit Ver. 4.20.000

*
Copyright Microsoft, 1999
All Rights Reserved

*
not yet audited

*
PURPOSE: Defines the interface
used by TPCC. This interface can be implemented
by C++ components.
*
Change history:

```

```

*                               4.20.000 - first
version
*/

// Forward declare all types defined
interface ITPCC;
import "oidl.idl";
import "ocidl.idl";

[
    object,
    oleautomation,
    uuid(FEEE6AA2-84B1-
11d2-BA47-00C04FBFE08B),
    helpstring("ITPCC
Interface"),

    pointer_default(unique)
]
interface ITPCC : IUnknown
{

    HRESULT _stdcall NewOrder

    VARIANT txn_in,

    VARIANT *txn_out

    HRESULT _stdcall Payment

    VARIANT txn_in,

    VARIANT *txn_out

    HRESULT _stdcall Delivery

    VARIANT txn_in,

    VARIANT *txn_out

    HRESULT _stdcall StockLevel

    VARIANT txn_in,

    VARIANT *txn_out

    HRESULT _stdcall OrderStatus

```

```

[in]
VARIANT txn_in,
[out]
VARIANT *txn_out
);
HRESULT _stdcall CallSetComplete
(
);
// interface ITPCC

```

**tpcc com ps\src\tpcc com ps\_i.c**

```

#pragma warning( disable: 4049 ) /* more than
64k source lines */

/* this ALWAYS GENERATED file contains the
IDs and CLSIDs */

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

/* File created by MIDL compiler version
6.00.0347 */
/* at Fri Apr 15 14:48:43 2005
*/
/* Compiler settings for .\src\tpcc_com_ps.idl:
Oicf, W1, Zp8, env=Win32 (32b run)
protocol : dce , ms_ext, c_ext
error checks: allocation ref bounds_check
enum stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany),
__declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@@MIDL_FILE_HEADING( )

#if !defined(_M_IA64) && !defined(_M_AMD64)

#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
#endif

#define
MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b
3,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,b
3,b4,b5,b6,b7,b8) \
const type name =
{l,w1,w2,{b1,b2,b3,b4,b5,b6,b7,b8}}

#endif // !_MIDL_USE_GUIDDEF_

MIDL_DEFINE_GUID(IID,
IID_ITPCC,0xFEEE6AA2,0x84B1,0x11d2,0xBA,0x
47,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

#undef MIDL_DEFINE_GUID

#ifdef __cplusplus
}
#endif

#endif /* !defined(_M_IA64) &&
!defined(_M_AMD64)*/

/* this ALWAYS GENERATED file contains the
IDs and CLSIDs */

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

/* File created by MIDL compiler version
6.00.0347 */
/* at Fri Apr 15 14:48:43 2005
*/
/* Compiler settings for .\src\tpcc_com_ps.idl:
Oicf, W1, Zp8, env=Win64 (32b
run,appending)
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)

```

```

#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,b
3,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,b
3,b4,b5,b6,b7,b8) \
    const type name =
{l,w1,w2,{b1,b2,b3,b4,b5,b6,b7,b8}}

#endif !_MIDL_USE_GUIDDEF_

MIDL_DEFINE_GUID(IID,
IID_ITPCC,0xFEE6AA2,0x84B1,0x11d2,0xBA,0x
47,0x00,0x0C,0x4F,0xBF,0xE0,0x8B);

#undef MIDL_DEFINE_GUID

#ifdef __cplusplus
}
#endif

#endif /* defined(_M_IA64) ||
defined(_M_AMD64)*/

```

tpcc\_com\_ps\src\tpcc\_com\_ps

\_p.c

```

#pragma warning( disable: 4049 ) /* more than
64k source lines */

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

/* File created by MIDL compiler version
6.00.0347 */
/* at Fri Apr 15 14:48:43 2005
*/
/* Compiler settings for .\src\tpcc_com_ps.idl:
Oicf, W1, Zp8, env=Win32 (32b run)
protocol : dce , ms_ext, c_ext
error checks: allocation ref bounds_check
enum stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany),
__declspec(notable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@@MIDL_FILE_HEADERING( )

#ifndef defined(_M_IA64) && !defined(_M_AMD64)
#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__
440
#endif

#include "rpcproxy.h"
#ifndef __RPCPROXY_H_VERSION__
#error this stub requires an updated version of
<rpcproxy.h>
#endif // __RPCPROXY_H_VERSION__

#include "tpcc_com_ps.h"

#define TYPE_FORMAT_STRING_SIZE 1023
#define PROC_FORMAT_STRING_SIZE 193
#define TRANSMIT_AS_TABLE_SIZE 0
#define WIRE_MARSHAL_TABLE_SIZE 1

typedef struct _MIDL_TYPE_FORMAT_STRING
{
    short Pad;
    unsigned char Format[
TYPE_FORMAT_STRING_SIZE ];
} MIDL_TYPE_FORMAT_STRING;

typedef struct _MIDL_PROC_FORMAT_STRING
{
    short Pad;
    unsigned char Format[
PROC_FORMAT_STRING_SIZE ];
} MIDL_PROC_FORMAT_STRING;

static RPC_SYNTAX_IDENTIFIER
_RpcTransferSyntax =
{{0x8A885D04,0x1CEB,0x11C9,{0x9F,0xE8,0x08,
0x00,0x2B,0x10,0x48,0x60}},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
ITPCC_ServerInfo;
extern const MIDL_STUBLESS_PROXY_INFO
ITPCC_ProxyInfo;

extern const
USER_MARSHAL_ROUTINE_QUADRUPLE
UserMarshalRoutines[
WIRE_MARSHAL_TABLE_SIZE ];

#ifdef !defined(__RPC_WIN32__)
#error Invalid build platform for this stub.
#endif

#ifdef !defined(TARGET_IS_NT40_OR_LATER)
#error You need a Windows NT 4.0 or later to
run this stub because it uses these features:
#error -Oif or -Oicf, [wire_marshall] or
[user_marshall] attribute.
#error However, your C/C++ compilation flags
indicate you intend to run this app on earlier
systems.
#error This app will die there with the
RPC_X_WRONG_STUB_VERSION error.
#endif

static const MIDL_PROC_FORMAT_STRING
__MIDL_ProcFormatString =
{
    0,
    {
        /* Procedure NewOrder */
        0x33,
        /* FC_AUTO_HANDLE */
        /* Old Flags: object,
0x6C,
*/
        Oi2 /*
/* 2 */ NdrFcLong( 0x0 ), /* 0 */
/* 6 */ NdrFcShort( 0x3 ), /* 3 */
/* 8 */ NdrFcShort( 0x1c ), /* x86
Stack size/offset = 28 */
/* 10 */ NdrFcShort( 0x0 ), /* 0 */
/* 12 */ NdrFcShort( 0x8 ), /* 8 */
/* 14 */ 0x7, /* Oi2
Flags: srv must size, clt must size, has return, */
0x3,
/* 3 */
/* Parameter txn_in */
/* 16 */ NdrFcShort( 0x8b ), /* Flags:
must size, must free, in, by val, */
/* 18 */ NdrFcShort( 0x4 ), /* x86
Stack size/offset = 4 */
/* 20 */ NdrFcShort( 0x3e2 ), /* Type
Offset=994 */
/* Parameter txn_out */
/* 22 */ NdrFcShort( 0x4113 ), /* Flags:
must size, must free, out, simple ref, srv alloc
size=16 */

```

```

/* 24 */ NdrFcShort( 0x14 ), /* x86
Stack size/offset = 20 */
/* 26 */ NdrFcShort( 0x3f4 ), /* Type
Offset=1012 */

/* Return value */

/* 28 */ NdrFcShort( 0x70 ), /* Flags:
out, return, base type, */
/* 30 */ NdrFcShort( 0x18 ), /* x86
Stack size/offset = 24 */
/* 32 */ 0x8, /*
FC_LONG */
/* 0 */
/* Procedure Payment */

/* 34 */ 0x33, /*
FC_AUTO_HANDLE */
/* Old Flags: object,
0x6c,
Oi2 */
/* 36 */ NdrFcLong( 0x0 ), /* 0 */
/* 40 */ NdrFcShort( 0x4 ), /* 4 */
/* 42 */ NdrFcShort( 0x1c ), /* x86
Stack size/offset = 28 */
/* 44 */ NdrFcShort( 0x0 ), /* 0 */
/* 46 */ NdrFcShort( 0x8 ), /* 8 */
/* 48 */ 0x7, /* Oi2
Flags: srv must size, clt must size, has return, */
/* 3 */
/* Parameter txn_in */

/* 50 */ NdrFcShort( 0x8b ), /* Flags:
must size, must free, in, by val, */
/* 52 */ NdrFcShort( 0x4 ), /* x86
Stack size/offset = 4 */
/* 54 */ NdrFcShort( 0x3e2 ), /* Type
Offset=994 */
/* Parameter txn_out */

/* 56 */ NdrFcShort( 0x4113 ), /* Flags:
must size, must free, out, simple ref, srv alloc
size=16 */
/* 58 */ NdrFcShort( 0x14 ), /* x86
Stack size/offset = 20 */
/* 60 */ NdrFcShort( 0x3f4 ), /* Type
Offset=1012 */
/* Return value */

/* 62 */ NdrFcShort( 0x70 ), /* Flags:
out, return, base type, */
/* 64 */ NdrFcShort( 0x18 ), /* x86
Stack size/offset = 24 */
/* 66 */ 0x8, /*
FC_LONG */
/* 0 */
/* Procedure Delivery */

/* 68 */ 0x33, /*
FC_AUTO_HANDLE */
/* Old Flags: object,
0x6c,
Oi2 */
/* 70 */ NdrFcLong( 0x0 ), /* 0 */
/* 74 */ NdrFcShort( 0x5 ), /* 5 */
/* 76 */ NdrFcShort( 0x1c ), /* x86
Stack size/offset = 28 */

```

```

/* 98 */ NdrFcShort( 0x0 ), /* 0 */
/* 82 */ 0x7, /* Oi2
Flags: srv must size, clt must size, has return, */
/* 3 */
/* Parameter txn_in */

/* 84 */ NdrFcShort( 0x8b ), /* Flags:
must size, must free, in, by val, */
/* 86 */ NdrFcShort( 0x4 ), /* x86
Stack size/offset = 4 */
/* 88 */ NdrFcShort( 0x3e2 ), /* Type
Offset=994 */
/* Parameter txn_out */

/* 90 */ NdrFcShort( 0x4113 ), /* Flags:
must size, must free, out, simple ref, srv alloc
size=16 */
/* 92 */ NdrFcShort( 0x14 ), /* x86
Stack size/offset = 20 */
/* 94 */ NdrFcShort( 0x3f4 ), /* Type
Offset=1012 */
/* Return value */

/* 96 */ NdrFcShort( 0x70 ), /* Flags:
out, return, base type, */
/* 98 */ NdrFcShort( 0x18 ), /* x86
Stack size/offset = 24 */
/* 100 */ 0x8, /*
FC_LONG */
/* 0 */
/* Procedure StockLevel */

/* 102 */ 0x33, /*
FC_AUTO_HANDLE */
/* Old Flags: object,
0x6c,
Oi2 */
/* 104 */ NdrFcLong( 0x0 ), /* 0 */
/* 108 */ NdrFcShort( 0x6 ), /* 6 */
/* 110 */ NdrFcShort( 0x1c ), /* x86
Stack size/offset = 28 */
/* 112 */ NdrFcShort( 0x0 ), /* 0 */
/* 114 */ NdrFcShort( 0x8 ), /* 8 */
/* 116 */ 0x7, /* Oi2
Flags: srv must size, clt must size, has return, */
/* 3 */
/* Parameter txn_in */

/* 118 */ NdrFcShort( 0x8b ), /* Flags:
must size, must free, in, by val, */
/* 120 */ NdrFcShort( 0x4 ), /* x86
Stack size/offset = 4 */
/* 122 */ NdrFcShort( 0x3e2 ), /* Type
Offset=994 */
/* Parameter txn_out */

/* 124 */ NdrFcShort( 0x4113 ), /* Flags:
must size, must free, out, simple ref, srv alloc
size=16 */
/* 126 */ NdrFcShort( 0x14 ), /* x86
Stack size/offset = 20 */
/* 128 */ NdrFcShort( 0x3f4 ), /* Type
Offset=1012 */
/* Return value */

```

```

/* 130 */ NdrFcShort( 0x70 ), /* Flags:
out, return, base type, */
/* 132 */ NdrFcShort( 0x18 ), /* x86
Stack size/offset = 24 */
/* 134 */ 0x8, /*
FC_LONG */
/* 0 */
/* Procedure OrderStatus */

/* 136 */ 0x33, /*
FC_AUTO_HANDLE */
/* Old Flags: object,
0x6c,
Oi2 */
/* 138 */ NdrFcLong( 0x0 ), /* 0 */
/* 142 */ NdrFcShort( 0x7 ), /* 7 */
/* 144 */ NdrFcShort( 0x1c ), /* x86
Stack size/offset = 28 */
/* 146 */ NdrFcShort( 0x0 ), /* 0 */
/* 148 */ NdrFcShort( 0x8 ), /* 8 */
/* 150 */ 0x7, /* Oi2
Flags: srv must size, clt must size, has return, */
/* 3 */
/* Parameter txn_in */

/* 152 */ NdrFcShort( 0x8b ), /* Flags:
must size, must free, in, by val, */
/* 154 */ NdrFcShort( 0x4 ), /* x86
Stack size/offset = 4 */
/* 156 */ NdrFcShort( 0x3e2 ), /* Type
Offset=994 */
/* Parameter txn_out */

/* 158 */ NdrFcShort( 0x4113 ), /* Flags:
must size, must free, out, simple ref, srv alloc
size=16 */
/* 160 */ NdrFcShort( 0x14 ), /* x86
Stack size/offset = 20 */
/* 162 */ NdrFcShort( 0x3f4 ), /* Type
Offset=1012 */
/* Return value */

/* 164 */ NdrFcShort( 0x70 ), /* Flags:
out, return, base type, */
/* 166 */ NdrFcShort( 0x18 ), /* x86
Stack size/offset = 24 */
/* 168 */ 0x8, /*
FC_LONG */
/* 0 */
/* Procedure CallSetComplete */

/* 170 */ 0x33, /*
FC_AUTO_HANDLE */
/* Old Flags: object,
0x6c,
Oi2 */
/* 172 */ NdrFcLong( 0x0 ), /* 0 */
/* 176 */ NdrFcShort( 0x8 ), /* 8 */
/* 178 */ NdrFcShort( 0x8 ), /* x86
Stack size/offset = 8 */
/* 180 */ NdrFcShort( 0x0 ), /* 0 */
/* 182 */ NdrFcShort( 0x8 ), /* 8 */
/* 184 */ 0x4, /* Oi2
Flags: has return, */
/* 1 */
/* Return value */

```



```

/* 186 */ NdrFcShort( 0x70 ), /* Flags:
out, return, base type, */
/* 188 */ NdrFcShort( 0x4 ), /* x86
Stack size/offset = 4 */
/* 190 */ 0x8, /*
FC_LONG */
/* 0 */
0x0,
0x0
};
static const MIDL_TYPE_FORMAT_STRING
__MIDL_TypeFormatString =
{
0,
{
/* 2 */ NdrFcShort( 0x0 ), /* 0 */
0x12, /* FC_UP */
/* 4 */ NdrFcShort( 0x3ca ), /*
Offset= 970 (974) */
/* 6 */
0x2b, /*
FC_NON_ENCAPSULATED_UNION */
/* 8 */ 0x7, /* FC_ULONG */
desc: FC_USHORT */
0x0,
/* */
/* 10 */ NdrFcShort( 0xffff ), /* -8 */
/* 12 */ NdrFcShort( 0x2 ), /*
Offset= 2 (14) */
/* 14 */ NdrFcShort( 0x10 ), /* 16 */
/* 16 */ NdrFcShort( 0x2f ), /* 47 */
/* 18 */ NdrFcLong( 0x14 ), /* 20 */
/* 22 */ NdrFcShort( 0x800b ), /*
Simple arm type: FC_HYPER */
/* 24 */ NdrFcLong( 0x3 ), /* 3 */
/* 28 */ NdrFcShort( 0x8008 ), /*
Simple arm type: FC_LONG */
/* 30 */ NdrFcLong( 0x11 ), /* 17 */
/* 34 */ NdrFcShort( 0x8001 ), /*
Simple arm type: FC_BYTE */
/* 36 */ NdrFcLong( 0x2 ), /* 2 */
/* 40 */ NdrFcShort( 0x8006 ), /*
Simple arm type: FC_SHORT */
/* 42 */ NdrFcLong( 0x4 ), /* 4 */
/* 46 */ NdrFcShort( 0x800a ), /*
Simple arm type: FC_FLOAT */
/* 48 */ NdrFcLong( 0x5 ), /* 5 */
/* 52 */ NdrFcShort( 0x800c ), /*
Simple arm type: FC_DOUBLE */
/* 54 */ NdrFcLong( 0xb ), /* 11 */
/* 58 */ NdrFcShort( 0x8006 ), /*
Simple arm type: FC_SHORT */
/* 60 */ NdrFcLong( 0xa ), /* 10 */
/* 64 */ NdrFcShort( 0x8008 ), /*
Simple arm type: FC_LONG */
/* 66 */ NdrFcLong( 0x6 ), /* 6 */
/* 70 */ NdrFcShort( 0xe8 ), /*
Offset= 232 (302) */
/* 72 */ NdrFcLong( 0x7 ), /* 7 */
/* 76 */ NdrFcShort( 0x800c ), /*
Simple arm type: FC_DOUBLE */
/* 78 */ NdrFcLong( 0x8 ), /* 8 */
/* 82 */ NdrFcShort( 0xe2 ), /*
Offset= 226 (308) */
/* 84 */ NdrFcLong( 0xd ), /* 13 */

```

```

/* 88 */ NdrFcShort( 0xf4 ), /*
Offset= 244 (320) */
/* 94 */ NdrFcShort( 0x100 ), /*
Offset= 256 (350) */
/* 96 */ NdrFcLong( 0x2000 ), /* 8192
*/
/* 100 */ NdrFcShort( 0x10c ), /*
Offset= 268 (368) */
/* 102 */ NdrFcLong( 0x24 ), /* 36 */
/* 106 */ NdrFcShort( 0x31a ), /*
Offset= 794 (900) */
/* 108 */ NdrFcLong( 0x4024 ), /* 16420
*/
/* 112 */ NdrFcShort( 0x314 ), /*
Offset= 788 (900) */
/* 114 */ NdrFcLong( 0x4011 ), /* 16401
*/
/* 118 */ NdrFcShort( 0x312 ), /*
Offset= 786 (904) */
/* 120 */ NdrFcLong( 0x4002 ), /* 16386
*/
/* 124 */ NdrFcShort( 0x310 ), /*
Offset= 784 (908) */
/* 126 */ NdrFcLong( 0x4003 ), /* 16387
*/
/* 130 */ NdrFcShort( 0x30e ), /*
Offset= 782 (912) */
/* 132 */ NdrFcLong( 0x4014 ), /* 16404
*/
/* 136 */ NdrFcShort( 0x30c ), /*
Offset= 780 (916) */
/* 138 */ NdrFcLong( 0x4004 ), /* 16388
*/
/* 142 */ NdrFcShort( 0x30a ), /*
Offset= 778 (920) */
/* 144 */ NdrFcLong( 0x4005 ), /* 16389
*/
/* 148 */ NdrFcShort( 0x308 ), /*
Offset= 776 (924) */
/* 150 */ NdrFcLong( 0x400b ), /* 16395
*/
/* 154 */ NdrFcShort( 0x2f2 ), /*
Offset= 754 (908) */
/* 156 */ NdrFcLong( 0x400a ), /* 16394
*/
/* 160 */ NdrFcShort( 0x2f0 ), /*
Offset= 752 (912) */
/* 162 */ NdrFcLong( 0x4006 ), /* 16390
*/
/* 166 */ NdrFcShort( 0x2fa ), /*
Offset= 762 (928) */
/* 168 */ NdrFcLong( 0x4007 ), /* 16391
*/
/* 172 */ NdrFcShort( 0x2f0 ), /*
Offset= 752 (924) */
/* 174 */ NdrFcLong( 0x4008 ), /* 16392
*/
/* 178 */ NdrFcShort( 0x2f2 ), /*
Offset= 754 (932) */
/* 180 */ NdrFcLong( 0x400d ), /* 16397
*/
/* 184 */ NdrFcShort( 0x2f0 ), /*
Offset= 752 (936) */
/* 186 */ NdrFcLong( 0x4009 ), /* 16393
*/
/* 190 */ NdrFcShort( 0x2ee ), /*
Offset= 750 (940) */
/* 192 */ NdrFcLong( 0x6000 ), /* 24576
*/
/* 196 */ NdrFcShort( 0x2ec ), /*
Offset= 748 (944) */
/* 198 */ NdrFcLong( 0x400c ), /* 16396
*/
/* 202 */ NdrFcShort( 0x2ea ), /*
Offset= 746 (948) */

```

```

/* 204 */ NdrFcShort( 0x8092 ), /* 16 */
Simple arm type: FC_CHAR */
/* 210 */ NdrFcLong( 0x12 ), /* 18 */
/* 214 */ NdrFcShort( 0x8006 ), /*
Simple arm type: FC_SHORT */
/* 216 */ NdrFcLong( 0x13 ), /* 19 */
/* 220 */ NdrFcShort( 0x8008 ), /*
Simple arm type: FC_LONG */
/* 222 */ NdrFcLong( 0x15 ), /* 21 */
/* 226 */ NdrFcShort( 0x800b ), /*
Simple arm type: FC_HYPER */
/* 228 */ NdrFcLong( 0x16 ), /* 22 */
/* 232 */ NdrFcShort( 0x8008 ), /*
Simple arm type: FC_LONG */
/* 234 */ NdrFcLong( 0x17 ), /* 23 */
/* 238 */ NdrFcShort( 0x8008 ), /*
Simple arm type: FC_LONG */
/* 240 */ NdrFcLong( 0xe ), /* 14 */
/* 244 */ NdrFcShort( 0x2c8 ), /*
Offset= 712 (956) */
/* 246 */ NdrFcLong( 0x400e ), /* 16398
*/
/* 250 */ NdrFcShort( 0x2cc ), /*
Offset= 716 (966) */
/* 252 */ NdrFcLong( 0x4010 ), /* 16400
*/
/* 256 */ NdrFcShort( 0x2ca ), /*
Offset= 714 (970) */
/* 258 */ NdrFcLong( 0x4012 ), /* 16402
*/
/* 262 */ NdrFcShort( 0x286 ), /*
Offset= 646 (908) */
/* 264 */ NdrFcLong( 0x4013 ), /* 16403
*/
/* 268 */ NdrFcShort( 0x284 ), /*
Offset= 644 (912) */
/* 270 */ NdrFcLong( 0x4015 ), /* 16405
*/
/* 274 */ NdrFcShort( 0x282 ), /*
Offset= 642 (916) */
/* 276 */ NdrFcLong( 0x4016 ), /* 16406
*/
/* 280 */ NdrFcShort( 0x278 ), /*
Offset= 632 (912) */
/* 282 */ NdrFcLong( 0x4017 ), /* 16407
*/
/* 286 */ NdrFcShort( 0x272 ), /*
Offset= 626 (912) */
/* 288 */ NdrFcLong( 0x0 ), /* 0 */
/* 292 */ NdrFcShort( 0x0 ), /*
Offset= 0 (292) */
/* 294 */ NdrFcLong( 0x1 ), /* 1 */
/* 298 */ NdrFcShort( 0x0 ), /*
Offset= 0 (298) */
/* 300 */ NdrFcShort( 0xffffffff ), /*
Offset= -1 (299) */
/* 302 */
0x15, /* FC_STRUCT */
0x7,
/* 7 */
/* 304 */ NdrFcShort( 0x8 ), /* 8 */
/* 306 */ 0xb, /*
FC_HYPER */
0x5b, /* FC_END */
/* 308 */
0x12,
0x0, /* FC_UP */
/* 310 */ NdrFcShort( 0xc ), /*
Offset= 12 (322) */
/* 312 */
0x1b, /* FC_CARRAY */

```

		0x1,		0x12,		/* 462 */ NdrFcShort( 0x0 ), /* 0 */
/* 1 */						/* 466 */ 0x12, 0x0, /* FC_UP */
/* 314 */ NdrFcShort( 0x2 ), /* 2 */						/* 468 */ NdrFcShort( 0xfffff6e ), /*
/* 316 */ 0x9, /* Corr						Offset= -146 (322) */
desc: FC_ULONG */						/* 470 */
		0x0,		0x12,		
						0x5b,
/* 318 */ NdrFcShort( 0xfffc ), /* -4 */						/* FC_END */
/* 320 */ 0x6, /*						0x8,
FC_SHORT */						/* FC_LONG */
		0x5b,		0x2a,		/* 472 */ 0x5c, /*
		/* FC_END */				FC_PAD */
/* 322 */						0x5b,
		0x17,		0x49,		/* FC_END */
		/* FC_CSTRUCT */				/* 474 */
		0x3,				0x16,
		/* 3 */				/* FC_PSTRUCT */
/* 324 */ NdrFcShort( 0x8 ), /* 8 */						0x3,
/* 326 */ NdrFcShort( 0xfffff2 ), /*						/* 3 */
Offset= -14 (312) */						/* 476 */ NdrFcShort( 0x8 ), /* 8 */
/* 328 */ 0x8, /*						/* 478 */
FC_LONG */						0x4b,
		0x8,				/* FC_PP */
		/* FC_LONG */				0x5c,
/* 330 */ 0x5c, /*						/* FC_PAD */
FC_PAD */						/* 480 */
		0x5b,				0x46,
		/* FC_END */				/* FC_NO_REPEAT */
/* 332 */						0x5c,
		0x2f,				/* FC_PAD */
		/* FC_IP */				0x46,
		0x5a,				/* FC_NO_REPEAT */
		/* FC_CONSTANT_IID				0x5c,
*/						/* 482 */ NdrFcShort( 0x4 ), /* 4 */
/* 334 */ NdrFcLong( 0x0 ), /* 0 */						/* 484 */ NdrFcShort( 0x4 ), /* 4 */
/* 338 */ NdrFcShort( 0x0 ), /* 0 */						/* 486 */ 0x11, 0x0, /* FC_RP */
/* 340 */ NdrFcShort( 0x0 ), /* 0 */						/* 488 */ NdrFcShort( 0xfffffd4 ), /*
/* 342 */ 0xc0, /* 192						Offset= -44 (444) */
*/						/* 490 */
		0x0,				0x5b,
		/* 0 */				/* FC_END */
/* 344 */ 0x0, /* 0 */						0x8,
		0x0,				/* FC_LONG */
		/* 0 */				/* 492 */ 0x8, /*
/* 346 */ 0x0, /* 0 */						FC_LONG */
		0x0,				0x5b,
		/* 0 */				/* FC_END */
/* 348 */ 0x0, /* 0 */						/* 494 */
		0x46,				0x21,
		/* 70 */				/* FC_BOGUS_ARRAY
/* 350 */						0x3,
		0x2f,				/* 3 */
		/* FC_IP */				/* 496 */ NdrFcShort( 0x0 ), /* 0 */
		0x5a,				/* 498 */ 0x19, /* Corr
		/* FC_CONSTANT_IID				desc: field pointer, FC_ULONG */
*/						0x0,
/* 352 */ NdrFcLong( 0x20400 ), /*						/* 500 */ NdrFcShort( 0x0 ), /* 0 */
132096 */						/* 502 */ NdrFcLong( 0xfffffff ), /* -1 */
/* 356 */ NdrFcShort( 0x0 ), /* 0 */						/* 506 */ 0x4c, /*
/* 358 */ NdrFcShort( 0x0 ), /* 0 */						FC_EMBEDDED_COMPLEX */
/* 360 */ 0xc0, /* 192						0x0,
*/						/* 0 */
		0x0,				/* 508 */ NdrFcShort( 0xfffff50 ), /*
		/* 0 */				Offset= -176 (332) */
/* 362 */ 0x0, /* 0 */						/* 510 */ 0x5c, /*
		0x0,				FC_PAD */
		/* 0 */				0x5b,
/* 364 */ 0x0, /* 0 */						/* FC_END */
		0x0,				/* 512 */
		/* 0 */				0x1a,
/* 366 */ 0x0, /* 0 */						/*
		0x46,				FC_BOGUS_STRUCT */
		/* 70 */				0x3,
/* 368 */						/* 3 */
						/* 514 */ NdrFcShort( 0x8 ), /* 8 */

```

/* 516 */ NdrFcShort( 0x0 ), /* 0 */
/* 518 */ NdrFcShort( 0x6 ), /*
Offset= 6 (524) */
/* 520 */ 0x8, /*
FC_LONG */

/* 522 */ 0x5c, /* FC_POINTER */
FC_PAD */

/* 524 */ /* FC_END */
0x0, /* FC_RP */
/* 526 */ NdrFcShort( 0xfffffe0 ), /*
Offset= -32 (494) */
/* 528 */
/* FC_BOGUS_ARRAY */
/*
/* 530 */ NdrFcShort( 0x0 ), /* 0 */
/* 532 */ 0x19, /* Corr
desc: field pointer, FC_ULONG */
/*
/* 534 */ NdrFcShort( 0x0 ), /* 0 */
/* 536 */ NdrFcLong( 0xfffffff ), /* -1 */
/* 540 */ 0x4c, /*
FC_EMBEDDED_COMPLEX */
/*
/* 542 */ NdrFcShort( 0xfffff40 ), /*
Offset= -192 (350) */
/* 544 */ 0x5c, /*
FC_PAD */
/*
/* 546 */
/* FC_BOGUS_STRUCT */
/*
/* 548 */ NdrFcShort( 0x8 ), /* 8 */
/* 550 */ NdrFcShort( 0x0 ), /* 0 */
/* 552 */ NdrFcShort( 0x6 ), /*
Offset= 6 (558) */
/* 554 */ 0x8, /*
FC_LONG */
/*
/* 556 */ 0x5c, /* FC_POINTER */
FC_PAD */
/*
/* 558 */
/* FC_END */
0x0, /* FC_RP */
/* 560 */ NdrFcShort( 0xfffffe0 ), /*
Offset= -32 (528) */
/* 562 */
/* FC_CARRAY */
/*
/* 564 */ NdrFcShort( 0x4 ), /* 4 */
/* 566 */ 0x19, /* Corr
desc: field pointer, FC_ULONG */
/*
/* 568 */ NdrFcShort( 0x0 ), /* 0 */
/* 570 */

```

```

0x4b,
/* FC_PP */ 0x5c,
/* FC_PAD */
/* 572 */
0x48,
/*
FC_VARIABLE_REPEAT */
/* FC_FIXED_OFFSET */
/*
/* 574 */ NdrFcShort( 0x4 ), /* 4 */
/* 576 */ NdrFcShort( 0x0 ), /* 0 */
/* 578 */ NdrFcShort( 0x1 ), /* 1 */
/* 580 */ NdrFcShort( 0x0 ), /* 0 */
/* 582 */ NdrFcShort( 0x0 ), /* 0 */
/* 584 */ 0x12, 0x0, /* FC_UP */
/* 586 */ NdrFcShort( 0x184 ), /*
Offset= 388 (974) */
/* 588 */
0x5b,
/* FC_END */
0x8,
/* FC_LONG */
/* 590 */ 0x5c, /*
FC_PAD */
/*
0x5b,
/* FC_END */
/* 592 */
0x1a,
/*
FC_BOGUS_STRUCT */
0x3,
/* 594 */ NdrFcShort( 0x8 ), /* 8 */
/* 596 */ NdrFcShort( 0x0 ), /* 0 */
/* 598 */ NdrFcShort( 0x6 ), /*
Offset= 6 (604) */
/* 600 */ 0x8, /*
FC_LONG */
/*
0x36,
/* FC_POINTER */
/* 602 */ 0x5c, /*
FC_PAD */
/*
0x5b,
/* FC_END */
/* 604 */
0x0, /* FC_RP */
/* 606 */ NdrFcShort( 0xfffffd4 ), /*
Offset= -44 (562) */
/* 608 */
0x2f,
/* FC_IP */
0x5a,
/* FC_CONSTANT_IID */
/*
/* 610 */ NdrFcLong( 0x2f ), /* 47 */
/* 614 */ NdrFcShort( 0x0 ), /* 0 */
/* 616 */ NdrFcShort( 0x0 ), /* 0 */
/* 618 */ 0xc0, /* 192
*/
0x0,
/* 620 */ 0x0, /* 0 */
0x0,
/* 622 */ 0x0, /* 0 */
0x0,
/* 624 */ 0x0, /* 0 */
0x46,
/* 626 */
/* 70 */

```

```

0x1b,
/* FC_CARRAY */
/* 628 */ NdrFcShort( 0x1 ), /* 1 */
/* 630 */ 0x19, /* Corr
desc: field pointer, FC_ULONG */
0x0,
/*
/* 632 */ NdrFcShort( 0x4 ), /* 4 */
/* 634 */ 0x1, /*
FC_BYTE */
/*
/* 636 */
0x1a,
/*
FC_BOGUS_STRUCT */
0x3,
/* 638 */ NdrFcShort( 0x10 ), /* 16 */
/* 640 */ NdrFcShort( 0x0 ), /* 0 */
/* 642 */ NdrFcShort( 0xa ), /*
Offset= 10 (652) */
/* 644 */ 0x8, /*
FC_LONG */
0x8,
/* FC_LONG */
/* 646 */ 0x4c, /*
FC_EMBEDDED_COMPLEX */
0x0,
/*
/* 648 */ NdrFcShort( 0xfffffd8 ), /*
Offset= -40 (608) */
/* 650 */ 0x36, /*
FC_POINTER */
/*
/* 652 */
0x12,
0x0, /* FC_UP */
/* 654 */ NdrFcShort( 0xfffffe4 ), /*
Offset= -28 (626) */
/* 656 */
0x1b,
/* FC_CARRAY */
0x3,
/* 658 */ NdrFcShort( 0x4 ), /* 4 */
/* 660 */ 0x19, /* Corr
desc: field pointer, FC_ULONG */
0x0,
/*
/* 662 */ NdrFcShort( 0x0 ), /* 0 */
/* 664 */
0x4b,
/* FC_PP */
0x5c,
/* FC_PAD */
/* 666 */
0x48,
/*
FC_VARIABLE_REPEAT */
0x49,
/* FC_FIXED_OFFSET */
/*
/* 668 */ NdrFcShort( 0x4 ), /* 4 */
/* 670 */ NdrFcShort( 0x0 ), /* 0 */
/* 672 */ NdrFcShort( 0x1 ), /* 1 */
/* 674 */ NdrFcShort( 0x0 ), /* 0 */
/* 676 */ NdrFcShort( 0x0 ), /* 0 */
/* 678 */ 0x12, 0x0, /* FC_UP */
/* 680 */ NdrFcShort( 0xfffffd4 ), /*
Offset= -44 (636) */
/* 682 */

```

```

0x5b,
/* FC_END */
0x8,
/* FC_LONG */
/* 684 */ 0x5c,
FC_PAD */
/* 686 */
/* FC_END */
0x1a,
/*
FC_BOGUS_STRUCT */
0x3,
/* 3 */
/* 688 */ NdrFcShort( 0x8 ), /* 8 */
/* 690 */ NdrFcShort( 0x0 ), /* 0 */
/* 692 */ NdrFcShort( 0x6 ), /*
Offset= 6 (698) */
/* 694 */ 0x8,
FC_LONG */
0x36,
/* FC_POINTER */
/* 696 */ 0x5c,
FC_PAD */
/* FC_END */
0x5b,
/* 698 */
0x11,
0x0, /* FC_RP */
/* 700 */ NdrFcShort( 0xfffffd4 ), /*
Offset= -44 (656) */
/* 702 */
0x1d,
/* FC_SMFARRAY */
0x0,
/* 0 */
/* 704 */ NdrFcShort( 0x8 ), /* 8 */
/* 706 */ 0x1,
FC_BYTE */
/* FC_END */
0x5b,
/* 708 */
0x15,
/* FC_STRUCT */
0x3,
/* 3 */
/* 710 */ NdrFcShort( 0x10 ), /* 16 */
/* 712 */ 0x8,
FC_LONG */
0x6,
/* FC_SHORT */
/* 714 */ 0x6,
FC_SHORT */
0x4c,
/*
FC_EMBEDDED_COMPLEX */
/* 716 */ 0x0,
/* 0 */
NdrFcShort( 0xfffff1 ), /*
Offset= -15 (702) */
0x5b,
/* FC_END */
/* 720 */
0x1a,
/*
FC_BOGUS_STRUCT */
0x3,
/* 3 */
/* 722 */ NdrFcShort( 0x18 ), /* 24 */
/* 724 */ NdrFcShort( 0x0 ), /* 0 */
/* 726 */ NdrFcShort( 0xa ), /*
Offset= 10 (736) */
/* 728 */ 0x8,
FC_LONG */

```

```

0x36,
/* 730 */ 0x4c, /* FC_POINTER */
FC_EMBEDDED_COMPLEX */
0x0,
/* 0 */
/* 732 */ NdrFcShort( 0xfffffe8 ), /*
Offset= -24 (708) */
/* 734 */ 0x5c,
FC_PAD */
0x5b,
/* FC_END */
/* 736 */
0x11,
0x0, /* FC_RP */
/* 738 */ NdrFcShort( 0xfffff0c ), /*
Offset= -244 (494) */
/* 740 */
0x1b,
/* FC_CARRAY */
0x0,
/* 0 */
/* 742 */ NdrFcShort( 0x1 ), /* 1 */
/* 744 */ 0x19, /* Corr
desc: field pointer, FC_ULONG */
0x0,
/* */
/* 746 */ NdrFcShort( 0x0 ), /* 0 */
/* 748 */ 0x1,
FC_BYTE */
0x5b,
/* FC_END */
/* 750 */
0x16,
/* FC_PSTRUCT */
0x3,
/* 3 */
/* 752 */ NdrFcShort( 0x8 ), /* 8 */
/* 754 */
0x4b,
/* FC_PP */
0x5c,
/* FC_PAD */
/* 756 */
0x46,
/* FC_NO_REPEAT */
0x5c,
/* FC_PAD */
/* 758 */ NdrFcShort( 0x4 ), /* 4 */
/* 760 */ NdrFcShort( 0x4 ), /* 4 */
/* 762 */ 0x12, 0x0, /* FC_UP */
/* 764 */ NdrFcShort( 0xfffffe8 ), /*
Offset= -24 (740) */
/* 766 */
0x5b,
/* FC_END */
0x8,
/* FC_LONG */
/* 768 */ 0x8,
FC_LONG */
0x5b,
/* FC_END */
/* 770 */
0x1b,
/* FC_CARRAY */
0x1,
/* 1 */
/* 772 */ NdrFcShort( 0x2 ), /* 2 */
/* 774 */ 0x19, /* Corr
desc: field pointer, FC_ULONG */
0x0,
/* */
/* 776 */ NdrFcShort( 0x0 ), /* 0 */
/* 778 */ 0x6,
FC_SHORT */

```

```

0x5b,
/* FC_END */
0x16,
/* FC_PSTRUCT */
0x3,
/* 3 */
/* 780 */ NdrFcShort( 0x8 ), /* 8 */
/* 784 */
0x4b,
/* FC_PP */
0x5c,
/* FC_PAD */
/* 786 */
0x46,
/* FC_NO_REPEAT */
0x5c,
/* FC_PAD */
/* 788 */ NdrFcShort( 0x4 ), /* 4 */
/* 790 */ NdrFcShort( 0x4 ), /* 4 */
/* 792 */ 0x12, 0x0, /* FC_UP */
/* 794 */ NdrFcShort( 0xfffffe8 ), /*
Offset= -24 (770) */
/* 796 */
0x5b,
/* FC_END */
0x8,
/* FC_LONG */
/* 798 */ 0x8,
FC_LONG */
0x5b,
/* FC_END */
0x1b,
/* FC_CARRAY */
0x3,
/* 3 */
/* 800 */ NdrFcShort( 0x4 ), /* 4 */
/* 804 */ 0x19, /* Corr
desc: field pointer, FC_ULONG */
0x0,
/* */
/* 806 */ NdrFcShort( 0x0 ), /* 0 */
/* 808 */ 0x8,
FC_LONG */
0x5b,
/* FC_END */
/* 810 */
0x16,
/* FC_PSTRUCT */
0x3,
/* 3 */
/* 812 */ NdrFcShort( 0x8 ), /* 8 */
/* 814 */
0x4b,
/* FC_PP */
0x5c,
/* FC_PAD */
/* 816 */
0x46,
/* FC_NO_REPEAT */
0x5c,
/* FC_PAD */
/* 818 */ NdrFcShort( 0x4 ), /* 4 */
/* 820 */ NdrFcShort( 0x4 ), /* 4 */
/* 822 */ 0x12, 0x0, /* FC_UP */
/* 824 */ NdrFcShort( 0xfffffe8 ), /*
Offset= -24 (800) */
/* 826 */
0x5b,
/* FC_END */
0x8,
/* FC_LONG */

```

```

/* 828 */ 0x8, /*
FC_LONG */
/* 830 */ /* FC_END */
/* 832 */ NdrFcShort( 0x8 ), /* 8 */
/* 834 */ 0x19, /* Corr
desc: field pointer, FC_ULONG */
/* 836 */ NdrFcShort( 0x0 ), /* 0 */
/* 838 */ 0xb, /*
FC_HYPER */
/* 840 */ /* FC_END */
/* 842 */ NdrFcShort( 0x8 ), /* 8 */
/* 844 */ /* FC_PP */
/* 846 */ /* FC_PAD */
/* 848 */ NdrFcShort( 0x4 ), /* 4 */
/* 850 */ NdrFcShort( 0x4 ), /* 4 */
/* 852 */ 0x12, 0x0, /* FC_UP */
/* 854 */ NdrFcShort( 0xffffe8 ), /*
Offset= -24 (830) */
/* 856 */ /* FC_END */
/* 858 */ 0x8, /* FC_LONG */
/* 860 */ /* FC_END */
/* 862 */ NdrFcShort( 0x8 ), /* 8 */
/* 864 */ 0x8, /* FC_LONG */
/* 866 */ 0x5c, /* FC_PAD */
/* 868 */ /* FC_END */
/* 870 */ NdrFcShort( 0x8 ), /* 8 */
/* 872 */ 0x7, /* Corr
desc: FC_USHORT */
/* 874 */ NdrFcShort( 0xffd8 ), /* -40 */

```

```

/* 876 */ 0x4c, /* FC_EMBEDDED_COMPLEX */
/* 878 */ NdrFcShort( 0xffffee ), /*
Offset= -18 (860) */
/* 880 */ 0x5c, /* FC_PAD */
/* 882 */ /* FC_END */
/* 884 */ NdrFcShort( 0x28 ), /* 3 */
/* 886 */ NdrFcShort( 0xfffffee ), /* 40 */
/* 888 */ NdrFcShort( 0x0 ), /*
Offset= 0 (888) */
/* 890 */ 0x6, /* FC_SHORT */
/* 892 */ 0x8, /* FC_LONG */
/* 894 */ 0x4c, /* FC_EMBEDDED_COMPLEX */
/* 896 */ NdrFcShort( 0xffffdf8 ), /*
Offset= -520 (376) */
/* 898 */ 0x5c, /* FC_PAD */
/* 900 */ /* FC_END */
/* 902 */ NdrFcShort( 0xffffef6 ), /*
Offset= -266 (636) */
/* 904 */ /* FC_UP */
/* 906 */ 0x1, /* FC_UP [simple_pointer] */
/* 908 */ /* FC_UP */
/* 910 */ 0x6, /* FC_SHORT */
/* 912 */ /* FC_PAD */
/* 914 */ 0x8, /* FC_UP [simple_pointer] */
/* 916 */ /* FC_UP */
/* 918 */ 0xb, /* FC_HYPER */
/* 920 */ /* FC_PAD */
/* 922 */ /* FC_UP [simple_pointer] */

```

```

/* 922 */ 0xa, /* FC_FLOAT */
/* 924 */ /* FC_PAD */
/* 926 */ 0xc, /* FC_UP [simple_pointer] */
/* 928 */ /* FC_UP */
/* 930 */ NdrFcShort( 0xffffd8c ), /*
Offset= -628 (302) */
/* 932 */ /* FC_UP [pointer_deref] */
/* 934 */ NdrFcShort( 0xffffd8e ), /*
Offset= -626 (308) */
/* 936 */ /* FC_UP [pointer_deref] */
/* 938 */ NdrFcShort( 0xffffda2 ), /*
Offset= -606 (332) */
/* 940 */ /* FC_UP [pointer_deref] */
/* 942 */ NdrFcShort( 0xffffdb0 ), /*
Offset= -592 (350) */
/* 944 */ /* FC_UP [pointer_deref] */
/* 946 */ NdrFcShort( 0xffffdbe ), /*
Offset= -578 (368) */
/* 948 */ /* FC_UP [pointer_deref] */
/* 950 */ NdrFcShort( 0x2 ), /*
Offset= 2 (952) */
/* 952 */ /* FC_UP */
/* 954 */ NdrFcShort( 0x14 ), /*
Offset= 20 (974) */
/* 956 */ /* FC_STRUCT */
/* 958 */ NdrFcShort( 0x10 ), /* 7 */
/* 960 */ 0x6, /* FC_SHORT */
/* 962 */ 0x1, /* FC_BYTE */
/* 964 */ 0xb, /* FC_LONG */
/* 966 */ /* FC_END */
/* 968 */ NdrFcShort( 0xfffff4 ), /*
Offset= -12 (956) */
/* 970 */ /* FC_UP [simple_pointer] */
/* 972 */ 0x2, /* FC_CHAR */
/* 974 */ /* FC_PAD */

```

```

/* 974 */
                                0x1a,
                                /*
FC_BOGUS_STRUCT */
                                0x7,
                                /* 7 */
/* 976 */ NdrFcShort( 0x20 ), /* 32 */
/* 978 */ NdrFcShort( 0x0 ), /* 0 */
/* 980 */ NdrFcShort( 0x0 ), /*
Offset= 0 (980) */
/* 982 */ 0x8, /*
FC_LONG */
                                0x8,
                                /* FC_LONG */
/* 984 */ 0x6, /*
FC_SHORT */
                                0x6,
                                /* FC_SHORT */
/* 986 */ 0x6, /*
FC_SHORT */
                                0x6,
                                /* FC_SHORT */
/* 988 */ 0x4c, /*
FC_EMBEDDED_COMPLEX */
                                0x0,
                                /* 0 */
/* 990 */ NdrFcShort( 0xffffc28 ), /*
Offset= -984 (6) */
/* 992 */ 0x5c, /*
FC_PAD */
                                0x5b,
                                /* FC_END */
/* 994 */ 0xb4, /*
FC_USER_MARSHAL */
                                0x83,
                                /* 131 */
/* 996 */ NdrFcShort( 0x0 ), /* 0 */
/* 998 */ NdrFcShort( 0x10 ), /* 16 */
/* 1000 */ NdrFcShort( 0x0 ), /* 0 */
/* 1002 */ NdrFcShort( 0xffffc18 ), /*
Offset= -1000 (2) */
/* 1004 */
                                0x11,
                                /* FC_RP [allocated_on_stack] */
/* 1006 */ NdrFcShort( 0x6 ), /*
Offset= 6 (1012) */
/* 1008 */
                                0x13,
                                /* FC_OP */
/* 1010 */ NdrFcShort( 0xfffffdc ), /*
Offset= -36 (974) */
/* 1012 */ 0xb4, /*
FC_USER_MARSHAL */
                                0x83,
                                /* 131 */
/* 1014 */ NdrFcShort( 0x0 ), /* 0 */
/* 1016 */ NdrFcShort( 0x10 ), /* 16 */
/* 1018 */ NdrFcShort( 0x0 ), /* 0 */
/* 1020 */ NdrFcShort( 0xfffff4 ), /*
Offset= -12 (1008) */
                                0x0
}
};

static const
USER_MARSHAL_ROUTINE_QUADRUPLE
UserMarshalRoutines[
WIRE_MARSHAL_TABLE_SIZE ] =
{
{
VARIANT_UserSize
,VARIANT_UserMarshal
,VARIANT_UserUnmarshal

```

```

}VARIANT_UserFree
};

/* Standard interface:
__MIDL_itf_tpcc_com_ps_0000, ver. 0.0,
GUID={0x00000000,0x0000,0x0000,{0x00,0x00,
0x00,0x00,0x00,0x00,0x00,0x00}} */

/* Object interface: IUnknown, ver. 0.0,
GUID={0x00000000,0x0000,0x0000,{0xc0,0x00,
0x00,0x00,0x00,0x00,0x46}} */

/* Object interface: ITPCC, ver. 0.0,
GUID={0xFEEE6AA2,0x84B1,0x11d2,{0xBA,0x47,
0x00,0xC0,0x4F,0xBF,0xE0,0x8B}} */

#pragma code_seg(".orpc")
static const unsigned short
ITPCC_FormatStringOffsetTable[] =
{
0,
34,
68,
102,
136,
170
};

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

static const MIDL_SERVER_INFO
ITPCC_ServerInfo =
{
&Object_StubDesc,
0,
__MIDL_ProcFormatString.Format,
&ITPCC_FormatStringOffsetTable[-3],
0,
0,
0,
0,
0;
}
CINTERFACE_PROXY_VTABLE(9)
__ITPCCProxyVtbl =
{
&ITPCC_ProxyInfo,
&IID_ITPCC,
IUnknown_QueryInterface_Proxy,
IUnknown_AddRef_Proxy,
IUnknown_Release_Proxy ,
(void *) (INT_PTR) -1 /* ITPCC::NewOrder */
,
(void *) (INT_PTR) -1 /* ITPCC::Payment */ ,
(void *) (INT_PTR) -1 /* ITPCC::Delivery */ ,
(void *) (INT_PTR) -1 /* ITPCC::StockLevel */
,
(void *) (INT_PTR) -1 /* ITPCC::OrderStatus
*/ ,

```

```

(void *) (INT_PTR) -1 /*
ITPCC::CallSetComplete */

const CInterfaceStubVtbl __ITPCCStubVtbl =
{
&IID_ITPCC,
&ITPCC_ServerInfo,
9,
0, /* pure interpreted */
CStdStubBuffer_METHODS
};

static const MIDL_STUB_DESC Object_StubDesc
=
{
0,
NdrOleAllocate,
NdrOleFree,
0,
0,
0,
0,
0,
0,
__MIDL_TypeFormatString.Format,
1, /* -error bounds_check flag */
0x20000, /* Ndr library version */
0,
0x600015b, /* MIDL Version 6.0.347 */
0,
UserMarshalRoutines,
0, /* notify & notify_flag routine table */
0x1, /* MIDL flag */
0, /* cs routines */
0, /* proxy/server info */
0 /* Reserved5 */
};

const CInterfaceProxyVtbl *
__tpcc_com_ps_ProxyVtblList[] =
{
(CInterfaceProxyVtbl *) &ITPCCProxyVtbl,
0
};

const CInterfaceStubVtbl *
__tpcc_com_ps_StubVtblList[] =
{
(CInterfaceStubVtbl *) &ITPCCStubVtbl,
0
};

PCInterfaceName const
__tpcc_com_ps_InterfaceNamesList[] =
{
"ITPCC",
0
};

#define __tpcc_com_ps_CHECK_IID(n)
IID_GENERIC_CHECK_IID(
__tpcc_com_ps, pIID, n)

int __stdcall __tpcc_com_ps_IID_Lookup( const
IID * pIID, int * pIndex )
{
if(!__tpcc_com_ps_CHECK_IID(0))
{
*pIndex = 0;
return 1;
}

return 0;
}

```

```

const ExtendedProxyFileInfo
tpcc_com_ps_ProxyFileInfo =
{
  (PCInterfaceProxyVtblList *) &
  _tpcc_com_ps_ProxyVtblList,
  (PCInterfaceStubVtblList *) &
  _tpcc_com_ps_StubVtblList,
  (const PCInterfaceName *) &
  _tpcc_com_ps_InterfaceNamesList,
  0, // no delegation
  & _tpcc_com_ps_IID_Lookup,
  1,
  2,
  0, /* table of [async_uuid] interfaces */
  0, /* Filler1 */
  0, /* Filler2 */
  0 /* Filler3 */
};

#ifdef !defined(_M_IA64) &&
!defined(_M_AMD64)

#pragma warning( disable: 4049 ) /* more than
64k source lines */

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

/* File created by MIDL compiler version
6.00.0347 */
/* at Fri Apr 15 14:48:43 2005
*/
/* Compiler settings for .\src\tpcc_com_ps.idl:
Oicf, W1, Zp8, env=Win64 (32b
run,appending)
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(notvtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@@MIDL_FILE_HEADERING( )

#ifdef defined(_M_IA64) || defined(_M_AMD64)
#define USE_STUBLESS_PROXY

/* verify that the <rpcproxy.h> version is high
enough to compile this file*/
#ifdef __REDQ_RPCPROXY_H_VERSION__
#define __REQUIRED_RPCPROXY_H_VERSION__
475
#endif

#include "rpcproxy.h"
#ifdef __RPCPROXY_H_VERSION__
#error this stub requires an updated version of
<rpcproxy.h>
#endif // __RPCPROXY_H_VERSION__

#include "tpcc_com_ps.h"

#define TYPE_FORMAT_STRING_SIZE 1003
#define PROC_FORMAT_STRING_SIZE 253
#define TRANSMIT_AS_TABLE_SIZE 0
#define WIRE_MARSHAL_TABLE_SIZE 1

```

```

typedef struct _MIDL_TYPE_FORMAT_STRING
short Pad;
unsigned char Format[
TYPE_FORMAT_STRING_SIZE ];
} MIDL_TYPE_FORMAT_STRING;

typedef struct _MIDL_PROC_FORMAT_STRING
{
short Pad;
unsigned char Format[
PROC_FORMAT_STRING_SIZE ];
} MIDL_PROC_FORMAT_STRING;

static RPC_SYNTAX_IDENTIFIER
_RpcTransferSyntax =
{{0x8A885D04,0x1CEB,0x11C9,{0x9F,0xE8,0x08,
0x00,0x2B,0x10,0x48,0x60}},{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
ITPCC_ServerInfo;
extern const MIDL_STUBLESS_PROXY_INFO
ITPCC_ProxyInfo;

extern const
USER_MARSHAL_ROUTINE_QUADRUPLE
UserMarshalRoutines[
WIRE_MARSHAL_TABLE_SIZE ];

#ifdef !defined(__RPC_WIN64__)
#error Invalid build platform for this stub.
#endif

static const MIDL_PROC_FORMAT_STRING
__MIDL_ProcFormatString =
{
0,
{
/* Procedure NewOrder */
0x33,
/* FC_AUTO_HANDLE */
0x6C,
/* Old Flags: object,
Oi2 */
/* 2 */ NdrFcLong( 0x0 ), /* 0 */
/* 6 */ NdrFcShort( 0x3 ), /* 3 */
/* 8 */ NdrFcShort( 0x30 ), /* ia64
Stack size/offset = 48 */
/* 10 */ NdrFcShort( 0x0 ), /* 0 */
/* 12 */ NdrFcShort( 0x8 ), /* 8 */
/* 14 */ 0x47, /* Oi2
Flags: srv must size, clt must size, has return,
has ext, */
0x3,
/* 3 */
/* 16 */ 0xa, /* 10 */
0x7,
/* Ext Flags: new
corr desc, clt corr check, srv corr check, */
/* 18 */ NdrFcShort( 0x20 ), /* 32 */

```

```

/* 20 */ NdrFcShort( 0x00 ), /* 9 */
/* 24 */ NdrFcShort( 0x0 ), /* 0 */
/* Parameter txn_in */
/* 26 */ NdrFcShort( 0x8b ), /* Flags:
must size, must free, in, by val, */
/* 28 */ NdrFcShort( 0x8 ), /* ia64
Stack size/offset = 8 */
/* 30 */ NdrFcShort( 0x3ce ), /* Type
Offset=974 */
/* Parameter txn_out */
/* 32 */ NdrFcShort( 0x6113 ), /* Flags:
must size, must free, out, simple ref, srv alloc
size=24 */
/* 34 */ NdrFcShort( 0x20 ), /* ia64
Stack size/offset = 32 */
/* 36 */ NdrFcShort( 0x3e0 ), /* Type
Offset=992 */
/* Return value */
/* 38 */ NdrFcShort( 0x70 ), /* Flags:
out, return, base type, */
/* 40 */ NdrFcShort( 0x28 ), /* ia64
Stack size/offset = 40 */
/* 42 */ 0x8, /*
FC_LONG */
0x0,
/* 0 */
/* Procedure Payment */
/* 44 */ 0x33, /*
FC_AUTO_HANDLE */
0x6c,
/* Old Flags: object,
Oi2 */
/* 46 */ NdrFcLong( 0x0 ), /* 0 */
/* 50 */ NdrFcShort( 0x4 ), /* 4 */
/* 52 */ NdrFcShort( 0x30 ), /* ia64
Stack size/offset = 48 */
/* 54 */ NdrFcShort( 0x0 ), /* 0 */
/* 56 */ NdrFcShort( 0x8 ), /* 8 */
/* 58 */ 0x47, /* Oi2
Flags: srv must size, clt must size, has return,
has ext, */
0x3,
/* 3 */
/* 60 */ 0xa, /* 10 */
0x7,
/* Ext Flags: new
corr desc, clt corr check, srv corr check, */
/* 62 */ NdrFcShort( 0x20 ), /* 32 */
/* 64 */ NdrFcShort( 0x20 ), /* 32 */
/* 66 */ NdrFcShort( 0x0 ), /* 0 */
/* 68 */ NdrFcShort( 0x0 ), /* 0 */
/* Parameter txn_in */
/* 70 */ NdrFcShort( 0x8b ), /* Flags:
must size, must free, in, by val, */
/* 72 */ NdrFcShort( 0x8 ), /* ia64
Stack size/offset = 8 */
/* 74 */ NdrFcShort( 0x3ce ), /* Type
Offset=974 */
/* Parameter txn_out */
/* 76 */ NdrFcShort( 0x6113 ), /* Flags:
must size, must free, out, simple ref, srv alloc
size=24 */

```

```

/* 78 */ NdrFcShort( 0x20 ), /* ia64
Stack size/offset = 32 */
/* 80 */ NdrFcShort( 0x3e0 ), /* Type
Offset=992 */

/* Return value */

/* 82 */ NdrFcShort( 0x70 ), /* Flags:
out, return, base type, */
/* 84 */ NdrFcShort( 0x28 ), /* ia64
Stack size/offset = 40 */
/* 86 */ 0x8, /*
FC_LONG */

/* 0 */
/* Procedure Delivery */

/* 88 */ 0x33, /*
FC_AUTO_HANDLE */

/* Old Flags: object,
Oi2 */
/* 90 */ NdrFcLong( 0x0 ), /* 0 */
/* 94 */ NdrFcShort( 0x5 ), /* 5 */
/* 96 */ NdrFcShort( 0x30 ), /* ia64
Stack size/offset = 48 */
/* 98 */ NdrFcShort( 0x0 ), /* 0 */
/* 100 */ NdrFcShort( 0x8 ), /* 8 */
/* 102 */ 0x47, /* Oi2
Flags: srv must size, clt must size, has return,
has ext, */

/* 3 */
/* 104 */ 0xa, /* 10 */
/* Ext Flags: new
corr desc, clt corr check, srv corr check, */
/* 106 */ NdrFcShort( 0x20 ), /* 32 */
/* 108 */ NdrFcShort( 0x20 ), /* 32 */
/* 110 */ NdrFcShort( 0x0 ), /* 0 */
/* 112 */ NdrFcShort( 0x0 ), /* 0 */

/* Parameter txn_in */

/* 114 */ NdrFcShort( 0x8b ), /* Flags:
must size, must free, in, by val, */
/* 116 */ NdrFcShort( 0x8 ), /* ia64
Stack size/offset = 8 */
/* 118 */ NdrFcShort( 0x3ce ), /* Type
Offset=974 */

/* Parameter txn_out */

/* 120 */ NdrFcShort( 0x6113 ), /* Flags:
must size, must free, out, simple ref, srv alloc
size=24 */
/* 122 */ NdrFcShort( 0x20 ), /* ia64
Stack size/offset = 32 */
/* 124 */ NdrFcShort( 0x3e0 ), /* Type
Offset=992 */

/* Return value */

/* 126 */ NdrFcShort( 0x70 ), /* Flags:
out, return, base type, */
/* 128 */ NdrFcShort( 0x28 ), /* ia64
Stack size/offset = 40 */
/* 130 */ 0x8, /*
FC_LONG */

/* 0 */
/* Procedure StockLevel */

```

```

/* 132 */ 0x33, /*
FC_AUTO_HANDLE */

/* Old Flags: object,
Oi2 */
/* 134 */ NdrFcLong( 0x0 ), /* 0 */
/* 138 */ NdrFcShort( 0x6 ), /* 6 */
/* 140 */ NdrFcShort( 0x30 ), /* ia64
Stack size/offset = 48 */
/* 142 */ NdrFcShort( 0x0 ), /* 0 */
/* 144 */ NdrFcShort( 0x8 ), /* 8 */
/* 146 */ 0x47, /* Oi2
Flags: srv must size, clt must size, has return,
has ext, */

/* 3 */
/* 148 */ 0xa, /* 10 */
/* Ext Flags: new
corr desc, clt corr check, srv corr check, */
/* 150 */ NdrFcShort( 0x20 ), /* 32 */
/* 152 */ NdrFcShort( 0x20 ), /* 32 */
/* 154 */ NdrFcShort( 0x0 ), /* 0 */
/* 156 */ NdrFcShort( 0x0 ), /* 0 */

/* Parameter txn_in */

/* 158 */ NdrFcShort( 0x8b ), /* Flags:
must size, must free, in, by val, */
/* 160 */ NdrFcShort( 0x8 ), /* ia64
Stack size/offset = 8 */
/* 162 */ NdrFcShort( 0x3ce ), /* Type
Offset=974 */

/* Parameter txn_out */

/* 164 */ NdrFcShort( 0x6113 ), /* Flags:
must size, must free, out, simple ref, srv alloc
size=24 */
/* 166 */ NdrFcShort( 0x20 ), /* ia64
Stack size/offset = 32 */
/* 168 */ NdrFcShort( 0x3e0 ), /* Type
Offset=992 */

/* Return value */

/* 170 */ NdrFcShort( 0x70 ), /* Flags:
out, return, base type, */
/* 172 */ NdrFcShort( 0x28 ), /* ia64
Stack size/offset = 40 */
/* 174 */ 0x8, /*
FC_LONG */

/* 0 */
/* Procedure OrderStatus */

/* 176 */ 0x33, /*
FC_AUTO_HANDLE */

/* Old Flags: object,
Oi2 */
/* 178 */ NdrFcLong( 0x0 ), /* 0 */
/* 182 */ NdrFcShort( 0x7 ), /* 7 */
/* 184 */ NdrFcShort( 0x30 ), /* ia64
Stack size/offset = 48 */
/* 186 */ NdrFcShort( 0x0 ), /* 0 */
/* 188 */ NdrFcShort( 0x8 ), /* 8 */
/* 190 */ 0x47, /* Oi2
Flags: srv must size, clt must size, has return,
has ext, */

/* 3 */
/* 192 */ 0xa, /* 10 */

```

```

/* Ext Flags: new
corr desc, clt corr check, srv corr check, */
/* 196 */ NdrFcShort( 0x20 ), /* 32 */
/* 198 */ NdrFcShort( 0x0 ), /* 0 */
/* 200 */ NdrFcShort( 0x0 ), /* 0 */

/* Parameter txn_in */

/* 202 */ NdrFcShort( 0x8b ), /* Flags:
must size, must free, in, by val, */
/* 204 */ NdrFcShort( 0x8 ), /* ia64
Stack size/offset = 8 */
/* 206 */ NdrFcShort( 0x3ce ), /* Type
Offset=974 */

/* Parameter txn_out */

/* 208 */ NdrFcShort( 0x6113 ), /* Flags:
must size, must free, out, simple ref, srv alloc
size=24 */
/* 210 */ NdrFcShort( 0x20 ), /* ia64
Stack size/offset = 32 */
/* 212 */ NdrFcShort( 0x3e0 ), /* Type
Offset=992 */

/* Return value */

/* 214 */ NdrFcShort( 0x70 ), /* Flags:
out, return, base type, */
/* 216 */ NdrFcShort( 0x28 ), /* ia64
Stack size/offset = 40 */
/* 218 */ 0x8, /*
FC_LONG */

/* 0 */
/* Procedure CallSetComplete */

/* 220 */ 0x33, /*
FC_AUTO_HANDLE */

/* Old Flags: object,
Oi2 */
/* 222 */ NdrFcLong( 0x0 ), /* 0 */
/* 226 */ NdrFcShort( 0x8 ), /* 8 */
/* 228 */ NdrFcShort( 0x10 ), /* ia64
Stack size/offset = 16 */
/* 230 */ NdrFcShort( 0x0 ), /* 0 */
/* 232 */ NdrFcShort( 0x8 ), /* 8 */
/* 234 */ 0x44, /* Oi2
Flags: has return, has ext, */

/* 1 */
/* 236 */ 0xa, /* 10 */
/* Ext Flags: new
corr desc, */
/* 238 */ NdrFcShort( 0x0 ), /* 0 */
/* 240 */ NdrFcShort( 0x0 ), /* 0 */
/* 242 */ NdrFcShort( 0x0 ), /* 0 */
/* 244 */ NdrFcShort( 0x0 ), /* 0 */

/* Return value */

/* 246 */ NdrFcShort( 0x70 ), /* Flags:
out, return, base type, */
/* 248 */ NdrFcShort( 0x8 ), /* ia64
Stack size/offset = 8 */
/* 250 */ 0x8, /*
FC_LONG */

/* 0 */

```



```

    }
};

static const MIDL_TYPE_FORMAT_STRING
_MIDL_TypeFormatString =
{
    0,
    {
        NdrFcShort( 0x0 ), /* 0 */
/* 2 */
0x12,
0x0, /* FC_UP */
/* 4 */ NdrFcShort( 0x3b6 ), /*
Offset= 950 (954) */
/* 6 */
0x2b,
/*
FC_NON_ENCAPSULATED_UNION */
0x9, /* FC_ULONG */
/* 8 */ 0x7, /* Corr
desc: FC_USHORT */
0x0,
/* 10 */ NdrFcShort( 0xffff8 ), /* -8 */
/* 12 */ NdrFcShort( 0x1 ), /* Corr
flags: early, */
/* 14 */ NdrFcShort( 0x2 ), /*
Offset= 2 (16) */
/* 16 */ NdrFcShort( 0x10 ), /* 16 */
/* 18 */ NdrFcShort( 0x2f ), /* 47 */
/* 20 */ NdrFcLong( 0x14 ), /* 20 */
/* 24 */ NdrFcShort( 0x800b ), /*
Simple arm type: FC_HYPER */
/* 26 */ NdrFcLong( 0x3 ), /* 3 */
/* 30 */ NdrFcShort( 0x8008 ), /*
Simple arm type: FC_LONG */
/* 32 */ NdrFcLong( 0x11 ), /* 17 */
/* 36 */ NdrFcShort( 0x8001 ), /*
Simple arm type: FC_BYTE */
/* 38 */ NdrFcLong( 0x2 ), /* 2 */
/* 42 */ NdrFcShort( 0x8006 ), /*
Simple arm type: FC_SHORT */
/* 44 */ NdrFcLong( 0x4 ), /* 4 */
/* 48 */ NdrFcShort( 0x800a ), /*
Simple arm type: FC_FLOAT */
/* 50 */ NdrFcLong( 0x5 ), /* 5 */
/* 54 */ NdrFcShort( 0x800c ), /*
Simple arm type: FC_DOUBLE */
/* 56 */ NdrFcLong( 0xb ), /* 11 */
/* 60 */ NdrFcShort( 0x8006 ), /*
Simple arm type: FC_SHORT */
/* 62 */ NdrFcLong( 0xa ), /* 10 */
/* 66 */ NdrFcShort( 0x8008 ), /*
Simple arm type: FC_LONG */
/* 68 */ NdrFcLong( 0x6 ), /* 6 */
/* 72 */ NdrFcShort( 0xe8 ), /*
Offset= 232 (304) */
/* 74 */ NdrFcLong( 0x7 ), /* 7 */
/* 78 */ NdrFcShort( 0x800c ), /*
Simple arm type: FC_DOUBLE */
/* 80 */ NdrFcLong( 0x8 ), /* 8 */
/* 84 */ NdrFcShort( 0xe2 ), /*
Offset= 226 (310) */
/* 86 */ NdrFcLong( 0xd ), /* 13 */
/* 90 */ NdrFcShort( 0xf6 ), /*
Offset= 246 (336) */
/* 92 */ NdrFcLong( 0x9 ), /* 9 */
/* 96 */ NdrFcShort( 0x102 ), /*
Offset= 258 (354) */
/* 98 */ NdrFcLong( 0x2000 ), /* 8192
*/
/* 102 */ NdrFcShort( 0x10e ), /*
Offset= 270 (372) */

```

```

/* 104 */ NdrFcShort( 0x24 ), /* 36 */
Offset= 772 (880) */
/* 110 */ NdrFcLong( 0x4024 ), /* 16420
*/
/* 114 */ NdrFcShort( 0x2fe ), /*
Offset= 766 (880) */
/* 116 */ NdrFcLong( 0x4011 ), /* 16401
*/
/* 120 */ NdrFcShort( 0x2fc ), /*
Offset= 764 (884) */
/* 122 */ NdrFcLong( 0x4002 ), /* 16386
*/
/* 126 */ NdrFcShort( 0x2fa ), /*
Offset= 762 (888) */
/* 128 */ NdrFcLong( 0x4003 ), /* 16387
*/
/* 132 */ NdrFcShort( 0x2f8 ), /*
Offset= 760 (892) */
/* 134 */ NdrFcLong( 0x4014 ), /* 16404
*/
/* 138 */ NdrFcShort( 0x2f6 ), /*
Offset= 758 (896) */
/* 140 */ NdrFcLong( 0x4004 ), /* 16388
*/
/* 144 */ NdrFcShort( 0x2f4 ), /*
Offset= 756 (900) */
/* 146 */ NdrFcLong( 0x4005 ), /* 16389
*/
/* 150 */ NdrFcShort( 0x2f2 ), /*
Offset= 754 (904) */
/* 152 */ NdrFcLong( 0x400b ), /* 16395
*/
/* 156 */ NdrFcShort( 0x2dc ), /*
Offset= 732 (888) */
/* 158 */ NdrFcLong( 0x400a ), /* 16394
*/
/* 162 */ NdrFcShort( 0x2da ), /*
Offset= 730 (892) */
/* 164 */ NdrFcLong( 0x4006 ), /* 16390
*/
/* 168 */ NdrFcShort( 0x2e4 ), /*
Offset= 740 (908) */
/* 170 */ NdrFcLong( 0x4007 ), /* 16391
*/
/* 174 */ NdrFcShort( 0x2da ), /*
Offset= 730 (904) */
/* 176 */ NdrFcLong( 0x4008 ), /* 16392
*/
/* 180 */ NdrFcShort( 0x2dc ), /*
Offset= 732 (912) */
/* 182 */ NdrFcLong( 0x400d ), /* 16397
*/
/* 186 */ NdrFcShort( 0x2da ), /*
Offset= 730 (916) */
/* 188 */ NdrFcLong( 0x4009 ), /* 16393
*/
/* 192 */ NdrFcShort( 0x2d8 ), /*
Offset= 728 (920) */
/* 194 */ NdrFcLong( 0x6000 ), /* 24576
*/
/* 198 */ NdrFcShort( 0x2d6 ), /*
Offset= 726 (924) */
/* 200 */ NdrFcLong( 0x400c ), /* 16396
*/
/* 204 */ NdrFcShort( 0x2d4 ), /*
Offset= 724 (928) */
/* 206 */ NdrFcLong( 0x10 ), /* 16 */
/* 210 */ NdrFcShort( 0x8002 ), /*
Simple arm type: FC_CHAR */
/* 212 */ NdrFcLong( 0x12 ), /* 18 */
/* 216 */ NdrFcShort( 0x8006 ), /*
Simple arm type: FC_SHORT */
/* 218 */ NdrFcLong( 0x13 ), /* 19 */
/* 222 */ NdrFcShort( 0x8008 ), /*
Simple arm type: FC_LONG */

```

```

/* 224 */ NdrFcShort( 0x800b ), /* 21 */
Simple arm type: FC_HYPER */
/* 230 */ NdrFcLong( 0x16 ), /* 22 */
/* 234 */ NdrFcShort( 0x8008 ), /*
Simple arm type: FC_LONG */
/* 236 */ NdrFcLong( 0x17 ), /* 23 */
/* 240 */ NdrFcShort( 0x8008 ), /*
Simple arm type: FC_LONG */
/* 242 */ NdrFcLong( 0xe ), /* 14 */
/* 246 */ NdrFcShort( 0x2b2 ), /*
Offset= 690 (936) */
/* 248 */ NdrFcLong( 0x400e ), /* 16398
*/
/* 252 */ NdrFcShort( 0x2b6 ), /*
Offset= 694 (946) */
/* 254 */ NdrFcLong( 0x4010 ), /* 16400
*/
/* 258 */ NdrFcShort( 0x2b4 ), /*
Offset= 692 (950) */
/* 260 */ NdrFcLong( 0x4012 ), /* 16402
*/
/* 264 */ NdrFcShort( 0x270 ), /*
Offset= 624 (888) */
/* 266 */ NdrFcLong( 0x4013 ), /* 16403
*/
/* 270 */ NdrFcShort( 0x26e ), /*
Offset= 622 (892) */
/* 272 */ NdrFcLong( 0x4015 ), /* 16405
*/
/* 276 */ NdrFcShort( 0x26c ), /*
Offset= 620 (896) */
/* 278 */ NdrFcLong( 0x4016 ), /* 16406
*/
/* 282 */ NdrFcShort( 0x262 ), /*
Offset= 610 (892) */
/* 284 */ NdrFcLong( 0x4017 ), /* 16407
*/
/* 288 */ NdrFcShort( 0x25c ), /*
Offset= 604 (892) */
/* 290 */ NdrFcLong( 0x0 ), /* 0 */
/* 294 */ NdrFcShort( 0x0 ), /*
Offset= 0 (294) */
/* 296 */ NdrFcLong( 0x1 ), /* 1 */
/* 300 */ NdrFcShort( 0x0 ), /*
Offset= 0 (300) */
/* 302 */ NdrFcShort( 0xfffffff ), /*
Offset= -1 (301) */
/* 304 */
0x15, /* FC_STRUCT */
0x7,
/* 306 */ NdrFcShort( 0x8 ), /* 8 */
/* 308 */ 0xb, /*
FC_HYPER */
0x5b, /* FC_END */
/* 310 */
0x12,
0x0, /* FC_UP */
/* 312 */ NdrFcShort( 0xe ), /*
Offset= 14 (326) */
/* 314 */
0x1b, /* FC_CARRAY */
0x1,
/* 316 */ NdrFcShort( 0x2 ), /* 2 */
/* 318 */ 0x9, /* Corr
desc: FC_ULONG */
0x0,
/* 320 */ NdrFcShort( 0xffffc ), /* -4 */
/* 322 */ NdrFcShort( 0x1 ), /* Corr
flags: early, */

```

```

/* 324 */ 0x6, /*
FC_SHORT */
/* FC_END */
/* 326 */
/* FC_CSTRUCT */
/* 3 */
/* 328 */ NdrFcShort( 0x8 ), /* 8 */
/* 330 */ NdrFcShort( 0xffffffff ), /*
Offset= -16 (314) */
/* 332 */ 0x8, /*
FC_LONG */
/* 334 */ 0x5c, /*
FC_PAD */
/* FC_END */
/* 336 */
/* FC_IP */
/* 5a,
/* FC_CONSTANT_IID
*/
/* 338 */ NdrFcLong( 0x0 ), /* 0 */
/* 342 */ NdrFcShort( 0x0 ), /* 0 */
/* 344 */ NdrFcShort( 0x0 ), /* 0 */
/* 346 */ 0xc0, /* 192
*/
/* 348 */ 0x0, /* 0 */
/* 350 */ 0x0, /* 0 */
/* 352 */ 0x0, /* 0 */
/* 70 */
/* 354 */
/* FC_IP */
/* 5a,
/* FC_CONSTANT_IID
*/
/* 356 */ NdrFcLong( 0x20400 ), /*
132096 */
/* 360 */ NdrFcShort( 0x0 ), /* 0 */
/* 362 */ NdrFcShort( 0x0 ), /* 0 */
/* 364 */ 0xc0, /* 192
*/
/* 366 */ 0x0, /* 0 */
/* 368 */ 0x0, /* 0 */
/* 370 */ 0x0, /* 0 */
/* 70 */
/* 372 */
0x10, /* FC_UP [pointer_deref] */
/* 374 */ NdrFcShort( 0x2 ), /*
Offset= 2 (376) */
/* 376 */
0x12,
0x0, /* FC_UP */
/* 378 */ NdrFcShort( 0x1e4 ), /*
Offset= 484 (862) */

```

```

/* 380 */
FC_ENCAPSULATED_UNION /*
/* 137 */
/* 382 */ NdrFcShort( 0x20 ), /* 32 */
/* 384 */ NdrFcShort( 0xa ), /* 10 */
/* 386 */ NdrFcLong( 0x8 ), /* 8 */
/* 390 */ NdrFcShort( 0x50 ), /*
Offset= 80 (470) */
/* 392 */ NdrFcLong( 0xd ), /* 13 */
/* 396 */ NdrFcShort( 0x70 ), /*
Offset= 112 (508) */
/* 398 */ NdrFcLong( 0x9 ), /* 9 */
/* 402 */ NdrFcShort( 0x90 ), /*
Offset= 144 (546) */
/* 404 */ NdrFcLong( 0xc ), /* 12 */
/* 408 */ NdrFcShort( 0xb0 ), /*
Offset= 176 (584) */
/* 410 */ NdrFcLong( 0x24 ), /* 36 */
/* 414 */ NdrFcShort( 0x102 ), /*
Offset= 258 (672) */
/* 416 */ NdrFcLong( 0x800d ), /* 32781
*/
/* 420 */ NdrFcShort( 0x11e ), /*
Offset= 286 (706) */
/* 422 */ NdrFcLong( 0x10 ), /* 16 */
/* 426 */ NdrFcShort( 0x138 ), /*
Offset= 312 (738) */
/* 428 */ NdrFcLong( 0x2 ), /* 2 */
/* 432 */ NdrFcShort( 0x14e ), /*
Offset= 334 (766) */
/* 434 */ NdrFcLong( 0x3 ), /* 3 */
/* 438 */ NdrFcShort( 0x164 ), /*
Offset= 356 (794) */
/* 440 */ NdrFcLong( 0x14 ), /* 20 */
/* 444 */ NdrFcShort( 0x17a ), /*
Offset= 378 (822) */
/* 446 */ NdrFcShort( 0xffffffff ), /*
Offset= -1 (445) */
/* 448 */
0x21,
/* FC_BOGUS_ARRAY
*/
/* 3 */
/* 450 */ NdrFcShort( 0x0 ), /* 0 */
/* 452 */ 0x19, /* Corr
desc: field pointer, FC_ULONG */
/* 454 */ NdrFcShort( 0x0 ), /* 0 */
/* 456 */ NdrFcShort( 0x1 ), /* Corr
flags: early, */
/* 458 */ NdrFcLong( 0xffffffff ), /* -1 */
/* 462 */ NdrFcShort( 0x0 ), /* Corr
flags: */
/* 464 */
0x12,
0x0, /* FC_UP */
/* 466 */ NdrFcShort( 0xffffffff74 ), /*
Offset= -140 (326) */
/* 468 */ 0x5c, /*
FC_PAD */
/* FC_END */
/* 470 */
0x1a,
FC_BOGUS_STRUCT /*
/* 3 */
/* 472 */ NdrFcShort( 0x10 ), /* 16 */
/* 474 */ NdrFcShort( 0x0 ), /* 0 */

```

```

/* 476 */ NdrFcShort( 0x6 ), /*
Offset= 6 (480) */
FC_LONG /*
0x40,
/* FC_STRUCTPAD4
*/
/* 480 */ 0x36, /*
FC_POINTER */
/* FC_END */
/* 482 */
0x0, /* FC_RP */
/* 484 */ NdrFcShort( 0xffffffffdc ), /*
Offset= -36 (448) */
/* 486 */
0x21,
/* FC_BOGUS_ARRAY
*/
/* 3 */
/* 488 */ NdrFcShort( 0x0 ), /* 0 */
/* 490 */ 0x19, /* Corr
desc: field pointer, FC_ULONG */
0x0,
/* 492 */ NdrFcShort( 0x0 ), /* 0 */
/* 494 */ NdrFcShort( 0x1 ), /* Corr
flags: early, */
/* 496 */ NdrFcLong( 0xffffffff ), /* -1 */
/* 500 */ NdrFcShort( 0x0 ), /* Corr
flags: */
/* 502 */ 0x4c, /*
FC_EMBEDDED_COMPLEX */
0x0,
/* 504 */ NdrFcShort( 0xffffffff58 ), /*
Offset= -168 (336) */
/* 506 */ 0x5c, /*
FC_PAD */
/* FC_END */
/* 508 */
0x1a,
FC_BOGUS_STRUCT /*
/* 3 */
/* 510 */ NdrFcShort( 0x10 ), /* 16 */
/* 512 */ NdrFcShort( 0x0 ), /* 0 */
/* 514 */ NdrFcShort( 0x6 ), /*
Offset= 6 (520) */
/* 516 */ 0x8, /*
FC_LONG */
0x40,
/* FC_STRUCTPAD4
*/
/* 518 */ 0x36, /*
FC_POINTER */
/* FC_END */
/* 520 */
0x0, /* FC_RP */
/* 522 */ NdrFcShort( 0xffffffffdc ), /*
Offset= -36 (486) */
/* 524 */
0x21,
/* FC_BOGUS_ARRAY
*/
/* 3 */
/* 526 */ NdrFcShort( 0x0 ), /* 0 */
/* 528 */ 0x19, /* Corr
desc: field pointer, FC_ULONG */

```

0x0,	/* 590 */ NdrFcShort( 0x6 ), /* 0 */	/* 644 */ 0x36, /*
/* 530 */ NdrFcShort( 0x0 ), /* 0 */	Offset= 6 (596) */	FC_POINTER */
/* 532 */ NdrFcShort( 0x1 ), /* Corr	/* 592 */ 0x8, /*	/* FC_END */
flags: early, */	FC_LONG */	/* 646 */
/* 534 */ NdrFcLong( 0xfffffff ), /* -1 */	0x40,	0x12,
/* 538 */ NdrFcShort( 0x0 ), /* Corr	/* FC_STRUCTPAD4	0x0, /* FC_UP */
flags: */	/* 594 */ 0x36, /*	/* 648 */ NdrFcShort( 0xffffffe ), /*
/* 540 */ 0x4c, /*	FC_POINTER */	Offset= -30 (618) */
FC_EMBEDDED_COMPLEX */	0x5b,	/* 650 */
0x0,	/* FC_END */	0x21,
/* 542 */ NdrFcShort( 0xfffff44 ), /*	/* 596 */	/* FC_BOGUS_ARRAY
Offset= -188 (354) */	0x11,	/*
/* 544 */ 0x5c, /*	0x0, /* FC_RP */	0x3,
FC_PAD */	/* 598 */ NdrFcShort( 0xfffffdc ), /*	/* 3 */
0x5b,	Offset= -36 (562) */	/* 652 */ NdrFcShort( 0x0 ), /* 0 */
/* FC_END */	/* 600 */	/* 654 */ 0x19, /* Corr
/* 546 */	0x2f,	desc: field pointer, FC_ULONG */
0x1a,	/* FC_IP */	0x0,
FC_BOGUS_STRUCT */	/* FC_CONSTANT_IID	0x0,
0x3,	0x5a,	/* 656 */ NdrFcShort( 0x0 ), /* 0 */
/* 3 */	/*	/* 658 */ NdrFcShort( 0x1 ), /* Corr
/* 548 */ NdrFcShort( 0x10 ), /* 16 */	/* 602 */ NdrFcLong( 0x2f ), /* 47 */	flags: early, */
/* 550 */ NdrFcShort( 0x0 ), /* 0 */	/* 606 */ NdrFcShort( 0x0 ), /* 0 */	/* 660 */ NdrFcLong( 0xfffffff ), /* -1 */
/* 552 */ NdrFcShort( 0x6 ), /*	/* 608 */ NdrFcShort( 0x0 ), /* 0 */	/* 664 */ NdrFcShort( 0x0 ), /* Corr
Offset= 6 (558) */	/* 610 */ 0xc0, /* 192	flags: */
/* 554 */ 0x8, /*	*/	/* 666 */
FC_LONG */	0x0,	0x12,
0x40,	/* 0 */	0x0, /* FC_UP */
/* FC_STRUCTPAD4	/* 612 */ 0x0, /* 0 */	/* 668 */ NdrFcShort( 0xfffffda ), /*
/*	/* 614 */ 0x0, /* 0 */	Offset= -38 (630) */
/* 556 */ 0x36, /*	/* 616 */ 0x0, /* 0 */	/* 670 */ 0x5c, /*
FC_POINTER */	/* 618 */	FC_PAD */
0x5b,	/* 70 */	0x5b,
/* FC_END */	0x46,	/* FC_END */
/* 558 */	0x11,	/*
0x0, /* FC_RP */	/* 620 */ NdrFcShort( 0x1 ), /* 1 */	FC_BOGUS_STRUCT */
/* 560 */ NdrFcShort( 0xfffffdc ), /*	/* 622 */ 0x19, /* Corr	0x3,
Offset= -36 (524) */	desc: field pointer, FC_ULONG */	0x3,
/* 562 */	0x0,	/* 3 */
/* FC_BOGUS_ARRAY	/*	/* 674 */ NdrFcShort( 0x10 ), /* 16 */
0x3,	/* 624 */ NdrFcShort( 0x4 ), /* 4 */	/* 676 */ NdrFcShort( 0x0 ), /* 0 */
/* 3 */	/* 626 */ NdrFcShort( 0x1 ), /* Corr	/* 678 */ NdrFcShort( 0x6 ), /*
/* 564 */ NdrFcShort( 0x0 ), /* 0 */	flags: early, */	Offset= 6 (684) */
/* 566 */ 0x19, /* Corr	/* 628 */ 0x1, /*	/* 680 */ 0x8, /*
desc: field pointer, FC_ULONG */	FC_BYTE */	FC_LONG */
0x0,	0x5b,	0x40,
/* 568 */ NdrFcShort( 0x0 ), /* 0 */	/* FC_END */	/* FC_STRUCTPAD4
/* 570 */ NdrFcShort( 0x1 ), /* Corr	/* 630 */	/*
flags: early, */	0x1a,	/* 682 */ 0x36, /*
/* 572 */ NdrFcLong( 0xfffffff ), /* -1 */	/*	FC_POINTER */
/* 576 */ NdrFcShort( 0x0 ), /* Corr	FC_BOGUS_STRUCT */	0x5b,
flags: */	0x3,	/* FC_END */
/* 578 */	/* 3 */	/* 684 */
0x12,	/* 632 */ NdrFcShort( 0x18 ), /* 24 */	0x11,
0x0, /* FC_UP */	/* 634 */ NdrFcShort( 0x0 ), /* 0 */	0x0,
/* 580 */ NdrFcShort( 0x176 ), /*	/* 636 */ NdrFcShort( 0xa ), /*	/* 0 */
Offset= 374 (954) */	Offset= 10 (646) */	/* 690 */ NdrFcShort( 0x8 ), /* 8 */
/* 582 */ 0x5c, /*	/* 638 */ 0x8, /*	/* 692 */ 0x1, /*
FC_PAD */	FC_LONG */	FC_BYTE */
0x5b,	0x8,	0x5b,
/* FC_END */	/* FC_LONG */	/* FC_END */
/* 584 */	/* 640 */ 0x4c, /*	/* 694 */
0x1a,	FC_EMBEDDED_COMPLEX */	0x15,
FC_BOGUS_STRUCT */	0x0,	/* FC_STRUCT */
0x3,	/* 0 */	0x3,
/* 3 */	/* 642 */ NdrFcShort( 0xfffffd6 ), /*	/* 3 */
/* 586 */ NdrFcShort( 0x10 ), /* 16 */	Offset= -42 (600) */	/* 696 */ NdrFcShort( 0x10 ), /* 16 */

```

/* 698 */ 0x8, /*
FC_LONG */
/* 700 */ 0x6, /*
FC_SHORT */
/* 702 */ 0x0, /*
Offset= -15 (688) */
/* 706 */
FC_BOGUS_STRUCT */
/* 708 */ NdrFcShort( 0x20 ), /* 32 */
/* 710 */ NdrFcShort( 0x0 ), /* 0 */
/* 712 */ NdrFcShort( 0xa ), /*
Offset= 10 (722) */
/* 714 */ 0x8, /*
FC_LONG */
/* 716 */ 0x36, /*
FC_POINTER */
/* 718 */ 0x0, /* 0 */
Offset= -25 (694) */
/* 722 */
0x0, /* FC_RP */
/* 724 */ NdrFcShort( 0xffff12 ), /*
Offset= -238 (486) */
/* 726 */
/* 728 */ NdrFcShort( 0x1 ), /* 1 */
/* 730 */ 0x19, /* Corr
desc: field pointer, FC_ULONG */
/* 732 */ NdrFcShort( 0x0 ), /* 0 */
/* 734 */ NdrFcShort( 0x1 ), /* Corr
flags: early, */
/* 736 */ 0x1, /*
FC_BYTE */
/* 738 */
FC_BOGUS_STRUCT */
/* 740 */ NdrFcShort( 0x10 ), /* 16 */
/* 742 */ NdrFcShort( 0x0 ), /* 0 */
/* 744 */ NdrFcShort( 0x6 ), /*
Offset= 6 (750) */

```

```

/* 746 */ 0x8, /*
FC_LONG */
/* 748 */ 0x36, /*
FC_POINTER */
/* 750 */
0x0, /* FC_UP */
/* 752 */ NdrFcShort( 0xfffffe6 ), /*
Offset= -26 (726) */
/* 754 */
/* 756 */ NdrFcShort( 0x2 ), /* 2 */
/* 758 */ 0x19, /* Corr
desc: field pointer, FC_ULONG */
/* 760 */ NdrFcShort( 0x0 ), /* 0 */
/* 762 */ NdrFcShort( 0x1 ), /* Corr
flags: early, */
/* 764 */ 0x6, /*
FC_SHORT */
/* 766 */
FC_BOGUS_STRUCT */
/* 768 */ NdrFcShort( 0x10 ), /* 16 */
/* 770 */ NdrFcShort( 0x0 ), /* 0 */
/* 772 */ NdrFcShort( 0x6 ), /*
Offset= 6 (778) */
/* 774 */ 0x8, /*
FC_LONG */
/* 776 */ 0x36, /*
FC_POINTER */
/* 778 */
0x0, /* FC_UP */
/* 780 */ NdrFcShort( 0xfffffe6 ), /*
Offset= -26 (754) */
/* 782 */
/* 784 */ NdrFcShort( 0x4 ), /* 4 */
/* 786 */ 0x19, /* Corr
desc: field pointer, FC_ULONG */
/* 788 */ NdrFcShort( 0x0 ), /* 0 */
/* 790 */ NdrFcShort( 0x1 ), /* Corr
flags: early, */
/* 792 */ 0x8, /*
FC_LONG */
/* 794 */

```

```

/* 796 */ NdrFcShort( 0x10 ), /* 16 */
/* 798 */ NdrFcShort( 0x0 ), /* 0 */
/* 800 */ NdrFcShort( 0x6 ), /*
Offset= 6 (806) */
/* 802 */ 0x8, /*
FC_LONG */
/* 804 */ 0x36, /*
FC_POINTER */
/* 806 */
0x0, /* FC_UP */
/* 808 */ NdrFcShort( 0xfffffe6 ), /*
Offset= -26 (782) */
/* 810 */
/* 812 */ NdrFcShort( 0x8 ), /* 8 */
/* 814 */ 0x19, /* Corr
desc: field pointer, FC_ULONG */
/* 816 */ NdrFcShort( 0x0 ), /* 0 */
/* 818 */ NdrFcShort( 0x1 ), /* Corr
flags: early, */
/* 820 */ 0xb, /*
FC_HYPER */
/* 822 */
FC_BOGUS_STRUCT */
/* 824 */ NdrFcShort( 0x10 ), /* 16 */
/* 826 */ NdrFcShort( 0x0 ), /* 0 */
/* 828 */ NdrFcShort( 0x6 ), /*
Offset= 6 (834) */
/* 830 */ 0x8, /*
FC_LONG */
/* 832 */ 0x36, /*
FC_POINTER */
/* 834 */
0x0, /* FC_UP */
/* 836 */ NdrFcShort( 0xfffffe6 ), /*
Offset= -26 (810) */
/* 838 */
/* 840 */ NdrFcShort( 0x8 ), /* 8 */
/* 842 */ 0x8, /*
FC_LONG */

```

```

/* 844 */ 0x5c, /*
FC_PAD */

/* 846 */
/* FC_END */
0x1b,
/* FC_CARRAY */
0x3,
/* 3 */
/* 848 */ NdrFcShort( 0x8 ), /* 8 */
/* 850 */ 0x7, /* Corr
desc: FC_USHORT */
0x0,
/* */
/* 852 */ NdrFcShort( 0xffc8 ), /* -56 */
/* 854 */ NdrFcShort( 0x1 ), /* Corr
flags: early, */
/* 856 */ 0x4c, /*
FC_EMBEDDED_COMPLEX */
0x0,
/* 0 */
/* 858 */ NdrFcShort( 0xfffffec ), /*
Offset= -20 (838) */
/* 860 */ 0x5c, /*
FC_PAD */
0x5b,
/* FC_END */
/* 862 */
0x1a,
/*
FC_BOGUS_STRUCT */
0x3,
/* 3 */
/* 864 */ NdrFcShort( 0x38 ), /* 56 */
/* 866 */ NdrFcShort( 0xfffffec ), /*
Offset= -20 (846) */
/* 868 */ NdrFcShort( 0x0 ), /*
Offset= 0 (868) */
/* 870 */ 0x6, /*
FC_SHORT */
0x6,
/* FC_SHORT */
/* 872 */ 0x8, /*
FC_LONG */
0x8,
/* FC_LONG */
/* 874 */ 0x40, /*
FC_STRUCTUREPAD */
0x4c,
/*
FC_EMBEDDED_COMPLEX */
/* 876 */ 0x0, /* 0 */
NdrFcShort( 0xffffe0f ), /*
Offset= -497 (380) */
0x5b,
/* FC_END */
/* 880 */
0x12,
0x0, /* FC_UP */
/* 882 */ NdrFcShort( 0xfffff04 ), /*
Offset= -252 (630) */
/* 884 */
0x12,
0x8, /* FC_UP [simple_pointer] */
/* 886 */ 0x1, /*
FC_BYTE */
0x5c,
/* FC_PAD */
/* 888 */
0x12,
0x8, /* FC_UP [simple_pointer] */
/* 890 */ 0x6, /*
FC_SHORT */

```

```

/* 892 */ /* FC_PAD */
0x5c,
0x12,
0x8, /* FC_UP [simple_pointer] */
/* 894 */ 0x8, /*
FC_LONG */
0x5c,
/* FC_PAD */
/* 896 */
0x12,
0x8, /* FC_UP [simple_pointer] */
/* 898 */ 0xb, /*
FC_HYPER */
0x5c,
/* FC_PAD */
/* 900 */
0x12,
0x8, /* FC_UP [simple_pointer] */
/* 902 */ 0xa, /*
FC_FLOAT */
0x5c,
/* FC_PAD */
/* 904 */
0x12,
0x8, /* FC_UP [simple_pointer] */
/* 906 */ 0xc, /*
FC_DOUBLE */
0x5c,
/* FC_PAD */
/* 908 */
0x12,
0x0, /* FC_UP */
/* 910 */ NdrFcShort( 0xffffda2 ), /*
Offset= -606 (304) */
/* 912 */
0x12,
0x10, /* FC_UP [pointer_deref] */
/* 914 */ NdrFcShort( 0xffffda4 ), /*
Offset= -604 (310) */
/* 916 */
0x12,
0x10, /* FC_UP [pointer_deref] */
/* 918 */ NdrFcShort( 0xffffdba ), /*
Offset= -582 (336) */
/* 920 */
0x12,
0x10, /* FC_UP [pointer_deref] */
/* 922 */ NdrFcShort( 0xffffdc8 ), /*
Offset= -568 (354) */
/* 924 */
0x12,
0x10, /* FC_UP [pointer_deref] */
/* 926 */ NdrFcShort( 0xffffdd6 ), /*
Offset= -554 (372) */
/* 928 */
0x12,
0x10, /* FC_UP [pointer_deref] */
/* 930 */ NdrFcShort( 0x2 ), /*
Offset= 2 (932) */
/* 932 */
0x12,
0x0, /* FC_UP */
/* 934 */ NdrFcShort( 0x14 ), /*
Offset= 20 (954) */
/* 936 */
0x15,
/* FC_STRUCT */
0x7,
/* 7 */
/* 938 */ NdrFcShort( 0x10 ), /* 16 */
/* 940 */ 0x6, /*
FC_SHORT */
0x1,
/* FC_BYTE */

```

```

/* 942 */ 0x1, /*
FC_BYTE */
0x8,
/* FC_LONG */
/* 944 */ 0xb, /*
FC_HYPER */
0x5b,
/* FC_END */
/* 946 */
0x12,
0x0, /* FC_UP */
/* 948 */ NdrFcShort( 0xfffff4 ), /*
Offset= -12 (936) */
/* 950 */
0x12,
0x8, /* FC_UP [simple_pointer] */
/* 952 */ 0x2, /*
FC_CHAR */
0x5c,
/* FC_PAD */
/* 954 */
0x1a,
/*
FC_BOGUS_STRUCT */
/* 7 */
0x7,
/* 956 */ NdrFcShort( 0x20 ), /* 32 */
/* 958 */ NdrFcShort( 0x0 ), /* 0 */
/* 960 */ NdrFcShort( 0x0 ), /*
Offset= 0 (960) */
/* 962 */ 0x8, /*
FC_LONG */
0x8,
/* FC_LONG */
/* 964 */ 0x6, /*
FC_SHORT */
0x6,
/* FC_SHORT */
/* 966 */ 0x6, /*
FC_SHORT */
0x6,
/* FC_SHORT */
/* 968 */ 0x4c, /*
FC_EMBEDDED_COMPLEX */
0x0,
/* 0 */
/* 970 */ NdrFcShort( 0xffffc3c ), /*
Offset= -964 (6) */
/* 972 */ 0x5c, /*
FC_PAD */
0x5b,
/* FC_END */
/* 974 */ 0xb4, /*
FC_USER_MARSHAL */
0x83,
/* 131 */
/* 976 */ NdrFcShort( 0x0 ), /* 0 */
/* 978 */ NdrFcShort( 0x18 ), /* 24 */
/* 980 */ NdrFcShort( 0x0 ), /* 0 */
/* 982 */ NdrFcShort( 0xffffc2c ), /*
Offset= -980 (2) */
/* 984 */
0x11,
0x4, /* FC_RP [allocated_on_stack] */
/* 986 */ NdrFcShort( 0x6 ), /*
Offset= 6 (992) */
/* 988 */
0x13,
0x0, /* FC_OP */
/* 990 */ NdrFcShort( 0xfffffdc ), /*
Offset= -36 (954) */
/* 992 */ 0xb4, /*
FC_USER_MARSHAL */
0x83,
/* 131 */
/* 994 */ NdrFcShort( 0x0 ), /* 0 */

```

```

/* 996 */ NdrFcShort( 0x18 ), /* 24 */
/* 998 */ NdrFcShort( 0x0 ), /* 0 */
/* 1000 */ NdrFcShort( 0xfffff4 ), /*
Offset= -12 (988) */

}
};

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

/* Standard interface:
_MIDL_itf_tpcc_com_ps_0000, ver. 0.0,
GUID={0x00000000,0x0000,0x0000,{0x00,0x00,
0x00,0x00,0x00,0x00,0x00,0x00}} */

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

/* Object interface: ITPCC, ver. 0.0,
GUID={0xFEE6AA2,0x84B1,0x11d2,{0xBA,0x47,
0x00,0xC0,0x4F,0xBF,0xE0,0x8B}} */

#pragma code_seg(".orpc")
static const unsigned short
ITPCC_FormatStringOffsetTable[] =
{
    0,
    44,
    88,
    132,
    176,
    220
};

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

static const MIDL_SERVER_INFO
ITPCC_ServerInfo =
{
    &Object_StubDesc,
    0,
    __MIDL_ProcFormatString.Format,
    &ITPCC_FormatStringOffsetTable[-3],

```

```

0,
0,
0};
CINTERFACE_PROXY_VTABLE(9)
_ITPCCProxyVtbl =
{
    &ITPCC_ProxyInfo,
    &IID_ITPCC,
    IUnknown_QueryInterface_Proxy,
    IUnknown_AddRef_Proxy,
    IUnknown_Release_Proxy ,
    (void *) (INT_PTR) -1 /* ITPCC::NewOrder */
,
    (void *) (INT_PTR) -1 /* ITPCC::Payment */ ,
    (void *) (INT_PTR) -1 /* ITPCC::Delivery */ ,
    (void *) (INT_PTR) -1 /* ITPCC::StockLevel */
,
    (void *) (INT_PTR) -1 /* ITPCC::OrderStatus
*/ ,
    (void *) (INT_PTR) -1 /*
ITPCC::CallSetComplete */
};

const CInterfaceStubVtbl _ITPCCStubVtbl =
{
    &IID_ITPCC,
    &ITPCC_ServerInfo,
    9,
    0, /* pure interpreted */
    CStdStubBuffer_METHODS
};

static const MIDL_STUB_DESC Object_StubDesc
=
{
    0,
    0,
    NdrOleAllocate,
    NdrOleFree,
    0,
    0,
    0,
    0,
    0,
    0,
    0,
    __MIDL_TypeFormatString.Format,
    1, /* -error bounds_check flag */
    0x50002, /* Ndr library version */
    0,
    0x600015b, /* MIDL Version 6.0.347 */
    0,
    UserMarshalRoutines,
    0, /* notify & notify_flag routine table */
    0x1, /* MIDL flag */
    0, /* cs routines */
    0, /* proxy/server info */
    0 /* Reserved5 */
};

const CInterfaceProxyVtbl *
_tpcc_com_ps_ProxyVtblList[] =
{
    ( CInterfaceProxyVtbl *) &_ITPCCProxyVtbl,
    0
};

const CInterfaceStubVtbl *
_tpcc_com_ps_StubVtblList[] =
{
    ( CInterfaceStubVtbl *) &_ITPCCStubVtbl,
    0
};

PCInterfaceName const
_tpcc_com_ps_InterfaceNamesList[] =
{
    "ITPCC",

```

```

}; 0

#define _tpcc_com_ps_CHECK_IID(n)
IID_GENERIC_CHECK_IID(
_tpcc_com_ps, pIID, n)

int __stdcall _tpcc_com_ps_IID_Lookup( const
IID * pIID, int * pIndex )
{
    if(!_tpcc_com_ps_CHECK_IID(0))
    {
        *pIndex = 0;
        return 1;
    }

    return 0;
}

const ExtendedProxyFileInfo
tpcc_com_ps_ProxyFileInfo =
{
    (PCInterfaceProxyVtblList *) &
_tpcc_com_ps_ProxyVtblList,
(PCInterfaceStubVtblList *) &
_tpcc_com_ps_StubVtblList,
(const PCInterfaceName *) &
_tpcc_com_ps_InterfaceNamesList,
0, // no delegation
    &_tpcc_com_ps_IID_Lookup,
    1,
    2,
    0, /* table of [async_uuid] interfaces */
    0, /* Filler1 */
    0, /* Filler2 */
    0 /* Filler3 */
};

#endif /* defined(_M_IA64) ||
defined(_M_AMD64)*/

```

# Appendix B Database Load

## SetupOldLoader.cmd

```
@echo off

set DoDBCREATE=TRUE
set DoBULKINSERT=TRUE
set DoCLEANUP=TRUE
set DoBACKUP=FALSE
set MaxDOP=24

rem
rem Modify the following parameters for your
configuration
rem

set HOMEDRIVE=G:
set HOMEDIR=\hptpc
set OUTPUTDRIVE=G:
set OUTPUTDIR=\hptpc\Output
set THREADS=20
set WAREHOUSES=68000
set DB=tpcc
set PASSWD=ssdl
set SERVER=sqlwestmere

set HOMEPATH=%HOMEDRIVE%%HOMEDIR%
set FILEPATH=%FILEDRIVE%%FILEDIR%

if %PROCESSOR_ARCHITECTURE% == x86 (set
EXECUTABLEPATH=%HOMEPATH%\Executables\x86
) else set
EXECUTABLEPATH=%HOMEPATH%\Executables\x86

%HOMEDRIVE%
cd %HOMEDIR%

if '%1' == 'BULKINSERTn' goto :BULKINSERTn
if '%1' == 'DBCREATE' goto :DBCREATE

echo Checking for existence of HOMEDIR and
OUTPUTDIR
if NOT EXIST %HOMEDRIVE%%HOMEDIR% goto
:NO_HOMEDIR
if NOT EXIST %OUTPUTDRIVE%%OUTPUTDIR% goto
:NO_OUTPUTDIR

echo Finding next output directory in
%OUTPUTDRIVE%%OUTPUTDIR%
set OUTPUTNUMBER=1
:OUTPUTLOOP
if NOT EXIST
%OUTPUTDRIVE%%OUTPUTDIR%\%OUTPUTNUMBER%
R% goto :OUTPUTLOOPEND
set /a OUTPUTNUMBER=%OUTPUTNUMBER%+1
goto :OUTPUTLOOP
:OUTPUTLOOPEND
set
OUTPUTPATH=%OUTPUTDRIVE%%OUTPUTDIR%\%
OUTPUTNUMBER%
echo Output will be found at %OUTPUTPATH%
mkdir %OUTPUTPATH%

:DBCREATE
if NOT '%DoDBCREATE%' == 'TRUE' goto
:BULKINSERT
rem
```

```
rem DBCREATE invokes the file CreateDatabase.sql
rem
echo Starting database creation
time /t >> %OUTPUTPATH%\time.txt
echo Starting database creation >>
%OUTPUTPATH%\time.txt
%HOMEDRIVE%
cd %HOMEDIR%\Database
osql -E -i CreateDatabase.sql -e -o
%OUTPUTPATH%\CreateDatabase.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT
if '%1' == 'DBCREATE'
%EXECUTABLEPATH%\Semaphore -release
echo DBCREATE done %OUTPUTPATH%\time.txt
time /t %OUTPUTPATH%\time.txt
if '%1' == 'DBCREATE' goto :EOF

:BULKINSERT
if NOT '%DoBULKINSERT%' == 'TRUE' goto
:CLEANUP
rem
rem BULKINSERT loads each table through a set of
concurrent bulk inserts
rem After each table is loaded, the table is indexed
rem

echo Starting Bulk Inserts
%HOMEDRIVE%
cd %HOMEDIR%\TablesAndIndexes

osql -E -d%DB% -
i%HOMEPATH%\Database\dbopt1.sql -e -o
%OUTPUTPATH%\dbopt1.out
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -E -Q"sp_configure 'show advanced options',1" -b
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -E -Q"reconfigure with override" -b
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -E -Q"sp_configure 'max degree',%MaxDOP%" -b
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -E -Q"reconfigure with override" -b
if ERRORLEVEL 1 goto :ERROR_EXIT

rem go :AROUND
echo Dropping and Re-Creating Tables
osql -E -d%DB% -iCreateTables.sql -e -o
%OUTPUTPATH%\CreateTables.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT

rem Special case for Item, since it is only one file
echo Starting create indexes for Item
osql -E -d%DB% -
i%HOMEPATH%\TablesAndIndexes\NewCreateITEMIn
dexes.sql -e -
o%OUTPUTPATH%\NewCreateItemIndexes.out
if ERRORLEVEL 1 goto :ERROR_EXIT
echo Starting bulk inserts for Item
%EXECUTABLEPATH%\stockldr\tpccldr -s1 -W10 -
titem -Pssdl -i1 -o1 -f%OUTPUTPATH%\loaditem.out -
L%OUTPUTPATH%\
if ERRORLEVEL 1 goto :ERROR_EXIT

rem :AROUND
echo Starting bulk inserts of item warehouse customer
orders

for %%i in (warehouse customer orders) do call
:BULKINSERTn %%i
rem for %%i in (customer orders) do call
:BULKINSERTn %%i
if ERRORLEVEL 1 goto :ERROR_EXIT

goto :CLEANUP
```

```
:BULKINSERTn
echo Starting bulk inserts for %1
for /l %%j in (1,1,%THREADS%) do start cmd /C
%HOMEPATH%\SetupOldLoader BULKINSERTn %1
%%j
%EXECUTABLEPATH%\Semaphore -wait
%THREADS%

echo Starting create indexes for %1
osql -E -d%DB% -
i%HOMEPATH%\TablesAndIndexes\NewCreate%1In
dexes.sql -e -o
%OUTPUTPATH%\NewCreate%1Indexes.out
if ERRORLEVEL 1 goto :ERROR_EXIT
goto :EOF

:BULKINSERTn
set /a REM=WAREHOUSES %% THREADS
set /a WAREHOUSEPERTHREAD=WAREHOUSES /
THREADS
set /a TEMP=%3-1
set /a
STARTWAREHOUSE=%TEMP%%WAREHOUSEPERTH
READ%
if %3 leq %REM% set /a
WAREHOUSEPERTHREAD=%WAREHOUSEPERTHREAD
%+1
if %3 leq %REM% set /a
STARTWAREHOUSE=%STARTWAREHOUSE%+%3%
if %3 gtr %REM% set /a
STARTWAREHOUSE=%STARTWAREHOUSE%+%REM
%+1
set /a
ENDWAREHOUSE=%STARTWAREHOUSE%+%WAREH
OUSEPERTHREAD%
md %OUTPUTPATH%\%3
%EXECUTABLEPATH%\stockldr\tpccldr -t%2 -Pssdl -
s%STARTWAREHOUSE% -W%ENDWAREHOUSE% -i1
-o1 -
f%OUTPUTPATH%\load%2STARTWAREHOUSE%.ou
t -L%OUTPUTPATH%\%3\ -S%SERVER%

%EXECUTABLEPATH%\Semaphore -release
goto :EOF

:CLEANUP
if NOT '%DoCLEANUP%' == 'TRUE' goto :BACKUP
rem
rem CLEANUP sets statistics and lock options
rem

echo Setting Cleanup Options

%HOMEDRIVE%
cd %HOMEDIR%\Database
osql -E -d%DB% -
i%HOMEPATH%\Database\dbopt2.sql -e -o
%OUTPUTPATH%\dbopt2.out
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -E -Q"sp_configure 'max degree',1" -b
if ERRORLEVEL 1 goto :ERROR_EXIT
osql -E -Q"reconfigure with override" -b
if ERRORLEVEL 1 goto :ERROR_EXIT

cd %HOMEDIR%\StoredProcedures
for %%i in (Create*Proc.sql) do osql -E -d%DB% -
i%HOMEPATH%\StoredProcedures\%%i -e -o
%OUTPUTPATH%\%%i.out -b

osql -E -Q"sp_dboption %DB%,trunc,FALSE" -b
>%OUTPUTPATH%\dboptionTrunOFF.out
if ERRORLEVEL 1 goto :ERROR_EXIT
```

```

osql -E -Q"sp_dboption %DB%, 'select', FALSE" -b
>%OUTPUTPATH%\dboptionSelOFF.out
if ERRORLEVEL 1 goto :ERROR_EXIT

:BACKUP
rem
rem BACKUP is the final step, using a script
rem

if NOT '%DoBACKUP%' == 'TRUE' goto :DONE
%HOMEDRIVE%
cd %HOMEDIR%\Database

echo Starting Backup
osql -E -d%DB% -
i%HOMEPATH%\database\Backup.sql -e -o
%OUTPUTPATH%\Backup.out -b
if ERRORLEVEL 1 goto :ERROR_EXIT

:DONE

echo Done! Check for output in %OUTPUTPATH%
%HOMEDRIVE%
cd %HOMEDIR%

goto :EOF

:NO_HOMEDIR
echo directory %HOMEDRIVE%%HOMEDIR% does
not exist
goto :ERROR_EXIT

:NO_OUTPUTDIR
echo directory %OUTPUTDRIVE%%OUTPUTDIR%
does not exist
goto :ERROR_EXIT

:ERROR_EXIT
echo SetupOldLoader aborted due to errors
echo Check output in %OUTPUTPATH%
%HOMEDRIVE%
cd %HOMEDIR%
exit /B

```

### tpcc.h

```

// File: TPCC.H
//
// Microsoft TPC-C Kit Ver. 4.51
//
// Copyright Microsoft, 1996, 1997, 1998,
1999, 2000, 2001, 2002, 2003, 2005
// Purpose: Header file for TPC-C
database loader

// Build number of TPC Benchmark Kit
#define TPCKIT_VER "4.51"

// General headers
#include <windows.h>
#include <winbase.h>
#include <stdlib.h>
#include <stdio.h>
#include <process.h>
#include <stddef.h>
#include <stdarg.h>

```

```

#include <string.h>
#include <time.h>
#include <sys\timeb.h>
#include <sys\types.h>
#include <math.h>

// ODBC headers
#include <sql.h>
#include <sqlext.h>
#include <odbc.h>

// General constants
#define MILLI 1000
#define FALSE 0
#define TRUE 1
#define UNDEF -1

#define MINPRINTASCII 32
#define MAXPRINTASCII 126

// Default environment constants
#define SERVER ""
#define DATABASE "tpcc"
#define USER "sa"
#define PASSWORD ""

// Default loader arguments
#define BATCH 10000

#define DEFLDPACKSIZE 32768
#define LOADER_RES_FILE "\\load.out"
#define LOADER_LOG_PATH ".\\"
#define LOADER_NURAND_C 123
#define DEF_STARTING_WAREHOUSE 1
#define BUILD_INDEX 1 // build both
data and indexes
#define INDEX_ORDER 1 // build
indexes before load
#define SCALE_DOWN 0 // build a normal scale
database
#define INDEX_SCRIPT_PATH "scripts"

typedef struct
{
char *server;
char *database;
char *user;
char *password;
BOOL tables_all;
// set if loading all tables
BOOL table_item;
// set if loading ITEM table specifically

```

```

BOOL table_warehouse; // set if
loading WAREHOUSE, DISTRICT, and STOCK
BOOL table_customer;
// set if loading CUSTOMER and
HISTORY
BOOL table_orders; // set if
loading NEW-ORDER, ORDERS, ORDER-LINE
long num_warehouses;
long batch;
long verbose;
long pack_size;
char *loader_res_file;
char *log_path;
char *synch_servername;
long case_sensitivity;
long starting_warehouse;
long build_index;
long index_order;
long scale_down;
char *index_script_path;
} TPCCCLR_ARGS;

// String length constants
#define SERVER_NAME_LEN 20
#define DATABASE_NAME_LEN 20
#define USER_NAME_LEN 20
#define PASSWORD_LEN 20
#define TABLE_NAME_LEN 20
#define I_DATA_LEN 50
#define I_NAME_LEN 24
#define BRAND_LEN 1
#define LAST_NAME_LEN 16
#define W_NAME_LEN 10
#define ADDRESS_LEN 20
#define STATE_LEN 2
#define ZIP_LEN 9
#define S_DIST_LEN 24
#define S_DATA_LEN 50
#define D_NAME_LEN 10
#define FIRST_NAME_LEN 16
#define MIDDLE_NAME_LEN 2
#define PHONE_LEN 16
#define CREDIT_LEN 2
#define C_DATA_LEN 500
#define H_DATA_LEN 24
#define DIST_INFO_LEN 24
#define MAX_OL_NEW_ORDER_ITEMS 15
#define MAX_OL_ORDER_STATUS_ITEMS 15
#define STATUS_LEN 25
#define OL_DIST_INFO_LEN 24
#define C_SINCE_LEN 23
#define H_DATE_LEN 23

```



```

#define OL_DELIVERY_D_LEN
23
#define O_ENTRY_D_LEN      23

// Functions in random.c
void seed();
long irand();
double drand();
void WUCreate();
short WURand();
long RandomNumber(long lower, long upper);

// Functions in getargs.c;
void GetArgsLoader();
void GetArgsLoaderUsage();

// Functions in time.c
long TimeNow();

// Functions in strings.c
void MakeAddress();
void LastName();
int MakeAlphaString();
int MakeAlphaStringPadded();
int MakeOriginalAlphaString();
int MakeNumberString();
int MakeZipNumberString();
void InitString();
void InitAddress();
void PaddString();

```

### tpccldr.c

```

//=====
// File:          TPCCLDR.C
//
// Microsoft TPC-C Kit Ver. 4.51
//
// Copyright Microsoft, 1996, 1997, 1998,
1999,
//
// 2000, 2001, 2002, 2003
// Purpose:      Source file for TPC-C
database loader
//=====
// Includes
#include "tpcc.h"
#include "search.h"

// Defines
#define MAXITEMS      100000
#define MAXITEMS_SCALE_DOWN
100
#define CUSTOMERS_PER_DISTRICT 3000
#define CUSTOMERS_SCALE_DOWN 30
#define DISTRICT_PER_WAREHOUSE 10
#define ORDERS_PER_DISTRICT 3000
#define ORDERS_SCALE_DOWN 30
#define MAX_CUSTOMER_THREADS 2
#define MAX_ORDER_THREADS 3
#define MAX_MAIN_THREADS 4
#define MAX_SQL_ERRORS
10

```

```

void HandleFromDBE(SQLEHDBC hdbc1);
long NURand();
void LoadItem();
void LoadWarehouse();
void Stock();
void District();
void LoadCustomer();
void CustomerBufInit();
void CustomerBufLoad();
void LoadCustomerTable();
void LoadHistoryTable();
void LoadOrders();
void OrdersBufInit();
void OrdersBufLoad();
void LoadOrdersTable();
void LoadNewOrderTable();
void LoadOrderLineTable();
void GetPermutation();
void CheckForCommit();
void CheckForCommit_Big();
void OpenConnections();
void BuildIndex();
void FormatDate ();

// Shared memory structures
typedef struct
{
    double
    ol;
    long ol_i_id;
    long ol_supply_w_id;
    short ol_quantity;
    double ol_amount;
    char ol_dist_info[DIST_INFO_LEN+1];
    char ol_delivery_d[OL_DELIVERY_D_LEN+1];
} ORDER_LINE_STRUCT;

typedef struct
{
    long o_id;
    short o_d_id;
    long o_w_id;
    long o_c_id;
    short o_carrier_id;
    short o_ol_cnt;
    short o_all_local;
    ORDER_LINE_STRUCT o_ol[15];
} ORDERS_STRUCT;

typedef struct
{
    long c_id;
    short c_d_id;
    long c_w_id;
    char c_first[FIRST_NAME_LEN+1];
    char c_middle[MIDDLE_NAME_LEN+1];
    char c_last[LAST_NAME_LEN+1];
    char c_street_1[ADDRESS_LEN+1];
    char c_street_2[ADDRESS_LEN+1];
    char c_city[ADDRESS_LEN+1];
    char c_state[STATE_LEN+1];
}

```

```

char c_zip[ZIP_LEN+1];
char c_phone[PHONE_LEN+1];
char c_credit[CREDIT_LEN+1];
double c_credit_lim;
double c_discount;
char c_balance[6];
double c_ytd_payment;
short c_payment_cnt;
short c_delivery_cnt;
char c_data[C_DATA_LEN+1];
double h_amount;
char h_data[H_DATA_LEN+1];
} CUSTOMER_STRUCT;

typedef struct
{
    char c_last[LAST_NAME_LEN+1];
    char c_first[FIRST_NAME_LEN+1];
    long c_id;
} CUSTOMER_SORT_STRUCT;

typedef struct
{
    long time_start;
} LOADER_TIME_STRUCT;

// Global variables
char szLastError[300];
HENV henv;
HDBC v_hdbc;
// for SQL
Server version verification
HDBC i_hdbc1;
// for ITEM table
HDBC w_hdbc1;
// for WAREHOUSE,
DISTRICT, STOCK
HDBC c_hdbc1;
// for CUSTOMER
HDBC c_hdbc2;
// for HISTORY
HDBC o_hdbc1;
// for ORDERS
HDBC o_hdbc2;
// for NEW-ORDER
HDBC o_hdbc3;
// for ORDER-LINE
HSTMT v_hstmt;
// for SQL Server version
verification
HSTMT i_hstmt1;
HSTMT w_hstmt1;
HSTMT c_hstmt1, c_hstmt2;
HSTMT o_hstmt1, o_hstmt2, o_hstmt3;
long total_db_errors = 0;

```

```

ORDERS_STRUCT
  orders_buf[ORDERS_PER_DISTRICT];
CUSTOMER_STRUCT
  customer_buf[CUSTOMERS_PER_DISTRICT];
CT];
long
  orders_rows_loaded;
double
  new_order_rows_loaded;
double
  order_line_rows_loaded;
long
  history_rows_loaded;
long
  customer_rows_loaded;
double
  stock_rows_loaded;
long
  district_rows_loaded;
long
  item_rows_loaded;
long
  warehouse_rows_loaded;
long
  main_time_start;
long
  main_time_end;
long
  max_items;
long
  customers_per_district;
long
  orders_per_district;
long
  first_new_order;
long
  last_new_order;

TPCCLDR_ARGS  *aptr, args;

//=====
//=====
//
// Function name: main
//
//=====
//=====
int main(int argc, char **argv)
{
    DWORD
dwThreadId[MAX_MAIN_THREADS];
HANDLE
hThread[MAX_MAIN_THREADS];
FILE
*fLoader;
char
buffer[255];
int
i;

    for (i=0; i<MAX_MAIN_THREADS; i++)
        hThread[i] = NULL;

    printf("\n*****
*****");
    printf("\n*
*");
    printf("\n* Microsoft SQL Server
*");
    printf("\n*
*");
    printf("\n* TPC-C BENCHMARK KIT:
Database loader *");

```

```

    printf("\n* Version %s
*");
    printf("\n*****
*****\n\n");

    // process command line arguments
    aptr = &args;
    GetArgsLoader(argc, argv, aptr);

    printf("Build interface is ODBC.\n");

    if (aptr->build_index == 0)
        printf("Data load only - no
index creation.\n");
    else
        printf("Data load and index
creation.\n");

    if (aptr->index_order == 0)
        printf("Clustered indexes will be created
after bulk load.\n");
    else
        printf("Clustered indexes will be created
before bulk load.\n");
    }

    if (aptr->index_order == 0)
        printf("Clustered indexes
will be created after bulk load.\n");
    else
        printf("Clustered indexes
will be created before bulk load.\n");

    // set database scale values
    if (aptr->scale_down == 1)
    {
        printf("*** Scaled Down
Database ***\n");
        max_items =
MAXITEMS_SCALE_DOWN;
customers_per_district =
CUSTOMERS_SCALE_DOWN;
orders_per_district =
ORDERS_SCALE_DOWN;
first_new_order = 0;
last_new_order = 30;
    }
    else
    {
        max_items = MAXITEMS;
customers_per_district =
CUSTOMERS_PER_DISTRICT;
orders_per_district =
ORDERS_PER_DISTRICT;
first_new_order = 2100;
last_new_order = 3000;
    }

    // open connections to SQL Server
    OpenConnections();

    // open file for loader results
    fLoader = fopen(aptr->loader_res_file,
"w");

    if (fLoader == NULL)
    {
        printf("Error, loader result
file open failed.");
        exit(-1);
    }

```

```

    }
    // start loading data
    sprintf(buffer, "TPC-C load started for %ld
warehouses. starting warehouse =%ld\n", (aptr-
>num_warehouses-aptr->starting_warehouse+1),
aptr-
>starting_warehouse);
    if (aptr->scale_down == 1)
    {
        printf(buffer, "SCALED
DOWN DATABASE.\n");
    }

    printf("%s", buffer);
    fprintf(fLoader, "%s", buffer);

    main_time_start = (TimeNow() / MILLI);

    // start parallel load threads
    if (aptr->tables_all || aptr->table_item)
    {
        fprintf(fLoader, "\nStarting
loader threads for: item\n");

        hThread[0] =
CreateThread(NULL,
0,
(LPTHREAD_START_ROUTINE) LoadItem,
NULL,
0,
&dwThreadId[0]);

        if (hThread[0] == NULL)
        {
            printf("Error,
failed in creating creating thread = 0.\n");
            exit(-1);
        }

        if (aptr->tables_all || aptr-
>table_warehouse)
        {
            fprintf(fLoader, "Starting
loader threads for: warehouse\n");

            hThread[1] =
CreateThread(NULL,
0,
(LPTHREAD_START_ROUTINE) LoadWarehouse,
NULL,
0,
&dwThreadId[1]);

```

```

        if (hThread[1] == NULL)
        {
            printf("Error,
failed in creating creating thread = 1.\n");
            exit(-1);
        }
    }
    if (aptr->tables_all || aptr-
>table_customer)
    {
        fprintf(fLoader, "Starting
loader threads for: customer\n");
        hThread[2] =
CreateThread(NULL,
0,
(LPTHREAD_START_ROUTINE) LoadCustomer,
NULL,
0,
&dwThreadID[2]);
        if (hThread[2] == NULL)
        {
            printf("Error,
failed in creating creating main thread = 2.\n");
            exit(-1);
        }
        if (aptr->tables_all || aptr->table_orders)
        {
            fprintf(fLoader, "Starting
loader threads for: orders\n");
            hThread[3] =
CreateThread(NULL,
0,
(LPTHREAD_START_ROUTINE) LoadOrders,
NULL,
0,
&dwThreadID[3]);
            if (hThread[3] == NULL)
            {
                printf("Error,
failed in creating creating main thread = 3.\n");
                exit(-1);
            }
        }
        // Wait for threads to finish...
        for (i=0; i<MAX_MAIN_THREADS; i++)
        {

```

```

        if (hThread[i] != NULL)
        {
            WaitForSingleObject( hThread[i],
INFINITE );
            CloseHandle(hThread[i]);
            hThread[i] =
NULL;
        }
        main_time_end = (TimeNow() / MILLI);
        sprintf(buffer, "\nTPC-C load completed successfully
in %ld minutes.\n",
            (main_time_end - main_time_start)/60);
        printf("%s", buffer);
        fprintf(fLoader, "%s", buffer);
        fclose(fLoader);
        SQLFreeEnv(henv);
        exit(0);
        return 0;
    }
    //=====
    // Function name: LoadItem
    //=====
    void LoadItem()
    {
        int            i;
        long           i_id;
        long           i_im_id;
        char           i_name[I_NAME_LEN+1];
        double         i_price;
        char           i_data[I_DATA_LEN+1];
        char           name[20];
        long           time_start;
        RETCODE        rc;
        DBINT          rcint;
        char           bcphint[128];
        char           err_log_path[256];
        // Seed with unique number
        seed(1);
        printf("Loading item table...\n");
        //if build index before load
        if ((aptr->build_index == 1) && (aptr-
>index_order == 1))
            BuildIndex("idxitmc1");
        InitString(i_name, I_NAME_LEN+1);
        InitString(i_data, I_DATA_LEN+1);
        sprintf(name, "%s..%s", aptr->database,
"item");
        strcpy(err_log_path, aptr->log_path);

```

```

        CreateIndex(i_path, i_name, NULL,
err_log_path, DB_IN);
        if (rc != SUCCEEDED)
            HandleErrorDBC(i_hdbc1);
        if ((aptr->build_index == 1) && (aptr-
>index_order == 1))
        {
            sprintf(bcphint, "tablock,
ROWS_PER_BATCH = 100000");
            rc = bcp_control(i_hdbc1,
BCPHINTS, (void*) bcphint);
            if (rc != SUCCEEDED)
                HandleErrorDBC(i_hdbc1);
        }
        i = 0;
        rc = bcp_bind(i_hdbc1, (BYTE *) &i_id,
0, SQL_VARLEN_DATA, NULL, 0, SQLINT4, ++i);
        if (rc != SUCCEEDED)
            HandleErrorDBC(i_hdbc1);
        rc = bcp_bind(i_hdbc1, (BYTE *) i_name,
0, I_NAME_LEN, NULL, 0, 0, ++i);
        if (rc != SUCCEEDED)
            HandleErrorDBC(i_hdbc1);
        rc = bcp_bind(i_hdbc1, (BYTE *)
&i_price, 0, SQL_VARLEN_DATA, NULL, 0, SQLFLT8,
++i);
        if (rc != SUCCEEDED)
            HandleErrorDBC(i_hdbc1);
        rc = bcp_bind(i_hdbc1, (BYTE *) i_data,
0, SQL_VARLEN_DATA, "", 1, 0, ++i);
        if (rc != SUCCEEDED)
            HandleErrorDBC(i_hdbc1);
        rc = bcp_bind(i_hdbc1, (BYTE *)
&i_im_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT4,
++i);
        if (rc != SUCCEEDED)
            HandleErrorDBC(i_hdbc1);
        //time_start = (TimeNow() / MILLI);
        time_start = TimeNow();
        item_rows_loaded = 0;
        for (i_id = 1; i_id <= max_items;
i_id++)
        {
            i_im_id =
RandomNumber(1L, 10000L);
            MakeAlphaStringPadded(14, 24,
I_NAME_LEN, i_name);
            i_price = ((float)
RandomNumber(100L, 10000L))/100.0;
            MakeOriginalAlphaString(26, 50,
I_DATA_LEN, i_data, 10);
            rc =
bcp_sendrow(i_hdbc1);
            if (rc != SUCCEEDED)
                HandleErrorDBC(i_hdbc1);
            item_rows_loaded++;
            CheckForCommit(i_hdbc1,
i_hstmt1, item_rows_loaded, "item", &time_start);
        }

```

```

rcint = bcp_done(i_hdbc1);
if (rcint < 0)
    HandleErrorDBC(i_hdbc1);

printf("Finished loading item table.\n");

SQLFreeStmt(i_hstmt1, SQL_DROP);
SQLDisconnect(i_hdbc1);
SQLFreeConnect(i_hdbc1);

// if build index after load
if ((aptr->build_index == 1) && (aptr->index_order == 0))
    BuildIndex("idxitmc1");
}

//=====
//=====
//
// Function : LoadWarehouse
//
// Loads WAREHOUSE table and loads Stock and
// District as Warehouses are created
//
//=====
//=====
void LoadWarehouse()
{
    int i;
    long w_id;
    char w_name[W_NAME_LEN+1];
    char w_street_1[ADDRESS_LEN+1];
    char w_street_2[ADDRESS_LEN+1];
    char w_city[ADDRESS_LEN+1];
    char w_state[STATE_LEN+1];
    char w_zip[ZIP_LEN+1];
    double w_tax;
    double w_ytd;
    char name[20];
    long time_start;
    RETCODE rc;
    DBINT rcint;
    char bcphint[128];
    char err_log_path[256];

    // Seed with unique number
    seed(2);

    printf("Loading warehouse table...\n");

    // if build index before load...
    if ((aptr->build_index == 1) && (aptr->index_order == 1))
        BuildIndex("idxward1");

    InitString(w_name, W_NAME_LEN+1);
    InitAddress(w_street_1, w_street_2,
w_city, w_state, w_zip);

    sprintf(name, "%s..%s", aptr->database,
"warehouse");

    //strcpy(err_log_path,aptr->log_path);
    //strcat(err_log_path,"whouse.err");
    sprintf(err_log_path,"%swhouse%d.err",
aptr->log_path,aptr->starting_warehouse);
    printf("warehouse error file
=%s\n",err_log_path);
    rc = bcp_init(w_hdbc1, name, NULL,
err_log_path, DB_IN);

```

```

if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

handle\n");
rc = bcp_control(w_hdbc1, BCPHINTS,
"tablock");
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);
*/
if ((aptr->build_index == 1) && (aptr->index_order == 1))
{
    sprintf(bcphint, "tablock,
ROWS_PER_BATCH = %d", aptr->num_warehouses);
rc = bcp_control(w_hdbc1,
BCPHINTS, (void*) bcphint);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);
}

i = 0;
rc = bcp_bind(w_hdbc1, (BYTE *)
&w_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT4,
++);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);
rc = bcp_bind(w_hdbc1, (BYTE *)
&w_ytd, 0, SQL_VARLEN_DATA, NULL, 0, SQLFLT8,
++);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);
rc = bcp_bind(w_hdbc1, (BYTE *)
&w_tax, 0, SQL_VARLEN_DATA, NULL, 0, SQLFLT8,
++);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);
rc = bcp_bind(w_hdbc1, (BYTE *)
w_name, 0, W_NAME_LEN, NULL, 0, 0, ++);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);
rc = bcp_bind(w_hdbc1, (BYTE *)
w_street_1, 0, ADDRESS_LEN, NULL, 0, 0, ++);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);
rc = bcp_bind(w_hdbc1, (BYTE *)
w_street_2, 0, ADDRESS_LEN, NULL, 0, 0, ++);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);
rc = bcp_bind(w_hdbc1, (BYTE *)
w_city, 0, ADDRESS_LEN, NULL, 0, 0, ++);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);
rc = bcp_bind(w_hdbc1, (BYTE *)
w_state, 0, STATE_LEN, NULL, 0, 0, ++);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);
rc = bcp_bind(w_hdbc1, (BYTE *) w_zip,
0, ZIP_LEN, NULL, 0, 0, ++);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

//time_start = (TimeNow() / MILLI);
time_start = TimeNow();

warehouse_rows_loaded = 0;

for (w_id = (long)aptr->starting_warehouse; w_id <= (long) aptr->num_warehouses; w_id++)
{
    MakeAlphaStringPadded(6,10,
W_NAME_LEN, w_name);

```

```

MakeAddress(w_street_1,
w_street_2, w_city, w_state, w_zip);

w_tax = ((float)
RandomNumber(0L,2000L))/10000.00;

w_ytd = 300000.00;

rc =
bcp_sendrow(w_hdbc1);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

warehouse_rows_loaded++;
CheckForCommit(w_hdbc1,
i_hstmt1, warehouse_rows_loaded, "warehouse",
&time_start);
}

rcint = bcp_done(w_hdbc1);
if (rcint < 0)
    HandleErrorDBC(w_hdbc1);

printf("Finished loading warehouse
table.\n");

// if build index after load...
if ((aptr->build_index == 1) && (aptr->index_order == 0))
    BuildIndex("idxward1");

//stock_rows_loaded = 0;
stock_rows_loaded = 4294960000;
district_rows_loaded = 0;

District();
Stock();
}

//=====
//=====
//
// Function : District
//
//=====
//=====
void District()
{
    int i;
    short d_id;
    long d_w_id;
    char d_name[D_NAME_LEN+1];
    char d_street_1[ADDRESS_LEN+1];
    char d_street_2[ADDRESS_LEN+1];
    char d_city[ADDRESS_LEN+1];
    char d_state[STATE_LEN+1];
    char d_zip[ZIP_LEN+1];
    double d_tax;
    double d_ytd;
    char name[20];
    long d_next_o_id;
    long time_start;
    long w_id;
    RETCODE rc;
    DBINT rcint;
    char bcphint[128];
    char err_log_path[256];

    // Seed with unique number
    seed(4);

```

```

printf("Loading district table...\n");

// build index before load
if ((aptr->build_index == 1) && (aptr->index_order == 1))
    BuildIndex("idxdisc1");

InitString(d_name, D_NAME_LEN+1);
InitAddress(d_street_1, d_street_2,
d_city, d_state, d_zip);
sprintf(name, "%s..%s", aptr->database,
"district");

// strcpy(err_log_path,aptr->log_path);
// strcat(err_log_path,"district.err");
// sprintf(err_log_path,"%sdistrict%d.err",a
ptr->log_path,aptr->starting_warehouse);

rc = bcp_init(w_hdbc1, name, NULL,
err_log_path, DB_IN);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

if ((aptr->build_index == 1) && (aptr->index_order == 1))
{
    sprintf(bcphint, "tablock,
ROWS_PER_BATCH = %u", (aptr->num_warehouses
* 10));
    rc = bcp_control(w_hdbc1,
BCPHINTS, (void*) bcphint);
    if (rc != SUCCEEDED)

        HandleErrorDBC(w_hdbc1);
}

i = 0;
rc = bcp_bind(w_hdbc1, (BYTE *) &d_id,
0, SQL_VARLEN_DATA, NULL, 0, SQLINT2, ++i);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);
rc = bcp_bind(w_hdbc1, (BYTE *)
&d_w_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT4,
++i);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);
rc = bcp_bind(w_hdbc1, (BYTE *)
&d_ytd, 0, SQL_VARLEN_DATA, NULL, 0, SQLFLT8,
++i);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);
rc = bcp_bind(w_hdbc1, (BYTE *)
&d_next_o_id, 0, SQL_VARLEN_DATA, NULL, 0,
SQLINT4, ++i);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);
rc = bcp_bind(w_hdbc1, (BYTE *)
d_name, 0, D_NAME_LEN, NULL, 0, 0, ++i);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);
rc = bcp_bind(w_hdbc1, (BYTE *)
d_street_1, 0, ADDRESS_LEN, NULL, 0, 0, ++i);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);
rc = bcp_bind(w_hdbc1, (BYTE *)
d_street_2, 0, ADDRESS_LEN, NULL, 0, 0, ++i);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

```

```

rc = bcp_bind(w_hdbc1, (BYTE *) d_city,
0, ADDRESS_LEN, NULL, 0, 0, ++i);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);
rc = bcp_bind(w_hdbc1, (BYTE *)
d_state, 0, STATE_LEN, NULL, 0, 0, ++i);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);
rc = bcp_bind(w_hdbc1, (BYTE *) d_zip,
0, ZIP_LEN, NULL, 0, 0, ++i);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

d_ytd = 30000.0;

d_next_o_id = orders_per_district+1;

//time_start = (TimeNow() / MILLI);
time_start = TimeNow();

for (w_id = (long) aptr-
>starting_warehouse; w_id <= (long) aptr-
>num_warehouses; w_id++)
{
    d_w_id = w_id;

    for (d_id = 1; d_id <=
DISTRICT_PER_WAREHOUSE; d_id++)
    {
        MakeAlphaStringPadded(6,10,D_NAME_L
EN, d_name);

        MakeAddress(d_street_1, d_street_2,
d_city, d_state, d_zip);

        d_tax =
((float) RandomNumber(0L,2000L))/10000.00;

rc =
bcp_sendrow(w_hdbc1);
if (rc !=
SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

    district_rows_loaded++;

    CheckForCommit(w_hdbc1, w_hstmt1,
district_rows_loaded, "district", &time_start);
}
}

rcint = bcp_done(w_hdbc1);
if (rcint < 0)
    HandleErrorDBC(w_hdbc1);

printf("Finished loading district table.\n");

// if build index after load...
if ((aptr->build_index == 1) && (aptr-
>index_order == 0))
    BuildIndex("idxdisc1");

return;
}

//=====
//=====
//=====
// Function : Stock
//

```

```

//=====
//=====
void Stock()
{
    int i;
    long s_i_id;
    long s_w_id;
    float PercentDone;
    short s_quantity;
    char s_dist_01[S_DIST_LEN+1];
    char s_dist_02[S_DIST_LEN+1];
    char s_dist_03[S_DIST_LEN+1];
    char s_dist_04[S_DIST_LEN+1];
    char s_dist_05[S_DIST_LEN+1];
    char s_dist_06[S_DIST_LEN+1];
    char s_dist_07[S_DIST_LEN+1];
    char s_dist_08[S_DIST_LEN+1];
    char s_dist_09[S_DIST_LEN+1];
    char s_dist_10[S_DIST_LEN+1];
    long s_ytd;
    short s_order_cnt;
    short s_remote_cnt;
    char s_data[S_DATA_LEN+1];
    short len;
    char name[20];
    long time_start;
    RETCODE rc;
    DBINT rcint;
    char bcphint[128];
    char err_log_path[256];

    // Seed with unique number
    seed(3);

    // if build index before load...
    if ((aptr->build_index == 1) && (aptr-
>index_order == 1))
        BuildIndex("idxstck1");

    sprintf(name, "%s..%s", aptr->database,
"stock");

    //rc = bcp_init(w_hdbc1, name, NULL,
"logs\stock.err", DB_IN);
    // strcpy(err_log_path,aptr->log_path);
    // strcat(err_log_path,"stock.err");
    // sprintf(err_log_path,"%sstock%d.err",ap
tr->log_path,aptr->starting_warehouse);

    rc = bcp_init(w_hdbc1, name, NULL,
err_log_path, DB_IN);
    if (rc != SUCCEEDED)
        HandleErrorDBC(w_hdbc1);

    if ((aptr->build_index == 1) && (aptr-
>index_order == 1))
    {
        sprintf(bcphint, "tablock,
ROWS_PER_BATCH = %u", (aptr->num_warehouses
* 100000));
        rc = bcp_control(w_hdbc1,
BCPHINTS, (void*) bcphint);
        if (rc != SUCCEEDED)

            HandleErrorDBC(w_hdbc1);
    }

    i = 0;
    rc = bcp_bind(w_hdbc1, (BYTE *)
&s_i_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT4,
++i);
    if (rc != SUCCEEDED)
        HandleErrorDBC(w_hdbc1);
}

```

```

        rc = bcp_bind(w_hdbc1, (BYTE *)
&s_w_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT4,
++);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);
        rc = bcp_bind(w_hdbc1, (BYTE *)
&s_quantity, 0, SQL_VARLEN_DATA, NULL, 0,
SQLINT2, ++);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);
        rc = bcp_bind(w_hdbc1, (BYTE *)
&s_ytd, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT4,
++);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);
        rc = bcp_bind(w_hdbc1, (BYTE *)
&s_order_cnt, 0, SQL_VARLEN_DATA, NULL, 0,
SQLINT2, ++);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);
        rc = bcp_bind(w_hdbc1, (BYTE *)
&s_remote_cnt, 0, SQL_VARLEN_DATA, NULL, 0,
SQLINT2, ++);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);
        rc = bcp_bind(w_hdbc1, (BYTE *)
s_data, 0, SQL_VARLEN_DATA, "", 1, 0, ++);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);
        rc = bcp_bind(w_hdbc1, (BYTE *)
s_dist_01, 0, S_DIST_LEN, NULL, 0, 0, ++);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);
        rc = bcp_bind(w_hdbc1, (BYTE *)
s_dist_02, 0, S_DIST_LEN, NULL, 0, 0, ++);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);
        rc = bcp_bind(w_hdbc1, (BYTE *)
s_dist_03, 0, S_DIST_LEN, NULL, 0, 0, ++);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);
        rc = bcp_bind(w_hdbc1, (BYTE *)
s_dist_04, 0, S_DIST_LEN, NULL, 0, 0, ++);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);
        rc = bcp_bind(w_hdbc1, (BYTE *)
s_dist_05, 0, S_DIST_LEN, NULL, 0, 0, ++);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);
        rc = bcp_bind(w_hdbc1, (BYTE *)
s_dist_06, 0, S_DIST_LEN, NULL, 0, 0, ++);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);
        rc = bcp_bind(w_hdbc1, (BYTE *)
s_dist_07, 0, S_DIST_LEN, NULL, 0, 0, ++);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);
        rc = bcp_bind(w_hdbc1, (BYTE *)
s_dist_08, 0, S_DIST_LEN, NULL, 0, 0, ++);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);
        rc = bcp_bind(w_hdbc1, (BYTE *)
s_dist_09, 0, S_DIST_LEN, NULL, 0, 0, ++);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);
        rc = bcp_bind(w_hdbc1, (BYTE *)
s_dist_10, 0, S_DIST_LEN, NULL, 0, 0, ++);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

        s_ytd = s_order_cnt = s_remote_cnt =
0;

//time_start = (TimeNow() / MILLI);
time_start = TimeNow();

```

```

printf("...Loading stock table\n");

for (s_i_id=1; s_i_id <= max_items;
s_i_id++)
{
    for (s_w_id = (long)aptr-
>starting_warehouse; s_w_id <= (long) aptr-
>num_warehouses; s_w_id++)
    {
        s_quantity =
(short)RandomNumber(10L,100L);
        len =
MakeAlphaString(24,24,S_DIST_LEN, s_dist_01);
        len =
MakeAlphaString(24,24,S_DIST_LEN, s_dist_02);
        len =
MakeAlphaString(24,24,S_DIST_LEN, s_dist_03);
        len =
MakeAlphaString(24,24,S_DIST_LEN, s_dist_04);
        len =
MakeAlphaString(24,24,S_DIST_LEN, s_dist_05);
        len =
MakeAlphaString(24,24,S_DIST_LEN, s_dist_06);
        len =
MakeAlphaString(24,24,S_DIST_LEN, s_dist_07);
        len =
MakeAlphaString(24,24,S_DIST_LEN, s_dist_08);
        len =
MakeAlphaString(24,24,S_DIST_LEN, s_dist_09);
        len =
MakeAlphaString(24,24,S_DIST_LEN, s_dist_10);

        len =
MakeOriginalAlphaString(26,50, S_DATA_LEN,
s_data,10);

        rc =
bcp_sendrow(w_hdbc1);
        if (rc !=
SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

        stock_rows_loaded++;

        CheckForCommit_Big(w_hdbc1,
w_hstmt1, stock_rows_loaded, "stock", &time_start);

    } //display progress every
10%
//
    if (!((fmod(s_i_id,10)) {
        if ((s_i_id % 10) == 0) {
            PercentDone
= (float) s_i_id *100.0 / (float) max_items;

            printf("Processed Item %ld, Percent
Done = %.2f\n",s_i_id,PercentDone);
        }
    }

    rcint = bcp_done(w_hdbc1);
    if (rcint < 0)
        HandleErrorDBC(w_hdbc1);

    printf("Finished loading stock table.\n");

    SQLFreeStmt(w_hstmt1, SQL_DROP);
    SQLDisconnect(w_hdbc1);
    SQLFreeConnect(w_hdbc1);

```

```

if ((aptr->build_index == 1) && (aptr-
>index_order == 0))
    BuildIndex("idxstkcl");

return;
}

//=====
//
// Function : LoadCustomer
//
//=====
void LoadCustomer()
{
    LOADER_TIME_STRUCT
customer_time_start;
    LOADER_TIME_STRUCT
history_time_start;
    long
short w_id;
    d_id;
    DWORD
dwThreadID[MAX_CUSTOMER_THREADS
];
    HANDLE
hThread[MAX_CUSTOMER_THREADS];
    char name[20];
    RETCODE
rc;
    DBINT
rcint;
    char
bcphint[128];
    char
cmd[256];
    int
num_procs;
    char
err_log_path_cust[256];
    char
err_log_path_hist[256];

// Seed with unique number
seed(5);

printf("Loading customer and history
tables...\n");

// if build index before load...
if ((aptr->build_index == 1) && (aptr-
>index_order == 1))
{
    BuildIndex("idxcuscl");
// check the number of
processors on this system
// if 8 or more processors,
then build index on History.
// if less than 8 processors,
do not build the index
    num_procs = atoi(getenv(
"NUMBER_OF_PROCESSORS" ));
    if ( num_procs >= 8 )

        BuildIndex("idxhisccl");
}

// Initialize bulk copy
sprintf(name, "%s.%s", aptr->database,
"customer");

```

```

        //rc = bcp_init(c_hdbc1, name, NULL,
"logs\customer.err", DB_IN);
//      strcpy(err_log_path_cust,aptr-
>log_path);
//      strcat(err_log_path_cust,"customer.err");
      sprintf(err_log_path_cust,"%scustomer%
d.err",aptr->log_path,aptr->starting_warehouse);
      rc = bcp_init(c_hdbc1, name, NULL,
err_log_path_cust, DB_IN);
      if (rc != SUCCEED)
          HandleErrorDBC(c_hdbc1);

      if ((aptr->build_index == 1) && (aptr-
>index_order == 1))
          {
              sprintf(bcphint, "tablock,
ROWS_PER_BATCH = %u", (aptr->num_warehouses
* 30000));
              rc = bcp_control(c_hdbc1,
BCPHINTS, (void*) bcphint);
              if (rc != SUCCEED)
                  HandleErrorDBC(c_hdbc1);
          }

      sprintf(name, "%s..%s", aptr->database,
"history");

      rc = bcp_init(c_hdbc2, name, NULL,
"logs\history.err", DB_IN);
      //      strcpy(err_log_path_hist,aptr-
>log_path);
      //      strcat(err_log_path_hist,"history.err");
      sprintf(err_log_path_hist,"%shistory%d.
err",aptr->log_path,aptr->starting_warehouse);
      rc = bcp_init(c_hdbc2, name, NULL,
err_log_path_hist, DB_IN);
      if (rc != SUCCEED)
          HandleErrorDBC(c_hdbc2);

      sprintf(bcphint, "tablock");
      rc = bcp_control(c_hdbc2, BCPHINTS,
(void*) bcphint);
      if (rc != SUCCEED)
          HandleErrorDBC(c_hdbc2);

      customer_rows_loaded = 0;
      history_rows_loaded = 0;

      CustomerBufInit();

      customer_time_start.time_start =
(TimeNow() / MILLI);
      history_time_start.time_start =
(TimeNow() / MILLI);

      for (w_id = (long)aptr-
>starting_warehouse; w_id <= (long) aptr-
>num_warehouses; w_id++)
          {
              for (d_id = 1; d_id <=
DISTRICT_PER_WAREHOUSE; d_id++)
                  {

                      CustomerBufLoad(d_id, w_id);

                          // Start
parallel loading threads here...
                          // Start
customer table thread

                          printf("...Loading customer table for:
d_id = %ld, w_id = %ld\n", d_id, w_id);

```

```

        hThread[0] =
CreateThread(NULL,
0,
(LPTHREAD_START_ROUTINE)
LoadCustomerTable,
&customer_time_start,
0,
&dwThreadID[0]);
if (hThread[0]
== NULL)
    {
        printf("Error, failed in creating creating
thread = 0.\n");
        exit(-1);
    }
// Start
History table thread
    printf("...Loading history table for: d_id =
%ld, w_id = %ld\n", d_id, w_id);
    hThread[1] =
CreateThread(NULL,
0,
(LPTHREAD_START_ROUTINE)
LoadHistoryTable,
&history_time_start,
0,
&dwThreadID[1]);
if (hThread[1]
== NULL)
    {
        printf("Error, failed in creating creating
thread = 1.\n");
        exit(-1);
    }
    WaitForSingleObject( hThread[0],
INFINITE );
    WaitForSingleObject( hThread[1],
INFINITE );
    if
(CloseHandle(hThread[0]) == FALSE)
    {

```

```

        printf("Error, failed in closing customer
thread handle with errno: %d\n", GetLastError());
        if
(CloseHandle(hThread[1]) == FALSE)
        {
            printf("Error, failed in closing history
thread handle with errno: %d\n", GetLastError());
        }
        // flush the bulk connection
rcint = bcp_done(c_hdbc1);
        if (rcint < 0)
            HandleErrorDBC(c_hdbc1);

        rcint = bcp_done(c_hdbc2);
        if (rcint < 0)
            HandleErrorDBC(c_hdbc2);

        printf("Finished loading customer
table.\n");

        // if build index after load...
        if ((aptr->build_index == 1) && (aptr-
>index_order == 0))
            {
                BuildIndex("idxcusc1");
                // check the number of
processors on this system
                // if 8 or more processors,
then build index on History.
                // if less than 8 processors,
do not build the index
                num_procs = atoi(getenv(
"NUMBER_OF_PROCESSORS" ));
                if (num_procs >= 8)
                    BuildIndex("idxhisc1");
                // build non-clustered index
                if (aptr->build_index == 1)
                    BuildIndex("idxcuscnc");

                // Output the NURAND used for the
loader into C_FIRST for C_ID = 1,
                // C_W_ID = 1, and C_D_ID = 1
                sprintf(cmd, "osql -S%s -U%s -P%s -
d%s -e -Q\"update customer set c_first = 'C_LOAD =
%d' where c_id = 1 and c_w_id = 1 and c_d_id = 1\"
> %snurand_load.log",
                aptr->server,
                aptr->user,
                aptr->password,
                aptr->database,
                LOADER_NURAND_C,
                aptr->log_path);
                system(cmd);
            }
        /*
        SQLFreeStmt(c_hstmt1, SQL_DROP);
        SQLDisconnect(c_hdbc1);

```

```

SQLFreeConnect(c_hdbc1);

SQLFreeStmt(c_hstmt2, SQL_DROP);
SQLDisconnect(c_hdbc2);
SQLFreeConnect(c_hdbc2);

return;
}

//=====
// Function : CustomerBufInit
//=====
void CustomerBufInit()
{
    long i;

    for (i=0;i<customers_per_district;i++)
    {
        customer_buf[i].c_id = 0;
        customer_buf[i].c_d_id =
0;
        customer_buf[i].c_w_id =
0;

        strcpy(customer_buf[i].c_first,"");
        strcpy(customer_buf[i].c_middle,"");
        strcpy(customer_buf[i].c_last,"");

        strcpy(customer_buf[i].c_street_1,"");
        strcpy(customer_buf[i].c_street_2,"");

        strcpy(customer_buf[i].c_city,"");
        strcpy(customer_buf[i].c_state,"");
        strcpy(customer_buf[i].c_zip,"");

        strcpy(customer_buf[i].c_phone,"");
        strcpy(customer_buf[i].c_credit,"");

        customer_buf[i].c_credit_lim = 0;
        customer_buf[i].c_discount
= (float) 0;

        strcpy(customer_buf[i].c_balance,"");

        customer_buf[i].c_ytd_payment = 0;
        customer_buf[i].c_payment_cnt = 0;
        customer_buf[i].c_delivery_cnt = 0;

        strcpy(customer_buf[i].c_data,"");

        customer_buf[i].h_amount
= 0;

        strcpy(customer_buf[i].h_data,"");

```

```

    }

//=====
// Function : CustomerBufLoad
// Fills shared buffer for HISTORY and CUSTOMER
//=====
void CustomerBufLoad(int d_id, long w_id)
{
    long
i;
    CUSTOMER_SORT_STRUCT
c[CUSTOMERS_PER_DISTRICT];

    for (i=0;i<customers_per_district;i++)
    {
        if (i < 1000)
            LastName(i,
c[i].c_last);
        else
            LastName(NURand(255,0,999,LOADER_N
URAND_C), c[i].c_last);

        MakeAlphaStringPadded(8,16,FIRST_NA
ME_LEN, c[i].c_first);

        c[i].c_id = i+1;
    }

    printf("...Loading customer buffer for:
d_id = %ld, w_id = %ld\n",
d_id, w_id);

    for (i=0;i<customers_per_district;i++)
    {
        customer_buf[i].c_d_id =
d_id;
        customer_buf[i].c_w_id =
w_id;
        customer_buf[i].h_amount
= 10.0;
        customer_buf[i].c_ytd_payment = 10.0;
        customer_buf[i].c_payment_cnt = 1;
        customer_buf[i].c_delivery_cnt = 0;
        customer_buf[i].c_id =
c[i].c_id;
        strcpy(customer_buf[i].c_first,
c[i].c_first);
        strcpy(customer_buf[i].c_last,
c[i].c_last);
        customer_buf[i].c_middle[0] = 'O';
        customer_buf[i].c_middle[1] = 'E';

        MakeAddress(customer_buf[i].c_street_1
,
customer_buf[i].c_street_2,
customer_buf[i].c_city,

```

```

customer_buf[i].c_state,
customer_buf[i].c_zip);
        MakeNumberString(16, 16,
PHONE_LEN, customer_buf[i].c_phone);

        if (RandomNumber(1L,
100L) > 10)
            customer_buf[i].c_credit[0] = 'G';
            else
            customer_buf[i].c_credit[0] = 'B';
            customer_buf[i].c_credit[1]
= 'C';
            customer_buf[i].c_credit_lim = 50000.0;
            customer_buf[i].c_discount
= ((float) RandomNumber(0L, 5000L)) / 10000.0;

            strcpy(customer_buf[i].c_balance,"-
10.0");
            MakeAlphaStringPadded(300, 500,
C_DATA_LEN, customer_buf[i].c_data);

            // Generate HISTORY data

            MakeAlphaStringPadded(12, 24,
H_DATA_LEN, customer_buf[i].h_data);
        }
    }

//=====
// Function : LoadCustomerTable
//=====
void LoadCustomerTable(LOADER_TIME_STRUCT
*customer_time_start)
{
    long
i;
    long
c_id;
    short
c_d_id;
    long
c_w_id;
    char
c_first[FIRST_NAME_LEN+1];
    char
c_middle[MIDDLE_NAME_LEN+1];
    char
c_last[LAST_NAME_LEN+1];
    char
c_street_1[ADDRESS_LEN+1];
    char
c_street_2[ADDRESS_LEN+1];
    char
c_city[ADDRESS_LEN+1];
    char
c_state[STATE_LEN+1];
    char
c_zip[ZIP_LEN+1];
    char
c_phone[PHONE_LEN+1];
    char
c_credit[CREDIT_LEN+1];
    double
c_credit_lim;
    double
c_discount;
    char
c_balance[6];
    double
c_ytd_payment;
    short
c_payment_cnt;
    short
c_delivery_cnt;
    char
c_data[C_DATA_LEN+1];
    char
c_since[C_SINCE_LEN+1];
    RETCODE
rc;

    i = 0;
    rc = bcp_bind(c_hdbc1, (BYTE *) &c_id,
0, SQL_VARLEN_DATA, NULL, 0, SQLINT4, ++i);

```



```

        if (rc != SUCCEEDED)
            HandleErrorDBC(c_hdbc1);
        rc = bcp_bind(c_hdbc1, (BYTE *) &c_d_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, ++i);
        if (rc != SUCCEEDED)
            HandleErrorDBC(c_hdbc1);
        rc = bcp_bind(c_hdbc1, (BYTE *)
&c_w_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT4,
++i);
        if (rc != SUCCEEDED)
            HandleErrorDBC(c_hdbc1);
        rc = bcp_bind(c_hdbc1, (BYTE *) &c_discount, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, ++i);
        if (rc != SUCCEEDED)
            HandleErrorDBC(c_hdbc1);
        rc = bcp_bind(c_hdbc1, (BYTE *) &c_credit_lim, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, ++i);
        if (rc != SUCCEEDED)
            HandleErrorDBC(c_hdbc1);
        rc = bcp_bind(c_hdbc1, (BYTE *) c_last, 0,
LAST_NAME_LEN, NULL, 0, 0, ++i);
        if (rc != SUCCEEDED)
            HandleErrorDBC(c_hdbc1);
        rc = bcp_bind(c_hdbc1, (BYTE *) c_first,
0, FIRST_NAME_LEN, NULL, 0, 0, ++i);
        if (rc != SUCCEEDED)
            HandleErrorDBC(c_hdbc1);
        rc = bcp_bind(c_hdbc1, (BYTE *) c_credit, 0,
CREDIT_LEN, NULL, 0, 0, ++i);
        if (rc != SUCCEEDED)
            HandleErrorDBC(c_hdbc1);
        rc = bcp_bind(c_hdbc1, (BYTE *) c_balance, 0, 5,
NULL, 0, SQLCHARACTER, ++i);
        if (rc != SUCCEEDED)
            HandleErrorDBC(c_hdbc1);
        rc = bcp_bind(c_hdbc1, (BYTE *) &c_ytd_payment,
0, SQL_VARLEN_DATA, NULL, 0, SQLFLT8, ++i);
        if (rc != SUCCEEDED)
            HandleErrorDBC(c_hdbc1);
        rc = bcp_bind(c_hdbc1, (BYTE *) &c_payment_cnt,
0, SQL_VARLEN_DATA, NULL, 0, SQLINT2, ++i);
        if (rc != SUCCEEDED)
            HandleErrorDBC(c_hdbc1);
        rc = bcp_bind(c_hdbc1, (BYTE *)
&c_delivery_cnt, 0, SQL_VARLEN_DATA, NULL, 0,
SQLINT2, ++i);
        if (rc != SUCCEEDED)
            HandleErrorDBC(c_hdbc1);
        rc = bcp_bind(c_hdbc1, (BYTE *) c_street_1, 0,
ADDRESS_LEN, NULL, 0, 0, ++i);
        if (rc != SUCCEEDED)
            HandleErrorDBC(c_hdbc1);
        rc = bcp_bind(c_hdbc1, (BYTE *) c_street_2, 0,
ADDRESS_LEN, NULL, 0, 0, ++i);
        if (rc != SUCCEEDED)
            HandleErrorDBC(c_hdbc1);
        rc = bcp_bind(c_hdbc1, (BYTE *) c_city, 0,
ADDRESS_LEN, NULL, 0, 0, ++i);
        if (rc != SUCCEEDED)
            HandleErrorDBC(c_hdbc1);
        rc = bcp_bind(c_hdbc1, (BYTE *) c_state, 0,
STATE_LEN, NULL, 0, 0, ++i);
        if (rc != SUCCEEDED)
            HandleErrorDBC(c_hdbc1);
        rc = bcp_bind(c_hdbc1, (BYTE *) c_zip, 0,
ZIP_LEN, NULL, 0, 0, ++i);
        if (rc != SUCCEEDED)
            HandleErrorDBC(c_hdbc1);
        rc = bcp_bind(c_hdbc1, (BYTE *) c_phone, 0,
PHONE_LEN, NULL, 0, 0, ++i);
        if (rc != SUCCEEDED)
            HandleErrorDBC(c_hdbc1);
        rc = bcp_bind(c_hdbc1, (BYTE *)
&c_since, 0, C_SINCE_LEN, NULL, 0, SQLCHARACTER,
++i);

```

```

        if (rc != SUCCEEDED)
            HandleErrorDBC(c_hdbc1);
        rc = bcp_bind(c_hdbc1, (BYTE *)
c_middle, 0, MIDDLE_NAME_LEN, NULL, 0, 0, ++i);
        if (rc != SUCCEEDED)
            HandleErrorDBC(c_hdbc1);
        rc = bcp_bind(c_hdbc1, (BYTE *) c_data, 0,
C_DATA_LEN, NULL, 0, 0, ++i);
        if (rc != SUCCEEDED)
            HandleErrorDBC(c_hdbc1);

        for (i = 0; i < customers_per_district; i++)
        {
            customer_buf[i].c_id =
            customer_buf[i].c_d_id =
            customer_buf[i].c_w_id =

            strcpy(c_first,
customer_buf[i].c_first);
            strcpy(c_middle,
customer_buf[i].c_middle);
            strcpy(c_last,
customer_buf[i].c_last);
            strcpy(c_street_1,
customer_buf[i].c_street_1);
            strcpy(c_street_2,
customer_buf[i].c_street_2);
            strcpy(c_city,
customer_buf[i].c_city);
            strcpy(c_state,
customer_buf[i].c_state);
            strcpy(c_zip,
customer_buf[i].c_zip);
            strcpy(c_phone,
customer_buf[i].c_phone);
            strcpy(c_credit,
customer_buf[i].c_credit);

            FormatDate(&c_since);

            c_credit_lim =
customer_buf[i].c_credit_lim;
            c_discount =
customer_buf[i].c_discount;
            strcpy(c_balance,
customer_buf[i].c_balance);
            c_ytd_payment =
customer_buf[i].c_ytd_payment;
            c_payment_cnt =
customer_buf[i].c_payment_cnt;
            c_delivery_cnt =
customer_buf[i].c_delivery_cnt;
            strcpy(c_data,
customer_buf[i].c_data);

            // Send data to server
            rc =
            bcp_sendrow(c_hdbc1);
            if (rc != SUCCEEDED)
                HandleErrorDBC(c_hdbc1);
            customer_rows_loaded++;
            CheckForCommit(c_hdbc1,
c_hstmt1, customer_rows_loaded, "customer",
&customer_time_start->time_start);
        }

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

```

```

// Function : LoadHistoryTable
//
//=====
//=====
void LoadHistoryTable(LOADER_TIME_STRUCT
*history_time_start)
{
    long                i;
    long                c_id;
    short               c_d_id;
    long                c_w_id;
    double              h_amount;
    char                h_data[H_DATA_LEN+1];
    char                h_date[H_DATE_LEN+1];
    RETCODE             rc;

    i = 0;
    rc = bcp_bind(c_hdbc2, (BYTE *) &c_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, ++i);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc2);
    rc = bcp_bind(c_hdbc2, (BYTE *) &c_d_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, ++i);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc2);
    rc = bcp_bind(c_hdbc2, (BYTE *)
&c_w_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT4,
++i);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc2);
    rc = bcp_bind(c_hdbc2, (BYTE *) &c_d_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, ++i);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc2);
    rc = bcp_bind(c_hdbc2, (BYTE *)
&c_w_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT4,
++i);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc2);
    rc = bcp_bind(c_hdbc2, (BYTE *)
&h_date, 0, H_DATE_LEN, NULL, 0, SQLCHARACTER,
++i);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc2);
    rc = bcp_bind(c_hdbc2, (BYTE *) &h_amount, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, ++i);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc2);
    rc = bcp_bind(c_hdbc2, (BYTE *) h_data, 0,
H_DATA_LEN, NULL, 0, 0, ++i);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc2);

    for (i = 0; i < customers_per_district; i++)
    {
        c_id =
customer_buf[i].c_id;
        c_d_id =
customer_buf[i].c_d_id;
        c_w_id =
customer_buf[i].c_w_id;
        h_amount =
customer_buf[i].h_amount;
        strcpy(h_data,
customer_buf[i].h_data);

        FormatDate(&h_date);

        // send to server
        rc =
        bcp_sendrow(c_hdbc2);

```

```

        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc2);

        history_rows_loaded++;
        CheckForCommit(c_hdbc2,
c_hstmt2, history_rows_loaded, "history",
&history_time_start->time_start);
    }
}

//=====
//-----
//
// Function : LoadOrders
//
//=====
void LoadOrders()
{
    LOADER_TIME_STRUCT
orders_time_start;
    LOADER_TIME_STRUCT
new_order_time_start;
    LOADER_TIME_STRUCT
order_line_time_start;
    long
short
w_id;
d_id;

    DWORD
dwThreadId[MAX_ORDER_THREADS];
    HANDLE
hThread[MAX_ORDER_THREADS];
    char
name[20];
    RETCODE
rc;
    char
bcphint[128];
    char
err_log_path_ord[256];
    char
err_log_path_nord[256];
    char
err_log_path_ordl[256];

    // seed with unique number
seed(6);

    printf("Loading orders...\n");

    // if build index before load...
if ((aptr->build_index == 1) && (aptr-
>index_order == 1))
    {
        BuildIndex("idxordcl");

        BuildIndex("idxnodcl");

        BuildIndex("idxodcl");
    }

    // initialize bulk copy
sprintf(name, "%s.%s", aptr->database,
"orders");

    // strcpy(err_log_path_ord,aptr-
>log_path);
    // strcat(err_log_path_ord,"orders.err");
    sprintf(err_log_path_ord,"%sorders%d.e
rr",aptr->log_path,aptr->starting_warehouse);

```

```

        rc = bcp_init(o_hdbc1, name, NULL,
err_log_path_ord, DB_IN, SUCCEED);
        HandleErrorDBC(o_hdbc1);

        if ((aptr->build_index == 1) && (aptr-
>index_order == 1))
            {
                sprintf(bcphint, "tablock,
ROWS_PER_BATCH = %u", (aptr->num_warehouses
* 30000));
                rc = bcp_control(o_hdbc1,
BCPHINTS, (void*) bcphint);
                if (rc != SUCCEED)

                    HandleErrorDBC(o_hdbc1);
            }

            sprintf(name, "%s.%s", aptr->database,
"new_order");

            // rc = bcp_init(o_hdbc2, name, NULL,
"logs\\neword.err", DB_IN);
            // strcpy(err_log_path_nord,aptr-
>log_path);
            // strcat(err_log_path_nord,"neword.err");
            sprintf(err_log_path_nord,"%sneword%d.
err",aptr->log_path,aptr->starting_warehouse);
            rc = bcp_init(o_hdbc2, name, NULL,
err_log_path_nord, DB_IN);
            if (rc != SUCCEED)
                HandleErrorDBC(o_hdbc2);

            if ((aptr->build_index == 1) && (aptr-
>index_order == 1))
                {
                    sprintf(bcphint, "tablock,
ROWS_PER_BATCH = %u", (aptr->num_warehouses
* 9000));
                    rc = bcp_control(o_hdbc2,
BCPHINTS, (void*) bcphint);
                    if (rc != SUCCEED)

                        HandleErrorDBC(o_hdbc2);
                }

                sprintf(name, "%s.%s", aptr->database,
"order_line");

                // rc = bcp_init(o_hdbc3,
name, NULL, "logs\\ordline.err", DB_IN);
                // strcpy(err_log_path_ordl,aptr-
>log_path);
                // strcat(err_log_path_ordl,"ordline.err");
                sprintf(err_log_path_ordl,"%sordline%d.
err",aptr->log_path,aptr->starting_warehouse);
                rc = bcp_init(o_hdbc3, name, NULL,
err_log_path_ordl, DB_IN);
                if (rc != SUCCEED)
                    HandleErrorDBC(o_hdbc3);

                if ((aptr->build_index == 1) && (aptr->index_order
== 1))
                    {
                        sprintf(bcphint, "tablock,
ROWS_PER_BATCH = %u", (aptr->num_warehouses
* 30000));
                        rc = bcp_control(o_hdbc3,
BCPHINTS, (void*) bcphint);
                        if (rc != SUCCEED)

                            HandleErrorDBC(o_hdbc3);
                    }

                    orders_rows_loaded = 0;
                    new_order_rows_loaded = 0;

```

```

        order_line_rows_loaded = 0;
4294960000;

        OrdersBufInit();

        orders_time_start.time_start =
(TimeNow() / MILLI);
        new_order_time_start.time_start =
(TimeNow() / MILLI);
        order_line_time_start.time_start =
(TimeNow() / MILLI);

        for (w_id = (long)aptr-
>starting_warehouse; w_id <= (long) aptr-
>num_warehouses; w_id++)
            {
                for (d_id = 1; d_id <=
DISTRICT_PER_WAREHOUSE; d_id++)
                    {

                        OrdersBufLoad(d_id, w_id);

                        // start
parallel loading threads here...
                        // start Orders
table thread

                            printf("...Loading Order Table for: d_id =
%d, w_id = %d\n", d_id, w_id);

                                hThread[0] =
CreateThread(NULL,

                                    0,

                                        (LPTHREAD_START_ROUTINE)
LoadOrdersTable,

                                            &orders_time_start,

                                                0,

                                                    &dwThreadId[0]);

                                                        if (hThread[0]
== NULL)
                                                            {
                                                                printf("Error, failed in creating creating
thread = 0.\n");
                                                                exit(-1);
                                                            }

                                                                // start
NewOrder table thread

                                                                    printf("...Loading New-Order Table for:
d_id = %d, w_id = %d\n", d_id, w_id);

                                                                        hThread[1] =
CreateThread(NULL,

                                                                            0,

                                                                                (LPTHREAD_START_ROUTINE)
LoadNewOrderTable,

```

```

    &new_order_time_start,
    0,
    &dwThreadID[1];
    if (hThread[1]
== NULL)
    {
        printf("Error, failed in creating creating
thread = 1.\n");
        exit(-1);
    }
    // start Order-
Line table thread
    printf("...Loading Order-Line Table for:
d_id = %ld, w_id = %ld\n", d_id, w_id);
    CreateThread(NULL,
    0,
    (LPTHREAD_START_ROUTINE)
LoadOrderLineTable,
    &order_line_time_start,
    0,
    &dwThreadID[2]);
    if (hThread[2]
== NULL)
    {
        printf("Error, failed in creating creating
thread = 2. LastError = %d\n", GetLastError());
        exit(-1);
    }
    WaitForSingleObject( hThread[0],
INFINITE );
    WaitForSingleObject( hThread[1],
INFINITE );
    WaitForSingleObject( hThread[2],
INFINITE );
    if
(CloseHandle(hThread[0]) == FALSE)
    {
        printf("Error, failed in closing Orders
thread handle with errno: %d\n", GetLastError());
    }
    if
(CloseHandle(hThread[1]) == FALSE)
        {
            printf("Error, failed in closing NewOrder
thread handle with errno: %d\n", GetLastError());
        }
        if
(CloseHandle(hThread[2]) == FALSE)
        {
            printf("Error, failed in closing OrderLine
thread handle with errno: %d\n", GetLastError());
        }
        printf("Finished loading orders.\n");
        return;
    }
    //=====
    // Function : OrdersBufInit
    // Clears shared buffer for ORDERS, NEWORDER, and
ORDERLINE
    //=====
    void OrdersBufInit()
    {
        int i;
        int j;
        for (i=0;i<orders_per_district;i++)
        {
            orders_buf[i].o_id = 0;
            orders_buf[i].o_d_id = 0;
            orders_buf[i].o_w_id = 0;
            orders_buf[i].o_c_id = 0;
            orders_buf[i].o_carrier_id =
0;
            orders_buf[i].o_ol_cnt = 0;
            orders_buf[i].o_all_local =
0;
            for (j=0;j<=14;j++)
            {
                orders_buf[i].o_ol[j].ol = 0;
                orders_buf[i].o_ol[j].ol_i_id = 0;
                orders_buf[i].o_ol[j].ol_supply_w_id = 0;
                orders_buf[i].o_ol[j].ol_quantity = 0;
                orders_buf[i].o_ol[j].ol_amount = 0;
                strcpy(orders_buf[i].o_ol[j].ol_dist_info,"
");
            }
        }
    }
    //=====
    // Function : OrdersBufLoad
    //=====
    // Fills shared buffer for ORDERS, NEWORDER, and
ORDERLINE
    //=====
    void OrdersBufLoad(short d_id, long w_id)
    {
        int cust[ORDERS_PER_DISTRICT+1];
        long o_id;
        long ol;
        printf("...Loading Order Buffer for: d_id
= %ld, w_id = %ld\n",
                d_id, w_id);
        GetPermutation(cust,
orders_per_district);
        for
(o_id=0;o_id<orders_per_district;o_id++)
        {
            // Generate ORDER and
NEW-ORDER data
            orders_buf[o_id].o_d_id =
d_id;
            orders_buf[o_id].o_w_id =
w_id;
            orders_buf[o_id].o_id =
o_id+1;
            orders_buf[o_id].o_c_id =
cust[o_id+1];
            orders_buf[o_id].o_ol_cnt
= (short)RandomNumber(5L, 15L);
            if (o_id < first_new_order)
            {
                orders_buf[o_id].o_carrier_id =
(short)RandomNumber(1L, 10L);
                orders_buf[o_id].o_all_local = 1;
            }
            else
            {
                orders_buf[o_id].o_carrier_id = 0;
                orders_buf[o_id].o_all_local = 1;
            }
            for (ol=0;
ol<orders_buf[o_id].o_ol_cnt; ol++)
            {
                orders_buf[o_id].o_ol[ol].ol = ol+1;
                orders_buf[o_id].o_ol[ol].ol_i_id =
RandomNumber(1L, max_items);
                orders_buf[o_id].o_ol[ol].ol_supply_w_id
= w_id;
                orders_buf[o_id].o_ol[ol].ol_quantity =
5;
                MakeAlphaString(24, 24,
OL_DIST_INFO_LEN,
&orders_buf[o_id].o_ol[ol].ol_dist_info);
                // Generate
ORDER-LINE data
                if (o_id <
first_new_order)

```

```

    {
        orders_buf[o_id].o_ol[o].ol_amount = 0;

        // Added to insure ol_delivery_d set
        properly during load
        FormatDate(&orders_buf[o_id].o_ol[o].o
        l_delivery_d);
    }
    else
    {
        orders_buf[o_id].o_ol[o].ol_amount =
        RandomNumber(1,999999)/100.0;

        // Added to insure ol_delivery_d set
        properly during load

        // odbc datetime format
        strcpy(orders_buf[o_id].o_ol[o].ol_delive
        ry_d,"1899-12-31 00:00:00.000");
    }
}

//=====
//
// Function : LoadOrdersTable
//
//=====
void LoadOrdersTable(LOADER_TIME_STRUCT
*orders_time_start)
{
    int i;
    long o_id;
    short o_d_id;
    long o_w_id;
    long o_c_id;
    short o_carrier_id;
    short o_ol_cnt;
    short o_all_local;
    char o_entry_d[O_ENTRY_D_LEN+1];
    RETCODE rc;
    DBINT rcint;

    // bind ORDER data
    i = 0;
    rc = bcp_bind(o_hdbc1, (BYTE *) &o_id,
    0, SQL_VARLEN_DATA, NULL, 0, SQLINT4, ++i);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc1);
    rc = bcp_bind(o_hdbc1, (BYTE *) &o_d_id, 0,
    SQL_VARLEN_DATA, NULL, 0, SQLINT2, ++i);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc1);
    rc = bcp_bind(o_hdbc1, (BYTE *) &o_c_id, 0,
    SQL_VARLEN_DATA, NULL, 0, SQLINT4, ++i);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc1);
    rc = bcp_bind(o_hdbc1, (BYTE *) &o_ol_cnt, 0,
    SQL_VARLEN_DATA, NULL, 0, SQLINT4, ++i);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc1);
    rc = bcp_bind(o_hdbc1, (BYTE *) &o_all_local, 0,
    SQL_VARLEN_DATA, NULL, 0, SQLINT4, ++i);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc1);
}

```

```

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_carrier_id, 0,
    SQL_VARLEN_DATA, NULL, 0, SQLINT2, ++i);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc1);
    rc = bcp_bind(o_hdbc1, (BYTE *) &o_ol_cnt, 0,
    SQL_VARLEN_DATA, NULL, 0, SQLINT2, ++i);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc1);
    rc = bcp_bind(o_hdbc1, (BYTE *) &o_all_local, 0,
    SQL_VARLEN_DATA, NULL, 0, SQLINT2, ++i);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc1);
    rc = bcp_bind(o_hdbc1, (BYTE *)
    &o_entry_d, 0, O_ENTRY_D_LEN, NULL, 0,
    SQLCHARACTER, ++i);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc1);

    for (i = 0; i < orders_per_district; i++)
    {
        orders_buf[i].o_id =
        orders_buf[i].o_d_id =
        orders_buf[i].o_w_id =
        orders_buf[i].o_c_id =
        orders_buf[i].o_carrier_id =
        orders_buf[i].o_ol_cnt =
        orders_buf[i].o_all_local =
        FormatDate(&o_entry_d);

        // send data to server
        rc =
        bcp_sendrow(o_hdbc1);
        if (rc != SUCCEEDED)
            HandleErrorDBC(o_hdbc1);

        orders_rows_loaded++;
        CheckForCommit(o_hdbc1,
        o_hstmt1, orders_rows_loaded, "orders",
        &orders_time_start->time_start);
    }

    if ((o_w_id == apr->num_warehouses)
    && (o_d_id == 10))
    {
        rcint =
        bcp_done(o_hdbc1);
        if (rcint < 0)
            HandleErrorDBC(o_hdbc1);

        SQLFreeStmt(o_hstmt1,
        SQL_DROP);
        SQLDisconnect(o_hdbc1);
        SQLFreeConnect(o_hdbc1);

        // if build index after load...
        if ((apr->build_index ==
        1) && (apr->index_order == 0))
            BuildIndex("idxordc1");

        // build non-clustered index
        if (apr->build_index == 1)
            BuildIndex("idxordnc");
    }
}

```

```

}
//=====
//
// Function : LoadNewOrderTable
//
//=====
void LoadNewOrderTable(LOADER_TIME_STRUCT
*new_order_time_start)
{
    long o_id;
    short o_d_id;
    long o_w_id;
    RETCODE rc;
    DBINT rcint;

    // Bind NEW-ORDER data
    i = 0;
    rc = bcp_bind(o_hdbc2, (BYTE *) &o_id, 0,
    SQL_VARLEN_DATA, NULL, 0, SQLINT4, ++i);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc2);
    rc = bcp_bind(o_hdbc2, (BYTE *) &o_d_id, 0,
    SQL_VARLEN_DATA, NULL, 0, SQLINT2, ++i);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc2);
    rc = bcp_bind(o_hdbc2, (BYTE *)
    &o_w_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT4,
    ++i);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc2);

    for (i = first_new_order; i <
    last_new_order; i++)
    {
        o_id =
        orders_buf[i].o_id;
        o_d_id =
        orders_buf[i].o_d_id;
        o_w_id =
        orders_buf[i].o_w_id;
        rc =
        bcp_sendrow(o_hdbc2);
        if (rc != SUCCEEDED)
            HandleErrorDBC(o_hdbc2);

        new_order_rows_loaded++;

        CheckForCommit_Big(o_hdbc2,
        o_hstmt2, new_order_rows_loaded, "new_order",
        &new_order_time_start->time_start);

        if ((o_w_id == apr->num_warehouses)
        && (o_d_id == 10))
        {
            rcint =
            bcp_done(o_hdbc2);
            if (rcint < 0)
                HandleErrorDBC(o_hdbc2);

            SQLFreeStmt(o_hstmt2,
            SQL_DROP);
        }
    }
}

```

```

SQLDisconnect(o_hdbc2);
SQLFreeConnect(o_hdbc2);

// if build index after load...
if ((aptr->build_index ==
1) && (aptr->index_order == 0))

    BuildIndex("idxnodcl");
}

//=====
// Function : LoadOrderLineTable
//=====
void LoadOrderLineTable(LOADER_TIME_STRUCT
*order_line_time_start)
{
    long i;
    long j;
    long o_id;
    short o_d_id;
    long o_w_id;
    double ol;
    long ol_i_id;
    long ol_supply_w_id;
    short ol_quantity;
    double ol_amount;
    char ol_dist_info[DIST_INFO_LEN+1];
    char ol_delivery_d[OL_DELIVERY_D_LEN+1];
    RETCODE rc;
    DBINT rcint;

    // bind ORDER-LINE data
    i = 0;
    rc = bcp_bind(o_hdbc3, (BYTE *) &o_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, ++i);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);
    rc = bcp_bind(o_hdbc3, (BYTE *) &o_d_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, ++i);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);
    rc = bcp_bind(o_hdbc3, (BYTE *)
&o_w_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT4,
++i);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);
    rc = bcp_bind(o_hdbc3, (BYTE *) &ol, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, ++i);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);
    rc = bcp_bind(o_hdbc3, (BYTE *)
&ol_delivery_d, 0, OL_DELIVERY_D_LEN, NULL, 0,
SQLCHARACTER, ++i);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);
    rc = bcp_bind(o_hdbc3, (BYTE *) &ol_amount, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, ++i);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);
    rc = bcp_bind(o_hdbc3, (BYTE *)
&ol_supply_w_id, 0, SQL_VARLEN_DATA, NULL, 0,
SQLINT4, ++i);

```

```

    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);
    rc = bcp_bind(o_hdbc3, (BYTE *) &ol_quantity, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, ++i);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);
    rc = bcp_bind(o_hdbc3, (BYTE *) ol_dist_info, 0,
DIST_INFO_LEN, NULL, 0, 0, ++i);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

    for (i = 0; i < orders_per_district; i++)
    {
        o_id =
orders_buf[i].o_id;
        o_d_id =
orders_buf[i].o_d_id;
        o_w_id =
orders_buf[i].o_w_id;

        for (j=0; j <
orders_buf[i].o_ol_cnt; j++)
        {
            ol =
orders_buf[i].o_ol[j].ol;
            ol_i_id =
orders_buf[i].o_ol[j].ol_i_id;
            ol_supply_w_id =
orders_buf[i].o_ol[j].ol_supply_w_id;
            ol_quantity =
orders_buf[i].o_ol[j].ol_quantity;
            ol_amount =
orders_buf[i].o_ol[j].ol_amount;

            strcpy(ol_delivery_d,orders_buf[i].o_ol[j]
.ol_delivery_d);

            strcpy(ol_dist_info,orders_buf[i].o_ol[j].o
l_dist_info);

            rc =
bcp_sendrow(o_hdbc3);
            if (rc !=
SUCCEED)
                HandleErrorDBC(o_hdbc3);
            order_line_rows_loaded++;

            CheckForCommit_Big(o_hdbc3,
o_hstmt3, order_line_rows_loaded, "order_line",
&order_line_time_start->time_start);
        }
        if ((o_w_id == aptr->num_warehouses)
&& (o_d_id == 10))
        {
            rcint =
bcp_done(o_hdbc3);
            if (rcint < 0)
                HandleErrorDBC(o_hdbc3);
            SQLFreeStmt(o_hstmt3,
SQL_DROP);
            SQLDisconnect(o_hdbc3);
            SQLFreeConnect(o_hdbc3);

            // if build index after load...

```

```

        if ((aptr->build_index ==
1) && (aptr->index_order == 0))
            BuildIndex("idxnodcl");
    }
}

//=====
// Function : GetPermutation
//=====
void GetPermutation(int perm[], int n)
{
    int i, r, t;
    for (i=1; i<=n; i++)
        perm[i] = i;
    for (i=1; i<=n; i++)
    {
        r = RandomNumber(i,n);
        t = perm[i];
        perm[i] = perm[r];
        perm[r] = t;
    }
}

//=====
// Function : CheckForCommit
//=====
void CheckForCommit(HDBC hdbc,
HSTMT hstmt,
long rows_loaded,
char *table_name,
long *time_start)
{
    long time_end, time_diff;
    if ( !(rows_loaded % aptr->batch) )
    {
        // time_end = (TimeNow() /
MILLI);
        time_end = TimeNow();
        time_diff = time_end -
*time_start;
        printf("-> Loaded %ld rows
into %s in %ld ms - Total = %d (%.2f rpms)\n",
aptr->batch,
table_name,
time_diff,
rows_loaded,
(float) aptr->batch / (time_diff ?
time_diff : 1L));
        *time_start = time_end;
    }
}

```

```

//          bcp_batch(hdbc);
}

return;
}

//=====
//
// Function : CheckForCommit_Big
//
//=====
void CheckForCommit_Big(HDBC hdbc,

        HSTMT hstmt,

        double rows_loaded,

        char *table_name,

        long *time_start)

{

        long        time_end, time_diff;

        if ( !(fmod(rows_loaded,aptr->batch) ) )
        {
                //          time_end = (TimeNow() /
                MILLI);
                time_end = TimeNow();
                time_diff = time_end -
                *time_start;

                printf("-> Loaded %ld rows
into %s in %ld ms - Total = %.0f (%.2f rpms)\n",
                aptr->batch,
                table_name,

                time_diff,

                rows_loaded,

                (float) aptr->batch / (time_diff ?
time_diff : 1L));

                *time_start = time_end;
                bcp_batch(hdbc);
        }

return;
}

//=====
//
// Function : OpenConnections
//
//=====
void OpenConnections()
{

        RETCODE        rc;

        char
        szDriverString[300];
        char
        szDriverStringOut[1024];
        SQLSMALLINT
        cbDriverStringOut;

```

```

        SQLAllocHandle(SQL_HANDLE_ENV,
SQL_NULL_HANDLE, &henv );

        SQLSetEnvAttr(henv,
SQL_ATTR_ODBC_VERSION, (void*)SQL_OV_ODBC3,
0 );

        SQLAllocHandle(SQL_HANDLE_DBC,
henv , &i_hdbc1);
        SQLAllocHandle(SQL_HANDLE_DBC,
henv , &w_hdbc1);
        SQLAllocHandle(SQL_HANDLE_DBC,
henv , &c_hdbc1);
        SQLAllocHandle(SQL_HANDLE_DBC,
henv , &c_hdbc2);
        SQLAllocHandle(SQL_HANDLE_DBC,
henv , &o_hdbc1);
        SQLAllocHandle(SQL_HANDLE_DBC,
henv , &o_hdbc2);
        SQLAllocHandle(SQL_HANDLE_DBC,
henv , &o_hdbc3);

        SQLSetConnectAttr(i_hdbc1,
SQL_COPT_SS_BCP, (void *)SQL_BCP_ON,
SQL_IS_INTEGER );
        SQLSetConnectAttr(w_hdbc1,
SQL_COPT_SS_BCP, (void *)SQL_BCP_ON,
SQL_IS_INTEGER );
        SQLSetConnectAttr(c_hdbc1,
SQL_COPT_SS_BCP, (void *)SQL_BCP_ON,
SQL_IS_INTEGER );
        SQLSetConnectAttr(c_hdbc2,
SQL_COPT_SS_BCP, (void *)SQL_BCP_ON,
SQL_IS_INTEGER );
        SQLSetConnectAttr(o_hdbc1,
SQL_COPT_SS_BCP, (void *)SQL_BCP_ON,
SQL_IS_INTEGER );
        SQLSetConnectAttr(o_hdbc2,
SQL_COPT_SS_BCP, (void *)SQL_BCP_ON,
SQL_IS_INTEGER );
        SQLSetConnectAttr(o_hdbc3,
SQL_COPT_SS_BCP, (void *)SQL_BCP_ON,
SQL_IS_INTEGER );

        // Open connections to SQL Server
        // Connection 1
        sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=
%s" ,

                aptr->server,

                aptr->user,

                aptr->password,

                aptr->database );

        printf("opening db connections, open
string = %s\n",szDriverString);

        rc = SQLSetConnectOption (i_hdbc1,
SQL_PACKET_SIZE, aptr->pack_size);
        if (rc != SUCCEEDED)
                HandleErrorDBC(i_hdbc1);

        rc = SQLDriverConnect ( i_hdbc1,

                NULL,

                (SQLCHAR*)&szDriverString[0] ,

```

```

                SQL_NTS,

                (SQLCHAR*)&szDriverStringOut[0],

                sizeof(szDriverStringOut),

                &cbDriverStringOut,

                SQL_DRIVER_NOPROMPT
);

        if ( (rc != SUCCEEDED) &&
(rc !=
SQL_SUCCESS_WITH_INFO) )
        {
                HandleErrorDBC(i_hdbc1);
                printf("TPC-C Loader
aborted!\n");
                exit(9);
        }

        // Connection 2
        sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=
%s" ,

                aptr->server,

                aptr->user,

                aptr->password,

                aptr->database );

        rc = SQLSetConnectOption (w_hdbc1,
SQL_PACKET_SIZE, aptr->pack_size);

        if (rc != SUCCEEDED)
                HandleErrorDBC(w_hdbc1);

        rc = SQLDriverConnect ( w_hdbc1,

                NULL,

                (SQLCHAR*)&szDriverString[0] ,

                SQL_NTS,

                (SQLCHAR*)&szDriverStringOut[0],

                sizeof(szDriverStringOut),

                &cbDriverStringOut,

                SQL_DRIVER_NOPROMPT );

        if ( (rc != SUCCEEDED) &&
(rc !=
SQL_SUCCESS_WITH_INFO) )
        {
                HandleErrorDBC(w_hdbc1);
                printf("TPC-C Loader
aborted!\n");
                exit(9);
        }

        // Connection 3

```

```

    sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=
%s" ,

    aptr->server,

    aptr->user,

    aptr->password,

    aptr->database );

    rc = SQLSetConnectOption (c_hdbc1,
SQL_PACKET_SIZE, aptr->pack_size);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

    rc = SQLDriverConnect ( c_hdbc1,

        NULL,

        (SQLCHAR*)&szDriverString[0] ,

        SQL_NTS,

        (SQLCHAR*)&szDriverStringOut[0],

        sizeof(szDriverStringOut),

        &cbDriverStringOut,

        SQL_DRIVER_NOPROMPT );
    if ( (rc != SUCCEED) &&
        (rc !=
SQL_SUCCESS_WITH_INFO) )
    {
        HandleErrorDBC(c_hdbc1);
        printf("TPC-C Loader
aborted!\n");
        exit(9);
    }

    // Connection 4
    sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=
%s" ,

    aptr->server,

    aptr->user,

    aptr->password,

    aptr->database );

    rc = SQLSetConnectOption (c_hdbc2,
SQL_PACKET_SIZE, aptr->pack_size);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    rc = SQLDriverConnect ( c_hdbc2,

        NULL,

        (SQLCHAR*)&szDriverString[0] ,

        SQL_NTS,

        (SQLCHAR*)&szDriverStringOut[0],

        sizeof(szDriverStringOut),

        &cbDriverStringOut,

        SQL_DRIVER_NOPROMPT );
    if ( (rc != SUCCEED) &&
        (rc !=
SQL_SUCCESS_WITH_INFO) )
    {
        HandleErrorDBC(o_hdbc1);
        printf("TPC-C Loader
aborted!\n");
        exit(9);
    }

    // Connection 7
    sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=
%s" ,

    aptr->server,

    aptr->user,

    aptr->password,

    aptr->database );

    rc = SQLSetConnectOption (o_hdbc3,
SQL_PACKET_SIZE, aptr->pack_size);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

    rc = SQLDriverConnect ( o_hdbc3,

        NULL,

        (SQLCHAR*)&szDriverString[0] ,

        SQL_NTS,

        (SQLCHAR*)&szDriverStringOut[0],

        sizeof(szDriverStringOut),

        &cbDriverStringOut,

        SQL_DRIVER_NOPROMPT );
    if ( (rc != SUCCEED) &&
        (rc !=
SQL_SUCCESS_WITH_INFO) )
    {
        HandleErrorDBC(o_hdbc1);
        printf("TPC-C Loader
aborted!\n");
        exit(9);
    }

    // Connection 6
    sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=
%s" ,

    aptr->server,

```

```

(SQLCHAR*)&szDriverStringOut[0],

sizeof(szDriverStringOut),

&cbDriverStringOut,

SQL_DRIVER_NOPROMPT );
if ( (rc != SUCCEED) &&
(rc !=
SQL_SUCCESS_WITH_INFO) )
{
    HandleErrorDBC(c_hdbc2);
    printf("TPC-C Loader
aborted!\n");
    exit(9);
}

// Connection 5
sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=
%s" ,

    aptr->server,

    aptr->user,

    aptr->password,

    aptr->database );

    rc = SQLSetConnectOption (o_hdbc1,
SQL_PACKET_SIZE, aptr->pack_size);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = SQLDriverConnect ( o_hdbc1,

        NULL,

        (SQLCHAR*)&szDriverString[0] ,

        SQL_NTS,

        (SQLCHAR*)&szDriverStringOut[0],

        sizeof(szDriverStringOut),

        &cbDriverStringOut,

        SQL_DRIVER_NOPROMPT );
    if ( (rc != SUCCEED) &&
        (rc !=
SQL_SUCCESS_WITH_INFO) )
    {
        HandleErrorDBC(o_hdbc1);
        printf("TPC-C Loader
aborted!\n");
        exit(9);
    }

    // Connection 7
    sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=
%s" ,

    aptr->server,

    aptr->user,

    aptr->password,

    aptr->database );

    rc = SQLSetConnectOption (o_hdbc3,
SQL_PACKET_SIZE, aptr->pack_size);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

    rc = SQLDriverConnect ( o_hdbc3,

        NULL,

        (SQLCHAR*)&szDriverString[0] ,

        SQL_NTS,

        (SQLCHAR*)&szDriverStringOut[0],

        sizeof(szDriverStringOut),

        &cbDriverStringOut,

        SQL_DRIVER_NOPROMPT );
    if ( (rc != SUCCEED) &&
        (rc !=
SQL_SUCCESS_WITH_INFO) )
    {
        HandleErrorDBC(o_hdbc1);
        printf("TPC-C Loader
aborted!\n");
        exit(9);
    }

    // Connection 6
    sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=
%s" ,

    aptr->server,

```

```

    aptr->user,
    aptr->password,

    aptr->database );

    rc = SQLSetConnectOption (o_hdbc2,
SQL_PACKET_SIZE, aptr->pack_size);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc2);

    rc = SQLDriverConnect ( o_hdbc2,

        NULL,

        (SQLCHAR*)&szDriverString[0] ,

        SQL_NTS,

        (SQLCHAR*)&szDriverStringOut[0],

        sizeof(szDriverStringOut),

        &cbDriverStringOut,

        SQL_DRIVER_NOPROMPT );
    if ( (rc != SUCCEED) &&
        (rc !=
SQL_SUCCESS_WITH_INFO) )
    {
        HandleErrorDBC(o_hdbc2);
        printf("TPC-C Loader
aborted!\n");
        exit(9);
    }

    // Connection 7
    sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=
%s" ,

    aptr->server,

    aptr->user,

    aptr->password,

    aptr->database );

    rc = SQLSetConnectOption (o_hdbc3,
SQL_PACKET_SIZE, aptr->pack_size);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

    rc = SQLDriverConnect ( o_hdbc3,

        NULL,

        (SQLCHAR*)&szDriverString[0] ,

        SQL_NTS,

        (SQLCHAR*)&szDriverStringOut[0],

        sizeof(szDriverStringOut),

        &cbDriverStringOut,

        SQL_DRIVER_NOPROMPT );
    if ( (rc != SUCCEED) &&
        (rc !=
SQL_SUCCESS_WITH_INFO) )
    {
        HandleErrorDBC(o_hdbc1);
        printf("TPC-C Loader
aborted!\n");
        exit(9);
    }

    // Connection 6
    sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=
%s" ,

    aptr->server,

```

```

        &cbDriverStringOut,

        SQL_DRIVER_NOPROMPT );
    if ( rc != SUCCEED ) &&
        (rc !=
SQL_SUCCESS_WITH_INFO )
    {
        HandleErrorDBC(o_hdbc3);
        printf("TPC-C Loader
aborted!\n");
        exit(9);
    }
}

//=====
//
// Function name: BuildIndex
//
//=====
void BuildIndex(char *index_script)
{
    char cmd[256];

    printf("Starting index creation:
%s\n",index_script);

    sprintf(cmd, "osql -S%s -U%s -P%s -e -
i%s\\%s.sql > %s%s.log",

    aptr->server,
    aptr->user,
    aptr->password,
    aptr->index_script_path,
    index_script,
    aptr->log_path,
    index_script);

    system(cmd);

    printf("Finished index creation:
%s\n",index_script);
}

//=====
//
// Function name: HandleErrorDBC
//
//=====
void HandleErrorDBC (SQLHDBC hdbc1)
{
    SQLCHAR SqlState[6],
Msg[SQL_MAX_MESSAGE_LENGTH];
SQLINTEGER NativeError;
SQLSMALLINT i, MsgLen;
SQLRETURN rc2;
char timebuf[128];
char datebuf[128];

```

```

    char
err_log_path[256]; *fp1;

    i = 1;
    while (( rc2 =
SQLGetDiagRec(SQL_HANDLE_DBC , hdbc1, i, SqlState
, &NativeError,
Msg, sizeof(Msg) , &MsgLen ) != SQL_NO_DATA )
    {
        printf( szLastError , "%s" ,
Msg );

        _strtime(timebuf);
        _strdate(datebuf);

        printf( "[%s : %s]
%s\n=>SQLState: %s\n" , datebuf, timebuf,
szLastError, SqlState);

        //
        strcpy(err_log_path,aptr-
>log_path);
        //
        strcat(err_log_path,"tpccldr.err");

        sprintf(err_log_path,"%stpcldr%d.err",aptr-
>log_path,aptr->starting_warehouse);
        fp1 =
fopen(err_log_path,"a+");
        if (fp1 == NULL)

            printf("ERROR: Unable to open errorlog
file.\n");
        else
        {
            fprintf(fp1,
 "[%s : %s] %s\nSQLState: %s\n" , datebuf, timebuf,
szLastError, SqlState);
            fclose(fp1);
        }
        i++;
    }

//=====
//
// Function : HandleErrorSTMT
//
//=====
void HandleErrorSTMT (HSTMT hstmt1)
{
    SQLCHAR SqlState[6],
Msg[SQL_MAX_MESSAGE_LENGTH];
SQLINTEGER NativeError;
SQLSMALLINT i, MsgLen;
SQLRETURN rc2;
char timebuf[128];
char datebuf[128];
char err_log_path[256];
FILE *fp1;

    i = 1;
    while (( rc2 =
SQLGetDiagRec(SQL_HANDLE_STMT , hstmt1, i,
SqlState , &NativeError,
Msg, sizeof(Msg) , &MsgLen ) != SQL_NO_DATA )
    {

```

```

        if (total_db_errors >=
MAX_SQL_ERRORS)
        {
            printf(">>>> Maximum SQL errors of
%d exceeded. Terminating
TPCCldr.<<<<<\n",total_db_errors);
            exit(9);
        }
        total_db_errors++;

        printf( szLastError , "%s" ,
Msg );

        _strtime(timebuf);
        _strdate(datebuf);

        printf( "[%s : %s]
%s\nSQLState: %s\n" , datebuf, timebuf, szLastError,
SqlState);

        //
        strcpy(err_log_path,aptr-
>log_path);
        //
        strcat(err_log_path,"tpccldr.err");

        sprintf(err_log_path,"%stpcldr%d.err",aptr-
>log_path,aptr->starting_warehouse);
        fp1 =
fopen(err_log_path,"a+");
        if (fp1 == NULL)

            printf("ERROR: Unable to open errorlog
file.\n");
        else
        {
            fprintf(fp1,
 "[%s : %s] %s\nSQLState: %s\n" , datebuf, timebuf,
szLastError, SqlState);
            fclose(fp1);
        }
        i++;
    }

//=====
//
// Function : FormatDate
//
//=====
void FormatDate ( char* szTimeCOutput )
{
    struct tm when;
    time_t now;

    time( &now );
    when = *localtime( &now );

    mktime( &when );

    // odbc datetime format
    strftime( szTimeCOutput , 30 , "%Y-%m-
%d %H:%M:%S.000" , &when );

    return;
}

```



**time.c**

```

// File: TIME.C
// Microsoft TPC-C Kit Ver. 4.42
// Copyright Microsoft, 1996, 1997, 1998,
1999, 2000, 2001, 2002, 2003
// Purpose: Source file for time
functions

// Includes
#include "tpcc.h"

// Globals
static long start_sec;

//=====
// Function name: TimeNow
//=====
long TimeNow()
{
    long time_now;
    struct _timeb el_time;

#ifdef DEBUG
    printf("[%d]DBG: Entering TimeNow()\n", (int)
GetCurrentThreadId());
#endif

    _ftime(&el_time);

    time_now = ((el_time.time - start_sec) * 1000) +
el_time.millitm;

    return time_now;
}

```

**strings.c**

```

// File: STRINGS.C
// Microsoft TPC-C Kit Ver. 4.51
// Copyright Microsoft, 1996, 1997, 1998,
1999, 2000, 2001, 2002, 2003
// Purpose: Source file for database
loader string functions

// Includes
#include "tpcc.h"
#include <string.h>
#include <ctype.h>

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

```

```

// Function name: MakeAddress
//=====
void MakeAddress(char *street_1,
char *street_2,
char *city,
char *state,
char *zip)
{
#ifdef DEBUG
    printf("[%d]DBG: Entering MakeAddress()\n", (int)
GetCurrentThreadId());
#endif

    MakeAlphaString (10, 20, ADDRESS_LEN, street_1);
    MakeAlphaString (10, 20, ADDRESS_LEN, street_2);
    MakeAlphaString (10, 20, ADDRESS_LEN, city);
    MakeAlphaString ( 2, 2, STATE_LEN, state);
    MakeZipNumberString( 9, 9, ZIP_LEN, zip);

#ifdef DEBUG
    printf("[%d]DBG: MakeAddress: street_1: %s,
street_2: %s, city: %s, state: %s, zip: %s\n",
(int)
GetCurrentThreadId(), street_1, street_2, city, state,
zip);
#endif

    return;
}

//=====
// Function name: LastName
//=====
void LastName(int num,
char *name)
{
    static char *n[] =
{
        "BAR", "OUGHT", "ABLE",
        "PRI", "PRES",
        "ESE", "ANTI", "CALLY",
        "ATION", "EING"
    };

#ifdef DEBUG
    printf("[%d]DBG: Entering LastName()\n", (int)
GetCurrentThreadId());
#endif

    if ((num >= 0) && (num < 1000))
    {
        strcpy(name,
n[(num/100)%10]);
        strcat(name,
n[(num/10)%10]);
        strcat(name,
n[(num/1)%10]);
    }
}

```

```

        if (strlen(name) <
LAST_NAME_LEN)
        {
            PaddString(LAST_NAME_LEN, name);
        }
    }
    else
    {
        printf("\nError in
LastName()... num <%d> out of range (0,999)\n",
num);
        exit(-1);
    }

#ifdef DEBUG
    printf("[%d]DBG: LastName: num = [%d] ==>
[%d][%d][%d]\n",
(int)
GetCurrentThreadId(), num, num/100, (num/10)%10,
num%10);
    printf("[%d]DBG: LastName: String =
%s\n", (int) GetCurrentThreadId(), name);
#endif

    return;
}

//=====
// Function name: MakeAlphaString
//=====
//philipdu 08/13/96 Changed MakeAlphaString to use
A-Z, a-z, and 0-9 in
//accordance with spec see below:
//The spec says:
//4.3.2.2 The notation random a-string [x .. y]
//(respectively, n-string [x .. y]) represents a string of
random alphanumeric
//(respectively, numeric) characters of a random
length of minimum x, maximum y,
//and mean (y+x)/2. Alphanumerics are A..Z, a..z, and
0..9. The only other
//requirement is that the character set used "must be
able to represent a minimum
//of 128 different characters". We are using 8-bit
chars, so this is a non issue.
//It is completely unreasonable to stuff non-printing
chars into the text fields.
// -CLevine 08/13/96

int MakeAlphaString(int x, int y, int z, char *str)
{
    int len;
    int i;
    char cc = 'a';
    static char chArray[] =
"0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZabcde
fghijklmnopqrstuvwxyz";
    static int chArrayMax =
61;

#ifdef DEBUG
    printf("[%d]DBG: Entering MakeAlphaString()\n",
(int) GetCurrentThreadId());
#endif
}

```

```

        len= RandomNumber(x, y);

        for (i=0; i<len; i++)
            str[i] =
chArray[RandomNumber(0,chArrayMax)];
        str[len] = 0;

        return len;
    }

int MakeAlphaStringPadded( int minLen, int maxLen,
int padLen, char *str)
{
    int len;
    int i;
    char cc = 'a';
    static char chArray[] =
"0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ";
    static int chArrayMax =
61;

#ifdef DEBUG
    printf("[%d]DBG: Entering
MakeAlphaStringPadded()\n", (int)
GetCurrentThreadId());
#endif

    len= RandomNumber(minLen, maxLen);

    for (i=0; i<len; i++)
        str[i] =
chArray[RandomNumber(0,chArrayMax)];
    if (len < padLen)
        memset(str+len, ' ', padLen
- len);
    str[padLen] = 0;
    return padLen;
}

//=====
//
// Function name: MakeOriginalAlphaString
//
//=====
int MakeOriginalAlphaString(int x,
int y,
int z,
char *str,
int percent)
{
    int len;
    int val;
    int start;

#ifdef DEBUG
    printf("[%d]DBG: Entering
MakeOriginalAlphaString()\n", (int)
GetCurrentThreadId());
#endif

    // verify percentage is valid
    if ((percent < 0) || (percent > 100))

```

```

    {
        printf("MakeOriginalAlphaString: Invalid
percentage: %d\n", percent);
        exit(-1);
    }

    // verify string is at least 8 chars in length
    if (x < 8)
    {
        printf("MakeOriginalAlphaString: string
length must be >= 8\n");
        exit(-1);
    }

    // Make Alpha String
    len = MakeAlphaString(x,y, z, str);

    val = RandomNumber(1,100);
    if (val <= percent)
    {
        start = RandomNumber(0,
len - 8);
        strncpy(str + start,
"ORIGINAL", 8);
    }

#ifdef DEBUG
    printf("[%d]DBG: MakeOriginalAlphaString: :
%s\n",
(int)
GetCurrentThreadId(), str);
#endif

    return len;
}

//=====
//
// Function name: MakeNumberString
//
//=====
int MakeNumberString(int x, int y, int z, char *str)
{
    char tmp[16];

    //MakeNumberString is always called
MakeZipNumberString(16, 16, 16, string)

    memset(str, '0', 16);
    itoa(RandomNumber(0, 99999999), tmp,
10);
    memcpy(str, tmp, strlen(tmp));

    itoa(RandomNumber(0, 99999999), tmp,
10);
    memcpy(str+8, tmp, strlen(tmp));

    str[16] = 0;

    return 16;
}

//=====
//
// Function name: MakeZipNumberString

```

```

//=====
//
// MakeZipNumberString(int x, int y, int z, char *str)
//
//=====
int MakeZipNumberString(int x, int y, int z, char *str)
{
    char tmp[16];

    //MakeZipNumberString is always called
MakeZipNumberString(9, 9, 9, string)

    strcpy(str, "000011111");

    itoa(RandomNumber(0, 9999), tmp, 10);
    memcpy(str, tmp, strlen(tmp));

    return 9;
}

//=====
//
// Function name: InitString
//
//=====
void InitString(char *str, int len)
{
#ifdef DEBUG
    printf("[%d]DBG: Entering InitString()\n", (int)
GetCurrentThreadId());
#endif

    memset(str, ' ', len);
    str[len] = 0;
}

//=====
//
// Function name: InitAddress
//
// Description:
//
//=====
void InitAddress(char *street_1, char *street_2, char
*city, char *state, char *zip)
{
    memset(street_1, ' ', ADDRESS_LEN+1);
    memset(street_2, ' ', ADDRESS_LEN+1);
    memset(city, ' ', ADDRESS_LEN+1);

    street_1[ADDRESS_LEN+1] = 0;
    street_2[ADDRESS_LEN+1] = 0;
    city[ADDRESS_LEN+1] = 0;

    memset(state, ' ', STATE_LEN+1);
    state[STATE_LEN+1] = 0;

    memset(zip, ' ', ZIP_LEN+1);
    zip[ZIP_LEN+1] = 0;
}

//=====
//
// Function name: PaddString

```

```

//
//=====
//=====
//=====
void PaddString(int max, char *name)
{
    int len;

    len = strlen(name);
    if ( len < max )
        memset(name+len, ' ', max
- len);
    name[max] = 0;

    return;
}

```

### random.c

```

// File: RANDOM.C
// Microsoft TPC-C Kit Ver. 4.42
// Copyright Microsoft, 1996, 1997, 1998,
1999, 2000, 2001, 2002, 2003
// Purpose: Random number generation
routines for database loader

// Includes
#include "tpcc.h"
#include "math.h"

// Defines
#define A 16807
#define M 2147483647
#define Q 127773 /* M div A */
#define R 2836 /* M mod A */
#define Thread __declspec(thread)

// Globals
long Thread Seed = 0; /* thread local
seed */

/*****
*****
*
*
* random -
*
* Implements a GOOD pseudo random number
generator. This generator
* will/should? run the complete period before
repeating.
*
* Copied from:
*
* Random Numbers Generators: Good Ones Are
Hard to Find.
* Communications of the ACM - October 1988
Volume 31 Number 10
*
*

```

```

* Machine Dependencies:
* long must be 2 ^ 31 - 1 or greater.
*
*
*
*****
*****/

/*****
*****
* seed - load the Seed value used in irand and drand.
Should be used before
* first call to irand or drand.
*
*****
*****/

void seed(long val)
{
#ifdef DEBUG
printf("[%d]DBG: Entering seed(...\n", (int)
GetCurrentThreadId());
printf("Old Seed %ld New Seed
%ld\n",Seed, val);
#endif

if ( val < 0 )
    val = abs(val);

Seed = val;
}

/*****
*****
* irand - returns a 32 bit integer pseudo random
number with a period of
* 1 to 2 ^ 32 - 1.
*
*
* parameters:
*
* none.
*
* returns:
*
* 32 bit integer - defined as long ( see above ).
*
*
* side effects:
*
* seed get recomputed.
*****
*****/

long irand()
{
    register long s; /* copy of seed */
    register long test; /* test flag */
    register long hi; /* tmp value for speed */
    register long lo; /* tmp value for speed */

#ifdef DEBUG
printf("[%d]DBG: Entering irand(...\n", (int)
GetCurrentThreadId());
#endif

```

```

s = Seed;
hi = s / Q;
lo = s % Q;

test = A * lo - R * hi;
if ( test > 0 )
    Seed = test;
else
    Seed = test + M;

return( Seed );
}

/*****
*****
*
*
* drand - returns a double pseudo random number
between 0.0 and 1.0.
* See irand.
*
*****
*****/

double drand()
{
#ifdef DEBUG
printf("[%d]DBG: Entering drand(...\n", (int)
GetCurrentThreadId());
#endif

return( (double)irand() / 2147483647.0);
}

//=====
//=====
//=====
// Function : RandomNumber
//
// Description:
//=====
//=====
long RandomNumber(long lower, long upper)
{
    long rand_num;

#ifdef DEBUG
printf("[%d]DBG: Entering RandomNumber(...\n",
(int) GetCurrentThreadId());
#endif

if ( upper == lower ) /* pgd 08-13-
96 perf enhancement */
    return lower;

    upper++;

if ( upper <= lower )
    rand_num = upper;
else
    rand_num = lower +
irand() % (upper - lower); /* pgd 08-13-96 perf
enhancement */

#ifdef DEBUG
printf("[%d]DBG: RandomNumber between %ld &
%ld ==> %ld\n",
(int) GetCurrentThreadId(), lower, upper,
rand_num);
#endif

```

```

return rand_num;
}

#if 0

//Original code pgd 08/13/96

long RandomNumber(long lower,
long upper)
{
    long rand_num;

#ifdef DEBUG
    printf("[%d]DBG: Entering RandomNumber(...\n",
(int) GetCurrentThreadId());
#endif

    upper++;

    if ((upper <= lower))
        rand_num = upper;
    else
        rand_num = lower +
irand() % ((upper > lower) ? upper - lower : upper);

#ifdef DEBUG
    printf("[%d]DBG: RandomNumber between %ld &
%ld ==> %ld\n",
(int) GetCurrentThreadId(), lower, upper,
rand_num);
#endif

    return rand_num;
}
#endif

//=====
// Function : NURand
// Description:
//=====
long NURand(int iConst,
long x,
long y,
long C)
{
    long rand_num;

#ifdef DEBUG
    printf("[%d]DBG: Entering NURand(...\n", (int)
GetCurrentThreadId());
#endif

    rand_num = (((RandomNumber(0,iConst) |
RandomNumber(x,y)) + C) % (y-x+1))+x;

#ifdef DEBUG
    printf("[%d]DBG: NURand: num = %d\n", (int)
GetCurrentThreadId(), rand_num);
#endif

    return rand_num;
}

```

### getargs.c

```

// File: GETARGS.C
// Microsoft TPC-C Kit Ver. 4.51
// Copyright Microsoft, 1996, 1997, 1998,
1999, 2000, 2001, 2002, 2003
// Purpose: Source file for command
line processing

// Includes
#include "tpcc.h"

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

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

#ifdef DEBUG
    printf("[%d]DBG: Entering GetArgsLoader()\n",
(int) GetCurrentThreadId());
#endif

    /* init args struct with some useful values */
    pargs->server = SERVER;
    pargs->user = USER;
    pargs->password =
PASSWORD;
    pargs->database =
DATABASE;
    pargs->batch = BATCH;
    pargs->num_warehouses
= UNDEF;
    pargs->tables_all
= TRUE;
    pargs->table_item
= FALSE;
    pargs->table_warehouse
= FALSE;
    pargs->table_customer
= FALSE;
    pargs->table_orders
= FALSE;
    pargs->loader_res_file
= LOADER_RES_FILE;
    pargs->log_path
= LOADER_LOG_PATH;
    pargs->pack_size
= DEFLDPACKSIZE;
    pargs->starting_warehouse
= DEF_STARTING_WAREHOUSE;
    pargs->build_index
= BUILD_INDEX;
    pargs->index_order
= 0;

```

```

pargs->index_script_path =
INDEX_SCRIPT_PATH;
pargs->scale_down
= SCALE_DOWN;

/* check for zero command line args */
if ( argc == 1 )
    GetArgsLoaderUsage();

for (i = 1; i < argc; ++i)
{
    if (argv[i][0] != '-' &&
argv[i][0] != '/')
        printf("\nUnrecognized
command");
    GetArgsLoaderUsage();
    exit(1);
}

ptr = argv[i];

switch (ptr[1])
{
    case '?': /* Fall through

*/
    GetArgsLoaderUsage();

    break;

    case 'D':
        pargs->database = ptr+2;

    break;

    case 'P':
        pargs->password = ptr+2;

    break;

    case 'S':
        pargs->server = ptr+2;

    break;

    case 'U':
        pargs->user = ptr+2;

    break;

    case 'b':
        pargs->batch = atol(ptr+2);

    break;

    case 'W':
        pargs->num_warehouses = atol(ptr+2);

    break;

    case 's':
        pargs->starting_warehouse =
atol(ptr+2);

    break;

    case 't':

```

```

{
    pargs->tables_all = FALSE;
    if (strcmp(ptr+2,"item") == 0)
        pargs->table_item = TRUE;
    else if (strcmp(ptr+2,"warehouse") ==
0)
        pargs->table_warehouse =
TRUE;
    else if (strcmp(ptr+2,"customer") == 0)
        pargs->table_customer =
TRUE;
    else if (strcmp(ptr+2,"orders") == 0)
        pargs->table_orders =
TRUE;
    else
    {
        printf("\nUnrecognized command");
        GetArgsLoaderUsage();
        exit(1);
    }

    break;
}

    case 'f':
        pargs->loader_res_file = ptr+2;
        break;

    case 'L':
        pargs->log_path = ptr+2;
        break;

    case 'p':
        pargs->pack_size = atol(ptr+2);
        break;

    case 'i':
        pargs->build_index = atol(ptr+2);
        break;

    case 'o':
        pargs->index_order = atol(ptr+2);
        break;

    case 'c':
        pargs->scale_down = atol(ptr+2);

```

```

        break;
        case 'd':
            pargs->index_script_path = ptr+2;
            break;
            default:
                GetArgsLoaderUsage();
                exit(-1);
                break;
        }
    }
    /* check for required args */
    if (pargs->num_warehouses == UNDEF )
    {
        printf("Number of
Warehouses is required\n");
        exit(-2);
    }
    return;
}

//=====
//
// Function name: GetArgsLoaderUsage
//
//=====
//=====

void GetArgsLoaderUsage()
{
#ifdef DEBUG
    printf("[%ld]DBG: Entering
GetArgsLoaderUsage()\n", (int)
GetCurrentThreadId());
#endif

    printf("TPCCCLR:\n\n");
    printf("Parameter
Default\n");
    printf("-----\n");
    printf("-W Number of Warehouses to Load
Required \n");
    printf("-S Server
%s\n", SERVER);
    printf("-U Username
%s\n", USER);
    printf("-P Password
%s\n", PASSWORD);
    printf("-D Database
%s\n", DATABASE);
    printf("-b Batch Size
%ld\n", (long) BATCH);
    printf("-p TDS packet size
%ld\n", (long) DEFLDPACKSIZE);
    printf("-L Loader BCP Log Path
%s\n", LOADER_LOG_PATH);
    printf("-f Loader Results Output Filename
%s\n", LOADER_RES_FILE);
    printf("-s Starting Warehouse
%ld\n", (long) DEF_STARTING_WAREHOUSE);
    printf("-i Build Option (data = 0, data
and index = 1) %ld\n", (long) BUILD_INDEX);

```

```

        printf("-o Cluster Index Build Order
(before = 1, after = 0) %ld\n", (long)
INDEX_ORDER);
        printf("-c Build Scaled Database (normal
= 0, tiny = 1) %ld\n", (long) SCALE_DOWN);
        printf("-d Index Script Path
%s\n", INDEX_SCRIPT_PATH);
        printf("-t Table to Load
all tables \n");
        printf(" [item]warehouse|customer|orders]\n");
        printf(" Notes: \n");
        printf(" - the '-t' parameter may be included
multiple times to \n");
        printf(" specify multiple tables to be loaded
\n");
        printf(" - 'item' loads ITEM table \n");
        printf(" - 'warehouse' loads WAREHOUSE,
DISTRICT, and STOCK tables \n");
        printf(" - 'customer' loads CUSTOMER and
HISTORY tables \n");
        printf(" - 'orders' load NEW-ORDER, ORDERS,
ORDER-LINE tables \n");

        printf("\nNote: Command line switches
are case sensitive.\n");

        exit(0);
    }
}

```

## B.1 Database Options

### DBOPT1 . SQL

```

-----
--
-- File: DBOPT1.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.68
--
-- Copyright Microsoft, 2006
--
-- Sets database options for load
--
-----

USE master
GO

ALTER DATABASE tpcc SET RECOVERY BULK_LOGGED
GO

EXEC sp_dboption tpcc,'trunc. log on chkpt.',TRUE
GO

ALTER DATABASE tpcc SET TORN_PAGE_DETECTION
OFF
GO

ALTER DATABASE tpcc SET PAGE_VERIFY NONE
GO

USE tpcc
GO

```

```
CHECKPOINT
GO
```

## DBOPT2 . SQL

```
-----
--
-- File: DBOPT2.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.68
--
-- Copyright Microsoft, 2006
--
-- Sets database options after load
--
-----
ALTER DATABASE tpcc SET RECOVERY FULL
GO

USE tpcc
GO

CHECKPOINT
GO

sp_configure 'allow updates',1
GO

RECONFIGURE WITH OVERRIDE
GO

DECLARE @msg varchar(50)

-----
-- OPTIONS FOR SQL SERVER 2000
-- Set option values for user-defined indexes --
-----

SET @msg = ''
PRINT @msg
SET @msg = 'Setting SQL Server indexoptions'
PRINT @msg
SET @msg = ''
PRINT @msg

EXEC sp_indexoption 'customer',
'DisAllowPageLocks', TRUE
EXEC sp_indexoption 'district',
'DisAllowPageLocks', TRUE
EXEC sp_indexoption 'warehouse',
'DisAllowPageLocks', TRUE
EXEC sp_indexoption 'stock',
'DisAllowPageLocks', TRUE
EXEC sp_indexoption 'order_line',
'DisAllowRowLocks', TRUE
EXEC sp_indexoption 'orders',
'DisAllowRowLocks', TRUE
EXEC sp_indexoption 'new_order',
'DisAllowRowLocks', TRUE
EXEC sp_indexoption 'item',
'DisAllowRowLocks', TRUE
EXEC sp_indexoption 'item',
'DisAllowPageLocks', FALSE
GO

Print ''
Print '*****'
Print 'Pre-specified Locking Hierarchy:'
Print ' Lockflag = 0 ==> No pre-specified
hierarchy'
```

```
Print ' Lockflag = 1 ==> Lock at Page-level then
Table-level
Print ' Lockflag = 2 ==> Lock at Row-level then
Table-level'
Print ' Lockflag = 3 ==> Lock at Table-level'
Print ''
```

```
SELECT name,
lockflags
FROM sysindexes
WHERE object_id('warehouse') = id OR
object_id('district') = id OR
object_id('customer') = id OR
object_id('stock') = id OR
object_id('orders') = id OR
object_id('order_line') = id OR
object_id('history') = id OR
object_id('new_order') = id OR
object_id('item') = id
ORDER BY lockflags asc
GO

sp_configure 'allow updates',0
GO

RECONFIGURE WITH OVERRIDE
GO

EXEC sp_dboption tpcc, 'auto update statistics',
FALSE
EXEC sp_dboption tpcc, 'auto create statistics',
FALSE
GO

DECLARE @db_id int,
@tbl_id int

SET @db_id = DB_ID('tpcc')
SET @tbl_id = OBJECT_ID('tpcc..warehouse')
DBCC PINTABLE (@db_id, @tbl_id)

SET @tbl_id = OBJECT_ID('tpcc..district')
DBCC PINTABLE (@db_id, @tbl_id)

SET @tbl_id = OBJECT_ID('tpcc..new_order')
DBCC PINTABLE (@db_id, @tbl_id)

SET @tbl_id = OBJECT_ID('tpcc..item')
DBCC PINTABLE (@db_id, @tbl_id)
GO
```

## B.2 Table definitions

### Createdatabase .sql

```
--
-- HPTPC Setup Kit
-- Create Database
--
-- Create main database files
--
-- Files are loaded into the load filegroup
-- Then Create[table]Indexes.sql moves them to the
final filegroup
if exists (select * from sysdatabases where
name='tpcc') drop database tpcc
```

```
CREATE DATABASE tpcc
ON PRIMARY
(
NAME = tpccRoot,
FILENAME = "g:\tpcc65kwh.mdf",
SIZE = 12MB,
FILEGROWTH = 0),
FILEGROUP cs_fg
(NAME=cs1, FILENAME="g:\mnt\cs\1",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs2, FILENAME="g:\mnt\cs\2",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs3, FILENAME="g:\mnt\cs\3",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs4, FILENAME="g:\mnt\cs\4",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs5, FILENAME="g:\mnt\cs\5",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs6, FILENAME="g:\mnt\cs\6",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs7, FILENAME="g:\mnt\cs\7",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs8, FILENAME="g:\mnt\cs\8",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs9, FILENAME="g:\mnt\cs\9",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs10, FILENAME="g:\mnt\cs\10",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs11, FILENAME="g:\mnt\cs\11",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs12, FILENAME="g:\mnt\cs\12",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs13, FILENAME="g:\mnt\cs\13",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs14, FILENAME="g:\mnt\cs\14",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs15, FILENAME="g:\mnt\cs\15",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs16, FILENAME="g:\mnt\cs\16",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs17, FILENAME="g:\mnt\cs\17",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs18, FILENAME="g:\mnt\cs\18",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs19, FILENAME="g:\mnt\cs\19",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs20, FILENAME="g:\mnt\cs\20",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs21, FILENAME="g:\mnt\cs\21",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs22, FILENAME="g:\mnt\cs\22",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs23, FILENAME="g:\mnt\cs\23",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs24, FILENAME="g:\mnt\cs\24",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs25, FILENAME="g:\mnt\cs\25",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs26, FILENAME="g:\mnt\cs\26",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs27, FILENAME="g:\mnt\cs\27",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs28, FILENAME="g:\mnt\cs\28",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs29, FILENAME="g:\mnt\cs\29",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs30, FILENAME="g:\mnt\cs\30",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs31, FILENAME="g:\mnt\cs\31",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs32, FILENAME="g:\mnt\cs\32",
SIZE=32768MB,FILEGROWTH=0),
(NAME=cs33, FILENAME="g:\mnt\cs\33",
SIZE=32768MB,FILEGROWTH=0),
```









```

(NAME=load74,
FILENAME="g:\mnt\backup\74\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
(NAME=load75,
FILENAME="g:\mnt\backup\75\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
(NAME=load76,
FILENAME="g:\mnt\backup\76\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
(NAME=load77,
FILENAME="g:\mnt\backup\77\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
(NAME=load78,
FILENAME="g:\mnt\backup\78\loadfg.ndf",
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(NAME=load79,
FILENAME="g:\mnt\backup\79\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
(NAME=load80,
FILENAME="g:\mnt\backup\80\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
(NAME=load81,
FILENAME="g:\mnt\backup\81\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
(NAME=load82,
FILENAME="g:\mnt\backup\82\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
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SIZE=19456MB,FILEGROWTH=0),
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FILENAME="g:\mnt\backup\84\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
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SIZE=19456MB,FILEGROWTH=0),
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SIZE=19456MB,FILEGROWTH=0),
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SIZE=19456MB,FILEGROWTH=0),
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SIZE=19456MB,FILEGROWTH=0),
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FILENAME="g:\mnt\backup\93\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
(NAME=load94,
FILENAME="g:\mnt\backup\94\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
(NAME=load95,
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SIZE=19456MB,FILEGROWTH=0),
(NAME=load96,
FILENAME="g:\mnt\backup\96\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
(NAME=load97,
FILENAME="g:\mnt\backup\97\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
(NAME=load98,
FILENAME="g:\mnt\backup\98\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),

```

```

(NAME=load99,
FILENAME="g:\mnt\backup\99\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
(NAME=load100,
FILENAME="g:\mnt\backup\100\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
(NAME=load101,
FILENAME="g:\mnt\backup\101\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
(NAME=load102,
FILENAME="g:\mnt\backup\102\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
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FILENAME="g:\mnt\backup\103\loadfg.ndf",
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FILENAME="g:\mnt\backup\104\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
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SIZE=19456MB,FILEGROWTH=0),
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SIZE=19456MB,FILEGROWTH=0),
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FILENAME="g:\mnt\backup\108\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
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SIZE=19456MB,FILEGROWTH=0),
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FILENAME="g:\mnt\backup\116\loadfg.ndf",
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FILENAME="g:\mnt\backup\117\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
(NAME=load118,
FILENAME="g:\mnt\backup\118\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
(NAME=load119,
FILENAME="g:\mnt\backup\119\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
(NAME=load120,
FILENAME="g:\mnt\backup\120\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
(NAME=load121,
FILENAME="g:\mnt\backup\121\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
(NAME=load122,
FILENAME="g:\mnt\backup\122\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
(NAME=load123,
FILENAME="g:\mnt\backup\123\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),

```

```

(NAME=load124,
FILENAME="g:\mnt\backup\124\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
(NAME=load125,
FILENAME="g:\mnt\backup\125\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
(NAME=load126,
FILENAME="g:\mnt\backup\126\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
(NAME=load127,
FILENAME="g:\mnt\backup\127\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0),
(NAME=load128,
FILENAME="g:\mnt\backup\128\loadfg.ndf",
SIZE=19456MB,FILEGROWTH=0)

```

```

LOG ON
(
    NAME = tpcc_log,
    FILENAME = "L:",
    SIZE = 500000MB,
    FILEGROWTH = 0)

```

```

COLLATE Latin1_General_BIN
GO

```

#### CreateTables.sql

```

-----
-- File: TABLES.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.62
-- Copyright Microsoft, 2005
-- Creates TPC-C tables
-----

```

```

SET ANSI_NULL_DFLT_OFF ON
GO

```

```

USE tpcc
GO

```

```

-- Remove all existing TPC-C tables

```

```

if exists ( select name from sysobjects where name =
'warehouse' )

```

```

drop table warehouse

```

```

go
if exists ( select name from sysobjects where name =
'district' )

```

```

drop table district

```

```

go
if exists ( select name from sysobjects where name =
'customer' )

```

```

drop table customer

```

```

go
if exists ( select name from sysobjects where name =
'history' )

```

```

drop table history

```

```

go
if exists ( select name from sysobjects where name =
'new_order' )

```

```

drop table new_order

```

```

go

```

```

if exists ( select name from sysobjects where name =
'orders' )
    drop table orders
go
if exists ( select name from sysobjects where name =
'order_line' )
    drop table order_line
go
if exists ( select name from sysobjects where name =
'item' )
    drop table item
go
if exists ( select name from sysobjects where name =
'stock' )
    drop table stock
go
-----
-- Create new tables
-----
create table warehouse
(
    w_id          int,
    w_ytd         money,
    w_tax         smallmoney,
    w_name        char(10),
    w_street_1    char(20),
    w_street_2    char(20),
    w_city        char(20),
    w_state       char(2),
    w_zip         char(9)
) on load_fg
go

create table district
(
    d_id          tinyint,
    d_w_id        int,
    d_ytd         money,
    d_next_o_id   int,
    d_tax         smallmoney,
    d_name        char(10),
    d_street_1    char(20),
    d_street_2    char(20),
    d_city        char(20),
    d_state       char(2),
    d_zip         char(9)
) on load_fg
go

create table customer
(
    c_id          int,
    c_d_id        tinyint,
    c_w_id        int,
    c_discount    smallmoney,
    c_credit_lim  money,
    c_last        char(16),
    c_first       char(16),
    c_credit      char(2),
    c_balance     money,
    c_ytd_payment money,

    c_payment_cnt smallint,
    c_delivery_cnt smallint,
    c_street_1    char(20),
    c_street_2    char(20),
    c_city        char(20),
    c_state       char(2),
    c_zip         char(9),
    c_phone       char(16),
    c_since       datetime,
    c_middle      char(2),
    c_data        char(50)
) on load_fg

```

```

go
-- Use the following table option if using c_data
varchar(max)
-- sp_tableoption 'customer',large value types out of
row,'1'
-- go

create table history
(
    h_c_id        int,
    h_c_d_id      tinyint,
    h_c_w_id      int,
    h_d_id        tinyint,
    h_w_id        int,
    h_date        datetime,
    h_amount      smallmoney,
    h_data        char(24)
) on load_fg
go

create table new_order
(
    no_o_id       int,
    no_d_id       tinyint,
    no_w_id       int
) on load_fg
go

create table orders
(
    o_id          int,
    o_d_id        tinyint,
    o_w_id        int,
    o_c_id        int,
    o_carrier_id  tinyint,
    o_ol_cnt      tinyint,
    o_all_local   tinyint,
    o_entry_d     datetime
) on load_fg
go

create table order_line
(
    ol_o_id       int,
    ol_d_id       tinyint,
    ol_w_id       int,
    ol_number      tinyint,
    ol_i_id       int,
    ol_delivery_d  datetime,
    ol_amount      smallmoney,
    ol_supply_w_id int,
    ol_quantity    smallint,
    ol_dist_info  char(24)
) on load_fg
go

create table item
(
    i_id          int,
    i_name        char(24),
    i_price       smallmoney,
    i_data        char(50),
    i_im_id       int
) on load_fg
go

create table stock
(
    s_i_id        int,
    s_w_id        int,
    s_quantity    smallint,
    s_ytd         int,
    s_order_cnt   smallint,
    s_remote_cnt  smallint,
    s_data        char(50),

```

```

    s_dist_02    char(24),
    s_dist_03    char(24),
    s_dist_04    char(24),
    s_dist_05    char(24),
    s_dist_06    char(24),
    s_dist_07    char(24),
    s_dist_08    char(24),
    s_dist_09    char(24),
    s_dist_10    char(24)
) on load_fg
go

```

### Clustered/NonClustered Index Creation Scripts

```

--
-- HP TPCC Setup
-- Create Indexes for Customer
-- and move the table from LoadFg to
CustomerStockFg
--
use tpcc
go

if exists (select name from sysindexes where name
='customer_c1')
    drop index customer.customer_c1

if exists (select name from sysindexes where name
='history_c1')
    drop index history.history_c1
go

create unique clustered index customer_c1 on
customer(c_w_id, c_d_id, c_id)
with SORT_IN_TEMPDB, fillfactor=100 on cs_fg
go

create unique nonclustered index customer_nc1 on
customer(c_w_id, c_d_id, c_last, c_first, c_id)
with SORT_IN_TEMPDB, fillfactor=100
go

create clustered index history_c1 on history(h_c_w_id,
h_date, h_c_d_id, h_c_id, h_amount)
with SORT_IN_TEMPDB, fillfactor=100 on misc_fg
go

--
-- HPTPCC Setup Kit
-- Create Item Indexes
-- and move the table from LoadFg to MiscFg
--
use tpcc
go

create unique clustered index item_c1 on item(i_id)
with SORT_IN_TEMPDB, fillfactor=100 on misc_fg
go

--
-- HPTPCC Setup Kit
-- Create ORDERS Indexes
-- and move the table from LoadFg to MiscFg
--
use tpcc
go

```

```

if exists ( select name from sysindexes where name =
'orders_c1' )
    drop index orders.orders_c1

if exists ( select name from sysindexes where name =
'order_line_c1' )
    drop index order_line.order_line_c1

if exists ( select name from sysindexes where name =
'new_order_c1' )
    drop index new_order.new_order_c1
go

create unique clustered index orders_c1 on
orders(o_w_id, o_d_id, o_id)
with SORT_IN_TEMPDB, fillfactor=100 on misc_fg
go

--create index orders_nc1 on orders(o_w_id, o_d_id,
o_c_id, o_id)
--with SORT_IN_TEMPDB, fillfactor=100
--go

create unique clustered index new_order_c1 on
new_order(no_w_id, no_d_id, no_o_id)
with SORT_IN_TEMPDB, fillfactor=100 on misc_fg
go

create unique clustered index order_line_c1 on
order_line(ol_w_id, ol_d_id, ol_o_id, ol_number)
with SORT_IN_TEMPDB, fillfactor=100 on misc_fg
go

--
-- HPTPC Setup Kit
-- Create WAREHOUSE Indexes
-- and move the table from LoadFg to MiscFg
--

use tpcc
go

if exists (select name from sysindexes where name
='stock_c1')
    drop index stock.stock_c1
go

create unique clustered index warehouse_c1 on
warehouse(w_id)
with SORT_IN_TEMPDB, fillfactor=100 on misc_fg
go

create unique clustered index district_c1 on
district(d_w_id, d_id)
with SORT_IN_TEMPDB, fillfactor=100 on misc_fg
go

create unique clustered index stock_c1 on
stock(s_i_id,s_w_id)
with SORT_IN_TEMPDB, fillfactor=100 on cs_fg
go

```

### Non Clustered Index Creation Scripts

Incompassed in previous section

## B.3 Stored Procedures

### CreateNewOrdProc.sql

```

-----
--
-- File: NEWORD.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.63
--
-- Copyright Microsoft, 2005
--
-- Creates neworder stored procedure
--
-- Interface Level: 4.20.000
-----
SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

USE tpcc
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'tpcc_neworder' )
    DROP PROCEDURE tpcc_neworder
GO

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

```

```

    @i_id15 int = 0, @s_w_id15 int = 0,
    @ol_qty15 smallint = 0

```

```

AS
DECLARE @w_tax smallmoney,
    @d_tax smallmoney,
    @c_last char(16),
    @c_credit char(2),
    @c_discount smallmoney,
    @i_price smallmoney,
    @i_name char(24),
    @i_data char(50),
    @o_entry_d datetime,
    @remote_flag int,
    @s_quantity smallint,
    @s_data char(50),
    @s_dist char(24),
    @li_no int,
    @o_id int,
    @commit_flag tinyint,
    @li_id int,
    @li_s_w_id int,
    @li_qty smallint,
    @ol_number int,
    @c_id_local int

BEGIN

BEGIN TRANSACTION n

-----
-- get district tax and next available order id and
update
-- plus initialize local variables
-----
UPDATE district
SET @d_tax = d_tax,
    @o_id = d_next_o_id,
    d_next_o_id = d_next_o_id + 1,
    @o_entry_d = GETDATE(),
    @li_no = 0,
    @commit_flag = 1
WHERE d_w_id = @w_id AND
    d_id = @d_id

-----
-- process orderlines
-----
WHILE (@li_no < @o_ol_cnt)
BEGIN
    SELECT @li_no = @li_no + 1

-----
-- set i_id, s_w_id, and qty for this lineitem
-----
    SELECT @li_id = CASE @li_no
        WHEN 1 THEN @i_id1
        WHEN 2 THEN @i_id2
        WHEN 3 THEN @i_id3
        WHEN 4 THEN @i_id4
        WHEN 5 THEN @i_id5
        WHEN 6 THEN @i_id6
        WHEN 7 THEN @i_id7
        WHEN 8 THEN @i_id8
        WHEN 9 THEN @i_id9
        WHEN 10 THEN @i_id10
        WHEN 11 THEN @i_id11
        WHEN 12 THEN @i_id12
        WHEN 13 THEN @i_id13
        WHEN 14 THEN @i_id14
        WHEN 15 THEN @i_id15
    END,
    @li_s_w_id = CASE @li_no

```

```

WHEN 1 THEN @s_w_id1
WHEN 2 THEN @s_w_id2
WHEN 3 THEN @s_w_id3
WHEN 4 THEN @s_w_id4
WHEN 5 THEN @s_w_id5
WHEN 6 THEN @s_w_id6
WHEN 7 THEN @s_w_id7
WHEN 8 THEN @s_w_id8
WHEN 9 THEN @s_w_id9
WHEN 10 THEN @s_w_id10
WHEN 11 THEN @s_w_id11
WHEN 12 THEN @s_w_id12
WHEN 13 THEN @s_w_id13
WHEN 14 THEN @s_w_id14
WHEN 15 THEN @s_w_id15
END,

@li_qty = CASE @i_no
WHEN 1 THEN @ol_qty1
WHEN 2 THEN @ol_qty2
WHEN 3 THEN @ol_qty3
WHEN 4 THEN @ol_qty4
WHEN 5 THEN @ol_qty5
WHEN 6 THEN @ol_qty6
WHEN 7 THEN @ol_qty7
WHEN 8 THEN @ol_qty8
WHEN 9 THEN @ol_qty9
WHEN 10 THEN @ol_qty10
WHEN 11 THEN @ol_qty11
WHEN 12 THEN @ol_qty12
WHEN 13 THEN @ol_qty13
WHEN 14 THEN @ol_qty14
WHEN 15 THEN @ol_qty15
END

-----
-- get item data (no one updates item)
-----
SELECT @i_price = i_price,
       @i_name   = i_name,
       @i_data   = i_data
FROM   item WITH (repeatableread)
WHERE  i_id     = @i_id

-----
-- update stock values
-----
UPDATE stock
SET   s_ytd      = s_ytd + @li_qty,
      @s_quantity = s_quantity - @li_qty +
CASE WHEN (s_quantity -
@li_qty < 10) THEN 91 ELSE 0 END,
      s_order_cnt = s_order_cnt + 1,
      s_remote_cnt = s_remote_cnt +
CASE WHEN (@li_s_w_id =
@w_id) THEN 0 ELSE 1 END,
      @s_data     = s_data,
      @s_dist    = CASE @d_id
WHEN 1 THEN s_dist_01
WHEN 2 THEN s_dist_02
WHEN 3 THEN s_dist_03
WHEN 4 THEN s_dist_04
WHEN 5 THEN s_dist_05
WHEN 6 THEN s_dist_06
WHEN 7 THEN s_dist_07
WHEN 8 THEN s_dist_08
WHEN 9 THEN s_dist_09
WHEN 10 THEN s_dist_10
END
WHERE  s_i_id   = @li_id AND
      s_w_id   = @li_s_w_id
-----

```

```

-- if there actually is a stock (and item) with these ids,
go to work-----
---
IF (@@rowcount > 0)
BEGIN
-----
-- insert order_line data (using data from item and
stock)
-----
INSERT INTO order_line VALUES( @o_id,
                                @d_id,
                                @w_id,
                                @li_no,
                                @li_id,
                                'dec 31, 1899',
                                @i_price * @li_qty,
                                @li_s_w_id,
                                @li_qty,
                                @s_dist)
-----
-- send line-item data to client
-----
SELECT @i_name,
       @s_quantity,
       b_g = CASE WHEN (
(patindex('%ORIGINAL%',@i_data) > 0) AND
(patindex('%ORIGINAL%',@s_data) > 0) )
THEN 'B' ELSE 'G' END,
       @i_price,
       @i_price * @li_qty
END
ELSE
BEGIN
-----
-- no item (or stock) found - triggers rollback
condition
-----
SELECT ",0",0,0
SELECT @commit_flag = 0
END
-----
-- get customer last name, discount, and credit rating
-----
SELECT @c_last = c_last,
       @c_discount = c_discount,
       @c_credit = c_credit,
       @c_id_local = c_id
FROM   customer WITH (repeatableread)
WHERE  c_id     = @c_id AND
       c_w_id  = @w_id AND
       c_d_id  = @d_id
-----
-- insert fresh row into orders table
-----
INSERT INTO orders VALUES ( @o_id,
                             @d_id,
                             @w_id,
                             @c_id_local,
                             0,
                             @o_ol_cnt,
                             @o_all_local,
                             @o_entry_d)
-----
-- insert corresponding row into new-order table
-----
INSERT INTO new_order VALUES ( @o_id,
                                @d_id,

```

```

                                @w_id)
-----
-- select warehouse tax
-----
SELECT @w_tax = w_tax
FROM   warehouse WITH (repeatableread)
WHERE  w_id   = @w_id

IF (@commit_flag = 1)

COMMIT TRANSACTION n
ELSE
-----
-- all that work for nuthin!!!
-----
ROLLBACK TRANSACTION n
-----
-- return order data to client
-----
SELECT @w_tax,
       @d_tax,
       @o_id,
       @c_last,
       @c_discount,
       @c_credit,
       @o_entry_d,
       @commit_flag
END
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp0tpcc_neworder' )
DROP PROCEDURE sp0tpcc_neworder
GO

CREATE PROCEDURE sp0tpcc_neworder
       @w_id int,
       @d_id tinyint,
       @c_id int,
       @o_ol_cnt tinyint,
       @o_all_local tinyint,
       @i_id1 int = 0, @s_w_id1 int = 0,
@ol_qty1 smallint = 0,
       @i_id2 int = 0, @s_w_id2 int = 0,
@ol_qty2 smallint = 0,
       @i_id3 int = 0, @s_w_id3 int = 0,
@ol_qty3 smallint = 0,
       @i_id4 int = 0, @s_w_id4 int = 0,
@ol_qty4 smallint = 0,
       @i_id5 int = 0, @s_w_id5 int = 0,
@ol_qty5 smallint = 0,
       @i_id6 int = 0, @s_w_id6 int = 0,
@ol_qty6 smallint = 0,
       @i_id7 int = 0, @s_w_id7 int = 0,
@ol_qty7 smallint = 0,
       @i_id8 int = 0, @s_w_id8 int = 0,
@ol_qty8 smallint = 0,
       @i_id9 int = 0, @s_w_id9 int = 0,
@ol_qty9 smallint = 0,
       @i_id10 int = 0, @s_w_id10 int = 0,
@ol_qty10 smallint = 0,
       @i_id11 int = 0, @s_w_id11 int = 0,
@ol_qty11 smallint = 0,
       @i_id12 int = 0, @s_w_id12 int = 0,
@ol_qty12 smallint = 0,
       @i_id13 int = 0, @s_w_id13 int = 0,
@ol_qty13 smallint = 0,
       @i_id14 int = 0, @s_w_id14 int = 0,
@ol_qty14 smallint = 0,
       @i_id15 int = 0, @s_w_id15 int = 0,
@ol_qty15 smallint = 0

```

```

AS
DECLARE @w_tax      smallmoney,
        @d_tax      smallmoney,
        @c_last     char(16),
        @c_credit   char(2),
        @c_discount smallmoney,
        @i_price    smallmoney,
        @i_name     char(24),
        @i_data     char(50),
        @o_entry_d  datetime,
        @remote_flag int,
        @s_quantity smallint,
        @s_data     char(50),
        @s_dist     char(24),
        @li_no      int,
        @o_id       int,
        @commit_flag tinyint,
        @li_id      int,
        @li_s_w_id  int,
        @li_qty     smallint,
        @ol_number  int,
        @c_id_local int

BEGIN

BEGIN TRANSACTION n

-----
-- get district tax and next available order id and
update
-- plus initialize local variables
-----
UPDATE district
SET  @d_tax      = d_tax,
     @o_id       = d_next_o_id,
     d_next_o_id = d_next_o_id + 1,
     @o_entry_d  = GETDATE(),
     @li_no      = 0,
     @commit_flag = 1
WHERE d_w_id     = @w_id AND
      d_id       = @d_id

-----
-- process orderlines
-----
WHILE (@li_no < @o_ol_cnt)
BEGIN
    SELECT @li_no = @li_no + 1

-----
-- set i_id, s_w_id, and qty for this lineitem
-----
    SELECT @li_id = CASE @li_no
        WHEN 1 THEN @i_id1
        WHEN 2 THEN @i_id2
        WHEN 3 THEN @i_id3
        WHEN 4 THEN @i_id4
        WHEN 5 THEN @i_id5
        WHEN 6 THEN @i_id6
        WHEN 7 THEN @i_id7
        WHEN 8 THEN @i_id8
        WHEN 9 THEN @i_id9
        WHEN 10 THEN @i_id10
        WHEN 11 THEN @i_id11
        WHEN 12 THEN @i_id12
        WHEN 13 THEN @i_id13
        WHEN 14 THEN @i_id14
        WHEN 15 THEN @i_id15
    END,

    @li_s_w_id = CASE @li_no
        WHEN 1 THEN @s_w_id1
        WHEN 2 THEN @s_w_id2
        WHEN 3 THEN @s_w_id3
        WHEN 4 THEN @s_w_id4

```

```

        WHEN 6 THEN @s_w_id6
        WHEN 7 THEN @s_w_id7
        WHEN 8 THEN @s_w_id8
        WHEN 9 THEN @s_w_id9
        WHEN 10 THEN @s_w_id10
        WHEN 11 THEN @s_w_id11
        WHEN 12 THEN @s_w_id12
        WHEN 13 THEN @s_w_id13
        WHEN 14 THEN @s_w_id14
        WHEN 15 THEN @s_w_id15
    END,

    @li_qty = CASE @li_no
        WHEN 1 THEN @ol_qty1
        WHEN 2 THEN @ol_qty2
        WHEN 3 THEN @ol_qty3
        WHEN 4 THEN @ol_qty4
        WHEN 5 THEN @ol_qty5
        WHEN 6 THEN @ol_qty6
        WHEN 7 THEN @ol_qty7
        WHEN 8 THEN @ol_qty8
        WHEN 9 THEN @ol_qty9
        WHEN 10 THEN @ol_qty10
        WHEN 11 THEN @ol_qty11
        WHEN 12 THEN @ol_qty12
        WHEN 13 THEN @ol_qty13
        WHEN 14 THEN @ol_qty14
        WHEN 15 THEN @ol_qty15
    END

-----
-- get item data (no one updates item)
-----
    SELECT @i_price = i_price,
           @i_name  = i_name,
           @i_data  = i_data
    FROM   item WITH (repeatable)
    WHERE  i_id     = @li_id

-----
-- update stock values
-----
    UPDATE stock
    SET   s_ytd    = s_ytd + @li_qty,
         @s_quantity = s_quantity = s_quantity
    - @li_qty +
        CASE WHEN (s_quantity -
@li_qty < 10) THEN 91 ELSE 0 END,
         s_order_cnt = s_order_cnt + 1,
         s_remote_cnt = s_remote_cnt +
        CASE WHEN (@li_s_w_id =
@w_id) THEN 0 ELSE 1 END,
         @s_data     = s_data,
         @s_dist     = CASE @d_id
            WHEN 1 THEN s_dist_01
            WHEN 2 THEN s_dist_02
            WHEN 3 THEN s_dist_03
            WHEN 4 THEN s_dist_04
            WHEN 5 THEN s_dist_05
            WHEN 6 THEN s_dist_06
            WHEN 7 THEN s_dist_07
            WHEN 8 THEN s_dist_08
            WHEN 9 THEN s_dist_09
            WHEN 10 THEN s_dist_10
        END
    WHERE s_i_id    = @li_id AND
         s_w_id    = @li_s_w_id

-----
--
-- if there actually is a stock (and item) with these ids,
go to work
-----
--
-- IF (@@rowcount > 0)

```

```

-----BEGIN-----
-- insert order_line data (using data from item and
stock)
-----
    INSERT INTO order_line VALUES( @o_id,
                                    @d_id,
                                    @w_id,
                                    @li_no,
                                    @li_id,
                                    'dec 31, 1899',
                                    @i_price * @li_qty,
                                    @li_s_w_id,
                                    @li_qty,
                                    @s_dist)

-----
-- send line-item data to client
-----
    SELECT @i_name,
           @s_quantity,
           b_g = CASE WHEN (
(patindex('%ORIGINAL%',@i_data) > 0) AND

(patindex('%ORIGINAL%',@s_data) > 0) )
           THEN 'B' ELSE 'G' END,
           @i_price,
           @i_price * @li_qty
    END
    ELSE
    BEGIN

-----
-- no item (or stock) found - triggers rollback
condition
-----
    SELECT ",0",0,0
    SELECT @commit_flag = 0
    END

-----
-- get customer last name, discount, and credit rating
-----
    SELECT @c_last = c_last,
           @c_discount = c_discount,
           @c_credit = c_credit,
           @c_id_local = c_id
    FROM   customer WITH (repeatable)
    WHERE  c_id     = @c_id AND
           c_w_id   = @w_id AND
           c_d_id   = @d_id

-----
-- insert fresh row into orders table
-----
    INSERT INTO orders VALUES ( @o_id,
                                 @d_id,
                                 @w_id,
                                 @c_id_local,
                                 0,
                                 @o_ol_cnt,
                                 @o_all_local,
                                 @o_entry_d)

-----
-- insert corresponding row into new-order table
-----
    INSERT INTO new_order VALUES ( @o_id,
                                    @d_id,
                                    @w_id)

-----
-- select warehouse tax
-----

```

```

SELECT @w_tax = w_tax
FROM warehouse WITH (repeatableread)
WHERE w_id = @w_id

IF (@commit_flag = 1)
    COMMIT TRANSACTION n
ELSE
    ROLLBACK TRANSACTION n
-- all that work for nuthin!!!
ROLLBACK TRANSACTION n
-- return order data to client
SELECT @w_tax,
        @d_tax,
        @o_id,
        @c_last,
        @c_discount,
        @c_credit,
        @o_entry_d,
        @commit_flag
END
GO
IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp1tpcc_neworder' )
    DROP PROCEDURE sp1tpcc_neworder
GO
CREATE PROCEDURE sp1tpcc_neworder
    @w_id int,
    @d_id tinyint,
    @c_id int,
    @o_ol_cnt tinyint,
    @o_all_local tinyint,
    @i_id1 int = 0, @s_w_id1 int = 0,
@ol_qty1 smallint = 0,
    @i_id2 int = 0, @s_w_id2 int = 0,
@ol_qty2 smallint = 0,
    @i_id3 int = 0, @s_w_id3 int = 0,
@ol_qty3 smallint = 0,
    @i_id4 int = 0, @s_w_id4 int = 0,
@ol_qty4 smallint = 0,
    @i_id5 int = 0, @s_w_id5 int = 0,
@ol_qty5 smallint = 0,
    @i_id6 int = 0, @s_w_id6 int = 0,
@ol_qty6 smallint = 0,
    @i_id7 int = 0, @s_w_id7 int = 0,
@ol_qty7 smallint = 0,
    @i_id8 int = 0, @s_w_id8 int = 0,
@ol_qty8 smallint = 0,
    @i_id9 int = 0, @s_w_id9 int = 0,
@ol_qty9 smallint = 0,
    @i_id10 int = 0, @s_w_id10 int = 0,
@ol_qty10 smallint = 0,
    @i_id11 int = 0, @s_w_id11 int = 0,
@ol_qty11 smallint = 0,
    @i_id12 int = 0, @s_w_id12 int = 0,
@ol_qty12 smallint = 0,
    @i_id13 int = 0, @s_w_id13 int = 0,
@ol_qty13 smallint = 0,
    @i_id14 int = 0, @s_w_id14 int = 0,
@ol_qty14 smallint = 0,
    @i_id15 int = 0, @s_w_id15 int = 0,
@ol_qty15 smallint = 0
AS
DECLARE @w_tax smallmoney,
        @d_tax smallmoney,
        @c_last char(16),
        @c_credit char(2),

```

```

@i_price smallmoney,
@i_name char(24),
@i_data char(50),
@o_entry_d datetime,
@remote_flag int,
@s_quantity smallint,
@s_data char(50),
@s_dist char(24),
@li_no int,
@o_id int,
@commit_flag tinyint,
@li_id int,
@li_s_w_id int,
@li_qty smallint,
@ol_number int,
@c_id_local int

BEGIN
BEGIN TRANSACTION n
-- get district tax and next available order id and
update
-- plus initialize local variables
UPDATE district
SET @d_tax = d_tax,
    @o_id = d_next_o_id,
    d_next_o_id = d_next_o_id + 1,
    @o_entry_d = GETDATE(),
    @li_no = 0,
    @commit_flag = 1
WHERE d_w_id = @w_id AND
    d_id = @d_id
-- process orderlines
WHILE (@li_no < @o_ol_cnt)
BEGIN
    SELECT @li_no = @li_no + 1
-- set i_id, s_w_id, and qty for this lineitem
SELECT @li_id = CASE @li_no
    WHEN 1 THEN @i_id1
    WHEN 2 THEN @i_id2
    WHEN 3 THEN @i_id3
    WHEN 4 THEN @i_id4
    WHEN 5 THEN @i_id5
    WHEN 6 THEN @i_id6
    WHEN 7 THEN @i_id7
    WHEN 8 THEN @i_id8
    WHEN 9 THEN @i_id9
    WHEN 10 THEN @i_id10
    WHEN 11 THEN @i_id11
    WHEN 12 THEN @i_id12
    WHEN 13 THEN @i_id13
    WHEN 14 THEN @i_id14
    WHEN 15 THEN @i_id15
    END,
    @li_s_w_id = CASE @li_no
    WHEN 1 THEN @s_w_id1
    WHEN 2 THEN @s_w_id2
    WHEN 3 THEN @s_w_id3
    WHEN 4 THEN @s_w_id4
    WHEN 5 THEN @s_w_id5
    WHEN 6 THEN @s_w_id6
    WHEN 7 THEN @s_w_id7
    WHEN 8 THEN @s_w_id8
    WHEN 9 THEN @s_w_id9
    WHEN 10 THEN @s_w_id10

```

```

    WHEN 11 THEN @s_w_id11
    WHEN 12 THEN @s_w_id12
    WHEN 13 THEN @s_w_id13
    WHEN 14 THEN @s_w_id14
    WHEN 15 THEN @s_w_id15
    END,
    @li_qty = CASE @li_no
    WHEN 1 THEN @ol_qty1
    WHEN 2 THEN @ol_qty2
    WHEN 3 THEN @ol_qty3
    WHEN 4 THEN @ol_qty4
    WHEN 5 THEN @ol_qty5
    WHEN 6 THEN @ol_qty6
    WHEN 7 THEN @ol_qty7
    WHEN 8 THEN @ol_qty8
    WHEN 9 THEN @ol_qty9
    WHEN 10 THEN @ol_qty10
    WHEN 11 THEN @ol_qty11
    WHEN 12 THEN @ol_qty12
    WHEN 13 THEN @ol_qty13
    WHEN 14 THEN @ol_qty14
    WHEN 15 THEN @ol_qty15
    END
-- get item data (no one updates item)
SELECT @i_price = i_price,
        @i_name = i_name,
        @i_data = i_data
FROM item WITH (repeatableread)
WHERE i_id = @li_id
-- update stock values
UPDATE stock
SET s_ytd = s_ytd + @li_qty,
    @s_quantity = s_quantity - @li_qty +
    CASE WHEN (s_quantity -
@li_qty < 10) THEN 91 ELSE END,
    s_order_cnt = s_order_cnt + 1,
    s_remote_cnt = s_remote_cnt +
    CASE WHEN (@li_s_w_id =
@w_id) THEN 0 ELSE 1 END,
    @s_data = s_data,
    @s_dist = CASE @d_id
    WHEN 1 THEN s_dist_01
    WHEN 2 THEN s_dist_02
    WHEN 3 THEN s_dist_03
    WHEN 4 THEN s_dist_04
    WHEN 5 THEN s_dist_05
    WHEN 6 THEN s_dist_06
    WHEN 7 THEN s_dist_07
    WHEN 8 THEN s_dist_08
    WHEN 9 THEN s_dist_09
    WHEN 10 THEN s_dist_10
    END
WHERE s_j_id = @li_id AND
    s_w_id = @li_s_w_id
-- if there actually is a stock (and item) with these ids,
go to work
IF (@@rowcount > 0)
BEGIN
-- insert order_line data (using data from item and
stock)
INSERT INTO order_line VALUES( @o_id,

```

```

        @d_id,
        @w_id,
        @li_no,
        @li_id,
        'dec 31, 1899',
        @i_price * @li_qty,
        @li_s_w_id,
        @li_qty,
        @s_dist)

-----
-- send line-item data to client
-----
        SELECT @i_name,
               @s_quantity,
               b_g = CASE WHEN (
(patindex('%ORIGINAL%',@i_data) > 0) AND

(patindex('%ORIGINAL%',@s_data) > 0) )

               THEN 'B' ELSE 'G' END,
               @i_price,
               @i_price * @li_qty
        END
        ELSE
        BEGIN

-----
-- no item (or stock) found - triggers rollback
condition
-----
        SELECT ",0",0,0
        SELECT @commit_flag = 0
        END

        END

-----
-- get customer last name, discount, and credit rating
-----
        SELECT @c_last = c_last,
               @c_discount = c_discount,
               @c_credit = c_credit,
               @c_id_local = c_id
        FROM customer WITH (repeatableread)
        WHERE c_id = @c_id AND
               c_w_id = @w_id AND
               c_d_id = @d_id

-----
-- insert fresh row into orders table
-----
        INSERT INTO orders VALUES ( @o_id,
        @d_id,
        @w_id,
        @c_id_local,
        0,
        @o_ol_cnt,
        @o_all_local,
        @o_entry_d)

-----
-- insert corresponding row into new-order table
-----
        INSERT INTO new_order VALUES ( @o_id,
        @d_id,
        @w_id)

-----
-- select warehouse tax
-----
        SELECT @w_tax = w_tax
        FROM warehouse WITH (repeatableread)
        WHERE w_id = @w_id

```

```

        IF (@commit_flag = 1)
            COMMIT TRANSACTION n
        ELSE
        -----
        -- all that work for nuthin!!!
        -----
            ROLLBACK TRANSACTION n
        -----
        -- return order data to client
        -----
            SELECT @w_tax,
                   @d_tax,
                   @o_id,
                   @c_last,
                   @c_discount,
                   @c_credit,
                   @o_entry_d,
                   @commit_flag
        END
        GO

        IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp2tpcc_neworder' )
        DROP PROCEDURE sp2tpcc_neworder
        GO

        CREATE PROCEDURE sp2tpcc_neworder
        @w_id int,
        @d_id tinyint,
        @c_id int,
        @o_ol_cnt tinyint,
        @o_all_local tinyint,
        @i_id1 int = 0, @s_w_id1 int = 0,
        @o_qty1 smallint = 0,
        @i_id2 int = 0, @s_w_id2 int = 0,
        @o_qty2 smallint = 0,
        @i_id3 int = 0, @s_w_id3 int = 0,
        @o_qty3 smallint = 0,
        @i_id4 int = 0, @s_w_id4 int = 0,
        @o_qty4 smallint = 0,
        @i_id5 int = 0, @s_w_id5 int = 0,
        @o_qty5 smallint = 0,
        @i_id6 int = 0, @s_w_id6 int = 0,
        @o_qty6 smallint = 0,
        @i_id7 int = 0, @s_w_id7 int = 0,
        @o_qty7 smallint = 0,
        @i_id8 int = 0, @s_w_id8 int = 0,
        @o_qty8 smallint = 0,
        @i_id9 int = 0, @s_w_id9 int = 0,
        @o_qty9 smallint = 0,
        @i_id10 int = 0, @s_w_id10 int = 0,
        @o_qty10 smallint = 0,
        @i_id11 int = 0, @s_w_id11 int = 0,
        @o_qty11 smallint = 0,
        @i_id12 int = 0, @s_w_id12 int = 0,
        @o_qty12 smallint = 0,
        @i_id13 int = 0, @s_w_id13 int = 0,
        @o_qty13 smallint = 0,
        @i_id14 int = 0, @s_w_id14 int = 0,
        @o_qty14 smallint = 0,
        @i_id15 int = 0, @s_w_id15 int = 0,
        @o_qty15 smallint = 0

        AS
        DECLARE @w_tax smallmoney,
               @d_tax smallmoney,
               @c_last char(16),
               @c_credit char(2),
               @c_discount smallmoney,
               @i_price smallmoney,
               @i_name char(24),
               @i_data char(50),

```

```

        @o_ol_cnt int,
        @o_entry_d datetime,
        @s_quantity smallint,
        @s_data char(50),
        @s_dist char(24),
        @li_no int,
        @o_id int,
        @commit_flag tinyint,
        @li_id int,
        @li_s_w_id int,
        @li_qty smallint,
        @ol_number int,
        @c_id_local int

        BEGIN

        BEGIN TRANSACTION n

        -----
        -- get district tax and next available order id and
        update
        -- plus initialize local variables
        -----
        UPDATE district
        SET @d_tax = d_tax,
           @o_id = d_next_o_id,
           d_next_o_id = d_next_o_id + 1,
           @o_entry_d = GETDATE(),
           @li_no = 0,
           @commit_flag = 1
        WHERE d_w_id = @w_id AND
               d_id = @d_id

        -----
        -- process orderlines
        -----
        WHILE (@li_no < @o_ol_cnt)
        BEGIN
            SELECT @li_no = @li_no + 1

        -----
        -- set i_id, s_w_id, and qty for this lineitem
        -----
            SELECT @li_id = CASE @li_no
                WHEN 1 THEN @i_id1
                WHEN 2 THEN @i_id2
                WHEN 3 THEN @i_id3
                WHEN 4 THEN @i_id4
                WHEN 5 THEN @i_id5
                WHEN 6 THEN @i_id6
                WHEN 7 THEN @i_id7
                WHEN 8 THEN @i_id8
                WHEN 9 THEN @i_id9
                WHEN 10 THEN @i_id10
                WHEN 11 THEN @i_id11
                WHEN 12 THEN @i_id12
                WHEN 13 THEN @i_id13
                WHEN 14 THEN @i_id14
                WHEN 15 THEN @i_id15
            END,

            @li_s_w_id = CASE @li_no
                WHEN 1 THEN @s_w_id1
                WHEN 2 THEN @s_w_id2
                WHEN 3 THEN @s_w_id3
                WHEN 4 THEN @s_w_id4
                WHEN 5 THEN @s_w_id5
                WHEN 6 THEN @s_w_id6
                WHEN 7 THEN @s_w_id7
                WHEN 8 THEN @s_w_id8
                WHEN 9 THEN @s_w_id9
                WHEN 10 THEN @s_w_id10
                WHEN 11 THEN @s_w_id11
                WHEN 12 THEN @s_w_id12
                WHEN 13 THEN @s_w_id13
                WHEN 14 THEN @s_w_id14

```



```

        WHEN 15 THEN @s_w_id15
    END,

    @li_qty = CASE @li_no
    WHEN 1 THEN @ol_qty1
    WHEN 2 THEN @ol_qty2
    WHEN 3 THEN @ol_qty3
    WHEN 4 THEN @ol_qty4
    WHEN 5 THEN @ol_qty5
    WHEN 6 THEN @ol_qty6
    WHEN 7 THEN @ol_qty7
    WHEN 8 THEN @ol_qty8
    WHEN 9 THEN @ol_qty9
    WHEN 10 THEN @ol_qty10
    WHEN 11 THEN @ol_qty11
    WHEN 12 THEN @ol_qty12
    WHEN 13 THEN @ol_qty13
    WHEN 14 THEN @ol_qty14
    WHEN 15 THEN @ol_qty15
    END

-----
-- get item data (no one updates item)
-----
SELECT @i_price = i_price,
       @i_name = i_name,
       @i_data = i_data
FROM   item WITH (repeatableread)
WHERE  i_id = @li_id

-----
-- update stock values
-----
UPDATE stock
SET   s_ytd = s_ytd + @li_qty,
      @s_quantity = s_quantity - s_quantity
- @li_qty +
      CASE WHEN (s_quantity -
@li_qty < 10) THEN 91 ELSE 0 END,
      s_order_cnt = s_order_cnt + 1,
      s_remote_cnt = s_remote_cnt +
      CASE WHEN (@li_s_w_id =
@w_id) THEN 0 ELSE 1 END,
      @s_data = s_data,
      @s_dist = CASE @d_id
    WHEN 1 THEN s_dist_01
    WHEN 2 THEN s_dist_02
    WHEN 3 THEN s_dist_03
    WHEN 4 THEN s_dist_04
    WHEN 5 THEN s_dist_05
    WHEN 6 THEN s_dist_06
    WHEN 7 THEN s_dist_07
    WHEN 8 THEN s_dist_08
    WHEN 9 THEN s_dist_09
    WHEN 10 THEN s_dist_10
    END
WHERE  s_i_id = @li_id AND
       s_w_id = @li_s_w_id

-----
--
-- if there actually is a stock (and item) with these ids,
go to work
-----
IF (@@rowcount > 0)
BEGIN
-----
-- insert order_line data (using data from item and
stock)
-----
INSERT INTO order_line VALUES( @o_id,
                                @d_id,
                                @w_id,
                                @li_no,

```

```

                                @c_id, 1899',
                                @i_price * @li_qty,
                                @li_s_w_id,
                                @li_qty,
                                @s_dist)

-----
-- send line-item data to client
-----
SELECT @i_name,
       @s_quantity,
       b_g = CASE WHEN (
(patindex('%ORIGINAL%',@i_data) > 0) AND

(patindex('%ORIGINAL%',@s_data) > 0) )

    THEN 'B' ELSE 'G' END,
       @i_price,
       @i_price * @li_qty
    END
    ELSE
    BEGIN

-----
-- no item (or stock) found - triggers rollback
condition
-----
SELECT ",0",0,0
SELECT @commit_flag = 0
    END

-----
-- get customer last name, discount, and credit rating
-----
SELECT @c_last = c_last,
       @c_discount = c_discount,
       @c_credit = c_credit,
       @c_id_local = c_id
FROM   customer WITH (repeatableread)
WHERE  c_id = @c_id AND
       c_w_id = @w_id AND
       c_d_id = @d_id

-----
-- insert fresh row into orders table
-----
INSERT INTO orders VALUES ( @o_id,
                             @d_id,
                             @w_id,
                             @c_id_local,
                             0,
                             @o_ol_cnt,
                             @o_all_local,
                             @o_entry_d)

-----
-- insert corresponding row into new-order table
-----
INSERT INTO new_order VALUES ( @o_id,
                                @d_id,
                                @w_id)

-----
-- select warehouse tax
-----
SELECT @w_tax = w_tax
FROM   warehouse WITH (repeatableread)
WHERE  w_id = @w_id

IF (@commit_flag = 1)

    COMMIT TRANSACTION n
ELSE
-----

```

```

--all that work for nothin!!!
ROLLBACK TRANSACTION n

-----
-- return order data to client
-----
SELECT @w_tax,
       @d_tax,
       @o_id,
       @c_last,
       @c_discount,
       @c_credit,
       @o_entry_d,
       @commit_flag

END
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp3tpcc_neworder' )
DROP PROCEDURE sp3tpcc_neworder
GO

CREATE PROCEDURE sp3tpcc_neworder
    @w_id int,
    @d_id tinyint,
    @c_id int,
    @o_ol_cnt tinyint,
    @o_all_local tinyint,
    @i_id1 int = 0, @s_w_id1 int = 0,
@ol_qty1 smallint = 0,
    @i_id2 int = 0, @s_w_id2 int = 0,
@ol_qty2 smallint = 0,
    @i_id3 int = 0, @s_w_id3 int = 0,
@ol_qty3 smallint = 0,
    @i_id4 int = 0, @s_w_id4 int = 0,
@ol_qty4 smallint = 0,
    @i_id5 int = 0, @s_w_id5 int = 0,
@ol_qty5 smallint = 0,
    @i_id6 int = 0, @s_w_id6 int = 0,
@ol_qty6 smallint = 0,
    @i_id7 int = 0, @s_w_id7 int = 0,
@ol_qty7 smallint = 0,
    @i_id8 int = 0, @s_w_id8 int = 0,
@ol_qty8 smallint = 0,
    @i_id9 int = 0, @s_w_id9 int = 0,
@ol_qty9 smallint = 0,
    @i_id10 int = 0, @s_w_id10 int = 0,
@ol_qty10 smallint = 0,
    @i_id11 int = 0, @s_w_id11 int = 0,
@ol_qty11 smallint = 0,
    @i_id12 int = 0, @s_w_id12 int = 0,
@ol_qty12 smallint = 0,
    @i_id13 int = 0, @s_w_id13 int = 0,
@ol_qty13 smallint = 0,
    @i_id14 int = 0, @s_w_id14 int = 0,
@ol_qty14 smallint = 0,
    @i_id15 int = 0, @s_w_id15 int = 0,
@ol_qty15 smallint = 0

AS
DECLARE @w_tax smallmoney,
       @d_tax smallmoney,
       @c_last char(16),
       @c_credit char(2),
       @c_discount smallmoney,
       @i_price smallmoney,
       @i_name char(24),
       @i_data char(50),
       @o_entry_d datetime,
       @remote_flag int,
       @s_quantity smallint,
       @s_data char(50),
       @s_dist char(24),

```

```

@li_no      int,
@o_id       int,
@commit_flag tinyint,
@li_id      int,
@li_s_w_id  int,
@li_qty     smallint,
@ol_number  int,
@c_id_local int

BEGIN

BEGIN TRANSACTION n

-----
-- get district tax and next available order id and
update
-- plus initialize local variables
-----
UPDATE district
SET  @d_tax      = d_tax,
    @o_id        = d_next_o_id,
    d_next_o_id  = d_next_o_id + 1,
    @o_entry_d   = GETDATE(),
    @li_no       = 0,
    @commit_flag = 1
WHERE d_w_id     = @w_id AND
    d_id         = @d_id

-----
-- process orderlines
-----
WHILE (@li_no < @ol_cnt)
BEGIN
    SELECT @li_no = @li_no + 1

-----
-- set i_id, s_w_id, and qty for this lineitem
-----
    SELECT @li_id = CASE @li_no
        WHEN 1 THEN @i_id1
        WHEN 2 THEN @i_id2
        WHEN 3 THEN @i_id3
        WHEN 4 THEN @i_id4
        WHEN 5 THEN @i_id5
        WHEN 6 THEN @i_id6
        WHEN 7 THEN @i_id7
        WHEN 8 THEN @i_id8
        WHEN 9 THEN @i_id9
        WHEN 10 THEN @i_id10
        WHEN 11 THEN @i_id11
        WHEN 12 THEN @i_id12
        WHEN 13 THEN @i_id13
        WHEN 14 THEN @i_id14
        WHEN 15 THEN @i_id15
    END,

    @li_s_w_id = CASE @li_no
        WHEN 1 THEN @s_w_id1
        WHEN 2 THEN @s_w_id2
        WHEN 3 THEN @s_w_id3
        WHEN 4 THEN @s_w_id4
        WHEN 5 THEN @s_w_id5
        WHEN 6 THEN @s_w_id6
        WHEN 7 THEN @s_w_id7
        WHEN 8 THEN @s_w_id8
        WHEN 9 THEN @s_w_id9
        WHEN 10 THEN @s_w_id10
        WHEN 11 THEN @s_w_id11
        WHEN 12 THEN @s_w_id12
        WHEN 13 THEN @s_w_id13
        WHEN 14 THEN @s_w_id14
        WHEN 15 THEN @s_w_id15
    END,

    @li_qty = CASE @li_no

```

```

    WHEN 1 THEN @ol_qty1
    WHEN 2 THEN @ol_qty2
    WHEN 3 THEN @ol_qty3
    WHEN 4 THEN @ol_qty4
    WHEN 5 THEN @ol_qty5
    WHEN 6 THEN @ol_qty6
    WHEN 7 THEN @ol_qty7
    WHEN 8 THEN @ol_qty8
    WHEN 9 THEN @ol_qty9
    WHEN 10 THEN @ol_qty10
    WHEN 11 THEN @ol_qty11
    WHEN 12 THEN @ol_qty12
    WHEN 13 THEN @ol_qty13
    WHEN 14 THEN @ol_qty14
    WHEN 15 THEN @ol_qty15
END

-----
-- get item data (no one updates item)
-----
SELECT @i_price = i_price,
    @i_name     = i_name,
    @i_data     = i_data
FROM   item WITH (repeatableread)
WHERE  i_id     = @li_id

-----
-- update stock values
-----
UPDATE stock
SET  s_ytd      = s_ytd + @li_qty,
    @s_quantity = s_quantity = s_quantity
- @li_qty +
    CASE WHEN (s_quantity -
@li_qty < 10) THEN 91 ELSE 0 END,
    s_order_cnt  = s_order_cnt + 1,
    s_remote_cnt = s_remote_cnt +
    CASE WHEN (@li_s_w_id =
@w_id) THEN 0 ELSE 1 END,
    @s_data      = s_data,
    @s_dist      = CASE @d_id
        WHEN 1 THEN s_dist_01
        WHEN 2 THEN s_dist_02
        WHEN 3 THEN s_dist_03
        WHEN 4 THEN s_dist_04
        WHEN 5 THEN s_dist_05
        WHEN 6 THEN s_dist_06
        WHEN 7 THEN s_dist_07
        WHEN 8 THEN s_dist_08
        WHEN 9 THEN s_dist_09
        WHEN 10 THEN s_dist_10
    END
WHERE s_i_id     = @li_id AND
    s_w_id       = @li_s_w_id

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

```

```

    @s_dist)
-----
-- send line-item data to client
-----
SELECT @i_name,
    @s_quantity,
    b_g = CASE WHEN (
(patindex('%ORIGINAL%',@i_data) > 0) AND
(patindex('%ORIGINAL%',@s_data) > 0) )
        THEN 'B' ELSE 'G' END,
    @i_price,
    @i_price * @li_qty
    END
    ELSE
    BEGIN
-----
-- no item (or stock) found - triggers rollback
condition
-----
SELECT ",0",0,0
SELECT @commit_flag = 0
    END
    END
-----
-- get customer last name, discount, and credit rating
-----
SELECT @c_last = c_last,
    @c_discount = c_discount,
    @c_credit   = c_credit,
    @c_id_local = c_id
FROM   customer WITH (repeatableread)
WHERE  c_id     = @c_id AND
    c_w_id      = @w_id AND
    c_d_id      = @d_id

-----
-- insert fresh row into orders table
-----
INSERT INTO orders VALUES ( @o_id,
    @d_id,
    @w_id,
    @c_id_local,
    0,
    @o_ol_cnt,
    @o_all_local,
    @o_entry_d)

-----
-- insert corresponding row into new-order table
-----
INSERT INTO new_order VALUES ( @o_id,
    @d_id,
    @w_id)

-----
-- select warehouse tax
-----
SELECT @w_tax = w_tax
FROM   warehouse WITH (repeatableread)
WHERE  w_id = @w_id

IF (@commit_flag = 1)

        COMMIT TRANSACTION n
    ELSE
-----
-- all that work for nuthin!!!
-----
ROLLBACK TRANSACTION n
-----

```

```

-- return order data to client
-----
SELECT @w_tax,
       @d_tax,
       @o_id,
       @c_last,
       @c_discount,
       @c_credit,
       @o_entry_d,
       @commit_flag
END
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp4tpcc_neworder' )
DROP PROCEDURE sp4tpcc_neworder
GO

CREATE PROCEDURE sp4tpcc_neworder
    @w_id int,
    @d_id tinyint,
    @c_id int,
    @o_ol_cnt tinyint,
    @o_all_local tinyint,
    @i_id1 int = 0, @s_w_id1 int = 0,
    @o_qty1 smallint = 0,
    @i_id2 int = 0, @s_w_id2 int = 0,
    @o_qty2 smallint = 0,
    @i_id3 int = 0, @s_w_id3 int = 0,
    @o_qty3 smallint = 0,
    @i_id4 int = 0, @s_w_id4 int = 0,
    @o_qty4 smallint = 0,
    @i_id5 int = 0, @s_w_id5 int = 0,
    @o_qty5 smallint = 0,
    @i_id6 int = 0, @s_w_id6 int = 0,
    @o_qty6 smallint = 0,
    @i_id7 int = 0, @s_w_id7 int = 0,
    @o_qty7 smallint = 0,
    @i_id8 int = 0, @s_w_id8 int = 0,
    @o_qty8 smallint = 0,
    @i_id9 int = 0, @s_w_id9 int = 0,
    @o_qty9 smallint = 0,
    @i_id10 int = 0, @s_w_id10 int = 0,
    @o_qty10 smallint = 0,
    @i_id11 int = 0, @s_w_id11 int = 0,
    @o_qty11 smallint = 0,
    @i_id12 int = 0, @s_w_id12 int = 0,
    @o_qty12 smallint = 0,
    @i_id13 int = 0, @s_w_id13 int = 0,
    @o_qty13 smallint = 0,
    @i_id14 int = 0, @s_w_id14 int = 0,
    @o_qty14 smallint = 0,
    @i_id15 int = 0, @s_w_id15 int = 0,
    @o_qty15 smallint = 0

AS
DECLARE @w_tax smallmoney,
        @d_tax smallmoney,
        @c_last char(16),
        @c_credit char(2),
        @c_discount smallmoney,
        @i_price smallmoney,
        @i_name char(24),
        @i_data char(50),
        @o_entry_d datetime,
        @remote_flag int,
        @s_quantity smallint,
        @s_data char(50),
        @s_dist char(24),
        @li_no int,

```

```

        @commit_flag tinyint,
        @li_id int,
        @li_s_w_id int,
        @li_qty smallint,
        @ol_number int,
        @c_id_local int

BEGIN

BEGIN TRANSACTION n

-----
-- get district tax and next available order id and
update
-- plus initialize local variables
-----
UPDATE district
SET @d_tax = d_tax,
    @o_id = d_next_o_id,
    d_next_o_id = d_next_o_id + 1,
    @o_entry_d = GETDATE(),
    @li_no = 0,
    @commit_flag = 1
WHERE d_w_id = @w_id AND
      d_id = @d_id

-----
-- process orderlines
-----
WHILE (@li_no < @o_ol_cnt)
BEGIN
    SELECT @li_no = @li_no + 1

-----
-- set i_id, s_w_id, and qty for this lineitem
-----
SELECT @li_id = CASE @li_no
                WHEN 1 THEN @i_id1
                WHEN 2 THEN @i_id2
                WHEN 3 THEN @i_id3
                WHEN 4 THEN @i_id4
                WHEN 5 THEN @i_id5
                WHEN 6 THEN @i_id6
                WHEN 7 THEN @i_id7
                WHEN 8 THEN @i_id8
                WHEN 9 THEN @i_id9
                WHEN 10 THEN @i_id10
                WHEN 11 THEN @i_id11
                WHEN 12 THEN @i_id12
                WHEN 13 THEN @i_id13
                WHEN 14 THEN @i_id14
                WHEN 15 THEN @i_id15
            END,

    @li_s_w_id = CASE @li_no
                WHEN 1 THEN @s_w_id1
                WHEN 2 THEN @s_w_id2
                WHEN 3 THEN @s_w_id3
                WHEN 4 THEN @s_w_id4
                WHEN 5 THEN @s_w_id5
                WHEN 6 THEN @s_w_id6
                WHEN 7 THEN @s_w_id7
                WHEN 8 THEN @s_w_id8
                WHEN 9 THEN @s_w_id9
                WHEN 10 THEN @s_w_id10
                WHEN 11 THEN @s_w_id11
                WHEN 12 THEN @s_w_id12
                WHEN 13 THEN @s_w_id13
                WHEN 14 THEN @s_w_id14
                WHEN 15 THEN @s_w_id15
            END,

    @li_qty = CASE @li_no
                WHEN 1 THEN @ol_qty1
                WHEN 2 THEN @ol_qty2

```

```

                WHEN 3 THEN @ol_qty3
                WHEN 5 THEN @ol_qty5
                WHEN 6 THEN @ol_qty6
                WHEN 7 THEN @ol_qty7
                WHEN 8 THEN @ol_qty8
                WHEN 9 THEN @ol_qty9
                WHEN 10 THEN @ol_qty10
                WHEN 11 THEN @ol_qty11
                WHEN 12 THEN @ol_qty12
                WHEN 13 THEN @ol_qty13
                WHEN 14 THEN @ol_qty14
                WHEN 15 THEN @ol_qty15
            END

END

-----
-- get item data (no one updates item)
-----
SELECT @i_price = i_price,
       @i_name = i_name,
       @i_data = i_data
FROM item WITH (repeatableread)
WHERE i_id = @li_id

-----
-- update stock values
-----
UPDATE stock
SET s_ytd = s_ytd + @li_qty,
    @s_quantity = s_quantity -
- @li_qty +
CASE WHEN (s_quantity -
@li_qty < 10) THEN 91 ELSE 0 END,
    s_order_cnt = s_order_cnt + 1,
    s_remote_cnt = s_remote_cnt +
CASE WHEN (@li_s_w_id =
@w_id) THEN 0 ELSE 1 END,
    @s_data = s_data,
    @s_dist = CASE @d_id
                WHEN 1 THEN s_dist_01
                WHEN 2 THEN s_dist_02
                WHEN 3 THEN s_dist_03
                WHEN 4 THEN s_dist_04
                WHEN 5 THEN s_dist_05
                WHEN 6 THEN s_dist_06
                WHEN 7 THEN s_dist_07
                WHEN 8 THEN s_dist_08
                WHEN 9 THEN s_dist_09
                WHEN 10 THEN s_dist_10
            END
WHERE s_i_id = @li_id AND
      s_w_id = @li_s_w_id

-----
-- if there actually is a stock (and item) with these ids,
go to work
-----
IF (@@rowcount > 0)
BEGIN

-- insert order_line data (using data from item and
stock)
-----
INSERT INTO order_line VALUES( @o_id,
                                @d_id,
                                @w_id,
                                @li_no,
                                @li_id,
                                'dec 31, 1899',
                                @i_price * @li_qty,
                                @li_s_w_id,
                                @li_qty,
                                @s_dist)

```

```

-----
-- send line-item data to client
-----
SELECT @i_name,
       @s_quantity,
       b_g = CASE WHEN (
(patindex('%ORIGINAL%',@i_data) > 0) AND

(patindex('%ORIGINAL%',@s_data) > 0) )

       THEN 'B' ELSE 'G' END,
       @i_price,
       @i_price * @li_qty
END
ELSE
BEGIN
-----
-- no item (or stock) found - triggers rollback
condition
-----
SELECT ",0",0,0
SELECT @commit_flag = 0
END
-----
-- get customer last name, discount, and credit rating
-----
SELECT @c_last = c_last,
       @c_discount = c_discount,
       @c_credit = c_credit,
       @c_id_local = c_id
FROM customer WITH (repeatableread)
WHERE c_id = @c_id AND
      c_w_id = @w_id AND
      c_d_id = @d_id
-----
-- insert fresh row into orders table
-----
INSERT INTO orders VALUES ( @o_id,
                            @d_id,
                            @w_id,
                            @c_id_local,
                            0,
                            @o_ol_cnt,
                            @o_all_local,
                            @o_entry_d)
-----
-- insert corresponding row into new-order table
-----
INSERT INTO new_order VALUES ( @o_id,
                               @d_id,
                               @w_id)
-----
-- select warehouse tax
-----
SELECT @w_tax = w_tax
FROM warehouse WITH (repeatableread)
WHERE w_id = @w_id

IF (@commit_flag = 1)

COMMIT TRANSACTION n

ELSE

-----
-- all that work for nuthin!!!
-----
ROLLBACK TRANSACTION n
-----
-- return order data to client

```

```

-----
SELECT @w_tax,-----
       @d_tax,
       @o_id,
       @c_last,
       @c_discount,
       @c_credit,
       @o_entry_d,
       @commit_flag

END
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp5tpcc_neworder' )
DROP PROCEDURE sp5tpcc_neworder
GO

CREATE PROCEDURE sp5tpcc_neworder
       @w_id int,
       @d_id tinyint,
       @c_id int,
       @o_ol_cnt tinyint,
       @o_all_local tinyint,
       @i_id1 int = 0, @s_w_id1 int = 0,
@ol_qty1 smallint = 0,
       @i_id2 int = 0, @s_w_id2 int = 0,
@ol_qty2 smallint = 0,
       @i_id3 int = 0, @s_w_id3 int = 0,
@ol_qty3 smallint = 0,
       @i_id4 int = 0, @s_w_id4 int = 0,
@ol_qty4 smallint = 0,
       @i_id5 int = 0, @s_w_id5 int = 0,
@ol_qty5 smallint = 0,
       @i_id6 int = 0, @s_w_id6 int = 0,
@ol_qty6 smallint = 0,
       @i_id7 int = 0, @s_w_id7 int = 0,
@ol_qty7 smallint = 0,
       @i_id8 int = 0, @s_w_id8 int = 0,
@ol_qty8 smallint = 0,
       @i_id9 int = 0, @s_w_id9 int = 0,
@ol_qty9 smallint = 0,
       @i_id10 int = 0, @s_w_id10 int = 0,
@ol_qty10 smallint = 0,
       @i_id11 int = 0, @s_w_id11 int = 0,
@ol_qty11 smallint = 0,
       @i_id12 int = 0, @s_w_id12 int = 0,
@ol_qty12 smallint = 0,
       @i_id13 int = 0, @s_w_id13 int = 0,
@ol_qty13 smallint = 0,
       @i_id14 int = 0, @s_w_id14 int = 0,
@ol_qty14 smallint = 0,
       @i_id15 int = 0, @s_w_id15 int = 0,
@ol_qty15 smallint = 0

AS
DECLARE @w_tax smallmoney,
       @d_tax smallmoney,
       @c_last char(16),
       @c_credit char(2),
       @c_discount smallmoney,
       @i_price smallmoney,
       @i_name char(24),
       @i_data char(50),
       @o_entry_d datetime,
       @remote_flag int,
       @s_quantity smallint,
       @s_data char(50),
       @s_dist char(24),
       @li_no int,
       @o_id int,
       @commit_flag tinyint,
       @li_id int,
       @li_s_w_id int,
       @li_qty smallint,

```

```

       @li_local int,
@li_order int,
BEGIN
BEGIN TRANSACTION n
-----
-- get district tax and next available order id and
update
-- plus initialize local variables
-----
UPDATE district
SET @d_tax = d_tax,
    @o_id = d_next_o_id,
    d_next_o_id = d_next_o_id + 1,
    @o_entry_d = GETDATE(),
    @li_no = 0,
    @commit_flag = 1
WHERE d_w_id = @w_id AND
      d_id = @d_id
-----
-- process orderlines
-----
WHILE (@li_no < @o_ol_cnt)
BEGIN
SELECT @li_no = @li_no + 1
-----
-- set i_id, s_w_id, and qty for this lineitem
-----
SELECT @li_id = CASE @li_no
                WHEN 1 THEN @i_id1
                WHEN 2 THEN @i_id2
                WHEN 3 THEN @i_id3
                WHEN 4 THEN @i_id4
                WHEN 5 THEN @i_id5
                WHEN 6 THEN @i_id6
                WHEN 7 THEN @i_id7
                WHEN 8 THEN @i_id8
                WHEN 9 THEN @i_id9
                WHEN 10 THEN @i_id10
                WHEN 11 THEN @i_id11
                WHEN 12 THEN @i_id12
                WHEN 13 THEN @i_id13
                WHEN 14 THEN @i_id14
                WHEN 15 THEN @i_id15
                END,
       @li_s_w_id = CASE @li_no
                WHEN 1 THEN @s_w_id1
                WHEN 2 THEN @s_w_id2
                WHEN 3 THEN @s_w_id3
                WHEN 4 THEN @s_w_id4
                WHEN 5 THEN @s_w_id5
                WHEN 6 THEN @s_w_id6
                WHEN 7 THEN @s_w_id7
                WHEN 8 THEN @s_w_id8
                WHEN 9 THEN @s_w_id9
                WHEN 10 THEN @s_w_id10
                WHEN 11 THEN @s_w_id11
                WHEN 12 THEN @s_w_id12
                WHEN 13 THEN @s_w_id13
                WHEN 14 THEN @s_w_id14
                WHEN 15 THEN @s_w_id15
                END,
       @li_qty = CASE @li_no
                WHEN 1 THEN @ol_qty1
                WHEN 2 THEN @ol_qty2
                WHEN 3 THEN @ol_qty3
                WHEN 4 THEN @ol_qty4
                WHEN 5 THEN @ol_qty5
                WHEN 6 THEN @ol_qty6
                WHEN 7 THEN @ol_qty7

```

```

WHEN 8 THEN @ol_qty8
WHEN 9 THEN @ol_qty9
WHEN 10 THEN @ol_qty10
WHEN 11 THEN @ol_qty11
WHEN 12 THEN @ol_qty12
WHEN 13 THEN @ol_qty13
WHEN 14 THEN @ol_qty14
WHEN 15 THEN @ol_qty15
END
-----
-- get item data (no one updates item)
-----
SELECT @i_price = i_price,
       @i_name = i_name,
       @i_data = i_data
FROM item WITH (repeatableread)
WHERE i_id = @li_id
-----
-- update stock values
-----
UPDATE stock
SET s_ytd = s_ytd + @li_qty,
    @s_quantity = s_quantity - @li_qty +
CASE WHEN (s_quantity - @li_qty < 10) THEN 91 ELSE 0 END,
    s_order_cnt = s_order_cnt + 1,
    s_remote_cnt = s_remote_cnt +
CASE WHEN (@li_s_w_id = @w_id) THEN 0 ELSE 1 END,
    @s_data = s_data,
    @s_dist = CASE @d_id
WHEN 1 THEN s_dist_01
WHEN 2 THEN s_dist_02
WHEN 3 THEN s_dist_03
WHEN 4 THEN s_dist_04
WHEN 5 THEN s_dist_05
WHEN 6 THEN s_dist_06
WHEN 7 THEN s_dist_07
WHEN 8 THEN s_dist_08
WHEN 9 THEN s_dist_09
WHEN 10 THEN s_dist_10
END
WHERE s_i_id = @li_id AND
      s_w_id = @li_s_w_id
-----
--
-- if there actually is a stock (and item) with these ids,
go to work
-----
IF (@@rowcount > 0)
BEGIN
-----
-- insert order_line data (using data from item and
stock)
-----
INSERT INTO order_line VALUES( @o_id,
                               @d_id,
                               @w_id,
                               @li_no,
                               @li_id,
                               'dec 31, 1899',
                               @i_price * @li_qty,
                               @li_s_w_id,
                               @li_qty,
                               @s_dist)
-----
-- send line-item data to client
-----
SELECT @i_name,

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@o_id, @c_credit,
@o_entry_d,
@commit_flag
END
GO
IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp6tpcc_neworder' )
DROP PROCEDURE sp6tpcc_neworder
GO
CREATE PROCEDURE sp6tpcc_neworder
@w_id int,
@d_id tinyint,
@c_id int,
@o_ol_cnt tinyint,
@o_all_local tinyint,
@i_id1 int = 0, @s_w_id1 int = 0,
@ol_qty1 smallint = 0,
@i_id2 int = 0, @s_w_id2 int = 0,
@ol_qty2 smallint = 0,
@i_id3 int = 0, @s_w_id3 int = 0,
@ol_qty3 smallint = 0,
@i_id4 int = 0, @s_w_id4 int = 0,
@ol_qty4 smallint = 0,
@i_id5 int = 0, @s_w_id5 int = 0,
@ol_qty5 smallint = 0,
@i_id6 int = 0, @s_w_id6 int = 0,
@ol_qty6 smallint = 0,
@i_id7 int = 0, @s_w_id7 int = 0,
@ol_qty7 smallint = 0,
@i_id8 int = 0, @s_w_id8 int = 0,
@ol_qty8 smallint = 0,
@i_id9 int = 0, @s_w_id9 int = 0,
@ol_qty9 smallint = 0,
@i_id10 int = 0, @s_w_id10 int = 0,
@ol_qty10 smallint = 0,
@i_id11 int = 0, @s_w_id11 int = 0,
@ol_qty11 smallint = 0,
@i_id12 int = 0, @s_w_id12 int = 0,
@ol_qty12 smallint = 0,
@i_id13 int = 0, @s_w_id13 int = 0,
@ol_qty13 smallint = 0,
@i_id14 int = 0, @s_w_id14 int = 0,
@ol_qty14 smallint = 0,
@i_id15 int = 0, @s_w_id15 int = 0,
@ol_qty15 smallint = 0
AS
DECLARE @w_tax smallmoney,
@d_tax smallmoney,
@c_last char(16),
@c_credit char(2),
@c_discount smallmoney,
@i_price smallmoney,
@i_name char(24),
@i_data char(50),
@o_entry_d datetime,
@remote_flag int,
@s_quantity smallint,
@s_data char(50),
@s_dist char(24),
@li_no int,
@o_id int,
@commit_flag tinyint,
@li_id int,
@li_s_w_id int,
@li_qty smallint,
@ol_number int,
@c_id_local int
BEGIN
-----
-- no item (or stock) found - triggers rollback
condition
-----
SELECT ",,0",0,0
SELECT @commit_flag = 0
END
-----
-- get customer last name, discount, and credit rating
-----
SELECT @c_last = c_last,
       @c_discount = c_discount,
       @c_credit = c_credit,
       @c_id_local = c_id
FROM customer WITH (repeatableread)
WHERE c_id = @c_id AND
      c_w_id = @w_id AND
      c_d_id = @d_id
-----
-- insert fresh row into orders table
-----
INSERT INTO orders VALUES ( @o_id,
                            @d_id,
                            @w_id,
                            @c_id_local,
                            0,
                            @o_ol_cnt,
                            @o_all_local,
                            @o_entry_d)
-----
-- insert corresponding row into new-order table
-----
INSERT INTO new_order VALUES ( @o_id,
                               @d_id,
                               @w_id)
-----
-- select warehouse tax
-----
SELECT @w_tax = w_tax
FROM warehouse WITH (repeatableread)
WHERE w_id = @w_id
IF (@commit_flag = 1)
COMMIT TRANSACTION n
ELSE
ROLLBACK TRANSACTION n
-----
-- return order data to client
-----
SELECT @w_tax,
       @d_tax,
       @o_id,
       @c_last,

```

```

@o_id, @c_credit,
@o_entry_d,
@commit_flag
END
GO
IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp6tpcc_neworder' )
DROP PROCEDURE sp6tpcc_neworder
GO
CREATE PROCEDURE sp6tpcc_neworder
@w_id int,
@d_id tinyint,
@c_id int,
@o_ol_cnt tinyint,
@o_all_local tinyint,
@i_id1 int = 0, @s_w_id1 int = 0,
@ol_qty1 smallint = 0,
@i_id2 int = 0, @s_w_id2 int = 0,
@ol_qty2 smallint = 0,
@i_id3 int = 0, @s_w_id3 int = 0,
@ol_qty3 smallint = 0,
@i_id4 int = 0, @s_w_id4 int = 0,
@ol_qty4 smallint = 0,
@i_id5 int = 0, @s_w_id5 int = 0,
@ol_qty5 smallint = 0,
@i_id6 int = 0, @s_w_id6 int = 0,
@ol_qty6 smallint = 0,
@i_id7 int = 0, @s_w_id7 int = 0,
@ol_qty7 smallint = 0,
@i_id8 int = 0, @s_w_id8 int = 0,
@ol_qty8 smallint = 0,
@i_id9 int = 0, @s_w_id9 int = 0,
@ol_qty9 smallint = 0,
@i_id10 int = 0, @s_w_id10 int = 0,
@ol_qty10 smallint = 0,
@i_id11 int = 0, @s_w_id11 int = 0,
@ol_qty11 smallint = 0,
@i_id12 int = 0, @s_w_id12 int = 0,
@ol_qty12 smallint = 0,
@i_id13 int = 0, @s_w_id13 int = 0,
@ol_qty13 smallint = 0,
@i_id14 int = 0, @s_w_id14 int = 0,
@ol_qty14 smallint = 0,
@i_id15 int = 0, @s_w_id15 int = 0,
@ol_qty15 smallint = 0
AS
DECLARE @w_tax smallmoney,
@d_tax smallmoney,
@c_last char(16),
@c_credit char(2),
@c_discount smallmoney,
@i_price smallmoney,
@i_name char(24),
@i_data char(50),
@o_entry_d datetime,
@remote_flag int,
@s_quantity smallint,
@s_data char(50),
@s_dist char(24),
@li_no int,
@o_id int,
@commit_flag tinyint,
@li_id int,
@li_s_w_id int,
@li_qty smallint,
@ol_number int,
@c_id_local int
BEGIN

```

```

BEGIN TRANSACTION n
-----
-- get district tax and next available order id and
update
-- plus initialize local variables
-----
UPDATE district
SET  @d_tax      = d_tax,
     @o_id       = d_next_o_id,
     d_next_o_id = d_next_o_id + 1,
     @o_entry_d  = GETDATE(),
     @li_no      = 0,
     @commit_flag = 1
WHERE d_w_id     = @w_id AND
     d_id       = @d_id
-----
-- process orderlines
-----
WHILE (@li_no < @o_ol_cnt)
BEGIN
  SELECT @li_no = @li_no + 1
-----
-- set i_id, s_w_id, and qty for this lineitem
-----
SELECT @li_id = CASE @li_no
  WHEN 1 THEN @i_id1
  WHEN 2 THEN @i_id2
  WHEN 3 THEN @i_id3
  WHEN 4 THEN @i_id4
  WHEN 5 THEN @i_id5
  WHEN 6 THEN @i_id6
  WHEN 7 THEN @i_id7
  WHEN 8 THEN @i_id8
  WHEN 9 THEN @i_id9
  WHEN 10 THEN @i_id10
  WHEN 11 THEN @i_id11
  WHEN 12 THEN @i_id12
  WHEN 13 THEN @i_id13
  WHEN 14 THEN @i_id14
  WHEN 15 THEN @i_id15
END,

@li_s_w_id = CASE @li_no
  WHEN 1 THEN @s_w_id1
  WHEN 2 THEN @s_w_id2
  WHEN 3 THEN @s_w_id3
  WHEN 4 THEN @s_w_id4
  WHEN 5 THEN @s_w_id5
  WHEN 6 THEN @s_w_id6
  WHEN 7 THEN @s_w_id7
  WHEN 8 THEN @s_w_id8
  WHEN 9 THEN @s_w_id9
  WHEN 10 THEN @s_w_id10
  WHEN 11 THEN @s_w_id11
  WHEN 12 THEN @s_w_id12
  WHEN 13 THEN @s_w_id13
  WHEN 14 THEN @s_w_id14
  WHEN 15 THEN @s_w_id15
END,

@li_qty = CASE @li_no
  WHEN 1 THEN @ol_qty1
  WHEN 2 THEN @ol_qty2
  WHEN 3 THEN @ol_qty3
  WHEN 4 THEN @ol_qty4
  WHEN 5 THEN @ol_qty5
  WHEN 6 THEN @ol_qty6
  WHEN 7 THEN @ol_qty7
  WHEN 8 THEN @ol_qty8
  WHEN 9 THEN @ol_qty9
  WHEN 10 THEN @ol_qty10
  WHEN 11 THEN @ol_qty11

```

```

      WHEN 13 THEN @ol_qty13
      WHEN 14 THEN @ol_qty14
      WHEN 15 THEN @ol_qty15
    END
-----
-- get item data (no one updates item)
-----
SELECT @i_price = i_price,
       @i_name  = i_name,
       @i_data  = i_data
FROM   item WITH (repeatableread)
WHERE  i_id    = @li_id
-----
-- update stock values
-----
UPDATE stock
SET  s_ytd      = s_ytd + @li_qty,
     @s_quantity = s_quantity + @li_qty +
CASE WHEN (s_quantity -
@li_qty < 10) THEN 91 ELSE 0 END,
     s_order_cnt = s_order_cnt + 1,
     s_remote_cnt = s_remote_cnt +
CASE WHEN (@li_s_w_id =
@w_id) THEN 0 ELSE 1 END,
     @s_data     = s_data,
     @s_dist     = CASE @d_id
  WHEN 1 THEN s_dist_01
  WHEN 2 THEN s_dist_02
  WHEN 3 THEN s_dist_03
  WHEN 4 THEN s_dist_04
  WHEN 5 THEN s_dist_05
  WHEN 6 THEN s_dist_06
  WHEN 7 THEN s_dist_07
  WHEN 8 THEN s_dist_08
  WHEN 9 THEN s_dist_09
  WHEN 10 THEN s_dist_10
END
WHERE  s_i_id   = @li_id AND
     s_w_id    = @li_s_w_id
-----
-- if there actually is a stock (and item) with these ids,
go to work
-----
IF (@@rowcount > 0)
BEGIN
-----
-- insert order_line data (using data from item and
stock)
-----
INSERT INTO order_line VALUES( @o_id,
                                @d_id,
                                @w_id,
                                @li_no,
                                @li_id,
                                'dec 31, 1899',
                                @i_price * @li_qty,
                                @li_s_w_id,
                                @li_qty,
                                @s_dist)
-----
-- send line-item data to client
-----
SELECT @i_name,
       @s_quantity,
       b_g = CASE WHEN (
(patindex('%ORIGINAL%',@i_data) > 0) AND

```

```

(patindex('%ORIGINAL%',@s_data) > 0) )
      THEN 'B' ELSE 'G' END,
       @i_price,
       @i_price * @li_qty
     END
     ELSE
     BEGIN
-----
-- no item (or stock) found - triggers rollback
condition
-----
SELECT ",0",0,0
SELECT @commit_flag = 0
     END
-----
-- get customer last name, discount, and credit rating
-----
SELECT @c_last = c_last,
       @c_discount = c_discount,
       @c_credit = c_credit,
       @c_id_local = c_id
FROM   customer WITH (repeatableread)
WHERE  c_id     = @c_id AND
     c_w_id    = @w_id AND
     c_d_id    = @d_id
-----
-- insert fresh row into orders table
-----
INSERT INTO orders VALUES ( @o_id,
                             @d_id,
                             @w_id,
                             @c_id_local,
                             0,
                             @o_ol_cnt,
                             @o_all_local,
                             @o_entry_d)
-----
-- insert corresponding row into new-order table
-----
INSERT INTO new_order VALUES ( @o_id,
                                @d_id,
                                @w_id)
-----
-- select warehouse tax
-----
SELECT @w_tax = w_tax
FROM   warehouse WITH (repeatableread)
WHERE  w_id   = @w_id

IF (@commit_flag = 1)
      COMMIT TRANSACTION n
ELSE
-----
-- all that work for nuthin!!!
-----
ROLLBACK TRANSACTION n
-----
-- return order data to client
-----
SELECT @w_tax,
       @d_tax,
       @o_id,
       @c_last,
       @c_discount,
       @c_credit,
       @o_entry_d,

```

```

        @commit_flag
END
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp7tpcc_neworder' )
DROP PROCEDURE sp7tpcc_neworder
GO

CREATE PROCEDURE sp7tpcc_neworder
        @w_id      int,
        @d_id      tinyint,
        @c_id      int,
        @o_ol_cnt  tinyint,
        @o_all_local tinyint,
        @i_id1 int = 0, @s_w_id1 int = 0,
@ol_qty1 smallint = 0,
        @i_id2 int = 0, @s_w_id2 int = 0,
@ol_qty2 smallint = 0,
        @i_id3 int = 0, @s_w_id3 int = 0,
@ol_qty3 smallint = 0,
        @i_id4 int = 0, @s_w_id4 int = 0,
@ol_qty4 smallint = 0,
        @i_id5 int = 0, @s_w_id5 int = 0,
@ol_qty5 smallint = 0,
        @i_id6 int = 0, @s_w_id6 int = 0,
@ol_qty6 smallint = 0,
        @i_id7 int = 0, @s_w_id7 int = 0,
@ol_qty7 smallint = 0,
        @i_id8 int = 0, @s_w_id8 int = 0,
@ol_qty8 smallint = 0,
        @i_id9 int = 0, @s_w_id9 int = 0,
@ol_qty9 smallint = 0,
        @i_id10 int = 0, @s_w_id10 int = 0,
@ol_qty10 smallint = 0,
        @i_id11 int = 0, @s_w_id11 int = 0,
@ol_qty11 smallint = 0,
        @i_id12 int = 0, @s_w_id12 int = 0,
@ol_qty12 smallint = 0,
        @i_id13 int = 0, @s_w_id13 int = 0,
@ol_qty13 smallint = 0,
        @i_id14 int = 0, @s_w_id14 int = 0,
@ol_qty14 smallint = 0,
        @i_id15 int = 0, @s_w_id15 int = 0,
@ol_qty15 smallint = 0

AS
DECLARE @w_tax      smallmoney,
        @d_tax      smallmoney,
        @c_last     char(16),
        @c_credit   char(2),
        @c_discount smallmoney,
        @i_price    smallmoney,
        @i_name     char(24),
        @i_data     char(50),
        @o_entry_d  datetime,
        @remote_flag int,
        @s_quantity smallint,
        @s_data     char(50),
        @s_dist     char(24),
        @li_no     int,
        @o_id      int,
        @commit_flag tinyint,
        @li_id     int,
        @li_s_w_id int,
        @li_qty    smallint,
        @ol_number int,
        @c_id_local int

BEGIN
BEGIN TRANSACTION n

```

```

--get district tax and next available order id and
update
-- plus initialize local variables
-----
UPDATE district
SET   @d_tax      = d_tax,
       @o_id      = d_next_o_id,
       d_next_o_id = d_next_o_id + 1,
       @o_entry_d = GETDATE(),
       @li_no     = 0,
       @commit_flag = 1
WHERE d_w_id     = @w_id AND
       d_id      = @d_id
-----
-- process orderlines
-----
WHILE (@li_no < @o_ol_cnt)
BEGIN
        SELECT @li_no = @li_no + 1
-----
-- set i_id, s_w_id, and qty for this lineitem
-----
        SELECT @li_id = CASE @li_no
                WHEN 1 THEN @i_id1
                WHEN 2 THEN @i_id2
                WHEN 3 THEN @i_id3
                WHEN 4 THEN @i_id4
                WHEN 5 THEN @i_id5
                WHEN 6 THEN @i_id6
                WHEN 7 THEN @i_id7
                WHEN 8 THEN @i_id8
                WHEN 9 THEN @i_id9
                WHEN 10 THEN @i_id10
                WHEN 11 THEN @i_id11
                WHEN 12 THEN @i_id12
                WHEN 13 THEN @i_id13
                WHEN 14 THEN @i_id14
                WHEN 15 THEN @i_id15
                END,
                @li_s_w_id = CASE @li_no
                WHEN 1 THEN @s_w_id1
                WHEN 2 THEN @s_w_id2
                WHEN 3 THEN @s_w_id3
                WHEN 4 THEN @s_w_id4
                WHEN 5 THEN @s_w_id5
                WHEN 6 THEN @s_w_id6
                WHEN 7 THEN @s_w_id7
                WHEN 8 THEN @s_w_id8
                WHEN 9 THEN @s_w_id9
                WHEN 10 THEN @s_w_id10
                WHEN 11 THEN @s_w_id11
                WHEN 12 THEN @s_w_id12
                WHEN 13 THEN @s_w_id13
                WHEN 14 THEN @s_w_id14
                WHEN 15 THEN @s_w_id15
                END,
                @li_qty = CASE @li_no
                WHEN 1 THEN @ol_qty1
                WHEN 2 THEN @ol_qty2
                WHEN 3 THEN @ol_qty3
                WHEN 4 THEN @ol_qty4
                WHEN 5 THEN @ol_qty5
                WHEN 6 THEN @ol_qty6
                WHEN 7 THEN @ol_qty7
                WHEN 8 THEN @ol_qty8
                WHEN 9 THEN @ol_qty9
                WHEN 10 THEN @ol_qty10
                WHEN 11 THEN @ol_qty11
                WHEN 12 THEN @ol_qty12
                WHEN 13 THEN @ol_qty13
                WHEN 14 THEN @ol_qty14

```

```

ENDWHEN 15 THEN @ol_qty15
-----
-- get item data (no one updates item)
-----
        SELECT @i_price = i_price,
               @i_name  = i_name,
               @i_data  = i_data
        FROM   item WITH (repeatableread)
        WHERE  i_id     = @li_id
-----
-- update stock values
-----
        UPDATE stock
        SET   s_ytd      = s_ytd + @li_qty,
               @s_quantity = s_quantity + s_quantity
- @li_qty +
        CASE WHEN (s_quantity -
@li_qty < 10) THEN 91 ELSE 0 END,
        s_order_cnt = s_order_cnt + 1,
        s_remote_cnt = s_remote_cnt +
        CASE WHEN (@li_s_w_id =
@w_id) THEN 0 ELSE 1 END,
        @s_data      = s_data,
        @s_dist      = CASE @d_id
                WHEN 1 THEN s_dist_01
                WHEN 2 THEN s_dist_02
                WHEN 3 THEN s_dist_03
                WHEN 4 THEN s_dist_04
                WHEN 5 THEN s_dist_05
                WHEN 6 THEN s_dist_06
                WHEN 7 THEN s_dist_07
                WHEN 8 THEN s_dist_08
                WHEN 9 THEN s_dist_09
                WHEN 10 THEN s_dist_10
                END
        WHERE  s_i_id  = @li_id AND
               s_w_id = @li_s_w_id
-----
--
-- if there actually is a stock (and item) with these ids,
go to work
-----
        IF (@@rowcount > 0)
        BEGIN
-- insert order_line data (using data from item and
stock)
-----
        INSERT INTO order_line VALUES( @o_id,
                @d_id,
                @w_id,
                @li_no,
                @li_id,
                'dec 31, 1899',
                @i_price * @li_qty,
                @li_s_w_id,
                @li_qty,
                @s_dist)
-----
-- send line-item data to client
-----
        SELECT @i_name,
               @s_quantity,
               b_g = CASE WHEN (
(patindex('%ORIGINAL%',@i_data) > 0) AND
(patindex('%ORIGINAL%',@s_data) > 0) )
                THEN 'B' ELSE 'G' END,

```

```

        @i_price,
        @i_price * @li_qty
    END
    ELSE
    BEGIN
-----
-- no item (or stock) found - triggers rollback
condition
-----
    SELECT ",0",0,0
    SELECT @commit_flag = 0
        END
    END
-----
-- get customer last name, discount, and credit rating
-----
    SELECT @c_last = c_last,
        @c_discount = c_discount,
        @c_credit = c_credit,
        @c_id_local = c_id
    FROM customer WITH (repeatableread)
    WHERE c_id = @c_id AND
        c_w_id = @w_id AND
        c_d_id = @d_id
-----
-- insert fresh row into orders table
-----
    INSERT INTO orders VALUES ( @o_id,
        @d_id,
        @w_id,
        @c_id_local,
        0,
        @o_ol_cnt,
        @o_all_local,
        @o_entry_d)
-----
-- insert corresponding row into new-order table
-----
    INSERT INTO new_order VALUES ( @o_id,
        @d_id,
        @w_id)
-----
-- select warehouse tax
-----
    SELECT @w_tax = w_tax
    FROM warehouse WITH (repeatableread)
    WHERE w_id = @w_id

    IF (@commit_flag = 1)
        COMMIT TRANSACTION n
    ELSE
-----
-- all that work for nuthin!!!
-----
    ROLLBACK TRANSACTION n
-----
-- return order data to client
-----
    SELECT @w_tax,
        @d_tax,
        @o_id,
        @c_last,
        @c_discount,
        @c_credit,
        @o_entry_d,
        @commit_flag
END
GO

```

```

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

-----
Tpcc_neworder_new.sql
-----
--
-- File: TPCC_NEWORDER_NEW.SQL
--
-- Microsoft TPC-C Benchmark Kit Ver. 4.68
--
-- Copyright Microsoft, 2006
--
-- This acid stored procedure implements the
neworder --
-- transaction. It outputs timestamps at the
--
-- beginning of the transaction, before the
commit --
-- delay, and after the commit.
--
-----
SET QUOTED_IDENTIFIER OFF
GO
SET ANSI_NULLS OFF
GO

USE tpcc
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'tpcc_neworder_new' )
    DROP PROCEDURE tpcc_neworder_new
GO

-- neworder_new v2.5 6/23/05 PeterCa
-- 1q stock/order_line/client. upd district & ins
neworder.
-- cust/warehouse select together, ins order separate
-- uses rownumber to distinct w any transform
-- uses in-memory sort for distinct on iid,wid
-- uses charindex
-- will rollback if (@i_idX,@s_w_idX pairs not unique)
OR (@i_idX not unique).

CREATE PROCEDURE tpcc_neworder_new
    @w_id int,
    @d_id tinyint,
    @c_id int,
    @o_ol_cnt tinyint,
    @o_all_local tinyint,
    @i_id1 int = 0, @s_w_id1 int = 0,
@ol_qty1 smallint = 0,
    @i_id2 int = 0, @s_w_id2 int = 0,
@ol_qty2 smallint = 0,
    @i_id3 int = 0, @s_w_id3 int = 0,
@ol_qty3 smallint = 0,
    @i_id4 int = 0, @s_w_id4 int = 0,
@ol_qty4 smallint = 0,
    @i_id5 int = 0, @s_w_id5 int = 0,
@ol_qty5 smallint = 0,
    @i_id6 int = 0, @s_w_id6 int = 0,
@ol_qty6 smallint = 0,

```

```

    @i_id7 int = 0, @s_w_id7 int = 0,
@ol_qty7 smallint = 0, @s_w_id8 int = 0,
@ol_qty8 smallint = 0,
    @i_id9 int = 0, @s_w_id9 int = 0,
@ol_qty9 smallint = 0,
    @i_id10 int = 0, @s_w_id10 int = 0,
@ol_qty10 smallint = 0,
    @i_id11 int = 0, @s_w_id11 int = 0,
@ol_qty11 smallint = 0,
    @i_id12 int = 0, @s_w_id12 int = 0,
@ol_qty12 smallint = 0,
    @i_id13 int = 0, @s_w_id13 int = 0,
@ol_qty13 smallint = 0,
    @i_id14 int = 0, @s_w_id14 int = 0,
@ol_qty14 smallint = 0,
    @i_id15 int = 0, @s_w_id15 int = 0,
@ol_qty15 smallint = 0

AS
BEGIN
DECLARE @o_id int,
    @d_tax smallmoney,
    @o_entry_d datetime,
    @commit_flag tinyint

BEGIN TRANSACTION n
-- get district tax and next available order id and
update
-- insert corresponding row into new-order table
-- plus initialize local variables

UPDATE district
SET @d_tax = d_tax,
    @o_id = d_next_o_id,
    d_next_o_id = d_next_o_id + 1,
    @o_entry_d = GETDATE(),
    @commit_flag = 1

OUTPUT deleted.d_next_o_id,
    @d_id,
    @w_id
INTO new_order
WHERE d_w_id = @w_id AND
    d_id = @d_id

-- update stock from stock join (item join (params))
-- output to orderline, output to client
-- NOTE: @@rowcount != @ol_o_cnt
-- if (@i_idX,@s_w_idX pairs not unique)
OR (@i_idX not unique).

UPDATE stock
SET s_ytd = s_ytd + info.ol_qty,
    s_quantity = s_quantity - info.ol_qty +
CASE WHEN (s_quantity -
info.ol_qty < 10) THEN 91 ELSE 0 END,
    s_order_cnt = s_order_cnt + 1,
    s_remote_cnt = s_remote_cnt +

CASE WHEN (info.w_id = @w_id) THEN 0 ELSE 1 END

OUTPUT @o_id,
    @d_id,
    @w_id,
    info.lino,
    info.i_id,
    "dec 31, 1899",
    info.i_price * info.ol_qty,
    info.w_id,
    info.ol_qty,
CASE @d_id WHEN 1 THEN
inserted.s_dist_01
    WHEN 2 THEN inserted.s_dist_02
    WHEN 3 THEN inserted.s_dist_03

```



```

        WHEN 4 THEN inserted.s_dist_04
        WHEN 5 THEN inserted.s_dist_05
        WHEN 6 THEN inserted.s_dist_06
        WHEN 7 THEN inserted.s_dist_07
        WHEN 8 THEN inserted.s_dist_08
        WHEN 9 THEN inserted.s_dist_09
        WHEN 10 THEN inserted.s_dist_10
    END
INTO order_line

    OUTPUT info.i_name,inserted.s_quantity,
    CASE WHEN
((charindex("ORIGINAL",info.i_data) > 0) AND
(charindex("ORIGINAL",inserted.s_data) > 0) )
    THEN "B" ELSE "G" END,
    info.i_price,
    info.i_price*info.ol_qty
FROM stock INNER JOIN
    (SELECT iid,
        wid,
            lino,
            ol_qty,
            i_price,
            i_name,
            i_data
    FROM (SELECT iid,
        wid,
            lino,
            qty,
row_number() OVER (PARTITION BY iid,wid ORDER
BY iid,wid)
    FROM (SELECT
@i_id1,@s_w_id1,1,@ol_qty1 UNION ALL
    SELECT
@i_id2,@s_w_id2,2,@ol_qty2 UNION ALL
    SELECT
@i_id3,@s_w_id3,3,@ol_qty3 UNION ALL
    SELECT
@i_id4,@s_w_id4,4,@ol_qty4 UNION ALL
    SELECT
@i_id5,@s_w_id5,5,@ol_qty5 UNION ALL
    SELECT
@i_id6,@s_w_id6,6,@ol_qty6 UNION ALL
    SELECT
@i_id7,@s_w_id7,7,@ol_qty7 UNION ALL
    SELECT
@i_id8,@s_w_id8,8,@ol_qty8 UNION ALL
    SELECT
@i_id9,@s_w_id9,9,@ol_qty9 UNION ALL
    SELECT
@i_id10,@s_w_id10,10,@ol_qty10 UNION ALL
    SELECT
@i_id11,@s_w_id11,11,@ol_qty11 UNION ALL
    SELECT
@i_id12,@s_w_id12,12,@ol_qty12 UNION ALL
    SELECT
@i_id13,@s_w_id13,13,@ol_qty13 UNION ALL
    SELECT
@i_id14,@s_w_id14,14,@ol_qty14 UNION ALL
    SELECT
@i_id15,@s_w_id15,15,@ol_qty15) AS
uo1(iid,wid,lino,qty)
    ) AS
o1(iid,wid,lino,ol_qty,rownum)
    INNER JOIN
    item (repeatableread) ON i_id =
iid AND -- filters out invalid items
rownum = 1
    ) AS
info(i_id,w_id,lino,ol_qty,i_price,i_name,i_data)
    ON s_i_id = info.i_id AND
    s_w_id = info.w_id

```

```

IF (@@rowcount <> @o_ol_cnt) -- must have an
invalid SELECT @commit_flag = 0 -- 2.4.2.3 requires
rest to proceed

-- insert fresh row into orders table
INSERT INTO orders VALUES ( @o_id,
    @d_id,
    @w_id,
    @c_id,
    0,
    @o_ol_cnt,
    @o_all_local,
    @o_entry_d)

-- get customer last name, discount, and credit
rating
-- get warehouse tax
-- return order_data to client
SELECT w_tax,
    @d_tax,
    @o_id,
    c_last,
    c_discount,
    c_credit,
    @o_entry_d,
    @commit_flag
FROM warehouse(repeatableread),
customer(repeatableread)
WHERE w_id = @w_id AND
    c_id = @c_id AND
    c_w_id = @w_id AND
    c_d_id = @d_id

```

```

-- @@rowcount checks that previous
select found a valid customer
IF (@@rowcount = 0)
BEGIN
    RAISERROR(' Invalid
Customer ID', 11, 1 )
    ROLLBACK TRANSACTION n
END
ELSE IF (@commit_flag = 1)
    COMMIT TRANSACTION n
ELSE -- all that work for nothing.
    ROLLBACK TRANSACTION n
END
GO

```

**CreateOrdStatProc.sql**

```

-----
-- File: ORDSTAT.SQL --
-- Microsoft TPC-C Benchmark Kit Ver. 4.68 --
-- Copyright Microsoft, 2006 --
-- Creates order status stored procedure --
-- Interface Level: 4.20.000 --
-----
SET QUOTED_IDENTIFIER OFF
GO

```

```

SET ANSI_NULLS ON
GO

USE tpcc
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'tpcc_orderstatus' )
    DROP PROCEDURE tpcc_orderstatus
GO

CREATE PROCEDURE tpcc_orderstatus
    @w_id int,
    @d_id tinyint,
    @c_id int,
    @c_last char(16) = ""
AS
DECLARE @c_balance money,
    @c_first char(16),
    @c_middle char(2),
    @o_id int,
    @o_entry_d datetime,
    @o_carrier_id smallint,
    @cnt smallint
BEGIN TRANSACTION o
IF (@c_id = 0)
BEGIN
    -----
    -- get customer id and info using last name
    -----
    SELECT @cnt = (count(*)+1)/2
    FROM customer WITH (repeatableread)
    WHERE c_last = @c_last AND
        c_w_id = @w_id AND
        c_d_id = @d_id
    SET rowcount @cnt
    SELECT @c_id = c_id,
        @c_balance = c_balance,
        @c_first = c_first,
        @c_last = c_last,
        @c_middle = c_middle
    FROM customer WITH (repeatableread)
    WHERE c_last = @c_last AND
        c_w_id = @w_id AND
        c_d_id = @d_id
    ORDER BY c_w_id, c_d_id, c_last, c_first
    SET rowcount 0
END
ELSE
BEGIN
    -----
    -- get customer info if by id
    -----
    SELECT @c_balance = c_balance,
        @c_first = c_first,
        @c_middle = c_middle,
        @c_last = c_last
    FROM customer WITH (repeatableread)
    WHERE c_id = @c_id AND
        c_d_id = @d_id AND
        c_w_id = @w_id
    SELECT @cnt = @@rowcount
END
-- if no such customer
-----

```

```

IF (@cnt = 0)
BEGIN
    RAISERROR('Customer not found',18,1)
    GOTO custnotfound
END

-----
-- get order info
-----

SELECT @o_id = o_id,
       @o_entry_d = o_entry_d,
       @o_carrier_id = o_carrier_id
FROM orders WITH (serializable)
WHERE o_c_id = @c_id AND
      o_d_id = @d_id AND
      o_w_id = @w_id
ORDER BY o_id ASC

-----
-- select order lines for the current order
-----

SELECT ol_supply_w_id,
       ol_i_id,
       ol_quantity,
       ol_amount,
       ol_delivery_d
FROM order_line WITH (repeatable)
WHERE ol_o_id = @o_id AND
      ol_d_id = @d_id AND
      ol_w_id = @w_id

custnotfound:

COMMIT TRANSACTION o

-----
-- return data to client
-----

SELECT @c_id,
       @c_last,
       @c_first,
       @c_middle,

       @o_entry_d,
       @o_carrier_id,
       @o_balance,
       @o_id

GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp0tpcc_orderstatus' )
DROP PROCEDURE sp0tpcc_orderstatus

CREATE PROCEDURE sp0tpcc_orderstatus
    @w_id int,
    @d_id tinyint,

    @c_id int,
    @c_last char(16) = ""

AS
DECLARE @c_balance money,
        @c_first char(16),
        @c_middle char(2),
        @o_id int,
        @o_entry_d datetime,
        @o_carrier_id smallint,
        @cnt smallint

BEGIN TRANSACTION o
IF (@c_id = 0)
BEGIN
    -----
    -- get customer id and info using last name
    -----
    SELECT @cnt = (count(*)+1)/2
    FROM customer WITH (repeatable)
    WHERE c_last = @c_last AND
          c_w_id = @w_id AND
          c_d_id = @d_id

    SET rowcount @cnt

    SELECT @c_id = c_id,
           @c_balance = c_balance,
           @c_first = c_first,
           @c_last = c_last,
           @c_middle = c_middle
    FROM customer WITH (repeatable)
    WHERE c_last = @c_last AND
          c_w_id = @w_id AND
          c_d_id = @d_id

    ORDER BY c_w_id, c_d_id, c_last, c_first

    SET rowcount 0
END
ELSE
BEGIN
    -----
    -- get customer info if by id
    -----
    SELECT @c_balance = c_balance,
           @c_first = c_first,
           @c_middle = c_middle,
           @c_last = c_last
    FROM customer WITH (repeatable)
    WHERE c_id = @c_id AND
          c_d_id = @d_id AND
          c_w_id = @w_id

    SELECT @cnt = @@rowcount
END

-----
-- if no such customer
-----

IF (@cnt = 0)
BEGIN
    RAISERROR('Customer not found',18,1)
    GOTO custnotfound
END

-----
-- get order info
-----

SELECT @o_id = o_id,
       @o_entry_d = o_entry_d,
       @o_carrier_id = o_carrier_id
FROM orders WITH (serializable)
WHERE o_c_id = @c_id AND
      o_d_id = @d_id AND
      o_w_id = @w_id
ORDER BY o_id ASC

-----
-- select order lines for the current order
-----

SELECT ol_supply_w_id,
       ol_i_id,
       ol_quantity,
       ol_amount,
       ol_delivery_d
FROM order_line WITH (repeatable)
WHERE ol_o_id = @o_id AND
      ol_d_id = @d_id AND
      ol_w_id = @w_id

custnotfound:

COMMIT TRANSACTION o

```

```

-----
-- get customer id and info using last name
-----
SELECT @cnt = (count(*)+1)/2
FROM customer WITH (repeatable)
WHERE c_last = @c_last AND
      c_w_id = @w_id AND
      c_d_id = @d_id

SET rowcount @cnt

SELECT @c_id = c_id,
       @c_balance = c_balance,
       @c_first = c_first,
       @c_last = c_last,
       @c_middle = c_middle
FROM customer WITH (repeatable)
WHERE c_last = @c_last AND
      c_w_id = @w_id AND
      c_d_id = @d_id

ORDER BY c_w_id, c_d_id, c_last, c_first

SET rowcount 0
END
ELSE
BEGIN
    -----
    -- get customer info if by id
    -----
    SELECT @c_balance = c_balance,
           @c_first = c_first,
           @c_middle = c_middle,
           @c_last = c_last
    FROM customer WITH (repeatable)
    WHERE c_id = @c_id AND
          c_d_id = @d_id AND
          c_w_id = @w_id

    SELECT @cnt = @@rowcount
END

-----
-- if no such customer
-----

IF (@cnt = 0)
BEGIN
    RAISERROR('Customer not found',18,1)
    GOTO custnotfound
END

-----
-- get order info
-----

SELECT @o_id = o_id,
       @o_entry_d = o_entry_d,
       @o_carrier_id = o_carrier_id
FROM orders WITH (serializable)
WHERE o_c_id = @c_id AND
      o_d_id = @d_id AND
      o_w_id = @w_id
ORDER BY o_id ASC

-----
-- select order lines for the current order
-----

SELECT ol_supply_w_id,
       ol_i_id,
       ol_quantity,
       ol_amount,
       ol_delivery_d
FROM order_line WITH (repeatable)
WHERE ol_o_id = @o_id AND
      ol_d_id = @d_id AND
      ol_w_id = @w_id

custnotfound:

COMMIT TRANSACTION o

```

```

COMMIT TRANSACTION o
-----
-- return data to client
-----

SELECT @c_id,
       @c_last,
       @c_first,
       @c_middle,

       @o_entry_d,
       @o_carrier_id,
       @o_balance,
       @o_id

GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp1tpcc_orderstatus' )
DROP PROCEDURE sp1tpcc_orderstatus

CREATE PROCEDURE sp1tpcc_orderstatus
    @w_id int,
    @d_id tinyint,

    @c_id int,
    @c_last char(16) = ""

AS
DECLARE @c_balance money,
        @c_first char(16),
        @c_middle char(2),
        @o_id int,
        @o_entry_d datetime,
        @o_carrier_id smallint,
        @cnt smallint

BEGIN TRANSACTION o
IF (@c_id = 0)
BEGIN
    -----
    -- get customer id and info using last name
    -----
    SELECT @cnt = (count(*)+1)/2
    FROM customer WITH (repeatable)
    WHERE c_last = @c_last AND
          c_w_id = @w_id AND
          c_d_id = @d_id

    SET rowcount @cnt

    SELECT @c_id = c_id,
           @c_balance = c_balance,
           @c_first = c_first,
           @c_last = c_last,
           @c_middle = c_middle
    FROM customer WITH (repeatable)
    WHERE c_last = @c_last AND
          c_w_id = @w_id AND
          c_d_id = @d_id

    ORDER BY c_w_id, c_d_id, c_last, c_first

    SET rowcount 0
END
ELSE
BEGIN
    -----
    -- get customer info if by id
    -----
    SELECT @c_balance = c_balance,
           @c_first = c_first,
           @c_middle = c_middle,
           @c_last = c_last
    FROM customer WITH (repeatable)

```

```

WHERE c_id = @c_id AND
      c_d_id = @d_id AND
      c_w_id = @w_id

SELECT @cnt = @@rowcount
END

-----
-- if no such customer
-----
IF (@cnt = 0)
BEGIN
  RAISERROR('Customer not found',18,1)
  GOTO custnotfound
END

-----
-- get order info
-----
SELECT @o_id = o_id,
       @o_entry_d = o_entry_d,
       @o_carrier_id = o_carrier_id
FROM orders WITH (serializable)
WHERE o_c_id = @c_id AND
      o_d_id = @d_id AND
      o_w_id = @w_id
ORDER BY o_id ASC

-----
-- select order lines for the current order
-----
SELECT ol_supply_w_id,
       ol_i_id,
       ol_quantity,
       ol_amount,
       ol_delivery_d
FROM order_line WITH (repeatableread)
WHERE ol_o_id = @o_id AND
      ol_d_id = @d_id AND
      ol_w_id = @w_id

custnotfound:

COMMIT TRANSACTION o

-----
-- return data to client
-----
SELECT @c_id,
       @c_last,
       @c_first,
       @c_middle,

       @o_entry_d,
       @o_carrier_id,
       @c_balance,
       @o_id
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp2tpcc_orderstatus' )
  DROP PROCEDURE sp2tpcc_orderstatus
GO

CREATE PROCEDURE sp2tpcc_orderstatus
  @w_id int,
  @d_id tinyint,

  @c_id int,
  @c_last char(16) = ''

AS
DECLARE @c_balance money,
        @c_first char(16),
        @c_middle char(2),
        @o_id int,
        @o_entry_d datetime,
        @o_carrier_id smallint,
        @cnt smallint

```

```

@c_middle char(6),
@o_id int,
@o_entry_d datetime,
@o_carrier_id smallint,
@cnt smallint

BEGIN TRANSACTION o
IF (@c_id = 0)
BEGIN
  -----
  -- get customer id and info using last name
  -----
  SELECT @cnt = (count(*)+1)/2
  FROM customer WITH (repeatableread)
  WHERE c_last = @c_last AND
        c_w_id = @w_id AND
        c_d_id = @d_id

  SET rowcount @cnt

  SELECT @c_id = c_id,
         @c_balance = c_balance,
         @c_first = c_first,
         @c_last = c_last,
         @c_middle = c_middle
  FROM customer WITH (repeatableread)
  WHERE c_last = @c_last AND
        c_w_id = @w_id AND
        c_d_id = @d_id
  ORDER BY c_w_id, c_d_id, c_last, c_first

  SET rowcount 0
END

-----
-- get customer info if by id
-----
SELECT @c_balance = c_balance,
       @c_first = c_first,
       @c_middle = c_middle,
       @c_last = c_last
FROM customer WITH (repeatableread)
WHERE c_id = @c_id AND
      c_d_id = @d_id AND
      c_w_id = @w_id

SELECT @cnt = @@rowcount
END

-----
-- if no such customer
-----
IF (@cnt = 0)
BEGIN
  RAISERROR('Customer not found',18,1)
  GOTO custnotfound
END

-----
-- get order info
-----
SELECT @o_id = o_id,
       @o_entry_d = o_entry_d,
       @o_carrier_id = o_carrier_id
FROM orders WITH (serializable)
WHERE o_c_id = @c_id AND
      o_d_id = @d_id AND
      o_w_id = @w_id
ORDER BY o_id ASC

-----
-- select order lines for the current order
-----
SELECT ol_supply_w_id,

```

```

ol_quantity,
ol_amount,
ol_delivery_d
FROM order_line WITH (repeatableread)
WHERE ol_o_id = @o_id AND
      ol_d_id = @d_id AND
      ol_w_id = @w_id

custnotfound:

COMMIT TRANSACTION o

-----
-- return data to client
-----
SELECT @c_id,
       @c_last,
       @c_first,
       @c_middle,

       @o_entry_d,
       @o_carrier_id,
       @c_balance,
       @o_id
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp3tpcc_orderstatus' )
  DROP PROCEDURE sp3tpcc_orderstatus
GO

CREATE PROCEDURE sp3tpcc_orderstatus
  @w_id int,
  @d_id tinyint,

  @c_id int,
  @c_last char(16) = ''

AS
DECLARE @c_balance money,
        @c_first char(16),
        @c_middle char(2),
        @o_id int,
        @o_entry_d datetime,
        @o_carrier_id smallint,
        @cnt smallint

BEGIN TRANSACTION o
IF (@c_id = 0)
BEGIN
  -----
  -- get customer id and info using last name
  -----
  SELECT @cnt = (count(*)+1)/2
  FROM customer WITH (repeatableread)
  WHERE c_last = @c_last AND
        c_w_id = @w_id AND
        c_d_id = @d_id

  SET rowcount @cnt

  SELECT @c_id = c_id,
         @c_balance = c_balance,
         @c_first = c_first,
         @c_last = c_last,
         @c_middle = c_middle
  FROM customer WITH (repeatableread)
  WHERE c_last = @c_last AND
        c_w_id = @w_id AND
        c_d_id = @d_id
  ORDER BY c_w_id, c_d_id, c_last, c_first

  SET rowcount 0

```

```

END
ELSE
BEGIN
-----
-- get customer info if by id
-----
SELECT @c_balance = c_balance,
       @c_first = c_first,
       @c_middle = c_middle,
       @c_last = c_last
FROM customer WITH (repeatableread)
WHERE c_id = @c_id AND
      c_d_id = @d_id AND
      c_w_id = @w_id

SELECT @cnt = @@rowcount
END

-----
-- if no such customer

IF (@cnt = 0)
BEGIN
RAISERROR('Customer not found',18,1)
GOTO custnotfound
END

-----
-- get order info
-----
SELECT @o_id = o_id,
       @o_entry_d = o_entry_d,
       @o_carrier_id = o_carrier_id
FROM orders WITH (serializable)
WHERE o_c_id = @c_id AND
      o_d_id = @d_id AND
      o_w_id = @w_id
ORDER BY o_id ASC

-----
-- select order lines for the current order
-----
SELECT ol_supply_w_id,
       ol_i_id,
       ol_quantity,
       ol_amount,
       ol_delivery_d
FROM order_line WITH (repeatableread)
WHERE ol_o_id = @o_id AND
      ol_d_id = @d_id AND
      ol_w_id = @w_id

custnotfound:

COMMIT TRANSACTION o

-----
-- return data to client
-----
SELECT @c_id,
       @c_last,
       @c_first,
       @c_middle,

       @o_entry_d,
       @o_carrier_id,
       @c_balance,
       @o_id
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp4tpcc_orderstatus' )
DROP PROCEDURE sp4tpcc_orderstatus
GO

```

```

CREATE PROCEDURE sp4tpcc_orderstatus
    @w_id int,
    @d_id tinyint,

    @c_id int,
    @c_last char(16) = ""

AS
DECLARE @c_balance money,
        @c_first char(16),
        @c_middle char(2),
        @o_id int,
        @o_entry_d datetime,
        @o_carrier_id smallint,
        @cnt smallint

BEGIN TRANSACTION o
IF (@c_id = 0)
BEGIN
-----
-- get customer id and info using last name
-----
SELECT @cnt = (count(*)+1)/2
FROM customer WITH (repeatableread)
WHERE c_last = @c_last AND
      c_w_id = @w_id AND
      c_d_id = @d_id

SET rowcount @cnt

SELECT @c_id = c_id,
       @c_balance = c_balance,
       @c_first = c_first,
       @c_last = c_last,
       @c_middle = c_middle
FROM customer WITH (repeatableread)
WHERE c_last = @c_last AND
      c_w_id = @w_id AND
      c_d_id = @d_id
ORDER BY c_w_id, c_d_id, c_last, c_first

SET rowcount 0
END
ELSE
BEGIN
-----
-- get customer info if by id
-----
SELECT @c_balance = c_balance,
       @c_first = c_first,
       @c_middle = c_middle,
       @c_last = c_last
FROM customer WITH (repeatableread)
WHERE c_id = @c_id AND
      c_d_id = @d_id AND
      c_w_id = @w_id

SELECT @cnt = @@rowcount
END

-----
-- if no such customer

IF (@cnt = 0)
BEGIN
RAISERROR('Customer not found',18,1)
GOTO custnotfound
END

-----
-- get order info
-----
SELECT @o_id = o_id,
       @o_entry_d = o_entry_d,

```

```

FROM orders WITH (serializable)
WHERE o_c_id = @c_id AND
      o_d_id = @d_id AND
      o_w_id = @w_id
ORDER BY o_id ASC

-----
-- select order lines for the current order
-----
SELECT ol_supply_w_id,
       ol_i_id,
       ol_quantity,
       ol_amount,
       ol_delivery_d
FROM order_line WITH (repeatableread)
WHERE ol_o_id = @o_id AND
      ol_d_id = @d_id AND
      ol_w_id = @w_id

custnotfound:

COMMIT TRANSACTION o

-----
-- return data to client
-----
SELECT @c_id,
       @c_last,
       @c_first,
       @c_middle,

       @o_entry_d,
       @o_carrier_id,
       @c_balance,
       @o_id
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp5tpcc_orderstatus' )
DROP PROCEDURE sp5tpcc_orderstatus
GO

CREATE PROCEDURE sp5tpcc_orderstatus
    @w_id int,
    @d_id tinyint,

    @c_id int,
    @c_last char(16) = ""

AS
DECLARE @c_balance money,
        @c_first char(16),
        @c_middle char(2),
        @o_id int,
        @o_entry_d datetime,
        @o_carrier_id smallint,
        @cnt smallint

BEGIN TRANSACTION o
IF (@c_id = 0)
BEGIN
-----
-- get customer id and info using last name
-----
SELECT @cnt = (count(*)+1)/2
FROM customer WITH (repeatableread)
WHERE c_last = @c_last AND
      c_w_id = @w_id AND
      c_d_id = @d_id

SET rowcount @cnt

SELECT @c_id = c_id,

```

```

        @c_balance = c_balance,
        @c_first = c_first,
        @c_last = c_last,
        @c_middle = c_middle
FROM customer WITH (repeatableread)
WHERE c_last = @c_last AND
      c_w_id = @w_id AND
      c_d_id = @d_id
ORDER BY c_w_id, c_d_id, c_last, c_first

SET rowcount 0
END
ELSE
BEGIN
-----
-- get customer info if by id
-----
SELECT @c_balance = c_balance,
       @c_first = c_first,
       @c_middle = c_middle,
       @c_last = c_last
FROM customer WITH (repeatableread)
WHERE c_id = @c_id AND
      c_d_id = @d_id AND
      c_w_id = @w_id

SELECT @cnt = @@rowcount
END

-----
-- if no such customer
-----
IF (@cnt = 0)
BEGIN
RAISERROR('Customer not found',18,1)
GOTO custnotfound
END

-----
-- get order info
-----
SELECT @o_id = o_id,
       @o_entry_d = o_entry_d,
       @o_carrier_id = o_carrier_id
FROM orders WITH (serializable)
WHERE o_c_id = @c_id AND
      o_d_id = @d_id AND
      o_w_id = @w_id
ORDER BY o_id ASC

-----
-- select order lines for the current order
-----
SELECT ol_supply_w_id,
       ol_i_id,
       ol_quantity,
       ol_amount,
       ol_delivery_d
FROM order_line WITH (repeatableread)
WHERE ol_o_id = @o_id AND
      ol_d_id = @d_id AND
      ol_w_id = @w_id

custnotfound:

COMMIT TRANSACTION o

-----
-- return data to client
-----
SELECT @c_id,
       @c_last,
       @c_first,
       @c_middle,

       @o_entry_d,
       @o_carrier_id,
       @c_balance,
       @o_id
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp6tpcc_orderstatus' )
DROP PROCEDURE sp6tpcc_orderstatus
GO

CREATE PROCEDURE sp6tpcc_orderstatus
@w_id int,
@d_id tinyint,

@c_id int,
@c_last char(16) = ""
AS
DECLARE @c_balance money,
        @c_first char(16),
        @c_middle char(2),
        @o_id int,
        @o_entry_d datetime,
        @o_carrier_id smallint,
        @cnt smallint

BEGIN TRANSACTION o
IF (@c_id = 0)
BEGIN
-----
-- get customer id and info using last name
-----
SELECT @cnt = (count(*)+1)/2
FROM customer WITH (repeatableread)
WHERE c_last = @c_last AND
      c_w_id = @w_id AND
      c_d_id = @d_id

SET rowcount @cnt

SELECT @c_id = c_id,
       @c_balance = c_balance,
       @c_first = c_first,
       @c_last = c_last,
       @c_middle = c_middle
FROM customer WITH (repeatableread)
WHERE c_last = @c_last AND
      c_w_id = @w_id AND
      c_d_id = @d_id
ORDER BY c_w_id, c_d_id, c_last, c_first

SET rowcount 0
END
ELSE
BEGIN
-----
-- get customer info if by id
-----
SELECT @c_balance = c_balance,
       @c_first = c_first,
       @c_middle = c_middle,
       @c_last = c_last
FROM customer WITH (repeatableread)
WHERE c_id = @c_id AND
      c_d_id = @d_id AND
      c_w_id = @w_id

SELECT @cnt = @@rowcount
END

-----
-- if no such customer
-----

```

```

        @o_entry_d,
        @c_balance,
        @o_id
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp6tpcc_orderstatus' )
DROP PROCEDURE sp6tpcc_orderstatus
GO

CREATE PROCEDURE sp6tpcc_orderstatus
@w_id int,
@d_id tinyint,

@c_id int,
@c_last char(16) = ""
AS
DECLARE @c_balance money,
        @c_first char(16),
        @c_middle char(2),
        @o_id int,
        @o_entry_d datetime,
        @o_carrier_id smallint,
        @cnt smallint

BEGIN TRANSACTION o
IF (@c_id = 0)
BEGIN
-----
-- get customer id and info using last name
-----
SELECT @cnt = (count(*)+1)/2
FROM customer WITH (repeatableread)
WHERE c_last = @c_last AND
      c_w_id = @w_id AND
      c_d_id = @d_id

SET rowcount @cnt

SELECT @c_id = c_id,
       @c_balance = c_balance,
       @c_first = c_first,
       @c_last = c_last,
       @c_middle = c_middle
FROM customer WITH (repeatableread)
WHERE c_last = @c_last AND
      c_w_id = @w_id AND
      c_d_id = @d_id
ORDER BY c_w_id, c_d_id, c_last, c_first

SET rowcount 0
END
ELSE
BEGIN
-----
-- get customer info if by id
-----
SELECT @c_balance = c_balance,
       @c_first = c_first,
       @c_middle = c_middle,
       @c_last = c_last
FROM customer WITH (repeatableread)
WHERE c_id = @c_id AND
      c_d_id = @d_id AND
      c_w_id = @w_id

SELECT @cnt = @@rowcount
END

-----
-- if no such customer
-----

```

```

        @cnt = 0)
RAISERROR('Customer not found',18,1)
GOTO custnotfound
END

-----
-- get order info
-----
SELECT @o_id = o_id,
       @o_entry_d = o_entry_d,
       @o_carrier_id = o_carrier_id
FROM orders WITH (serializable)
WHERE o_c_id = @c_id AND
      o_d_id = @d_id AND
      o_w_id = @w_id
ORDER BY o_id ASC

-----
-- select order lines for the current order
-----
SELECT ol_supply_w_id,
       ol_i_id,
       ol_quantity,
       ol_amount,
       ol_delivery_d
FROM order_line WITH (repeatableread)
WHERE ol_o_id = @o_id AND
      ol_d_id = @d_id AND
      ol_w_id = @w_id

custnotfound:

COMMIT TRANSACTION o

-----
-- return data to client
-----
SELECT @c_id,
       @c_last,
       @c_first,
       @c_middle,

       @o_entry_d,
       @o_carrier_id,
       @c_balance,
       @o_id
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp7tpcc_orderstatus' )
DROP PROCEDURE sp7tpcc_orderstatus
GO

CREATE PROCEDURE sp7tpcc_orderstatus
@w_id int,
@d_id tinyint,

@c_id int,
@c_last char(16) = ""
AS
DECLARE @c_balance money,
        @c_first char(16),
        @c_middle char(2),
        @o_id int,
        @o_entry_d datetime,
        @o_carrier_id smallint,
        @cnt smallint

BEGIN TRANSACTION o
IF (@c_id = 0)
BEGIN
-----

```

```

-- get customer id and info using last name
-----
SELECT @cnt = (count(*)+1)/2
FROM customer WITH (repeatableread)
WHERE c_last = @c_last AND
      c_w_id = @w_id AND
      c_d_id = @d_id

SET rowcount @cnt

SELECT @c_id = c_id,
       @c_balance = c_balance,
       @c_first = c_first,
       @c_last = c_last,
       @c_middle = c_middle
FROM customer WITH (repeatableread)
WHERE c_last = @c_last AND
      c_w_id = @w_id AND
      c_d_id = @d_id
ORDER BY c_w_id, c_d_id, c_last, c_first

SET rowcount 0
END
ELSE
BEGIN
-----
-- get customer info if by id
-----
SELECT @c_balance = c_balance,
       @c_first = c_first,
       @c_middle = c_middle,
       @c_last = c_last
FROM customer WITH (repeatableread)
WHERE c_id = @c_id AND
      c_d_id = @d_id AND
      c_w_id = @w_id

SELECT @cnt = @@rowcount
END

-----
-- if no such customer
-----
IF (@cnt = 0)
BEGIN
    RAISERROR('Customer not found',18,1)
    GOTO custnotfound
END

-----
-- get order info
-----
SELECT @o_id = o_id,
       @o_entry_d = o_entry_d,
       @o_carrier_id = o_carrier_id
FROM orders WITH (serializable)
WHERE o_c_id = @c_id AND
      o_d_id = @d_id AND
      o_w_id = @w_id
ORDER BY o_id ASC

-----
-- select order lines for the current order
-----
SELECT ol_supply_w_id,
       ol_i_id,
       ol_quantity,
       ol_amount,
       ol_delivery_d
FROM order_line WITH (repeatableread)
WHERE ol_o_id = @o_id AND
      ol_d_id = @d_id AND
      ol_w_id = @w_id

custnotfound:

```

```

COMMIT TRANSACTION o
-----
-- return data to client
-----
SELECT @c_id,
       @c_last,
       @c_first,
       @c_middle,

       @o_entry_d,
       @o_carrier_id,
       @c_balance,
       @o_id
GO

CreateDeliveryProc.sql
-----
-- File: DELIVERY.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.68
-- Copyright Microsoft, 2006
-- Creates delivery stored procedure
-- Interface Level: 4.20.000
-----
SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

USE tpcc
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'tpcc_delivery' )
    DROP PROCEDURE tpcc_delivery
GO

CREATE PROC tpcc_delivery
    @w_id int,
    @o_carrier_id smallint
AS
DECLARE @d_id tinyint,
        @o_id int,
        @c_id int,
        @total money,
        @oid1 int,
        @oid2 int,
        @oid3 int,
        @oid4 int,
        @oid5 int,
        @oid6 int,
        @oid7 int,
        @oid8 int,
        @oid9 int,
        @oid10 int

SELECT @d_id = 0

```

```

BEGIN TRANSACTION o
BEGIN
    SELECT @d_id = @d_id + 1,
           @total = 0,
           @o_id = 0

    SELECT TOP 1
           @o_id = no_o_id
    FROM new_order WITH (serializable uplock)
    WHERE no_w_id = @w_id AND
          no_d_id = @d_id
    ORDER BY no_o_id ASC

    IF (@@rowcount <> 0)
    BEGIN
        -- claim the order for this district
        DELETE new_order
        WHERE no_w_id = @w_id AND
              no_d_id = @d_id AND
              no_o_id = @o_id

        -- set carrier_id on this order (and get
        customer id)
        UPDATE orders
        SET o_carrier_id = @o_carrier_id,
            @c_id = o_c_id
        WHERE o_w_id = @w_id AND
              o_d_id = @d_id AND
              o_id = @o_id

        -- set date in all lineitems for this order (and
        sum amounts)
        UPDATE order_line
        SET ol_delivery_d = GETDATE(),
            @total = @total + ol_amount
        WHERE ol_w_id = @w_id AND
              ol_d_id = @d_id AND
              ol_o_id = @o_id

        -- accumulate lineitem amounts for this
        order into customer
        UPDATE customer
        SET c_balance = c_balance + @total,
            c_delivery_cnt = c_delivery_cnt + 1

        WHERE c_w_id = @w_id AND
              c_d_id = @d_id AND
              c_id = @c_id
    END

    SELECT @oid1 = CASE @d_id WHEN 1 THEN
@o_id ELSE @oid1 END,
           @oid2 = CASE @d_id WHEN 2 THEN
@o_id ELSE @oid2 END,
           @oid3 = CASE @d_id WHEN 3 THEN
@o_id ELSE @oid3 END,
           @oid4 = CASE @d_id WHEN 4 THEN
@o_id ELSE @oid4 END,
           @oid5 = CASE @d_id WHEN 5 THEN
@o_id ELSE @oid5 END,
           @oid6 = CASE @d_id WHEN 6 THEN
@o_id ELSE @oid6 END,
           @oid7 = CASE @d_id WHEN 7 THEN
@o_id ELSE @oid7 END,
           @oid8 = CASE @d_id WHEN 8 THEN
@o_id ELSE @oid8 END,
           @oid9 = CASE @d_id WHEN 9 THEN
@o_id ELSE @oid9 END,
           @oid10 = CASE @d_id WHEN 10 THEN
@o_id ELSE @oid10 END
    END

COMMIT TRANSACTION d

-- return delivery data to client

```

```

SELECT @oid1,
       @oid2,
       @oid3,
       @oid4,
       @oid5,
       @oid6,
       @oid7,
       @oid8,
       @oid9,
       @oid10
GO

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp0tpcc_delivery' )
DROP PROCEDURE sp0tpcc_delivery
GO

CREATE PROC sp0tpcc_delivery
    @w_id int,
    @o_carrier_id smallint
AS
DECLARE @d_id tinyint,
        @o_id int,
        @c_id int,
        @total money,
        @oid1 int,
        @oid2 int,
        @oid3 int,
        @oid4 int,
        @oid5 int,
        @oid6 int,
        @oid7 int,
        @oid8 int,
        @oid9 int,
        @oid10 int

SELECT @d_id = 0

BEGIN TRANSACTION d
WHILE (@d_id < 10)
BEGIN
    SELECT @d_id = @d_id + 1,
           @total = 0,
           @o_id = 0

    SELECT TOP 1
        @o_id = no_o_id
    FROM new_order WITH (serializable uplock)
    WHERE no_w_id = @w_id AND
          no_d_id = @d_id
    ORDER BY no_o_id ASC

    IF (@@rowcount <> 0)
    BEGIN
        -- claim the order for this district
        DELETE new_order
        WHERE no_w_id = @w_id AND
              no_d_id = @d_id AND
              no_o_id = @o_id

        -- set carrier_id on this order (and get
        customer id)
        UPDATE orders
        SET o_carrier_id = @o_carrier_id,
            @c_id = o_c_id
        WHERE o_w_id = @w_id AND
              o_d_id = @d_id AND
              o_id = @o_id

        -- set date in all lineitems for this order (and
        sum amounts)
        UPDATE order_line
        SET ol_delivery_d = GETDATE(),
            @total = @total + ol_amount
        WHERE ol_w_id = @w_id AND
              ol_d_id = @d_id AND
              ol_o_id = @o_id

        -- accumulate lineitem amounts for this
        order into customer
        UPDATE customer
        SET c_balance = c_balance + @total,
            c_delivery_cnt = c_delivery_cnt + 1

        WHERE c_w_id = @w_id AND
              c_d_id = @d_id AND
              c_id = @c_id

        IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp1tpcc_delivery' )
        DROP PROCEDURE sp1tpcc_delivery
        GO

        CREATE PROC sp1tpcc_delivery
            @w_id int,

```

```

        WHERE ol_w_id = @w_id AND
              ol_o_id = @o_id

        -- set date in all lineitems for this order (and
        sum amounts)
        UPDATE order_line
        SET ol_delivery_d = GETDATE(),
            @total = @total + ol_amount
        WHERE ol_w_id = @w_id AND
              ol_d_id = @d_id AND
              ol_o_id = @o_id

        -- accumulate lineitem amounts for this
        order into customer
        UPDATE customer
        SET c_balance = c_balance + @total,
            c_delivery_cnt = c_delivery_cnt + 1

        WHERE c_w_id = @w_id AND
              c_d_id = @d_id AND
              c_id = @c_id

    END

    SELECT @oid1 = CASE @d_id WHEN 1 THEN
@o_id ELSE @oid1 END,
           @oid2 = CASE @d_id WHEN 2 THEN
@o_id ELSE @oid2 END,
           @oid3 = CASE @d_id WHEN 3 THEN
@o_id ELSE @oid3 END,
           @oid4 = CASE @d_id WHEN 4 THEN
@o_id ELSE @oid4 END,
           @oid5 = CASE @d_id WHEN 5 THEN
@o_id ELSE @oid5 END,
           @oid6 = CASE @d_id WHEN 6 THEN
@o_id ELSE @oid6 END,
           @oid7 = CASE @d_id WHEN 7 THEN
@o_id ELSE @oid7 END,
           @oid8 = CASE @d_id WHEN 8 THEN
@o_id ELSE @oid8 END,
           @oid9 = CASE @d_id WHEN 9 THEN
@o_id ELSE @oid9 END,
           @oid10 = CASE @d_id WHEN 10 THEN
@o_id ELSE @oid10 END
    END

COMMIT TRANSACTION d

-- return delivery data to client

SELECT @oid1,
       @oid2,
       @oid3,
       @oid4,
       @oid5,
       @oid6,
       @oid7,
       @oid8,
       @oid9,
       @oid10
GO

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp1tpcc_delivery' )
DROP PROCEDURE sp1tpcc_delivery
GO

CREATE PROC sp1tpcc_delivery
    @w_id int,

```

```

        @o_carrier_id smallint
AS
DECLARE @d_id tinyint,
        @o_id int,
        @c_id int,
        @total money,
        @oid1 int,
        @oid2 int,
        @oid3 int,
        @oid4 int,
        @oid5 int,
        @oid6 int,
        @oid7 int,
        @oid8 int,
        @oid9 int,
        @oid10 int

SELECT @d_id = 0

BEGIN TRANSACTION d
WHILE (@d_id < 10)
BEGIN
    SELECT @d_id = @d_id + 1,
           @total = 0,
           @o_id = 0

    SELECT TOP 1
        @o_id = no_o_id
    FROM new_order WITH (serializable uplock)
    WHERE no_w_id = @w_id AND
          no_d_id = @d_id
    ORDER BY no_o_id ASC

    IF (@@rowcount <> 0)
    BEGIN
        -- claim the order for this district
        DELETE new_order
        WHERE no_w_id = @w_id AND
              no_d_id = @d_id AND
              no_o_id = @o_id

        -- set carrier_id on this order (and get
        customer id)
        UPDATE orders
        SET o_carrier_id = @o_carrier_id,
            @c_id = o_c_id
        WHERE o_w_id = @w_id AND
              o_d_id = @d_id AND
              o_id = @o_id

        -- set date in all lineitems for this order (and
        sum amounts)
        UPDATE order_line
        SET ol_delivery_d = GETDATE(),
            @total = @total + ol_amount
        WHERE ol_w_id = @w_id AND
              ol_d_id = @d_id AND
              ol_o_id = @o_id

        -- accumulate lineitem amounts for this
        order into customer
        UPDATE customer
        SET c_balance = c_balance + @total,
            c_delivery_cnt = c_delivery_cnt + 1

        WHERE c_w_id = @w_id AND
              c_d_id = @d_id AND
              c_id = @c_id

    END

    SELECT @oid1 = CASE @d_id WHEN 1 THEN
@o_id ELSE @oid1 END,
           @oid2 = CASE @d_id WHEN 2 THEN
@o_id ELSE @oid2 END,

```

```

        @oid3 = CASE @d_id WHEN 3 THEN
@o_id ELSE @oid3 END,
        @oid4 = CASE @d_id WHEN 4 THEN
@o_id ELSE @oid4 END,
        @oid5 = CASE @d_id WHEN 5 THEN
@o_id ELSE @oid5 END,
        @oid6 = CASE @d_id WHEN 6 THEN
@o_id ELSE @oid6 END,
        @oid7 = CASE @d_id WHEN 7 THEN
@o_id ELSE @oid7 END,
        @oid8 = CASE @d_id WHEN 8 THEN
@o_id ELSE @oid8 END,
        @oid9 = CASE @d_id WHEN 9 THEN
@o_id ELSE @oid9 END,
        @oid10 = CASE @d_id WHEN 10 THEN
@o_id ELSE @oid10 END
    END

COMMIT TRANSACTION d

-- return delivery data to client

SELECT @oid1,
        @oid2,
        @oid3,
        @oid4,
        @oid5,
        @oid6,
        @oid7,
        @oid8,
        @oid9,
        @oid10
GO

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp2tpcc_delivery' )
    DROP PROCEDURE sp2tpcc_delivery
GO

CREATE PROC sp2tpcc_delivery
    @w_id int,
    @o_carrier_id smallint
AS

DECLARE @d_id tinyint,
        @o_id int,
        @c_id int,
        @total money,
        @oid1 int,
        @oid2 int,
        @oid3 int,
        @oid4 int,
        @oid5 int,
        @oid6 int,
        @oid7 int,
        @oid8 int,
        @oid9 int,
        @oid10 int

SELECT @d_id = 0

BEGIN TRANSACTION d
    WHILE (@d_id < 10)
    BEGIN
        SELECT @d_id = @d_id + 1,
            @total = 0,
            @o_id = 0

        @oid3 = CASE @d_id WHEN 3 THEN
@o_id ELSE @oid3 END,
        @oid4 = CASE @d_id WHEN 4 THEN
@o_id ELSE @oid4 END,
        @oid5 = CASE @d_id WHEN 5 THEN
@o_id ELSE @oid5 END,
        @oid6 = CASE @d_id WHEN 6 THEN
@o_id ELSE @oid6 END,
        @oid7 = CASE @d_id WHEN 7 THEN
@o_id ELSE @oid7 END,
        @oid8 = CASE @d_id WHEN 8 THEN
@o_id ELSE @oid8 END,
        @oid9 = CASE @d_id WHEN 9 THEN
@o_id ELSE @oid9 END,
        @oid10 = CASE @d_id WHEN 10 THEN
@o_id ELSE @oid10 END
    END

COMMIT TRANSACTION d

-- return delivery data to client

SELECT @oid1,
        @oid2,
        @oid3,
        @oid4,
        @oid5,

```

```

SELECT TOP 1
    @o_id = no_o_id
FROM new_order WITH (serializable uplock)
WHERE no_w_id = @w_id AND
    no_d_id = @d_id
ORDER BY no_o_id ASC

IF (@@rowcount <> 0)
BEGIN
    -- claim the order for this district
    DELETE new_order
    WHERE no_w_id = @w_id AND
        no_d_id = @d_id AND
        no_o_id = @o_id

    -- set carrier_id on this order (and get
customer id)
    UPDATE orders
    SET o_carrier_id = @o_carrier_id,
        @c_id = o_c_id
    WHERE o_w_id = @w_id AND
        o_d_id = @d_id AND
        o_id = @o_id

    -- set date in all lineitems for this order (and
sum amounts)
    UPDATE order_line
    SET ol_delivery_d = GETDATE(),
        @total = @total + ol_amount
    WHERE ol_w_id = @w_id AND
        ol_d_id = @d_id AND
        ol_o_id = @o_id

    -- accumulate lineitem amounts for this
order into customer
    UPDATE customer
    SET c_balance = c_balance + @total,
        c_delivery_cnt = c_delivery_cnt + 1

    WHERE c_w_id = @w_id AND
        c_d_id = @d_id AND
        c_id = @c_id
END

SELECT @oid1 = CASE @d_id WHEN 1 THEN
@o_id ELSE @oid1 END,
        @oid2 = CASE @d_id WHEN 2 THEN
@o_id ELSE @oid2 END,
        @oid3 = CASE @d_id WHEN 3 THEN
@o_id ELSE @oid3 END,
        @oid4 = CASE @d_id WHEN 4 THEN
@o_id ELSE @oid4 END,
        @oid5 = CASE @d_id WHEN 5 THEN
@o_id ELSE @oid5 END,
        @oid6 = CASE @d_id WHEN 6 THEN
@o_id ELSE @oid6 END,
        @oid7 = CASE @d_id WHEN 7 THEN
@o_id ELSE @oid7 END,
        @oid8 = CASE @d_id WHEN 8 THEN
@o_id ELSE @oid8 END,
        @oid9 = CASE @d_id WHEN 9 THEN
@o_id ELSE @oid9 END,
        @oid10 = CASE @d_id WHEN 10 THEN
@o_id ELSE @oid10 END
    END

COMMIT TRANSACTION d

-- return delivery data to client

SELECT @oid1,
        @oid2,
        @oid3,
        @oid4,
        @oid5,

```

```

        @oid6,
        @oid8,
        @oid9,
        @oid10
GO

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp3tpcc_delivery' )
    DROP PROCEDURE sp3tpcc_delivery
GO

CREATE PROC sp3tpcc_delivery
    @w_id int,
    @o_carrier_id smallint
AS

DECLARE @d_id tinyint,
        @o_id int,
        @c_id int,
        @total money,
        @oid1 int,
        @oid2 int,
        @oid3 int,
        @oid4 int,
        @oid5 int,
        @oid6 int,
        @oid7 int,
        @oid8 int,
        @oid9 int,
        @oid10 int

SELECT @d_id = 0

BEGIN TRANSACTION d
    WHILE (@d_id < 10)
    BEGIN
        SELECT @d_id = @d_id + 1,
            @total = 0,
            @o_id = 0

        SELECT TOP 1
            @o_id = no_o_id
        FROM new_order WITH (serializable uplock)
        WHERE no_w_id = @w_id AND
            no_d_id = @d_id
        ORDER BY no_o_id ASC

        IF (@@rowcount <> 0)
        BEGIN
            -- claim the order for this district
            DELETE new_order
            WHERE no_w_id = @w_id AND
                no_d_id = @d_id AND
                no_o_id = @o_id

            -- set carrier_id on this order (and get
customer id)
            UPDATE orders
            SET o_carrier_id = @o_carrier_id,
                @c_id = o_c_id
            WHERE o_w_id = @w_id AND
                o_d_id = @d_id AND
                o_id = @o_id

            -- set date in all lineitems for this order (and
sum amounts)
            UPDATE order_line

```



```

SET ol_delivery_d = GETDATE(),
  @total = @total + ol_amount
WHERE ol_w_id = @w_id AND
      ol_d_id = @d_id AND
      ol_o_id = @o_id

-- accumulate lineitem amounts for this
order into customer
UPDATE customer
SET c_balance = c_balance + @total,
    c_delivery_cnt = c_delivery_cnt + 1

WHERE c_w_id = @w_id AND
      c_d_id = @d_id AND
      c_id = @c_id
END

SELECT @oid1 = CASE @d_id WHEN 1 THEN
@o_id ELSE @oid1 END,
       @oid2 = CASE @d_id WHEN 2 THEN
@o_id ELSE @oid2 END,
       @oid3 = CASE @d_id WHEN 3 THEN
@o_id ELSE @oid3 END,
       @oid4 = CASE @d_id WHEN 4 THEN
@o_id ELSE @oid4 END,
       @oid5 = CASE @d_id WHEN 5 THEN
@o_id ELSE @oid5 END,
       @oid6 = CASE @d_id WHEN 6 THEN
@o_id ELSE @oid6 END,
       @oid7 = CASE @d_id WHEN 7 THEN
@o_id ELSE @oid7 END,
       @oid8 = CASE @d_id WHEN 8 THEN
@o_id ELSE @oid8 END,
       @oid9 = CASE @d_id WHEN 9 THEN
@o_id ELSE @oid9 END,
       @oid10 = CASE @d_id WHEN 10 THEN
@o_id ELSE @oid10 END
END

COMMIT TRANSACTION d

-- return delivery data to client

SELECT @oid1,
       @oid2,
       @oid3,
       @oid4,
       @oid5,
       @oid6,
       @oid7,
       @oid8,
       @oid9,
       @oid10
GO

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp4tpcc_delivery' )
DROP PROCEDURE sp4tpcc_delivery
GO

CREATE PROC sp4tpcc_delivery
  @w_id int,
  @o_carrier_id smallint
AS

DECLARE @d_id tinyint,
        @o_id int,
        @c_id int,
        @total money,
        @oid1 int,
        @oid2 int,
        @oid3 int,
        @oid4 int,
        @oid5 int,
        @oid6 int,
        @oid7 int,
        @oid8 int,
        @oid9 int,
        @oid10 int,

```

```

@total money,
@oid1 int,
@oid2 int,
@oid3 int,
@oid4 int,
@oid5 int,
@oid6 int,
@oid7 int,
@oid8 int,
@oid9 int,
@oid10 int

SELECT @d_id = 0

BEGIN TRANSACTION d
WHILE (@d_id < 10)
BEGIN
  SELECT @d_id = @d_id + 1,
         @total = 0,
         @o_id = 0

  SELECT TOP 1
    @o_id = no_o_id
  FROM new_order WITH (serializable uplock)
  WHERE no_w_id = @w_id AND
        no_d_id = @d_id
  ORDER BY no_o_id ASC

  IF (@@rowcount << 0)
  BEGIN
    -- claim the order for this district
    DELETE new_order
    WHERE no_w_id = @w_id AND
          no_d_id = @d_id AND
          no_o_id = @o_id

    -- set carrier_id on this order (and get
customer id)
    UPDATE orders
    SET o_carrier_id = @o_carrier_id,
        @c_id = o_c_id
    WHERE o_w_id = @w_id AND
          o_d_id = @d_id AND
          o_id = @o_id

    -- set date in all lineitems for this order (and
sum amounts)
    UPDATE order_line
    SET ol_delivery_d = GETDATE(),
        @total = @total + ol_amount
    WHERE ol_w_id = @w_id AND
          ol_d_id = @d_id AND
          ol_o_id = @o_id

    -- accumulate lineitem amounts for this
order into customer
    UPDATE customer
    SET c_balance = c_balance + @total,
        c_delivery_cnt = c_delivery_cnt + 1

    WHERE c_w_id = @w_id AND
          c_d_id = @d_id AND
          c_id = @c_id
  END

  SELECT @oid1 = CASE @d_id WHEN 1 THEN
@o_id ELSE @oid1 END,
         @oid2 = CASE @d_id WHEN 2 THEN
@o_id ELSE @oid2 END,
         @oid3 = CASE @d_id WHEN 3 THEN
@o_id ELSE @oid3 END,
         @oid4 = CASE @d_id WHEN 4 THEN
@o_id ELSE @oid4 END,
         @oid5 = CASE @d_id WHEN 5 THEN
@o_id ELSE @oid5 END,

```

```

        @oid6 = CASE @d_id WHEN 6 THEN
@o_id ELSE @oid6 END,
        @oid7 = CASE @d_id WHEN 7 THEN
@o_id ELSE @oid7 END,
        @oid8 = CASE @d_id WHEN 8 THEN
@o_id ELSE @oid8 END,
        @oid9 = CASE @d_id WHEN 9 THEN
@o_id ELSE @oid9 END,
        @oid10 = CASE @d_id WHEN 10 THEN
@o_id ELSE @oid10 END
    END

COMMIT TRANSACTION d

-- return delivery data to client

SELECT @oid1,
       @oid2,
       @oid3,
       @oid4,
       @oid5,
       @oid6,
       @oid7,
       @oid8,
       @oid9,
       @oid10
GO

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp5tpcc_delivery' )
DROP PROCEDURE sp5tpcc_delivery
GO

CREATE PROC sp5tpcc_delivery
  @w_id int,
  @o_carrier_id smallint
AS

DECLARE @d_id tinyint,
        @o_id int,
        @c_id int,
        @total money,
        @oid1 int,
        @oid2 int,
        @oid3 int,
        @oid4 int,
        @oid5 int,
        @oid6 int,
        @oid7 int,
        @oid8 int,
        @oid9 int,
        @oid10 int,

SELECT @d_id = 0

BEGIN TRANSACTION d
WHILE (@d_id < 10)
BEGIN
  SELECT @d_id = @d_id + 1,
         @total = 0,
         @o_id = 0

  SELECT TOP 1
    @o_id = no_o_id
  FROM new_order WITH (serializable uplock)
  WHERE no_w_id = @w_id AND
        no_d_id = @d_id
  ORDER BY no_o_id ASC

```

```

IF (@@rowcount <> 0)
BEGIN
  -- claim the order for this district
  DELETE new_order
  WHERE no_w_id = @w_id AND
        no_d_id = @d_id AND
        no_o_id = @o_id

  -- set carrier_id on this order (and get
customer id)
  UPDATE orders
  SET   o_carrier_id = @o_carrier_id,
        @c_id       = o_c_id
  WHERE o_w_id      = @w_id AND
        o_d_id      = @d_id AND
        o_id        = @o_id

  -- set date in all lineitems for this order (and
sum amounts)
  UPDATE order_line
  SET   ol_delivery_d = GETDATE(),
        @total       = @total + ol_amount
  WHERE ol_w_id      = @w_id AND
        ol_d_id      = @d_id AND
        ol_o_id      = @o_id

  -- accumulate lineitem amounts for this
order into customer
  UPDATE customer
  SET   c_balance   = c_balance + @total,
        c_delivery_cnt = c_delivery_cnt + 1

  WHERE c_w_id      = @w_id AND
        c_d_id      = @d_id AND
        c_id        = @c_id
END

SELECT @oid1 = CASE @d_id WHEN 1 THEN
@o_id ELSE @oid1 END,
       @oid2 = CASE @d_id WHEN 2 THEN
@o_id ELSE @oid2 END,
       @oid3 = CASE @d_id WHEN 3 THEN
@o_id ELSE @oid3 END,
       @oid4 = CASE @d_id WHEN 4 THEN
@o_id ELSE @oid4 END,
       @oid5 = CASE @d_id WHEN 5 THEN
@o_id ELSE @oid5 END,
       @oid6 = CASE @d_id WHEN 6 THEN
@o_id ELSE @oid6 END,
       @oid7 = CASE @d_id WHEN 7 THEN
@o_id ELSE @oid7 END,
       @oid8 = CASE @d_id WHEN 8 THEN
@o_id ELSE @oid8 END,
       @oid9 = CASE @d_id WHEN 9 THEN
@o_id ELSE @oid9 END,
       @oid10 = CASE @d_id WHEN 10 THEN
@o_id ELSE @oid10 END
END

COMMIT TRANSACTION d

-- return delivery data to client

SELECT @oid1,
       @oid2,
       @oid3,
       @oid4,
       @oid5,
       @oid6,
       @oid7,
       @oid8,
       @oid9,
       @oid10
GO

```

```

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp6tpcc_delivery' )
DROP PROCEDURE sp6tpcc_delivery
GO

CREATE PROC sp6tpcc_delivery
    @w_id      int,
    @o_carrier_id smallint
AS

DECLARE @d_id tinyint,
        @o_id  int,
        @c_id  int,
        @total money,
        @oid1  int,
        @oid2  int,
        @oid3  int,
        @oid4  int,
        @oid5  int,
        @oid6  int,
        @oid7  int,
        @oid8  int,
        @oid9  int,
        @oid10 int

SELECT @d_id = 0

BEGIN TRANSACTION d
WHILE (@d_id < 10)
BEGIN
  SELECT @d_id = @d_id + 1,
         @total = 0,
         @o_id = 0

  SELECT TOP 1
    @o_id = no_o_id
  FROM   new_order WITH (serializable uplock)
  WHERE  no_w_id = @w_id AND
         no_d_id = @d_id
  ORDER BY no_o_id ASC

  IF (@@rowcount <> 0)
  BEGIN
    -- claim the order for this district
    DELETE new_order
    WHERE no_w_id = @w_id AND
          no_d_id = @d_id AND
          no_o_id = @o_id

    -- set carrier_id on this order (and get
customer id)
    UPDATE orders
    SET   o_carrier_id = @o_carrier_id,
          @c_id       = o_c_id
    WHERE o_w_id      = @w_id AND
          o_d_id      = @d_id AND
          o_id        = @o_id

    -- set date in all lineitems for this order (and
sum amounts)
    UPDATE order_line
    SET   ol_delivery_d = GETDATE(),
          @total       = @total + ol_amount
    WHERE ol_w_id      = @w_id AND
          ol_d_id      = @d_id AND
          ol_o_id      = @o_id

```

```

-- accumulate lineitem amounts for this
order into customer
  SET   c_balance   = c_balance + @total,
        c_delivery_cnt = c_delivery_cnt + 1

  WHERE c_w_id      = @w_id AND
        c_d_id      = @d_id AND
        c_id        = @c_id
END

SELECT @oid1 = CASE @d_id WHEN 1 THEN
@o_id ELSE @oid1 END,
       @oid2 = CASE @d_id WHEN 2 THEN
@o_id ELSE @oid2 END,
       @oid3 = CASE @d_id WHEN 3 THEN
@o_id ELSE @oid3 END,
       @oid4 = CASE @d_id WHEN 4 THEN
@o_id ELSE @oid4 END,
       @oid5 = CASE @d_id WHEN 5 THEN
@o_id ELSE @oid5 END,
       @oid6 = CASE @d_id WHEN 6 THEN
@o_id ELSE @oid6 END,
       @oid7 = CASE @d_id WHEN 7 THEN
@o_id ELSE @oid7 END,
       @oid8 = CASE @d_id WHEN 8 THEN
@o_id ELSE @oid8 END,
       @oid9 = CASE @d_id WHEN 9 THEN
@o_id ELSE @oid9 END,
       @oid10 = CASE @d_id WHEN 10 THEN
@o_id ELSE @oid10 END
END

COMMIT TRANSACTION d

-- return delivery data to client

SELECT @oid1,
       @oid2,
       @oid3,
       @oid4,
       @oid5,
       @oid6,
       @oid7,
       @oid8,
       @oid9,
       @oid10
GO

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp7tpcc_delivery' )
DROP PROCEDURE sp7tpcc_delivery
GO

CREATE PROC sp7tpcc_delivery
    @w_id      int,
    @o_carrier_id smallint
AS

DECLARE @d_id tinyint,
        @o_id  int,
        @c_id  int,
        @total money,
        @oid1  int,
        @oid2  int,
        @oid3  int,
        @oid4  int,
        @oid5  int,

```

```

@oid6 int,
@oid7 int,
@oid8 int,
@oid9 int,
@oid10 int

SELECT @d_id = 0

BEGIN TRANSACTION d
WHILE (@d_id < 10)
BEGIN
    SELECT @d_id = @d_id + 1,
           @total = 0,
           @o_id = 0

    SELECT TOP 1
           @o_id = no_o_id
    FROM new_order WITH (serializable uplock)
    WHERE no_w_id = @w_id AND
           no_d_id = @d_id
    ORDER BY no_o_id ASC

    IF (@@rowcount <> 0)
    BEGIN
        -- claim the order for this district
        DELETE new_order
        WHERE no_w_id = @w_id AND
               no_d_id = @d_id AND
               no_o_id = @o_id

        -- set carrier_id on this order (and get
customer id)
        UPDATE orders
        SET o_carrier_id = @o_carrier_id,
            @c_id = o_c_id
        WHERE o_w_id = @w_id AND
               o_d_id = @d_id AND
               o_id = @o_id

        -- set date in all lineitems for this order (and
sum amounts)
        UPDATE order_line
        SET ol_delivery_d = GETDATE(),
            @total = @total + ol_amount
        WHERE ol_w_id = @w_id AND
               ol_d_id = @d_id AND
               ol_o_id = @o_id

        -- accumulate lineitem amounts for this
order into customer
        UPDATE customer
        SET c_balance = c_balance + @total,
            c_delivery_cnt = c_delivery_cnt + 1

        WHERE c_w_id = @w_id AND
               c_d_id = @d_id AND
               c_id = @c_id
    END

    SELECT @oid1 = CASE @d_id WHEN 1 THEN
@oid ELSE @oid1 END,
           @oid2 = CASE @d_id WHEN 2 THEN
@oid ELSE @oid2 END,
           @oid3 = CASE @d_id WHEN 3 THEN
@oid ELSE @oid3 END,
           @oid4 = CASE @d_id WHEN 4 THEN
@oid ELSE @oid4 END,
           @oid5 = CASE @d_id WHEN 5 THEN
@oid ELSE @oid5 END,
           @oid6 = CASE @d_id WHEN 6 THEN
@oid ELSE @oid6 END,
           @oid7 = CASE @d_id WHEN 7 THEN
@oid ELSE @oid7 END,
           @oid8 = CASE @d_id WHEN 8 THEN
@oid ELSE @oid8 END,

```

```

           @oid9 = CASE @d_id WHEN 9 THEN
@oid ELSE @oid9 END,
           @oid10 = CASE @d_id WHEN 10 THEN
@oid ELSE @oid10 END
    END

COMMIT TRANSACTION d

-- return delivery data to client

SELECT @oid1,
       @oid2,
       @oid3,
       @oid4,
       @oid5,
       @oid6,
       @oid7,
       @oid8,
       @oid9,
       @oid10
GO

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

-----
-- File: PAYMENT.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.68
-- Copyright Microsoft, 2006
-- Creates payment stored procedure
-- Interface Level: 4.20.000
-----

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

USE tpcc
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'tpcc_payment' )
    DROP PROCEDURE tpcc_payment
GO

CREATE PROCEDURE tpcc_payment
    @w_id int,
    @c_w_id int,
    @h_amount smallmoney,
    @d_id tinyint,
    @c_d_id tinyint,
    @c_id int,
    @c_last char(16) = ""
AS
DECLARE @w_street_1 char(20),

```

#### CreatePaymentProc.sql

```

@w_street_2 char(20),
@w_state char(2),
@w_zip char(9),
@w_name char(10),
@d_street_1 char(20),
@d_street_2 char(20),
@d_city char(20),
@d_state char(2),
@d_zip char(9),
@d_name char(10),
@c_first char(16),
@c_middle char(2),
@c_street_1 char(20),
@c_street_2 char(20),
@c_city char(20),
@c_state char(2),
@c_zip char(9),
@c_phone char(16),
@c_since datetime,
@c_credit char(2),
@c_credit_lim money,
@c_balance money,
@c_discount smallmoney,
@c_data char(42),
@datetime datetime,
@w_ytd money,
@d_ytd money,
@cnt smallint,
@val smallint,
@screen_data char(200),
@d_id_local tinyint,
@w_id_local int,
@c_id_local int

SELECT @screen_data = ""

BEGIN TRANSACTION p
-- get payment date
SELECT @datetime = GETDATE()

IF (@c_id = 0)
BEGIN
    -- get customer id and info using last name
    SELECT @cnt = COUNT(*)
    FROM customer WITH (repeatable read)
    WHERE c_last = @c_last AND
           c_w_id =
@c_w_id AND
           c_d_id =
@c_d_id

    SELECT @val = (@cnt + 1) / 2

    SET rowcount @val

    SELECT @c_id = c_id
    FROM customer WITH (repeatable read)
    WHERE c_last = @c_last AND
           c_w_id =
@c_w_id AND
           c_d_id =
@c_d_id
    ORDER BY c_last, c_first

    SET rowcount 0
END

-- get customer info and update balances

UPDATE customer
SET @c_balance = c_balance = c_balance -
@h_amount,
    c_payment_cnt = c_payment_cnt + 1,

```

```

        c_ytd_payment = c_ytd_payment +
@h_amount,
        @c_first      = c_first,
        @c_middle     = c_middle,
        @c_last       = c_last,
        @c_street_1   = c_street_1,
        @c_street_2   = c_street_2,
        @c_city        = c_city,
        @c_state       = c_state,
        @c_zip         = c_zip,
        @c_phone       = c_phone,
        @c_credit      = c_credit,
        @c_credit_lim  = c_credit_lim,
        @c_discount    = c_discount,
        @c_since       = c_since,
        @c_id_local    = c_id
WHERE   c_id      = @c_id AND
        c_w_id     = @c_w_id AND
        c_d_id     = @c_d_id

-- if customer has bad credit get some more info
IF (@c_credit = "BC")
BEGIN
    -- compute new info
    SELECT @c_data = convert(char(5),@c_id) +
        convert(char(4),@c_d_id) +
        convert(char(5),@c_w_id) +
        convert(char(4),@d_id) +
        convert(char(5),@w_id) +
        convert(char(19),@h_amount)

    -- update customer info
    UPDATE customer
    SET   c_data      = @c_data +
substring(c_data, 1, 458),
        @screen_data = @c_data +
substring(c_data, 1, 158)
    WHERE c_id      = @c_id AND
        c_w_id     = @c_w_id AND
        c_d_id     = @c_d_id
END

-- get district data and update year-to-date
UPDATE district
SET   d_ytd      = d_ytd + @h_amount,
        @d_street_1 = d_street_1,
        @d_street_2 = d_street_2,
        @d_city     = d_city,
        @d_state    = d_state,
        @d_zip      = d_zip,
        @d_name     = d_name,
        @d_id_local = d_id
WHERE d_w_id     = @w_id AND
        d_id      = @d_id

-- get warehouse data and update year-to-date
UPDATE warehouse
SET   w_ytd      = w_ytd + @h_amount,
        @w_street_1 = w_street_1,
        @w_street_2 = w_street_2,
        @w_city     = w_city,
        @w_state    = w_state,
        @w_zip      = w_zip,
        @w_name     = w_name,
        @w_id_local = w_id
WHERE w_id      = @w_id

-- create history record
INSERT INTO      history
VALUES (@c_id_local,
        @c_d_id,
        @c_w_id,
        @d_id_local,
        @w_id_local,
        @datetime)

```

```

        @w_amount, ' ' + @d_name)
COMMIT TRANSACTION p

-- return data to client
SELECT @c_id,
        @c_last,
        @datetime,
        @w_street_1,
        @w_street_2,
        @w_city,
        @w_state,
        @w_zip,
        @d_street_1,
        @d_street_2,
        @d_city,
        @d_state,
        @d_zip,
        @c_first,
        @c_middle,
        @c_street_1,
        @c_street_2,
        @c_city,
        @c_state,
        @c_zip,
        @c_phone,
        @c_since,
        @c_credit,
        @c_credit_lim,
        @c_discount,
        @c_balance,
        @screen_data
GO

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp0tpcc_payment' )
DROP PROCEDURE sp0tpcc_payment
GO

CREATE PROCEDURE sp0tpcc_payment
        @w_id      int,
        @c_w_id   int,
        @h_amount  smallmoney,
        @d_id      tinyint,
        @c_d_id   tinyint,
        @c_id     int,
        @c_last   char(16) = ""
AS
DECLARE @w_street_1 char(20),
        @w_street_2 char(20),
        @w_city     char(20),
        @w_state    char(2),
        @w_zip      char(9),
        @w_name     char(10),
        @d_street_1 char(20),
        @d_street_2 char(20),
        @d_city     char(20),
        @d_state    char(2),
        @d_zip      char(9),
        @d_name     char(10),
        @c_first    char(16),
        @c_middle   char(2),
        @c_street_1 char(20),
        @c_street_2 char(20),
        @c_city     char(20),
        @c_state    char(2),
        @c_zip      char(9),

```

```

        @c_phone    datetime(16),
        @c_credit   char(2),
        @c_credit_lim money,
        @c_balance  money,
        @c_discount smallmoney,
        @c_data     char(42),
        @datetime   datetime,
        @w_ytd     money,
        @d_ytd     money,
        @cnt       smallint,
        @val       smallint,
        @screen_data char(200),
        @d_id_local tinyint,
        @w_id_local int,
        @c_id_local int

SELECT @screen_data = ""

BEGIN TRANSACTION p
-- get payment date
SELECT @datetime = GETDATE()

IF (@c_id = 0)
BEGIN
    -- get customer id and info using last name
    SELECT @cnt = COUNT(*)
    FROM   customer WITH (repeatableread)
    WHERE  c_last = @c_last AND
        c_w_id =
@c_w_id AND
        c_d_id =
@c_d_id

    SELECT @val = (@cnt + 1) / 2

    SET   rowcount @val

    SELECT @c_id = c_id
    FROM   customer WITH (repeatableread)
    WHERE  c_last = @c_last AND
        c_w_id =
@c_w_id AND
        c_d_id =
@c_d_id
    ORDER BY c_last, c_first

    SET   rowcount 0
END

-- get customer info and update balances

UPDATE customer
SET   @c_balance = c_balance = c_balance -
@c_h_amount,
        c_payment_cnt = c_payment_cnt + 1,
        c_ytd_payment = c_ytd_payment +
@c_h_amount,
        @c_first      = c_first,
        @c_middle     = c_middle,
        @c_last       = c_last,
        @c_street_1   = c_street_1,
        @c_street_2   = c_street_2,
        @c_city        = c_city,
        @c_state       = c_state,
        @c_zip         = c_zip,
        @c_phone       = c_phone,
        @c_credit      = c_credit,
        @c_credit_lim  = c_credit_lim,
        @c_discount    = c_discount,
        @c_since       = c_since,
        @c_id_local    = c_id
WHERE  c_id      = @c_id AND
        c_w_id     = @c_w_id AND
        c_d_id     = @c_d_id

```

```

-- if customer has bad credit get some more info
IF (@c_credit = "BC")
BEGIN
-- compute new info
SELECT @c_data = convert(char(5),@c_id) +
convert(char(4),@c_d_id) +
convert(char(5),@c_w_id) +
convert(char(4),@d_id) +
convert(char(5),@w_id) +
convert(char(19),@h_amount)

-- update customer info
UPDATE customer
SET c_data = @c_data +
substring(c_data, 1, 458),
@screen_data = @c_data +
substring(c_data, 1, 158)
WHERE c_id = @c_id AND
c_w_id = @c_w_id AND
c_d_id = @c_d_id
END

-- get district data and update year-to-date
UPDATE district
SET d_ytd = d_ytd + @h_amount,
@d_street_1 = d_street_1,
@d_street_2 = d_street_2,
@d_city = d_city,
@d_state = d_state,
@d_zip = d_zip,
@d_name = d_name,
@d_id_local = d_id
WHERE d_w_id = @w_id AND
d_id = @d_id

-- get warehouse data and update year-to-date
UPDATE warehouse
SET w_ytd = w_ytd + @h_amount,
@w_street_1 = w_street_1,
@w_street_2 = w_street_2,
@w_city = w_city,
@w_state = w_state,
@w_zip = w_zip,
@w_name = w_name,
@w_id_local = w_id
WHERE w_id = @w_id

-- create history record
INSERT INTO history
VALUES (@c_id_local,
@c_d_id,
@c_w_id,
@d_id_local,
@w_id_local,
@datetime,
@h_amount,
@w_name + ' ' + @d_name)

COMMIT TRANSACTION p

-- return data to client
SELECT @c_id,
@c_last,
@datetime,
@w_street_1,
@w_street_2,
@w_city,
@w_state,
@w_zip,
@d_street_1,
@d_street_2,
@d_city,
@d_state,
@d_zip,

```

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@c_middle,
@c_street_1,
@c_street_2,
@c_city,
@c_state,
@c_zip,
@c_phone,
@c_since,
@c_credit,
@c_credit_lim,
@c_discount,
@c_balance,
@screen_data
GO

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO
IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp1tpcc_payment' )
DROP PROCEDURE sp1tpcc_payment
GO

CREATE PROCEDURE sp1tpcc_payment
@w_id int,
@c_w_id int,
@h_amount smallmoney,
@d_id tinyint,
@c_d_id tinyint,
@c_id int,
@c_last char(16) = ""
AS
DECLARE @w_street_1 char(20),
@w_street_2 char(20),
@w_city char(20),
@w_state char(2),
@w_zip char(9),
@w_name char(10),
@d_street_1 char(20),
@d_street_2 char(20),
@d_city char(20),
@d_state char(2),
@d_zip char(9),
@d_name char(10),
@c_first char(16),
@c_middle char(2),
@c_street_1 char(20),
@c_street_2 char(20),
@c_city char(20),
@c_state char(2),
@c_zip char(9),
@c_phone char(16),
@c_since datetime,
@c_credit char(2),
@c_credit_lim money,
@c_balance money,
@c_discount smallmoney,
@c_data char(42),
@datetime datetime,
@w_ytd money,
@d_ytd money,
@cnt smallint,
@val smallint,
@screen_data char(200),
@d_id_local tinyint,
@w_id_local int,
@c_id_local int
SELECT @screen_data = ""
BEGIN TRANSACTION p

```

```

SELECT @datetime = GETDATE()
get payment
IF (@c_id = 0)
BEGIN
-- get customer id and info using last name
SELECT @cnt = COUNT(*)
FROM customer WITH (repeatableread)
WHERE c_last = @c_last AND
c_w_id =
@c_w_id AND
c_d_id =
@c_d_id

SELECT @val = (@cnt + 1) / 2

SET rowcount @val

SELECT @c_id = c_id
FROM customer WITH (repeatableread)
WHERE c_last = @c_last AND
c_w_id =
@c_w_id AND
c_d_id =
@c_d_id
ORDER BY c_last, c_first

SET rowcount 0
END

-- get customer info and update balances
UPDATE customer
SET @c_balance = c_balance = c_balance -
@h_amount,
c_payment_cnt = c_payment_cnt + 1,
c_ytd_payment = c_ytd_payment +
@h_amount,
@c_first = c_first,
@c_middle = c_middle,
@c_last = c_last,
@c_street_1 = c_street_1,
@c_street_2 = c_street_2,
@c_city = c_city,
@c_state = c_state,
@c_zip = c_zip,
@c_phone = c_phone,
@c_credit = c_credit,
@c_credit_lim = c_credit_lim,
@c_discount = c_discount,
@c_since = c_since,
@c_id_local = c_id
WHERE c_id = @c_id AND
c_w_id = @c_w_id AND
c_d_id = @c_d_id

-- if customer has bad credit get some more info
IF (@c_credit = "BC")
BEGIN
-- compute new info
SELECT @c_data = convert(char(5),@c_id) +
convert(char(4),@c_d_id) +
convert(char(5),@c_w_id) +
convert(char(4),@d_id) +
convert(char(5),@w_id) +
convert(char(19),@h_amount)

-- update customer info
UPDATE customer
SET c_data = @c_data +
substring(c_data, 1, 458),
@screen_data = @c_data +
substring(c_data, 1, 158)
WHERE c_id = @c_id AND
c_w_id = @c_w_id AND

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```

        c_d_id      = @c_d_id
    END

-- get district data and update year-to-date
UPDATE district
SET   d_ytd      = d_ytd + @h_amount,
      @d_street_1 = d_street_1,
      @d_street_2 = d_street_2,
      @d_city     = d_city,
      @d_state   = d_state,
      @d_zip     = d_zip,
      @d_name    = d_name,
      @d_id_local = d_id
WHERE d_w_id    = @w_id AND
      d_id      = @d_id

-- get warehouse data and update year-to-date
UPDATE warehouse
SET   w_ytd      = w_ytd + @h_amount,
      @w_street_1 = w_street_1,
      @w_street_2 = w_street_2,
      @w_city     = w_city,
      @w_state   = w_state,
      @w_zip     = w_zip,
      @w_name    = w_name,
      @w_id_local = w_id
WHERE w_id      = @w_id

-- create history record
INSERT INTO      history
VALUES (@c_id_local,
       @c_d_id,
       @c_w_id,
       @d_id_local,
       @w_id_local,
       @datetime,
       @h_amount,
       @w_name + ' ' + @d_name)

COMMIT TRANSACTION p

-- return data to client
SELECT @c_id,
       @c_last,
       @datetime,
       @w_street_1,
       @w_street_2,
       @w_city,
       @w_state,
       @w_zip,
       @d_street_1,
       @d_street_2,
       @d_city,
       @d_state,
       @d_zip,
       @c_first,
       @c_middle,
       @c_street_1,
       @c_street_2,
       @c_city,
       @c_state,
       @c_zip,
       @c_phone,
       @c_since,
       @c_credit,
       @c_credit_lim,
       @c_discount,
       @c_balance,
       @screen_data
GO

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON

```

```

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp2tpcc_payment' )
DROP PROCEDURE sp2tpcc_payment
GO

CREATE PROCEDURE sp2tpcc_payment
    @w_id      int,
    @c_w_id    int,
    @h_amount  smallmoney,
    @d_id      tinyint,
    @c_d_id    tinyint,
    @c_id      int,
    @c_last    char(16) = ""
AS
DECLARE @w_street_1 char(20),
        @w_street_2 char(20),
        @w_city     char(20),
        @w_state   char(2),
        @w_zip     char(9),
        @w_name    char(10),
        @d_street_1 char(20),
        @d_street_2 char(20),
        @d_city     char(20),
        @d_state   char(2),
        @d_zip     char(9),
        @d_name    char(10),
        @c_first   char(16),
        @c_middle  char(2),
        @c_street_1 char(20),
        @c_street_2 char(20),
        @c_city     char(20),
        @c_state   char(2),
        @c_zip     char(9),
        @c_phone   char(16),
        @c_since   datetime,
        @c_credit  char(2),
        @c_credit_lim money,
        @c_balance money,
        @c_discount smallmoney,
        @c_data    char(42),
        @datetime  datetime,
        @w_ytd    money,
        @d_ytd    money,
        @cnt      smallint,
        @val      smallint,
        @screen_data char(200),
        @d_id_local tinyint,
        @w_id_local int,
        @c_id_local int

SELECT @screen_data = ""

BEGIN TRANSACTION p
-- get payment date
SELECT @datetime = GETDATE()

IF (@c_id = 0)
BEGIN
-- get customer id and info using last name
SELECT @cnt = COUNT(*)
FROM   customer WITH (repeatableread)
WHERE  c_last = @c_last AND
       c_w_id =
@c_w_id AND
       c_d_id =
@c_d_id

SELECT @val = (@cnt + 1) / 2

SET   rowcount @val

SELECT @c_id = c_id

```

```

WHERE customer WITH (repeatableread)
FROM   customer WITH (repeatableread)
       c_w_id =
@c_w_id AND
       c_d_id =
@c_d_id
ORDER BY c_last, c_first

SET   rowcount 0
END

-- get customer info and update balances

UPDATE customer
SET   @c_balance = c_balance = c_balance -
@c_h_amount,
      c_payment_cnt = c_payment_cnt + 1,
      c_ytd_payment = c_ytd_payment +
@c_h_amount,
      @c_first = c_first,
      @c_middle = c_middle,
      @c_last = c_last,
      @c_street_1 = c_street_1,
      @c_street_2 = c_street_2,
      @c_city = c_city,
      @c_state = c_state,
      @c_zip = c_zip,
      @c_phone = c_phone,
      @c_credit = c_credit,
      @c_credit_lim = c_credit_lim,
      @c_discount = c_discount,
      @c_since = c_since,
      @c_id_local = c_id
WHERE c_id      = @c_id AND
      c_w_id    = @c_w_id AND
      c_d_id    = @c_d_id

-- if customer has bad credit get some more info
IF (@c_credit = "BC")
BEGIN
-- compute new info
SELECT @c_data = convert(char(5),@c_id) +
convert(char(4),@c_d_id) +
convert(char(5),@c_w_id) +
convert(char(4),@d_id) +
convert(char(5),@w_id) +
convert(char(19),@h_amount)

-- update customer info
UPDATE customer
SET   c_data = @c_data +
substring(c_data, 1, 458),
      @screen_data = @c_data +
substring(c_data, 1, 158)
WHERE c_id      = @c_id AND
      c_w_id    = @c_w_id AND
      c_d_id    = @c_d_id
END

-- get district data and update year-to-date
UPDATE district
SET   d_ytd      = d_ytd + @h_amount,
      @d_street_1 = d_street_1,
      @d_street_2 = d_street_2,
      @d_city     = d_city,
      @d_state   = d_state,
      @d_zip     = d_zip,
      @d_name    = d_name,
      @d_id_local = d_id
WHERE d_w_id    = @w_id AND
      d_id      = @d_id

-- get warehouse data and update year-to-date
UPDATE warehouse
SET   w_ytd      = w_ytd + @h_amount,
      @w_street_1 = w_street_1,

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        @w_street_2 = w_street_2,
        @w_city     = w_city,
        @w_state    = w_state,
        @w_zip      = w_zip,
        @w_name     = w_name,
        @w_id_local = w_id
    WHERE w_id      = @w_id

    -- create history record
    INSERT INTO          history
VALUES (@c_id_local,
        @c_d_id,
        @c_w_id,
        @d_id_local,
        @w_id_local,
        @datetime,
        @h_amount,
        @w_name + ' ' + @d_name)

    COMMIT TRANSACTION p

    -- return data to client
    SELECT @c_id,
           @c_last,
           @datetime,
           @w_street_1,
           @w_street_2,
           @w_city,
           @w_state,
           @w_zip,
           @d_street_1,
           @d_street_2,
           @d_city,
           @d_state,
           @d_zip,
           @c_first,
           @c_middle,
           @c_street_1,
           @c_street_2,
           @c_city,
           @c_state,
           @c_zip,
           @c_phone,
           @c_since,
           @c_credit,
           @c_credit_lim,
           @c_discount,
           @c_balance,
           @screen_data
    GO

    SET QUOTED_IDENTIFIER OFF
    GO

    SET ANSI_NULLS ON
    GO

    IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp3tpcc_payment' )
        DROP PROCEDURE sp3tpcc_payment
    GO

    CREATE PROCEDURE sp3tpcc_payment
        @w_id int,
        @c_w_id int,
        @h_amount smallmoney,
        @d_id tinyint,
        @c_d_id tinyint,
        @c_id int,
        @c_last char(16) = ""

    AS
    DECLARE @w_street_1 char(20),
            @w_street_2 char(20),

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        @w_state char(20),
        @w_zip char(9),
        @w_name char(10),
        @d_street_1 char(20),
        @d_street_2 char(20),
        @d_city char(20),
        @d_state char(2),
        @d_zip char(9),
        @d_name char(10),
        @c_first char(16),
        @c_middle char(2),
        @c_street_1 char(20),
        @c_street_2 char(20),
        @c_city char(20),
        @c_state char(2),
        @c_zip char(9),
        @c_phone char(16),
        @c_since datetime,
        @c_credit char(2),
        @c_credit_lim money,
        @c_balance money,
        @c_discount smallmoney,
        @c_data char(42),
        @datetime datetime,
        @w_ytd money,
        @d_ytd money,
        @cnt smallint,
        @val smallint,
        @screen_data char(200),
        @d_id_local tinyint,
        @w_id_local int,
        @c_id_local int

    SELECT @screen_data = ""

    BEGIN TRANSACTION p
    -- get payment date
    SELECT @datetime = GETDATE()

    IF (@c_id = 0)
    BEGIN
        -- get customer id and info using last name
        SELECT @cnt = COUNT(*)
        FROM customer WITH (repeatableread)
        WHERE c_last = @c_last AND

        @c_w_id =
        @c_d_id =

        SELECT @val = (@cnt + 1) / 2

        SET rowcount @val

        SELECT @c_id = c_id
        FROM customer WITH (repeatableread)
        WHERE c_last = @c_last AND

        @c_w_id =
        @c_d_id =

        ORDER BY c_last, c_first

        SET rowcount 0
    END

    -- get customer info and update balances

    UPDATE customer
    SET @c_balance = c_balance = c_balance -
        @h_amount,
        c_payment_cnt = c_payment_cnt + 1,
        c_ytd_payment = c_ytd_payment +
        @h_amount,

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        @c_middle = c_middle,
        @c_last = c_last,
        @c_street_1 = c_street_1,
        @c_street_2 = c_street_2,
        @c_city = c_city,
        @c_state = c_state,
        @c_zip = c_zip,
        @c_phone = c_phone,
        @c_credit = c_credit,
        @c_credit_lim = c_credit_lim,
        @c_discount = c_discount,
        @c_since = c_since,
        @c_id_local = c_id
    WHERE c_id = @c_id AND
        c_w_id = @c_w_id AND
        c_d_id = @c_d_id

    -- if customer has bad credit get some more info
    IF (@c_credit = "BC")
    BEGIN
        -- compute new info
        SELECT @c_data = convert(char(5),@c_id) +
            convert(char(4),@c_d_id) +
            convert(char(5),@c_w_id) +
            convert(char(4),@d_id) +
            convert(char(5),@w_id) +
            convert(char(19),@h_amount)

        -- update customer info
        UPDATE customer
        SET c_data = @c_data +
            substring(c_data, 1, 458),
            @screen_data = @c_data +
            substring(c_data, 1, 158)
        WHERE c_id = @c_id AND
            c_w_id = @c_w_id AND
            c_d_id = @c_d_id
    END

    -- get district data and update year-to-date
    UPDATE district
    SET d_ytd = d_ytd + @h_amount,
        @d_street_1 = d_street_1,
        @d_street_2 = d_street_2,
        @d_city = d_city,
        @d_state = d_state,
        @d_zip = d_zip,
        @d_name = d_name,
        @d_id_local = d_id
    WHERE d_w_id = @w_id AND
        d_id = @d_id

    -- get warehouse data and update year-to-date
    UPDATE warehouse
    SET w_ytd = w_ytd + @h_amount,
        @w_street_1 = w_street_1,
        @w_street_2 = w_street_2,
        @w_city = w_city,
        @w_state = w_state,
        @w_zip = w_zip,
        @w_name = w_name,
        @w_id_local = w_id
    WHERE w_id = @w_id

    -- create history record
    INSERT INTO          history
VALUES (@c_id_local,
        @c_d_id,
        @c_w_id,
        @d_id_local,
        @w_id_local,
        @datetime,
        @h_amount,
        @w_name + ' ' + @d_name)

```

```

COMMIT TRANSACTION p

-- return data to client
SELECT @c_id,
       @c_last,
       @datetime,
       @w_street_1,
       @w_street_2,
       @w_city,
       @w_state,
       @w_zip,
       @d_street_1,
       @d_street_2,
       @d_city,
       @d_state,
       @d_zip,
       @c_first,
       @c_middle,
       @c_street_1,
       @c_street_2,
       @c_city,
       @c_state,
       @c_zip,
       @c_phone,
       @c_since,
       @c_credit,
       @c_credit_lim,
       @c_discount,
       @c_balance,
       @screen_data
GO

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp4tpcc_payment' )
DROP PROCEDURE sp4tpcc_payment
GO

CREATE PROCEDURE sp4tpcc_payment
    @w_id int,
    @c_w_id int,
    @h_amount smallmoney,
    @d_id tinyint,
    @c_d_id tinyint,
    @c_id int,
    @c_last char(16) = ""

AS
DECLARE @w_street_1 char(20),
        @w_street_2 char(20),
        @w_city char(20),
        @w_state char(2),
        @w_zip char(9),
        @w_name char(10),
        @d_street_1 char(20),
        @d_street_2 char(20),
        @d_city char(20),
        @d_state char(2),
        @d_zip char(9),
        @d_name char(10),
        @c_first char(16),
        @c_middle char(2),
        @c_street_1 char(20),
        @c_street_2 char(20),
        @c_city char(20),
        @c_state char(2),
        @c_zip char(9),
        @c_phone char(16),
        @c_since datetime,

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    @c_credit_lim money,
    @c_balance money,
    @c_discount smallmoney,
    @c_data char(42),
    @datetime datetime,
    @w_ytd money,
    @d_ytd money,
    @cnt smallint,
    @val smallint,
    @screen_data char(200),
    @d_id_local tinyint,
    @w_id_local int,
    @c_id_local int

SELECT @screen_data = ""

BEGIN TRANSACTION p
-- get payment date
SELECT @datetime = GETDATE()

IF (@c_id = 0)
BEGIN
-- get customer id and info using last name
SELECT @cnt = COUNT(*)
FROM customer WITH (repeatableread)
WHERE c_last = @c_last AND
c_w_id =
@c_w_id AND
c_d_id =
@c_d_id

SELECT @val = (@cnt + 1) / 2

SET rowcount @val

SELECT @c_id = c_id
FROM customer WITH (repeatableread)
WHERE c_last = @c_last AND
c_w_id =
c_d_id =
@c_d_id
ORDER BY c_last, c_first

SET rowcount 0
END

-- get customer info and update balances
UPDATE customer
SET @c_balance = c_balance = c_balance -
@h_amount,
c_payment_cnt = c_payment_cnt + 1,
c_ytd_payment = c_ytd_payment +
@h_amount,
@c_first = c_first,
@c_middle = c_middle,
@c_last = c_last,
@c_street_1 = c_street_1,
@c_street_2 = c_street_2,
@c_city = c_city,
@c_state = c_state,
@c_zip = c_zip,
@c_phone = c_phone,
@c_credit = c_credit,
@c_credit_lim = c_credit_lim,
@c_discount = c_discount,
@c_since = c_since,
@c_id_local = c_id
WHERE c_id = @c_id AND
c_w_id = @c_w_id AND
c_d_id = @c_d_id

-- if customer has bad credit get some more info

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```

BEGIN
    @c_credit = "BC")
-- compute new info
SELECT @c_data = convert(char(5),@c_id) +
convert(char(4),@c_d_id) +
convert(char(5),@c_w_id) +
convert(char(4),@d_id) +
convert(char(5),@w_id) +
convert(char(19),@h_amount)

-- update customer info
UPDATE customer
SET c_data = @c_data +
substring(c_data, 1, 458),
@screen_data = @c_data +
substring(c_data, 1, 158)
WHERE c_id = @c_id AND
c_w_id = @c_w_id AND
c_d_id = @c_d_id
END

-- get district data and update year-to-date
UPDATE district
SET d_ytd = d_ytd + @h_amount,
@d_street_1 = d_street_1,
@d_street_2 = d_street_2,
@d_city = d_city,
@d_state = d_state,
@d_zip = d_zip,
@d_name = d_name,
@d_id_local = d_id
WHERE d_w_id = @w_id AND
d_id = @d_id

-- get warehouse data and update year-to-date
UPDATE warehouse
SET w_ytd = w_ytd + @h_amount,
@w_street_1 = w_street_1,
@w_street_2 = w_street_2,
@w_city = w_city,
@w_state = w_state,
@w_zip = w_zip,
@w_name = w_name,
@w_id_local = w_id
WHERE w_id = @w_id

-- create history record
INSERT INTO history
VALUES (@c_id_local,
@c_d_id,
@c_w_id,
@d_id_local,
@w_id_local,
@datetime,
@h_amount,
@w_name + ' ' + @d_name)

COMMIT TRANSACTION p

-- return data to client
SELECT @c_id,
       @c_last,
       @datetime,
       @w_street_1,
       @w_street_2,
       @w_city,
       @w_state,
       @w_zip,
       @d_street_1,
       @d_street_2,
       @d_city,
       @d_state,
       @d_zip,
       @c_first,
       @c_middle,
       @c_street_1,

```



```

        @c_street_2,
        @c_city,
        @c_state,
        @c_zip,
        @c_phone,
        @c_since,
        @c_credit,
        @c_credit_lim,
        @c_discount,
        @c_balance,
        @screen_data
GO

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp5tpcc_payment' )
DROP PROCEDURE sp5tpcc_payment
GO

CREATE PROCEDURE sp5tpcc_payment
        @w_id int,
        @c_w_id int,
        @h_amount smallmoney,
        @d_id tinyint,
        @c_d_id tinyint,
        @c_id int,
        @c_last char(16) = ""
AS
DECLARE @w_street_1 char(20),
        @w_street_2 char(20),
        @w_city char(20),
        @w_state char(2),
        @w_zip char(9),
        @w_name char(10),
        @d_street_1 char(20),
        @d_street_2 char(20),
        @d_city char(20),
        @d_state char(2),
        @d_zip char(9),
        @d_name char(10),
        @c_first char(16),
        @c_middle char(2),
        @c_street_1 char(20),
        @c_street_2 char(20),
        @c_city char(20),
        @c_state char(2),
        @c_zip char(9),
        @c_phone char(16),
        @c_since datetime,
        @c_credit char(2),
        @c_credit_lim money,
        @c_balance money,
        @c_discount smallmoney,
        @c_data char(42),
        @datetime datetime,
        @w_ytd money,
        @d_ytd money,
        @cnt smallint,
        @val smallint,
        @screen_data char(200),
        @d_id_local tinyint,
        @w_id_local int,
        @c_id_local int

SELECT @screen_data = ""

BEGIN TRANSACTION p
-- get payment date

```

```

SELECT @datetime = GETDATE()
IF (@c_id = 0)
BEGIN
-- get customer id and info using last name
SELECT @cnt = COUNT(*)
FROM customer WITH (repeatableread)
WHERE c_last = @c_last AND
        c_w_id =
@c_w_id AND
        c_d_id =
@c_d_id

SELECT @val = (@cnt + 1) / 2

SET rowcount @val

SELECT @c_id = c_id
FROM customer WITH (repeatableread)
WHERE c_last = @c_last AND
        c_w_id =
@c_w_id AND
        c_d_id =
@c_d_id
ORDER BY c_last, c_first

SET rowcount 0
END

-- get customer info and update balances

UPDATE customer
SET @c_balance = c_balance = c_balance -
@c_amount,
        c_payment_cnt = c_payment_cnt + 1,
        c_ytd_payment = c_ytd_payment +
@c_amount,
        @c_first = c_first,
        @c_middle = c_middle,
        @c_last = c_last,
        @c_street_1 = c_street_1,
        @c_street_2 = c_street_2,
        @c_city = c_city,
        @c_state = c_state,
        @c_zip = c_zip,
        @c_phone = c_phone,
        @c_credit = c_credit,
        @c_credit_lim = c_credit_lim,
        @c_discount = c_discount,
        @c_since = c_since,
        @c_id_local = c_id
WHERE c_id = @c_id AND
        c_w_id = @c_w_id AND
        c_d_id = @c_d_id

-- if customer has bad credit get some more info
IF (@c_credit = "BC")
BEGIN
-- compute new info
SELECT @c_data = convert(char(5),@c_id) +
        convert(char(4),@c_d_id) +
        convert(char(5),@c_w_id) +
        convert(char(4),@d_id) +
        convert(char(5),@w_id) +
        convert(char(19),@h_amount)

-- update customer info
UPDATE customer
SET c_data = @c_data +
substring(c_data, 1, 458),
        @screen_data = @c_data +
substring(c_data, 1, 158)
WHERE c_id = @c_id AND
        c_w_id = @c_w_id AND
        c_d_id = @c_d_id

```

```

END
-- get district data and update year-to-date
UPDATE district
SET d_ytd = d_ytd + @h_amount,
        @d_street_1 = d_street_1,
        @d_street_2 = d_street_2,
        @d_city = d_city,
        @d_state = d_state,
        @d_zip = d_zip,
        @d_name = d_name,
        @d_id_local = d_id
WHERE d_w_id = @w_id AND
        d_id = @d_id

-- get warehouse data and update year-to-date
UPDATE warehouse
SET w_ytd = w_ytd + @h_amount,
        @w_street_1 = w_street_1,
        @w_street_2 = w_street_2,
        @w_city = w_city,
        @w_state = w_state,
        @w_zip = w_zip,
        @w_name = w_name,
        @w_id_local = w_id
WHERE w_id = @w_id

-- create history record
INSERT INTO history
VALUES (@c_id_local,
        @c_d_id,
        @c_w_id,
        @d_id_local,
        @w_id_local,
        @datetime,
        @h_amount,
        @w_name + ' ' + @d_name)

COMMIT TRANSACTION p

-- return data to client
SELECT @c_id,
        @c_last,
        @datetime,
        @w_street_1,
        @w_street_2,
        @w_city,
        @w_state,
        @w_zip,
        @d_street_1,
        @d_street_2,
        @d_city,
        @d_state,
        @d_zip,
        @c_first,
        @c_middle,
        @c_street_1,
        @c_street_2,
        @c_city,
        @c_state,
        @c_zip,
        @c_phone,
        @c_since,
        @c_credit,
        @c_credit_lim,
        @c_discount,
        @c_balance,
        @screen_data
GO

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

```

```

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp6tpcc_payment' )
DROP PROCEDURE sp6tpcc_payment
GO

CREATE PROCEDURE sp6tpcc_payment
    @w_id int,
    @c_w_id int,
    @h_amount smallmoney,
    @d_id tinyint,
    @c_d_id tinyint,
    @c_id int,
    @c_last char(16) = ""

AS
DECLARE @w_street_1 char(20),
        @w_street_2 char(20),
        @w_city char(20),
        @w_state char(2),
        @w_zip char(9),
        @w_name char(10),
        @d_street_1 char(20),
        @d_street_2 char(20),
        @d_city char(20),
        @d_state char(2),
        @d_zip char(9),
        @d_name char(10),
        @c_first char(16),
        @c_middle char(2),
        @c_street_1 char(20),
        @c_street_2 char(20),
        @c_city char(20),
        @c_state char(2),
        @c_zip char(9),
        @c_phone char(16),
        @c_since datetime,
        @c_credit char(2),
        @c_credit_lim money,
        @c_balance money,
        @c_discount smallmoney,
        @c_data char(42),
        @datetime datetime,
        @w_ytd money,
        @d_ytd money,
        @cnt smallint,
        @val smallint,
        @screen_data char(200),
        @d_id_local tinyint,
        @w_id_local int,
        @c_id_local int

SELECT @screen_data = ""

BEGIN TRANSACTION p
-- get payment date
SELECT @datetime = GETDATE()

IF (@c_id = 0)
BEGIN
-- get customer id and info using last name
SELECT @cnt = COUNT(*)
FROM customer WITH (repeatable)
WHERE c_last = @c_last AND
@c_w_id AND
@c_d_id

SELECT @val = (@cnt + 1) / 2

SET rowcount @val

SELECT @c_id = c_id

```

```

WHERE customer WITH (repeatable)
WHERE c_last = @c_last AND
c_w_id =
@c_w_id AND
c_d_id =
@c_d_id
ORDER BY c_last, c_first

SET rowcount 0
END

-- get customer info and update balances

UPDATE customer
SET @c_balance = c_balance = c_balance -
@c_h_amount,
c_payment_cnt = c_payment_cnt + 1,
c_ytd_payment = c_ytd_payment +
@c_h_amount,
@c_first = c_first,
@c_middle = c_middle,
@c_last = c_last,
@c_street_1 = c_street_1,
@c_street_2 = c_street_2,
@c_city = c_city,
@c_state = c_state,
@c_zip = c_zip,
@c_phone = c_phone,
@c_credit = c_credit,
@c_credit_lim = c_credit_lim,
@c_discount = c_discount,
@c_since = c_since,
@c_id_local = c_id

WHERE c_id = @c_id AND
c_w_id = @c_w_id AND
c_d_id = @c_d_id

-- if customer has bad credit get some more info
IF (@c_credit = "BC")
BEGIN
-- compute new info
SELECT @c_data = convert(char(5),@c_id) +
convert(char(4),@c_d_id) +
convert(char(5),@c_w_id) +
convert(char(4),@d_id) +
convert(char(5),@w_id) +
convert(char(19),@h_amount)

-- update customer info
UPDATE customer
SET c_data = @c_data +
substring(c_data, 1, 458),
@screen_data = @c_data +
substring(c_data, 1, 158)
WHERE c_id = @c_id AND
c_w_id = @c_w_id AND
c_d_id = @c_d_id
END

-- get district data and update year-to-date
UPDATE district
SET d_ytd = d_ytd + @h_amount,
@d_street_1 = d_street_1,
@d_street_2 = d_street_2,
@d_city = d_city,
@d_state = d_state,
@d_zip = d_zip,
@d_name = d_name,
@d_id_local = d_id

WHERE d_w_id = @w_id AND
d_id = @d_id

-- get warehouse data and update year-to-date
UPDATE warehouse
SET w_ytd = w_ytd + @h_amount,
@w_street_1 = w_street_1,

```

```

@w_street_2 = w_street_2,
@w_state = w_state,
@w_zip = w_zip,
@w_name = w_name,
@w_id_local = w_id

WHERE w_id = @w_id

-- create history record
INSERT INTO history
VALUES (@c_id_local,
@c_d_id,
@c_w_id,
@d_id_local,
@w_id_local,
@datetime,
@h_amount,
@w_name + ' ' + @d_name)

COMMIT TRANSACTION p

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

GO

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp7tpcc_payment' )
DROP PROCEDURE sp7tpcc_payment
GO

CREATE PROCEDURE sp7tpcc_payment
    @w_id int,
    @c_w_id int,
    @h_amount smallmoney,
    @d_id tinyint,
    @c_d_id tinyint,
    @c_id int,
    @c_last char(16) = ""

AS
DECLARE @w_street_1 char(20),
        @w_street_2 char(20),
        @w_city char(20),

```

```

@c_w_state char(2),
@c_w_zip char(9),
@c_w_name char(10),
@d_street_1 char(20),
@d_street_2 char(20),
@d_city char(20),
@d_state char(2),
@d_zip char(9),
@d_name char(10),
@c_first char(16),
@c_middle char(2),
@c_street_1 char(20),
@c_street_2 char(20),
@c_city char(20),
@c_state char(2),
@c_zip char(9),
@c_phone char(16),
@c_since datetime,
@c_credit char(2),
@c_credit_lim money,
@c_balance money,
@c_discount smallmoney,
@c_data char(42),
@datetime datetime,
@w_ytd money,
@d_ytd money,
@cnt smallint,
@val smallint,
@screen_data char(200),
@d_id_local tinyint,
@w_id_local int,
@c_id_local int

SELECT @screen_data = ""

BEGIN TRANSACTION p
-- get payment date
SELECT @datetime = GETDATE()

IF (@c_id = 0)
BEGIN
-- get customer id and info using last name
SELECT @cnt = COUNT(*)
FROM customer WITH (repeatableread)
WHERE c_last = @c_last AND
c_w_id =
c_d_id =

SELECT @val = (@cnt + 1) / 2

SET rowcount @val

SELECT @c_id = c_id
FROM customer WITH (repeatableread)
WHERE c_last = @c_last AND
c_w_id =
c_d_id =

ORDER BY c_last, c_first

SET rowcount 0
END

-- get customer info and update balances

UPDATE customer
SET @c_balance = c_balance = c_balance -
@h_amount,
c_payment_cnt = c_payment_cnt + 1,
c_ytd_payment = c_ytd_payment +
@h_amount,

```

```

@c_middle = c_middle,
@c_last = c_last,
@c_street_1 = c_street_1,
@c_street_2 = c_street_2,
@c_city = c_city,
@c_state = c_state,
@c_zip = c_zip,
@c_phone = c_phone,
@c_credit = c_credit,
@c_credit_lim = c_credit_lim,
@c_discount = c_discount,
@c_since = c_since,
@c_id_local = c_id

WHERE c_id = @c_id AND
c_w_id = @c_w_id AND
c_d_id = @c_d_id

-- if customer has bad credit get some more info
IF (@c_credit = "BC")
BEGIN
-- compute new info
SELECT @c_data = convert(char(5),@c_id) +
convert(char(4),@c_d_id) +
convert(char(5),@c_w_id) +
convert(char(4),@d_id) +
convert(char(5),@w_id) +
convert(char(19),@h_amount)

-- update customer info
UPDATE customer
SET c_data = @c_data +
substring(c_data, 1, 458),
@screen_data = @c_data +
substring(c_data, 1, 158)
WHERE c_id = @c_id AND
c_w_id = @c_w_id AND
c_d_id = @c_d_id

END

-- get district data and update year-to-date
UPDATE district
SET d_ytd = d_ytd + @h_amount,
@d_street_1 = d_street_1,
@d_street_2 = d_street_2,
@d_city = d_city,
@d_state = d_state,
@d_zip = d_zip,
@d_name = d_name,
@d_id_local = d_id
WHERE d_w_id = @w_id AND
d_id = @d_id

-- get warehouse data and update year-to-date
UPDATE warehouse
SET w_ytd = w_ytd + @h_amount,
@w_street_1 = w_street_1,
@w_street_2 = w_street_2,
@w_city = w_city,
@w_state = w_state,
@w_zip = w_zip,
@w_name = w_name,
@w_id_local = w_id
WHERE w_id = @w_id

-- create history record
INSERT INTO history
VALUES (@c_id_local,
@c_d_id,
@c_w_id,
@d_id_local,
@w_id_local,
@datetime,
@h_amount,
@w_name + ' ' + @d_name)

```

```

COMMIT TRANSACTION p
-- return data to client
SELECT @c_id,
@c_last,
@datetime,
@w_street_1,
@w_street_2,
@w_city,
@w_state,
@w_zip,
@d_street_1,
@d_street_2,
@d_city,
@d_state,
@d_zip,
@c_first,
@c_middle,
@c_street_1,
@c_street_2,
@c_city,
@c_state,
@c_zip,
@c_phone,
@c_since,
@c_credit,
@c_credit_lim,
@c_discount,
@c_balance,
@screen_data

GO

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

```

#### CreateStocklevProc.sql

```

-----
-- File: STOCKLEV.SQL --
-- Microsoft TPC-C Benchmark Kit Ver. 4.68 --
-- Copyright Microsoft, 2006 --
-- Creates stock level stored procedure --
-- Interface Level: 4.20.000 --
-----
SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

USE tpcc
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'tpcc_stocklevel' )
DROP PROCEDURE tpcc_stocklevel
GO

CREATE PROCEDURE tpcc_stocklevel
@w_id int,
@d_id tinyint,
@threshold smallint

AS
DECLARE @o_id_local int,

```

```

        @o_id_high int
SELECT @o_id_low = (d_next_o_id - 20),
       @o_id_high = (d_next_o_id - 1)
FROM   district
WHERE  d_w_id = @w_id AND
       d_id   = @d_id

SELECT COUNT(DISTINCT(s_i_id))
FROM   stock,
       order_line
WHERE  ol_w_id = @w_id AND
       ol_d_id = @d_id and
       ol_o_id BETWEEN @o_id_low AND
                @o_id_high AND
       s_w_id = ol_w_id AND
       s_i_id = ol_i_id AND
       s_quantity < @threshold
OPTION(ORDER GROUP)
GO

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp0tpcc_stocklevel' )
DROP PROCEDURE sp0tpcc_stocklevel
GO

CREATE PROCEDURE sp0tpcc_stocklevel
        @w_id int,
        @d_id tinyint,
        @threshold smallint
AS
DECLARE @o_id_low int,
        @o_id_high int

SELECT @o_id_low = (d_next_o_id - 20),
       @o_id_high = (d_next_o_id - 1)
FROM   district
WHERE  d_w_id = @w_id AND
       d_id   = @d_id

SELECT COUNT(DISTINCT(s_i_id))
FROM   stock,
       order_line
WHERE  ol_w_id = @w_id AND
       ol_d_id = @d_id and
       ol_o_id BETWEEN @o_id_low AND
                @o_id_high AND
       s_w_id = ol_w_id AND
       s_i_id = ol_i_id AND
       s_quantity < @threshold
OPTION(ORDER GROUP)
GO

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp1tpcc_stocklevel' )
DROP PROCEDURE sp1tpcc_stocklevel
GO

CREATE PROCEDURE sp1tpcc_stocklevel
        @w_id int,
        @d_id tinyint,
        @threshold smallint
AS
DECLARE @o_id_low int,
        @o_id_high int

SELECT @o_id_low = (d_next_o_id - 20),
       @o_id_high = (d_next_o_id - 1)
FROM   district

```

```

WHERE  d_w_id = @w_id AND
       d_id   = @d_id

SELECT COUNT(DISTINCT(s_i_id))
FROM   stock,
       order_line
WHERE  ol_w_id = @w_id AND
       ol_d_id = @d_id and
       ol_o_id BETWEEN @o_id_low AND
                @o_id_high AND
       s_w_id = ol_w_id AND
       s_i_id = ol_i_id AND
       s_quantity < @threshold
OPTION(ORDER GROUP)
GO

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp2tpcc_stocklevel' )
DROP PROCEDURE sp2tpcc_stocklevel
GO

CREATE PROCEDURE sp2tpcc_stocklevel
        @w_id int,
        @d_id tinyint,
        @threshold smallint
AS
DECLARE @o_id_low int,
        @o_id_high int

SELECT @o_id_low = (d_next_o_id - 20),
       @o_id_high = (d_next_o_id - 1)
FROM   district
WHERE  d_w_id = @w_id AND
       d_id   = @d_id

SELECT COUNT(DISTINCT(s_i_id))
FROM   stock,
       order_line
WHERE  ol_w_id = @w_id AND
       ol_d_id = @d_id and
       ol_o_id BETWEEN @o_id_low AND
                @o_id_high AND
       s_w_id = ol_w_id AND
       s_i_id = ol_i_id AND
       s_quantity < @threshold
OPTION(ORDER GROUP)
GO

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp3tpcc_stocklevel' )
DROP PROCEDURE sp3tpcc_stocklevel
GO

CREATE PROCEDURE sp3tpcc_stocklevel
        @w_id int,
        @d_id tinyint,
        @threshold smallint
AS
DECLARE @o_id_low int,
        @o_id_high int

SELECT @o_id_low = (d_next_o_id - 20),
       @o_id_high = (d_next_o_id - 1)
FROM   district
WHERE  d_w_id = @w_id AND
       d_id   = @d_id

SELECT COUNT(DISTINCT(s_i_id))

```

```

FROM   stock,
       order_line
WHERE  ol_w_id = @w_id AND
       ol_d_id = @d_id and
       ol_o_id BETWEEN @o_id_low AND
                @o_id_high AND
       s_w_id = ol_w_id AND
       s_i_id = ol_i_id AND
       s_quantity < @threshold
OPTION(ORDER GROUP)
GO

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp4tpcc_stocklevel' )
DROP PROCEDURE sp4tpcc_stocklevel
GO

CREATE PROCEDURE sp4tpcc_stocklevel
        @w_id int,
        @d_id tinyint,
        @threshold smallint
AS
DECLARE @o_id_low int,
        @o_id_high int

SELECT @o_id_low = (d_next_o_id - 20),
       @o_id_high = (d_next_o_id - 1)
FROM   district
WHERE  d_w_id = @w_id AND
       d_id   = @d_id

SELECT COUNT(DISTINCT(s_i_id))
FROM   stock,
       order_line
WHERE  ol_w_id = @w_id AND
       ol_d_id = @d_id and
       ol_o_id BETWEEN @o_id_low AND
                @o_id_high AND
       s_w_id = ol_w_id AND
       s_i_id = ol_i_id AND
       s_quantity < @threshold
OPTION(ORDER GROUP)
GO

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp5tpcc_stocklevel' )
DROP PROCEDURE sp5tpcc_stocklevel
GO

CREATE PROCEDURE sp5tpcc_stocklevel
        @w_id int,
        @d_id tinyint,
        @threshold smallint
AS
DECLARE @o_id_low int,
        @o_id_high int

SELECT @o_id_low = (d_next_o_id - 20),
       @o_id_high = (d_next_o_id - 1)
FROM   district
WHERE  d_w_id = @w_id AND
       d_id   = @d_id

SELECT COUNT(DISTINCT(s_i_id))
FROM   stock,
       order_line
WHERE  ol_w_id = @w_id AND
       ol_d_id = @d_id and

```

```

        ol_o_id BETWEEN @o_id_low AND
            @o_id_high AND
        s_w_id = ol_w_id AND
        s_i_id = ol_i_id AND
        s_quantity < @threshold
OPTION(ORDER GROUP)
GO

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp6tpcc_stocklevel' )
DROP PROCEDURE sp6tpcc_stocklevel
GO

CREATE PROCEDURE sp6tpcc_stocklevel
    @w_id int,
    @d_id tinyint,
    @threshold smallint

AS
DECLARE @o_id_low int,
        @o_id_high int

SELECT @o_id_low = (d_next_o_id - 20),
        @o_id_high = (d_next_o_id - 1)
FROM district
WHERE d_w_id = @w_id AND
      d_id = @d_id

SELECT COUNT(DISTINCT(s_i_id))
FROM stock,
      order_line
WHERE ol_w_id = @w_id AND
      ol_d_id = @d_id and
      ol_o_id BETWEEN @o_id_low AND
        @o_id_high AND
      s_w_id = ol_w_id AND
      s_i_id = ol_i_id AND
      s_quantity < @threshold
OPTION(ORDER GROUP)
GO

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

IF EXISTS ( SELECT name FROM sysobjects WHERE
name = 'sp7tpcc_stocklevel' )
DROP PROCEDURE sp7tpcc_stocklevel
GO

CREATE PROCEDURE sp7tpcc_stocklevel
    @w_id int,
    @d_id tinyint,
    @threshold smallint

AS
DECLARE @o_id_low int,
        @o_id_high int

SELECT @o_id_low = (d_next_o_id - 20),
        @o_id_high = (d_next_o_id - 1)
FROM district
WHERE d_w_id = @w_id AND
      d_id = @d_id

SELECT COUNT(DISTINCT(s_i_id))
FROM stock,
      order_line
WHERE ol_w_id = @w_id AND
      ol_d_id = @d_id and
      ol_o_id BETWEEN @o_id_low AND
        @o_id_high AND
      s_w_id = ol_w_id AND
      s_i_id = ol_i_id AND

```

```

        s_quantity < @threshold
OPTION(ORDER GROUP)
GO

SET QUOTED_IDENTIFIER OFF
GO

SET ANSI_NULLS ON
GO

```

# Appendix C Tunable Parameters

## Disabled Windows Services

Application Experience Lookup Service  
 Base Filtering Engine  
 Computer Browser  
 Distributed Link Tracking Server  
 Emulex HBA Management  
 Emulex Service Manager  
 HP SmartArray SAS/SATA Event Notification  
 Internet Connection Service  
 Error Reporting Service  
 IPsec Policy Agent  
 PnP-X IP Bus Enumerator  
 Print Spooler  
 Remote Registry  
 Routing and Remote Access  
 Shell Detection Service  
 SQLServer Active Directory Helper  
 SQL Server Browser  
 SQL Server Full Text Search  
 SQL Server VSS Writer  
 SSDP Discovery  
 UPnP Device Host  
 Windows Firewall/Internet Connection Sharing  
 Windows Update  
 WinHTTP Web Proxy Auto-Discovery Service

## Server System Configuration

System Information report written at: 05/05/10 14:19:11

System Name: SQLWESTMERE  
 [System Summary]

Item	Value
OS Name	Microsoft Windows Server 2008 R2 Enterprise
Version	6.1.7600 Build 7600
Other OS Description	Not Available
OS Manufacturer	Microsoft Corporation

System Name: SQLWESTMERE

System Manufacturer: HP  
 System Model: ProLiant DL380 G7

System Type x64-based PC  
 Processor Intel(R) Xeon(R) CPU X5680 @ 3.33GHz, 3333 Mhz, 6 Core(s), 12 Logical Processor(s)  
 Processor Intel(R) Xeon(R) CPU X5680 @ 3.33GHz, 3333 Mhz, 6 Core(s), 12 Logical Processor(s)  
 BIOS Version/Date HP P67, 3/30/2010

SMBIOS Version: 2.6  
 Windows Directory: C:\Windows

System Directory C:\Windows\system32

Boot Device \Device\HarddiskVolume1  
 Locale United States  
 Hardware Abstraction Layer Version = "6.1.7600.16385"  
 User Name Not Available  
 Time Zone Pacific Daylight Time  
 Installed Physical Memory (RAM) 192 GB

Total Physical Memory 192 GB  
 Available Physical Memory 183 GB  
 Total Virtual Memory 194 GB  
 Available Virtual Memory 185 GB  
 Page File Space 2.00 GB  
 Page File C:\pagefile.sys

[Hardware Resources]

[Conflicts/Sharing]

Resource	Device	Direct
I/O Port 0x00000000-0x0000000F	memory access controller	Direct
I/O Port 0x00000000-0x0000000F	PCI bus	
I/O Port 0x000003C0-0x000003DF	VGA Graphics Adapter	Standard
I/O Port 0x000003C0-0x000003DF	PCI bus	

IRQ 20 Intel(R) ICH10 Family USB Enhanced Host Controller - 3A34  
 IRQ 20 Intel(R) ICH10 Family USB Universal Host Controller - 3A34

I/O Port 0x00000070-0x00000071 System CMOS/real time clock  
 I/O Port 0x00000070-0x00000071 Motherboard resources

I/O Port 0x00002000-0x00002FFF Intel(R) 82801 PCI Bridge - 244E  
 I/O Port 0x00002000-0x00002FFF Standard VGA Graphics Adapter

Memory Address 0xE8000000-0xEFFFFFFF Intel(R) 82801 PCI Bridge - 244E

Memory Address 0xE8000000-0xEFFFFFFF Standard VGA Graphics Adapter

IRQ 23 Intel(R) ICH10 Family USB Universal Host Controller - 3A39  
 IRQ 23 Intel(R) ICH10 Family USB Universal Host Controller - 3A35

Memory Address 0xF2000000-0xF5FFFFFF Intel(R) ICH10 Family PCI Express Root Port 1 - 3A40  
 Memory Address 0xF2000000-0xF5FFFFFF Broadcom BCM5709C NetXtreme II GigE

I/O Port 0x00003000-0x00003FFF Intel(R) ICH10 Family PCI Express Root Port 5 - 3A48

I/O Port 0x00003000-0x00003FFF HP ProLiant iLO 3 Management Controller (CORE)

Memory Address 0xF6000000-0xF9FFFFFF Intel(R) ICH10 Family PCI Express Root Port 3 - 3A44  
 Memory Address 0xF6000000-0xF9FFFFFF Broadcom BCM5709C NetXtreme II GigE

Memory Address 0xFED00000-0xFED003FF High precision event timer  
 Memory Address 0xFED00000-0xFED003FF PCI bus  
 Memory Address 0xFED00000-0xFED003FF PCI bus

IRQ 16 Broadcom BCM5709C NetXtreme II GigE  
 IRQ 16 Intel(R) ICH10 Family PCI Express Root Port 1 - 3A40  
 IRQ 16 Intel(R) ICH10 Family PCI Express Root Port 3 - 3A44  
 IRQ 16 Intel(R) ICH10 Family PCI Express Root Port 5 - 3A48  
 IRQ 16 HP ProLiant iLO 3 Management Controller (CORE)

IRQ 17 HP ProLiant iLO 3 Management Controller (CHIF)  
 IRQ 17 Broadcom BCM5709C NetXtreme II GigE  
 IRQ 17 Standard Dual Channel PCI IDE Controller  
 IRQ 17 Standard Universal PCI to USB Host Controller

Memory Address 0xA0000-0xBFFFF Standard VGA Graphics Adapter  
 Memory Address 0xA0000-0xBFFFF PCI bus

I/O Port 0x00001000-0x0000AFFF PCI bus

I/O Port 0x00001000-0x0000AFFF Intel(R) ICH10 Family USB Universal Host Controller - 3A34

I/O Port 0x000003B0-0x000003BB Standard VGA Graphics Adapter  
 I/O Port 0x000003B0-0x000003BB PCI bus

[DMA]

Resource	Device	Status
Channel 7	Direct memory access controller	OK

[Forced Hardware]

Device	PNP Device ID

[I/O]

Resource	Device	Status
0x00003800-0x000038FF	HP ProLiant iLO 3 Management Controller (CHIF)	OK
0x00002000-0x00002FFF	Intel(R) 82801 PCI Bridge - 244E0K	
0x00002000-0x00002FFF	Standard VGA Graphics Adapter	OK

0x00007000-0x00007FFF Intel(R)  
5520/5500/X58 I/O Hub PCI Express Root Port 7  
- 340E OK  
0x00001060-0x0000107F Intel(R) ICH10 Family  
USB Universal Host Controller - 3A39 OK

0x00000CA2-0x00000CA3 Microsoft Generic  
IPMI Compliant Device OK  
0x00006000-0x00006FFF Intel(R)  
5520/5500/X58 I/O Hub PCI Express Root Port 8  
- 340F OK  
0x00000040-0x00000043 System timer OK

0x00000000-0x0000000F Direct memory access  
controller OK  
0x00000000-0x0000000F PCI bus OK

0x00000080-0x0000008F Direct memory access  
controller OK  
0x000000C0-0x000000DF Direct memory access  
controller OK  
0x00004000-0x00004FFF Intel(R)  
5520/5500/X58 I/O Hub PCI Express Root Port 1  
- 3408 OK  
0x00005000-0x00005FFF Intel(R)  
5520/5500/X58 I/O Hub PCI Express Root Port 9  
- 3410 OK  
0x00000060-0x00000060 Standard PS/2  
Keyboard OK  
0x00000064-0x00000064 Standard PS/2  
Keyboard OK  
0x000003F8-0x000003FF Communications Port  
(COM1) OK  
0x000003B0-0x000003BB Standard VGA  
Graphics Adapter OK  
0x000003B0-0x000003BB PCI bus OK

0x000003C0-0x000003DF Standard VGA  
Graphics Adapter OK  
0x000003C0-0x000003DF PCI bus OK

0x00000061-0x00000061 System speaker  
OK  
0x0000002E-0x0000002F Extended IO Bus  
OK  
0x00000620-0x0000065F Extended IO Bus  
OK  
0x00000680-0x0000069F Extended IO Bus  
OK  
0x00000600-0x0000061F Extended IO Bus  
OK  
0x00000660-0x0000067F Extended IO Bus  
OK  
0x00000300-0x0000031F Extended IO Bus  
OK  
0x00001000-0x0000AFFF PCI bus OK  
0x00001000-0x0000AFFF Intel(R) ICH10 Family  
USB Universal Host Controller - 3A34 OK  
0x000003E0-0x00000CF7 PCI bus OK  
0x00000D00-0x00000FFF PCI bus OK

0x00008000-0x00008FFF Intel(R)  
5520/5500/X58 I/O Hub PCI Express Root Port 3  
- 340A OK  
0x00001080-0x00001087 Standard Dual  
Channel PCI IDE Controller OK  
0x00001088-0x0000108B Standard Dual  
Channel PCI IDE Controller OK  
0x00001090-0x00001097 Standard Dual  
Channel PCI IDE Controller OK

0x00001098-0x0000109B Standard Dual  
Channel PCI IDE Controller OK  
0x000010A0-0x000010AF Standard Dual  
Channel PCI IDE Controller OK  
0x000010B0-0x000010BF Standard Dual  
Channel PCI IDE Controller OK  
0x00003000-0x00003FFF Intel(R) ICH10 Family  
PCI Express Root Port 5 - 3A48 OK  
0x00003000-0x00003FFF HP ProLiant iLO 3  
Management Controller (CORE) OK  
0x00000070-0x00000071 System CMOS/real  
time clock OK  
0x00000070-0x00000071 Motherboard  
resources OK  
0x00000408-0x0000040F Motherboard  
resources OK  
0x000004D0-0x000004D1 Motherboard  
resources OK  
0x00000020-0x0000003F Motherboard  
resources OK  
0x000000A0-0x000000BF Motherboard  
resources OK  
0x00000090-0x0000009F Motherboard  
resources OK  
0x00000050-0x00000053 Motherboard  
resources OK  
0x00000700-0x0000071F Motherboard  
resources OK  
0x00000880-0x000008FF Motherboard  
resources OK  
0x00000900-0x0000097F Motherboard  
resources OK  
0x00000010-0x0000001F Motherboard  
resources OK  
0x00000CD4-0x00000CD7 Motherboard  
resources OK  
0x00000CD0-0x00000CD3 Motherboard  
resources OK  
0x00000F50-0x00000F58 Motherboard  
resources OK  
0x000000F0-0x000000F0 Motherboard  
resources OK  
0x00000CA0-0x00000CA1 Motherboard  
resources OK  
0x00000CA4-0x00000CA5 Motherboard  
resources OK  
0x000002F8-0x000002FF Motherboard  
resources OK  
0x00003C00-0x00003C1F Standard Universal  
PCI to USB Host Controller OK  
0x00009000-0x00009FFF Intel(R) 5520/X58 I/O  
Hub PCI Express Root Port 5 - 340C OK  
0x00001020-0x0000103F Intel(R) ICH10 Family  
USB Universal Host Controller - 3A35 OK  
0x00003400-0x000034FF HP ProLiant iLO 3  
Management Controller (CORE) OK  
0x0000A000-0x0000AFFF Intel(R) 5520/X58 I/O  
Hub PCI Express Root Port 6 - 340D OK  
0x00001040-0x0000105F Intel(R) ICH10 Family  
USB Universal Host Controller - 3A36 OK

[IRQs]

Resource	Device	Status
IRQ 4294967222	LSI Adapter, SAS2	OK
2008 Falcon -StorPort		

IRQ 4294967221 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 4294967220 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 4294967219 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 4294967218 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 4294967217 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 4294967216 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 4294967215 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 4294967214 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 4294967213 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 4294967212 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 4294967211 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 4294967210 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 4294967209 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 4294967208 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 17 HP ProLiant iLO 3 Management  
Controller (CHIF) OK  
IRQ 17 Broadcom BCM5709C NetXtreme II  
GigE OK  
IRQ 17 Standard Dual Channel PCI IDE  
Controller OK  
IRQ 17 Standard Universal PCI to USB Host  
Controller OK  
IRQ 4294967290 Intel(R)  
5520/5500/X58 I/O Hub PCI Express Root Port 7  
- 340E OK  
IRQ 23 Intel(R) ICH10 Family USB  
Universal Host Controller - 3A39 OK  
IRQ 23 Intel(R) ICH10 Family USB  
Universal Host Controller - 3A35 OK  
IRQ 4294967237 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 4294967236 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 4294967235 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 4294967234 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 4294967233 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 4294967232 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 4294967231 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 4294967230 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 4294967229 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 4294967228 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 4294967227 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 4294967226 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 4294967225 LSI Adapter, SAS2  
2008 Falcon -StorPort OK  
IRQ 4294967224 LSI Adapter, SAS2  
2008 Falcon -StorPort OK

IRQ 4294967223 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967289 Intel(R)  
 5520/5500/X58 I/O Hub PCI Express Root Port 8  
 - 340F OK  
 IRQ 0 System timer OK  
 IRQ 20 Intel(R) ICH10 Family USB  
 Enhanced Host Controller - 3A3A OK  
  
 IRQ 20 Intel(R) ICH10 Family USB  
 Universal Host Controller - 3A34 OK  
  
 IRQ 4294967268 Emulex LightPulse  
 AJ763A/AH403A, PCI Slot 4, FC Storport Miniport  
 Driver OK  
 IRQ 4294967267 Emulex LightPulse  
 AJ763A/AH403A, PCI Slot 4, FC Storport Miniport  
 Driver OK  
 IRQ 4294967266 Emulex LightPulse  
 AJ763A/AH403A, PCI Slot 4, FC Storport Miniport  
 Driver OK  
 IRQ 4294967265 Emulex LightPulse  
 AJ763A/AH403A, PCI Slot 4, FC Storport Miniport  
 Driver OK  
 IRQ 4294967264 Emulex LightPulse  
 AJ763A/AH403A, PCI Slot 4, FC Storport Miniport  
 Driver OK  
 IRQ 4294967263 Emulex LightPulse  
 AJ763A/AH403A, PCI Slot 4, FC Storport Miniport  
 Driver OK  
 IRQ 4294967262 Emulex LightPulse  
 AJ763A/AH403A, PCI Slot 4, FC Storport Miniport  
 Driver OK  
 IRQ 4294967261 Emulex LightPulse  
 AJ763A/AH403A, PCI Slot 4, FC Storport Miniport  
 Driver OK  
 IRQ 16 Broadcom BCM5709C NetXtreme II  
 GigE OK  
 IRQ 16 Intel(R) ICH10 Family PCI Express  
 Root Port 1 - 3A40 OK  
 IRQ 16 Intel(R) ICH10 Family PCI Express  
 Root Port 3 - 3A44 OK  
 IRQ 16 Intel(R) ICH10 Family PCI Express  
 Root Port 5 - 3A48 OK  
 IRQ 16 HP ProLiant iLO 3 Management  
 Controller (CORE) OK  
 IRQ 4294967252 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967251 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967250 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967249 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967248 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967247 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967246 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967245 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967244 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967243 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967242 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967241 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967240 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967239 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK

IRQ 4294967238 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967294 Intel(R)  
 5520/5500/X58 I/O Hub PCI Express Root Port 1  
 - 3408 OK  
 IRQ 4294967288 Intel(R)  
 5520/5500/X58 I/O Hub PCI Express Root Port 9  
 - 3410 OK  
 IRQ 1 Standard PS/2 Keyboard OK  
  
 IRQ 4294967260 Emulex LightPulse  
 AJ763A/AH403A, PCI Slot 4, FC Storport Miniport  
 Driver OK  
 IRQ 4294967259 Emulex LightPulse  
 AJ763A/AH403A, PCI Slot 4, FC Storport Miniport  
 Driver OK  
 IRQ 4294967258 Emulex LightPulse  
 AJ763A/AH403A, PCI Slot 4, FC Storport Miniport  
 Driver OK  
 IRQ 4294967257 Emulex LightPulse  
 AJ763A/AH403A, PCI Slot 4, FC Storport Miniport  
 Driver OK  
 IRQ 4294967256 Emulex LightPulse  
 AJ763A/AH403A, PCI Slot 4, FC Storport Miniport  
 Driver OK  
 IRQ 4294967255 Emulex LightPulse  
 AJ763A/AH403A, PCI Slot 4, FC Storport Miniport  
 Driver OK  
 IRQ 4294967254 Emulex LightPulse  
 AJ763A/AH403A, PCI Slot 4, FC Storport Miniport  
 Driver OK  
 IRQ 4294967253 Emulex LightPulse  
 AJ763A/AH403A, PCI Slot 4, FC Storport Miniport  
 Driver OK  
 IRQ 4 Communications Port (COM1)  
 OK  
 IRQ 4294967287 Intel(R)  
 5520/5500/X58 I/O Hub PCI Express Root Port 2  
 - 3409 OK  
 IRQ 4294967285 Intel(R)  
 5520/5500/X58 I/O Hub PCI Express Root Port  
 10 - 3411 OK  
 IRQ 18 Broadcom BCM5709C NetXtreme II  
 GigE OK  
 IRQ 4294967284 Smart Array P410i  
 Controller OK  
 IRQ 4294967283 Smart Array P410i  
 Controller OK  
 IRQ 4294967282 Smart Array P410i  
 Controller OK  
 IRQ 4294967281 Smart Array P410i  
 Controller OK  
 IRQ 4294967280 Smart Array P410i  
 Controller OK  
 IRQ 4294967279 Smart Array P410i  
 Controller OK  
 IRQ 4294967278 Smart Array P410i  
 Controller OK  
 IRQ 4294967277 Smart Array P410i  
 Controller OK  
 IRQ 4294967293 Intel(R)  
 5520/5500/X58 I/O Hub PCI Express Root Port 3  
 - 340A OK  
 IRQ 19 Broadcom BCM5709C NetXtreme II  
 GigE OK  
 IRQ 4294967276 Smart Array P411  
 Controller OK  
 IRQ 4294967275 Smart Array P411  
 Controller OK  
 IRQ 4294967274 Smart Array P411  
 Controller OK  
 IRQ 4294967273 Smart Array P411  
 Controller OK

IRQ 4294967272 Smart Array P411  
 Controller OK  
 IRQ 4294967271 Smart Array P411  
 Controller OK  
  
 IRQ 4294967270 Smart Array P411  
 Controller OK  
 IRQ 4294967269 Smart Array P411  
 Controller OK  
 IRQ 12 PS/2 Compatible Mouse OK  
  
 IRQ 4294967286 Intel(R) 5520/X58 I/O  
 Hub PCI Express Root Port 4 - 340B OK  
  
 IRQ 81 Microsoft ACPI-Compliant System  
 OK  
 IRQ 82 Microsoft ACPI-Compliant System  
 OK  
 IRQ 83 Microsoft ACPI-Compliant System  
 OK  
 IRQ 84 Microsoft ACPI-Compliant System  
 OK  
 IRQ 85 Microsoft ACPI-Compliant System  
 OK  
 IRQ 86 Microsoft ACPI-Compliant System  
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 IRQ 87 Microsoft ACPI-Compliant System  
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 IRQ 88 Microsoft ACPI-Compliant System  
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 IRQ 89 Microsoft ACPI-Compliant System  
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 IRQ 90 Microsoft ACPI-Compliant System  
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 IRQ 91 Microsoft ACPI-Compliant System  
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 IRQ 92 Microsoft ACPI-Compliant System  
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 IRQ 102 Microsoft ACPI-Compliant System  
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 IRQ 104 Microsoft ACPI-Compliant System  
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 IRQ 105 Microsoft ACPI-Compliant System  
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 IRQ 106 Microsoft ACPI-Compliant System  
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 IRQ 107 Microsoft ACPI-Compliant System  
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 IRQ 108 Microsoft ACPI-Compliant System  
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 IRQ 109 Microsoft ACPI-Compliant System  
 OK  
 IRQ 110 Microsoft ACPI-Compliant System  
 OK



IRQ 111 Microsoft ACPI-Compliant System OK  
 IRQ 112 Microsoft ACPI-Compliant System OK  
 IRQ 113 Microsoft ACPI-Compliant System OK  
 IRQ 114 Microsoft ACPI-Compliant System OK  
 IRQ 115 Microsoft ACPI-Compliant System OK  
 IRQ 116 Microsoft ACPI-Compliant System OK  
 IRQ 117 Microsoft ACPI-Compliant System OK  
 IRQ 118 Microsoft ACPI-Compliant System OK  
 IRQ 119 Microsoft ACPI-Compliant System OK  
 IRQ 120 Microsoft ACPI-Compliant System OK  
 IRQ 121 Microsoft ACPI-Compliant System OK  
 IRQ 122 Microsoft ACPI-Compliant System OK  
 IRQ 123 Microsoft ACPI-Compliant System OK  
 IRQ 124 Microsoft ACPI-Compliant System OK  
 IRQ 125 Microsoft ACPI-Compliant System OK  
 IRQ 126 Microsoft ACPI-Compliant System OK  
 IRQ 127 Microsoft ACPI-Compliant System OK  
 IRQ 128 Microsoft ACPI-Compliant System OK  
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 IRQ 138 Microsoft ACPI-Compliant System OK  
 IRQ 139 Microsoft ACPI-Compliant System OK  
 IRQ 140 Microsoft ACPI-Compliant System OK  
 IRQ 141 Microsoft ACPI-Compliant System OK  
 IRQ 142 Microsoft ACPI-Compliant System OK  
 IRQ 143 Microsoft ACPI-Compliant System OK  
 IRQ 144 Microsoft ACPI-Compliant System OK  
 IRQ 145 Microsoft ACPI-Compliant System OK  
 IRQ 146 Microsoft ACPI-Compliant System OK  
 IRQ 147 Microsoft ACPI-Compliant System OK

IRQ 148 Microsoft ACPI-Compliant System OK  
 IRQ 149 Microsoft ACPI-Compliant System OK  
 IRQ 150 Microsoft ACPI-Compliant System OK  
 IRQ 151 Microsoft ACPI-Compliant System OK  
 IRQ 152 Microsoft ACPI-Compliant System OK  
 IRQ 153 Microsoft ACPI-Compliant System OK  
 IRQ 154 Microsoft ACPI-Compliant System OK  
 IRQ 155 Microsoft ACPI-Compliant System OK  
 IRQ 156 Microsoft ACPI-Compliant System OK  
 IRQ 157 Microsoft ACPI-Compliant System OK  
 IRQ 158 Microsoft ACPI-Compliant System OK  
 IRQ 159 Microsoft ACPI-Compliant System OK  
 IRQ 160 Microsoft ACPI-Compliant System OK  
 IRQ 161 Microsoft ACPI-Compliant System OK  
 IRQ 162 Microsoft ACPI-Compliant System OK  
 IRQ 163 Microsoft ACPI-Compliant System OK  
 IRQ 164 Microsoft ACPI-Compliant System OK  
 IRQ 165 Microsoft ACPI-Compliant System OK  
 IRQ 166 Microsoft ACPI-Compliant System OK  
 IRQ 167 Microsoft ACPI-Compliant System OK  
 IRQ 168 Microsoft ACPI-Compliant System OK  
 IRQ 169 Microsoft ACPI-Compliant System OK  
 IRQ 170 Microsoft ACPI-Compliant System OK  
 IRQ 171 Microsoft ACPI-Compliant System OK  
 IRQ 172 Microsoft ACPI-Compliant System OK  
 IRQ 173 Microsoft ACPI-Compliant System OK  
 IRQ 174 Microsoft ACPI-Compliant System OK  
 IRQ 175 Microsoft ACPI-Compliant System OK  
 IRQ 176 Microsoft ACPI-Compliant System OK  
 IRQ 177 Microsoft ACPI-Compliant System OK  
 IRQ 178 Microsoft ACPI-Compliant System OK  
 IRQ 179 Microsoft ACPI-Compliant System OK  
 IRQ 180 Microsoft ACPI-Compliant System OK  
 IRQ 181 Microsoft ACPI-Compliant System OK  
 IRQ 182 Microsoft ACPI-Compliant System OK  
 IRQ 183 Microsoft ACPI-Compliant System OK  
 IRQ 184 Microsoft ACPI-Compliant System OK  
 IRQ 185 Microsoft ACPI-Compliant System OK

IRQ 186 Microsoft ACPI-Compliant System OK  
 IRQ 187 Microsoft ACPI-Compliant System OK  
 IRQ 188 Microsoft ACPI-Compliant System OK  
 IRQ 189 Microsoft ACPI-Compliant System OK  
 IRQ 190 Microsoft ACPI-Compliant System OK  
 IRQ 4294967292 Intel(R) 5520/X58 I/O Hub PCI Express Root Port 5 - 340C OK  
 IRQ 4294967207 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967206 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967205 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967204 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967203 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967202 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967200 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967199 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967198 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967196 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967194 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967193 LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 IRQ 4294967291 Intel(R) 5520/X58 I/O Hub PCI Express Root Port 6 - 340D OK  
 IRQ 22 Intel(R) ICH10 Family USB Universal Host Controller - 3A36 OK  
 [Memory]  
 Resource Device Status  
 0xFB4F0000-0xFB4F3FFF LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 0xFB480000-0xFB4BFFFF LSI Adapter, SAS2  
 2008 Falcon -StorPort OK  
 0xF1FE0000-0xF1FE00FF HP ProLiant iLO 3 Management Controller (CHIP) OK  
 0xF1E00000-0xF1EFFFFF HP ProLiant iLO 3 Management Controller (CHIP) OK  
 0xF1D80000-0xF1DFFFFF HP ProLiant iLO 3 Management Controller (CHIP) OK  
 0xF1D70000-0xF1D7FFFF HP ProLiant iLO 3 Management Controller (CHIP) OK  
 0xF1D60000-0xF1D67FFF HP ProLiant iLO 3 Management Controller (CHIP) OK  
 0xF1C00000-0xF1CFFFFF Intel(R) 82801 PCI Bridge - 244EOK  
 0xE8000000-0xEFFFFFFF Intel(R) 82801 PCI Bridge - 244EOK

```

0xE8000000-0xEFFFFFFF Standard VGA
Graphics Adapter OK
0xFB500000-0xFB5FFFFF Intel(R)
5520/5500/X58 I/O Hub PCI Express Root Port 7
- 340E OK
0xFB5F0000-0xFB5F3FFF LSI Adapter, SAS2
2008 Falcon -StorPort OK
0xFB580000-0xFB5BFFFF LSI Adapter, SAS2
2008 Falcon -StorPort OK
0xFB400000-0xFB4FFFFF Intel(R)
5520/5500/X58 I/O Hub PCI Express Root Port 8
- 340F OK
0xF1BF0000-0xF1BF03FF Intel(R) ICH10 Family
USB Enhanced Host Controller - 3A3A OK

0xFB6F0000-0xFB6F0FFF Emulex LightPulse
AJ763A/AH403A, PCI Slot 4, FC Storport Miniport
Driver OK
0xFB6E0000-0xFB6E3FFF Emulex LightPulse
AJ763A/AH403A, PCI Slot 4, FC Storport Miniport
Driver OK
0xFED00000-0xFED003FF High precision event
timer OK
0xFED00000-0xFED003FF PCI bus OK

0xFED00000-0xFED003FF PCI bus OK

0xF4000000-0xF5FFFFFF Broadcom BCM5709C
NetXtreme II GigE OK
0xFBFF0000-0xFBFF3FFF LSI Adapter, SAS2
2008 Falcon -StorPort OK
0xFB800000-0xFB8BFFFF LSI Adapter, SAS2
2008 Falcon -StorPort OK
0xFAB00000-0xFAFFFFFF Intel(R)
5520/5500/X58 I/O Hub PCI Express Root Port 1
- 3408 OK
0xFB300000-0xFB3FFFFF Intel(R)
5520/5500/X58 I/O Hub PCI Express Root Port 9
- 3410 OK
0xF2000000-0xF5FFFFFF Intel(R) ICH10 Family
PCI Express Root Port 1 - 3A40 OK

0xF2000000-0xF5FFFFFF Broadcom BCM5709C
NetXtreme II GigE OK
0xFB6D0000-0xFB6D0FFF Emulex LightPulse
AJ763A/AH403A, PCI Slot 4, FC Storport Miniport
Driver OK
0xFB6C0000-0xFB6C3FFF Emulex LightPulse
AJ763A/AH403A, PCI Slot 4, FC Storport Miniport
Driver OK
0xF1CF0000-0xF1CFFFFF Standard VGA
Graphics Adapter OK
0xA0000-0xBFFFFF Standard VGA
Graphics Adapter OK
0xA0000-0xBFFFFF PCI bus OK

0xF6000000-0xF9FFFFFF Intel(R) ICH10 Family
PCI Express Root Port 3 - 3A44 OK

0xF6000000-0xF9FFFFFF Broadcom BCM5709C
NetXtreme II GigE OK
0xF8000000-0xF9FFFFFF Broadcom BCM5709C
NetXtreme II GigE OK
0xFAC00000-0xFAFFFFFF Smart Array P410i
Controller OK
0xFABF0000-0xFABF0FFF Smart Array P410i
Controller OK
0xE7000000-0xEBFFFFF PCI bus OK

0xFB600000-0xFB6FFFFF Intel(R)
5520/5500/X58 I/O Hub PCI Express Root Port 3
- 340A OK
0xF1D00000-0xF1FFFFFF Intel(R) ICH10 Family
PCI Express Root Port 5 - 3A48 OK

```

```

0xE0000000-0xE3FFFFFF Motherboard
0x50000000-0xEBFFFFF Motherboard
resources OK
0xFB800000-0xFB8BFFFF Smart Array P411
Controller OK
0xFB7F0000-0xFB7F0FFF Smart Array P411
Controller OK
0xFB700000-0xFB7BFFFF Intel(R) 5520/X58 I/O
Hub PCI Express Root Port 5 - 340C OK

0xFB3F0000-0xFB3F3FFF LSI Adapter, SAS2
2008 Falcon -StorPort OK
0xFB380000-0xFB3BFFFF LSI Adapter, SAS2
2008 Falcon -StorPort OK
0xF1FF0000-0xF1FF01FF HP ProLiant iLO 3
Management Controller (CORE) OK

0xFB000000-0xBFFFFFFF Intel(R) 5520/X58 I/O
Hub PCI Express Root Port 6 - 340D OK

[Components]

[Multimedia]

[Audio Codecs]
CODEC Manufacturer Description Status
File Version Size
Creation Date
c:\windows\system32\msadp32.acm
Microsoft Corporation
OK
C:\Windows\system32\MSADP32.A
CM 6.1.7600.16385 23.50 KB
(24,064 bytes) 7/13/2009 5:18 PM
c:\windows\system32\imaadp32.acm
Microsoft Corporation
OK
C:\Windows\system32\IMAADP32.A
CM 6.1.7600.16385 21.50 KB
(22,016 bytes) 7/13/2009 5:18 PM
c:\windows\system32\msg711.acm
Microsoft Corporation
OK
C:\Windows\system32\MSG711.AC
M 6.1.7600.16385 14.50 KB
(14,848 bytes) 7/13/2009 5:18 PM
c:\windows\system32\msgsm32.acm
Microsoft Corporation
OK
C:\Windows\system32\MSGSM32.A
CM 6.1.7600.16385 28.50 KB
(29,184 bytes) 7/13/2009 5:18 PM

[Video Codecs]
CODEC Manufacturer Description Status
File Version Size
Creation Date
c:\windows\system32\tsbyuv.dll
Microsoft Corporation
OK
C:\Windows\system32\TSBYUV.DLL
(14,848 bytes) 6.1.7600.16490 14.50 KB
3/3/2010 4:45 PM

```

```

c:\windows\system32\iyuv_32.dll
Microsoft Corporation
OK
C:\Windows\system32\IYUV_32.DL
L 6.1.7600.16490 53.00 KB
(54,272 bytes) 3/3/2010 4:45 PM
c:\windows\system32\msyuv.dll
Microsoft Corporation
OK
C:\Windows\system32\MSYUV.DLL
L 6.1.7600.16490 24.50 KB
(25,088 bytes) 3/3/2010 4:45 PM

c:\windows\system32\msrle32.dll
Microsoft Corporation
OK
C:\Windows\system32\MSRLE32.DL
L 6.1.7600.16490 16.00 KB
(16,384 bytes) 3/3/2010 4:45 PM

c:\windows\system32\msvid32.dll
Microsoft Corporation
OK
C:\Windows\system32\MSVIDC32.D
LL 6.1.7600.16490 38.00 KB
(38,912 bytes) 3/3/2010 4:45 PM

[CD-ROM]
Item Value
Drive Volume{2b58e264-2723-11df-a4b0-
806e6f6e6963}
Description CD-ROM Drive
Media Loaded No
Media Type DVD-ROM
Name TEAC DV-28S-V ATA Device

Manufacturer (Standard CD-ROM drives)
Status OK
Transfer Rate-1.00 kbytes/sec
SCSI Target ID 0
PNP Device ID IDE\CDROMTEAC_DV-
28S-
V_____C.0F_\5&1
F87F3DC&0&0.0.0
Driver
c:\windows\system32\drivers\cdrom.sys (6.1.7600.16385, 144.00 KB (147,456
bytes), 7/13/2009 4:19 PM)

[Sound Device]
Item Value

[Display]
Item Value
Name Standard VGA Graphics Adapter

PNP Device ID
PCI\VEN_1002&DEV_515E&SUBSYS
_31FB103C&REV_02\4&1712A4E7&0&818F0

Adapter TypeNot Available, (Standard display
types) compatible
Adapter Description Standard VGA
Graphics Adapter
Adapter RAM Not Available
Installed Drivers Not Available
Driver Version 6.1.7600.16385

INF File display.inf (vga section)
Color Planes Not Available
Color Table Entries Not Available

```

Resolution Not Available  
 Bits/Pixel Not Available  
 Memory Address 0xE8000000-0xEFFFFFFF  
 I/O Port 0x00002000-0x00002FFF  
 Memory Address 0xF1CF0000-0xF1CFFFFF  
 I/O Port 0x000003B0-0x000003BB  
 I/O Port 0x000003C0-0x000003DF  
 Memory Address 0xA0000-0xBFFFF

Driver  
 c:\windows\system32\drivers\vgapn  
 p.sys (6.1.7600.16385, 28.50 KB (29,184 bytes),  
 7/13/2009 4:38 PM)

[Infrared]

Item Value

[Input]

[Keyboard]

Item Value  
 Description Standard PS/2 Keyboard  
 Name Enhanced (101- or 102-key)

Layout 00000409  
 PNP Device ID  
 ACPI\PNP0303\4&23625D7F&0

Number of Function Keys 12  
 I/O Port 0x00000060-0x0000006F  
 I/O Port 0x00000064-0x0000006A  
 IRQ Channel IRQ 1  
 Driver

c:\windows\system32\drivers\i8042  
 prt.sys (6.1.7600.16385, 103.00 KB (105,472  
 bytes), 7/13/2009 4:19 PM)

Description USB Input Device  
 Name Enhanced (101- or 102-key)

Layout 00000409  
 PNP Device ID  
 USB\VID\_03F0&PID\_7029&MI\_00\7  
 &1605DC1F&0&0000

Number of Function Keys 12  
 Driver  
 c:\windows\system32\drivers\hidus  
 b.sys (6.1.7600.16385, 29.50 KB (30,208 bytes),  
 7/13/2009 5:06 PM)

[Pointing Device]

Item Value  
 Hardware Type USB Input Device

Number of Buttons 0  
 Status OK  
 PNP Device ID  
 USB\VID\_03F0&PID\_7029&MI\_01\7  
 &1605DC1F&0&0001  
 Power Management Supported No

Double Click Threshold Not Available  
 Handedness Not Available  
 Driver  
 c:\windows\system32\drivers\hidus  
 b.sys (6.1.7600.16385, 29.50 KB (30,208 bytes),  
 7/13/2009 5:06 PM)

Hardware Type PS/2 Compatible  
 Mouse

Number of Buttons 0  
 Status OK  
 PNP Device ID  
 ACPI\PNP0F13\4&23625D7F&0

Power Management Supported No

Double Click Threshold Not Available  
 Handedness Not Available  
 IRQ Channel IRQ 12  
 Driver  
 c:\windows\system32\drivers\i8042  
 prt.sys (6.1.7600.16385, 103.00 KB (105,472  
 bytes), 7/13/2009 4:19 PM)

[Modem]

Item Value

[Network]

[Adapter]

Item Value  
 Name [00000000] WAN Miniport (SSTP)

Adapter TypeNot Available  
 Product TypeWAN Miniport (SSTP)  
 Installed Yes  
 PNP Device ID  
 ROOT\MS\_SSTP\Miniport\0000

Last Reset 5/5/2010 2:08 PM  
 Index 0  
 Service Name RasSstp  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled No  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Driver

c:\windows\system32\drivers\rassst  
 p.sys (6.1.7600.16385, 82.00 KB (83,968 bytes),  
 7/13/2009 5:10 PM)

Name [00000001] WAN Miniport (IKeV2)

Adapter TypeNot Available  
 Product TypeWAN Miniport (IKeV2)  
 Installed Yes  
 PNP Device ID  
 ROOT\MS\_AgILEVpn\Miniport\00  
 00

Last Reset 5/5/2010 2:08 PM  
 Index 1  
 Service Name RasAgileVpn  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled No  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available

Driver  
 c:\windows\system32\drivers\agilev  
 pn.sys (6.1.7600.16385, 59.00 KB (60,416  
 bytes), 7/13/2009 5:10 PM)

Name [00000002] WAN Miniport (L2TP)

Adapter TypeNot Available  
 Product TypeWAN Miniport (L2TP)  
 Installed Yes  
 PNP Device ID  
 ROOT\MS\_L2TP\Miniport\0000

Last Reset 5/5/2010 2:08 PM  
 Index 2  
 Service Name Rasl2tp  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled No  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Driver

c:\windows\system32\drivers\rasl2t  
 p.sys (6.1.7600.16385, 127.00 KB (130,048  
 bytes), 7/13/2009 5:10 PM)

Name [00000003] WAN Miniport (PPTP)

Adapter TypeNot Available  
 Product TypeWAN Miniport (PPTP)  
 Installed Yes  
 PNP Device ID  
 ROOT\MS\_PPTP\Miniport\0000

Last Reset 5/5/2010 2:08 PM  
 Index 3  
 Service Name PptpMiniport  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled No  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Driver

c:\windows\system32\drivers\raspp  
 tp.sys (6.1.7600.16385, 109.00 KB (111,616  
 bytes), 7/13/2009 5:10 PM)

Name [00000004] WAN Miniport (PPPOE)

Adapter TypeNot Available  
 Product TypeWAN Miniport (PPPOE)  
 Installed Yes  
 PNP Device ID  
 ROOT\MS\_PPPOE\Miniport\0000

Last Reset 5/5/2010 2:08 PM  
 Index 4  
 Service Name RasPppoe  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled No  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available

Driver c:\windows\system32\drivers\rasppoe.sys (6.1.7600.16385, 90.50 KB (92,672 bytes), 7/13/2009 5:10 PM)

Name [00000005] WAN Miniport (IPv6)

Adapter Type Not Available  
Product Type WAN Miniport (IPv6)  
Installed Yes  
PNP Device ID ROOT\MS\_NDISWANIPV6\0000

Last Reset 5/5/2010 2:08 PM  
Index 5  
Service Name NdisWan  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address Not Available

Driver c:\windows\system32\drivers\ndiswan.sys (6.1.7600.16385, 160.50 KB (164,352 bytes), 7/13/2009 5:10 PM)

Name [00000006] WAN Miniport (Network Monitor)  
Adapter Type Not Available  
Product Type WAN Miniport (Network Monitor)

Installed Yes  
PNP Device ID ROOT\MS\_NDISWANBH\0000

Last Reset 5/5/2010 2:08 PM  
Index 6  
Service Name NdisWan  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address Not Available

Driver c:\windows\system32\drivers\ndiswan.sys (6.1.7600.16385, 160.50 KB (164,352 bytes), 7/13/2009 5:10 PM)

Name [00000007] Broadcom BCM5709C NetXtreme II GigE (NDIS VBD Client)  
Adapter Type Ethernet 802.3  
Product Type Broadcom BCM5709C NetXtreme II GigE (NDIS VBD Client)  
Installed Yes  
PNP Device ID B06BDRV\L2ND&PCI\_163914E4&SU\_BSYS\_7055103C&REV\_20\5&2576E0D6&0&20050400

Last Reset 5/5/2010 2:08 PM  
Index 7  
Service Name l2nd  
IP Address 192.168.4.1, fe80::de6:3add:862:8690  
IP Subnet 255.255.0.0, 64  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available

Driver c:\windows\system32\drivers\bxnd60a.sys (4.8.4.0, 70.00 KB (71,680 bytes), 6/10/2009 1:34 PM)

Name [00000008] Microsoft ISATAP Adapter  
Adapter Type Tunnel  
Product Type Microsoft ISATAP Adapter  
Installed Yes  
PNP Device ID ROOT\\*ISATAP\0000

Last Reset 5/5/2010 2:08 PM  
Index 8  
Service Name tunnel  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address Not Available

Driver c:\windows\system32\drivers\tunnel.sys (6.1.7600.16385, 122.50 KB (125,440 bytes), 7/13/2009 5:09 PM)

Name [00000009] WAN Miniport (IP)  
Adapter Type Not Available  
Product Type WAN Miniport (IP)  
Installed Yes  
PNP Device ID ROOT\MS\_NDISWANIP\0000

Last Reset 5/5/2010 2:08 PM  
Index 9  
Service Name NdisWan  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address Not Available

Driver c:\windows\system32\drivers\ndiswan.sys (6.1.7600.16385, 160.50 KB (164,352 bytes), 7/13/2009 5:10 PM)

Name [00000010] Broadcom BCM5709C NetXtreme II GigE (NDIS VBD Client)  
Adapter Type Ethernet 802.3  
Product Type Broadcom BCM5709C NetXtreme II GigE (NDIS VBD Client)  
Installed Yes  
PNP Device ID B06BDRV\L2ND&PCI\_163914E4&SU\_BSYS\_7055103C&REV\_20\5&150DF45E&0&20050300

Last Reset 5/5/2010 2:08 PM  
Index 10  
Service Name l2nd  
IP Address 192.168.4.2, fe80::2543:1c18:7355:9325  
IP Subnet 255.255.0.0, 64  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address 18:A9:05:C5:0C:40

Driver c:\windows\system32\drivers\bxnd60a.sys (4.8.4.0, 70.00 KB (71,680 bytes), 6/10/2009 1:34 PM)

Name [00000011] RAS Async Adapter  
Adapter Type Wide Area Network (WAN)  
Product Type RAS Async Adapter  
Installed Yes  
PNP Device ID SW\{EEAB7790-C514-11D1-B42B-00805FC1270E}\ASYNCMAC

Last Reset 5/5/2010 2:08 PM  
Index 11  
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 20:41:53:59:4E:FF

Driver c:\windows\system32\drivers\asyncmac.sys (6.1.7600.16385, 22.50 KB (23,040 bytes), 7/13/2009 5:10 PM)

Name [00000012] Microsoft ISATAP Adapter  
Adapter Type Tunnel  
Product Type Microsoft ISATAP Adapter  
Installed Yes  
PNP Device ID ROOT\\*ISATAP\0001

Last Reset 5/5/2010 2:08 PM  
Index 12  
Service Name tunnel  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address Not Available

Driver c:\windows\system32\drivers\tunnel.sys (6.1.7600.16385, 122.50 KB (125,440 bytes), 7/13/2009 5:09 PM)

Name [00000013] Broadcom BCM5709C NetXtreme II GigE (NDIS VBD Client)  
Adapter Type Ethernet 802.3  
Product Type Broadcom BCM5709C NetXtreme II GigE (NDIS VBD Client)  
Installed Yes  
PNP Device ID B06BDRV\L2ND&PCI\_163914E4&SU\_BSYS\_7055103C&REV\_20\5&380F96BB&0&20050300

Last Reset 5/5/2010 2:08 PM  
Index 13  
Service Name l2nd  
IP Address 10.193.24.107, fe80::48da:d897:cb0a:ed06  
IP Subnet 255.255.255.0, 64  
Default IP Gateway 10.193.24.1  
DHCP Enabled Yes  
DHCP Server 10.193.8.64  
DHCP Lease Expires 5/5/2010 3:11 PM

DHCP Lease Obtained 5/5/2010 2:11 PM

MAC Address 18:A9:05:C5:0C:42

Driver c:\windows\system32\drivers\bxnd  
60a.sys (4.8.4.0, 70.00 KB (71,680 bytes),  
6/10/2009 1:34 PM)

Name [00000014] Microsoft ISATAP  
Adapter  
Adapter TypeTunnel  
Product TypeMicrosoft ISATAP Adapter  
Installed Yes  
PNP Device ID ROOT\\*ISATAP\0002

Last Reset 5/5/2010 2:08 PM  
Index 14  
Service Name tunnel  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address Not Available  
Driver c:\windows\system32\drivers\tunne  
l.sys (6.1.7600.16385, 122.50 KB (125,440  
bytes), 7/13/2009 5:09 PM)

Name [00000015] Broadcom BCM5709C  
NetXtreme II GigE (NDIS VBD Client)  
Adapter TypeEthernet 802.3  
Product TypeBroadcom BCM5709C NetXtreme II  
GigE (NDIS VBD Client)  
Installed Yes  
PNP Device ID B06BDRV\L2ND&PCI\_163914E4&SU  
BSYS\_7055103C&REV\_20\5&2753E79&0&200504  
00  
Last Reset 5/5/2010 2:08 PM  
Index 15  
Service Name l2nd  
IP Address 15.1.101.8,  
fe80::d80:7d5d:febb:2bc1  
IP Subnet 255.255.0.0, 64  
Default IP Gateway Not Available  
DHCP Enabled Yes  
DHCP Server 15.1.101.1  
DHCP Lease Expires 5/13/2010 2:11 PM  
DHCP Lease Obtained 5/5/2010 2:11 PM  
MAC Address 18:A9:05:C5:0C:46  
Driver c:\windows\system32\drivers\bxnd  
60a.sys (4.8.4.0, 70.00 KB (71,680 bytes),  
6/10/2009 1:34 PM)

Name [00000016] Microsoft ISATAP  
Adapter  
Adapter TypeTunnel  
Product TypeMicrosoft ISATAP Adapter  
Installed Yes  
PNP Device ID ROOT\\*ISATAP\0003

Last Reset 5/5/2010 2:08 PM  
Index 16  
Service Name tunnel  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address Not Available

Driver c:\windows\system32\drivers\tunne  
l.sys (6.1.7600.16385, 122.50 KB (125,440  
bytes), 7/13/2009 5:09 PM)  
Name [00000017] Microsoft 6to4 Adapter  
Adapter TypeTunnel  
Product TypeMicrosoft 6to4 Adapter  
Installed Yes  
PNP Device ID ROOT\\*6TO4MP\0000

Last Reset 5/5/2010 2:08 PM  
Index 17  
Service Name tunnel  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address Not Available  
Driver c:\windows\system32\drivers\tunne  
l.sys (6.1.7600.16385, 122.50 KB (125,440  
bytes), 7/13/2009 5:09 PM)

Name [00000018] HP NC550SFP Dual Port  
10GbE Server Adapter  
Adapter TypeNot Available  
Product TypeHP NC550SFP Dual Port 10GbE  
Server Adapter  
Installed Yes  
PNP Device ID Not Available  
Last Reset 5/5/2010 2:08 PM  
Index 18  
Service Name be2net  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled Yes  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address Not Available

Name [00000019] HP NC550SFP Dual Port  
10GbE Server Adapter  
Adapter TypeNot Available  
Product TypeHP NC550SFP Dual Port 10GbE  
Server Adapter  
Installed Yes  
PNP Device ID Not Available  
Last Reset 5/5/2010 2:08 PM  
Index 19  
Service Name be2net  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled Yes  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address Not Available

Name [00000020] Microsoft ISATAP  
Adapter  
Adapter TypeTunnel  
Product TypeMicrosoft ISATAP Adapter  
Installed Yes  
PNP Device ID ROOT\\*ISATAP\0004

Last Reset 5/5/2010 2:08 PM  
Index 20  
Service Name tunnel

IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address Not Available  
Driver c:\windows\system32\drivers\tunne  
l.sys (6.1.7600.16385, 122.50 KB (125,440  
bytes), 7/13/2009 5:09 PM)

Name [00000021] Intel(R) PRO/1000 PT  
Dual Port Server Adapter  
Adapter TypeNot Available  
Product TypeIntel(R) PRO/1000 PT Dual Port  
Server Adapter  
Installed Yes  
PNP Device ID Not Available  
Last Reset 5/5/2010 2:08 PM  
Index 21  
Service Name e1express  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled Yes  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address Not Available

Name [00000022] Intel(R) PRO/1000 PT  
Dual Port Server Adapter  
Adapter TypeNot Available  
Product TypeIntel(R) PRO/1000 PT Dual Port  
Server Adapter  
Installed Yes  
PNP Device ID Not Available  
Last Reset 5/5/2010 2:08 PM  
Index 22  
Service Name e1express  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled Yes  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address Not Available

[Protocol]

Item	Value
Name	MSAFD Tcpip [TCP/IP]
Connectionless Service	No
Guarantees Delivery	Yes
Guarantees Sequencing	Yes
Maximum Address Size	16 bytes
Maximum Message Size	0 bytes
Message Oriented	No
Minimum Address Size	16 bytes
Pseudo Stream Oriented	No
Supports Broadcasting	No
Supports Connect Data	No
Supports Disconnect Data	No
Supports Encryption	No
Supports Expedited Data	Yes
Supports Graceful Closing	Yes
Supports Guaranteed Bandwidth	No
Supports Multicasting	No
Name	MSAFD Tcpip [UDP/IP]
Connectionless Service	Yes
Guarantees Delivery	No

Guarantees Sequencing No  
 Maximum Address Size 16 bytes  
 Maximum Message Size 63.99 KB (65,527 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 MSAFD Tcpip [TCP/IPv6]  
 Connectionless Service No  
 Guarantees Delivery Yes  
 Guarantees Sequencing Yes  
 Maximum Address Size 28 bytes  
 Maximum Message Size 0 bytes  
 Message Oriented No  
 Minimum Address Size 28 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/IPv6]  
 Connectionless Service Yes  
 Guarantees Delivery No  
 Guarantees Sequencing No  
 Maximum Address Size 28 bytes  
 Maximum Message Size 63.99 KB (65,527 bytes)  
 Message Oriented Yes  
 Minimum Address Size 28 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 TCPv6 Service Provider

Connectionless Service No  
 Guarantees Delivery Yes  
 Guarantees Sequencing Yes  
 Maximum Address Size 28 bytes  
 Maximum Message Size 0 bytes  
 Message Oriented No  
 Minimum Address Size 28 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting No  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption Yes  
 Supports Expedited Data Yes  
 Supports Graceful Closing Yes  
 Supports Guaranteed Bandwidth No

Supports Multicasting No

Name RSVP TCP Service Provider  
 Connectionless Service No  
 Guarantees Delivery Yes  
 Guarantees Sequencing Yes  
 Maximum Address Size 16 bytes  
 Maximum Message Size 0 bytes  
 Message Oriented No  
 Minimum Address Size 16 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting No  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption Yes  
 Supports Expedited Data Yes  
 Supports Graceful Closing Yes  
 Supports Guaranteed Bandwidth No

Supports Multicasting No

Name RSVP UDPv6 Service Provider

Connectionless Service Yes  
 Guarantees Delivery No  
 Guarantees Sequencing No  
 Maximum Address Size 28 bytes  
 Maximum Message Size 63.99 KB (65,527 bytes)  
 Message Oriented Yes  
 Minimum Address Size 28 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 UDP Service Provider  
 Connectionless Service Yes  
 Guarantees Delivery No  
 Guarantees Sequencing No  
 Maximum Address Size 16 bytes  
 Maximum Message Size 63.99 KB (65,527 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

[WinSock]

Item Value  
 File c:\windows\syswow64\wsoc32.dll  
 Size 15.00 KB (15,360 bytes)  
 Version 6.1.7600.16385  
 File c:\windows\system32\wsoc32.dll  
 Size 18.00 KB (18,432 bytes)  
 Version 6.1.7600.16385

[Ports]

[Serial]

Item Value  
 Name Communications Port (COM1)

Status OK  
 PNP Device ID ACPI\PNP0501\0

Maximum Input Buffer Size0  
 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  
 IRQ Channel IRQ 4  
 I/O Port 0x000003F8-0x000003FF  
 Driver c:\windows\system32\drivers\serial.sys (6.1.7600.16385, 92.00 KB (94,208 bytes), 7/13/2009 5:00 PM)

[Parallel]

Item Value

[Storage]

[Drives]

Item Value  
 Drive C:  
 Description Local Fixed Disk  
 Compressed No  
 File System NTFS  
 Size 68.23 GB (73,265,049,600 bytes)  
 Free Space 56.03 GB (60,158,533,632 bytes)

Volume Name  
 Volume Serial Number 929E7AFC

Drive G:  
 Description Local Fixed Disk  
 Compressed No  
 File System NTFS  
 Size 465.73 GB (500,071,133,184 bytes)

Free Space 5.75 GB (6,172,364,800 bytes)

Volume Name Backup\_1  
 Volume Serial Number 24225A4E

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 S:  
 Description Local Fixed Disk  
 Compressed No  
 File System NTFS  
 Size 100.00 MB (104,853,504 bytes)

Free Space 71.86 MB (75,350,016 bytes)

Volume Name System Reserved  
 Volume Serial Number 029D53C1

Drive T:  
 Description Local Fixed Disk  
 Compressed No  
 File System NTFS  
 Size 100.00 GB (107,372,081,152 bytes)

Free Space 5.14 MB (5,390,336 bytes)

Volume Name TempLog  
 Volume Serial Number 10D4A0FD

[Disks]

Item Value  
 Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 33  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #89, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #89, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes  
 Partition Disk #89, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 67  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #90, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #90, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #90, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 68  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #91, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #91, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #91, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 69  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #92, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #92, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #92, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 70  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #93, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #93, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #93, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)

Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 71  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #94, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #94, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #94, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 72  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #95, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #95, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #95, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk

SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 73  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #96, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #96, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #96, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 74  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #97, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #97, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #97, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 75  
 Sectors/Track 63

Size 111.79 GB (120,031,511,040 bytes)  
 Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #98, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #98, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #98, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 76  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #99, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #99, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #99, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 77  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255



Partition Disk #100, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #100, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #100, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 78  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255

Partition Disk #101, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #101, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #101, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 79  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255

Partition Disk #102, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #102, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #102, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #102, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 80  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255

Partition Disk #103, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #103, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #103, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 81  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255

Partition Disk #104, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #104, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #104, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Size 61.66 GB (66,211,282,944 bytes)  
 Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 82  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255

Partition Disk #105, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #105, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #105, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 83  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255

Partition Disk #106, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #106, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #106, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive

Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 84  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #107, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #107, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #107, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 85  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #108, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #108, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #108, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes

Partition Type Fixed hard disk  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 86  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #109, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #109, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #109, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 87  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #110, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #110, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #110, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 88

Sectors/Track 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #111, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #111, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #111, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 89  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #112, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #112, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #112, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 90  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215

Tracks/Cylinder 255  
 Partition Disk #113, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #113, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #113, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 91  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #114, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #114, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #114, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 92  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #115, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes  
 Partition Disk #115, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #115, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 93  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #116, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #116, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #116, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 94  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #117, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #117, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes  
 Partition Disk #117, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 95  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #118, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #118, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #118, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 96  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #119, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #119, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #119, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 8  
 SCSI Target ID 97  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #120, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #120, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #120, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 9  
 SCSI Target ID 67  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #121, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #121, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #121, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)

Model ATA MK0120EAVDT SCSI Disk  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 9  
 SCSI Target ID 68  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #122, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #122, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #122, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 9  
 SCSI Target ID 69  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #123, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #123, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #123, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3

SCSI Logical Unit 0  
 SCSI Port 9  
 SCSI Target ID 70  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #124, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #124, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #124, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 9  
 SCSI Target ID 71  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #125, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #125, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #125, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 9  
 SCSI Target ID 72  
 Sectors/Track 63

Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #126, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #126, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #126, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 9  
SCSI Target ID 73  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #127, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #127, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #127, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 9  
SCSI Target ID 74  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215

Partition Disk #128, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #128, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #128, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 9  
SCSI Target ID 75  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #129, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #129, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #129, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 9  
SCSI Target ID 76  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #130, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Size 68.00 GB (73,027,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #130, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 9  
SCSI Target ID 77  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #131, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #131, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #131, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 9  
SCSI Target ID 78  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #132, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #132, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #132, Partition #2

Partition Size 61.66 GB (66,211,282,944 bytes)  
Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 9  
SCSI Target ID 79  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #133, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #133, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #133, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 9  
SCSI Target ID 80  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #134, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #134, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #134, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 9  
SCSI Target ID 81  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #135, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #135, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #135, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 9  
SCSI Target ID 82  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #136, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #136, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #136, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes

Description Fixed hard disk  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 9  
SCSI Target ID 83  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #137, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #137, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #137, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 9  
SCSI Target ID 84  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #138, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #138, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #138, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 9  
SCSI Target ID 85

Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #139, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #139, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #139, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 9  
 SCSI Target ID 86  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #140, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #140, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #140, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 9  
 SCSI Target ID 87  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545

Tracks/Cylinder 255  
 Partition Disk #141, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #141, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #141, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 9  
 SCSI Target ID 88  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #142, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #142, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #142, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 9  
 SCSI Target ID 89  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #143, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes  
 Partition Disk #143, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #143, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 9  
 SCSI Target ID 90  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #144, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #144, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #144, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 9  
 SCSI Target ID 91  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #145, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #145, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #145, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 9  
SCSI Target ID 92  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #146, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #146, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #146, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 9  
SCSI Target ID 93  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #147, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #147, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #147, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 9  
SCSI Target ID 94  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #148, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #148, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #148, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 9  
SCSI Target ID 95  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #149, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #149, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #149, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)

Model ATA MK0120EAVDT SCSI Disk  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 9  
SCSI Target ID 96  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #150, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #150, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #150, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 9  
SCSI Target ID 97  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #151, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #151, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #151, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3



SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 9  
SCSI Target ID 98  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #152, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #152, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #152, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device

Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 29  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #25, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #25, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #25, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device

Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 38  
Sectors/Track 63

Size 111.79 GB (120,031,511,040 bytes)  
Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #26, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #26, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #26, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device

Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 67  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #27, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #27, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #27, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device

Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 68  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255

Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #28, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #28, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device

Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 69  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #29, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #29, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #29, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device

Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 70  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #30, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #30, Partition #1

Partition Size 18.00 GB (19,327,352,832 bytes)  
Partition Starting Offset 34,495,004,672 bytes

Partition Disk #30, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 71  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #31, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #31, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #31, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 72  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #32, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #32, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #32, Partition #2

Partition Size 61.66 GB (66,211,282,944 bytes)  
Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 73  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #33, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #33, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #33, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 74  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #34, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #34, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #34, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive

Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 75  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #35, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #35, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #35, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 76  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #36, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #36, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #36, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk

Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 77  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #37, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #37, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #37, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device

Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk

Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 78  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #38, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #38, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #38, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device

Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk

Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 79

Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #39, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #39, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #39, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device

Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk

Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 80  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #40, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #40, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #40, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device

Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk

Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 81  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215

Partition Disk #41, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #41, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #41, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device

Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk

Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 82  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #42, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #42, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #42, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device

Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk

Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 83  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #43, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #43, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #43, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 84  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #44, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #44, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #44, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 85  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #45, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #45, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 86  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #46, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #46, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #46, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 87  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #47, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #47, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #47, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device

Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 88  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #48, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #48, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #48, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 89  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #49, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #49, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #49, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes

Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 6  
 SCSI Target ID 90  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #50, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #50, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #50, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device

Bytes/Sector 512  
 Media Loaded Yes

Media Type Fixed hard disk  
 Partitions 3

SCSI Bus 0  
 SCSI Logical Unit 0

SCSI Port 6  
 SCSI Target ID 91

Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #51, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #51, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #51, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device

Bytes/Sector 512  
 Media Loaded Yes

Media Type Fixed hard disk  
 Partitions 3

SCSI Bus 0  
 SCSI Logical Unit 0

SCSI Port 6

Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545

Total Tracks 3,721,215  
 Tracks/Cylinder 255

Partition Disk #52, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #52, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #52, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device

Bytes/Sector 512  
 Media Loaded Yes

Media Type Fixed hard disk  
 Partitions 3

SCSI Bus 0  
 SCSI Logical Unit 0

SCSI Port 6  
 SCSI Target ID 93

Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545

Total Tracks 3,721,215  
 Tracks/Cylinder 255

Partition Disk #53, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #53, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #53, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device

Bytes/Sector 512  
 Media Loaded Yes

Media Type Fixed hard disk  
 Partitions 3

SCSI Bus 0  
 SCSI Logical Unit 0

SCSI Port 6  
 SCSI Target ID 94

Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545

Tracks/Cylinder 255  
 Partition Disk #54, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #54, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #54, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device

Bytes/Sector 512  
 Media Loaded Yes

Media Type Fixed hard disk  
 Partitions 3

SCSI Bus 0  
 SCSI Logical Unit 0

SCSI Port 6  
 SCSI Target ID 95

Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545

Total Tracks 3,721,215  
 Tracks/Cylinder 255

Partition Disk #55, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #55, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #55, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device

Bytes/Sector 512  
 Media Loaded Yes

Media Type Fixed hard disk  
 Partitions 3

SCSI Bus 0  
 SCSI Logical Unit 0

SCSI Port 6  
 SCSI Target ID 96

Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545

Total Tracks 3,721,215  
 Tracks/Cylinder 255

Partition Disk #56, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #56, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #56, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 7  
SCSI Target ID 67  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #57, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #57, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #57, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 7  
SCSI Target ID 68  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #58, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #58, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes  
Partition Disk #58, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 7  
SCSI Target ID 69  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #59, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #59, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #59, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 7  
SCSI Target ID 70  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #60, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #60, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #60, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 7  
SCSI Target ID 71  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #61, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #61, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #61, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model ATA MK0120EAVDT SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 3  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 7  
SCSI Target ID 72  
Sectors/Track 63  
Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
Total Sectors 234,436,545  
Total Tracks 3,721,215  
Tracks/Cylinder 255  
Partition Disk #62, Partition #0  
Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #62, Partition #1  
Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #62, Partition #2  
Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)

Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 7  
 SCSI Target ID 73  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #63, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #63, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #63, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 7  
 SCSI Target ID 74  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #64, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #64, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #64, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk

SCSI Logical Unit 0  
 SCSI Port 7  
 SCSI Target ID 75  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #65, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #65, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #65, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 7  
 SCSI Target ID 76  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #66, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #66, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #66, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 7  
 SCSI Target ID 77  
 Sectors/Track 63

Size 111.79 GB (120,031,511,040 bytes)  
 Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #67, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #67, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #67, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device

Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 7  
 SCSI Target ID 78  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #68, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #68, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #68, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device

Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 7  
 SCSI Target ID 79  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255

Partition Disk #69, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #69, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #69, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 7  
 SCSI Target ID 80  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #70, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #70, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #70, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 7  
 SCSI Target ID 81  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #71, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #71, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 7  
 SCSI Target ID 82  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #72, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #72, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #72, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 7  
 SCSI Target ID 83  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #73, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #73, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #73, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Description Disk drive

Partition Size 61.66 GB (66,211,282,944 bytes)  
 Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 7  
 SCSI Target ID 84  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #74, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #74, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #74, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 7  
 SCSI Target ID 85  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #75, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #75, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #75, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive



Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 7  
 SCSI Target ID 86  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #76, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #76, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #76, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 7  
 SCSI Target ID 87  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #77, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #77, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #77, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes

Partition Type Fixed hard disk  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 7  
 SCSI Target ID 88  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #78, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #78, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #78, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 7  
 SCSI Target ID 89  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #79, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #79, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #79, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 7  
 SCSI Target ID 90

Sectors/Track 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #80, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #80, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #80, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 7  
 SCSI Target ID 91  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #81, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #81, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #81, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 7  
 SCSI Target ID 92  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215

Tracks/Cylinder 255  
 Partition Disk #82, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #82, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #82, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 7  
 SCSI Target ID 93  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #83, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #83, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #83, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 7  
 SCSI Target ID 94  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #84, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes  
 Partition Disk #84, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #84, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 7  
 SCSI Target ID 95  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #85, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #85, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #85, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 7  
 SCSI Target ID 96  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #86, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #86, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes  
 Partition Disk #86, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 7  
 SCSI Target ID 97  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #87, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #87, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #87, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model ATA MK0120EAVDT SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 3  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 7  
 SCSI Target ID 98  
 Sectors/Track 63  
 Size 111.79 GB (120,031,511,040 bytes)

Total Cylinders 14,593  
 Total Sectors 234,436,545  
 Total Tracks 3,721,215  
 Tracks/Cylinder 255  
 Partition Disk #88, Partition #0  
 Partition Size 32.00 GB (34,359,738,368 bytes)

Partition Starting Offset 135,266,304 bytes

Partition Disk #88, Partition #1  
 Partition Size 18.00 GB (19,327,352,832 bytes)

Partition Starting Offset 34,495,004,672 bytes

Partition Disk #88, Partition #2  
 Partition Size 61.66 GB (66,211,282,944 bytes)

Partition Starting Offset 53,822,357,504 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model HP LOGICAL VOLUME SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 1  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 3  
SCSI Target ID 4  
Sectors/Track 32  
Size 465.73 GB (500,071,956,480 bytes)

Total Cylinders 119,694  
Total Sectors 976,703,040  
Total Tracks 30,521,970  
Tracks/Cylinder 255  
Partition Disk #1, Partition #0  
Partition Size 465.73 GB (500,071,137,280 bytes)

Partition Starting Offset 1,048,576 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model HP LOGICAL VOLUME SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 1  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 3  
SCSI Target ID 5  
Sectors/Track 32  
Size 465.73 GB (500,071,956,480 bytes)

Total Cylinders 119,694  
Total Sectors 976,703,040  
Total Tracks 30,521,970  
Tracks/Cylinder 255  
Partition Disk #2, Partition #0  
Partition Size 465.73 GB (500,071,137,280 bytes)

Partition Starting Offset 1,048,576 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model HP LOGICAL VOLUME SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 1  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 3  
SCSI Target ID 6  
Sectors/Track 32  
Size 465.73 GB (500,071,956,480 bytes)

Total Cylinders 119,694  
Total Sectors 976,703,040  
Total Tracks 30,521,970  
Tracks/Cylinder 255  
Partition Disk #3, Partition #0  
Partition Size 465.73 GB (500,071,137,280 bytes)

Partition Starting Offset 1,048,576 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model HP LOGICAL VOLUME SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 1  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 3  
SCSI Target ID 7  
Sectors/Track 32  
Size 465.73 GB (500,071,956,480 bytes)

Total Cylinders 119,694  
Total Sectors 976,703,040  
Total Tracks 30,521,970  
Tracks/Cylinder 255  
Partition Disk #4, Partition #0  
Partition Size 465.73 GB (500,071,137,280 bytes)

Partition Starting Offset 1,048,576 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model HP LOGICAL VOLUME SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 1  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 3  
SCSI Target ID 8  
Sectors/Track 32  
Size 465.73 GB (500,071,956,480 bytes)

Total Cylinders 119,694  
Total Sectors 976,703,040  
Total Tracks 30,521,970  
Tracks/Cylinder 255  
Partition Disk #5, Partition #0  
Partition Size 465.73 GB (500,071,137,280 bytes)

Partition Starting Offset 1,048,576 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model HP LOGICAL VOLUME SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 1  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 3  
SCSI Target ID 9  
Sectors/Track 32  
Size 465.73 GB (500,071,956,480 bytes)

Total Cylinders 119,694  
Total Sectors 976,703,040  
Total Tracks 30,521,970  
Tracks/Cylinder 255  
Partition Disk #6, Partition #0  
Partition Size 465.73 GB (500,071,137,280 bytes)

Partition Starting Offset 1,048,576 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model HP LOGICAL VOLUME SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 1  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 3  
SCSI Target ID 10  
Sectors/Track 32  
Size 465.73 GB (500,071,956,480 bytes)

Total Cylinders 119,694  
Total Sectors 976,703,040  
Total Tracks 30,521,970  
Tracks/Cylinder 255  
Partition Disk #7, Partition #0  
Partition Size 465.73 GB (500,071,137,280 bytes)

Partition Starting Offset 1,048,576 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model HP LOGICAL VOLUME SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 1  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 3  
SCSI Target ID 11  
Sectors/Track 63  
Size 465.73 GB (500,072,348,160 bytes)

Total Cylinders 60,797  
Total Sectors 976,703,805  
Total Tracks 15,503,235  
Tracks/Cylinder 255  
Partition Disk #8, Partition #0  
Partition Size 465.73 GB (500,071,137,280 bytes)

Partition Starting Offset 1,048,576 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model HP LOGICAL VOLUME SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 1  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 3  
SCSI Target ID 12  
Sectors/Track 63  
Size 465.73 GB (500,072,348,160 bytes)

Total Cylinders 60,797  
Total Sectors 976,703,805  
Total Tracks 15,503,235  
Tracks/Cylinder 255  
Partition Disk #9, Partition #0  
Partition Size 465.73 GB (500,071,137,280 bytes)

Partition Starting Offset 1,048,576 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model HP LOGICAL VOLUME SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 3  
 SCSI Target ID 13  
 Sectors/Track 63  
 Size 465.73 GB (500,072,348,160 bytes)

Total Cylinders 60,797  
 Total Sectors 976,703,805  
 Total Tracks 15,503,235  
 Tracks/Cylinder 255  
 Partition Disk #10, Partition #0  
 Partition Size 465.73 GB (500,071,137,280 bytes)

Partition Starting Offset 1,048,576 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model HP LOGICAL VOLUME SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 3  
 SCSI Target ID 14  
 Sectors/Track 63  
 Size 465.73 GB (500,072,348,160 bytes)

Total Cylinders 60,797  
 Total Sectors 976,703,805  
 Total Tracks 15,503,235  
 Tracks/Cylinder 255  
 Partition Disk #11, Partition #0  
 Partition Size 465.73 GB (500,071,137,280 bytes)

Partition Starting Offset 1,048,576 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model HP LOGICAL VOLUME SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 3  
 SCSI Target ID 15  
 Sectors/Track 63  
 Size 465.73 GB (500,072,348,160 bytes)

Total Cylinders 60,797  
 Total Sectors 976,703,805  
 Total Tracks 15,503,235  
 Tracks/Cylinder 255  
 Partition Disk #12, Partition #0  
 Partition Size 465.73 GB (500,071,137,280 bytes)

Partition Starting Offset 1,048,576 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model HP LOGICAL VOLUME SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 2  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 3  
 SCSI Target ID 16  
 Sectors/Track 63  
 Size 465.73 GB (500,072,348,160 bytes)

Total Cylinders 60,797  
 Total Sectors 976,703,805  
 Total Tracks 15,503,235  
 Tracks/Cylinder 255  
 Partition Disk #13, Partition #0  
 Partition Size 1.00 MB (1,048,576 bytes)  
 Partition Starting Offset 17,408 bytes  
 Partition Disk #13, Partition #1  
 Partition Size 465.61 GB (499,940,055,552 bytes)

Partition Starting Offset 134,235,136 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model HP LOGICAL VOLUME SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 2  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 3  
 SCSI Target ID 17  
 Sectors/Track 63  
 Size 465.73 GB (500,072,348,160 bytes)

Total Cylinders 60,797  
 Total Sectors 976,703,805  
 Total Tracks 15,503,235  
 Tracks/Cylinder 255  
 Partition Disk #14, Partition #0  
 Partition Size 1.00 MB (1,048,576 bytes)  
 Partition Starting Offset 17,408 bytes  
 Partition Disk #14, Partition #1  
 Partition Size 465.61 GB (499,940,055,552 bytes)

Partition Starting Offset 134,235,136 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model HP LOGICAL VOLUME SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 2  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 3  
 SCSI Target ID 18  
 Sectors/Track 63  
 Size 465.73 GB (500,072,348,160 bytes)

Total Cylinders 60,797  
 Total Sectors 976,703,805

Tracks/Cylinder 255  
 Partition Disk #15, Partition #0  
 Partition Size 1.00 MB (1,048,576 bytes)  
 Partition Starting Offset 17,408 bytes  
 Partition Disk #15, Partition #1  
 Partition Size 465.61 GB (499,940,055,552 bytes)

Partition Starting Offset 134,235,136 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model HP LOGICAL VOLUME SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 2  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 3  
 SCSI Target ID 19  
 Sectors/Track 63  
 Size 465.73 GB (500,072,348,160 bytes)

Total Cylinders 60,797  
 Total Sectors 976,703,805  
 Total Tracks 15,503,235  
 Tracks/Cylinder 255  
 Partition Disk #16, Partition #0  
 Partition Size 1.00 MB (1,048,576 bytes)  
 Partition Starting Offset 17,408 bytes  
 Partition Disk #16, Partition #1  
 Partition Size 465.61 GB (499,940,055,552 bytes)

Partition Starting Offset 134,235,136 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model HP LOGICAL VOLUME SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 2  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 3  
 SCSI Target ID 20  
 Sectors/Track 63  
 Size 465.73 GB (500,072,348,160 bytes)

Total Cylinders 60,797  
 Total Sectors 976,703,805  
 Total Tracks 15,503,235  
 Tracks/Cylinder 255  
 Partition Disk #17, Partition #0  
 Partition Size 1.00 MB (1,048,576 bytes)  
 Partition Starting Offset 17,408 bytes  
 Partition Disk #17, Partition #1  
 Partition Size 465.61 GB (499,940,055,552 bytes)

Partition Starting Offset 134,235,136 bytes

Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model HP LOGICAL VOLUME SCSI Disk  
 Device  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 2  
 SCSI Bus 0

SCSI Logical Unit 0  
SCSI Port 3  
SCSI Target ID 21  
Sectors/Track 63  
Size 465.73 GB (500,072,348,160 bytes)

Total Cylinders 60,797  
Total Sectors 976,703,805  
Total Tracks 15,503,235  
Tracks/Cylinder 255  
Partition Disk #18, Partition #0  
Partition Size 1.00 MB (1,048,576 bytes)  
Partition Starting Offset 17,408 bytes  
Partition Disk #18, Partition #1  
Partition Size 465.61 GB (499,940,055,552 bytes)

Partition Starting Offset 134,235,136 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model HP LOGICAL VOLUME SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 2  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 3  
SCSI Target ID 22  
Sectors/Track 63  
Size 683.51 GB (733,908,833,280 bytes)

Total Cylinders 89,226  
Total Sectors 1,433,415,690  
Total Tracks 22,752,630  
Tracks/Cylinder 255  
Partition Disk #19, Partition #0  
Partition Size 1.00 MB (1,048,576 bytes)  
Partition Starting Offset 17,408 bytes  
Partition Disk #19, Partition #1  
Partition Size 683.38 GB (733,774,993,920 bytes)

Partition Starting Offset 134,235,136 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model HP LOGICAL VOLUME SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 2  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 3  
SCSI Target ID 23  
Sectors/Track 63  
Size 683.51 GB (733,908,833,280 bytes)

Total Cylinders 89,226  
Total Sectors 1,433,415,690  
Total Tracks 22,752,630  
Tracks/Cylinder 255  
Partition Disk #20, Partition #0  
Partition Size 1.00 MB (1,048,576 bytes)  
Partition Starting Offset 17,408 bytes  
Partition Disk #20, Partition #1  
Partition Size 683.38 GB (733,774,993,920 bytes)

Partition Starting Offset 134,235,136 bytes

Manufacturer (Standard disk drives)  
Model HP LOGICAL VOLUME SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 2  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 3  
SCSI Target ID 24  
Sectors/Track 63  
Size 683.51 GB (733,908,833,280 bytes)

Total Cylinders 89,226  
Total Sectors 1,433,415,690  
Total Tracks 22,752,630  
Tracks/Cylinder 255  
Partition Disk #21, Partition #0  
Partition Size 1.00 MB (1,048,576 bytes)  
Partition Starting Offset 17,408 bytes  
Partition Disk #21, Partition #1  
Partition Size 683.38 GB (733,774,993,920 bytes)

Partition Starting Offset 134,235,136 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model HP LOGICAL VOLUME SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 2  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 3  
SCSI Target ID 25  
Sectors/Track 63  
Size 683.51 GB (733,908,833,280 bytes)

Total Cylinders 89,226  
Total Sectors 1,433,415,690  
Total Tracks 22,752,630  
Tracks/Cylinder 255  
Partition Disk #22, Partition #0  
Partition Size 1.00 MB (1,048,576 bytes)  
Partition Starting Offset 17,408 bytes  
Partition Disk #22, Partition #1  
Partition Size 683.38 GB (733,774,993,920 bytes)

Partition Starting Offset 134,235,136 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model HP LOGICAL VOLUME SCSI Disk  
Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 2  
SCSI Bus 0  
SCSI Logical Unit 0  
SCSI Port 2  
SCSI Target ID 4  
Sectors/Track 32  
Size 68.33 GB (73,372,631,040 bytes)

Total Cylinders 17,562  
Total Sectors 143,305,920  
Total Tracks 4,478,310  
Tracks/Cylinder 255  
Partition Disk #0, Partition #0

Partition Size 100.00 MB (104,857,600 bytes)  
Partition Starting Offset 1,048,576 bytes

Partition Disk #0, Partition #1  
Partition Size 68.23 GB (73,265,053,696 bytes)

Partition Starting Offset 105,906,176 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model HP MSA2324fc SCSI Disk Device

Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 2  
SCSI Bus 0  
SCSI Logical Unit 2  
SCSI Port 5  
SCSI Target ID 0  
Sectors/Track 63  
Size 1.36 TB (1,498,769,395,200 bytes)

Total Cylinders 182,215  
Total Sectors 2,927,283,975  
Total Tracks 46,464,825  
Tracks/Cylinder 255  
Partition Disk #24, Partition #0  
Partition Size 1.00 MB (1,048,576 bytes)  
Partition Starting Offset 17,408 bytes  
Partition Disk #24, Partition #1  
Partition Size 1.36 TB (1,498,638,612,992 bytes)

Partition Starting Offset 134,235,136 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model HP MSA2324fc SCSI Disk Device

Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 2  
SCSI Bus 0  
SCSI Logical Unit 1  
SCSI Port 4  
SCSI Target ID 0  
Sectors/Track 63  
Size 1.36 TB (1,498,769,395,200 bytes)

Total Cylinders 182,215  
Total Sectors 2,927,283,975  
Total Tracks 46,464,825  
Tracks/Cylinder 255  
Partition Disk #23, Partition #0  
Partition Size 1.00 MB (1,048,576 bytes)  
Partition Starting Offset 17,408 bytes  
Partition Disk #23, Partition #1  
Partition Size 1.36 TB (1,498,638,612,992 bytes)

Partition Starting Offset 134,235,136 bytes

[SCSI]

Item Value  
Name LSI Adapter, SAS2 2008 Falcon -  
StorPort  
Manufacturer LSI Corporation  
Status OK

PNP Device ID  
 PCI\VEN\_1000&DEV\_0072&SUBSYS  
 \_30B01000&REV\_02\4&1F5076ED&0&0040

Memory Address 0xFB4F0000-  
 0xFB4F3FFF  
 Memory Address 0xFB480000-  
 0xFB4BFFFF  
 IRQ Channel IRQ 4294967222  
 IRQ Channel IRQ 4294967221  
 IRQ Channel IRQ 4294967220  
 IRQ Channel IRQ 4294967219  
 IRQ Channel IRQ 4294967218  
 IRQ Channel IRQ 4294967217  
 IRQ Channel IRQ 4294967216  
 IRQ Channel IRQ 4294967215  
 IRQ Channel IRQ 4294967214  
 IRQ Channel IRQ 4294967213  
 IRQ Channel IRQ 4294967212  
 IRQ Channel IRQ 4294967211  
 IRQ Channel IRQ 4294967210  
 IRQ Channel IRQ 4294967209  
 IRQ Channel IRQ 4294967208  
 Driver  
 c:\windows\system32\drivers\lsi\_sa  
 s2.sys (2.0.17.0, 76.51 KB (78,344 bytes),  
 4/12/2010 7:35 AM)

Name LSI Adapter, SAS2 2008 Falcon -  
 StorPort  
 Manufacturer LSI Corporation  
 Status OK  
 PNP Device ID  
 PCI\VEN\_1000&DEV\_0072&SUBSYS  
 \_30B01000&REV\_02\4&24BF3497&0&0038

Memory Address 0xFB5F0000-  
 0xFB5F3FFF  
 Memory Address 0xFB580000-  
 0xFB5BFFFF  
 IRQ Channel IRQ 4294967237  
 IRQ Channel IRQ 4294967236  
 IRQ Channel IRQ 4294967235  
 IRQ Channel IRQ 4294967234  
 IRQ Channel IRQ 4294967233  
 IRQ Channel IRQ 4294967232  
 IRQ Channel IRQ 4294967231  
 IRQ Channel IRQ 4294967230  
 IRQ Channel IRQ 4294967229  
 IRQ Channel IRQ 4294967228  
 IRQ Channel IRQ 4294967227  
 IRQ Channel IRQ 4294967226  
 IRQ Channel IRQ 4294967225  
 IRQ Channel IRQ 4294967224  
 IRQ Channel IRQ 4294967223  
 Driver  
 c:\windows\system32\drivers\lsi\_sa  
 s2.sys (2.0.17.0, 76.51 KB (78,344 bytes),  
 4/12/2010 7:35 AM)

Name Emulex LightPulse AJ763A/AH403A,  
 PCI Slot 4, FC Storport Miniport Driver  
 Manufacturer Emulex  
 Status OK  
 PNP Device ID  
 PCI\VEN\_10DF&DEV\_F100&SUBSYS  
 \_3282103C&REV\_03\4&3AF801D4&0&0018

Memory Address 0xFB6F0000-  
 0xFB6F0FFF  
 Memory Address 0xFB6E0000-  
 0xFB6E3FFF  
 IRQ Channel IRQ 4294967268  
 IRQ Channel IRQ 4294967267  
 IRQ Channel IRQ 4294967266

IRQ Channel IRQ 4294967264  
 IRQ Channel IRQ 4294967263  
 IRQ Channel IRQ 4294967262  
 IRQ Channel IRQ 4294967261  
 Driver  
 c:\windows\system32\drivers\elxsto  
 r.sys (7.2.30.16, 611.01 KB (625,672 bytes),  
 3/8/2010 10:58 AM)

Name LSI Adapter, SAS2 2008 Falcon -  
 StorPort  
 Manufacturer LSI Corporation  
 Status OK  
 PNP Device ID  
 PCI\VEN\_1000&DEV\_0072&SUBSYS  
 \_30B01000&REV\_02\4&32017552&0&0030

Memory Address 0xFBFF0000-  
 0xFBFF3FFF  
 Memory Address 0xFB800000-  
 0xFB8BFFFF  
 IRQ Channel IRQ 4294967252  
 IRQ Channel IRQ 4294967251  
 IRQ Channel IRQ 4294967250  
 IRQ Channel IRQ 4294967249  
 IRQ Channel IRQ 4294967248  
 IRQ Channel IRQ 4294967247  
 IRQ Channel IRQ 4294967246  
 IRQ Channel IRQ 4294967245  
 IRQ Channel IRQ 4294967244  
 IRQ Channel IRQ 4294967243  
 IRQ Channel IRQ 4294967242  
 IRQ Channel IRQ 4294967241  
 IRQ Channel IRQ 4294967240  
 IRQ Channel IRQ 4294967239  
 IRQ Channel IRQ 4294967238  
 Driver  
 c:\windows\system32\drivers\lsi\_sa  
 s2.sys (2.0.17.0, 76.51 KB (78,344 bytes),  
 4/12/2010 7:35 AM)

Name Emulex LightPulse AJ763A/AH403A,  
 PCI Slot 4, FC Storport Miniport Driver  
 Manufacturer Emulex  
 Status OK  
 PNP Device ID  
 PCI\VEN\_10DF&DEV\_F100&SUBSYS  
 \_3282103C&REV\_03\4&3AF801D4&0&0018

Memory Address 0xFB6D0000-  
 0xFB6D0FFF  
 Memory Address 0xFB6C0000-  
 0xFB6C3FFF  
 IRQ Channel IRQ 4294967260  
 IRQ Channel IRQ 4294967259  
 IRQ Channel IRQ 4294967258  
 IRQ Channel IRQ 4294967257  
 IRQ Channel IRQ 4294967256  
 IRQ Channel IRQ 4294967255  
 IRQ Channel IRQ 4294967254  
 IRQ Channel IRQ 4294967253  
 Driver  
 c:\windows\system32\drivers\elxsto  
 r.sys (7.2.30.16, 611.01 KB (625,672 bytes),  
 3/8/2010 10:58 AM)

Name Smart Array P410i Controller  
 Manufacturer Hewlett-Packard Company  
 Status OK  
 PNP Device ID  
 PCI\VEN\_103C&DEV\_323A&SUBSYS  
 \_3245103C&REV\_01\4&3251E38F&0&0008

Memory Address 0xFAC00000-  
 0xFAC00000  
 Memory Address 0xFABF0000-  
 0xFABF0FFF  
 IRQ Channel IRQ 4294967284  
 IRQ Channel IRQ 4294967283  
 IRQ Channel IRQ 4294967282  
 IRQ Channel IRQ 4294967281  
 IRQ Channel IRQ 4294967280  
 IRQ Channel IRQ 4294967279  
 IRQ Channel IRQ 4294967278  
 IRQ Channel IRQ 4294967277  
 Driver  
 c:\windows\system32\drivers\hpcis  
 ss2.sys (6.20.0.64, 153.10 KB (156,776 bytes),  
 4/9/2010 10:05 AM)

Name Smart Array P411 Controller  
 Manufacturer Hewlett-Packard Company  
 Status OK  
 PNP Device ID  
 PCI\VEN\_103C&DEV\_323A&SUBSYS  
 \_3247103C&REV\_01\4&120E3632&0&0028

Memory Address 0xFB800000-  
 0xFB8BFFFF  
 Memory Address 0xFB7F0000-  
 0xFB7F0FFF  
 IRQ Channel IRQ 4294967276  
 IRQ Channel IRQ 4294967275  
 IRQ Channel IRQ 4294967274  
 IRQ Channel IRQ 4294967273  
 IRQ Channel IRQ 4294967272  
 IRQ Channel IRQ 4294967271  
 IRQ Channel IRQ 4294967270  
 IRQ Channel IRQ 4294967269  
 Driver  
 c:\windows\system32\drivers\hpcis  
 ss2.sys (6.20.0.64, 153.10 KB (156,776 bytes),  
 4/9/2010 10:05 AM)

Name LSI Adapter, SAS2 2008 Falcon -  
 StorPort  
 Manufacturer LSI Corporation  
 Status OK  
 PNP Device ID  
 PCI\VEN\_1000&DEV\_0072&SUBSYS  
 \_30B01000&REV\_02\4&1840574B&0&0048

Memory Address 0xFB3F0000-  
 0xFB3F3FFF  
 Memory Address 0xFB380000-  
 0xFB3BFFFF  
 IRQ Channel IRQ 4294967207  
 IRQ Channel IRQ 4294967206  
 IRQ Channel IRQ 4294967205  
 IRQ Channel IRQ 4294967204  
 IRQ Channel IRQ 4294967203  
 IRQ Channel IRQ 4294967202  
 IRQ Channel IRQ 4294967201  
 IRQ Channel IRQ 4294967200  
 IRQ Channel IRQ 4294967199  
 IRQ Channel IRQ 4294967198  
 IRQ Channel IRQ 4294967197  
 IRQ Channel IRQ 4294967196  
 IRQ Channel IRQ 4294967195  
 IRQ Channel IRQ 4294967194  
 IRQ Channel IRQ 4294967193  
 Driver  
 c:\windows\system32\drivers\lsi\_sa  
 s2.sys (2.0.17.0, 76.51 KB (78,344 bytes),  
 4/12/2010 7:35 AM)

[IDE]

Item Value  
 Name Standard Dual Channel PCI IDE  
 Controller  
 Manufacturer (Standard IDE ATA/ATAPI  
 controllers)  
 Status OK  
 PNP Device ID  
 PCI\VEN\_8086&DEV\_3A20&SUBSYS  
 \_330D103C&REV\_00\3&33FD14CA&0&FA  
 I/O Port 0x00001080-0x00001087  
 I/O Port 0x00001088-0x0000108B  
 I/O Port 0x00001090-0x00001097  
 I/O Port 0x00001098-0x0000109B  
 I/O Port 0x000010A0-0x000010AF  
 I/O Port 0x000010B0-0x000010BF  
 IRQ Channel IRQ 17  
 Driver

c:\windows\system32\drivers\pciide  
 .sys (6.1.7600.16385, 12.06 KB (12,352 bytes),  
 7/13/2009 4:19 PM)

Name ATA Channel 0  
 Manufacturer (Standard IDE ATA/ATAPI  
 controllers)  
 Status OK  
 PNP Device ID  
 PCIIDE\IDECHANNEL\4&68F06E2&  
 0&0  
 Driver  
 c:\windows\system32\drivers\atapi.  
 sys (6.1.7600.16385, 23.56 KB (24,128 bytes),  
 7/13/2009 4:19 PM)

Name ATA Channel 1  
 Manufacturer (Standard IDE ATA/ATAPI  
 controllers)  
 Status OK  
 PNP Device ID  
 PCIIDE\IDECHANNEL\4&68F06E2&  
 0&1  
 Driver  
 c:\windows\system32\drivers\atapi.  
 sys (6.1.7600.16385, 23.56 KB (24,128 bytes),  
 7/13/2009 4:19 PM)

[Printing]

Can't Collect Information

[Problem Devices]

Device Code	PNP Device ID	Error

[USB]

Device PNP Device ID  
 Intel(R) ICH10 Family USB Universal Host  
 Controller - 3A39  
 PCI\VEN\_8086&DEV\_3A39&SUBSYS  
 \_330D103C&REV\_00\3&33FD14CA&0&EB  
 Intel(R) ICH10 Family USB Enhanced Host  
 Controller - 3A3A  
 PCI\VEN\_8086&DEV\_3A3A&SUBSYS  
 \_330D103C&REV\_00\3&33FD14CA&0&EF  
 Intel(R) ICH10 Family USB Universal Host  
 Controller - 3A34  
 PCI\VEN\_8086&DEV\_3A34&SUBSYS  
 \_330D103C&REV\_00\3&33FD14CA&0&E8

Standard Universal PCI to USB Host Controller  
 PCI\VEN\_103C&DEV\_3300&SUBSYS  
 \_3309103C&REV\_01\4&20DD2EEF&0&04E4  
 Intel(R) ICH10 Family USB Universal Host  
 Controller - 3A35  
 PCI\VEN\_8086&DEV\_3A35&SUBSYS  
 \_330D103C&REV\_00\3&33FD14CA&0&E9  
 Intel(R) ICH10 Family USB Universal Host  
 Controller - 3A36  
 PCI\VEN\_8086&DEV\_3A36&SUBSYS  
 \_330D103C&REV\_00\3&33FD14CA&0&EA

[Software Environment]

[System Drivers]

Name	Description	File	Type
	Started	Start Mode	State
	Status	Error Control	Accept
Pause	Accept Stop		
1394ohci Controller	1394 OHCI Compliant Host Controller	c:\windows\system32\drivers\1394	
ohci.sys	Kernel Driver No	Manual	Stopped OK Normal
acpi	Microsoft ACPI Driver	c:\windows\system32\drivers\acpi.s	
ys	Kernel Driver Yes	Boot	Running OK Critical
acpipmi	ACPI Power Meter Driver	c:\windows\system32\drivers\acpip	
mi.sys	Kernel Driver Yes	Manual	Running OK Normal
adp94xx	adp94xx	c:\windows\system32\drivers\adp9	
4xx.sys	Kernel Driver No	Manual	Stopped OK Normal
adpahci	adpahci	c:\windows\system32\drivers\adpa	
hci.sys	Kernel Driver No	Manual	Stopped OK Normal
adpu320	adpu320	c:\windows\system32\drivers\adpu	
320.sys	Kernel Driver No	Manual	Stopped OK Normal
afd	Ancillary Function Driver for		
Winsock		c:\windows\system32\drivers\afd.sy	
s	Kernel Driver Yes	System	Running OK Normal
agp440	Intel AGP Bus Filter	c:\windows\system32\drivers\agp4	
40.sys	Kernel Driver No	Manual	Stopped OK Normal
aliide	aliide	c:\windows\system32\drivers\aliide.	
sys	Kernel Driver No	Manual	Stopped OK Critical

amdide	amdide	c:\windows\system32\drivers\amd	
de.sys	Kernel Driver No	Manual	Stopped OK Critical
amdK8	AMD K8 Processor Driver	c:\windows\system32\drivers\amdK	
8.sys	Kernel Driver No	Manual	Stopped OK Normal
amdppm	AMD Processor Driver	c:\windows\system32\drivers\amdpp	
pm.sys	Kernel Driver No	Manual	Stopped OK Normal
amdsata	amdsata	c:\windows\system32\drivers\amds	
ata.sys	Kernel Driver No	Manual	Stopped OK Normal
amdsbs	amdsbs	c:\windows\system32\drivers\amds	
bs.sys	Kernel Driver No	Manual	Stopped OK Normal
amdxtata	amdxtata	c:\windows\system32\drivers\amdxt	
ata.sys	Kernel Driver Yes	Boot	Running OK Normal
appid	AppID Driver	c:\windows\system32\drivers\appid	
.sys	Kernel Driver No	Manual	Stopped OK Normal
arc	arc	c:\windows\system32\drivers\arc.sy	
s	Kernel Driver No	Manual	Stopped OK Normal
arcsas	arcsas	c:\windows\system32\drivers\arcsa	
s.sys	Kernel Driver No	Manual	Stopped OK Normal
asyncmac	RAS Asynchronous Media Driver	c:\windows\system32\drivers\asyn	
mac.sys	Kernel Driver Yes	Manual	Running OK Normal
atapi	IDE Channel	c:\windows\system32\drivers\atapi.	
sys	Kernel Driver Yes	Boot	Running OK Critical
b06bdrv	Broadcom NetXtreme II VBD	c:\windows\system32\drivers\bxvbd	
a.sys	Kernel Driver Yes	Manual	Running OK Normal
b57nd60a	Broadcom NetXtreme Gigabit	c:\windows\system32\drivers\b57n	
d60a.sys	Kernel Driver No	Manual	Stopped OK Normal
be2net	ServerEngines BladeEngine2 10Gb		
NIC		c:\windows\system32\drivers\be2n	
d62.sys	Kernel Driver No	Manual	Stopped OK Normal

beep	Beep
sys	c:\windows\system32\drivers\beep. Kernel Driver No Manual Stopped OK Normal No No
bfad driver	Brocade 425/825 4G/8G FC HBA
sys	c:\windows\system32\drivers\bfad. Kernel Driver Yes Boot Running OK Normal No Yes
bfad_up filter driver	Brocade 415/815 4G/8G FC HBA
up.sys	c:\windows\system32\drivers\bfad_ Kernel Driver Yes Boot Running OK Normal No Yes
blbdrive	blbdrive
ve.sys	c:\windows\system32\drivers\blbdri Kernel Driver Yes System Running OK Normal No Yes
bnadimp	Brocade 10G Ethernet Service
md6.sys	c:\windows\system32\drivers\bnadi Kernel Driver No Manual Stopped OK Normal No No
browser	Browser Support Driver
er.sys	c:\windows\system32\drivers\bows File System Driver Yes Manual Running OK Normal No Yes
brfiltlo Filter Driver	Brother USB Mass-Storage Lower
o.sys	c:\windows\system32\drivers\brfiltl Kernel Driver No Manual Stopped OK Normal No No
brfiltup Filter Driver	Brother USB Mass-Storage Upper
p.sys	c:\windows\system32\drivers\brfilitu Kernel Driver No Manual Stopped OK Normal No No
brserid Driver (WDM)	Brother MFC Serial Port Interface
d.sys	c:\windows\system32\drivers\brseri Kernel Driver No Manual Stopped OK Normal No No
brserwdm	Brother WDM Serial driver
wdm.sys	c:\windows\system32\drivers\brser Kernel Driver No Manual Stopped OK Normal No No
brusbmdm	Brother MFC USB Fax Only Modem
mdm.sys	c:\windows\system32\drivers\brusb Kernel Driver No Manual Stopped OK Normal No No
brusbser	Brother MFC USB Serial WDM Driver
ser.sys	c:\windows\system32\drivers\brusb Kernel Driver No Manual Stopped OK Normal No No
cdfs	CD/DVD File System Reader
ys	c:\windows\system32\drivers\cdfs.s File System Driver No Disabled Stopped OK Normal No No

cdrom	CD-ROM Driver
m.sys	c:\windows\system32\drivers\cdro Kernel Driver Yes System Running OK Normal Common Log (GFS)
cdfs	c:\windows\system32\cdfs.sys Kernel Driver Yes Boot Running OK Critical No Yes
cmbatt Battery Driver	Microsoft ACPI Control Method
tt.sys	c:\windows\system32\drivers\cmba Kernel Driver No Manual Stopped OK Normal No No
cmdide	cmdide
e.sys	c:\windows\system32\drivers\cmdid Kernel Driver No Manual Stopped OK Critical No No
cng	CNG
ys	c:\windows\system32\drivers\cng.s Kernel Driver Yes Boot Running OK Critical No Yes
compbatt	Compbatt
batt.sys	c:\windows\system32\drivers\comp Kernel Driver No Manual Stopped OK Critical No No
compositebus Enumerator Driver	Composite Bus
ositebus.sys	c:\windows\system32\drivers\comp Kernel Driver Yes Manual Running OK Normal No Yes
cpqteam	HP Network Configuration Utility
am.sys	c:\windows\system32\drivers\cpqte Kernel Driver No Manual Stopped OK Normal No No
crdisk	Crdisk Filter Driver
k.sys	c:\windows\system32\drivers\crdis Kernel Driver No Disabled Stopped OK Normal No No
dfsc	DFS Namespace Client Driver
ys	c:\windows\system32\drivers\dfsc.s File System Driver Yes System Running OK Normal No Yes
discache	System Attribute Cache
he.sys	c:\windows\system32\drivers\discac Kernel Driver Yes System Running OK Normal No Yes
disk	Disk Driver
ys	c:\windows\system32\drivers\disk.s Kernel Driver Yes Boot Running OK Normal No Yes
dxgkrnl	LDDM Graphics Subsystem
nl.sys	c:\windows\system32\drivers\dxgkr Kernel Driver No Manual Stopped OK Ignore No No
e1express	Intel(R) PRO/1000 PCI Express
Network Connection Driver	
032e.sys	c:\windows\system32\drivers\e1e6 Kernel Driver No Manual Stopped OK Normal No No

ebdrv VBD	Broadcom NetXtreme II 10 GigE
.sys	c:\windows\system32\drivers\evbda Kernel Driver No Manual Stopped OK Normal Flex PLUS Service
elxplus	Intel Flex PLUS Service
s.sys	c:\windows\system32\drivers\elxplu Kernel Driver Yes Boot Running OK Normal No Yes
elxstor	elxstor
r.sys	c:\windows\system32\drivers\elxsto Kernel Driver Yes Boot Running OK Normal No Yes
errdev Driver	Microsoft Hardware Error Device
v.sys	c:\windows\system32\drivers\errde Kernel Driver No Manual Stopped OK Normal No No
exfat	exFAT File System Driver
sys	c:\windows\system32\drivers\exfat. File System Driver No Manual Stopped OK Normal No No
fastfat	FAT12/16/32 File System Driver
t.sys	c:\windows\system32\drivers\fastfa File System Driver No Manual Stopped OK Normal No No
fdc	Floppy Disk Controller Driver
s	c:\windows\system32\drivers\fdc.sy Kernel Driver No Manual Stopped OK Normal No No
fileinfo	File Information FS MiniFilter
o.sys	c:\windows\system32\drivers\fileinf File System Driver No Manual Stopped OK Normal No No
filetrace	Filetrace
ce.sys	c:\windows\system32\drivers\filetra File System Driver No Manual Stopped OK Normal No No
flpydisk	Floppy Disk Driver
sk.sys	c:\windows\system32\drivers\flpydi Kernel Driver No Manual Stopped OK Normal No No
fltmgr	FltMgr
.sys	c:\windows\system32\drivers\fltmgr File System Driver Yes Boot Running OK Critical No Yes
fsdepends	File System Dependency Minifilter
ends.sys	c:\windows\system32\drivers\fsdep File System Driver No Manual Stopped OK Critical No No
gagp30kx K8 Processor	Microsoft Generic AGPv3.0 Filter for Platforms
30kx.sys	c:\windows\system32\drivers\gagp Kernel Driver No Manual Stopped OK Normal No No



hdaudbus	Microsoft UAA Bus Driver for High Definition Audio			intelppm	Intel Processor Driver			lsi_fc	LSI_FC		
dbus.sys	c:\windows\system32\drivers\hdau	Kernel Driver No	Manual	pm.sys	Kernel Driver Yes	Manual	Running	sys	Kernel Driver No	Manual	Stopped
		OK	Normal	ioatdma	Intel(R) QuickPath Technology			lsi_sas	LSI_SAS	No	Normal
hidbatt	HID UPS Battery Driver							s.sys	Kernel Driver No	Manual	Stopped
tt.sys	c:\windows\system32\drivers\hidba	Kernel Driver No	Manual	0x64.sys	Kernel Driver No	Manual	Stopped		OK	Normal	No
		OK	Normal		No	No		lsi_sas2	LSI_SAS2		
hidusb	Microsoft HID Class Driver			ipfilterdriver	IP Traffic Filter Driver			s2.sys	Kernel Driver Yes	Boot	Running
b.sys	c:\windows\system32\drivers\hidus	Kernel Driver Yes	Manual	v.sys	Kernel Driver No	Manual	Stopped		OK	Normal	No
		Running	OK		No	No		lsi_scsi	LSI_SCSI		
hpciss2	HpCISs2			ipmidrv	IPMIDRV			si.sys	Kernel Driver No	Manual	Stopped
ss2.sys	c:\windows\system32\drivers\hpcis	Kernel Driver Yes	Boot	rv.sys	Kernel Driver Yes	Manual	Running		OK	Normal	No
		Running	OK		No	Yes		luafv	UAC File Virtualization		
hpqilo3chif	HP ProLiant Management Controller Driver (CHIF)			ipnat	IP Network Address Translator			sys	File System Driver	Yes	Auto
3chif.sys	c:\windows\system32\drivers\hpqilo	Kernel Driver Yes	Manual	sys	Kernel Driver No	Manual	Stopped		Running	OK	Normal
		Running	OK		No	No		megagas	megagas		
hpqilo3core	HP ProLiant Management Controller Driver (CORE)			isapnp	isapnp			sas.sys	Kernel Driver No	Manual	Stopped
3core.sys	c:\windows\system32\drivers\hpqilo	Kernel Driver Yes	Manual	p.sys	Kernel Driver No	Manual	Running		OK	Normal	No
		Running	OK		No	Critical		megasr	MegaSR		
hpqilo3whea	HP ProLiant Management Controller Driver (WHEA)			iscsiprt	iScsiPort Driver			sr.sys	Kernel Driver No	Manual	Stopped
3whea.sys	c:\windows\system32\drivers\hpqilo	Kernel Driver Yes	System	si.sys	Kernel Driver No	Manual	Running		OK	Normal	No
		Running	OK		No	No		modem	Modem		
hpsamd	HpSAMD			kbdclass	Keyboard Class Driver			m.sys	Kernel Driver No	Manual	Stopped
md.sys	c:\windows\system32\drivers\hpsa	Kernel Driver Yes	Boot	ass.sys	Kernel Driver Yes	Manual	Running		OK	Ignore	No
		Running	OK		Running	OK		monitor	Microsoft Monitor Class Function Driver Service		
http	HTTP			kbdhid	Keyboard HID Driver			or.sys	Kernel Driver Yes	Manual	Running
ys	c:\windows\system32\drivers\http.s	Kernel Driver Yes	Manual	d.sys	Kernel Driver Yes	Manual	Running		OK	Normal	No
		Running	OK		No	Ignore		mouclass	Mouse Class Driver		
hwpolicy	Hardware Policy Driver			ksecdd	KSecDD			ass.sys	Kernel Driver Yes	Manual	Running
icy.sys	c:\windows\system32\drivers\hwpol	Kernel Driver Yes	Boot	d.sys	Kernel Driver Yes	Boot	Running		OK	Critical	No
		Running	OK		No	Yes		mouhid	Mouse HID Driver		
i8042prt	i8042 Keyboard and PS/2 Mouse Port Driver			ksecpkg	KSecPkg			id.sys	Kernel Driver Yes	Manual	Running
prt.sys	c:\windows\system32\drivers\i8042	Kernel Driver Yes	Manual	kg.sys	Kernel Driver Yes	Boot	Running		OK	Ignore	No
		Running	OK		Running	OK		mountmgr	Mount Point Manager		
iastorv	iaStorV			ksthunk	Kernel Streaming Thunks			tmgr.sys	Kernel Driver Yes	Boot	Running
v.sys	c:\windows\system32\drivers\iastor	Kernel Driver No	Manual	nk.sys	Kernel Driver No	Manual	Running		OK	Critical	No
		Stopped	OK		No	No		mpio	mpio		
iirsp	iirsp			l2nd	Broadcom NetXtreme II BXND			sys	Kernel Driver No	Manual	Stopped
ys	c:\windows\system32\drivers\iirsp.s	Kernel Driver No	Manual	60a.sys	Kernel Driver Yes	Manual	Running		OK	Normal	No
		Stopped	OK		Running	OK		mpsdrv	Windows Firewall Authorization Driver		
intelide	intelide			ltdio	Link-Layer Topology Discovery Mapper I/O Driver			rv.sys	Kernel Driver No	Manual	Stopped
e.sys	c:\windows\system32\drivers\intelid	Kernel Driver No	Manual	sys	Kernel Driver Yes	Auto	Running		OK	Normal	No
		Stopped	OK		Running	OK			No		
		No	Critical		No	Yes					

mrxsmb Engine	SMB MiniRedirector Wrapper and Engine		
mb.sys	c:\windows\system32\drivers\mrxsmb.sys	File System Driver	Yes
		Manual	Running
		Normal	No
			Yes
mrxsmb10	SMB 1.x MiniRedirector		
mb10.sys	c:\windows\system32\drivers\mrxsmb10.sys	File System Driver	Yes
		Manual	Running
		Normal	No
			Yes
mrxsmb20	SMB 2.0 MiniRedirector		
mb20.sys	c:\windows\system32\drivers\mrxsmb20.sys	File System Driver	Yes
		Manual	Running
		Normal	No
			Yes
msahci	msahci		
ci.sys	c:\windows\system32\drivers\msahci.sys	Kernel Driver No	Manual
		Stopped	OK
		No	No
			Critical
msdsm	msdsm		
m.sys	c:\windows\system32\drivers\msdsm.sys	Kernel Driver No	Manual
		Stopped	OK
		No	No
			Normal
msfs	Msfs		
sys	c:\windows\system32\drivers\msfs.sys	File System Driver	Yes
		System	Running
		Normal	No
			Yes
mshidkmdf Driver	Pass-through HID to KMDf Filter		
kmdf.sys	c:\windows\system32\drivers\mshidkmdf.sys	Kernel Driver No	Manual
		Stopped	OK
		No	No
			Ignore
msisadrv	msisadrv		
drv.sys	c:\windows\system32\drivers\msisadrv.sys	Kernel Driver Yes	Boot
		Running	OK
		No	Yes
msrpc	MsRPC		
.sys	c:\windows\system32\drivers\msrpc.sys	Kernel Driver No	Manual
		Stopped	OK
		No	No
			Normal
mssmbios BIOS Driver	Microsoft System Management BIOS Driver		
bios.sys	c:\windows\system32\drivers\mssmbios.sys	Kernel Driver Yes	System
		Running	OK
		No	Yes
mtconfig	Microsoft Input Configuration Driver		
nfig.sys	c:\windows\system32\drivers\mtconfig.sys	Kernel Driver No	Manual
		Stopped	OK
		No	No
			Normal
mup	Mup		
sys	c:\windows\system32\drivers\mup.sys	File System Driver	Yes
		Boot	Running
		Normal	No
			Yes
ndis	NDIS System Driver		
ys	c:\windows\system32\drivers\ndis.sys	Kernel Driver Yes	Boot
		Running	OK
		No	Yes
			Critical

ndiscap	NDIS Capture LightWeight Filter		
ap.sys	c:\windows\system32\drivers\ndiscap.sys	Kernel Driver No	Manual
		Stopped	OK
		No	No
			Normal
ndistapi	Remote Access NDIS TAPI Driver		
pi.sys	c:\windows\system32\drivers\ndistapi.sys	Kernel Driver Yes	Manual
		Running	OK
		No	Yes
			Normal
ndisuiio	NDIS Usermode I/O Protocol		
o.sys	c:\windows\system32\drivers\ndisuiio.sys	Kernel Driver No	Manual
		Stopped	OK
		No	No
			Normal
ndiswan	Remote Access NDIS WAN Driver		
an.sys	c:\windows\system32\drivers\ndiswan.sys	Kernel Driver Yes	Manual
		Running	OK
		No	Yes
			Normal
ndpxoxy	NDIS Proxy		
xy.sys	c:\windows\system32\drivers\ndpxoxy.sys	Kernel Driver Yes	Manual
		Running	OK
		No	Yes
			Normal
netbios	NetBIOS Interface		
os.sys	c:\windows\system32\drivers\netbios.sys	File System Driver	Yes
		System	Running
		Normal	No
			Yes
netbt	NetBT		
sys	c:\windows\system32\drivers\netbt.sys	Kernel Driver Yes	System
		Running	OK
		No	Yes
			Normal
nfrd960	nfrd960		
60.sys	c:\windows\system32\drivers\nfrd960.sys	Kernel Driver No	Manual
		Stopped	OK
		No	No
			Normal
npfs	Npfs		
ys	c:\windows\system32\drivers\npfs.sys	File System Driver	Yes
		System	Running
		Normal	No
			Yes
nsiproxy	NSI proxy service driver.		
oxy.sys	c:\windows\system32\drivers\nsiproxy.sys	Kernel Driver Yes	System
		Running	OK
		No	Yes
			Normal
ntfs	Ntfs		
ys	c:\windows\system32\drivers\ntfs.sys	File System Driver	Yes
		Manual	Running
		Normal	No
			Yes
null	Null		
ys	c:\windows\system32\drivers\null.sys	Kernel Driver Yes	System
		Running	OK
		No	Yes
			Normal
nvraid	nvraid		
d.sys	c:\windows\system32\drivers\nvraid.sys	Kernel Driver No	Manual
		Stopped	OK
		No	No
			Normal
nvstor	nvstor		
r.sys	c:\windows\system32\drivers\nvstor.sys	Kernel Driver No	Manual
		Stopped	OK
		No	No
			Critical

nv_agp	NVIDIA nForce AGP Bus Filter		
p.sys	c:\windows\system32\drivers\nv_agp.sys	Kernel Driver No	Manual
		Stopped	OK
		No	No
			Normal
ohci1394 Controller (Legacy)	OHCI Compliant Host Controller (Legacy)		
394.sys	c:\windows\system32\drivers\ohci1394.sys	Kernel Driver No	Manual
		Stopped	OK
		No	No
			Normal
parport	Parallel port driver		
rt.sys	c:\windows\system32\drivers\parport.sys	Kernel Driver No	Manual
		Stopped	OK
		No	No
			Ignore
partmgr	Partition Manager		
gr.sys	c:\windows\system32\drivers\partmgr.sys	Kernel Driver Yes	Boot
		Running	OK
		No	Yes
			Critical
pci	PCI Bus Driver		
s	c:\windows\system32\drivers\pci.sys	Kernel Driver Yes	Boot
		Running	OK
		No	Yes
			Critical
pciide	pciide		
.sys	c:\windows\system32\drivers\pciide.sys	Kernel Driver Yes	Boot
		Running	OK
		No	Yes
			Critical
pcmcia	pcmcia		
a.sys	c:\windows\system32\drivers\pcmcia.sys	Kernel Driver No	Manual
		Stopped	OK
		No	No
			Normal
pcw Driver	Performance Counters for Windows Driver		
ys	c:\windows\system32\drivers\pcw.sys	Kernel Driver Yes	Boot
		Running	OK
		No	Yes
			Normal
peauth	PEAUTH		
h.sys	c:\windows\system32\drivers\peauth.sys	Kernel Driver Yes	Auto
		Running	OK
		No	Yes
			Normal
pptpminiport	WAN Miniport (PPTP)		
tp.sys	c:\windows\system32\drivers\rasppp.sys	Kernel Driver Yes	Manual
		Running	OK
		No	Yes
			Normal
processor	Processor Driver		
ssr.sys	c:\windows\system32\drivers\processor.sys	Kernel Driver No	Manual
		Stopped	OK
		No	No
			Normal
psched	QoS Packet Scheduler		
.sys	c:\windows\system32\drivers\psched.sys	Kernel Driver Yes	System
		Running	OK
		No	Yes
			Normal
ql2300 Driver	QLogic Fibre Channel Miniport Driver		
0.sys	c:\windows\system32\drivers\ql2300.sys	Kernel Driver Yes	Boot
		Running	OK
		No	Yes
			Normal
ql40xx	ql40xx		
x.sys	c:\windows\system32\drivers\ql40xx.sys	Kernel Driver No	Manual
		Stopped	OK
		No	No
			Normal

rasacd Driver	Remote Access Auto Connection	s3cap	s3cap	smb	Message-oriented TCP/IP and TCP/IPv6 Protocol (SMB session)
d.sys	c:\windows\system32\drivers\rasac Kernel Driver No Manual Stopped OK Normal No No	cap.sys	c:\windows\system32\drivers\vms3 Kernel Driver No Manual Stopped OK Normal	ys	c:\windows\system32\drivers\smb.s Kernel Driver No Manual Stopped OK Normal
rasagilevpn	WAN Miniport (IKEv2)	sacdrv	c:\windows\system32\drivers\sacdr Kernel Driver No Boot Stopped OK Ignore No No	spldr	Security Processor Loader Driver c:\windows\system32\drivers\spldr. Kernel Driver Yes Boot Running OK Critical No Yes
pn.sys	Kernel Driver Yes Manual Running OK Normal No Yes	sbp2port	sbp2port	srv	Server SMB 1.xxx Driver c:\windows\system32\drivers\srv.sy File System Driver Yes Manual Running OK Normal No Yes
rasl2tp	WAN Miniport (L2TP)	ort.sys	c:\windows\system32\drivers\sbp2p Kernel Driver No Manual Stopped OK Normal No No	s	Server SMB 2.xxx Driver c:\windows\system32\drivers\srv2.s File System Driver Yes Manual Running OK Normal No Yes
p.sys	Kernel Driver Yes Manual Running OK Normal No Yes	scfilter	Smart card PnP Class Filter Driver c:\windows\system32\drivers\scfilt Kernel Driver No Manual Stopped OK Normal No No	srv2	Server SMB 2.xxx Driver c:\windows\system32\drivers\srv2.s File System Driver Yes Manual Running OK Normal No Yes
rasppoe	Remote Access PPPOE Driver	r.sys	Security Driver c:\windows\system32\drivers\secdr Kernel Driver Yes Auto Running OK Normal No Yes	srvnet	srvnet c:\windows\system32\drivers\srvne File System Driver Yes Manual Running OK Normal No Yes
poe.sys	Kernel Driver Yes Manual Running OK Normal No Yes	secdrv	Serenum Filter Driver c:\windows\system32\drivers\seren Kernel Driver Yes Manual Running OK Normal No Yes	t.sys	File System Driver Yes Manual Running OK Normal No Yes
rasstp	WAN Miniport (SSTP)	v.sys	um.sys	stexstor	stexstor c:\windows\system32\drivers\stexst Kernel Driver No Manual Stopped OK Normal No No
p.sys	Kernel Driver Yes Manual Running OK Normal No Yes	serenum	Kernel Driver Yes Manual Running OK Normal No Yes	or.sys	Kernel Driver No Manual Stopped OK Normal No No
rdbss	Redirected Buffering Sub System	serial	Serial port driver c:\windows\system32\drivers\serial. Kernel Driver Yes System Running OK Ignore No Yes	storflt	Disk Virtual Machine Bus Acceleration Filter Driver c:\windows\system32\drivers\vmsto Kernel Driver Yes Boot Running OK Normal No Yes
sys	c:\windows\system32\drivers\rdbss. File System Driver Yes System Running OK Normal No Yes	sys	Serial Mouse Driver c:\windows\system32\drivers\serm Kernel Driver No Manual Stopped OK Normal No No	storvsc	storvsc c:\windows\system32\drivers\storvs Kernel Driver No Manual Stopped OK Normal No No
rdpbus Bus Driver	Remote Desktop Device Redirector	sermouse	SFF Storage Class Driver c:\windows\system32\drivers\sfddis Kernel Driver No Manual Stopped OK Normal No No	c.sys	Kernel Driver No Manual Stopped OK Normal No No
s.sys	c:\windows\system32\drivers\rdpbu Kernel Driver Yes Manual Running OK Normal No Yes	ouse.sys	SFF Storage Protocol Driver for MMC c:\windows\system32\drivers\sfpp_ Kernel Driver No Manual Stopped OK Normal No No	storvsp	storvsp c:\windows\system32\drivers\storvs Kernel Driver No Manual Stopped OK Normal No No
rdpcdd	RDP Encoder Mirror Driver	ouse.sys	SFF Storage Protocol Driver for SDBus c:\windows\system32\drivers\sfpp_s Kernel Driver No Manual Stopped OK Normal No No	p.sys	Kernel Driver No Manual Stopped OK Normal No No
d.sys	Kernel Driver Yes System Running OK Ignore No Yes	sfddisk	High-Capacity Floppy Disk Drive c:\windows\system32\drivers\sflopp Kernel Driver No Manual Stopped OK Normal No No	swenum	Software Bus Driver c:\windows\system32\drivers\swen Kernel Driver Yes Manual Running OK Normal No Yes
rdpdr Driver	Terminal Server Device Redirector	k.sys	Kernel Driver No Manual Stopped OK Normal No No	um.sys	Kernel Driver Yes Manual Running OK Normal No Yes
sys	c:\windows\system32\drivers\rdpdr. Kernel Driver Yes Manual Running OK Normal No Yes	sfpp_mmc MMC	SFF Storage Protocol Driver for MMC c:\windows\system32\drivers\sfpp_ Kernel Driver No Manual Stopped OK Normal No No	tcpip	TCP/IP Protocol Driver c:\windows\system32\drivers\tcpip. Kernel Driver Yes Boot Running OK Normal No Yes
rdpencdd	RDP Encoder Mirror Driver	mmc.sys	Kernel Driver No Manual Stopped OK Normal No No	sys	Kernel Driver Yes Boot Running OK Normal No Yes
cdd.sys	Kernel Driver Yes System Running OK Ignore No Yes	sfpp_sd	SFF Storage Protocol Driver for SDBus c:\windows\system32\drivers\sfpp_s Kernel Driver No Manual Stopped OK Normal No No	tcpip6	Microsoft IPv6 Protocol Driver c:\windows\system32\drivers\tcpip. Kernel Driver No Manual Stopped OK Normal No No
rdprefmp	Reflector Display Driver used to gain access to graphics data	sfpp_sd SDBus	Kernel Driver No Manual Stopped OK Normal No No	sys	Kernel Driver Yes Boot Running OK Normal No Yes
mp.sys	Kernel Driver Yes System Running OK Ignore No Yes	d.sys	Kernel Driver No Manual Stopped OK Normal No No	tcpipreg	TCP/IP Registry Compatibility c:\windows\system32\drivers\tcpipr Kernel Driver Yes Auto Running OK Normal No Yes
rdpwd	RDP Winstation Driver	sfloppy	High-Capacity Floppy Disk Drive c:\windows\system32\drivers\sflopp Kernel Driver No Manual Stopped OK Normal No No	eg.sys	Kernel Driver Yes Auto Running OK Normal No Yes
d.sys	Kernel Driver Yes Manual Running OK Ignore No Yes	y.sys	Kernel Driver No Manual Stopped OK Normal No No	tdpipe	TDPIPE c:\windows\system32\drivers\tdpip Kernel Driver No Manual Stopped OK Normal No No
rspndr Responder	Link-Layer Topology Discovery	sisraid2	SISRaid2 c:\windows\system32\drivers\sisrai Kernel Driver No Manual Stopped OK Normal No No	e.sys	Kernel Driver No Manual Stopped OK Normal No No
r.sys	c:\windows\system32\drivers\rspnd Kernel Driver Yes Auto Running OK Normal No Yes	d2.sys	Kernel Driver No Manual Stopped OK Normal No No		
		sisraid4	SISRaid4 c:\windows\system32\drivers\sisrai Kernel Driver No Manual Stopped OK Normal No No		
		d4.sys	Kernel Driver No Manual Stopped OK Normal No No		

tdtcp	TDTCP
sys	c:\windows\system32\drivers\tdtcp. Kernel Driver Yes Manual Running OK Normal No Yes
tdx	NetIO Legacy TDI Support Driver c:\windows\system32\drivers\tdx.sy
s	Kernel Driver Yes System Running OK Normal No Yes
termdd	Terminal Device Driver c:\windows\system32\drivers\termd
d.sys	Kernel Driver Yes System Running OK Normal No Yes
tssecsrv	Remote Desktop Services Security Filter Driver
rv.sys	c:\windows\system32\drivers\tssecs Kernel Driver Yes Manual Running OK Ignore No Yes
tunnel	Microsoft Tunnel Miniport Adapter Driver
l.sys	c:\windows\system32\drivers\tunne Kernel Driver Yes Manual Running OK Normal No Yes
uagp35	Microsoft AGPv3.5 Filter
35.sys	c:\windows\system32\drivers\uagp Kernel Driver No Manual Stopped OK Normal No No
udfs	udfs
ys	c:\windows\system32\drivers\udfs.s File System Driver No Disabled Stopped OK Normal No No
uliagpkx	Uli AGP Bus Filter c:\windows\system32\drivers\uliagp
kx.sys	Kernel Driver No Manual Stopped OK Normal No No
umbus	UMBus Enumerator Driver c:\windows\system32\drivers\umbu
s.sys	Kernel Driver Yes Manual Running OK Normal No Yes
umpass	Microsoft UMPass Driver c:\windows\system32\drivers\umpa
ss.sys	Kernel Driver No Manual Stopped OK Normal No No
usbccgp	Microsoft USB Generic Parent Driver c:\windows\system32\drivers\usbcc
gp.sys	Kernel Driver Yes Manual Running OK Normal No Yes
usbhci	Microsoft USB 2.0 Enhanced Host Controller Miniport Driver
ci.sys	c:\windows\system32\drivers\usbh Kernel Driver Yes Manual Running OK Normal No Yes
usbhub	Microsoft USB Standard Hub Driver c:\windows\system32\drivers\usbhu
b.sys	Kernel Driver Yes Manual Running OK Normal No Yes
usbohci	Microsoft USB Open Host Controller Miniport Driver
ci.sys	c:\windows\system32\drivers\usbh Kernel Driver No Manual Stopped OK Normal No No

usbprint	Microsoft USB PRINTER Class c:\windows\system32\drivers\usbpr
int.sys	Kernel Driver No Manual Stopped OK Normal
usbstor	USB Mass Storage Driver c:\windows\system32\drivers\usbst
or.sys	Kernel Driver No Manual Stopped OK Normal No No
usbuhci	Microsoft USB Universal Host Controller Miniport Driver
ci.sys	c:\windows\system32\drivers\usbuh Kernel Driver Yes Manual Running OK Normal No Yes
vdrvroot	Microsoft Virtual Drive Enumerator Driver
oot.sys	c:\windows\system32\drivers\vdrv Kernel Driver Yes Boot Running OK Critical No Yes
vga	vga
p.sys	c:\windows\system32\drivers\vgapn Kernel Driver Yes Manual Running OK Ignore No Yes
vgasave	VgaSave c:\windows\system32\drivers\vga.s
ys	Kernel Driver Yes System Running OK Ignore No Yes
vhdmp	vhdmp
p.sys	c:\windows\system32\drivers\vhdm Kernel Driver No Manual Stopped OK Normal No No
viaide	viaide
.sys	c:\windows\system32\drivers\viaide Kernel Driver No Manual Stopped OK Critical No No
vid	Vid
s	c:\windows\system32\drivers\vid.sy Kernel Driver No Manual Stopped OK Normal No No
vmbus	Virtual Machine Bus c:\windows\system32\drivers\vmbu
s.sys	Kernel Driver No Manual Stopped OK Normal No No
vmbushid	VMBusHID c:\windows\system32\drivers\vmbu
shid.sys	Kernel Driver No Manual Stopped OK Ignore No No
volmgr	Volume Manager Driver c:\windows\system32\drivers\volmg
r.sys	Kernel Driver Yes Boot Running OK Critical No Yes
volmgrx	Dynamic Volume Manager c:\windows\system32\drivers\volmg
rx.sys	Kernel Driver Yes Boot Running OK Critical No Yes
volsnap	Storage volumes c:\windows\system32\drivers\volsn
ap.sys	Kernel Driver Yes Boot Running OK Critical No Yes

vsmraid	vsmraid c:\windows\system32\drivers\vsmra
id.sys	Kernel Driver No Manual Stopped OK Normal
wacompen	Wacom SerialPen HID Driver c:\windows\system32\drivers\waco
mpen.sys	Kernel Driver No Manual Stopped OK Normal No No
wanarp	Remote Access IP ARP Driver c:\windows\system32\drivers\wana
rp.sys	Kernel Driver No Manual Stopped OK Normal No No
wanarpv6	Remote Access IPv6 ARP Driver c:\windows\system32\drivers\wana
rp.sys	Kernel Driver Yes System Running OK Normal No Yes
wd	Wd
s	c:\windows\system32\drivers\wd.sy Kernel Driver No Manual Stopped OK Normal No No
wdf01000	Kernel Mode Driver Frameworks service
1000.sys	c:\windows\system32\drivers\wdf0 Kernel Driver Yes Boot Running OK Normal No Yes
wfplwf	WFP Lightweight Filter c:\windows\system32\drivers\wfplw
f.sys	Kernel Driver Yes System Running OK Normal No Yes
wimmount	WIMMount c:\windows\system32\drivers\wimm
ount.sys	File System Driver No Manual Stopped OK Normal No No
wmiacpi	Microsoft Windows Management Interface for ACPI
cp.sys	c:\windows\system32\drivers\wmia Kernel Driver No Manual Stopped OK Normal No No
ws2ifsl	Winsock IFS Driver c:\windows\system32\drivers\ws2if
sl.sys	Kernel Driver No Disabled Stopped OK Normal No No
wudfpf	User Mode Driver Frameworks Platform Driver
pf.sys	c:\windows\system32\drivers\wudf Kernel Driver No Manual Stopped OK Normal No No

[Environment Variables]

Variable	Value	User Name
ComSpec	%SystemRoot%\system32\cmd.exe	
FP_NO_HOST_CHECK	<SYSTEM>	NO
OS	<SYSTEM>	Windows_NT

```

Path C:\Program Files
(x86)\BROCADE\Adapter\driver;C:\Program
Files\HP\NCU;C:\Program Files
(x86)\Brocade\DriverPackage\bfa\util;%System
Root%\system32;%SystemRoot%;%SystemRoot
%\System32\Wbem;%SYSTEMROOT%\System3
2\WindowsPowerShell\v1.0\C:\Program Files
(x86)\Microsoft SQL
Server\80\Tools\Binn\C:\Program Files\Microsoft
SQL Server\90\Tools\Binn\C:\Program Files
(x86)\Microsoft SQL
Server\90\Tools\Binn\C:\Program Files\Microsoft
SQL Server\90\DTS\Binn\ <SYSTEM>
PATHEXT
.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.J
S;.JSE;.WSF;.WSH;.MSC <SYSTEM>
PROCESSOR_ARCHITECTURE AMD64
<SYSTEM>
TEMP %SystemRoot%\TEMP
<SYSTEM>
TMP %SystemRoot%\TEMP
<SYSTEM>
USERNAME SYSTEM <SYSTEM>
windir %SystemRoot%
<SYSTEM>
PSModulePath
%SystemRoot%\system32\Window
sPowerShell\v1.0\Modules\ <SYSTEM>
NUMBER_OF_PROCESSORS 24
<SYSTEM>
PROCESSOR_LEVEL 6
<SYSTEM>
PROCESSOR_IDENTIFIER Intel64 Family 6
Model 44 Stepping 2, GenuineIntel
<SYSTEM>
PROCESSOR_REVISION 2c02
<SYSTEM>
TEMP %USERPROFILE%\AppData\Local\T
emp
TMP NT AUTHORITY\SYSTEM
%USERPROFILE%\AppData\Local\T
emp
TMP NT AUTHORITY\SYSTEM
%USERPROFILE%\AppData\Local\T
emp
TMP NT AUTHORITY\LOCAL SERVICE
%USERPROFILE%\AppData\Local\T
emp
TMP NT AUTHORITY\LOCAL SERVICE
%USERPROFILE%\AppData\Local\T
emp
TMP NT AUTHORITY\NETWORK
SERVICE
TMP
%USERPROFILE%\AppData\Local\T
emp
SERVICE
TMP NT AUTHORITY\NETWORK
%USERPROFILE%\AppData\Local\T
emp
TMP SQLWESTMERE\guz
%USERPROFILE%\AppData\Local\T
emp
TMP SQLWESTMERE\guz

```

```

Path C:\Program Files
(x86)\BROCADE\Adapter\driver;C:\Program
Files\HP\NCU;C:\Program Files
(x86)\Brocade\DriverPackage\bfa\util;%System
Root%\system32;%SystemRoot%;%SystemRoot
%\System32\Wbem;%SYSTEMROOT%\System3
2\WindowsPowerShell\v1.0\C:\Program Files
(x86)\Microsoft SQL
Server\80\Tools\Binn\C:\Program Files\Microsoft
SQL Server\90\Tools\Binn\C:\Program Files
(x86)\Microsoft SQL
Server\90\Tools\Binn\C:\Program Files\Microsoft
SQL Server\90\DTS\Binn\ SQLWESTMERE\guz
TEMP
%USERPROFILE%\AppData\Local\T
emp
TMP SQLWESTMERE\Admin2
%USERPROFILE%\AppData\Local\T
emp
TMP SQLWESTMERE\Admin2
%USERPROFILE%\AppData\Local\T
emp
TMP SQLWESTMERE\Administrator
%USERPROFILE%\AppData\Local\T
emp
TMP SQLWESTMERE\Administrator
PATH C:\Program Files
(x86)\BROCADE\Adapter\driver
SQLWESTMERE\Administrator

[Print Jobs]

Can't Collect Information

[Network Connections]

Local Name Remote Name Type
Status User Name

[Running Tasks]

Name Path Process ID Priority
Min Working Set Max
Working Set Start Time Version Size
File Date

system idle process Not Available 0
Not Available Not
Available Not Available Not
Available Not Available 8
Not Available Not Available
5/5/2010 2:10 PM Not
Available Not Available
smss.exe Not Available 396 11
200 1380 5/5/2010 2:10 PM Not
Available Not Available
csrss.exe c:\windows\system32\csrss.exe
252 13 200
1380 5/5/2010 2:11 PM
6.1.7600.16385 7.50 KB
(7,680 bytes)7/13/2009 4:19 PM
csrss.exe c:\windows\system32\csrss.exe
448 13 200
1380 5/5/2010 2:11 PM
6.1.7600.16385 7.50 KB
(7,680 bytes)7/13/2009 4:19 PM

```

```

wininit.exe c:\windows\system32\wininit.exe
460 13 200
1380 5/5/2010 2:11 PM
6.1.7600.16385 126.00
KB (129,024 bytes) 7/13/2009 4:52 PM
services.exe c:\windows\system32\services.exe
504 9 200
1380 5/5/2010 2:11 PM
6.1.7600.16385 321.00
KB (328,704 bytes) 7/13/2009 4:19 PM
lsass.exe c:\windows\system32\lsass.exe
512 9 200
1380 5/5/2010 2:11 PM
6.1.7600.16385 30.50 KB
(31,232 bytes) 7/13/2009 4:20 PM
lsm.exe c:\windows\system32\lsm.exe
520 8 200
1380 5/5/2010 2:11 PM
6.1.7600.16385 325.50
KB (333,312 bytes) 7/13/2009 5:17 PM
winlogon.exe c:\windows\system32\winlogon.exe
556 13 200
1380 5/5/2010 2:11 PM
6.1.7600.16447 380.50
KB (389,632 bytes) 3/3/2010 4:45 PM
svchost.exe c:\windows\system32\svchost.exe
656 8 200
1380 5/5/2010 2:11 PM
6.1.7600.16385 26.50 KB
(27,136 bytes) 7/13/2009 4:31 PM
svchost.exe c:\windows\system32\svchost.exe
736 8 200
1380 5/5/2010 2:11 PM
6.1.7600.16385 26.50 KB
(27,136 bytes) 7/13/2009 4:31 PM
logonui.exe c:\windows\system32\logonui.exe
828 13 200
1380 5/5/2010 2:11 PM
6.1.7600.16385 27.00 KB
(27,648 bytes) 7/13/2009 4:52 PM
svchost.exe c:\windows\system32\svchost.exe
836 8 200
1380 5/5/2010 2:11 PM
6.1.7600.16385 26.50 KB
(27,136 bytes) 7/13/2009 4:31 PM
svchost.exe c:\windows\system32\svchost.exe
884 8 200
1380 5/5/2010 2:11 PM
6.1.7600.16385 26.50 KB
(27,136 bytes) 7/13/2009 4:31 PM
svchost.exe c:\windows\system32\svchost.exe
936 8 200
1380 5/5/2010 2:11 PM
6.1.7600.16385 26.50 KB
(27,136 bytes) 7/13/2009 4:31 PM
svchost.exe c:\windows\system32\svchost.exe
996 8 200
1380 5/5/2010 2:11 PM
6.1.7600.16385 26.50 KB
(27,136 bytes) 7/13/2009 4:31 PM

```

```

svchost.exe c:\windows\system32\svchost.exe
276 8 200
1380 5/5/2010 2:11 PM
6.1.7600.16385 26.50 KB
(27,136 bytes) 7/13/2009 4:31 PM

svchost.exe c:\windows\system32\svchost.exe
1084 8 200
1380 5/5/2010 2:11 PM
6.1.7600.16385 26.50 KB
(27,136 bytes) 7/13/2009 4:31 PM

proliantmonitor.exe c:\program
files\hewlett-packard\ilo
3\service\proliantmonitor.exe 1112
8 200 1380
5/5/2010 2:11 PM 3.0.0.0
292.54 KB (299,560 bytes)
12/18/2009 8:31 AM

wmiprvse.exe c:\windows\system32\wbem\wmipr
vse.exe 1708 8 200
1380 5/5/2010 2:11 PM
6.1.7600.16385 360.00
KB (368,640 bytes) 7/13/2009 4:47 PM

svchost.exe c:\windows\system32\svchost.exe
2004 8 200
1380 5/5/2010 2:11 PM
6.1.7600.16385 26.50 KB
(27,136 bytes) 7/13/2009 4:31 PM

svchost.exe c:\windows\system32\svchost.exe
2484 8 200
1380 5/5/2010 2:13 PM
6.1.7600.16385 26.50 KB
(27,136 bytes) 7/13/2009 4:31 PM

msdtc.exe c:\windows\system32\msdtc.exe
2548 8 200
1380 5/5/2010 2:13 PM
2001.12.8530.16385 138.50
KB (141,824 bytes) 7/13/2009 4:59 PM

sppsvc.exe c:\windows\system32\sppsvc.exe
2616 8 200
1380 5/5/2010 2:13 PM
6.1.7600.16385 3.36 MB
(3,524,608 bytes) 7/13/2009 6:05 PM

csrss.exe c:\windows\system32\csrss.exe
2752 13 200
1380 5/5/2010 2:13 PM
6.1.7600.16385 7.50 KB
(7,680 bytes) 7/13/2009 4:19 PM

winlogon.exe c:\windows\system32\winlogon.exe
2776 13 200
1380 5/5/2010 2:13 PM
6.1.7600.16447 380.50
KB (389,632 bytes) 3/3/2010 4:45 PM

taskhost.exe c:\windows\system32\taskhost.exe
3040 8 200
1380 5/5/2010 2:14 PM
6.1.7600.16385 67.50 KB
(69,120 bytes) 7/13/2009 4:31 PM

rdpclip.exe c:\windows\system32\rdpclip.exe
2364 8 200
1380 5/5/2010 2:14 PM
6.1.7600.16385 204.50
KB (209,408 bytes) 7/13/2009 5:17 PM

```

```

dwm.exe c:\windows\system32\dwm.exe
1628 8 200
1380 5/5/2010 2:14 PM
6.1.7600.16385 117.50
KB (120,320 bytes) 7/13/2009 4:37 PM

explorer.exe c:\windows\explorer.exe 1592
8 200 1380
5/5/2010 2:14 PM
6.1.7600.16450 2.74 MB
(2,870,272 bytes) 3/3/2010 4:45 PM

msinfo32.exe c:\windows\system32\msinfo32.exe
2136 8 200
1380 5/5/2010 2:16 PM
6.1.7600.16385 370.00
KB (378,880 bytes) 7/13/2009 4:31 PM

wmiprvse.exe c:\windows\system32\wbem\wmipr
vse.exe 2096 8 200
1380 5/5/2010 2:16 PM
6.1.7600.16385 360.00
KB (368,640 bytes) 7/13/2009 4:47 PM

[Loaded Modules]

Name Version Size File Date
Manufacturer Path
csrss 6.1.7600.16385 7.50 KB
(7,680 bytes) 7/13/2009 4:19 PM
Microsoft Corporation
c:\windows\system32\csrss.exe

ntdll 6.1.7600.16385 1.66 MB
(1,736,792 bytes) 7/13/2009 4:22 PM
Microsoft Corporation
c:\windows\system32\ntdll.dll

csrsrv 6.1.7600.16385 42.50 KB
(43,520 bytes) 7/13/2009 4:19 PM
Microsoft Corporation
c:\windows\system32\csrsrv.dll

basesrv 6.1.7600.16385 51.50 KB
(52,736 bytes) 7/13/2009 4:18 PM
Microsoft Corporation
c:\windows\system32\basesrv.dll

winsrv 6.1.7600.16385 209.00
KB (214,016 bytes) 7/13/2009 4:38 PM
Microsoft Corporation
c:\windows\system32\winsrv.dll

user32 6.1.7600.16385 985.00
KB (1,008,640 bytes) 7/13/2009 4:38 PM
Microsoft Corporation
c:\windows\system32\user32.dll

gdi32 6.1.7600.16385 395.00
KB (404,480 bytes) 7/13/2009 4:39 PM
Microsoft Corporation
c:\windows\system32\gdi32.dll

kernel32 6.1.7600.16385 1.11 MB
(1,162,240 bytes) 7/13/2009 4:28 PM
Microsoft Corporation
c:\windows\system32\kernel32.dll

kernelbase 6.1.7600.16385 411.50
KB (421,376 bytes) 7/13/2009 4:20 PM
Microsoft Corporation
c:\windows\system32\kernelbase.dl

```

```

lpk 6.1.7600.16385 41.00 KB
(41,984 bytes) 7/13/2009 4:38 PM
Microsoft Corporation
c:\windows\system32\lpk.dll

usp10 1.626.7600.16385 782.50
KB (801,280 bytes) 7/13/2009 4:38 PM
Microsoft Corporation
c:\windows\system32\usp10.dll

msvcrt 7.0.7600.16385 620.00
KB (634,880 bytes) 7/13/2009 4:19 PM
Microsoft Corporation
c:\windows\system32\msvcrt.dll

sxssrv 6.1.7600.16385 31.00 KB
(31,744 bytes) 7/13/2009 4:26 PM
Microsoft Corporation
c:\windows\system32\sxssrv.dll

sxs 6.1.7600.16385 569.50
KB (583,168 bytes) 7/13/2009 4:27 PM
Microsoft Corporation
c:\windows\system32\sxs.dll

rpcrt4 6.1.7600.16385 1.17 MB
(1,221,632 bytes) 7/13/2009 4:23 PM
Microsoft Corporation
c:\windows\system32\rpcrt4.dll

cryptbase 6.1.7600.16385 43.00 KB
(44,032 bytes) 7/13/2009 4:20 PM
Microsoft Corporation
c:\windows\system32\cryptbase.dll

wininit 6.1.7600.16385 126.00
KB (129,024 bytes) 7/13/2009 4:52 PM
Microsoft Corporation
c:\windows\system32\wininit.exe

sechost 6.1.7600.16385 111.00
KB (113,664 bytes) 7/13/2009 4:20 PM
Microsoft Corporation
c:\windows\system32\sechost.dll

profapi 6.1.7600.16385 43.00 KB
(44,032 bytes) 7/13/2009 4:20 PM
Microsoft Corporation
c:\windows\system32\profapi.dll

imm32 6.1.7600.16385 163.50
KB (167,424 bytes) 7/13/2009 4:38 PM
Microsoft Corporation
c:\windows\system32\imm32.dll

msctf 6.1.7600.16385 1.02 MB
(1,067,008 bytes) 7/13/2009 4:40 PM
Microsoft Corporation
c:\windows\system32\msctf.dll

rpcrtremote 6.1.7600.16385 63.50 KB
(65,024 bytes) 7/13/2009 4:59 PM
Microsoft Corporation
c:\windows\system32\rpcrtremote.
dll

apphelp 6.1.7600.16385 330.50
KB (338,432 bytes) 7/13/2009 4:21 PM
Microsoft Corporation
c:\windows\system32\apphelp.dll

ws2_32 6.1.7600.16385 289.50
KB (296,448 bytes) 7/13/2009 4:21 PM
Microsoft Corporation
c:\windows\system32\ws2_32.dll

```

nsi 6.1.7600.16385 13.50 KB  
(13,824 bytes) 7/13/2009 4:21 PM  
Microsoft Corporation  
c:\windows\system32\nsi.dll

msock 6.1.7600.16385 312.50  
KB (320,000 bytes) 7/13/2009 4:21 PM  
Microsoft Corporation  
c:\windows\system32\msock.dll

wshtcpip 6.1.7600.16385 13.00 KB  
(13,312 bytes) 7/13/2009 4:21 PM  
Microsoft Corporation  
c:\windows\system32\wshtcpip.dll

wship6 6.1.7600.16385 13.50 KB  
(13,824 bytes) 7/13/2009 4:21 PM  
Microsoft Corporation  
c:\windows\system32\wship6.dll

secur32 6.1.7600.16385 27.50 KB  
(28,160 bytes) 7/13/2009 4:50 PM  
Microsoft Corporation  
c:\windows\system32\secur32.dll

sspicli 6.1.7600.16385 133.00  
KB (136,192 bytes) 7/13/2009 4:20 PM  
Microsoft Corporation  
c:\windows\system32\sspicli.dll

credssp 6.1.7600.16385 20.00 KB  
(20,480 bytes) 7/13/2009 4:50 PM  
Microsoft Corporation  
c:\windows\system32\credssp.dll

advapi32 6.1.7600.16385 856.50  
KB (877,056 bytes) 7/13/2009 5:41 PM  
Microsoft Corporation  
c:\windows\system32\advapi32.dll

services 6.1.7600.16385 321.00  
KB (328,704 bytes) 7/13/2009 4:19 PM  
Microsoft Corporation  
c:\windows\system32\services.exe

sceext 6.1.7600.16385 87.00 KB  
(89,088 bytes) 7/13/2009 4:31 PM  
Microsoft Corporation  
c:\windows\system32\sceext.dll

scesrv 6.1.7600.16385 396.50  
KB (406,016 bytes) 7/13/2009 4:49 PM  
Microsoft Corporation  
c:\windows\system32\scesrv.dll

srvccli 6.1.7600.16385 124.50  
KB (127,488 bytes) 7/13/2009 4:53 PM  
Microsoft Corporation  
c:\windows\system32\srvccli.dll

authz 6.1.7600.16385 173.50  
KB (177,664 bytes) 7/13/2009 4:50 PM  
Microsoft Corporation  
c:\windows\system32\authz.dll

ubpm 6.1.7600.16385 209.00  
KB (214,016 bytes) 7/13/2009 4:31 PM  
Microsoft Corporation  
c:\windows\system32\ubpm.dll

wtsapi32 6.1.7600.16385 53.00 KB  
(54,272 bytes) 7/13/2009 5:17 PM  
Microsoft Corporation  
c:\windows\system32\wtsapi32.dll

winsta 6.1.7600.16385 228.00  
KB (233,472 bytes) 7/13/2009 5:17 PM  
Microsoft Corporation  
c:\windows\system32\winsta.dll

lsass 6.1.7600.16385 30.50 KB  
(31,232 bytes) 7/13/2009 4:20 PM  
Microsoft Corporation  
c:\windows\system32\lsass.exe

sspsrv 6.1.7600.16385 28.00 KB  
(28,672 bytes) 7/13/2009 4:20 PM  
Microsoft Corporation  
c:\windows\system32\sspsrv.dll

lsasrv 6.1.7600.16385 1.38 MB  
(1,446,912 bytes) 7/13/2009 4:51 PM  
Microsoft Corporation  
c:\windows\system32\lsasrv.dll

samsrv 6.1.7600.16385 740.00  
KB (757,760 bytes) 7/13/2009 4:54 PM  
Microsoft Corporation  
c:\windows\system32\samsrv.dll

cryptdll 6.1.7600.16385 64.50 KB  
(66,048 bytes) 7/13/2009 4:49 PM  
Microsoft Corporation  
c:\windows\system32\cryptdll.dll

msasn1 6.1.7600.16415 45.50 KB  
(46,592 bytes) 3/3/2010 4:45 PM  
Microsoft Corporation  
c:\windows\system32\msasn1.dll

wevtapi 6.1.7600.16385 418.00  
KB (428,032 bytes) 7/13/2009 4:46 PM  
Microsoft Corporation  
c:\windows\system32\wevtapi.dll

cngaudit 6.1.7600.16385 18.50 KB  
(18,944 bytes) 7/13/2009 4:49 PM  
Microsoft Corporation  
c:\windows\system32\cngaudit.dll

ncrypt 6.1.7600.16385 300.00  
KB (307,200 bytes) 7/13/2009 4:49 PM  
Microsoft Corporation  
c:\windows\system32\ncrypt.dll

bcrypt 6.1.7600.16385 121.00  
KB (123,904 bytes) 7/13/2009 4:49 PM  
Microsoft Corporation  
c:\windows\system32\bcrypt.dll

msprvs 6.1.7600.16385 2.00 KB  
(2,048 bytes) 7/13/2009 4:50 PM  
Microsoft Corporation  
c:\windows\system32\msprvs.dll

netjoin 6.1.7600.16385 184.50  
KB (188,928 bytes) 7/13/2009 4:53 PM  
Microsoft Corporation  
c:\windows\system32\netjoin.dll

negoexts 6.1.7600.16385 114.50  
KB (117,248 bytes) 7/13/2009 4:50 PM  
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c:\windows\system32\negoexts.dll

kerberos 6.1.7600.16385 697.50  
KB (714,240 bytes) 7/13/2009 4:51 PM  
Microsoft Corporation  
c:\windows\system32\kerberos.dll

cryptsp 6.1.7600.16385 78.00 KB  
(79,872 bytes) 7/13/2009 4:53 PM  
Microsoft Corporation  
c:\windows\system32\cryptsp.dll

msv1\_0 6.1.7600.16420 304.50  
KB (311,808 bytes) 3/3/2010 4:45 PM  
Microsoft Corporation  
c:\windows\system32\msv1\_0.dll

netlogon 6.1.7600.16385 676.50  
KB (692,736 bytes) 7/13/2009 4:53 PM  
Microsoft Corporation  
c:\windows\system32\netlogon.dll

dnsapi 6.1.7600.16385 348.00  
KB (356,352 bytes) 7/13/2009 4:21 PM  
Microsoft Corporation  
c:\windows\system32\dnsapi.dll

logoncli 6.1.7600.16385 182.00  
KB (186,368 bytes) 7/13/2009 4:53 PM  
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c:\windows\system32\logoncli.dll

schannel 6.1.7600.16385 340.50  
KB (348,672 bytes) 7/13/2009 4:50 PM  
Microsoft Corporation  
c:\windows\system32\schannel.dll

crypt32 6.1.7600.16385 1.39 MB  
(1,454,592 bytes) 7/13/2009 4:50 PM  
Microsoft Corporation  
c:\windows\system32\crypt32.dll

wdigest 6.1.7600.16385 205.50  
KB (210,432 bytes) 7/13/2009 4:50 PM  
Microsoft Corporation  
c:\windows\system32\wdigest.dll

rsaenh 6.1.7600.16385 274.66  
KB (281,256 bytes) 7/13/2009 4:53 PM  
Microsoft Corporation  
c:\windows\system32\rsaenh.dll

tspkg 6.1.7600.16385 84.00 KB  
(86,016 bytes) 7/13/2009 4:50 PM  
Microsoft Corporation  
c:\windows\system32\tspkg.dll

pku2u 6.1.7600.16385 235.00  
KB (240,640 bytes) 7/13/2009 4:50 PM  
Microsoft Corporation  
c:\windows\system32\pku2u.dll

bcryptprimitives 6.1.7600.16385  
291.32 KB (298,312 bytes)  
7/13/2009 4:49 PM  
Microsoft Corporation  
c:\windows\system32\bcryptprimitives.dll

es.dll 6.1.7600.16385 55.50 KB  
(56,832 bytes) 7/13/2009 4:50 PM  
Microsoft Corporation  
c:\windows\system32\es.dll

scecli 6.1.7600.16385 227.00  
KB (232,448 bytes) 7/13/2009 4:49 PM  
Microsoft Corporation  
c:\windows\system32\scecli.dll

rassfm 6.1.7600.16385 28.50 KB  
(29,184 bytes) 7/13/2009 5:10 PM  
Microsoft Corporation  
c:\windows\system32\rassfm.dll

efssvc 6.1.7600.16385 36.50 KB  
(37,376 bytes) 7/13/2009 4:50 PM  
Microsoft Corporation  
c:\windows\system32\efssvc.dll

efscore 6.1.7600.16385 297.00  
KB (304,128 bytes) 7/13/2009 4:50 PM  
Microsoft Corporation  
c:\windows\system32\efscore.dll

efsutil 6.1.7600.16385 34.00 KB  
(34,816 bytes) 7/13/2009 4:50 PM  
Microsoft Corporation  
c:\windows\system32\efsutil.dll

userenv 6.1.7600.16385 104.50  
KB (107,008 bytes) 7/13/2009 4:50 PM  
Microsoft Corporation  
c:\windows\system32\userenv.dll

slc 6.1.7600.16385 30.00 KB  
(30,720 bytes) 7/13/2009 4:51 PM  
Microsoft Corporation  
c:\windows\system32\slc.dll

gpapi 6.1.7600.16385 94.50 KB  
(96,768 bytes) 7/13/2009 4:54 PM  
Microsoft Corporation  
c:\windows\system32\gpapi.dll

certpoleng 6.1.7600.16385 70.00 KB  
(71,680 bytes) 7/13/2009 4:52 PM  
Microsoft Corporation  
c:\windows\system32\certpoleng.dll

iphlpapi 6.1.7600.16385 142.50  
KB (145,920 bytes) 7/13/2009 4:21 PM  
Microsoft Corporation  
c:\windows\system32\iphlpapi.dll

winsi 6.1.7600.16385 25.50 KB  
(26,112 bytes) 7/13/2009 4:21 PM  
Microsoft Corporation  
c:\windows\system32\winsi.dll

netutils 6.1.7600.16385 28.00 KB  
(28,672 bytes) 7/13/2009 4:53 PM  
Microsoft Corporation  
c:\windows\system32\netutils.dll

samcli 6.1.7600.16385 65.50 KB  
(67,072 bytes) 7/13/2009 4:53 PM  
Microsoft Corporation  
c:\windows\system32\samcli.dll

samlib 6.1.7600.16385 104.50  
KB (107,008 bytes) 7/13/2009 4:53 PM  
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c:\windows\system32\samlib.dll

dssenh 6.1.7600.16385 186.41  
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Microsoft Corporation  
c:\windows\system32\dssenh.dll

lsm 6.1.7600.16385 325.50  
KB (333,312 bytes) 7/13/2009 5:17 PM  
Microsoft Corporation  
c:\windows\system32\lsm.exe

sysntfy 6.1.7600.16385 22.50 KB  
(23,040 bytes) 7/13/2009 4:52 PM  
Microsoft Corporation  
c:\windows\system32\sysntfy.dll

wmsgapi 6.1.7600.16385 14.50 KB  
(14,848 bytes) 7/13/2009 4:52 PM  
Microsoft Corporation  
c:\windows\system32\wmsgapi.dll

pcwum 6.1.7600.16385 36.00 KB  
(36,864 bytes) 7/13/2009 4:19 PM  
Microsoft Corporation  
c:\windows\system32\pcwum.dll

ole32 6.1.7600.16385 1.99 MB  
(2,084,352 bytes) 7/13/2009 5:02 PM  
Microsoft Corporation  
c:\windows\system32\ole32.dll

ntmarta 6.1.7600.16385 158.50  
KB (162,304 bytes) 7/13/2009 4:50 PM  
Microsoft Corporation  
c:\windows\system32\ntmarta.dll

wldap32 6.1.7600.16385 304.50  
KB (311,808 bytes) 7/13/2009 4:54 PM  
Microsoft Corporation  
c:\windows\system32\wldap32.dll

clbcatq 2001.12.8530.16385 593.50  
KB (607,744 bytes) 7/13/2009 5:00 PM  
Microsoft Corporation  
c:\windows\system32\clbcatq.dll

oleaut32 6.1.7600.16385 841.00  
KB (861,184 bytes) 7/13/2009 4:59 PM  
Microsoft Corporation  
c:\windows\system32\oleaut32.dll

lsmpoxy 6.1.7600.16385 47.50 KB  
(48,640 bytes) 7/13/2009 5:17 PM  
Microsoft Corporation  
c:\windows\system32\lsmpoxy.dll

winlogon 6.1.7600.16447 380.50  
KB (389,632 bytes) 3/3/2010 4:45 PM  
Microsoft Corporation  
c:\windows\system32\winlogon.exe

uxinit 6.1.7600.16385 24.50 KB  
(25,088 bytes) 7/13/2009 4:54 PM  
Microsoft Corporation  
c:\windows\system32\uxinit.dll

svchost 6.1.7600.16385 26.50 KB  
(27,136 bytes) 7/13/2009 4:31 PM  
Microsoft Corporation  
c:\windows\system32\svchost.exe

umpnpgm 6.1.7600.16385 395.00  
KB (404,480 bytes) 7/13/2009 4:27 PM  
Microsoft Corporation  
c:\windows\system32\umpnpgm.dll

l  
spinf 6.1.7600.16385 103.00  
KB (105,472 bytes) 7/13/2009 4:26 PM  
Microsoft Corporation  
c:\windows\system32\spinf.dll

devrtl 6.1.7600.16385 57.00 KB  
(58,368 bytes) 7/13/2009 4:26 PM  
Microsoft Corporation  
c:\windows\system32\devrtl.dll

umpo 6.1.7600.16385 160.00  
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c:\windows\system32\umpo.dll

setupapi 6.1.7600.16385 1.81 MB  
(1,899,520 bytes) 7/13/2009 4:27 PM  
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c:\windows\system32\setupapi.dll

cfgmgr32 6.1.7600.16385 202.50  
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Microsoft Corporation  
c:\windows\system32\cfgmgr32.dll

devobj 6.1.7600.16385 91.00 KB  
(93,184 bytes) 7/13/2009 4:26 PM  
Microsoft Corporation  
c:\windows\system32\devobj.dll

rpcss 6.1.7600.16385 497.50  
KB (509,440 bytes) 7/13/2009 5:00 PM  
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c:\windows\system32\rpcss.dll

wmidcpv 6.1.7600.16385 187.00  
KB (191,488 bytes) 7/13/2009 4:47 PM  
Microsoft Corporation  
c:\windows\system32\wbem\wmidc  
prv.dll

fastprox 6.1.7600.16385 888.00  
KB (909,312 bytes) 7/13/2009 4:47 PM  
Microsoft Corporation  
c:\windows\system32\wbem\fastpr  
ox.dll

wbemcomn 6.1.7600.16385 517.50  
KB (529,920 bytes) 7/13/2009 4:47 PM  
Microsoft Corporation  
c:\windows\system32\wbemcomn.d  
ll

ntdsapi 6.1.7600.16385 148.50  
KB (152,064 bytes) 7/13/2009 4:54 PM  
Microsoft Corporation  
c:\windows\system32\ntdsapi.dll

wbemprox 6.1.7600.16385 42.50 KB  
(43,520 bytes) 7/13/2009 4:46 PM  
Microsoft Corporation  
c:\windows\system32\wbem\wbem  
prox.dll

wbemsvc 6.1.7600.16385 63.00 KB  
(64,512 bytes) 7/13/2009 4:46 PM  
Microsoft Corporation  
c:\windows\system32\wbem\wbem  
svc.dll

wmiutils 6.1.7600.16385 134.00  
KB (137,216 bytes) 7/13/2009 4:47 PM  
Microsoft Corporation  
c:\windows\system32\wbem\wmiuti  
ls.dll

wintrust 6.1.7600.16385 215.00  
KB (220,160 bytes) 7/13/2009 4:49 PM  
Microsoft Corporation  
c:\windows\system32\wintrust.dll

rpcepm 6.1.7600.16385 65.50 KB  
(67,072 bytes) 7/13/2009 4:21 PM  
Microsoft Corporation  
c:\windows\system32\rpcepm.dll

firewallapi 6.1.7600.16385 730.50  
KB (748,032 bytes) 7/13/2009 5:08 PM  
Microsoft Corporation  
c:\windows\system32\firewallapi.dll

version 6.1.7600.16385 28.50 KB  
(29,184 bytes) 7/13/2009 4:57 PM  
Microsoft Corporation  
c:\windows\system32\version.dll



logonui 6.1.7600.16385 27.00 KB (27,648 bytes) 7/13/2009 4:52 PM Microsoft Corporation c:\windows\system32\logonui.exe

authui 6.1.7600.16385 1.84 MB (1,926,144 bytes) 7/13/2009 4:58 PM Microsoft Corporation c:\windows\system32\authui.dll

cryptui 6.1.7600.16385 1.02 MB (1,065,984 bytes) 7/13/2009 4:49 PM Microsoft Corporation c:\windows\system32\cryptui.dll

comctl32 6.10.7600.16385 1.94 MB (2,030,080 bytes) 7/13/2009 4:56 PM Microsoft Corporation c:\windows\winsxs\amd64\_microsoft.windows.common-controls\_6595b64144ccf1df\_6.0.7600.16385\_non\_e\_fa645303170382f6\comctl32.dll

shlwapi 6.1.7600.16385 439.00 KB (449,536 bytes) 7/13/2009 4:55 PM Microsoft Corporation c:\windows\system32\shlwapi.dll

uxtheme 6.1.7600.16385 324.50 KB (332,288 bytes) 7/13/2009 4:55 PM Microsoft Corporation c:\windows\system32\uxtheme.dll

gdiplus 6.1.7600.16385 2.06 MB (2,165,248 bytes) 7/13/2009 4:40 PM Microsoft Corporation c:\windows\winsxs\amd64\_microsoft.windows.gdiplus\_6595b64144ccf1df\_1.1.7600.16385\_none\_2b4f45e87195fcc4\gdiplus.dll

dui70 6.1.7600.16385 954.00 KB (976,896 bytes) 7/13/2009 4:41 PM Microsoft Corporation c:\windows\system32\dui70.dll

duser 6.1.7600.16385 254.50 KB (260,608 bytes) 7/13/2009 4:39 PM Microsoft Corporation c:\windows\system32\duser.dll

sndvol32 6.1.7600.16385 220.00 KB (225,280 bytes) 7/13/2009 5:19 PM Microsoft Corporation c:\windows\system32\sndvol32.dll

hid 6.1.7600.16385 29.50 KB (30,208 bytes) 7/13/2009 5:06 PM Microsoft Corporation c:\windows\system32\hid.dll

mmdevapi 6.1.7600.16385 277.50 KB (284,160 bytes) 7/13/2009 5:18 PM Microsoft Corporation c:\windows\system32\mmdevapi.dll

propsys 7.0.7600.16385 1.16 MB (1,212,416 bytes) 7/13/2009 4:56 PM Microsoft Corporation c:\windows\system32\propsys.dll

dwmapi 6.1.7600.16385 80.50 KB (82,432 bytes) 7/13/2009 4:37 PM Microsoft Corporation c:\windows\system32\dwmapi.dll

xmlite 1.3.1000.0 195.00 KB (199,680 bytes) 7/13/2009 5:41 PM Microsoft Corporation c:\windows\system32\xmlite.dll

windocscodesc 6.1.7600.16385 1.13 MB (1,189,888 bytes) 7/13/2009 4:42 PM Microsoft Corporation c:\windows\system32\windocscodesc.dll

cs.dll 6.1.7600.16385 16.00 KB (16,384 bytes) 7/13/2009 4:30 PM Microsoft Corporation c:\windows\system32\winbrand.dll

vaultcredprovider 6.1.7600.16385 78.50 KB (80,384 bytes) 7/13/2009 4:53 PM Microsoft Corporation c:\windows\system32\vaultcredprovider.dll

smartcardcredentialprovider 6.1.7600.16385 185.50 KB (189,952 bytes) 7/13/2009 4:50 PM Microsoft Corporation c:\windows\system32\smartcardcredentialprovider.dll

certcredprovider 6.1.7600.16385 126.00 KB (129,024 bytes) 7/13/2009 4:49 PM Microsoft Corporation c:\windows\system32\certcredprovider.dll

raslap 6.1.7600.16385 396.00 KB (405,504 bytes) 7/13/2009 5:10 PM Microsoft Corporation c:\windows\system32\raslap.dll

rasapi32 6.1.7600.16385 375.50 KB (384,512 bytes) 7/13/2009 5:10 PM Microsoft Corporation c:\windows\system32\rasapi32.dll

rasman 6.1.7600.16385 98.00 KB (100,352 bytes) 7/13/2009 5:10 PM Microsoft Corporation c:\windows\system32\rasman.dll

rtutils 6.1.7600.16385 50.50 KB (51,712 bytes) 7/13/2009 5:09 PM Microsoft Corporation c:\windows\system32\rtutils.dll

shacct 6.1.7600.16385 132.00 KB (135,168 bytes) 7/13/2009 4:55 PM Microsoft Corporation c:\windows\system32\shacct.dll

wevtvsc 6.1.7600.16385 1.57 MB (1,646,080 bytes) 7/13/2009 4:49 PM Microsoft Corporation c:\windows\system32\wevtvsc.dll

lmhsvc 6.1.7600.16385 23.00 KB (23,552 bytes) 7/13/2009 5:09 PM Microsoft Corporation c:\windows\system32\lmhsvc.dll

nrpsrv 6.1.7600.16385 14.50 KB (14,848 bytes) 7/13/2009 5:09 PM Microsoft Corporation c:\windows\system32\nrpsrv.dll

dhcpcore 6.1.7600.16385 307.00 KB (314,368 bytes) 7/13/2009 4:21 PM Microsoft Corporation c:\windows\system32\dhcpcore.dll

dhcpcore6 6.1.7600.16385 219.00 KB (224,256 bytes) 7/13/2009 4:21 PM Microsoft Corporation c:\windows\system32\dhcpcore6.dll

dhcpcsvc6 6.1.7600.16385 53.00 KB (54,272 bytes) 7/13/2009 4:21 PM Microsoft Corporation c:\windows\system32\dhcpcsvc6.dll

dhcpcsvc 6.1.7600.16385 85.00 KB (87,040 bytes) 7/13/2009 4:21 PM Microsoft Corporation c:\windows\system32\dhcpcsvc.dll

gpsvc 6.1.7600.16385 758.00 KB (776,192 bytes) 7/13/2009 4:54 PM Microsoft Corporation c:\windows\system32\gpsvc.dll

nlaapi 6.1.7600.16385 68.50 KB (70,144 bytes) 7/13/2009 5:09 PM Microsoft Corporation c:\windows\system32\nlaapi.dll

profsvc 6.1.7600.16385 203.50 KB (208,384 bytes) 7/13/2009 4:50 PM Microsoft Corporation c:\windows\system32\profsvc.dll

atl 3.5.2284.0 88.50 KB (90,624 bytes) 7/13/2009 5:34 PM Microsoft Corporation c:\windows\system32\atl.dll

dsrole 6.1.7600.16385 32.00 KB (32,768 bytes) 7/13/2009 4:50 PM Microsoft Corporation c:\windows\system32\dsrole.dll

sens 6.1.7600.16385 63.00 KB (64,512 bytes) 7/13/2009 4:34 PM Microsoft Corporation c:\windows\system32\sens.dll

schedsvc 6.1.7600.16385 1.05 MB (1,104,384 bytes) 7/13/2009 4:47 PM Microsoft Corporation c:\windows\system32\schedsvc.dll

shell32 6.1.7600.16385 13.51 MB (14,161,920 bytes) 7/13/2009 5:04 PM Microsoft Corporation c:\windows\system32\shell32.dll

netapi32 6.1.7600.16385 71.00 KB (72,704 bytes) 7/13/2009 4:53 PM Microsoft Corporation c:\windows\system32\netapi32.dll

wkscli 6.1.7600.16385 70.00 KB (71,680 bytes) 7/13/2009 4:53 PM Microsoft Corporation c:\windows\system32\wkscli.dll

ktmw32 6.1.7600.16385 22.50 KB (23,040 bytes) 7/13/2009 4:19 PM Microsoft Corporation c:\windows\system32\ktmw32.dll

taskcomp 6.1.7600.16385 462.50 KB (473,600 bytes) 7/13/2009 4:47 PM Microsoft Corporation c:\windows\system32\taskcomp.dll

wmisvc 6.1.7600.16385 237.00 KB (242,688 bytes) 7/13/2009 4:47 PM Microsoft Corporation c:\windows\system32\wbem\wmisv

c.dll iphlpsvc 6.1.7600.16385 552.50 KB (565,760 bytes) 7/13/2009 5:09 PM Microsoft Corporation c:\windows\system32\iphlpvc.dll

fwpuclnt 6.1.7600.16385 316.50 KB (324,096 bytes) 7/13/2009 5:09 PM Microsoft Corporation c:\windows\system32\fwpuclnt.dll

sqmapi 6.1.7600.16385 229.50 KB (235,008 bytes) 7/13/2009 4:40 PM Microsoft Corporation c:\windows\system32\sqmapi.dll

wdscore 6.1.7600.16385 265.00 KB (271,360 bytes) 7/13/2009 4:28 PM Microsoft Corporation c:\windows\system32\wdscore.dll

srsvcs 6.1.7600.16385 230.00 KB (235,520 bytes) 7/13/2009 4:53 PM Microsoft Corporation c:\windows\system32\srsvcs.dll

browser 6.1.7600.16385 133.00 KB (136,192 bytes) 7/13/2009 4:53 PM Microsoft Corporation c:\windows\system32\browser.dll

vssapi 6.1.7600.16385 1.66 MB (1,745,408 bytes) 7/13/2009 4:38 PM Microsoft Corporation c:\windows\system32\vssapi.dll

vsstrace 6.1.7600.16385 75.00 KB (76,800 bytes) 7/13/2009 4:36 PM Microsoft Corporation c:\windows\system32\vsstrace.dll

es 2001.12.8530.16385 393.50 KB (402,944 bytes) 7/13/2009 5:00 PM Microsoft Corporation c:\windows\system32\es.dll

wbemcore 6.1.7600.16385 1.16 MB (1,220,096 bytes) 7/13/2009 4:48 PM Microsoft Corporation c:\windows\system32\wbem\wbem

core.dll esscli 6.1.7600.16385 430.00 KB (440,320 bytes) 7/13/2009 4:47 PM Microsoft Corporation c:\windows\system32\wbem\esscli.

dll netcfgx 6.1.7600.16385 505.00 KB (517,120 bytes) 7/13/2009 5:08 PM Microsoft Corporation c:\windows\system32\netcfgx.dll

hnetcfg 6.1.7600.16385 414.50 KB (424,448 bytes) 7/13/2009 5:08 PM Microsoft Corporation c:\windows\system32\hnetcfg.dll

sscore 6.1.7600.16385 13.00 KB (13,312 bytes) 7/13/2009 4:53 PM Microsoft Corporation c:\windows\system32\sscore.dll

clusapi 6.1.7600.16385 307.00 KB (314,368 bytes) 7/13/2009 4:34 PM Microsoft Corporation c:\windows\system32\clusapi.dll

resutils 6.1.7600.16385 84.00 KB (86,016 bytes) 7/13/2009 4:34 PM Microsoft Corporation c:\windows\system32\resutils.dll

netprofm 6.1.7600.16385 449.00 KB (459,776 bytes) 7/13/2009 5:12 PM Microsoft Corporation c:\windows\system32\netprofm.dll

nci 6.1.7600.16385 87.50 KB (89,600 bytes) 7/13/2009 5:09 PM Microsoft Corporation c:\windows\system32\nci.dll

repdrvfs 6.1.7600.16385 441.00 KB (451,584 bytes) 7/13/2009 4:47 PM Microsoft Corporation c:\windows\system32\wbem\repdrv

fs.dll wmiprvsd 6.1.7600.16385 732.50 KB (750,080 bytes) 7/13/2009 4:48 PM Microsoft Corporation c:\windows\system32\wbem\wmipr

vsd.dll ncobjapi 6.1.7600.16385 67.50 KB (69,120 bytes) 7/13/2009 4:47 PM Microsoft Corporation c:\windows\system32\ncobjapi.dll

wbemess 6.1.7600.16385 494.00 KB (505,856 bytes) 7/13/2009 4:47 PM Microsoft Corporation c:\windows\system32\wbem\wbem

ess.dll ncprov 6.1.7600.16385 76.50 KB (78,336 bytes) 7/13/2009 4:47 PM Microsoft Corporation c:\windows\system32\wbem\ncprov

.dll rasadhlp 6.1.7600.16385 16.00 KB (16,384 bytes) 7/13/2009 5:10 PM Microsoft Corporation c:\windows\system32\rasadhlp.dll

npmproxy 6.1.7600.16385 31.00 KB (31,744 bytes) 7/13/2009 5:12 PM Microsoft Corporation c:\windows\system32\npmproxy.dll

certprop 6.1.7600.16385 78.50 KB (80,384 bytes) 7/13/2009 4:50 PM Microsoft Corporation c:\windows\system32\certprop.dll

winscard 6.1.7600.16385 212.50 KB (217,600 bytes) 7/13/2009 4:50 PM Microsoft Corporation c:\windows\system32\winscard.dll

sessenv 6.1.7600.16385 102.50 KB (104,960 bytes) 7/13/2009 5:17 PM Microsoft Corporation c:\windows\system32\sessenv.dll

nsisvc 6.1.7600.16385 25.00 KB (25,600 bytes) 7/13/2009 4:21 PM Microsoft Corporation c:\windows\system32\nsisvc.dll

uxsms 6.1.7600.16385 38.00 KB (38,912 bytes) 7/13/2009 4:37 PM Microsoft Corporation c:\windows\system32\uxsms.dll

trkwks 6.1.7600.16385 117.00 KB (119,808 bytes) 7/13/2009 4:59 PM Microsoft Corporation c:\windows\system32\trkwks.dll

umrdp 6.1.7600.16385 190.50 KB (195,072 bytes) 7/13/2009 5:18 PM Microsoft Corporation c:\windows\system32\umrdp.dll

winspool 6.1.7600.16385 431.50 KB (441,856 bytes) 7/13/2009 5:39 PM Microsoft Corporation c:\windows\system32\winspool.dr

umb 6.1.7600.16385 58.50 KB (59,904 bytes) 7/13/2009 4:35 PM Microsoft Corporation c:\windows\system32\umb.dll

wdi 6.1.7600.16385 88.50 KB (90,624 bytes) 7/13/2009 4:31 PM Microsoft Corporation c:\windows\system32\wdi.dll

apphlpdm 6.1.7600.16385 33.00 KB (33,792 bytes) 7/13/2009 4:32 PM Microsoft Corporation c:\windows\system32\apphlpdm.dll

wer 6.1.7600.16385 473.00 KB (484,352 bytes) 7/13/2009 4:41 PM Microsoft Corporation c:\windows\system32\wer.dll

netman 6.1.7600.16385 352.00 KB (360,448 bytes) 7/13/2009 5:08 PM Microsoft Corporation c:\windows\system32\netman.dll

netshell 6.1.7600.16385 2.53 MB (2,651,136 bytes) 7/13/2009 5:09 PM Microsoft Corporation c:\windows\system32\netshell.dll

rasdlg 6.1.7600.16385 840.50 KB (860,672 bytes) 7/13/2009 5:10 PM Microsoft Corporation c:\windows\system32\rasdlg.dll

mprapi 6.1.7600.16385 215.50 KB (220,672 bytes) 7/13/2009 5:10 PM Microsoft Corporation c:\windows\system32\mprapi.dll

dnssrslvr 6.1.7600.16385 178.00 KB (182,272 bytes) 7/13/2009 4:21 PM Microsoft Corporation c:\windows\system32\dnssrslvr.dll

dnsextn 6.1.7600.16385 8.00 KB (8,192 bytes) 7/13/2009 5:12 PM Microsoft Corporation c:\windows\system32\dnsextn.dll

wkssvc 6.1.7600.16385 116.00 KB (118,784 bytes) 7/13/2009 4:53 PM Microsoft Corporation c:\windows\system32\wkssvc.dll

cryptsvc 6.1.7600.16385 171.00 KB (175,104 bytes) 7/13/2009 4:49 PM Microsoft Corporation c:\windows\system32\cryptsvc.dll

nlascv 6.1.7600.16385 295.00 KB (302,080 bytes) 7/13/2009 5:09 PM Microsoft Corporation c:\windows\system32\nlascv.dll

ncsi 6.1.7600.16385 204.50 KB (209,408 bytes) 7/13/2009 5:08 PM Microsoft Corporation c:\windows\system32\ncsi.dll

winhttp 6.1.7600.16385 428.50 KB (438,784 bytes) 7/13/2009 5:11 PM Microsoft Corporation c:\windows\system32\winhttp.dll

webio 6.1.7600.16385 385.50 KB (394,752 bytes) 7/13/2009 5:11 PM Microsoft Corporation c:\windows\system32\webio.dll

esent 6.1.7600.16385 2.45 MB (2,565,120 bytes) 7/13/2009 4:50 PM Microsoft Corporation c:\windows\system32\esent.dll

psapi 6.1.7600.16385 9.00 KB (9,216 bytes) 7/13/2009 4:26 PM Microsoft Corporation c:\windows\system32\psapi.dll

ssdpapi 6.1.7600.16385 50.00 KB (51,200 bytes) 7/13/2009 5:10 PM Microsoft Corporation c:\windows\system32\ssdpapi.dll

winrnr 6.1.7600.16385 28.00 KB (28,672 bytes) 7/13/2009 4:53 PM Microsoft Corporation c:\windows\system32\winrnr.dll

napinsp 6.1.7600.16385 66.50 KB (68,096 bytes) 7/13/2009 5:10 PM Microsoft Corporation c:\windows\system32\napinsp.dll

wsmvc 6.1.7600.16385 1.93 MB (2,018,816 bytes) 7/13/2009 4:49 PM Microsoft Corporation c:\windows\system32\wsmvc.dll

httpapi 6.1.7600.16385 44.00 KB (45,056 bytes) 7/13/2009 4:21 PM Microsoft Corporation c:\windows\system32\httpapi.dll

wevtfd 6.1.7600.16385 114.00 KB (116,736 bytes) 7/13/2009 4:46 PM Microsoft Corporation c:\windows\system32\wevtfd.dll

apphostsv 7.5.7600.16385 64.00 KB (65,536 bytes) 7/13/2009 5:27 PM Microsoft Corporation c:\windows\system32\inetrv\appostsv.dll

iisutil 7.5.7600.16385 274.50 KB (281,088 bytes) 7/13/2009 5:27 PM Microsoft Corporation c:\windows\system32\inetrv\iisutil.dll

ativervd 7.5.7600.16385 458.50 KB (469,504 bytes) 7/13/2009 5:27 PM Microsoft Corporation c:\windows\system32\inetrv\native

rd.dll

iisres 7.5.7600.16385 215.00 KB (220,160 bytes) 7/13/2009 5:26 PM Microsoft Corporation c:\windows\system32\inetrv\iisres.dll

dll

mlang 6.1.7600.16385 221.50 KB (226,816 bytes) 7/13/2009 4:55 PM Microsoft Corporation c:\windows\system32\mlang.dll

ProLiantMonitor 3.0.0.0 292.54 KB (299,560 bytes) 12/18/2009 8:31 AM Hewlett-Packard Company c:\program files\hewlett-packard\ilo3\service\proliantmonitor.exe

wmiprvse 6.1.7600.16385 360.00 KB (368,640 bytes) 7/13/2009 4:47 PM Microsoft Corporation c:\windows\system32\wbem\wmiprvse.exe

wmiprov 6.1.7600.16385 223.50 KB (228,864 bytes) 7/13/2009 4:47 PM Microsoft Corporation c:\windows\system32\wbem\wmiprovse.dll

ov.dll

wmiperfclass 6.1.7600.16385 133.00 KB (136,192 bytes) 7/13/2009 4:31 PM Microsoft Corporation c:\windows\system32\wbem\wmiperfclass.dll

rfclass.dll

pdh 6.1.7600.16385 293.00 KB (300,032 bytes) 7/13/2009 4:31 PM Microsoft Corporation c:\windows\system32\pdh.dll

termsrv 6.1.7600.16385 690.00 KB (706,560 bytes) 7/13/2009 5:17 PM Microsoft Corporation c:\windows\system32\termsrv.dll

icaapi 6.1.7600.16385 22.00 KB (22,528 bytes) 7/13/2009 5:16 PM Microsoft Corporation c:\windows\system32\icaapi.dll

regapi 6.1.7600.16385 92.50 KB (94,720 bytes) 7/13/2009 5:17 PM Microsoft Corporation c:\windows\system32\regapi.dll

tlscsp 6.1.7600.16385 72.00 KB (73,728 bytes) 7/13/2009 5:16 PM Microsoft Corporation c:\windows\system32\tlscsp.dll

rdpcorekmts 6.1.7600.16385 146.00 KB (149,504 bytes) 7/13/2009 5:17 PM Microsoft Corporation c:\windows\system32\rdpcorekmts.dll

dll

rdpwsx 6.1.7600.16385 74.50 KB (76,288 bytes) 7/13/2009 5:17 PM Microsoft Corporation c:\windows\system32\rdpwsx.dll

dps 6.1.7600.16385 159.00 KB (162,816 bytes) 7/13/2009 4:31 PM Microsoft Corporation c:\windows\system32\dps.dll

taskschd 6.1.7600.16385 1.11 MB (1,168,896 bytes) 7/13/2009 4:47 PM Microsoft Corporation c:\windows\system32\taskschd.dll

pnpts 6.1.7600.16385 12.00 KB (12,288 bytes) 7/13/2009 4:31 PM Microsoft Corporation c:\windows\system32\pnpts.dll

wdiasqmmodule 6.1.7600.16385 35.00 KB (35,840 bytes) 7/13/2009 4:40 PM Microsoft Corporation c:\windows\system32\wdiasqmmodule.dll

radardt 6.1.7600.16385 95.50 KB (97,792 bytes) 7/13/2009 4:32 PM Microsoft Corporation c:\windows\system32\radardt.dll

msdtc 2001.12.8530.16385 138.50 KB (141,824 bytes) 7/13/2009 4:59 PM Microsoft Corporation c:\windows\system32\msdtc.exe

msdtctm 2001.12.8530.16385 1.44 MB (1,509,888 bytes) 7/13/2009 5:00 PM Microsoft Corporation c:\windows\system32\msdtctm.dll

msdtcprx 2001.12.8530.16385 728.00 KB (745,472 bytes) 7/13/2009 4:59 PM Microsoft Corporation c:\windows\system32\msdtcprx.dll

mtxclu 2001.12.8530.16385 364.00 KB (372,736 bytes) 7/13/2009 4:59 PM Microsoft Corporation c:\windows\system32\mtxclu.dll

msdtclog 2001.12.8530.16385 122.00 KB (124,928 bytes) 7/13/2009 4:59 PM Microsoft Corporation c:\windows\system32\msdtclog.dll

winmm 6.1.7600.16385 212.50 KB (217,600 bytes) 7/13/2009 5:18 PM Microsoft Corporation c:\windows\system32\winmm.dll

xolehlp 2001.12.8530.16385 58.00 KB (59,392 bytes) 7/13/2009 4:59 PM Microsoft Corporation c:\windows\system32\xolehlp.dll

comres 2001.12.8530.16385 1.24 MB (1,297,408 bytes) 7/13/2009 4:59 PM Microsoft Corporation c:\windows\system32\comres.dll

msdtcvsp1res 2001.12.8530.16385 21.00 KB (21,504 bytes) 7/13/2009 4:59 PM Microsoft Corporation c:\windows\system32\msdtcvsp1res.dll

mtxoci	2001.12.8530.16385	153.00 KB (156,672 bytes)	7/13/2009 4:59 PM	Microsoft Corporation	c:\windows\system32\mtxoci.dll
sppsvc	6.1.7600.16385	3.36 MB (3,524,608 bytes)	7/13/2009 6:05 PM	Microsoft Corporation	c:\windows\system32\sppsvc.exe
sppwinob	6.1.7600.16385	409.00 KB (418,816 bytes)	7/13/2009 4:51 PM	Microsoft Corporation	c:\windows\system32\sppwinob.dll
sppobj	6.1.7600.16385	1.03 MB (1,082,880 bytes)	7/13/2009 4:52 PM	Microsoft Corporation	c:\windows\system32\sppobj.dll
mpr	6.1.7600.16385	79.00 KB (80,896 bytes)	7/13/2009 5:10 PM	Microsoft Corporation	c:\windows\system32\mpr.dll
taskhost	6.1.7600.16385	67.50 KB (69,120 bytes)	7/13/2009 4:31 PM	Microsoft Corporation	c:\windows\system32\taskhost.exe
msctfmonitor	6.1.7600.16385	27.50 KB (28,160 bytes)	7/13/2009 4:39 PM	Microsoft Corporation	c:\windows\system32\msctfmonitor.dll
msutb	6.1.7600.16385	230.00 KB (235,520 bytes)	7/13/2009 4:39 PM	Microsoft Corporation	c:\windows\system32\msutb.dll
dimsjob	6.1.7600.16385	39.50 KB (40,448 bytes)	7/13/2009 4:53 PM	Microsoft Corporation	c:\windows\system32\dimsjob.dll
rdpclip	6.1.7600.16385	204.50 KB (209,408 bytes)	7/13/2009 5:17 PM	Microsoft Corporation	c:\windows\system32\rdpclip.exe
dwm	6.1.7600.16385	117.50 KB (120,320 bytes)	7/13/2009 4:37 PM	Microsoft Corporation	c:\windows\system32\dwm.exe
dwmredir	6.1.7600.16385	125.50 KB (128,512 bytes)	7/13/2009 4:37 PM	Microsoft Corporation	c:\windows\system32\dwmredir.dll
dwmcore	6.1.7600.16385	1.56 MB (1,634,304 bytes)	7/13/2009 4:39 PM	Microsoft Corporation	c:\windows\system32\dwmcore.dll
d3d10_1	6.1.7600.16385	192.50 KB (197,120 bytes)	7/13/2009 4:41 PM	Microsoft Corporation	c:\windows\system32\d3d10_1.dll
d3d10_1core	6.1.7600.16385	311.50 KB (318,976 bytes)	7/13/2009 4:41 PM	Microsoft Corporation	c:\windows\system32\d3d10_1core.dll

dxgi	6.1.7600.16385	643.00 KB (658,432 bytes)	7/13/2009 4:41 PM	Microsoft Corporation	c:\windows\system32\dxgi.dll
explorer	6.1.7600.16450	2.74 MB (2,870,272 bytes)	3/3/2010 4:45 PM	Microsoft Corporation	c:\windows\explorer.exe
explorerframe	6.1.7600.16385	1.78 MB (1,863,680 bytes)	7/13/2009 4:57 PM	Microsoft Corporation	c:\windows\system32\explorerframe.dll
e.dll					
powrprof	6.1.7600.16385	163.50 KB (167,424 bytes)	7/13/2009 4:27 PM	Microsoft Corporation	c:\windows\system32\powrprof.dll
ehstorshell	6.1.7600.16385	198.50 KB (203,264 bytes)	7/13/2009 5:00 PM	Microsoft Corporation	c:\windows\system32\ehstorshell.dll
l					
ntshrui	6.1.7600.16385	498.00 KB (509,952 bytes)	7/13/2009 4:57 PM	Microsoft Corporation	c:\windows\system32\ntshrui.dll
cscapi	6.1.7600.16385	45.00 KB (46,080 bytes)	7/13/2009 4:24 PM	Microsoft Corporation	c:\windows\system32\cscapi.dll
iconcodecservice	6.1.7600.16385	14.00 KB (14,336 bytes)	7/13/2009 4:37 PM	Microsoft Corporation	c:\windows\system32\iconcodecservice.dll
vice.dll					
timedate	6.1.7600.16385	503.00 KB (515,072 bytes)	7/13/2009 4:56 PM	Microsoft Corporation	c:\windows\system32\timedate.cpl
shdocvw	6.1.7600.16385	191.50 KB (196,096 bytes)	7/13/2009 4:55 PM	Microsoft Corporation	c:\windows\system32\shdocvw.dll
linkinfo	6.1.7600.16385	29.00 KB (29,696 bytes)	7/13/2009 4:55 PM	Microsoft Corporation	c:\windows\system32\linkinfo.dll
msftedit	5.41.21.2509	781.00 KB (799,744 bytes)	7/13/2009 4:39 PM	Microsoft Corporation	c:\windows\system32\msftedit.dll
msls31	3.10.349.0	217.00 KB (222,208 bytes)	7/13/2009 4:39 PM	Microsoft Corporation	c:\windows\system32\msls31.dll
ieframe	8.0.7600.16490	11.78 MB (12,356,608 bytes)	3/3/2010 4:45 PM	Microsoft Corporation	c:\windows\system32\ieframe.dll
oleacc	7.0.0.0	324.00 KB (331,776 bytes)	7/13/2009 4:39 PM	Microsoft Corporation	c:\windows\system32\oleacc.dll

iertutil	8.0.7600.16385	2.33 MB (2,440,704 bytes)	7/13/2009 4:59 PM	Microsoft Corporation	c:\windows\system32\iertutil.dll
stobject	6.1.7600.16385	250.00 KB (256,000 bytes)	7/13/2009 4:56 PM	Microsoft Corporation	c:\windows\system32\stobject.dll
batmeter	6.1.7600.16385	730.50 KB (748,032 bytes)	7/13/2009 4:56 PM	Microsoft Corporation	c:\windows\system32\batmeter.dll
prnfdlr	6.1.7600.16385	407.00 KB (416,768 bytes)	7/13/2009 5:40 PM	Microsoft Corporation	c:\windows\system32\prnfdlr.dll
dxp	6.1.7600.16385	449.00 KB (459,776 bytes)	7/13/2009 5:21 PM	Microsoft Corporation	c:\windows\system32\dxp.dll
urlmon	8.0.7600.16490	1.42 MB (1,492,480 bytes)	3/3/2010 4:45 PM	Microsoft Corporation	c:\windows\system32\urlmon.dll
syncreg	2007.94.7600.16385	72.00 KB (73,728 bytes)	7/13/2009 5:22 PM	Microsoft Corporation	c:\windows\system32\syncreg.dll
pnidui	6.1.7600.16385	1.72 MB (1,807,872 bytes)	7/13/2009 5:08 PM	Microsoft Corporation	c:\windows\system32\pnidui.dll
qutil	6.1.7600.16385	105.00 KB (107,520 bytes)	7/13/2009 5:07 PM	Microsoft Corporation	c:\windows\system32\qutil.dll
actioncenter	6.1.7600.16385	762.50 KB (780,800 bytes)	7/13/2009 4:56 PM	Microsoft Corporation	c:\windows\system32\actioncenter.dll
dll					
qagent	6.1.7600.16385	259.00 KB (265,216 bytes)	7/13/2009 5:07 PM	Microsoft Corporation	c:\windows\system32\qagent.dll
imapi2	6.1.7600.16385	493.50 KB (505,344 bytes)	7/13/2009 5:01 PM	Microsoft Corporation	c:\windows\system32\imapi2.dll
hgcppl	6.1.7600.16385	324.50 KB (332,288 bytes)	7/13/2009 4:57 PM	Microsoft Corporation	c:\windows\system32\hgcppl.dll
wininet	8.0.7600.16490	1.14 MB (1,192,960 bytes)	3/3/2010 4:45 PM	Microsoft Corporation	c:\windows\system32\wininet.dll
normaliz	6.1.7600.16385	2.50 KB (2,560 bytes)	7/13/2009 4:26 PM	Microsoft Corporation	c:\windows\system32\normaliz.dll

```

networkexplorer 6.1.7600.16385
1.60 MB (1,672,704 bytes)
7/13/2009 5:08 PM
Microsoft Corporation
c:\windows\system32\networkexplor
er.dll
werconcp1 6.1.7600.16385 1.22 MB
(1,280,512 bytes) 7/13/2009 4:41 PM
Microsoft Corporation
c:\windows\system32\werconcp1.dll

framedynos 6.1.7600.16385 288.50
KB (295,424 bytes) 7/13/2009 4:47 PM
Microsoft Corporation
c:\windows\system32\framedynos.d
ll

wercpsupport 6.1.7600.16385
82.50 KB (84,480 bytes)
7/13/2009 4:40 PM
Microsoft Corporation
c:\windows\system32\wercpsupport
.dll

msxlm6 6.30.7600.16385 1.91 MB
(1,999,360 bytes) 7/13/2009 5:43 PM
Microsoft Corporation
c:\windows\system32\msxlm6.dll

hcproviders 6.1.7600.16385 30.50 KB
(31,232 bytes) 7/13/2009 4:56 PM
Microsoft Corporation
c:\windows\system32\hcproviders.d
ll

ieproxy 8.0.7600.16490 439.00
KB (449,536 bytes) 3/3/2010 4:45 PM
Microsoft Corporation
c:\program files\internet
explorer\ieproxy.dll

msinfo32 6.1.7600.16385 370.00
KB (378,880 bytes) 7/13/2009 4:31 PM
Microsoft Corporation
c:\windows\system32\msinfo32.exe

mfc42u 6.6.8063.0 1.29 MB (1,357,312
bytes) 7/13/2009 5:35 PM
Microsoft Corporation
c:\windows\system32\mfc42u.dll

odbc32 6.1.7600.16385 696.00
KB (712,704 bytes) 7/13/2009 5:29 PM
Microsoft Corporation
c:\windows\system32\odbc32.dll

comdlg32 6.1.7600.16385 581.50
KB (595,456 bytes) 7/13/2009 4:55 PM
Microsoft Corporation
c:\windows\system32\comdlg32.dll

odbcint 6.1.7600.16385 224.00
KB (229,376 bytes) 7/13/2009 5:28 PM
Microsoft Corporation
c:\windows\system32\odbcint.dll

structuredquery 7.0.7600.16385
472.50 KB (483,840 bytes)
7/13/2009 5:29 PM
Microsoft Corporation
c:\windows\system32\structuredqu
ery.dll

actxprxy 6.1.7600.16385 936.50
KB (958,976 bytes) 7/13/2009 5:41 PM
Microsoft Corporation
c:\windows\system32\actxprxy.dll

```

```

thumbcache 6.1.7600.16385 110.50
KB (113,152 bytes) 7/13/2009 4:55 PM
Microsoft Corporation
c:\windows\system32\thumbcache.
searchfolder 6.1.7600.16385 845.00
KB (865,280 bytes) 7/13/2009 4:59 PM
Microsoft Corporation
c:\windows\system32\searchfolder.
dll

drprov 6.1.7600.16385 24.00 KB
(24,576 bytes) 7/13/2009 5:17 PM
Microsoft Corporation
c:\windows\system32\drprov.dll

ntlanman 6.1.7600.16385 126.50
KB (129,536 bytes) 7/13/2009 4:48 PM
Microsoft Corporation
c:\windows\system32\ntlanman.dll

ehstorapi 6.1.7600.16385 141.50
KB (144,896 bytes) 7/13/2009 5:00 PM
Microsoft Corporation
c:\windows\system32\ehstorapi.dll

cimwin32 6.1.7600.16385 1.96 MB
(2,055,168 bytes) 7/13/2009 4:48 PM
Microsoft Corporation
c:\windows\system32\wbem\cimwi
n32.dll

security 6.1.7600.16385 5.00 KB
(5,120 bytes) 7/13/2009 4:50 PM
Microsoft Corporation
c:\windows\system32\security.dll

browcli 6.1.7600.16385 57.00 KB
(58,368 bytes) 7/13/2009 4:53 PM
Microsoft Corporation
c:\windows\system32\browcli.dll

schedcli 6.1.7600.16385 23.50 KB
(24,064 bytes) 7/13/2009 4:53 PM
Microsoft Corporation
c:\windows\system32\schedcli.dll

wmi 6.1.7600.16385 5.00 KB
(5,120 bytes) 7/13/2009 5:41 PM
Microsoft Corporation
c:\windows\system32\wmi.dll

ntevt 6.1.7600.16385 260.00
KB (266,240 bytes) 7/13/2009 4:47 PM
Microsoft Corporation
c:\windows\system32\wbem\ntevt.
dll

provthrd 6.1.7600.16385 300.00
KB (307,200 bytes) 7/13/2009 4:47 PM
Microsoft Corporation
c:\windows\system32\provthrd.dll

msvcirt 7.0.7600.16385 76.50 KB
(78,336 bytes) 7/13/2009 4:18 PM
Microsoft Corporation
c:\windows\system32\msvcirt.dll

wsock32 6.1.7600.16385 18.00 KB
(18,432 bytes) 7/13/2009 5:10 PM
Microsoft Corporation
c:\windows\system32\wsock32.dll

tapi32 6.1.7600.16385 243.00
KB (248,832 bytes) 7/13/2009 5:41 PM
Microsoft Corporation
c:\windows\system32\tapi32.dll

```

```

[Services]
Display Name Name State
Start Mode Service Type Path
Error Control Start Name Tag ID

Application Experience AeLookupSvc Stopped
Disabled Share Process
c:\windows\system32\svchost.exe -
k netsvcs Normal localSystem 0

Application Layer Gateway Service ALG
Stopped Manual Own
Process c:\windows\system32\alg.exe
Normal NT
AUTHORITY\LocalService 0
Application Host Helper Service
AppHostSvc Running Auto
Share Process
c:\windows\system32\svchost.exe -
k apphost Normal localSystem 0

Application Identity AppIDSvc Stopped
Manual Share Process
c:\windows\system32\svchost.exe -
k localserviceandnoimpersonation Normal
NT Authority\LocalService 0

Application Information Appinfo Stopped
Manual Share Process
c:\windows\system32\svchost.exe -
k netsvcs Normal LocalSystem 0

Application Management AppMgmt Stopped
Manual Share Process
c:\windows\system32\svchost.exe -
k netsvcs Normal LocalSystem 0

Windows Audio Endpoint Builder
AudioEndpointBuilder Stopped
Manual Share Process
c:\windows\system32\svchost.exe -
k localsystemnetworkrestricted Normal
LocalSystem 0

Windows Audio AudioSrv Stopped
Manual Share Process
c:\windows\system32\svchost.exe -
k localservicenetworkrestricted Normal
NT AUTHORITY\LocalService
0

Base Filtering Engine BFE Stopped
Disabled Share Process
c:\windows\system32\svchost.exe -
k localservicenetwork Normal
AUTHORITY\LocalService 0

Background Intelligent Transfer Service BITS
Stopped Manual Share
Process c:\windows\system32\svchost.exe -
k netsvcs Normal LocalSystem 0

Computer Browser Browser Stopped
Disabled Share Process
c:\windows\system32\svchost.exe -
k netsvcs Normal LocalSystem 0

Certificate Propagation CertPropSvc Running
Manual Share Process
c:\windows\system32\svchost.exe -
k netsvcs Normal LocalSystem 0

HP Smart Array SAS/SATA Event Notification
Service Cissesrv Stopped Disabled
Own Process "c:\program
files\hp\cissesrv\cissesrv.exe" Normal
LocalSystem 0

```

Microsoft .NET Framework NGEN v2.0.50727\_X86  
clr\_optimization\_v2.0.50727\_32  
Stopped Manual Own

Process c:\windows\microsoft.net\framework  
k\v2.0.50727\mscorsvw.exe Ignore  
LocalSystem 0

Microsoft .NET Framework NGEN v2.0.50727\_X64  
clr\_optimization\_v2.0.50727\_64  
Stopped Manual Own

Process c:\windows\microsoft.net\framework  
k64\v2.0.50727\mscorsvw.exe Ignore  
LocalSystem 0

COM+ System Application COMSysApp Stopped  
Manual Own Process  
c:\windows\system32\dlhhost.exe  
/processid:{02d4b3f1-fd88-11d1-960d-  
00805fc79235} Normal  
LocalSystem 0

HP ProLiant iLO 3 Remote IML Service  
CpqRcm3 Running Auto  
Share Process  
"c:\program files\hewlett-  
packard\ilo 3\service\proliant\monitor.exe"  
Normal LocalSystem 0

Cryptographic Services CryptSvc Running  
Auto Share Process  
c:\windows\system32\svchost.exe -  
k networkservice Normal NT  
Authority\NetworkService 0

DCOM Server Process Launcher  
DcomLaunch Running Auto  
Share Process  
c:\windows\system32\svchost.exe -  
k dcomlaunch Normal  
LocalSystem 0

Disk Defragmenter defragsvc Stopped  
Manual Own Process  
c:\windows\system32\svchost.exe -  
k defragsvc Normal localSystem 0

DHCP Client Dhcp Running Auto  
Share Process  
c:\windows\system32\svchost.exe -  
k localservice\networkrestricted Normal  
NT Authority\LocalService 0

DNS Client Dnscache Running Auto  
Share Process  
c:\windows\system32\svchost.exe -  
k networkservice Normal NT  
AUTHORITY\NetworkService 0

Wired AutoConfig dot3svc Stopped  
Manual Share Process  
c:\windows\system32\svchost.exe -  
k localsystem\networkrestricted Normal  
localSystem 0

Diagnostic Policy Service DPS Running  
Auto Share Process  
c:\windows\system32\svchost.exe -  
k localservice\network Normal NT  
AUTHORITY\LocalService 0

Extensible Authentication Protocol EapHost  
Stopped Manual Share  
Process c:\windows\system32\svchost.exe -  
k netsvcs Normal localSystem 0

Encrypting File System (EFS) EFS  
Running Auto Share  
Process c:\windows\system32\lsass.exe  
Normal LocalSystem 0

Emulex HBA Discovery Emulex HBA Discovery  
Stopped Manual Own

Process c:\program files  
(x86)\emulex\util\common\hbadiscsvr.exe  
Normal LocalSystem 0

Emulex HBA Management Emulex HBA  
Management Stopped Disabled Own  
Process c:\program files  
(x86)\emulex\util\common\rmserver.exe Normal  
LocalSystem 0

Emulex MILI Management Emulex Management  
Interface Library v2 Stopped Manual  
Own Process c:\program files  
(x86)\emulex\util\common\mil2service.exe  
Normal LocalSystem 0

Emulex SvcMgr Emulex SvcMgr  
Stopped Disabled Own  
Process c:\program files  
(x86)\emulex\util\common\hbahsmgr.exe  
Normal LocalSystem 0

Windows Event Log eventlog Running  
Auto Share Process  
c:\windows\system32\svchost.exe -  
k localservice\networkrestricted Normal  
NT AUTHORITY\LocalService  
0

COM+ Event System EventSystem Running  
Auto Share Process  
c:\windows\system32\svchost.exe -  
k localservice Normal NT  
AUTHORITY\LocalService 0

Microsoft Fibre Channel Platform Registration  
Service FCRegSvc Stopped Manual  
Share Process  
c:\windows\system32\svchost.exe -  
k localservice\networkrestricted Normal  
NT AUTHORITY\LocalService  
0

Function Discovery Provider Host fdPHost  
Stopped Manual Share  
Process c:\windows\system32\svchost.exe -  
k localservice Normal NT  
AUTHORITY\LocalService 0

Function Discovery Resource Publication  
FDResPub Stopped Manual  
Share Process  
c:\windows\system32\svchost.exe -  
k localservice\andnoimpersonation Normal  
NT AUTHORITY\LocalService  
0

Windows Font Cache Service  
FontCache Stopped Manual  
Share Process  
c:\windows\system32\svchost.exe -  
k localservice\andnoimpersonation Normal  
NT AUTHORITY\LocalService  
0

Group Policy Client gpsvc Running  
Auto Share Process  
c:\windows\system32\svchost.exe -  
k netsvcs Normal LocalSystem 0

Brocade HCM Agent Service  
hcmagent Stopped Manual  
Own Process "c:\program files  
(x86)\brocade\driverpackage\bfa\util\hbaagent\b  
n\hcmagent.exe" -d -c "c:\program files  
(x86)\brocade\driverpackage\bfa\util\hbaagent\c  
onf\abyss.conf" Normal  
LocalSystem 0

Human Interface Device Access hidserv  
Stopped Manual Share  
Process c:\windows\system32\svchost.exe -  
k localsystem\networkrestricted Normal  
Health Key and Certificate Management hkmsvc  
Stopped Manual Share  
Process c:\windows\system32\svchost.exe -  
k netsvcs Normal localSystem 0

IKE and AuthIP IPsec Keying Modules IKEEXT  
Stopped Auto Share  
Process c:\windows\system32\svchost.exe -  
k netsvcs Normal LocalSystem 0

PnP-X IP Bus Enumerator IPBusEnum Stopped  
Disabled Share Process  
c:\windows\system32\svchost.exe -  
k localsystem\networkrestricted Normal  
LocalSystem 0

IP Helper iphlpsvc Running Auto  
Share Process  
c:\windows\system32\svchost.exe -  
k netsvcs Normal LocalSystem 0

CNG Key Isolation KeyIso Stopped  
Manual Share Process  
c:\windows\system32\lsass.exe  
Normal LocalSystem 0

KtmRm for Distributed Transaction Coordinator  
KtmRm Stopped Manual  
Share Process  
c:\windows\system32\svchost.exe -  
k networkservice\andnoimpersonation Normal  
NT AUTHORITY\NetworkService  
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 networkservice Normal NT  
AUTHORITY\NetworkService 0

Link-Layer Topology Discovery Mapper lldsvcs  
Stopped Manual Share  
Process c:\windows\system32\svchost.exe -  
k localservice Normal NT  
AUTHORITY\LocalService 0

TCP/IP NetBIOS Helper lmhosts Running  
Auto Share Process  
c:\windows\system32\svchost.exe -  
k localservice\networkrestricted Normal  
NT AUTHORITY\LocalService  
0

Multimedia Class Scheduler MMCSS Stopped  
Manual Share Process  
c:\windows\system32\svchost.exe -  
k netsvcs Normal LocalSystem 0

Windows Firewall MpsSvc Stopped  
Disabled Share Process  
c:\windows\system32\svchost.exe -  
k localservice\network Normal NT  
Authority\LocalService 0

Distributed Transaction Coordinator MSDTC  
Running Auto Own  
Process c:\windows\system32\msdtc.exe  
Normal NT  
AUTHORITY\NetworkService 0

SQL Server FullText Search (MSSQLSERVER)  
 msftesql Stopped Disabled  
 Own Process "c:\program  
 files\microsoft sql  
 server\mssql.1\mssql\bin\msftesql.exe" -  
 s:mssql.1 -f:mssqlserver Normal  
 LocalSystem 0

Microsoft iSCSI Initiator Service MSISCSI  
 Stopped Manual Share  
 Process c:\windows\system32\svchost.exe -  
 k netsvcs Normal LocalSystem 0

Windows Installer msiserver Stopped  
 Manual Own Process  
 c:\windows\system32\msiexec.exe  
 /v Normal LocalSystem 0

SQL Server (MSSQLSERVER)  
 MSSQLSERVER Stopped  
 Manual Own Process  
 "c:\program files\microsoft sql  
 server\mssql.1\mssql\bin\sqlservr.exe" -  
 smssqlserver Normal LocalSystem 0

SQL Server Active Directory Helper  
 MSSQLServerADHelper Stopped  
 Disabled Own Process  
 "c:\program files\microsoft sql  
 server\90\shared\sqladhlp90.exe" Normal  
 NT AUTHORITY\NetworkService  
 0

Network Access Protection Agent  
 napagent Stopped Manual  
 Share Process  
 c:\windows\system32\svchost.exe -  
 k networkservice Normal NT  
 AUTHORITY\NetworkService 0

Netlogon 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 localsystemnetworkrestricted Normal  
 LocalSystem 0

Network List Service netprofm Running  
 Manual Share Process  
 c:\windows\system32\svchost.exe -  
 k localservice Normal NT  
 AUTHORITY\LocalService 0

Network Location Awareness NlaSvc  
 Running Auto Share  
 Process c:\windows\system32\svchost.exe -  
 k networkservice Normal NT  
 AUTHORITY\NetworkService 0

Network Store Interface Service nsi  
 Running Auto Share  
 Process c:\windows\system32\svchost.exe -  
 k localservice Normal NT  
 Authority\LocalService 0

Office Source Engine ose Stopped  
 Manual Own Process  
 "c:\program files (x86)\common  
 files\microsoft shared\source engine\ose.exe"  
 Normal LocalSystem 0

Performance Counter DLL Host PerfHost  
 Stopped Manual Own  
 Process c:\windows\system32\perfhost.exe  
 Normal NT  
 AUTHORITY\LocalService 0

Performance Logs & Alerts pla Stopped  
 Manual Share Process  
 c:\windows\system32\svchost.exe -  
 k localservice Normal NT  
 AUTHORITY\NetworkService 0

Remote Procedure Call (RPC) Locator  
 RpcLocator Stopped Manual  
 Own Process  
 c:\windows\system32\locator.exe  
 Normal NT  
 AUTHORITY\NetworkService 0

Power Power Running Auto  
 Share Process  
 c:\windows\system32\svchost.exe -  
 k dcomlaunch Normal  
 LocalSystem 0

User Profile Service ProfSvc Running  
 Auto Share Process  
 c:\windows\system32\svchost.exe -  
 k netsvcs Normal LocalSystem 0

HP ProLiant Health Monitor Service  
 ProLiantMonitor Running  
 Auto Share Process  
 "c:\program files\hewlett-  
 packard\ilo 3\service\proliantmonitor.exe"  
 Normal LocalSystem 0

Protected Storage ProtectedStorage  
 Stopped Manual 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

Routing and Remote Access  
 RemoteAccess Stopped  
 Disabled Share Process  
 c:\windows\system32\svchost.exe -  
 k netsvcs Normal localSystem 0

Remote Registry RemoteRegistry  
 Stopped Disabled Share  
 Process c:\windows\system32\svchost.exe -  
 k regsvc Normal NT  
 AUTHORITY\LocalService 0

RPC Endpoint Mapper RpcEptMapper  
 Running Auto Share  
 Process c:\windows\system32\svchost.exe -  
 k rpcss Normal NT  
 AUTHORITY\NetworkService 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 ManagerSamSs Running  
 Auto Share Process  
 c:\windows\system32\lsass.exe  
 Normal LocalSystem 0

Smart Card SCardSvr Stopped Manual  
 Share Process  
 c:\windows\system32\svchost.exe -  
 k localserviceandnoimpersonation Normal  
 NT AUTHORITY\LocalService  
 0

Task Scheduler Schedule Running  
 Auto Share Process  
 c:\windows\system32\svchost.exe -  
 k netsvcs Normal LocalSystem 0

Smart Card Removal Policy SCPolicySvc Stopped  
 Manual Share Process  
 c:\windows\system32\svchost.exe -  
 k netsvcs Normal LocalSystem 0

Secondary Logon seclogon Stopped  
 Manual Share Process  
 c:\windows\system32\svchost.exe -  
 k netsvcs Normal LocalSystem 0

System Event Notification Service SENS  
 Running Auto Share  
 Process c:\windows\system32\svchost.exe -  
 k netsvcs Normal LocalSystem 0

Remote Desktop Configuration  
 SessionEnv Running Manual  
 Share Process  
 c:\windows\system32\svchost.exe -  
 k netsvcs Normal localSystem 0

Internet Connection Sharing (ICS)  
 SharedAccess Stopped  
 Disabled Share Process  
 c:\windows\system32\svchost.exe -  
 k netsvcs Normal LocalSystem 0

Shell Hardware Detection ShellHWDetection  
 Stopped Disabled Share  
 Process c:\windows\system32\svchost.exe -  
 k netsvcs Ignore LocalSystem 0

SNMP Trap SNMPTRAP Stopped Manual  
 Own Process  
 c:\windows\system32\snmptrap.exe  
 Normal NT  
 AUTHORITY\LocalService 0

Print Spooler Spooler Stopped Disabled  
 Own Process  
 c:\windows\system32\spoolsv.exe  
 Normal LocalSystem 0

```

Software Protection      sppsvc      Running
Auto                    Own Process
c:\windows\system32\sppsvc.exe
Normal NT
AUTHORITY\NetworkService 0

SPP Notification Service sppuotify Stopped
Manual Share Process
c:\windows\system32\svchost.exe -
k localservice Normal NT
AUTHORITY\LocalService 0
SQL Server Browser      SQLBrowser Stopped
Disabled Own Process
"c:\program files (x86)\microsoft
sql server\90\shared\sqlbrowser.exe" Normal
LocalSystem 0
SQL Server Agent (MSSQLSERVER)
SQLSERVERAGENT Stopped
Manual Own Process
"c:\program files\microsoft sql
server\mssql.1\mssql\bin\sqlagent90.exe" -i
mssqlserver Normal LocalSystem 0

SQL Server VSS Writer   SQLWriter Stopped
Disabled Own Process
"c:\program files\microsoft sql
server\90\shared\sqlwriter.exe" Normal
LocalSystem 0

SSDP Discovery          SSDPSRV Stopped
Disabled Share Process
c:\windows\system32\svchost.exe -
k localserviceandnoimpersonation Normal
NT AUTHORITY\LocalService
0

Secure Socket Tunneling Protocol Service
SstpSvc Stopped Manual
Share Process
c:\windows\system32\svchost.exe -
k localservice 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

HP ProLiant System Shutdown Service sysdown
Running Auto Share
Process "c:\program files\hewlett-
packard\ilo 3\service\proliantmonitor.exe"
Normal LocalSystem 0

Telephony               TapiSrv Stopped Manual
Own Process
c:\windows\system32\svchost.exe -
k tapisrv Normal NT
AUTHORITY\NetworkService 0

TPM Base Services      TBS Stopped
Manual Share Process
c:\windows\system32\svchost.exe -
k localserviceandnoimpersonation Normal
NT AUTHORITY\LocalService
0

Remote Desktop Services TermService Running
Manual Share Process
c:\windows\system32\svchost.exe -
k termsvc Normal NT
Authority\NetworkService 0
Thread Ordering Server THREADORDER
Stopped Manual Share
Process c:\windows\system32\svchost.exe -
k localservice Normal NT
AUTHORITY\LocalService 0

```

```

Distributed Link Tracking Client TrkWks
Running Auto Share
Process c:\windows\system32\svchost.exe -
k localsystemnetworkrestricted Normal
Windows Modules Installed TrustedInstaller
Stopped Manual Own
Process
c:\windows\servicing\trustedinstalle
r.exe Normal localSystem 0

Interactive Services Detection
UIODetect Stopped Manual
Own Process
c:\windows\system32\ui0detect.exe
Normal LocalSystem 0

Remote Desktop Services UserMode Port
Redirector UmRdpService Running
Manual Share Process
c:\windows\system32\svchost.exe -
k localsystemnetworkrestricted Normal
localSystem 0

UPnP Device Host upnphost Stopped
Disabled Share Process
c:\windows\system32\svchost.exe -
k localserviceandnoimpersonation Normal
NT AUTHORITY\LocalService
0

Desktop Window Manager Session Manager
UxSms Running Auto
Share Process
c:\windows\system32\svchost.exe -
k localsystemnetworkrestricted Normal
localSystem 0

Credential Manager VaultSvc Stopped
Manual Share Process
c:\windows\system32\lsass.exe
Normal LocalSystem 0

Virtual Disk 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

Windows Process Activation Service WAS
Stopped Manual Share
Process c:\windows\system32\svchost.exe -
k iissvc Normal LocalSystem 0

Block Level Backup Engine Service
wbengine Stopped Manual
Own Process
"c:\windows\system32\wbengine.ex
e" Normal LocalSystem 0

Windows Color System WcsPlugInService
Stopped Manual Share
Process c:\windows\system32\svchost.exe -
k wcssvc Normal NT
AUTHORITY\LocalService 0
Diagnostic Service Host WdiServiceHost
Stopped Manual Share
Process c:\windows\system32\svchost.exe -
k localservice Normal NT
AUTHORITY\LocalService 0

```

```

Diagnostic System Host WdiSystemHost
Running Manual Share
Process c:\windows\system32\svchost.exe -
k localsystemnetworkrestricted Normal
Windows Event Collector Wecsvc Stopped
Manual Share Process
c:\windows\system32\svchost.exe -
k networkservice Normal NT
AUTHORITY\NetworkService 0

Problem Reports and Solutions Control Panel
Support wercplsupport Stopped
Manual Share Process
c:\windows\system32\svchost.exe -
k netsvc Normal localSystem 0

Windows Error Reporting Service WerSvc
Stopped Manual Share
Process c:\windows\system32\svchost.exe -
k wersvcgroup Ignore
localSystem 0

WinHTTP Web Proxy Auto-Discovery Service
WinHttpAutoProxySvc Stopped
Disabled 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 netsvc Ignore localSystem 0

Windows Remote Management (WS-
Management) WinRM Running
Auto Share Process
c:\windows\system32\svchost.exe -
k networkservice Normal NT
AUTHORITY\NetworkService 0

WMI Performance Adapter wmiApSrv Stopped
Manual Own Process
c:\windows\system32\wbem\wmiap
srv.exe Normal localSystem 0

Portable Device Enumerator Service
WPDBusEnum Stopped
Manual Share Process
c:\windows\system32\svchost.exe -
k localsystemnetworkrestricted Normal
LocalSystem 0

Windows Update wuauerv Stopped
Disabled Share Process
c:\windows\system32\svchost.exe -
k netsvc Normal LocalSystem 0

Windows Driver Foundation - User-mode Driver
Framework wudfsvc Stopped Manual
Share Process
c:\windows\system32\svchost.exe -
k localsystemnetworkrestricted Normal
LocalSystem 0

[Program Groups]

Group Name Name User Name
Start Menu Default:Start Menu Default
Start Menu\Programs Default:Start
Menu\Programs Default
Start Menu\Programs\Accessories
Default:Start
Menu\Programs\Accessories Default

```



Start Menu\Programs\Accessories\Accessibility  
Default:Start

Menu\Programs\Accessories\Accessibility  
Default

Start Menu\Programs\Accessories\System Tools  
Default:Start

Menu\Programs\Accessories\System Tools  
Default

Start Menu\Programs\Maintenance  
Default:Start

Menu\Programs\Maintenance Default

Start Menu Public:Start Menu Public

Start Menu\Programs Public:Start  
Menu\Programs Public

Start Menu\Programs\Accessories  
Public:Start

Menu\Programs\Accessories Public

Start Menu\Programs\Accessories\Accessibility  
Public:Start

Menu\Programs\Accessories\Accessibility  
Public

Start Menu\Programs\Accessories\System Tools  
Public:Start

Menu\Programs\Accessories\System Tools  
Public

Start Menu\Programs\Accessories\Windows  
PowerShell Public:Start

Menu\Programs\Accessories\Windows PowerShell  
Public

Start Menu\Programs\Administrative Tools  
Public:Start

Menu\Programs\Administrative Tools Public

Start Menu\Programs\Administrative  
Tools\Terminal Services Public:Start

Menu\Programs\Administrative Tools\Terminal  
Services Public

Start Menu\Programs\Brocade Adapter Software  
Public:Start

Menu\Programs\Brocade Adapter Software  
Public

Start Menu\Programs\Debugging Tools for  
Windows (x64) Public:Start

Menu\Programs\Debugging Tools for Windows  
(x64) Public

Start Menu\Programs\Emulex  
Public:Start Menu\Programs\Emulex  
Public

Start Menu\Programs\HP System Tools  
Public:Start Menu\Programs\HP  
System Tools Public

Start Menu\Programs\HP System Tools\HP Array  
Configuration Utility Public:Start

Menu\Programs\HP System Tools\HP Array  
Configuration Utility Public

Start Menu\Programs\Maintenance  
Public:Start

Menu\Programs\Maintenance Public

Start Menu\Programs\Microsoft SQL Server 2005  
Public:Start

Menu\Programs\Microsoft SQL Server 2005  
Public

Start Menu\Programs\Microsoft SQL Server  
2005\Configuration Tools Public:Start

Menu\Programs\Microsoft SQL Server  
2005\Configuration Tools Public

Start Menu\Programs\NeoSmart Technologies  
Public:Start

Menu\Programs\NeoSmart Technologies Public

Start Menu\Programs\NeoSmart  
Technologies\EasyBCD Public:Start

Menu\Programs\NeoSmart  
Technologies\EasyBCD Public

Start Menu\Programs\Startup  
Public:Start Menu\Programs\Startup  
Public

Start Menu SQLWESTMERE\guz:Start Menu  
SQLWESTMERE\guz

Start Menu\Programs  
SQLWESTMERE\guz:Start  
Menu\Programs SQLWESTMERE\guz

Start Menu\Programs\Accessories  
SQLWESTMERE\guz:Start  
Menu\Programs\Accessories  
SQLWESTMERE\guz

Start Menu\Programs\Accessories\Accessibility  
SQLWESTMERE\guz:Start  
Menu\Programs\Accessories\Accessibility  
SQLWESTMERE\guz

Start Menu\Programs\Accessories\System Tools  
SQLWESTMERE\guz:Start  
Menu\Programs\Accessories\System Tools  
SQLWESTMERE\guz

Start Menu\Programs\Administrative Tools  
SQLWESTMERE\guz:Start  
Menu\Programs\Administrative Tools  
SQLWESTMERE\guz

Start Menu\Programs\Maintenance  
SQLWESTMERE\guz:Start  
Menu\Programs\Maintenance  
SQLWESTMERE\guz

Start Menu\Programs\Startup  
SQLWESTMERE\guz:Start  
Menu\Programs\Startup  
SQLWESTMERE\guz

Start Menu SQLWESTMERE\Admin2:Start Menu  
SQLWESTMERE\Admin2

Start Menu\Programs  
SQLWESTMERE\Admin2:Start  
Menu\Programs  
SQLWESTMERE\Admin2

Start Menu\Programs\Accessories  
SQLWESTMERE\Admin2:Start  
Menu\Programs\Accessories  
SQLWESTMERE\Admin2

Start Menu\Programs\Accessories\Accessibility  
SQLWESTMERE\Admin2:Start  
Menu\Programs\Accessories\Accessibility  
SQLWESTMERE\Admin2

Start Menu\Programs\Accessories\System Tools  
SQLWESTMERE\Admin2:Start  
Menu\Programs\Accessories\System Tools  
SQLWESTMERE\Admin2

Start Menu\Programs\Administrative Tools  
SQLWESTMERE\Admin2:Start  
Menu\Programs\Administrative Tools  
SQLWESTMERE\Admin2

Start Menu\Programs\Maintenance  
SQLWESTMERE\Admin2:Start  
Menu\Programs\Maintenance  
SQLWESTMERE\Admin2

Start Menu\Programs\Startup  
SQLWESTMERE\Admin2:Start  
Menu\Programs\Startup  
SQLWESTMERE\Admin2

Start Menu SQLWESTMERE\Administrator:Start  
Menu SQLWESTMERE\Administrator

Start Menu\Programs  
SQLWESTMERE\Administrator:Start  
Menu\Programs  
SQLWESTMERE\Administrator

Start Menu\Programs\Accessories  
SQLWESTMERE\Administrator:Start

Menu\Programs\Accessories  
SQLWESTMERE\Administrator

Start Menu\Programs\Accessories\Accessibility  
SQLWESTMERE\Administrator:Start

Menu\Programs\Accessories\Accessibility  
SQLWESTMERE\Administrator

Start Menu\Programs\Accessories\System Tools  
SQLWESTMERE\Administrator:Start

Menu\Programs\Accessories\System Tools  
SQLWESTMERE\Administrator

Start Menu\Programs\Administrative Tools  
SQLWESTMERE\Administrator:Start

Menu\Programs\Administrative Tools  
SQLWESTMERE\Administrator

Start Menu\Programs\Maintenance  
SQLWESTMERE\Administrator:Start

Menu\Programs\Maintenance  
SQLWESTMERE\Administrator

Start Menu\Programs\Startup  
SQLWESTMERE\Administrator:Start

Menu\Programs\Startup  
SQLWESTMERE\Administrator

[Startup Programs]

Program	Command	User Name	Location
[OLE Registration]			
Object	Local Server		
WordPad Document			"%programfiles%\windows nt\accessories\wordpad.exe"
Paintbrush Picture			%systemroot%\system32\mspaint. exe
Package	Not Available		
Microsoft PenInputPanel Control		Not Available	
[Windows Error Reporting]			
Time	Type	Details	
5/5/2010 4:24 AM	Application Error	Faulting application name: SQLCMD.EXE, version: 2005.90.4035.0, time stamp: 0x492b15af&#x000d;&#x000a;Faulting module name: kernel32.dll, version: 6.1.7600.16385, time stamp: 0x4a5bdfdf&#x000d;&#x000a;Exception code: 0xc0000005&#x000d;&#x000a;Fault offset: 0x0000000000224a0&#x000d;&#x000a;Faultin g process id: 0xfd0&#x000d;&#x000a;Faulting application start time: 0x01caebf46587f2e9&#x000d;&#x000a;Faulting application path: C:\Program Files\Microsoft SQL Server\90\Tools\bin\SQLCMD.EXE&#x000d;&#x 000a;Faulting module path: C:\Windows\system32\kernel32.dll&#x000d;&#x 000a;Report Id: 1cf1e0d5-57fe-11df-ac1f- 18a905c50c46	

```

5/5/2010 4:24 AM      Windows Error
Reporting      Fault bucket , type
0&#x000d;&#x000a;Event Name:
APPCrash&#x000d;&#x000a;Response: Not
available&#x000d;&#x000a;Cab Id:
0&#x000d;&#x000a;&#x000d;&#x000a;Problem
signature:&#x000d;&#x000a;P1:
SQLCMD.EXE&#x000d;&#x000a;P2:
2005.90.4035.0&#x000d;&#x000a;P3:
492b15af&#x000d;&#x000a;P4:
kernel32.dll&#x000d;&#x000a;P5:
6.1.7600.16385&#x000d;&#x000a;P6:
4a5bdfdf&#x000d;&#x000a;P7:
c0000005&#x000d;&#x000a;P8:
000000000224a0&#x000d;&#x000a;P9:
&#x000d;&#x000a;P10:
&#x000d;&#x000a;&#x000d;&#x000a;Attached
files:&#x000d;&#x000a;&#x000d;&#x000a;Thes
e files may be available
here:&#x000d;&#x000a;C:\Users\Administrator\
AppData\Local\Microsoft\Windows\ReportAr
chive\AppCrash_SQLCMD.EXE_9d43fce1b62f1e63
85f0f9e167c82126df1d8e_0f017939&#x000d;&#
x000a;&#x000d;&#x000a;Analysis symbol:
&#x000d;&#x000a;Rechecking for solution:
0&#x000d;&#x000a;Report Id: 1cf1e0d5-57fe-
11df-ac1f-
18a905c50c46&#x000d;&#x000a;Report Status:
0

```

### Microsoft SQL Server 2005 Startup Parameters

```

sqlservr.exe -c -x -T661 -T834 -T3502 -T8011
-T8012 -T8018 -T8033 -T8710 -T8019 -T8744

```

```

where
rem ** -c      - Run as console app
rem ** -x      - Disable stats
rem ** -T661   - Disable the ghost
record removal process
rem ** -T677   - Disable bunch of
checks in AM. Available in chk/fre, not golden
rem ** -T697   - Make schema latch
superlatch
rem ** -T827   - Display latch
promotions
rem ** -T834   - Large pages
rem ** -T1211  - Disable lock
escalation
rem ** -T3502  - Send checkpoint
state changes to errorlog
rem ** -T8011  - Disable ring buffer
for resource monitor
rem ** -T8012  - Disable ring buffer
for schedulers
rem ** -T8018  - Disable exception
ring buffer
rem ** -T8020  - Disable working set
trimming
rem ** -T8193  - Enable large pages
support
rem ** -T8710  - disable HP spools (2000 vs 1w
bug)
rem ** -T8744  - Disable pre-fetch
rem ** -T9259  - prevent pullup of projects

```

### Microsoft SQL Server TCP and Soft Numa Config

Windows Registry Editor Version 5.00

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\
Microsoft SQL Server\90\NodeConfiguration]
```

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\
Microsoft SQL
Server\90\NodeConfiguration\Node0]
"CPUMask"=dword:0000003E
```

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\
Microsoft SQL
Server\90\NodeConfiguration\Node1]
"CPUMask"=dword:000007C0
```

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\
Microsoft SQL
Server\90\NodeConfiguration\Node2]
"CPUMask"=dword:0003F000
```

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\
Microsoft SQL
Server\90\NodeConfiguration\Node3]
"CPUMask"=dword:007C0000
```

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\
Microsoft SQL
Server\MSSQL.1\MSSQLServer\SuperSocketNetLi
b\Tcp\IPAll]
"TcpPort"=
1433,2001[0x1],2002[0x2],2003[0x4],2004[0x8]"
"TcpDynamicPorts"=""
"DisplayName"="Any IP Address"
```

### UI2ser Rights Assignment

The Group Policy Editor of Windows.net was used to modify an entry under User Rights Assignment. Specifically, the right to "Lock pages in memory" was given to the Administrators group so that SQL Server 2000 could use large amounts of physical memory.

### HP StorageWorks 82E HBA

All settings left at default

### OnBoard Broadcom NIC settings

All default

## C.1 Microsoft SQL Server 8.0 Configuration Parameters

name	minimum	run_value
maximum	config_value	
Ad Hoc Distributed Queries	0	
1	0	
affinity I/O mask	-2147483648	
2147483647	0	
affinity mask	-2147483648	
2147483647	16777215	16777215
affinity64 I/O mask	-2147483648	
2147483647	0	0
affinity64 mask	-2147483648	
2147483647	0	0
Agent XPs	0	1
0	0	
allow updates	0	1
0	0	
awe enabled	0	1
0	0	
blocked process threshold	0	
86400	0	0
c2 audit mode	0	1
0	0	
clr enabled	0	1
0	0	
common criteria compliance enabled	0	
1	0	0
cost threshold for parallelism	0	
32767	5	5
cross db ownership chaining	0	
1	0	0
cursor threshold	-1	
2147483647	-1	-1
Database Mail XPs	0	1
0	0	
default full-text language	0	
2147483647	1033	1033
default language	0	9999
0	0	
default trace enabled	0	1
0	0	
disallow results from triggers	0	
1	0	0
fill factor (%)	0	100
0	0	
ft crawl bandwidth (max)	0	
32767	100	100
ft crawl bandwidth (min)	0	
32767	0	0
ft notify bandwidth (max)	0	
32767	100	100
ft notify bandwidth (min)	0	
32767	0	0
in-doubt xact resolution	0	2
0	0	
index create memory (KB)	704	
2147483647	0	0
lightweight pooling	0	1
1	1	
locks	5000	
2147483647	0	0
max degree of parallelism	0	
64	1	1

```

max full-text crawl range      0
256      4      4
max server memory (MB)      16
2147483647      193000      193000
max text repl size (B)      0
2147483647      65536      65536
max worker threads      128
32767      4000      4000
media retention      0      365
0      0
min memory per query (KB)      512
2147483647      1024      1024
min server memory (MB)      0
2147483647      0      16
nested triggers      0      1
1      1
network packet size (B)      512
32767      4096      4096
Ole Automation Procedures      0
1      0      0
open objects      0
2147483647      0      0
PH timeout (s)      1      3600
60      60
precompute rank      0      1
0      0
priority boost      0      1
1      1
query governor cost limit      0
2147483647      0      0
query wait (s)      -1
2147483647      -1      -1
recovery interval (min)      0
32767      32767      32767
remote access      0      1
1      1
remote admin connections      0
1      0      0
remote login timeout (s)      0
2147483647      20      20
remote proc trans      0      1
0      0
remote query timeout (s)      0
2147483647      600      600
Replication XPs      0      1
0      0
scan for startup procs      0      1
0      0
server trigger recursion      0      1
1      1
set working set size      0      1
0      0
show advanced options      0
1      1      1
SMO and DMO XPs      0
1      1      1
SQL Mail XPs      0      1
0      0
transform noise words      0
1      0      0
two digit year cutoff      1753
9999      2049      2049
user connections      0
32767      0      0
user options      0      32767
0      0
Web Assistant Procedures      0
1      0      0
xp_cmdshell      0      1
0      0

```

## C.2 Client System Configuration Parameters

### Client Windows Server 2003 Settings

System Information report written at: 04/19/10 16:32:50  
System Name: C7KBAY1  
[System Summary]

Item	Value
OS Name	Microsoft® Windows Server® 2008 Standard
Version	6.0.6001 Service Pack 1 Build 6001

Other OS Description	Not Available
OS Manufacturer	Microsoft Corporation

System Name	C7KBAY1
System Manufacturer	HP
System Model	ProLiant BL460c G6

System Type	x64-based PC
Processor	Intel(R) Xeon(R) CPU E5520 @ 2.27GHz, 2266 Mhz, 4 Core(s), 4 Logical Processor(s)
Processor	Intel(R) Xeon(R) CPU E5520 @ 2.27GHz, 2266 Mhz, 4 Core(s), 4 Logical Processor(s)
BIOS Version/Date	HP I24, 7/25/2009

SMBIOS Version	2.6
Windows Directory	C:\Windows
System Directory	C:\Windows\system32

Boot Device	\Device\HarddiskVolume1
Locale	United States
Hardware Abstraction Layer	Version = "6.0.6001.18000"
User Name	C7KBAY1\Administrator
Time Zone	Pacific Daylight Time
Installed Physical Memory (RAM)	8.00 GB

Total Physical Memory	3.99 GB
Available Physical Memory	6.86 GB
Total Virtual Memory	16.0 GB
Available Virtual Memory	15.0 GB
Page File Space	8.28 GB
Page File	C:\pagefile.sys

[Hardware Resources]

[Conflicts/Sharing]

Resource	Device	Status
I/O Port 0x00000000-0x000003AF	PCI bus	

I/O Port 0x00000000-0x000003AF	Direct memory access controller
--------------------------------	---------------------------------

IRQ 20	Standard Universal PCI to USB Host Controller
IRQ 20	Standard Enhanced PCI to USB Host Controller

I/O Port 0x000003C0-0x000003DF	PCI bus
I/O Port 0x000003C0-0x000003DF	ATI ES1000

I/O Port 0x00000070-0x00000077	Motherboard resources
I/O Port 0x00000070-0x00000077	System CMOS/real time clock

Memory Address 0xE8000000-0xEFFFFFFF	Intel(R) 82801 PCI Bridge - 244E
--------------------------------------	----------------------------------

Memory Address 0xE8000000-0xEFFFFFFF	ATI ES1000
--------------------------------------	------------

IRQ 22	Standard Universal PCI to USB Host Controller
IRQ 22	HP iLO Management Channel Interface Driver
IRQ 22	Standard Universal PCI to USB Host Controller

IRQ 23	Standard Universal PCI to USB Host Controller
IRQ 23	Standard Universal PCI to USB Host Controller
IRQ 23	ATI ES1000

Memory Address 0xFED00000-0xFED03FFF	PCI bus
--------------------------------------	---------

Memory Address 0xFED00000-0xFED03FFF	PCI bus
--------------------------------------	---------

Memory Address 0xFED00000-0xFED03FFF	High precision event timer
--------------------------------------	----------------------------

Memory Address 0xA0000-0xBFFFF	PCI bus
--------------------------------	---------

Memory Address 0xA0000-0xBFFFF	ATI ES1000
--------------------------------	------------

I/O Port 0x000003B0-0x000003BB	PCI bus
--------------------------------	---------

I/O Port 0x000003B0-0x000003BB	ATI ES1000
--------------------------------	------------

I/O Port 0x00001000-0x00004FFF	PCI bus
--------------------------------	---------

I/O Port 0x00001000-0x00004FFF	Standard Universal PCI to USB Host Controller
--------------------------------	---

[DMA]

Resource	Device	Status
Channel 7	Direct memory access controller	OK

[Forced Hardware]

Device	PNP Device ID
--------	---------------

[I/O]

Resource	Device	Status
0x00001000-0x00004FFF	PCI bus	OK

0x00001000-0x00004FFF	Standard Universal PCI to USB Host Controller	OK
0x00000000-0x000003AF	PCI bus	OK

0x00000000-0x000003AF	Direct memory access controller	OK
0x000003E0-0x00000CF7	PCI bus	OK

0x00000D00-0x00000FFF PCI bus OK  
0x000003B0-0x000003BB PCI bus OK  
0x000003B0-0x000003BB ATI ES1000 OK  
0x000003C0-0x000003DF PCI bus OK  
0x000003C0-0x000003DF ATI ES1000 OK  
0x00004000-0x00004FFF PCI standard PCI-to-PCI bridge OK  
0x00001020-0x0000103F Standard Universal PCI to USB Host Controller OK  
0x00001040-0x0000105F Standard Universal PCI to USB Host Controller OK  
0x00001060-0x0000107F Standard Universal PCI to USB Host Controller OK  
0x00002000-0x00003FFF Intel(R) 82801 PCI Bridge - 244EOK  
0x00003000-0x000030FF ATI ES1000 OK  
0x00002800-0x000028FF HP ProLiant iLO 2 Legacy Support Function OK  
0x00003400-0x000034FF HP iLO Management Channel Interface Driver OK  
0x00003800-0x0000381F Standard Universal PCI to USB Host Controller OK  
0x00000070-0x00000077 Motherboard resources OK  
0x00000070-0x00000077 System CMOS/real time clock OK  
0x00000408-0x0000040F Motherboard resources OK  
0x000004D0-0x000004D1 Motherboard resources OK  
0x00000020-0x0000003F Motherboard resources OK  
0x000000A0-0x000000BF Motherboard resources OK  
0x00000090-0x0000009F Motherboard resources OK  
0x00000050-0x00000053 Motherboard resources OK  
0x00000700-0x0000071F Motherboard resources OK  
0x00000880-0x000008FF Motherboard resources OK  
0x00000900-0x0000097F Motherboard resources OK  
0x00000010-0x0000001F Motherboard resources OK  
0x00000C80-0x00000C83 Motherboard resources OK  
0x00000CD4-0x00000CD7 Motherboard resources OK  
0x00000F50-0x00000F58 Motherboard resources OK  
0x000000F0-0x000000F0 Motherboard resources OK  
0x00000CA0-0x00000CA1 Motherboard resources OK  
0x00000CA4-0x00000CA5 Motherboard resources OK  
0x000003F8-0x000003FF Motherboard resources OK  
0x00000CA2-0x00000CA3 Microsoft Generic IPMI Compliant Device OK  
0x00000040-0x00000043 System timer OK  
0x00000080-0x0000008F Direct memory access controller OK  
0x000000C0-0x000000DF Direct memory access controller OK

0x00000061-0x00000061 System speaker  
0x00000060-0x00000060 Standard PS/2 Keyboard OK  
0x00000064-0x00000064 Standard PS/2 Keyboard OK  
0x0000002E-0x0000002F Extended IO Bus OK  
0x00000620-0x0000065F Extended IO Bus OK  
0x00000680-0x0000069F Extended IO Bus OK  
0x00000600-0x0000061F Extended IO Bus OK  
0x00000660-0x0000067F Extended IO Bus OK  
0x00000300-0x0000031F Extended IO Bus OK  
0x000002F8-0x000002FF Communications Port (COM1) OK  
[IRQs]  
Resource Device Status  
IRQ 81 Microsoft ACPI-Compliant System OK  
IRQ 82 Microsoft ACPI-Compliant System OK  
IRQ 83 Microsoft ACPI-Compliant System OK  
IRQ 84 Microsoft ACPI-Compliant System OK  
IRQ 85 Microsoft ACPI-Compliant System OK  
IRQ 86 Microsoft ACPI-Compliant System OK  
IRQ 87 Microsoft ACPI-Compliant System OK  
IRQ 88 Microsoft ACPI-Compliant System OK  
IRQ 89 Microsoft ACPI-Compliant System OK  
IRQ 90 Microsoft ACPI-Compliant System OK  
IRQ 91 Microsoft ACPI-Compliant System OK  
IRQ 92 Microsoft ACPI-Compliant System OK  
IRQ 93 Microsoft ACPI-Compliant System OK  
IRQ 94 Microsoft ACPI-Compliant System OK  
IRQ 95 Microsoft ACPI-Compliant System OK  
IRQ 96 Microsoft ACPI-Compliant System OK  
IRQ 97 Microsoft ACPI-Compliant System OK  
IRQ 98 Microsoft ACPI-Compliant System OK  
IRQ 99 Microsoft ACPI-Compliant System OK  
IRQ 100 Microsoft ACPI-Compliant System OK  
IRQ 101 Microsoft ACPI-Compliant System OK  
IRQ 102 Microsoft ACPI-Compliant System OK  
IRQ 103 Microsoft ACPI-Compliant System OK  
IRQ 104 Microsoft ACPI-Compliant System OK  
IRQ 105 Microsoft ACPI-Compliant System OK  
IRQ 106 Microsoft ACPI-Compliant System OK

IRQ 107 Microsoft ACPI-Compliant System  
IRQ 108 Microsoft ACPI-Compliant System OK  
IRQ 109 Microsoft ACPI-Compliant System OK  
IRQ 110 Microsoft ACPI-Compliant System OK  
IRQ 111 Microsoft ACPI-Compliant System OK  
IRQ 112 Microsoft ACPI-Compliant System OK  
IRQ 113 Microsoft ACPI-Compliant System OK  
IRQ 114 Microsoft ACPI-Compliant System OK  
IRQ 115 Microsoft ACPI-Compliant System OK  
IRQ 116 Microsoft ACPI-Compliant System OK  
IRQ 117 Microsoft ACPI-Compliant System OK  
IRQ 118 Microsoft ACPI-Compliant System OK  
IRQ 119 Microsoft ACPI-Compliant System OK  
IRQ 120 Microsoft ACPI-Compliant System OK  
IRQ 121 Microsoft ACPI-Compliant System OK  
IRQ 122 Microsoft ACPI-Compliant System OK  
IRQ 123 Microsoft ACPI-Compliant System OK  
IRQ 124 Microsoft ACPI-Compliant System OK  
IRQ 125 Microsoft ACPI-Compliant System OK  
IRQ 126 Microsoft ACPI-Compliant System OK  
IRQ 127 Microsoft ACPI-Compliant System OK  
IRQ 128 Microsoft ACPI-Compliant System OK  
IRQ 129 Microsoft ACPI-Compliant System OK  
IRQ 130 Microsoft ACPI-Compliant System OK  
IRQ 131 Microsoft ACPI-Compliant System OK  
IRQ 132 Microsoft ACPI-Compliant System OK  
IRQ 133 Microsoft ACPI-Compliant System OK  
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IRQ 136 Microsoft ACPI-Compliant System OK  
IRQ 137 Microsoft ACPI-Compliant System OK  
IRQ 138 Microsoft ACPI-Compliant System OK  
IRQ 139 Microsoft ACPI-Compliant System OK  
IRQ 140 Microsoft ACPI-Compliant System OK  
IRQ 141 Microsoft ACPI-Compliant System OK  
IRQ 142 Microsoft ACPI-Compliant System OK  
IRQ 143 Microsoft ACPI-Compliant System OK  
IRQ 144 Microsoft ACPI-Compliant System OK

IRQ 145 Microsoft ACPI-Compliant System OK  
 IRQ 146 Microsoft ACPI-Compliant System OK  
 IRQ 147 Microsoft ACPI-Compliant System OK  
 IRQ 148 Microsoft ACPI-Compliant System OK  
 IRQ 149 Microsoft ACPI-Compliant System OK  
 IRQ 150 Microsoft ACPI-Compliant System OK  
 IRQ 151 Microsoft ACPI-Compliant System OK  
 IRQ 152 Microsoft ACPI-Compliant System OK  
 IRQ 153 Microsoft ACPI-Compliant System OK  
 IRQ 154 Microsoft ACPI-Compliant System OK  
 IRQ 155 Microsoft ACPI-Compliant System OK  
 IRQ 156 Microsoft ACPI-Compliant System OK  
 IRQ 157 Microsoft ACPI-Compliant System OK  
 IRQ 158 Microsoft ACPI-Compliant System OK  
 IRQ 159 Microsoft ACPI-Compliant System OK  
 IRQ 160 Microsoft ACPI-Compliant System OK  
 IRQ 161 Microsoft ACPI-Compliant System OK  
 IRQ 162 Microsoft ACPI-Compliant System OK  
 IRQ 163 Microsoft ACPI-Compliant System OK  
 IRQ 164 Microsoft ACPI-Compliant System OK  
 IRQ 165 Microsoft ACPI-Compliant System OK  
 IRQ 166 Microsoft ACPI-Compliant System OK  
 IRQ 167 Microsoft ACPI-Compliant System OK  
 IRQ 168 Microsoft ACPI-Compliant System OK  
 IRQ 169 Microsoft ACPI-Compliant System OK  
 IRQ 170 Microsoft ACPI-Compliant System OK  
 IRQ 171 Microsoft ACPI-Compliant System OK  
 IRQ 172 Microsoft ACPI-Compliant System OK  
 IRQ 173 Microsoft ACPI-Compliant System OK  
 IRQ 174 Microsoft ACPI-Compliant System OK  
 IRQ 175 Microsoft ACPI-Compliant System OK  
 IRQ 176 Microsoft ACPI-Compliant System OK  
 IRQ 177 Microsoft ACPI-Compliant System OK  
 IRQ 178 Microsoft ACPI-Compliant System OK  
 IRQ 179 Microsoft ACPI-Compliant System OK  
 IRQ 180 Microsoft ACPI-Compliant System OK  
 IRQ 181 Microsoft ACPI-Compliant System OK

IRQ 182 Microsoft ACPI-Compliant System OK  
 IRQ 183 Microsoft ACPI-Compliant System OK  
 IRQ 184 Microsoft ACPI-Compliant System OK  
 IRQ 185 Microsoft ACPI-Compliant System OK  
 IRQ 186 Microsoft ACPI-Compliant System OK  
 IRQ 187 Microsoft ACPI-Compliant System OK  
 IRQ 188 Microsoft ACPI-Compliant System OK  
 IRQ 189 Microsoft ACPI-Compliant System OK  
 IRQ 190 Microsoft ACPI-Compliant System OK  
 IRQ 4294967294 PCI standard PCI-to-PCI bridge OK  
 IRQ 4294967279 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967278 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967277 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967276 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967275 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967274 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967273 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967272 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967271 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967270 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967269 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967268 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967267 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967266 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967265 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967264 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967261 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967263 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967262 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967260 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967259 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967258 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967257 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967256 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967255 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967254 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967253 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967252 HP NC532i DP Virtual Bus Device OK

IRQ 4294967251 HP NC532i DP Virtual  
 IRQ 4294967250 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967249 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967248 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967247 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967246 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967245 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967242 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967244 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967243 HP NC532i DP Virtual Bus Device OK  
 IRQ 4294967293 PCI standard PCI-to-PCI bridge OK  
 IRQ 4294967292 PCI standard PCI-to-PCI bridge OK  
 IRQ 4294967291 PCI standard PCI-to-PCI bridge OK  
 IRQ 4294967290 PCI standard PCI-to-PCI bridge OK  
 IRQ 4294967289 PCI standard PCI-to-PCI bridge OK  
 IRQ 4294967288 PCI standard PCI-to-PCI bridge OK  
 IRQ 16 PCI standard PCI-to-PCI bridge OK  
 IRQ 4294967287 Smart Array P410i Controller OK  
 IRQ 4294967286 Smart Array P410i Controller OK  
 IRQ 4294967285 Smart Array P410i Controller OK  
 IRQ 4294967284 Smart Array P410i Controller OK  
 IRQ 4294967283 Smart Array P410i Controller OK  
 IRQ 4294967282 Smart Array P410i Controller OK  
 IRQ 4294967281 Smart Array P410i Controller OK  
 IRQ 4294967280 Smart Array P410i Controller OK  
 IRQ 20 Standard Universal PCI to USB Host Controller OK  
 IRQ 20 Standard Enhanced PCI to USB Host Controller OK  
 IRQ 23 Standard Universal PCI to USB Host Controller OK  
 IRQ 23 Standard Universal PCI to USB Host Controller OK  
 IRQ 23 ATI ES1000 OK  
 IRQ 22 Standard Universal PCI to USB Host Controller OK  
 IRQ 22 HP iLO Management Channel Interface Driver OK  
 IRQ 22 Standard Universal PCI to USB Host Controller OK  
 IRQ 10 HP ProLiant iLO 2 Legacy Support Function OK  
 IRQ 21 HP ProLiant iLO 2 Management Controller Driver OK  
 IRQ 0 System timer OK  
 IRQ 1 Standard PS/2 Keyboard OK  
 IRQ 12 PS/2 Compatible Mouse OK  
 IRQ 3 Communications Port (COM1) OK

[Memory]

Resource	Device	Status
0xE7000000-0xFBFFFFFF	PCI bus	OK
0xFED00000-0xFED03FFF	PCI bus	OK
0xFED00000-0xFED03FFF	PCI bus	OK
0xFED00000-0xFED03FFF	High precision event timer	OK
0xA0000-0xBFFFF	PCI bus	OK
0xA0000-0xBFFFF	ATI ES1000	OK
0xF3800000-0xFB7FFFF	PCI standard PCI-to-PCI bridge	OK
0xFB000000-0xFB7FFFF	HP NC532i DP Virtual Bus Device	OK
0xFA800000-0xFAFFFFFF	HP NC532i DP Virtual Bus Device	OK
0xFA000000-0xFA7FFFF	HP NC532i DP Virtual Bus Device	OK
0xF9800000-0xF9FFFFFF	HP NC532i DP Virtual Bus Device	OK
0xFBB00000-0xFBFFFFFF	PCI standard PCI-to-PCI bridge	OK
0xFBC00000-0xFBFFFFFF	Smart Array P410i Controller	OK
0xFBBF0000-0xFBFF0FFF	Smart Array P410i Controller	OK
0xF35F0000-0xF35F03FF	Standard Enhanced PCI to USB Host Controller	OK
0xF3600000-0xF37FFFF	Intel(R) 82801 PCI Bridge - 244EOK	OK
0xE8000000-0xEFFFFFFF	Intel(R) 82801 PCI Bridge - 244EOK	OK
0xE8000000-0xEFFFFFFF	ATI ES1000	OK
0xF37F0000-0xF37FFFF	ATI ES1000	OK
0xF37E0000-0xF37E01FF	HP ProLiant iLO 2 Legacy Support Function	OK
0xF37D0000-0xF37D07FF	HP iLO Management Channel Interface Driver	OK
0xF37C0000-0xF37C3FFF	HP iLO Management Channel Interface Driver	OK
0xF3700000-0xF377FFFF	HP iLO Management Channel Interface Driver	OK
0xF36F0000-0xF36F0FFF	HP ProLiant iLO 2 Management Controller Driver	OK

0xE0000000-0xE3FFFFFF	Motherboard resources	OK
0xFE000000-0xFEBFFFFFF	Motherboard resources	OK
0xE7FFE000-0xE7FFFFFF	Motherboard resources	OK

[Components]

[Multimedia]

[Audio Codecs]

CODEC	Manufacturer File	Description Version	Status Size
-------	-------------------	---------------------	-------------

c:\windows\system32\imaadp32.acm	Microsoft Corporation	OK
C:\Windows\system32\IMAADP32.ACM	6.0.6000.16386	21.00 KB
(21,504 bytes)	1/18/2008 10:43 PM	
c:\windows\system32\msg711.acm	Microsoft Corporation	OK
C:\Windows\system32\MSG711.AC	6.0.6000.16386	14.00 KB
(14,336 bytes)	1/18/2008 10:43 PM	

c:\windows\system32\msadp32.acm	Microsoft Corporation	OK
C:\Windows\system32\MSADP32.ACM	6.0.6000.16386	22.00 KB
(22,528 bytes)	1/18/2008 10:43 PM	

c:\windows\system32\msgsm32.acm	Microsoft Corporation	OK
C:\Windows\system32\MSGSM32.ACM	6.0.6000.16386	28.00 KB
(28,672 bytes)	1/18/2008 10:43 PM	

[Video Codecs]

CODEC	Manufacturer File	Description Version	Status Size
c:\windows\system32\msyuv.dll	Microsoft Corporation	OK	
C:\Windows\system32\MSYUV.DLL	6.0.6000.16386	24.50 KB	
(25,088 bytes)	1/18/2008 10:34 PM		

c:\windows\system32\iyuv_32.dll	Microsoft Corporation	OK
C:\Windows\system32\IYUV_32.DLL	6.0.6000.16386	52.50 KB
(53,760 bytes)	1/18/2008 10:34 PM	

c:\windows\system32\tsbyuv.dll	Microsoft Corporation	OK
C:\Windows\system32\TSBYUV.DLL	6.0.6000.16386	13.50 KB
(13,824 bytes)	1/18/2008 10:34 PM	

c:\windows\system32\msvidc32.dll	Microsoft Corporation	OK
C:\Windows\system32\MSVIDC32.DLL	6.0.6001.18000	37.50 KB
(38,400 bytes)	1/18/2008 10:43 PM	

c:\windows\system32\msrle32.dll	Microsoft Corporation	OK
C:\Windows\system32\MSRLE32.DLL	6.0.6000.16386	15.50 KB
(15,872 bytes)	1/18/2008 10:43 PM	

[CD-ROM]

Item	Value
------	-------

[Sound Device]

Item [Display]	Value
Item Name	ATI ES1000
PNP Device ID	PCI\VEN_1002&DEV_515E&SUBSYS_31FB103C&REV_02\4&10AF73B4&0&18F0
Adapter Type	Not Available, ATI Technologies Inc. compatible
Adapter Description	ATI ES1000
Adapter RAM	Not Available
Installed Drivers	Not Available
Driver Version	6.14.10.6748
INF File	oem2.inf (ati2mtag_RN50 section)

Color Planes	Not Available
Color Table Entries	Not Available
Resolution	Not Available
Bits/Pixel	Not Available
Memory Address	0xE8000000-0xEFFFFFFF
I/O Port	0x00003000-0x000030FF
Memory Address	0xF37F0000-0xF37FFFFF
IRQ Channel	IRQ 23
I/O Port	0x000003B0-0x000003BB
I/O Port	0x000003C0-0x000003DF
Memory Address	0xA0000-0xBFFFF

Driver	c:\windows\system32\drivers\ati2mtag.sys (6.14.10.6748, 2.11 MB (2,210,816 bytes), 1/3/2010 2:50 AM)
--------	--

[Infrared]

Item	Value
------	-------

[Input]

[Keyboard]

Item	Value
Description	USB Human Interface Device
Name	Enhanced (101- or 102-key)
Layout	00000409
PNP Device ID	USB\VID_03F0&PID_1027&MI_00\7&EEB53048&0&0000
Number of Function Keys	12
Driver	c:\windows\system32\drivers\hidusb.sys (6.0.6001.18000, 15.50 KB (15,872 bytes), 1/18/2008 10:33 PM)

Description Name	Standard PS/2 Keyboard Enhanced (101- or 102-key)
Layout	00000409
PNP Device ID	ACPI\PNP0303\4&1CFF2C4C&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 (6.0.6001.18000, 62.50 KB (64,000 bytes), 1/18/2008 10:28 PM)

[Pointing Device]

Item Value  
Hardware Type USB Human Interface Device  
Number of Buttons 0  
Status OK  
PNP Device ID  
USB\VID\_03F0&PID\_1027&MI\_01\7&EEB5304&0&0001  
Power Management Supported No

Double Click Threshold Not Available  
Handedness Not Available  
Driver

c:\windows\system32\drivers\hidusb.sys (6.0.6001.18000, 15.50 KB (15,872 bytes), 1/18/2008 10:33 PM)

Hardware Type PS/2 Compatible Mouse  
Number of Buttons 0  
Status OK  
PNP Device ID  
ACPI\PNP0F13\4&1CFF2C4C&0

Power Management Supported No

Double Click Threshold Not Available  
Handedness Not Available  
IRQ Channel IRQ 12  
Driver

c:\windows\system32\drivers\i8042prt.sys (6.0.6001.18000, 62.50 KB (64,000 bytes), 1/18/2008 10:28 PM)

[Modem]

Item Value

[Network]

[Adapter]

Item Value  
Name [00000000] WAN Miniport (SSTP)

Adapter TypeNot Available  
Product TypeWAN Miniport (SSTP)  
Installed Yes  
PNP Device ID  
ROOT\MS\_SSTP\MINI\PORT\0000

Last Reset 4/19/2010 10:55 AM  
Index 0  
Service Name RasSstp  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address Not Available  
Driver

c:\windows\system32\drivers\rasstp.sys (6.0.6001.18000, 76.50 KB (78,336 bytes), 1/18/2008 10:37 PM)

Name [00000001] WAN Miniport (L2TP)

Adapter TypeNot Available  
Product TypeWAN Miniport (L2TP)  
Installed Yes  
PNP Device ID  
ROOT\MS\_L2TP\MINI\PORT\0000

Last Reset 4/19/2010 10:55 AM  
Index 1  
Service Name Rasl2tp  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address Not Available  
Driver

c:\windows\system32\drivers\rasl2tp.sys (6.0.6001.18000, 122.00 KB (124,928 bytes), 1/18/2008 10:37 PM)

Name [00000002] WAN Miniport (PPTP)

Adapter TypeWide Area Network (WAN)  
Product TypeWAN Miniport (PPTP)  
Installed Yes  
PNP Device ID  
ROOT\MS\_PPTP\MINI\PORT\0000

Last Reset 4/19/2010 10:55 AM  
Index 2  
Service Name PptpMiniport  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address 50:50:54:50:30:30  
Driver

c:\windows\system32\drivers\rasppptp.sys (6.0.6001.18000, 96.50 KB (98,816 bytes), 1/18/2008 10:37 PM)

Name [00000003] WAN Miniport (PPPOE)

Adapter TypeWide Area Network (WAN)  
Product TypeWAN Miniport (PPPOE)  
Installed Yes  
PNP Device ID  
ROOT\MS\_PPPOE\MINI\PORT\0000

Last Reset 4/19/2010 10:55 AM  
Index 3  
Service Name RasPppoe  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address 33:50:6F:45:30:30  
Driver

c:\windows\system32\drivers\rasppoe.sys (6.0.6001.18000, 49.00 KB (50,176 bytes), 1/18/2008 10:37 PM)

Name [00000004] WAN Miniport (IPv6)

Adapter TypeNot Available

Installed Yes  
Product TypeWAN Miniport (IPv6)  
PNP Device ID  
ROOT\MS\_NDISWANIPV6\0000

Last Reset 4/19/2010 10:55 AM  
Index 4  
Service Name NdisWan  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address Not Available  
Driver

c:\windows\system32\drivers\ndiswan.sys (6.0.6001.18000, 165.50 KB (169,472 bytes), 1/18/2008 10:37 PM)

Name [00000005] WAN Miniport (Network Monitor)  
Adapter TypeNot Available  
Product TypeWAN Miniport (Network Monitor)

Installed Yes  
PNP Device ID  
ROOT\MS\_NDISWANBH\0000

Last Reset 4/19/2010 10:55 AM  
Index 5  
Service Name NdisWan  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address Not Available  
Driver

c:\windows\system32\drivers\ndiswan.sys (6.0.6001.18000, 165.50 KB (169,472 bytes), 1/18/2008 10:37 PM)

Name [00000006] HP NC532i Dual Port 10GbE Multifunction BL-c Adapter  
Adapter TypeEthernet 802.3  
Product TypeHP NC532i Dual Port 10GbE Multifunction BL-c Adapter  
Installed Yes  
PNP Device ID

EBDRV\L2ND&PCI\_165014E4&SUBSYS\_7058103C&REV\_00\5&2827D6F3&0&20050200

Last Reset 4/19/2010 10:55 AM  
Index 6  
Service Name l2nd  
IP Address 192.168.1.1, fe80::8e4:c965:5d3e:2455  
IP Subnet 255.255.0.0, 64  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address 00:26:55:83:D9:50  
Driver

c:\windows\system32\drivers\bxdn60a.sys (5.2.14.0, 81.54 KB (83,496 bytes), 1/3/2010 2:54 AM)

Name [00000008] WAN Miniport (IP)

Adapter TypeNot Available

Product Type WAN Miniport (IP)  
 Installed Yes  
 PNP Device ID  
 ROOT\MS\_NDISWANIP\0000

Last Reset 4/19/2010 10:55 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  
 Driver  
 c:\windows\system32\drivers\ndiswan.sys (6.0.6001.18000, 165.50 KB (169,472 bytes), 1/18/2008 10:37 PM)

Name [00000009] HP NC532i Dual Port 10GbE Multifunction BL-c Adapter  
 Adapter Type Ethernet 802.3  
 Product Type HP NC532i Dual Port 10GbE Multifunction BL-c Adapter  
 Installed Yes  
 PNP Device ID  
 EBDRV\L2ND&PCL\_165014E4&SUBS\_YS\_7058103C&REV\_00\5&F8EAF49&0&20050200

Last Reset 4/19/2010 10:55 AM  
 Index 9  
 Service Name I2nd  
 IP Address 15.1.115.1,  
 fe80::9dac:7060:d5f1:cc9f  
 IP Subnet 255.255.0.0, 64  
 Default IP Gateway Not Available  
 DHCP Enabled No  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address 00:26:55:83:D9:54  
 Driver  
 c:\windows\system32\drivers\bxnd60a.sys (5.2.14.0, 81.54 KB (83,496 bytes), 1/3/2010 2:54 AM)

Name [00000010] Microsoft 6to4 Adapter  
 Adapter Type Tunnel  
 Product Type Microsoft 6to4 Adapter  
 Installed Yes  
 PNP Device ID  
 ROOT\\*6TO4MP\0000

Last Reset 4/19/2010 10:55 AM  
 Index 10  
 Service Name tunnel  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled No  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Driver  
 c:\windows\system32\drivers\tunnel.sys (6.0.6001.18000, 27.50 KB (28,160 bytes), 1/18/2008 10:36 PM)

Name [00000011] RAS Async Adapter  
 Adapter Type Wide Area Network (WAN)  
 Product Type RAS Async Adapter

PNP Device ID Yes SW\{EEAB7790-C514-11D1-B42B-00805FC1270E}\ASYNCMAC  
 Last Reset 4/19/2010 10:55 AM  
 Index 11  
 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 20:41:53:59:4E:FF  
 Driver  
 c:\windows\system32\drivers\asyncmac.sys (6.0.6001.18000, 21.50 KB (22,016 bytes), 1/18/2008 10:37 PM)

Name [00000012] Microsoft ISATAP Adapter  
 Adapter Type Tunnel  
 Product Type Microsoft ISATAP Adapter  
 Installed Yes  
 PNP Device ID  
 ROOT\\*ISATAP\0001

Last Reset 4/19/2010 10:55 AM  
 Index 12  
 Service Name tunnel  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled No  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Driver  
 c:\windows\system32\drivers\tunnel.sys (6.0.6001.18000, 27.50 KB (28,160 bytes), 1/18/2008 10:36 PM)

Name [00000013] Microsoft ISATAP Adapter  
 Adapter Type Tunnel  
 Product Type Microsoft ISATAP Adapter  
 Installed Yes  
 PNP Device ID  
 ROOT\\*ISATAP\0002

Last Reset 4/19/2010 10:55 AM  
 Index 13  
 Service Name tunnel  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled No  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Driver  
 c:\windows\system32\drivers\tunnel.sys (6.0.6001.18000, 27.50 KB (28,160 bytes), 1/18/2008 10:36 PM)

[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

Supports Broadcast 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 63.99 KB (65,527 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 MSAFD Tcpip [TCP/IPv6]  
 Connectionless Service No  
 Guarantees Delivery Yes  
 Guarantees Sequencing Yes  
 Maximum Address Size 28 bytes  
 Maximum Message Size 0 bytes  
 Message Oriented No  
 Minimum Address Size 28 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/IPv6]  
 Connectionless Service Yes  
 Guarantees Delivery No  
 Guarantees Sequencing No  
 Maximum Address Size 28 bytes  
 Maximum Message Size 63.99 KB (65,527 bytes)  
 Message Oriented Yes  
 Minimum Address Size 28 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 TCPv6 Service Provider  
 Connectionless Service No  
 Guarantees Delivery Yes  
 Guarantees Sequencing Yes  
 Maximum Address Size 28 bytes



Maximum Message Size 0 bytes  
 Message Oriented No  
 Minimum Address Size 28 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting No  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption Yes  
 Supports Expedited Data Yes  
 Supports Graceful Closing Yes  
 Supports Guaranteed Bandwidth No

Supports Multicasting No

Name RSVP TCP Service Provider  
 Connectionless Service No  
 Guarantees Delivery Yes  
 Guarantees Sequencing Yes  
 Maximum Address Size 16 bytes  
 Maximum Message Size 0 bytes  
 Message Oriented No  
 Minimum Address Size 16 bytes  
 Pseudo Stream Oriented No  
 Supports Broadcasting No  
 Supports Connect Data No  
 Supports Disconnect Data No  
 Supports Encryption Yes  
 Supports Expedited Data Yes  
 Supports Graceful Closing Yes  
 Supports Guaranteed Bandwidth No

Supports Multicasting No

Name RSVP UDPv6 Service Provider  
 Connectionless Service Yes  
 Guarantees Delivery No  
 Guarantees Sequencing No  
 Maximum Address Size 28 bytes  
 Maximum Message Size 63.99 KB (65,527 bytes)  
 Message Oriented Yes  
 Minimum Address Size 28 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 UDP Service Provider  
 Connectionless Service Yes  
 Guarantees Delivery No  
 Guarantees Sequencing No  
 Maximum Address Size 16 bytes  
 Maximum Message Size 63.99 KB (65,527 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

[WinSock]

Item Value  
 File c:\windows\syswow64\wsock32.dll  
 Size 15.00 KB (15,360 bytes)  
 Version 6.0.6001.18000

File c:\windows\system32\wsock32.dll  
 Size 18.00 KB (18,432 bytes)  
 Version 6.0.6001.18000

[Ports]

[Serial]

Item Value  
 Name Communications Port (COM1)  
 Status OK  
 PNP Device ID ACPI\PNP0501\0

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  
 IRQ Channel IRQ 3  
 I/O Port 0x000002F8-0x000002FF  
 Driver c:\windows\system32\drivers\serial.sys (6.0.6001.18000, 92.00 KB (94,208 bytes), 1/18/2008 10:28 PM)

[Parallel]

Item Value

[Storage]

[Drives]

Item Value  
 Drive C:  
 Description Local Fixed Disk  
 Compressed No  
 File System NTFS  
 Size 136.69 GB (146,773,454,848 bytes)  
 Free Space 118.71 GB (127,465,992,192 bytes)

Volume Name  
 Volume Serial Number 221530B4

[Disks]

Item Value  
 Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model HP LOGICAL VOLUME 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 0  
 SCSI Target ID 4  
 Sectors/Track 32  
 Size 136.70 GB (146,778,685,440 bytes)

Total Cylinders 35,132  
 Total Sectors 286,677,120  
 Total Tracks 8,958,660  
 Tracks/Cylinder 255  
 Partition Disk #0, Partition #0  
 Partition Size 136.69 GB (146,773,458,944 bytes)  
 Partition Starting Offset 1,048,576 bytes

[SCSI]

Item Value  
 Name Smart Array P410i Controller  
 Manufacturer Hewlett-Packard Company  
 Status OK  
 PNP Device ID PCI\VEN\_103C&DEV\_323A&SUBSYS\_3245103C&REV\_01\4&294C1E27&0&00E0

Memory Address 0xFBC00000-0xFBFFFFFF  
 Memory Address 0xFBBF0000-0xFBBF0FFF  
 IRQ Channel IRQ 4294967287  
 IRQ Channel IRQ 4294967286  
 IRQ Channel IRQ 4294967285  
 IRQ Channel IRQ 4294967284  
 IRQ Channel IRQ 4294967283  
 IRQ Channel IRQ 4294967282  
 IRQ Channel IRQ 4294967281  
 IRQ Channel IRQ 4294967280  
 Driver c:\windows\system32\drivers\hpcisss2.sys (6.20.0.64, 153.04 KB (156,712 bytes), 1/3/2010 2:50 AM)

Name Microsoft iSCSI Initiator  
 Manufacturer Microsoft  
 Status OK

PNP Device ID ROOT\ISCSIPRT\0000

Driver c:\windows\system32\drivers\msiscsi.sys (6.0.6001.18000, 210.05 KB (215,096 bytes), 1/18/2008 10:30 PM)

[IDE]

Item Value

[Printing]

Name Driver Port Name Server Name Microsoft XPS Document Writer Microsoft XPS Document Writer XPSPort:

[Problem Devices]

Device PNP Device ID Error Code

[USB]

Device PNP Device ID Standard Universal PCI to USB Host Controller PCI\VEN\_8086&DEV\_3A34&SUBSYS\_330D103C&REV\_00\3&267A616A&0&E8

Standard Universal PCI to USB Host Controller PCI\VEN\_8086&DEV\_3A35&SUBSYS\_330D103C&REV\_00\3&267A616A&0&E9

Standard Universal PCI to USB Host Controller PCI\VEN\_8086&DEV\_3A36&SUBSYS\_330D103C&REV\_00\3&267A616A&0&EA

Standard Universal PCI to USB Host Controller PCI\VEN\_8086&DEV\_3A39&SUBSYS\_330D103C&REV\_00\3&267A616A&0&EB

Standard Enhanced PCI to USB Host Controller PCI\VEN\_8086&DEV\_3A3A&SUBSYS\_330D103C&REV\_00\3&267A616A&0&EF

Standard Universal PCI to USB Host Controller PCI\VEN\_103C&DEV\_3300&SUBSYS\_3305103C&REV\_00\4&10AF73B4&0&24F0

[Software Environment]

[System Drivers]

Name Description File Type Pause Accept Stop acpi Microsoft ACPI Driver c:\windows\system32\drivers\acpi.sys Kernel Driver Yes Boot Running OK Critical adp94xx adp94xx c:\windows\system32\drivers\adp94xx.sys Kernel Driver No Disabled Stopped OK Normal

adpahci adpahci c:\windows\system32\drivers\adpahci.sys Kernel Driver No Disabled Stopped OK Normal adpu160m adpu160m c:\windows\system32\drivers\adpu160m.sys Kernel Driver No Disabled Stopped OK Normal adpu320 adpu320 c:\windows\system32\drivers\adpu320.sys Kernel Driver No Disabled Stopped OK Normal afd Ancilliary Function Driver for Winsock c:\windows\system32\drivers\afd.sys Kernel Driver Yes System Running OK Normal agp440 Intel AGP Bus Filter c:\windows\system32\drivers\agp440.sys Kernel Driver No Manual Stopped OK Normal aic78xx aic78xx c:\windows\system32\drivers\djsvs.sys Kernel Driver No Disabled Stopped OK Normal aliide aliide c:\windows\system32\drivers\aliide.sys Kernel Driver No Disabled Stopped OK Critical amdide amdide c:\windows\system32\drivers\amdide.sys Kernel Driver No Disabled Stopped OK Critical amdk8 AMD K8 Processor Driver c:\windows\system32\drivers\amdk8.sys Kernel Driver No Disabled Stopped OK Normal arc arc c:\windows\system32\drivers\arc.sys Kernel Driver No Disabled Stopped OK Normal arcsas arcsas c:\windows\system32\drivers\arcsas.sys Kernel Driver No Disabled Stopped OK Normal asyncmac RAS Asynchronous Media Driver c:\windows\system32\drivers\asyncmac.sys Kernel Driver Yes Manual Running OK Normal atapi IDE Channel c:\windows\system32\drivers\atapi.sys Kernel Driver No Disabled Stopped OK Critical ati2mtag ati2mtag c:\windows\system32\drivers\ati2mtag.sys Kernel Driver Yes Manual Running OK Ignore b06bdrv Broadcom NetXtreme II VBD c:\windows\system32\drivers\b06bdrv.a.sys Kernel Driver No Disabled Stopped OK Normal

blbdrive blbdrive c:\windows\system32\drivers\blbdrive.sys Kernel Driver No Disabled Stopped OK Normal bowser bowser c:\windows\system32\drivers\bowser.sys File System Driver Yes Manual Running OK Normal brfiltlo Brother USB Mass-Storage Lower Filter Driver c:\windows\system32\drivers\brfiltlo.sys Kernel Driver No Manual Stopped OK Normal brfiltup Brother USB Mass-Storage Upper Filter Driver c:\windows\system32\drivers\brfiltup.sys Kernel Driver No Manual Stopped OK Normal brserid Brother MFC Serial Port Interface Driver (WDM) c:\windows\system32\drivers\brserid.sys Kernel Driver No Disabled Stopped OK Normal brserwdm Brother WDM Serial driver c:\windows\system32\drivers\brserwdm.sys Kernel Driver No Disabled Stopped OK Normal brusbdm Brother MFC USB Fax Only Modem c:\windows\system32\drivers\brusbdm.sys Kernel Driver No Disabled Stopped OK Normal brusbser Brother MFC USB Serial WDM Driver c:\windows\system32\drivers\brusbser.sys Kernel Driver No Manual Stopped OK Normal cdfs CD/DVD File System Reader c:\windows\system32\drivers\cdfs.sys File System Driver No Disabled Stopped OK Normal cdrom CD-ROM Driver c:\windows\system32\drivers\cdrom.sys Kernel Driver No System Stopped OK Normal circlass Consumer IR Devices c:\windows\system32\drivers\circlass.sys Kernel Driver No Disabled Stopped OK Normal clfs Common Log (CLFS) c:\windows\system32\clfs\clfs.sys Kernel Driver Yes Boot Running OK Critical cmdide cmdide c:\windows\system32\drivers\cmdide.sys Kernel Driver No Disabled Stopped OK Critical compbatt Microsoft Composite Battery Driver c:\windows\system32\drivers\compbatt.sys Kernel Driver No Disabled Stopped OK Critical

cpqcidrv HP iLO Management Channel Interface Driver  
 c:\windows\system32\drivers\cpqci  
 drv.sys Kernel Driver Yes Manual Running OK Normal No Yes  
 cpqteam HP Network Configuration Utility  
 c:\windows\system32\drivers\cpqte  
 am.sys Kernel Driver No Manual Stopped OK Normal No No  
 crcdisk Crcdisk Filter Driver  
 c:\windows\system32\drivers\crcdis  
 k.sys Kernel Driver Yes Boot Running OK Normal No Yes  
 csc Offline Files Driver  
 c:\windows\system32\drivers\csc.sy  
 s Kernel Driver No Disabled Stopped OK Normal No No  
 dfsc DFS Namespace Client Driver  
 c:\windows\system32\drivers\dfsc.s  
 ys File System Driver Yes System Running OK Normal No Yes  
 disk Disk Driver  
 c:\windows\system32\drivers\disk.s  
 ys Kernel Driver Yes Boot Running OK Normal No Yes  
 dxgkrnl LDDM Graphics Subsystem  
 c:\windows\system32\drivers\dxgkr  
 nl.sys Kernel Driver No Manual Stopped OK Ignore No No  
 e1g60 Intel(R) PRO/1000 NDIS 6 Adapter Driver  
 c:\windows\system32\drivers\e1g6  
 032e.sys Kernel Driver No Manual Stopped OK Normal No No  
 ebdrv HP DP Virtual Bus Device  
 c:\windows\system32\drivers\evbda  
 .sys Kernel Driver Yes Boot Running OK Normal No Yes  
 elxstor elxstor  
 c:\windows\system32\drivers\elxsto  
 r.sys Kernel Driver No Disabled Stopped OK Normal No No  
 errdev Microsoft Hardware Error Device  
 c:\windows\system32\drivers\errde  
 v.sys Kernel Driver No Disabled Stopped OK Normal No No  
 exfat exFAT File System Driver  
 c:\windows\system32\drivers\exfat.  
 sys File System Driver No Manual Stopped OK Normal No No  
 fastfat FAT12/16/32 File System Driver  
 c:\windows\system32\drivers\fastfa  
 t.sys File System Driver No Manual Stopped OK Normal No No

fdc Floppy Disk Controller Driver  
 c:\windows\system32\drivers\fdc.sy  
 s Kernel Driver No Disabled Stopped OK Normal No No  
 fileinfo File Information FS MiniFilter  
 c:\windows\system32\drivers\fileinf  
 o.sys File System Driver No Manual Stopped OK Normal No No  
 filetrace FileTrace  
 c:\windows\system32\drivers\filetra  
 ce.sys File System Driver No Manual Stopped OK Normal No No  
 flpydisk Floppy Disk Driver  
 c:\windows\system32\drivers\flpydi  
 sk.sys Kernel Driver No Disabled Stopped OK Normal No No  
 fltmgr FltMgr  
 c:\windows\system32\drivers\fltmgr  
 .sys File System Driver Yes Boot Running OK Critical No Yes  
 gagp30kx Microsoft Generic AGPv3.0 Filter for K8 Processor Platforms  
 c:\windows\system32\drivers\gagp  
 30kx.sys Kernel Driver No Manual Stopped OK Normal No No  
 hdaudbus Microsoft UAA Bus Driver for High Definition Audio  
 c:\windows\system32\drivers\hdau  
 dbus.sys Kernel Driver No Disabled Stopped OK Normal No No  
 hidbth Microsoft Bluetooth HID Miniport  
 c:\windows\system32\drivers\hidbt  
 h.sys Kernel Driver No Disabled Stopped OK Ignore No No  
 hidir Microsoft Infrared HID Driver  
 c:\windows\system32\drivers\hidir.s  
 ys Kernel Driver No Disabled Stopped OK Ignore No No  
 hidusb Microsoft HID Class Driver  
 c:\windows\system32\drivers\hidus  
 b.sys Kernel Driver Yes Manual Running OK Ignore No Yes  
 hpciss HpCISSs  
 c:\windows\system32\drivers\hpcis  
 ss.sys Kernel Driver Yes Boot Running OK Normal No Yes  
 hpciss2 HpCISSs2  
 c:\windows\system32\drivers\hpcis  
 ss2.sys Kernel Driver Yes Boot Running OK Normal No Yes  
 hpqilo2 hpqilo2  
 c:\windows\system32\drivers\hpqilo  
 2.sys Kernel Driver Yes Boot Running OK Normal No Yes  
 http HTTP  
 c:\windows\system32\drivers\http.s  
 ys Kernel Driver Yes Manual Running OK Normal No Yes

i2omp i2omp  
 c:\windows\system32\drivers\i2om  
 p.sys Kernel Driver No Disabled Stopped OK Normal No No  
 i8042prt i8042 Keyboard and PS/2 Mouse Port Driver  
 c:\windows\system32\drivers\i8042  
 prt.sys Kernel Driver Yes System Running OK Normal No Yes  
 iastorv Intel RAID Controller Vista  
 c:\windows\system32\drivers\iastor  
 v.sys Kernel Driver No Disabled Stopped OK Normal No No  
 iirsp iirsp  
 c:\windows\system32\drivers\iirsp.s  
 ys Kernel Driver No Disabled Stopped OK Normal No No  
 intelide intelide  
 c:\windows\system32\drivers\inteli  
 d.sys Kernel Driver No Disabled Stopped OK Critical No No  
 intelppm Intel Processor Driver  
 c:\windows\system32\drivers\intelp  
 pm.sys Kernel Driver Yes Manual Running OK Normal No Yes  
 ioatdma Intel(R) QuickData Technology Device  
 c:\windows\system32\drivers\qd26  
 0x64.sys Kernel Driver No Disabled Stopped OK Normal No No  
 ipfilterdriver IP Traffic Filter Driver  
 c:\windows\system32\drivers\ipfltr  
 v.sys Kernel Driver No Manual Stopped OK Normal No No  
 ipmidrv IPMIDRV  
 c:\windows\system32\drivers\ipmid  
 rv.sys Kernel Driver Yes Manual Running OK Normal No Yes  
 ipnat IP Network Address Translator  
 c:\windows\system32\drivers\ipnat.  
 sys Kernel Driver No Manual Stopped OK Normal No No  
 irenum IR Bus Enumerator  
 c:\windows\system32\drivers\irenu  
 m.sys Kernel Driver No Manual Stopped OK Ignore No No  
 isapnp PnP ISA/EISA Bus Driver  
 c:\windows\system32\drivers\isapn  
 p.sys Kernel Driver No Disabled Stopped OK Critical No No  
 iscsiport iScsiPort Driver  
 c:\windows\system32\drivers\msisc  
 si.sys Kernel Driver Yes Manual Running OK Normal No Yes  
 iteatapi ITEATAPI\_Service\_Install  
 c:\windows\system32\drivers\iteata  
 pi.sys Kernel Driver No Disabled Stopped OK Normal No No

iteraid	ITERAID_Service_Install c:\windows\system32\drivers\iterai		
d.sys	Kernel Driver No Disabled Stopped OK Normal No No		
kbdclass	Keyboard Class Driver c:\windows\system32\drivers\kbddl		
ass.sys	Kernel Driver Yes System Running OK Normal No Yes		
kbdhid	Keyboard HID Driver c:\windows\system32\drivers\kbdhi		
d.sys	Kernel Driver Yes System Running OK Ignore No Yes		
ksecdd	KSecDD c:\windows\system32\drivers\ksecd		
d.sys	Kernel Driver Yes Boot Running OK Critical No Yes		
ksthunk	Kernel Streaming Thunks c:\windows\system32\drivers\ksth		
nk.sys	Kernel Driver No Manual Stopped OK Normal No No		
l2nd	HP NC370 Multifunction Gigabit Server Adapter c:\windows\system32\drivers\bxnd		
60a.sys	Kernel Driver Yes Manual Running OK Normal No Yes		
ltdio	Link-Layer Topology Discovery Mapper I/O Driver c:\windows\system32\drivers\ltdio.		
sys	Kernel Driver Yes Auto Running OK Normal No Yes		
lsi_fc	LSI_FC c:\windows\system32\drivers\lsi_fc.		
sys	Kernel Driver No Disabled Stopped OK Normal No No		
lsi_sas	LSI_SAS c:\windows\system32\drivers\lsi_sa		
s.sys	Kernel Driver No Disabled Stopped OK Normal No No		
lsi_scsi	LSI_SCSI c:\windows\system32\drivers\lsi_sc		
si.sys	Kernel Driver No Disabled Stopped OK Normal No No		
luafv	UAC File Virtualization c:\windows\system32\drivers\luafv.		
sys	File System Driver Yes Auto Running OK Normal No Yes		
megasas	megasas c:\windows\system32\drivers\mega		
sas.sys	Kernel Driver No Disabled Stopped OK Normal No No		
megasr	MegaSR c:\windows\system32\drivers\mega		
sr.sys	Kernel Driver No Disabled Stopped OK Normal No No		
modem	Modem c:\windows\system32\drivers\mode		
m.sys	Kernel Driver No Manual Stopped OK Ignore No No		

monitor	Microsoft Monitor Class Function Driver Service c:\windows\system32\drivers\monit		
or.sys	Kernel Driver Yes Manual Running OK Normal		
mouclass	Mouse Class Driver c:\windows\system32\drivers\moucl		
ass.sys	Kernel Driver Yes System Running OK Normal No Yes		
mouhid	Mouse HID Driver c:\windows\system32\drivers\mouh		
id.sys	Kernel Driver Yes Manual Running OK Ignore No Yes		
mountmgr	Mount Point Manager c:\windows\system32\drivers\moun		
tmgr.sys	Kernel Driver Yes Boot Running OK Critical No Yes		
mpio	Microsoft Multi-Path Bus Driver c:\windows\system32\drivers\mpio.		
sys	Kernel Driver No Disabled Stopped OK Normal No No		
mpsdrv	Windows Firewall Authorization Driver c:\windows\system32\drivers\mpsd		
rv.sys	Kernel Driver Yes Manual Running OK Normal No Yes		
mraid35x	Mraid35x c:\windows\system32\drivers\mraid		
35x.sys	Kernel Driver No Disabled Stopped OK Normal No No		
mrxsm	SMB MiniRedirector Wrapper and Engine c:\windows\system32\drivers\mrxs		
mb.sys	File System Driver Yes Manual Running OK Normal No Yes		
mrxsm10	SMB 1.x MiniRedirector c:\windows\system32\drivers\mrxs		
mb10.sys	File System Driver Yes Manual Running OK Normal No Yes		
mrxsm20	SMB 2.0 MiniRedirector c:\windows\system32\drivers\mrxs		
mb20.sys	File System Driver Yes Manual Running OK Normal No Yes		
msahci	msahci c:\windows\system32\drivers\msah		
ci.sys	Kernel Driver No Disabled Stopped OK Critical No No		
msdsm	Microsoft Multi-Path Device Specific Module c:\windows\system32\drivers\msds		
m.sys	Kernel Driver No Disabled Stopped OK Normal No No		
msfs	Msfs c:\windows\system32\drivers\msfs.		
sys	File System Driver Yes System Running OK Normal No Yes		

msisadrv	ISA/EISA Class Driver c:\windows\system32\drivers\msisa		
drv.sys	Kernel Driver Yes Boot Running OK Critical MsRPC Yes		
msrpc	MsRPC c:\windows\system32\drivers\msrpc		
.sys	Kernel Driver No Manual Stopped OK Normal No No		
mssmbios	Microsoft System Management BIOS Driver c:\windows\system32\drivers\mssm		
bios.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.s		
ys	Kernel Driver Yes Boot Running OK Critical No Yes		
ndistapi	Remote Access NDIS TAPI Driver c:\windows\system32\drivers\ndista		
pi.sys	Kernel Driver Yes Manual Running OK Normal No Yes		
ndisui	NDIS Usermode I/O Protocol c:\windows\system32\drivers\ndisui		
o.sys	Kernel Driver No Manual Stopped OK Normal No No		
ndiswan	Remote Access NDIS WAN Driver c:\windows\system32\drivers\ndisw		
an.sys	Kernel Driver Yes Manual Running OK Normal No Yes		
ndproxy	NDIS Proxy c:\windows\system32\drivers\ndpro		
xy.sys	Kernel Driver Yes Manual Running OK Normal No Yes		
netbios	NetBIOS Interface c:\windows\system32\drivers\netbi		
os.sys	File System Driver Yes System Running OK Normal No Yes		
netbt	NETBT c:\windows\system32\drivers\netbt.		
sys	Kernel Driver Yes System Running OK Normal No Yes		
nfrd960	nfrd960 c:\windows\system32\drivers\nfrd9		
60.sys	Kernel Driver No Disabled Stopped OK Normal No No		
npfs	Npfs c:\windows\system32\drivers\npfs.s		
ys	File System Driver Yes System Running OK Normal No Yes		
nsiproxy	NSI proxy service c:\windows\system32\drivers\nsipr		
oxy.sys	Kernel Driver Yes System Running OK Normal No Yes		

ntfs	Ntfs c:\windows\system32\drivers\ntfs.s			psched	QoS Packet Scheduler c:\windows\system32\drivers\pacer			sacdrv	sacdrv c:\windows\system32\drivers\sacdr
ys	File System Driver Manual Running OK Normal No Yes	Yes	OK	.sys	Kernel Driver Yes System Running OK Normal	Yes	Normal	v.sys	Kernel Driver Yes Boot Running OK Ignore
null	Null c:\windows\system32\drivers\null.s			ql2300	QLogic Fibre Channel Miniport Driver			sbp2port	SBP-2 Transport Protocol Bus Driver
ys	Kernel Driver Yes System Running OK Normal No Yes	Yes	Normal	0.sys	c:\windows\system32\drivers\ql230 Kernel Driver No Disabled Stopped OK Normal No No	Disabled	Normal	ort.sys	Kernel Driver No Disabled Stopped OK Normal No No
nvraid	NVIDIA nForce RAID Driver c:\windows\system32\drivers\nvrai			ql40xx	QLogic iSCSI Miniport Driver c:\windows\system32\drivers\ql40x			secdrv	Security Driver c:\windows\system32\drivers\secdr
d.sys	Kernel Driver No Disabled Stopped OK Normal No No	Disabled	Normal	x.sys	Kernel Driver No Disabled Stopped OK Normal No No	Disabled	Normal	v.sys	Kernel Driver Yes Auto Running OK Normal No Yes
nvstor	nvstor c:\windows\system32\drivers\nvsto			rasacd	Remote Access Auto Connection Driver			serenum	Serenum Filter Driver c:\windows\system32\drivers\seren
r.sys	Kernel Driver No Disabled Stopped OK Critical No No	Disabled	Critical	d.sys	c:\windows\system32\drivers\rasac Kernel Driver Yes System Running OK Normal No Yes	System	Normal	um.sys	Kernel Driver Yes Manual Running OK Normal No Yes
nv_agp	NVIDIA nForce AGP Bus Filter c:\windows\system32\drivers\nv_ag			rasl2tp	WAN Miniport (L2TP) c:\windows\system32\drivers\rasl2t			serial	Serial port driver c:\windows\system32\drivers\serial.
p.sys	Kernel Driver No Manual Stopped OK Normal No No	Manual	Normal	p.sys	Kernel Driver Yes Manual Running OK Normal No Yes	Manual	Normal	sys	Kernel Driver Yes System Running OK Ignore No Yes
ohci1394	NEC FireWarden OHCI Compliant IEEE 1394 Host Controller			rasppoe	Remote Access PPPOE Driver c:\windows\system32\drivers\raspp			sermouse	Serial Mouse Driver c:\windows\system32\drivers\serm
394.sys	Kernel Driver No Disabled Stopped OK Normal No No	Disabled	Normal	poe.sys	Kernel Driver Yes Manual Running OK Normal No Yes	Manual	Normal	ouse.sys	Kernel Driver No Disabled Stopped OK Normal No No
parport	Parallel port driver c:\windows\system32\drivers\parpo			rassttp	WAN Miniport (SSTP) c:\windows\system32\drivers\rasstt			sffdisk	SFF Storage Class Driver c:\windows\system32\drivers\sffdis
rt.sys	Kernel Driver No Disabled Stopped OK Normal No No	Disabled	Normal	p.sys	Kernel Driver Yes Manual Running OK Normal No Yes	Manual	Normal	k.sys	Kernel Driver No Disabled Stopped OK Normal No No
partmgr	Partition Manager c:\windows\system32\drivers\partm			rdbss	Redirected Buffering Sub System c:\windows\system32\drivers\rdbss.			sffp_mmc	SFF Storage Protocol Driver for MMC
gr.sys	Kernel Driver Yes Boot Running OK Critical No Yes	Boot	Critical	sys	File System Driver Yes System Running OK Normal No Yes	Yes	Yes	mmc.sys	Kernel Driver No Manual Stopped OK Normal No No
pci	PCI Bus Driver c:\windows\system32\drivers\pci.sy			rdpcdd	RDPCCDD c:\windows\system32\drivers\rdpcdd			sffp_sd	SFF Storage Protocol Driver for SDBus
s	Kernel Driver Yes Boot Running OK Critical No Yes	Boot	Critical	d.sys	Kernel Driver Yes System Running OK Ignore No Yes	System	Ignore	SDBus	c:\windows\system32\drivers\sffp_s
pciide	pciide c:\windows\system32\drivers\pciide			rdpdr	Terminal Server Device Redirector Driver			d.sys	Kernel Driver No Manual Stopped OK Normal No No
.sys	Kernel Driver No Disabled Stopped OK Critical No No	Disabled	Critical	sys	c:\windows\system32\drivers\rdpdr. Kernel Driver Yes Manual Running OK Normal No Yes	Manual	Normal	sfloppy	High-Capacity Floppy Disk Drive c:\windows\system32\drivers\sflopp
pcmcia	pcmcia c:\windows\system32\drivers\pcmc			rdpenddd	RDP Encoder Mirror Driver c:\windows\system32\drivers\rdpen			y.sys	Kernel Driver No Disabled Stopped OK Normal No No
a.sys	Kernel Driver No Disabled Stopped OK Normal No No	Disabled	Normal	cdd.sys	Kernel Driver Yes System Running OK Ignore No Yes	System	Ignore	sisraid2	SISRaid2 c:\windows\system32\drivers\sisrai
peauth	PEAUTH c:\windows\system32\drivers\peaut			rdpwd	RDP Winstation Driver c:\windows\system32\drivers\rdpw			d2.sys	Kernel Driver No Disabled Stopped OK Normal No No
h.sys	Kernel Driver Yes Auto Running OK Normal No Yes	Auto	Normal	d.sys	Kernel Driver Yes Manual Running OK Ignore No Yes	Manual	Ignore	sisraid4	SISRaid4 c:\windows\system32\drivers\sisrai
pptpminiport	WAN Miniport (PPTP) c:\windows\system32\drivers\raspp			rspndr	Link-Layer Topology Discovery Responder			d4.sys	Kernel Driver No Disabled Stopped OK Normal No No
tp.sys	Kernel Driver Yes Manual Running OK Normal No Yes	Manual	Normal	r.sys	c:\windows\system32\drivers\rspnd Kernel Driver Yes Auto Running OK Normal No Yes	Auto	Normal	smb	Message-oriented TCP/IP and TCP/IPV6 Protocol (SMB session)
processor	Processor Driver c:\windows\system32\drivers\proce			s3cap	Microsoft Emulated S3 Device Cap Driver			ys	Kernel Driver Yes System Running OK Normal No Yes
ssr.sys	Kernel Driver No Disabled Stopped OK Normal No No	Disabled	Normal	.sys	c:\windows\system32\drivers\s3cap Kernel Driver No Disabled Stopped OK Normal No No	Disabled	Normal	spldr	Security Processor Loader Driver c:\windows\system32\drivers\spldr.
								sys	Kernel Driver Yes Boot Running OK Critical No Yes

srv	srv
c:\windows\system32\drivers\srvsy	
s	File System Driver Yes
Manual	Running OK
Normal	No Yes
srv2	srv2
c:\windows\system32\drivers\srvs2.s	
ys	File System Driver Yes
Manual	Running OK
Normal	No Yes
srvnet	srvnet
c:\windows\system32\drivers\srvne	
t.sys	File System Driver Yes
Manual	Running OK
Normal	No Yes
storflt	Disk VMBUS Acceleration Filter
Driver	
c:\windows\system32\drivers\storflt	
.sys	Kernel Driver Yes Boot
Running	OK Normal
No	Yes
storvsc	storvsc
c:\windows\system32\drivers\storvs	
c.sys	Kernel Driver No Disabled
Stopped	OK Normal
No	No
storvsp	Microsoft Virtual Disk Server Driver
c:\windows\system32\drivers\storvs	
p.sys	Kernel Driver No Disabled
Stopped	OK Normal
No	No
swenum	Software Bus Driver
c:\windows\system32\drivers\swen	
um.sys	Kernel Driver Yes Manual
Running	OK Normal
No	Yes
symc8xx	Symc8xx
c:\windows\system32\drivers\symc	
8xx.sys	Kernel Driver No Disabled
Stopped	OK Normal
No	No
sym_hi	Sym_hi
c:\windows\system32\drivers\sym_	
hi.sys	Kernel Driver No Disabled
Stopped	OK Normal
No	No
sym_u3	Sym_u3
c:\windows\system32\drivers\sym_	
u3.sys	Kernel Driver No Disabled
Stopped	OK Normal
No	No
tcpip	TCP/IP Protocol Driver
c:\windows\system32\drivers\tcpip.	
sys	Kernel Driver Yes Boot
Running	OK Normal
No	Yes
tcpip6	Microsoft IPv6 Protocol Driver
c:\windows\system32\drivers\tcpip.	
sys	Kernel Driver No Manual
Stopped	OK Normal
No	No
tcpipreg	TCP/IP Registry Compatibility
c:\windows\system32\drivers\tcpipr	
eg.sys	Kernel Driver Yes Auto
Running	OK Normal
No	Yes
tdpipe	TDPIPE
c:\windows\system32\drivers\tdpip	
e.sys	Kernel Driver No Manual
Stopped	OK Normal
No	No

tdtcp	TDTCP
c:\windows\system32\drivers\tdtcp.	
sys	Kernel Driver Yes Manual
Running	OK Normal
tdx	NetIO Legacy Filter Support Driver
c:\windows\system32\drivers\tdx.sy	
s	Kernel Driver Yes System
Running	OK Normal
No	Yes
termdd	Terminal Device Driver
c:\windows\system32\drivers\termd	
d.sys	Kernel Driver Yes System
Running	OK Normal
No	Yes
tssecsrv	Terminal Services Security Filter
Driver	
c:\windows\system32\drivers\tssecs	
rv.sys	Kernel Driver Yes Manual
Running	OK Ignore
No	Yes
tunnel	Microsoft IPv6 Tunnel Miniport
Adapter Driver	
c:\windows\system32\drivers\tunne	
l.sys	Kernel Driver Yes Manual
Running	OK Normal
No	Yes
uagp35	Microsoft AGPv3.5 Filter
c:\windows\system32\drivers\uagp	
35.sys	Kernel Driver No Manual
Stopped	OK Normal
No	No
udfs	udfs
c:\windows\system32\drivers\udfs.s	
ys	File System Driver No
Disabled	Stopped OK
Normal	No No
uliagpkx	Uli AGP Bus Filter
c:\windows\system32\drivers\uliagp	
kx.sys	Kernel Driver No Manual
Stopped	OK Normal
No	No
uliahci	uliahci
c:\windows\system32\drivers\uliahc	
i.sys	Kernel Driver No Disabled
Stopped	OK Normal
No	No
ulsata	UISata
c:\windows\system32\drivers\ulsata	
.sys	Kernel Driver No Disabled
Stopped	OK Normal
No	No
ulsata2	ulsata2
c:\windows\system32\drivers\ulsata	
2.sys	Kernel Driver No Disabled
Stopped	OK Normal
No	No
umbus	UMBus Enumerator Driver
c:\windows\system32\drivers\umbu	
s.sys	Kernel Driver Yes Manual
Running	OK Normal
No	Yes
umpass	Microsoft UMPass Driver
c:\windows\system32\drivers\umpa	
ss.sys	Kernel Driver No Disabled
Stopped	OK Normal
No	No
usbccgp	Microsoft USB Generic Parent Driver
c:\windows\system32\drivers\usbcc	
gp.sys	Kernel Driver Yes Manual
Running	OK Normal
No	Yes

usbcir	eHome Infrared Receiver (USBCIR)
c:\windows\system32\drivers\usbcir	
.sys	Kernel Driver No Disabled
Stopped	OK Normal
usbhci	Microsoft USB 2.0 Enhanced Host
Controller Miniport Driver	
c:\windows\system32\drivers\usbh	
ci.sys	Kernel Driver Yes Manual
Running	OK Normal
No	Yes
usbhub	Microsoft USB Standard Hub Driver
c:\windows\system32\drivers\usbhu	
b.sys	Kernel Driver Yes Manual
Running	OK Normal
No	Yes
usbohci	Microsoft USB Open Host Controller
Miniport Driver	
c:\windows\system32\drivers\usboh	
ci.sys	Kernel Driver No Disabled
Stopped	OK Normal
No	No
usbprint	Microsoft USB PRINTER Class
c:\windows\system32\drivers\usbpr	
int.sys	Kernel Driver No Disabled
Stopped	OK Normal
No	No
usbstor	USB Mass Storage Driver
c:\windows\system32\drivers\usbst	
or.sys	Kernel Driver No Manual
Stopped	OK Normal
No	No
usbuhci	Microsoft USB Universal Host
Controller Miniport Driver	
c:\windows\system32\drivers\usbuh	
ci.sys	Kernel Driver Yes Manual
Running	OK Normal
No	Yes
vga	vga
c:\windows\system32\drivers\vgapn	
p.sys	Kernel Driver No Manual
Stopped	OK Ignore
No	No
vgasave	VgaSave
c:\windows\system32\drivers\vga.s	
ys	Kernel Driver Yes System
Running	OK Ignore
No	Yes
viaide	viaide
c:\windows\system32\drivers\viaide	
.sys	Kernel Driver No Disabled
Stopped	OK Critical
No	No
vid	Virtualization Infrastructure Driver
c:\windows\system32\drivers\vid.sy	
s	Kernel Driver No Disabled
Stopped	OK Normal
No	No
vmbus	VMBus
c:\windows\system32\drivers\vmbu	
s.sys	Kernel Driver No Disabled
Stopped	OK Normal
No	No
volmgr	Volume Manager Driver
c:\windows\system32\drivers\volmg	
r.sys	Kernel Driver Yes Boot
Running	OK Critical
No	Yes
volmgrx	Dynamic Volume Manager
c:\windows\system32\drivers\volmg	
rx.sys	Kernel Driver Yes Boot
Running	OK Critical
No	Yes

volsnap Storage volumes  
 c:\windows\system32\drivers\volsn

ap.sys Kernel Driver Yes Boot  
 Running OK Critical  
 No Yes

vsmraid vsmraid  
 c:\windows\system32\drivers\vsmra

id.sys Kernel Driver No Disabled  
 Stopped OK Normal  
 No No

wacompen Wacom Serial Pen HID Driver  
 c:\windows\system32\drivers\waco

mpen.sys Kernel Driver No Disabled  
 Stopped OK Normal  
 No No

wanarp Remote Access IP ARP Driver  
 c:\windows\system32\drivers\wana

rp.sys Kernel Driver No Manual  
 Stopped OK Normal  
 No No

wanarpv6 Remote Access IPv6 ARP Driver  
 c:\windows\system32\drivers\wana

rp.sys Kernel Driver Yes System  
 Running OK Normal  
 No Yes

wd Microsoft Watchdog Timer Driver  
 c:\windows\system32\drivers\wd.sy

s Kernel Driver No Disabled  
 Stopped OK Normal  
 No No

wdf01000 Kernel Mode Driver Frameworks  
 service

1000.sys c:\windows\system32\drivers\wdf0  
 Kernel Driver Yes Boot  
 Running OK Normal  
 No Yes

wmiacpi Microsoft Windows Management  
 Interface for ACPI

cpi.sys c:\windows\system32\drivers\wmia  
 Kernel Driver No Disabled  
 Stopped OK Normal  
 No No

ws2ifsl Winsock IFS driver  
 c:\windows\system32\drivers\ws2if

sl.sys Kernel Driver No Disabled  
 Stopped OK Normal  
 No No

[Signed Drivers]

Device Name Signed Device Class Driver  
 Version Driver Date Manufacturer INF  
 Name Driver Name Device ID

Generic volume Yes VOLUME  
 6.0.6001.18000  
 6/21/2006 Microsoft  
 volume.inf Not Available  
 STORAGE\VOLUME\1&19F7E59C&0  
 &SIGNATUREE333CC5CFFSET100000LENGTH2  
 2C614000

Volume Manager Yes SYSTEM  
 6.0.6001.18000  
 6/21/2006 (Standard system  
 devices) machine.inf Not Available  
 ROOT\VOLMGR\0000

UMBus Enumerator Yes SYSTEM  
 6.0.6001.18000  
 6/21/2006 Microsoft  
 umbus.inf Not Available  
 UMB\UMB\1&841921D&0&TSBUS

UMBus Root Bus Enumerator Yes  
 SYSTEM 6.0.6001.18000  
 6/21/2006 Microsoft  
 umbus.inf Not Available

Microsoft System Bus Enumerator  
 Yes SYSTEM  
 6.0.6001.18000  
 6/21/2006 (Standard system  
 devices) machine.inf Not Available  
 ROOT\SYSTEM\0002

RAS Async Adapter Yes NET  
 6.0.6001.18000  
 6/21/2006 Microsoft  
 netrasa.inf Not Available  
 SW\{EEAB7790-C514-11D1-B42B-  
 00805FC1270E}\ASYNCMAC

Plug and Play Software Device Enumerator  
 Yes SYSTEM  
 6.0.6001.18000  
 6/21/2006 (Standard system  
 devices) machine.inf Not Available  
 ROOT\SYSTEM\0000

Terminal Server Mouse Driver Yes  
 SYSTEM 6.0.6001.18000  
 6/21/2006 (Standard system  
 devices) machine.inf Not Available  
 ROOT\RDP\_MOU\0000

Terminal Server Keyboard Driver Yes  
 SYSTEM 6.0.6001.18000  
 6/21/2006 (Standard system  
 devices) machine.inf Not Available  
 ROOT\RDP\_KBD\0000

Terminal Server Device Redirector Yes  
 SYSTEM 6.0.6001.18000  
 6/21/2006 (Standard system  
 devices) machine.inf Not Available  
 ROOT\RDPDR\0000

WAN Miniport (SSTP) Yes NET  
 6.0.6001.18000  
 6/21/2006 Microsoft  
 netsstpa.inf Not Available  
 ROOT\MS\_SSTP\MINIPOINT\0000

WAN Miniport (PPTP) Yes NET  
 6.0.6001.18000  
 6/21/2006 Microsoft  
 netrasa.inf Not Available  
 ROOT\MS\_PPTP\MINIPOINT\0000

WAN Miniport (PPPOE) Yes NET  
 6.0.6001.18000  
 6/21/2006 Microsoft  
 netrasa.inf Not Available  
 ROOT\MS\_PPPOE\MINIPOINT\0000

WAN Miniport (IPv6) Yes NET  
 6.0.6001.18000  
 6/21/2006 Microsoft  
 netrasa.inf Not Available  
 ROOT\MS\_NDISWANIPV6\0000

WAN Miniport (IP) Yes NET  
 6.0.6001.18000  
 6/21/2006 Microsoft  
 netrasa.inf Not Available  
 ROOT\MS\_NDISWANIP\0000

WAN Miniport (Network Monitor) Yes  
 NET 6.0.6001.18000  
 6/21/2006 Microsoft  
 netrasa.inf Not Available  
 ROOT\MS\_NDISWANBH\0000

WAN Miniport (L2TP) Yes NET  
 6.0.6001.18000  
 6/21/2006 Microsoft  
 netrasa.inf Not Available  
 ROOT\MS\_L2TP\MINIPOINT\0000

Kernel Mode Driver Frameworks service Not  
 Available LEGACYDRIVER Not  
 Available Not Available Not Available Not  
 Available Not Available  
 ROOT\LEGACY\_WDF01000\0000

Remote Access IPv6 ARP Driver Not  
 Available LEGACYDRIVER Not  
 Available Not Available Not Available Not  
 Available Not Available  
 ROOT\LEGACY\_WANARPV6\0000

Storage volumes Not Available  
 LEGACYDRIVER Not  
 Available Not Available Not Available Not  
 Available Not Available  
 ROOT\LEGACY\_VOLSNA\0000

Dynamic Volume Manager Not Available  
 LEGACYDRIVER Not  
 Available Not Available Not Available Not  
 Available Not Available  
 ROOT\LEGACY\_VOLMGRX\0000

VgaSave Not Available LEGACYDRIVER  
 Not Available Not Available Not  
 Available Not Available  
 ROOT\LEGACY\_VGASAVE\0000

Terminal Services Security Filter Driver Not  
 Available LEGACYDRIVER Not  
 Available Not Available Not Available Not  
 Available Not Available  
 ROOT\LEGACY\_TSSECSRV\0000

NetIO Legacy TDI Support Driver Not  
 Available LEGACYDRIVER Not  
 Available Not Available Not Available Not  
 Available Not Available  
 ROOT\LEGACY\_TDX\0000

TDTCP Not Available LEGACYDRIVER  
 Not Available Not Available Not  
 Available Not Available  
 ROOT\LEGACY\_TDTCP\0000

TCP/IP Registry Compatibility Not  
 Available LEGACYDRIVER Not  
 Available Not Available Not Available Not  
 Available Not Available  
 ROOT\LEGACY\_TCPIPREG\0000

TCP/IP Protocol Driver Not Available  
 LEGACYDRIVER Not  
 Available Not Available Not Available Not  
 Available Not Available  
 ROOT\LEGACY\_TCPIP\0000

Disk VMBUS Acceleration Filter Driver Not  
 Available LEGACYDRIVER Not  
 Available Not Available Not Available Not  
 Available Not Available  
 ROOT\LEGACY\_STORFLT\0000

Security Processor Loader Driver Not  
 Available LEGACYDRIVER Not  
 Available Not Available Not Available Not  
 Available Not Available  
 ROOT\LEGACY\_SPLDR\0000

Message-oriented TCP/IP and TCP/IPv6 Protocol (SMB session)	Not Available	NDProxy	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	ACPI Fixed Feature Button	Yes	SYSTEM
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	6.0.6001.18000		
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	6/21/2006	(Standard system machine.inf)	
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	ACPI\FIXEDBUTTON\2&DABA3FF&1		
Security Driver	Not Available	NDIS System Driver	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	ACPI Thermal Zone	Yes	SYSTEM
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	6.0.6001.18000		
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	6/21/2006	(Standard system machine.inf)	
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	ACPI\THERMALZONE\THM0		
sacdrv	Not Available	ISA/EISA Class Driver	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	System CMOS/real time clock	Yes	SYSTEM
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	SYSTEM	6.0.6001.18000	
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	6/21/2006	(Standard system machine.inf)	
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	ACPI\PNP0B00\4&1CFF2C4C&0		
Link-Layer Topology Discovery Responder	Not Available	Windows Firewall Authorization Driver	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	Communications Port	Yes	PORTS
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	6.0.6001.18000		
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	6/21/2006	(Standard port types) msports.inf)	
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	ACPI\PNP0501\0		
RDP Winstation Driver	Not Available	Mount Point Manager	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	Extended IO Bus	Yes	SYSTEM
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	6.0.6001.18000		
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	6/21/2006	(Standard system machine.inf)	
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	ACPI\PNP0A06\4&1CFF2C4C&0		
RDP Encoder Mirror Driver	Not Available	Link-Layer Topology Discovery Mapper I/O Driver	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	PS/2 Compatible Mouse	Yes	MOUSE
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	6.0.6001.18000		
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	6/21/2006	Microsoft msmouse.inf)	
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	ACPI\PNP0F13\4&1CFF2C4C&0		
RDPCCDD	Not Available	KSecDD	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	Standard PS/2 Keyboard	Yes	KEYBOARD
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	6.0.6001.18000		
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	6/21/2006	(Standard keyboards) keyboard.inf)	
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	ACPI\PNP0303\4&1CFF2C4C&0		
Remote Access Auto Connection Driver	Not Available	HTTP	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	System speaker	Yes	SYSTEM
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	6.0.6001.18000		
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	6/21/2006	(Standard system machine.inf)	
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	ACPI\PNP0800\4&1CFF2C4C&0		
QoS Packet Scheduler	Not Available	HpCISSs	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	Direct memory access controller	Yes	SYSTEM
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	SYSTEM	6.0.6001.18000	
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	6/21/2006	(Standard system machine.inf)	
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	ACPI\PNP0200\4&1CFF2C4C&0		
PEAUTH	Not Available	Common Log (CLFS)	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	High precision event timer	Yes	SYSTEM
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	6.0.6001.18000		
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	6/21/2006	(Standard system machine.inf)	
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	ACPI\PNP0103\0		
Null	Not Available	Ancillary Function Driver for Winsock	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	System timer	Yes	SYSTEM
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	6.0.6001.18000		
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	6/21/2006	(Standard system machine.inf)	
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	ACPI\PNP0100\4&1CFF2C4C&0		
NSI proxy service	Not Available	Microsoft iSCSI Initiator	Yes	SCSIADAPTER	6.0.6001.18000	6/21/2006	Microsoft	ipmidrv.inf	Not Available	Microsoft Generic IPMI Compliant Device	Yes	SYSTEM
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	SYSTEM	6.0.6001.18000	
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	6/21/2006	Microsoft ipmidrv.inf)	
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	ACPI\IPI0001\0		
NETBT	Not Available	Microsoft iSCSI Initiator	Yes	SCSIADAPTER	6.0.6001.18000	6/21/2006	Microsoft	ipmidrv.inf	Not Available	Motherboard resources	Yes	SYSTEM
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	6.0.6001.18000		
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	6/21/2006	(Standard system machine.inf)	
Available	Not Available	Available	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	ACPI\PNP0C02\0		



PCI standard ISA bridge Yes SYSTEM  
6.0.6001.18000  
6/21/2006 (Standard system  
machine.inf Not Available  
devices) PCI\VEN\_8086&DEV\_3A18&SUBSYS  
\_00000000&REV\_00\3&267A616A&0&F8

HP ProLiant iLO 2 Management Controller Driver  
No MULTIFUNCTION  
1.13.0.0 1/25/2010 Hewlett-  
Packard Company oem5.inf Not  
Available  
PCI\VEN\_103C&DEV\_3302&SUBSYS  
\_3305103C&REV\_00\4&10AF73B4&0&26F0

HID-compliant mouse Yes MOUSE  
6.0.6001.18000  
6/21/2006 Microsoft  
msmouse.inf Not Available  
HID\VID\_03F0&PID\_1027&MI\_01\8  
&1D06CA04&0&0000

USB Human Interface Device Yes  
HIDCLASS 6.0.6001.18000  
6/21/2006 (Standard system  
input.inf Not Available  
devices) USB\VID\_03F0&PID\_1027&MI\_01\7  
&EEB5304&0&0001

HID Keyboard Device Yes  
KEYBOARD 6.0.6001.18000  
6/21/2006 (Standard keyboards)  
keyboard.inf Not Available  
HID\VID\_03F0&PID\_1027&MI\_00\8  
&9D6ADC&0&0000

USB Human Interface Device Yes  
HIDCLASS 6.0.6001.18000  
6/21/2006 (Standard system  
input.inf Not Available  
devices) USB\VID\_03F0&PID\_1027&MI\_00\7  
&EEB5304&0&0000

USB Composite Device Yes USB  
6.0.6001.18000  
6/21/2006 (Standard USB Host  
usb.inf Not Available  
Controller) USB\VID\_03F0&PID\_1027\6&82657C  
2B7&0&1

Generic USB Hub Yes USB  
6.0.6001.18000  
6/21/2006 (Generic USB Hub)  
usb.inf Not Available  
USB\VID\_03F0&PID\_1327\6&82657C  
2B7&0&2

USB Root Hub Yes USB  
6.0.6001.18000  
6/21/2006 (Standard USB Host  
usbport.inf Not Available  
Controller) USB\ROOT\_HUB\5&2E18C0B0&0

Standard Universal PCI to USB Host Controller  
Yes USB  
6.0.6001.18000  
6/21/2006 (Standard USB Host  
usbport.inf Not Available  
Controller) PCI\VEN\_103C&DEV\_3300&SUBSYS  
\_3305103C&REV\_00\4&10AF73B4&0&24F0

HP iLO Management Channel Interface Driver  
Yes MULTIFUNCTION  
1.15.0.0 10/23/2009 Hewlett-  
Packard Company oem6.inf Not  
Available  
PCI\VEN\_0E11&DEV\_B204&SUBSYS  
\_3305103C&REV\_03\4&10AF73B4&0&22F0

HP ProLiant iLO 2 Legacy Support Function  
No MULTIFUNCTION  
1.13.0.0 1/25/2010 Hewlett-  
Packard Company oem5.inf Not  
Available  
PCI\VEN\_0E11&DEV\_B203&SUBSYS  
\_3305103C&REV\_03\4&10AF73B4&0&20F0

Generic Non-PnP Monitor Yes  
MONITOR 6.0.6001.18000  
6/21/2006 (Standard monitor  
monitor.inf Not Available  
types) DISPLAY\DEFAULT\_MONITOR\5&34  
DBC65D&0&10000000&01&03

Generic Non-PnP Monitor Yes  
MONITOR 6.0.6001.18000  
6/21/2006 (Standard monitor  
monitor.inf Not Available  
types) DISPLAY\DEFAULT\_MONITOR\5&34  
DBC65D&0&1000001&01&03

ATI ES1000 Yes DISPLAY  
8.240.50.5000  
6/23/2009 ATI Technologies Inc.  
oem2.inf Not Available  
PCI\VEN\_1002&DEV\_515E&SUBSYS  
\_31FB103C&REV\_02\4&10AF73B4&0&18F0

Intel(R) 82801 PCI Bridge - 244E Yes  
SYSTEM 6.0.6001.18000  
6/21/2006 Intel  
machine.inf Not Available  
PCI\VEN\_8086&DEV\_244E&SUBSYS  
\_330D103C&REV\_90\3&267A616A&0&F0

USB Root Hub Yes USB  
6.0.6001.18000  
6/21/2006 (Standard USB Host  
usbport.inf Not Available  
Controller) USB\ROOT\_HUB20\4&33D8AB38&0

Standard Enhanced PCI to USB Host Controller  
Yes USB  
6.0.6001.18000  
6/21/2006 (Standard USB Host  
usbport.inf Not Available  
Controller) PCI\VEN\_8086&DEV\_3A3A&SUBSYS  
\_330D103C&REV\_00\3&267A616A&0&EF

USB Root Hub Yes USB  
6.0.6001.18000  
6/21/2006 (Standard USB Host  
usbport.inf Not Available  
Controller) USB\ROOT\_HUB\4&82829171E&0

Standard Universal PCI to USB Host Controller  
Yes USB  
6.0.6001.18000  
6/21/2006 (Standard USB Host  
usbport.inf Not Available  
Controller) PCI\VEN\_8086&DEV\_3A39&SUBSYS  
\_330D103C&REV\_00\3&267A616A&0&EB

USB Root Hub Yes USB  
6.0.6001.18000  
6/21/2006 (Standard USB Host  
usbport.inf Not Available  
Controller) USB\ROOT\_HUB\4&51FE5CF&0

Standard Universal PCI to USB Host Controller  
Yes USB  
6.0.6001.18000  
6/21/2006 (Standard USB Host  
usbport.inf Not Available  
Controller) PCI\VEN\_8086&DEV\_3A36&SUBSYS  
\_330D103C&REV\_00\3&267A616A&0&EA

USB Root Hub Yes USB  
6.0.6001.18000  
6/21/2006 (Standard USB Host  
usbport.inf Not Available  
Controller) USB\ROOT\_HUB\4&E0EDCD&0

Standard Universal PCI to USB Host Controller  
Yes USB  
6.0.6001.18000  
6/21/2006 (Standard USB Host  
usbport.inf Not Available  
Controller) PCI\VEN\_8086&DEV\_3A35&SUBSYS  
\_330D103C&REV\_00\3&267A616A&0&E9

USB Root Hub Yes USB  
6.0.6001.18000  
6/21/2006 (Standard USB Host  
usbport.inf Not Available  
Controller) USB\ROOT\_HUB\4&290F6B&80

Standard Universal PCI to USB Host Controller  
Yes USB  
6.0.6001.18000  
6/21/2006 (Standard USB Host  
usbport.inf Not Available  
Controller) PCI\VEN\_8086&DEV\_3A34&SUBSYS  
\_330D103C&REV\_00\3&267A616A&0&E8

Disk drive Yes DISKDRIVE  
6.0.6001.18000  
6/21/2006 (Standard disk drives)  
disk.inf Not Available  
SCSI\DISK&VEN\_HP&PROD\_LOGIC  
AL\_VOLUME\5&2BF1BC3A&0&000400

HP Virtual LUN Yes SYSTEM  
6.0.6001.18000  
6/21/2006 Compaq  
scsidev.inf Not Available  
SCSI\OTHER&VEN\_COMPAQ&PROD  
\_SCSI\_COMMUNICATE\5&2BF1BC3A&0&000000

Smart Array P410i Controller Yes  
SCSIADAPTER  
6.20.0.64 1/8/2010 Hewlett-  
Packard Company oem1.inf Not  
Available  
PCI\VEN\_103C&DEV\_323A&SUBSYS  
\_3245103C&REV\_01\4&294C1E27&0&00E0

PCI standard PCI-to-PCI bridge Yes  
SYSTEM 6.0.6001.18000  
6/21/2006 (Standard system  
machine.inf Not Available  
devices) PCI\VEN\_8086&DEV\_3A40&SUBSYS  
\_330D103C&REV\_00\3&267A616A&0&E0

PCI standard host CPU bridge Yes  
SYSTEM 7.2.1.0  
10/21/2009 Hewlett-Packard  
Company oem7.inf Not Available  
PCI\VEN\_8086&DEV\_3423&SUBSYS  
\_000B003C&REV\_13\3&267A616A&0&A2

PCI standard host CPU bridge Yes  
SYSTEM 7.2.1.0  
10/21/2009 Hewlett-Packard  
Company oem7.inf Not Available  
PCI\VEN\_8086&DEV\_3422&SUBSYS  
\_000B003C&REV\_13\3&267A616A&0&A1

PCI standard host CPU bridge Yes  
SYSTEM 7.2.1.0  
10/21/2009 Hewlett-Packard  
Company oem7.inf Not Available  
PCI\VEN\_8086&DEV\_342E&SUBSYS  
\_000B003C&REV\_13\3&267A616A&0&A0

PCI standard host CPU bridge Yes  
SYSTEM 6.0.6001.18000  
6/21/2006 (Standard system  
devices) machine.inf Not Available  
PCI\VEN\_8086&DEV\_3439&SUBSYS  
\_00000000&REV\_13\3&267A616A&0&74

PCI standard host CPU bridge Yes  
SYSTEM 6.0.6001.18000  
6/21/2006 (Standard system  
devices) machine.inf Not Available  
PCI\VEN\_8086&DEV\_341F&SUBSYS  
\_00000000&REV\_13\3&267A616A&0&73

PCI standard host CPU bridge Yes  
SYSTEM 6.0.6001.18000  
6/21/2006 (Standard system  
devices) machine.inf Not Available  
PCI\VEN\_8086&DEV\_341E&SUBSYS  
\_00000000&REV\_13\3&267A616A&0&72

PCI standard host CPU bridge Yes  
SYSTEM 6.0.6001.18000  
6/21/2006 (Standard system  
devices) machine.inf Not Available  
PCI\VEN\_8086&DEV\_341D&SUBSYS  
\_00000000&REV\_13\3&267A616A&0&71

PCI standard host CPU bridge Yes  
SYSTEM 6.0.6001.18000  
6/21/2006 (Standard system  
devices) machine.inf Not Available  
PCI\VEN\_8086&DEV\_341C&SUBSYS  
\_00000000&REV\_13\3&267A616A&0&70

PCI standard host CPU bridge Yes  
SYSTEM 6.0.6001.18000  
6/21/2006 (Standard system  
devices) machine.inf Not Available  
PCI\VEN\_8086&DEV\_341A&SUBSYS  
\_00000000&REV\_13\3&267A616A&0&6E

PCI standard host CPU bridge Yes  
SYSTEM 6.0.6001.18000  
6/21/2006 (Standard system  
devices) machine.inf Not Available  
PCI\VEN\_8086&DEV\_3419&SUBSYS  
\_00000000&REV\_13\3&267A616A&0&6D

PCI standard host CPU bridge Yes  
SYSTEM 6.0.6001.18000  
6/21/2006 (Standard system  
devices) machine.inf Not Available  
PCI\VEN\_8086&DEV\_3418&SUBSYS  
\_00000000&REV\_13\3&267A616A&0&6C

PCI standard host CPU bridge Yes  
SYSTEM 6.0.6001.18000  
6/21/2006 (Standard system  
devices) machine.inf Not Available  
PCI\VEN\_8086&DEV\_343D&SUBSYS  
\_00000000&REV\_13\3&267A616A&0&6B

PCI standard host CPU bridge Yes  
SYSTEM 6.0.6001.18000  
6/21/2006 (Standard system  
devices) machine.inf Not Available  
PCI\VEN\_8086&DEV\_343C&SUBSYS  
\_00000000&REV\_13\3&267A616A&0&6A

PCI standard host CPU bridge Yes  
SYSTEM 6.0.6001.18000  
6/21/2006 (Standard system  
devices) machine.inf Not Available  
PCI\VEN\_8086&DEV\_343B&SUBSYS  
\_00000000&REV\_13\3&267A616A&0&69

PCI standard host CPU bridge Yes  
SYSTEM 6.0.6001.18000  
6/21/2006 (Standard system  
devices) machine.inf Not Available  
PCI\VEN\_8086&DEV\_343A&SUBSYS  
\_00000000&REV\_13\3&267A616A&0&68

PCI standard PCI-to-PCI bridge Yes  
SYSTEM 6.0.6001.18000  
6/21/2006 (Standard system  
devices) machine.inf Not Available  
PCI\VEN\_8086&DEV\_3411&SUBSYS  
\_330B103C&REV\_13\3&267A616A&0&50

PCI standard PCI-to-PCI bridge Yes  
SYSTEM 6.0.6001.18000  
6/21/2006 (Standard system  
devices) machine.inf Not Available  
PCI\VEN\_8086&DEV\_3410&SUBSYS  
\_330B103C&REV\_13\3&267A616A&0&48

PCI standard PCI-to-PCI bridge Yes  
SYSTEM 6.0.6001.18000  
6/21/2006 (Standard system  
devices) machine.inf Not Available  
PCI\VEN\_8086&DEV\_340F&SUBSYS  
\_330B103C&REV\_13\3&267A616A&0&40

PCI standard PCI-to-PCI bridge Yes  
SYSTEM 6.0.6001.18000  
6/21/2006 (Standard system  
devices) machine.inf Not Available  
PCI\VEN\_8086&DEV\_340E&SUBSYS  
\_330B103C&REV\_13\3&267A616A&0&38

PCI standard PCI-to-PCI bridge Yes  
SYSTEM 6.0.6001.18000  
6/21/2006 (Standard system  
devices) machine.inf Not Available  
PCI\VEN\_8086&DEV\_340A&SUBSYS  
\_330B103C&REV\_13\3&267A616A&0&18

PCI standard PCI-to-PCI bridge Yes  
SYSTEM 6.0.6001.18000  
6/21/2006 (Standard system  
devices) machine.inf Not Available  
PCI\VEN\_8086&DEV\_3409&SUBSYS  
\_330B103C&REV\_13\3&267A616A&0&10

HP NC532i Dual Port 10GbE Multifunction BL-c  
Adapter No NET 5.2.14.0  
12/17/2009 Hewlett-Packard  
Company oem14.inf Not Available  
EBDRV\L2ND&PCI\_165014E4&SUBS  
YS\_7058103C&REV\_00\5&F8EAF49&0&20050200

HP NC532i DP Virtual Bus Device No  
SYSTEM 5.2.18.0  
12/21/2009 Hewlett-Packard  
Company oem17.inf Not Available  
PCI\VEN\_14E4&DEV\_1650&SUBSYS  
\_7058103C&REV\_00\4&38B514C2&0&0108

HP NC532i Dual Port 10GbE Multifunction BL-c  
Adapter No NET 5.2.14.0  
12/17/2009 Hewlett-Packard  
Company oem14.inf Not Available  
EBDRV\L2ND&PCI\_165014E4&SUBS  
YS\_7058103C&REV\_00\5&2827D6F3&0&2005020  
0

HP NC532i DP Virtual Bus Device No  
SYSTEM 5.2.18.0  
12/21/2009 Hewlett-Packard  
Company oem17.inf Not Available  
PCI\VEN\_14E4&DEV\_1650&SUBSYS  
\_7058103C&REV\_00\4&38B514C2&0&0008

PCI standard PCI-to-PCI bridge Yes  
SYSTEM 6.0.6001.18000  
6/21/2006 (Standard system  
devices) machine.inf Not Available  
PCI\VEN\_8086&DEV\_3408&SUBSYS  
\_330B103C&REV\_13\3&267A616A&0&08

PCI standard host CPU bridge Yes  
SYSTEM 6.0.6001.18000  
6/21/2006 (Standard system  
devices) machine.inf Not Available  
PCI\VEN\_8086&DEV\_3403&SUBSYS  
\_330B103C&REV\_13\3&267A616A&0&00

PCI bus Yes SYSTEM  
6.0.6001.18000  
6/21/2006 (Standard system  
devices) machine.inf Not Available  
ACPI\PNP0A03\0

Intel Processor Yes  
PROCESSOR 6.0.6001.18000  
6/21/2006 Intel cpu.inf  
Not Available  
ACPI\GENUINEINTEL\_-  
\_EM64T\_FAMILY\_6\_MODEL\_26\14

Intel Processor Yes  
PROCESSOR 6.0.6001.18000  
6/21/2006 Intel cpu.inf  
Not Available  
ACPI\GENUINEINTEL\_-  
\_EM64T\_FAMILY\_6\_MODEL\_26\12

Intel Processor Yes  
PROCESSOR 6.0.6001.18000  
6/21/2006 Intel cpu.inf  
Not Available  
ACPI\GENUINEINTEL\_-  
\_EM64T\_FAMILY\_6\_MODEL\_26\10

Intel Processor Yes  
PROCESSOR 6.0.6001.18000  
6/21/2006 Intel cpu.inf  
Not Available  
ACPI\GENUINEINTEL\_-  
\_EM64T\_FAMILY\_6\_MODEL\_26\8

Intel Processor Yes  
PROCESSOR 6.0.6001.18000  
6/21/2006 Intel cpu.inf  
Not Available  
ACPI\GENUINEINTEL\_-  
\_EM64T\_FAMILY\_6\_MODEL\_26\6

Intel Processor Yes  
PROCESSOR 6.0.6001.18000  
6/21/2006 Intel cpu.inf  
Not Available  
ACPI\GENUINEINTEL\_-  
\_EM64T\_FAMILY\_6\_MODEL\_26\4

```

Intel Processor Yes
PROCESSOR 6.0.6001.18000
6/21/2006 Intel cpu.inf
Not Available
ACPI\GENUINEINTEL_-
_EM64T_FAMILY_6_MODEL_26\2
Intel Processor Yes
PROCESSOR 6.0.6001.18000
6/21/2006 Intel cpu.inf
Not Available
ACPI\GENUINEINTEL_-
_EM64T_FAMILY_6_MODEL_26\0
Microsoft ACPI-Compliant System Yes
SYSTEM 6.0.6001.18000
6/21/2006 Microsoft acpi.inf
Not Available ACPI_HAL\PNP0C08\0

ACPI x64-based PC Yes
COMPUTER 6.0.6001.18000
6/21/2006 (Standard computers)
hal.inf Not Available
ROOT\ACPI_HAL\0000

Microsoft ISATAP Adapter Yes NET
6.0.6001.18000
6/21/2006 Microsoft
nettn.inf Not Available
ROOT*\ISATAP\0002

Microsoft ISATAP Adapter Yes NET
6.0.6001.18000
6/21/2006 Microsoft
nettn.inf Not Available
ROOT*\ISATAP\0001

Microsoft 6to4 Adapter Yes NET
6.0.6001.18000
6/21/2006 Microsoft
nettn.inf Not Available
ROOT*\6TO4MP\0000

Not Available Not Available Not Available Not
Available Not Available Not Available Not
Available Not Available HTRREE\ROOT\0

Not Available Yes Not Available 2:6.0
Not Available Not Available Not Available Not
Available Not Available Microsoft XPS
Document Writer

[Environment Variables]

Variable Value User Name
ComSpec %SystemRoot%\system32\cmd.exe
<SYSTEM>
FP_NO_HOST_CHECK NO
<SYSTEM>
OS Windows_NT <SYSTEM>
Path C:\Program
Files\HP\NCU;%SystemRoot%\system32;%Syste
mRoot%;%SystemRoot%\System32\Wbem
<SYSTEM>
PATHEXT
.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.J
S;.JSE;.WSF;.WSH;.MSC <SYSTEM>
PROCESSOR_ARCHITECTURE AMD64
<SYSTEM>
TEMP %SystemRoot%\TEMP
<SYSTEM>
TMP %SystemRoot%\TEMP
<SYSTEM>
USERNAME SYSTEM <SYSTEM>
windir %SystemRoot%
<SYSTEM>
NUMBER_OF_PROCESSORS 8
<SYSTEM>
PROCESSOR_LEVEL 6
<SYSTEM>

```

```

PROCESSOR_IDENTIFIER Intel64 Family 6
Model 26 Stepping 5, GenuineIntel
PROCESSOR_REVISION 1a05
<SYSTEM>
TEMP
%USERPROFILE%\AppData\Local\T
emp
NT AUTHORITY\SYSTEM
TMP
%USERPROFILE%\AppData\Local\T
emp
NT AUTHORITY\SYSTEM
TEMP
%USERPROFILE%\AppData\Local\T
emp
NT AUTHORITY\LOCAL SERVICE
TMP
%USERPROFILE%\AppData\Local\T
emp
NT AUTHORITY\LOCAL SERVICE
TEMP
%USERPROFILE%\AppData\Local\T
emp
NT AUTHORITY\NETWORK
SERVICE
TMP
%USERPROFILE%\AppData\Local\T
emp
NT AUTHORITY\NETWORK
TEMP
%USERPROFILE%\AppData\Local\T
emp
C7KBAY1\Administrator
TMP
%USERPROFILE%\AppData\Local\T
emp
C7KBAY1\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

[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 4 8
Not Available Not Available
4/19/2010 10:55 AM Not
Available Not Available
smss.exe Not Available 464 11
200 1380
4/19/2010 10:55 AM Not
Available Not Available Not
Available csrss.exe
c:\windows\system32\csrss.exe
532 13 200
1380 4/19/2010 10:55 AM
6.0.6001.18000 7.50 KB
(7,680 bytes) 1/18/2008 9:59 PM

```

```

wininit.exe c:\windows\system32\wininit.exe
580 13 200
1380 4/19/2010 10:55 AM
6.0.6001.18000 121.00
KB (123,904 bytes) 1/18/2008 10:17 PM
csrss.exe c:\windows\system32\csrss.exe
592 13 200
1380 4/19/2010 10:55 AM
6.0.6001.18000 7.50 KB
(7,680 bytes) 1/18/2008 9:59 PM
winlogon.exe c:\windows\system32\winlogon.exe
640 13 200
1380 4/19/2010 10:55 AM
6.0.6001.18000 396.50
KB (406,016 bytes) 1/18/2008 10:18 PM
services.exe c:\windows\system32\services.exe
652 9 200
1380 4/19/2010 10:55 AM
6.0.6001.18000 375.50
KB (384,512 bytes) 1/18/2008 10:03 PM
lsass.exe c:\windows\system32\lsass.exe
672 9 200
1380 4/19/2010 10:55 AM
6.0.6001.18000 11.00 KB
(11,264 bytes) 1/18/2008 10:16 PM
lsm.exe c:\windows\system32\lsm.exe
680 8 200
1380 4/19/2010 10:55 AM
6.0.6001.18000 258.50
KB (264,704 bytes) 1/18/2008 10:43 PM
svchost.exe c:\windows\system32\svchost.exe
840 8 200
1380 4/19/2010 10:55 AM
6.0.6001.18000 27.00 KB
(27,648 bytes) 1/18/2008 10:02 PM
svchost.exe c:\windows\system32\svchost.exe
900 8 200
1380 4/19/2010 10:55 AM
6.0.6001.18000 27.00 KB
(27,648 bytes) 1/18/2008 10:02 PM
svchost.exe c:\windows\system32\svchost.exe
972 8 200
1380 4/19/2010 10:55 AM
6.0.6001.18000 27.00 KB
(27,648 bytes) 1/18/2008 10:02 PM
logonui.exe c:\windows\system32\logonui.exe
984 13 200
1380 4/19/2010 10:55 AM
6.0.6001.18000 20.50 KB
(20,992 bytes) 1/18/2008 10:17 PM
svchost.exe c:\windows\system32\svchost.exe
1020 8 200
1380 4/19/2010 10:55 AM
6.0.6001.18000 27.00 KB
(27,648 bytes) 1/18/2008 10:02 PM
svchost.exe c:\windows\system32\svchost.exe
260 8 200
1380 4/19/2010 10:55 AM
6.0.6001.18000 27.00 KB
(27,648 bytes) 1/18/2008 10:02 PM

```

```

slsv.exe c:\windows\system32\slsv.exe
352 8 200
1380 4/19/2010 10:55 AM
6.0.6001.18000 2.06 MB
(2,161,664 bytes) 1/18/2008 11:33 PM

svchost.exe c:\windows\system32\svchost.exe
500 8 200
1380 4/19/2010 10:55 AM
6.0.6001.18000 27.00 KB
(27,648 bytes) 1/18/2008 10:02 PM

svchost.exe c:\windows\system32\svchost.exe
576 8 200
1380 4/19/2010 10:55 AM
6.0.6001.18000 27.00 KB
(27,648 bytes) 1/18/2008 10:02 PM

svchost.exe c:\windows\system32\svchost.exe
828 8 200
1380 4/19/2010 10:55 AM
6.0.6001.18000 27.00 KB
(27,648 bytes) 1/18/2008 10:02 PM

svchost.exe c:\windows\system32\svchost.exe
1104 8 200
1380 4/19/2010 10:55 AM
6.0.6001.18000 27.00 KB
(27,648 bytes) 1/18/2008 10:02 PM

taskeng.exe c:\windows\system32\taskeng.exe
1272 6 200
1380 4/19/2010 10:55 AM
6.0.6001.18000 259.00
KB (265,216 bytes) 1/18/2008 10:13 PM

spoolsv.exe c:\windows\system32\spoolsv.exe
1448 8 200
1380 4/19/2010 10:55 AM
6.0.6001.18000 261.00
KB (267,264 bytes) 1/18/2008 11:11 PM

svchost.exe c:\windows\system32\svchost.exe
1476 8 200
1380 4/19/2010 10:55 AM
6.0.6001.18000 27.00 KB
(27,648 bytes) 1/18/2008 10:02 PM

cissesrv.exe c:\program
files\hp\cissesrv\cissesrv.exe 1512
8 200 1380
4/19/2010 10:55 AM
6.18.0.64 160.00 KB (163,840
bytes) 1/19/2010 10:48 AM
cpqrcmc.exe c:\windows\system32\cpqrcmc.exe
1524 8 200
1380 4/19/2010 10:55 AM
5.21.0.0 22.04 KB (22,568
bytes) 11/14/2008 12:21 PM
vcagent.exe c:\hp\hpsmh\data\cgi-
bin\vcagent\vcagent.exe 1540 8
200 1380
4/19/2010 10:55 AM
6.0.0.840 1.23 MB (1,291,776
bytes) 12/24/2009 3:51 PM
svchost.exe c:\windows\system32\svchost.exe
1804 8 200
1380 4/19/2010 10:55 AM
6.0.6001.18000 27.00 KB
(27,648 bytes) 1/18/2008 10:02 PM

```

```

svchost.exe c:\windows\system32\svchost.exe
1816 8 200
1380 4/19/2010 10:55 AM
6.0.6001.18000 27.00 KB
(27,648 bytes) 1/18/2008 10:02 PM
sysdown.exe c:\windows\system32\sysdown.exe
1856 8 200
1380 4/19/2010 10:55 AM
1.2.0.0 17.54 KB (17,960
bytes) 1/3/2010 2:53 AM
smhstart.exe c:\hp\hpsmh\bin\smhstart.exe
1880 8 200
1380 4/19/2010 10:55 AM
6.1.0.101 1.95 MB (2,041,856
bytes) 1/3/2010 2:49 AM
svchost.exe c:\windows\system32\svchost.exe
1928 8 200
1380 4/19/2010 10:55 AM
6.0.6001.18000 27.00 KB
(27,648 bytes) 1/18/2008 10:02 PM

dagent.exe c:\program
files\altiris\aclient\dagent.exe 676
8 200 1380
4/19/2010 10:56 AM
6.9.430.0 1.85 MB (1,937,232
bytes) 8/11/2009 6:48 PM
hpsmhd.exe c:\hp\hpsmh\bin\hpsmhd.exe
480 8 200
1380 4/19/2010 10:56 AM
6.1.0.101 23.00 KB (23,552
bytes) 1/3/2010 2:49 AM
cmd.exe c:\windows\system32\cmd.exe
380 8 200
1380 4/19/2010 10:56 AM
6.0.6001.18000 354.50
KB (363,008 bytes) 1/18/2008 10:05 PM

rotatlogs.exe
c:\hp\hpsmh\bin\rotatlogs.exe
1212 8 200
1380 4/19/2010 10:56 AM
6.1.0.101 51.50 KB (52,736
bytes) 1/3/2010 2:49 AM
cmd.exe c:\windows\system32\cmd.exe
1304 8 200
1380 4/19/2010 10:56 AM
6.0.6001.18000 354.50
KB (363,008 bytes) 1/18/2008 10:05 PM

rotatlogs.exe
c:\hp\hpsmh\bin\rotatlogs.exe
1308 8 200
1380 4/19/2010 10:56 AM
6.1.0.101 51.50 KB (52,736
bytes) 1/3/2010 2:49 AM
hpsmhd.exe c:\hp\hpsmh\bin\hpsmhd.exe
2272 8 200
1380 4/19/2010 10:56 AM
6.1.0.101 23.00 KB (23,552
bytes) 1/3/2010 2:49 AM
rotatlogs.exe
c:\hp\hpsmh\bin\rotatlogs.exe
2296 8 200
1380 4/19/2010 10:56 AM
6.1.0.101 51.50 KB (52,736
bytes) 1/3/2010 2:49 AM
cmd.exe c:\windows\system32\cmd.exe
2312 8 200
1380 4/19/2010 10:56 AM
6.0.6001.18000 354.50
KB (363,008 bytes) 1/18/2008 10:05 PM

```

```

rotatlogs.exe
c:\hp\hpsmh\bin\rotatlogs.exe
2320 8 200
1380 4/19/2010 10:56 AM
6.1.0.101 51.50 KB (52,736
bytes) 1/3/2010 2:49 AM
cmd.exe c:\windows\system32\cmd.exe
2328 8 200
1380 4/19/2010 10:56 AM
6.0.6001.18000 354.50
KB (363,008 bytes) 1/18/2008 10:05 PM

rotatlogs.exe
c:\hp\hpsmh\bin\rotatlogs.exe
2336 8 200
1380 4/19/2010 10:56 AM
6.1.0.101 51.50 KB (52,736
bytes) 1/3/2010 2:49 AM
msdtc.exe c:\windows\system32\msdtc.exe
3996 8 200
1380 4/19/2010 10:58 AM
2001.12.6931.18000 104.00
KB (106,496 bytes) 1/18/2008 10:27 PM

csrss.exe c:\windows\system32\csrss.exe
3768 13 200
1380 4/19/2010 11:03 AM
6.0.6001.18000 7.50 KB
(7,680 bytes) 1/18/2008 9:59 PM
winlogon.exe c:\windows\system32\winlogon.exe
3800 13 200
1380 4/19/2010 11:03 AM
6.0.6001.18000 396.50
KB (406,016 bytes) 1/18/2008 10:18 PM

rdpclip.exe c:\windows\system32\rdpclip.exe
3948 8 200
1380 4/19/2010 11:03 AM
6.0.6001.18000 187.00
KB (191,488 bytes) 1/19/2008 5:51 AM

dwm.exe c:\windows\system32\dwm.exe
3868 8 200
1380 4/19/2010 11:03 AM
6.0.6001.18000 96.50 KB
(98,816 bytes) 1/18/2008 10:10 PM

explorer.exe c:\windows\explorer.exe 1836
8 200 1380
4/19/2010 11:03 AM
6.0.6001.18000 2.94 MB
(3,080,704 bytes) 1/18/2008 10:22 PM

cpqteam.exe c:\program
files\hp\ncu\cpqteam.exe 2164 8
200 1380
4/19/2010 11:03 AM
9.90.0.15 72.00 KB (73,728
bytes) 1/20/2010 6:46 AM
dagentui.exe c:\program
files\altiris\aclient\dagentui.exe 3692
8 200 1380
4/19/2010 11:03 AM
6.9.430.0 827.83 KB (847,696
bytes) 8/11/2009 6:48 PM
taskeng.exe c:\windows\system32\taskeng.exe
1756 8 200
1380 4/19/2010 11:03 AM
6.0.6001.18000 259.00
KB (265,216 bytes) 1/18/2008 10:13 PM

dllhost.exe c:\windows\system32\dllhost.exe
812 8 200
1380 4/19/2010 11:03 AM
6.0.6000.16386 8.50 KB
(8,704 bytes) 1/18/2008 10:27 PM

```

```

svchost.exe c:\windows\system32\svchost.exe
3884      8      200
1380     4/19/2010 11:20 AM
6.0.6001.18000      27.00 KB
(27,648 bytes)      1/18/2008 10:02 PM

inetinfo.exe
c:\windows\system32\inetres\inetin
fo.exe 3772      8      200
1380     4/19/2010 11:20 AM
7.0.6001.18000      15.50 KB
(15,872 bytes)      1/19/2008 5:52 AM

wuauclt.exe c:\windows\system32\wuauclt.exe
4572      8      200
1380     4/19/2010 4:08 PM
7.0.6001.18000      44.50 KB
(45,568 bytes)      1/18/2008 11:09 PM

svchost.exe c:\windows\system32\svchost.exe
4900      8      200
1380     4/19/2010 4:10 PM
6.0.6001.18000      27.00 KB
(27,648 bytes)      1/18/2008 10:02 PM

msinfo32.exe c:\windows\system32\msinfo32.exe
4828      8      200
1380     4/19/2010 4:30 PM
6.0.6001.18000      477.50
KB (488,960 bytes)      1/18/2008 10:03 PM

wmiprvse.exe
c:\windows\system32\wbem\wmipr
vse.exe 2256      8      200
1380     4/19/2010 4:30 PM
6.0.6001.18000      340.50
KB (348,672 bytes)      1/18/2008 10:13 PM

wmiprvse.exe
c:\windows\system32\wbem\wmipr
vse.exe 5008      8      200
1380     4/19/2010 4:30 PM
6.0.6001.18000      340.50
KB (348,672 bytes)      1/18/2008 10:13 PM

[Loaded Modules]

Name      Version      Size      File Date
Manufacturer Path
csrss     6.0.6001.18000      7.50 KB
(7,680 bytes) 1/18/2008 9:59 PM
Microsoft Corporation
c:\windows\system32\csrss.exe

ntdll     6.0.6001.18000      1.49 MB
(1,559,696 bytes) 1/18/2008 9:54 PM
Microsoft Corporation
c:\windows\system32\ntdll.dll

csrssv    6.0.6001.18000      83.50 KB
(85,504 bytes) 1/18/2008 9:59 PM
Microsoft Corporation
c:\windows\system32\csrssv.dll

basesrv   6.0.6001.18000      78.50 KB
(80,384 bytes) 1/18/2008 9:59 PM
Microsoft Corporation
c:\windows\system32\basesrv.dll

winsrv    6.0.6001.18000      439.50
KB (450,048 bytes) 1/18/2008 10:08 PM
Microsoft Corporation
c:\windows\system32\winsrv.dll

```

```

user32    6.0.6001.18000      801.00
KB (820,224 bytes) 1/18/2008 10:08 PM
Microsoft Corporation
c:\windows\system32\user32.dll

kernel32  6.0.6001.18000      1.16 MB
(1,213,952 bytes) 1/18/2008 10:01 PM
Microsoft Corporation
c:\windows\system32\kernel32.dll

gdi32     6.0.6001.18000      379.00
KB (388,096 bytes) 1/18/2008 10:08 PM
Microsoft Corporation
c:\windows\system32\gdi32.dll

advapi32  6.0.6001.18000      1.01 MB
(1,062,400 bytes) 1/18/2008 11:13 PM
Microsoft Corporation
c:\windows\system32\advapi32.dll

rpcrt4    6.0.6001.18000      1.22 MB
(1,281,024 bytes) 1/18/2008 10:28 PM
Microsoft Corporation
c:\windows\system32\rpcrt4.dll

lpk       6.0.6001.18000      32.00 KB
(32,768 bytes) 1/18/2008 10:08 PM
Microsoft Corporation
c:\windows\system32\lpk.dll

usp10     6.0.6001.18000      607.50
KB (622,080 bytes) 1/18/2008 10:08 PM
Microsoft Corporation
c:\windows\system32\usp10.dll

msvcrt    7.0.6001.18000      606.50
KB (621,056 bytes) 1/18/2008 9:52 PM
Microsoft Corporation
c:\windows\system32\msvcrt.dll

sxs       6.0.6001.18000      560.50
KB (573,952 bytes) 1/18/2008 10:00 PM
Microsoft Corporation
c:\windows\system32\sxs.dll

wininit   6.0.6001.18000      121.00
KB (123,904 bytes) 1/18/2008 10:17 PM
Microsoft Corporation
c:\windows\system32\wininit.exe

userenv   6.0.6001.18000      134.00
KB (137,216 bytes) 1/18/2008 10:16 PM
Microsoft Corporation
c:\windows\system32\userenv.dll

secur32   6.0.6001.18000      92.00 KB
(94,208 bytes) 1/18/2008 10:16 PM
Microsoft Corporation
c:\windows\system32\secur32.dll

imm32     6.0.6001.18000      160.00
KB (163,840 bytes) 1/18/2008 10:07 PM
Microsoft Corporation
c:\windows\system32\imm32.dll

mctf      6.0.6001.18000      1,016.00
KB (1,040,384 bytes) 1/18/2008 10:09 PM
Microsoft Corporation
c:\windows\system32\mctf.dll

apphelp   6.0.6001.18000      195.50
KB (200,192 bytes) 1/18/2008 9:52 PM
Microsoft Corporation
c:\windows\system32\apphelp.dll

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```

ws2_32    6.0.6001.18000      259.00
KB (265,216 bytes) 1/18/2008 10:38 PM
Microsoft Corporation
c:\windows\system32\ws2_32.dll

nsi       6.0.6001.18000      11.00 KB
(11,264 bytes) 1/18/2008 10:36 PM
Microsoft Corporation
c:\windows\system32\nsi.dll

msock     6.0.6001.18000      297.00
KB (304,128 bytes) 1/18/2008 10:38 PM
Microsoft Corporation
c:\windows\system32\msock.dll

wshtcpip  6.0.6001.18000      12.50 KB
(12,800 bytes) 1/18/2008 10:36 PM
Microsoft Corporation
c:\windows\system32\wshtcpip.dll

wship6    6.0.6001.18000      11.00 KB
(11,264 bytes) 1/18/2008 10:36 PM
Microsoft Corporation
c:\windows\system32\wship6.dll

credssp   6.0.6001.18000      18.00 KB
(18,432 bytes) 1/18/2008 10:16 PM
Microsoft Corporation
c:\windows\system32\credssp.dll

crypt32   6.0.6001.18000      1.20 MB
(1,254,400 bytes) 1/18/2008 10:15 PM
Microsoft Corporation
c:\windows\system32\crypt32.dll

msasn1    6.0.6001.18000      79.00 KB
(80,896 bytes) 1/18/2008 10:57 PM
Microsoft Corporation
c:\windows\system32\msasn1.dll

schannel  6.0.6001.18000      326.50
KB (334,336 bytes) 1/18/2008 10:16 PM
Microsoft Corporation
c:\windows\system32\schannel.dll

netapi32  6.0.6001.18000      633.50
KB (648,704 bytes) 1/18/2008 10:19 PM
Microsoft Corporation
c:\windows\system32\netapi32.dll

psapi     6.0.6001.18000      16.50 KB
(16,896 bytes) 1/18/2008 10:40 PM
Microsoft Corporation
c:\windows\system32\psapi.dll

winlogon  6.0.6001.18000      396.50
KB (406,016 bytes) 1/18/2008 10:18 PM
Microsoft Corporation
c:\windows\system32\winlogon.exe

winsta    6.0.6001.18000      200.50
KB (205,312 bytes) 1/18/2008 10:43 PM
Microsoft Corporation
c:\windows\system32\winsta.dll

ntmarta   6.0.6001.18000      155.50
KB (159,232 bytes) 1/18/2008 10:16 PM
Microsoft Corporation
c:\windows\system32\ntmarta.dll

wldap32   6.0.6001.18000      321.00
KB (328,704 bytes) 1/18/2008 10:20 PM
Microsoft Corporation
c:\windows\system32\wldap32.dll

```

samlb 6.0.6001.18000 97.00 KB (99,328 bytes) 1/18/2008 10:19 PM Microsoft Corporation c:\windows\system32\samlb.dll

ole32 6.0.6001.18000 1.83 MB (1,923,072 bytes) 1/18/2008 10:30 PM Microsoft Corporation c:\windows\system32\ole32.dll

shsvcs 6.0.6001.18000 294.50 KB (301,568 bytes) 1/18/2008 10:21 PM Microsoft Corporation c:\windows\system32\shsvcs.dll

services 6.0.6001.18000 375.50 KB (384,512 bytes) 1/18/2008 10:03 PM Microsoft Corporation c:\windows\system32\services.exe

scserv 6.0.6001.18000 390.00 KB (399,360 bytes) 1/18/2008 10:15 PM Microsoft Corporation c:\windows\system32\scserv.dll

authz 6.0.6001.18000 139.50 KB (142,848 bytes) 1/18/2008 10:16 PM Microsoft Corporation c:\windows\system32\authz.dll

ncobjapi 6.0.6001.18000 68.50 KB (70,144 bytes) 1/18/2008 10:13 PM Microsoft Corporation c:\windows\system32\ncobjapi.dll

lsass 6.0.6001.18000 11.00 KB (11,264 bytes) 1/18/2008 10:16 PM Microsoft Corporation c:\windows\system32\lsass.exe

lsasrv 6.0.6001.18000 1.61 MB (1,692,160 bytes) 1/18/2008 11:21 PM Microsoft Corporation c:\windows\system32\lsasrv.dll

samsrv 6.0.6001.18000 651.00 KB (666,624 bytes) 1/18/2008 10:19 PM Microsoft Corporation c:\windows\system32\samsrv.dll

cryptdll 6.0.6001.18000 63.50 KB (65,024 bytes) 1/18/2008 10:15 PM Microsoft Corporation c:\windows\system32\cryptdll.dll

dnsapi 6.0.6001.18000 214.50 KB (219,648 bytes) 1/18/2008 10:20 PM Microsoft Corporation c:\windows\system32\dnsapi.dll

ntdsapi 6.0.6001.18000 143.00 KB (146,432 bytes) 1/18/2008 10:20 PM Microsoft Corporation c:\windows\system32\ntdsapi.dll

feclient 6.0.6001.18000 67.00 KB (68,608 bytes) 1/18/2008 10:18 PM Microsoft Corporation c:\windows\system32\feclient.dll

mpr 6.0.6001.18000 83.50 KB (85,504 bytes) 1/18/2008 10:38 PM Microsoft Corporation c:\windows\system32\mpr.dll

slc 6.0.6001.18000 146.50 KB (150,016 bytes) 1/18/2008 11:32 PM Microsoft Corporation c:\windows\system32\slc.dll

sysntfy 6.0.6000.16386 21.00 KB (21,504 bytes) 1/18/2008 10:17 PM Microsoft Corporation c:\windows\system32\sysntfy.dll

wevtapi 6.0.6001.18000 384.50 KB (393,728 bytes) 1/18/2008 10:12 PM Microsoft Corporation c:\windows\system32\wevtapi.dll

iphlpapi 6.0.6001.18000 124.00 KB (126,976 bytes) 1/18/2008 10:36 PM Microsoft Corporation c:\windows\system32\iphlpapi.dll

dhcpcsvc 6.0.6001.18000 262.00 KB (268,288 bytes) 1/18/2008 10:35 PM Microsoft Corporation c:\windows\system32\dhcpcsvc.dll

winnsi 6.0.6001.18000 21.50 KB (22,016 bytes) 1/18/2008 10:36 PM Microsoft Corporation c:\windows\system32\winnsi.dll

dhcpcsvc6 6.0.6001.18000 155.00 KB (158,720 bytes) 1/18/2008 10:35 PM Microsoft Corporation c:\windows\system32\dhcpcsvc6.dll

cngaudit 6.0.6000.16386 14.50 KB (14,848 bytes) 1/18/2008 10:15 PM Microsoft Corporation c:\windows\system32\cngaudit.dll

ncrypt 6.0.6001.18000 247.50 KB (253,440 bytes) 1/18/2008 10:15 PM Microsoft Corporation c:\windows\system32\ncrypt.dll

bcrypt 6.0.6001.18000 299.50 KB (306,688 bytes) 1/18/2008 10:15 PM Microsoft Corporation c:\windows\system32\bcrypt.dll

msprvs 6.0.6000.16386 2.00 KB (2,048 bytes) 1/18/2008 10:16 PM Microsoft Corporation c:\windows\system32\msprvs.dll

kerberos 6.0.6001.18000 639.50 KB (654,848 bytes) 1/18/2008 10:17 PM Microsoft Corporation c:\windows\system32\kerberos.dll

msv1\_0 6.0.6001.18000 259.50 KB (265,728 bytes) 1/18/2008 10:16 PM Microsoft Corporation c:\windows\system32\msv1\_0.dll

netlogon 6.0.6001.18000 700.00 KB (716,800 bytes) 1/18/2008 10:19 PM Microsoft Corporation c:\windows\system32\netlogon.dll

winbrand 6.0.6001.18000 851.00 KB (871,424 bytes) 1/18/2008 10:02 PM Microsoft Corporation c:\windows\system32\winbrand.dll

wdigest 6.0.6001.18000 193.00 KB (197,632 bytes) 1/18/2008 10:16 PM Microsoft Corporation c:\windows\system32\wdigest.dll

rsaenh 6.0.6001.18000 283.05 KB (289,848 bytes) 1/18/2008 10:18 PM Microsoft Corporation c:\windows\system32\rsaenh.dll

tspkg 6.0.6001.18000 77.00 KB (78,848 bytes) 1/18/2008 10:16 PM Microsoft Corporation c:\windows\system32\tspkg.dll

gpapi 6.0.6001.18000 82.50 KB (84,480 bytes) 1/18/2008 10:20 PM Microsoft Corporation c:\windows\system32\gpapi.dll

setupapi 6.0.6001.18000 1.83 MB (1,921,536 bytes) 1/18/2008 10:00 PM Microsoft Corporation c:\windows\system32\setupapi.dll

oleaut32 6.0.6001.18000 828.00 KB (847,872 bytes) 1/18/2008 10:27 PM Microsoft Corporation c:\windows\system32\oleaut32.dll

scecli 6.0.6001.18000 230.00 KB (235,520 bytes) 1/18/2008 10:15 PM Microsoft Corporation c:\windows\system32\scecli.dll

rassfm 6.0.6001.18000 25.50 KB (26,112 bytes) 1/19/2008 5:51 AM Microsoft Corporation c:\windows\system32\rassfm.dll

dssenh 6.0.6001.18000 197.55 KB (202,296 bytes) 1/18/2008 10:18 PM Microsoft Corporation c:\windows\system32\dssenh.dll

lsm 6.0.6001.18000 258.50 KB (264,704 bytes) 1/18/2008 10:43 PM Microsoft Corporation c:\windows\system32\lsm.exe

wmsgapi 6.0.6000.16386 14.00 KB (14,336 bytes) 1/18/2008 10:17 PM Microsoft Corporation c:\windows\system32\wmsgapi.dll

clbcatq 2001.12.6931.18000 597.00 KB (611,328 bytes) 1/18/2008 10:28 PM Microsoft Corporation c:\windows\system32\clbcatq.dll

lsmpoxy 6.0.6001.18000 43.50 KB (44,544 bytes) 1/18/2008 10:42 PM Microsoft Corporation c:\windows\system32\lsmpoxy.dll

svchost 6.0.6001.18000 27.00 KB (27,648 bytes) 1/18/2008 10:02 PM Microsoft Corporation c:\windows\system32\svchost.exe

umpnpgmr 6.0.6001.18000 304.50 KB (311,808 bytes) 1/18/2008 9:59 PM Microsoft Corporation c:\windows\system32\umpnpgmr.dll

I

powrprof 6.0.6001.18000 118.50 KB (121,344 bytes) 1/18/2008 10:23 PM Microsoft Corporation c:\windows\system32\powrprof.dll

rpcss 6.0.6001.18000 697.00 KB (713,728 bytes) 1/18/2008 10:27 PM Microsoft Corporation c:\windows\system32\rpcss.dll

FirewallAPI 6.0.6001.18000 685.00 KB (701,440 bytes) 1/18/2008 10:35 PM Microsoft Corporation c:\windows\system32\firewallapi.dll

version 6.0.6001.18000 26.50 KB (27,136 bytes) 1/18/2008 10:24 PM Microsoft Corporation c:\windows\system32\version.dll

cabinet 6.0.6001.18000 91.00 KB (93,184 bytes) 1/18/2008 10:23 PM Microsoft Corporation c:\windows\system32\cabinet.dll

wtsapi32 6.0.6001.18000 30.50 KB (31,232 bytes) 1/18/2008 10:42 PM Microsoft Corporation c:\windows\system32\wtsapi32.dll

fwpuclnt 6.0.6001.18000 761.50 KB (779,776 bytes) 1/18/2008 10:36 PM Microsoft Corporation c:\windows\system32\fwpuclnt.dll

wevtvsc 6.0.6001.18000 1.42 MB (1,486,336 bytes) 1/18/2008 10:13 PM Microsoft Corporation c:\windows\system32\wevtvsc.dll

lmhsvc 6.0.6001.18000 23.50 KB (24,064 bytes) 1/18/2008 10:36 PM Microsoft Corporation c:\windows\system32\lmhsvc.dll

logonui 6.0.6001.18000 20.50 KB (20,992 bytes) 1/18/2008 10:17 PM Microsoft Corporation c:\windows\system32\logonui.exe

authui 6.0.6001.18000 2.17 MB (2,271,744 bytes) 1/18/2008 10:25 PM Microsoft Corporation c:\windows\system32\authui.dll

comctl32 6.10.6001.18000 1.95 MB (2,049,024 bytes) 1/19/2008 1:51 AM Microsoft Corporation c:\windows\winsxs\amd64\_microsoft-windows.common-controls\_6595b64144ccf1df\_6.0.6001.18000\_none\_152e7382f3bd50c6\comctl32.dll

shlwapi 6.0.6001.18000 443.50 KB (454,144 bytes) 1/18/2008 10:21 PM Microsoft Corporation c:\windows\system32\shlwapi.dll

msimg32 6.0.6001.18000 8.00 KB (8,192 bytes) 1/18/2008 10:07 PM Microsoft Corporation c:\windows\system32\msimg32.dll

uxtheme 6.0.6001.18000 310.00 KB (317,440 bytes) 1/18/2008 10:21 PM Microsoft Corporation c:\windows\system32\uxtheme.dll

gdiplus 5.2.6001.18000 2.09 MB (2,190,848 bytes) 1/19/2008 1:50 AM Microsoft Corporation c:\windows\winsxs\amd64\_microsoft-windows.gdiplus\_6595b64144ccf1df\_1.0.6001.18000\_none\_56c7f783b549f0ed\gdiplus.dll

duser 6.0.6001.18000 244.50 KB (250,368 bytes) 1/18/2008 10:09 PM Microsoft Corporation c:\windows\system32\duser.dll

xmllite 1.2.1009.0 176.00 KB (180,224 bytes) 1/18/2008 11:13 PM Microsoft Corporation c:\windows\system32\xmllite.dll

SmartcardCredentialProvider 6.0.6001.18000 157.00 KB (160,768 bytes) 1/18/2008 10:15 PM Microsoft Corporation c:\windows\system32\smartcardcredentialprovider.dll

raslap 6.0.6001.18000 380.50 KB (389,632 bytes) 1/18/2008 10:37 PM Microsoft Corporation c:\windows\system32\raslap.dll

rasapi32 6.0.6001.18000 329.50 KB (337,408 bytes) 1/18/2008 10:37 PM Microsoft Corporation c:\windows\system32\rasapi32.dll

rasman 6.0.6001.18000 90.50 KB (92,672 bytes) 1/18/2008 10:37 PM Microsoft Corporation c:\windows\system32\rasman.dll

tapi32 6.0.6000.16386 238.00 KB (243,712 bytes) 1/18/2008 11:13 PM Microsoft Corporation c:\windows\system32\tapi32.dll

rtutils 6.0.6001.18000 49.50 KB (50,688 bytes) 1/18/2008 10:37 PM Microsoft Corporation c:\windows\system32\rtutils.dll

winmm 6.0.6001.18000 207.00 KB (211,968 bytes) 1/18/2008 10:44 PM Microsoft Corporation c:\windows\system32\winmm.dll

oleacc 4.2.5406.0 300.50 KB (307,712 bytes) 1/18/2008 10:08 PM Microsoft Corporation c:\windows\system32\oleacc.dll

shell32 6.0.6001.18000 12.30 MB (12,895,744 bytes) 1/18/2008 11:32 PM Microsoft Corporation c:\windows\system32\shell32.dll

winscard 6.0.6001.18000 186.00 KB (190,464 bytes) 1/18/2008 10:15 PM Microsoft Corporation c:\windows\system32\winscard.dll

shgina 6.0.6001.18000 82.50 KB (84,480 bytes) 1/18/2008 10:22 PM Microsoft Corporation c:\windows\system32\shgina.dll

shacct 6.0.6001.18000 96.00 KB (98,304 bytes) 1/18/2008 10:22 PM Microsoft Corporation c:\windows\system32\shacct.dll

propsys 6.0.6001.18000 895.50 KB (916,992 bytes) 1/18/2008 10:21 PM Microsoft Corporation c:\windows\system32\propsys.dll

hid 6.0.6001.18000 28.50 KB (29,184 bytes) 1/18/2008 10:33 PM Microsoft Corporation c:\windows\system32\hid.dll

wintrust 6.0.6001.18000 213.00 KB (218,112 bytes) 1/18/2008 10:15 PM Microsoft Corporation c:\windows\system32\wintrust.dll

imagehlp 6.0.6001.18000 72.50 KB (74,240 bytes) 1/18/2008 10:40 PM Microsoft Corporation c:\windows\system32\imagehlp.dll

gpsvc 6.0.6001.18000 701.50 KB (718,336 bytes) 1/18/2008 10:20 PM Microsoft Corporation c:\windows\system32\gpsvc.dll

nlaapi 6.0.6001.18000 60.00 KB (61,440 bytes) 1/18/2008 10:36 PM Microsoft Corporation c:\windows\system32\nlaapi.dll

wbemprox 6.0.6001.18000 42.50 KB (43,520 bytes) 1/18/2008 10:12 PM Microsoft Corporation c:\windows\system32\wbem\wbemprox.dll

wbemcomm 6.0.6001.18000 516.00 KB (528,384 bytes) 1/18/2008 10:13 PM Microsoft Corporation c:\windows\system32\wbemcomm.dll

wbemsvc 6.0.6001.18000 121.00 KB (123,904 bytes) 1/18/2008 10:12 PM Microsoft Corporation c:\windows\system32\wbem\wbemsvc.dll

fastprox 6.0.6001.18000 869.50 KB (890,368 bytes) 1/18/2008 10:13 PM Microsoft Corporation c:\windows\system32\wbem\fastprox.dll

profsvc 6.0.6001.18000 174.50 KB (178,688 bytes) 1/18/2008 10:16 PM Microsoft Corporation c:\windows\system32\profsvc.dll

atl 3.5.2284.0 85.50 KB (87,552 bytes) 1/18/2008 11:09 PM Microsoft Corporation c:\windows\system32\atl.dll

sens 6.0.6001.18000 60.50 KB (61,952 bytes) 1/18/2008 10:27 PM Microsoft Corporation c:\windows\system32\sens.dll

schedsvc 6.0.6001.18000 824.00 KB (843,776 bytes) 1/18/2008 10:13 PM Microsoft Corporation c:\windows\system32\schedsvc.dll

ktmw32 6.0.6001.18000 14.50 KB (14,848 bytes) 1/18/2008 9:52 PM Microsoft Corporation c:\windows\system32\ktmw32.dll

comctl32 5.82.6001.18000 619.00 KB (633,856 bytes) 1/19/2008 1:48 AM Microsoft Corporation c:\windows\winsxs\amd64\_microsoft-windows-common-controls\_6595b64144ccf1df\_5.82.6001.18000\_none\_40ba501d3c2b20ff\_comctl32.dll

taskcomp 6.0.6001.18000 400.00 KB (409,600 bytes) 1/18/2008 10:13 PM Microsoft Corporation c:\windows\system32\taskcomp.dll

TSCChannel 6.0.6000.16386 18.50 KB (18,944 bytes) 1/18/2008 10:12 PM Microsoft Corporation c:\windows\system32\tchannel.dll

aelupsvc 6.0.6000.16386 26.00 KB (26,624 bytes) 1/18/2008 9:52 PM Microsoft Corporation c:\windows\system32\aelupsvc.dll

ikeext 6.0.6001.18000 444.00 KB (454,656 bytes) 1/18/2008 10:36 PM Microsoft Corporation c:\windows\system32\ikeext.dll

sacsvr 6.0.6001.18000 14.50 KB (14,848 bytes) 1/19/2008 5:51 AM Microsoft Corporation c:\windows\system32\sacsvr.dll

seclogon 6.0.6001.18000 28.00 KB (28,672 bytes) 1/18/2008 10:18 PM Microsoft Corporation c:\windows\system32\seclogon.dll

wmisvc 6.0.6001.18000 216.50 KB (221,696 bytes) 1/18/2008 10:13 PM Microsoft Corporation c:\windows\system32\wbem\wmisvc.dll

iphlpvc 6.0.6001.18000 218.00 KB (223,232 bytes) 1/18/2008 10:36 PM Microsoft Corporation c:\windows\system32\iphlpvc.dll

sqmapi 6.0.6001.18000 172.00 KB (176,128 bytes) 1/18/2008 10:11 PM Microsoft Corporation c:\windows\system32\sqmapi.dll

winhttp 6.0.6001.18000 429.50 KB (439,808 bytes) 1/18/2008 10:26 PM Microsoft Corporation c:\windows\system32\winhttp.dll

vssapi 6.0.6001.18000 1.43 MB (1,494,528 bytes) 1/18/2008 10:30 PM Microsoft Corporation c:\windows\system32\vssapi.dll

vsstrace 6.0.6001.18000 90.00 KB (92,160 bytes) 1/18/2008 10:29 PM Microsoft Corporation c:\windows\system32\vsstrace.dll

wbemcore 6.0.6001.18000 1.12 MB (1,171,456 bytes) 1/18/2008 10:14 PM Microsoft Corporation c:\windows\system32\wbem\wbemcore.dll

esscli 6.0.6001.18000 418.00 KB (428,032 bytes) 1/18/2008 10:12 PM Microsoft Corporation c:\windows\system32\wbem\esscli.dll

srsvc 6.0.6001.18000 172.50 KB (176,640 bytes) 1/18/2008 10:18 PM Microsoft Corporation c:\windows\system32\srsvc.dll

wmiutils 6.0.6001.18000 128.50 KB (131,584 bytes) 1/18/2008 10:12 PM Microsoft Corporation c:\windows\system32\wbem\wmiutils.dll

ls.dll 6.0.6000.16386 12.00 KB (12,288 bytes) 1/18/2008 10:18 PM Microsoft Corporation c:\windows\system32\ls.dll

clusapi 6.0.6001.18000 237.50 KB (243,200 bytes) 1/18/2008 10:05 PM Microsoft Corporation c:\windows\system32\clusapi.dll

activeds 6.0.6001.18000 259.50 KB (265,728 bytes) 1/18/2008 10:19 PM Microsoft Corporation c:\windows\system32\activeds.dll

adslidpc 6.0.6001.18000 224.00 KB (229,376 bytes) 1/18/2008 10:19 PM Microsoft Corporation c:\windows\system32\adslidpc.dll

credui 6.0.6001.18000 186.50 KB (190,976 bytes) 1/18/2008 10:18 PM Microsoft Corporation c:\windows\system32\credui.dll

repdrvfs 6.0.6001.18000 372.50 KB (381,440 bytes) 1/18/2008 10:13 PM Microsoft Corporation c:\windows\system32\wbem\repdrvfs.dll

resutils 6.0.6001.18000 76.00 KB (77,824 bytes) 1/18/2008 10:04 PM Microsoft Corporation c:\windows\system32\resutils.dll

wmiprvsd 6.0.6001.18000 671.50 KB (687,616 bytes) 1/18/2008 10:13 PM Microsoft Corporation c:\windows\system32\wbem\wmiprvsd.dll

wbemess 6.0.6001.18000 501.00 KB (513,024 bytes) 1/18/2008 10:13 PM Microsoft Corporation c:\windows\system32\wbem\wbemess.dll

winrnr 6.0.6001.18000 27.00 KB (27,648 bytes) 1/18/2008 10:19 PM Microsoft Corporation c:\windows\system32\winrnr.dll

napinsp 6.0.6001.18000 61.50 KB (62,976 bytes) 1/18/2008 10:37 PM Microsoft Corporation c:\windows\system32\napinsp.dll

rasadhlp 6.0.6001.18000 13.00 KB (13,312 bytes) 1/18/2008 10:37 PM Microsoft Corporation c:\windows\system32\rasadhlp.dll

certprop 6.0.6001.18000 48.00 KB (49,152 bytes) 1/18/2008 10:15 PM Microsoft Corporation c:\windows\system32\certprop.dll

sessenv 6.0.6001.18000 73.00 KB (74,752 bytes) 1/18/2008 10:43 PM Microsoft Corporation c:\windows\system32\sessenv.dll

ncprov 6.0.6001.18000 77.50 KB (79,360 bytes) 1/18/2008 10:13 PM Microsoft Corporation c:\windows\system32\wbem\ncprov.dll

qmgr 7.0.6001.18000 1.03 MB (1,082,368 bytes) 1/18/2008 10:12 PM Microsoft Corporation c:\windows\system32\qmgr.dll

shfolder 6.0.6001.18000 10.00 KB (10,240 bytes) 1/18/2008 10:22 PM Microsoft Corporation c:\windows\system32\shfolder.dll

bitsperf 7.0.6000.16386 22.50 KB (23,040 bytes) 1/18/2008 10:11 PM Microsoft Corporation c:\windows\system32\bitsperf.dll

bitsigd 7.0.6001.18000 45.50 KB (46,592 bytes) 1/18/2008 10:11 PM Microsoft Corporation c:\windows\system32\bitsigd.dll

wuaueng 7.0.6001.18000 2.06 MB (2,156,544 bytes) 1/18/2008 11:11 PM Microsoft Corporation c:\windows\system32\wuaueng.dll

esent 6.0.6001.18000 2.41 MB (2,522,624 bytes) 1/18/2008 10:17 PM Microsoft Corporation c:\windows\system32\esent.dll

winspool 6.0.6001.18000 333.50 KB (341,504 bytes) 1/18/2008 11:11 PM Microsoft Corporation c:\windows\system32\winspool.drv

mspatcha 6.0.6001.18000 45.50 KB (46,592 bytes) 1/18/2008 10:05 PM Microsoft Corporation c:\windows\system32\msppatcha.dll

wups2 7.0.6001.18000 33.00 KB (33,792 bytes) 1/18/2008 11:09 PM Microsoft Corporation c:\windows\system32\wups2.dll

appmgmts 6.0.6001.18000 191.00 KB (195,584 bytes) 1/19/2008 5:52 AM Microsoft Corporation c:\windows\system32\appmgmts.dll



rasmans	6.0.6001.18000	301.00 KB (308,224 bytes)	1/18/2008 10:37 PM	Microsoft Corporation	c:\windows\system32\rasmans.dll
rastapi	6.0.6001.18000	79.50 KB (81,408 bytes)	1/18/2008 10:37 PM	Microsoft Corporation	c:\windows\system32\rastapi.dll
rasppp	6.0.6001.18000	299.00 KB (306,176 bytes)	1/18/2008 10:37 PM	Microsoft Corporation	c:\windows\system32\rasppp.dll
mprapi	6.0.6001.18000	126.50 KB (129,536 bytes)	1/18/2008 10:37 PM	Microsoft Corporation	c:\windows\system32\mprapi.dll
rasqec	6.0.6001.18000	72.00 KB (73,728 bytes)	1/18/2008 10:37 PM	Microsoft Corporation	c:\windows\system32\rasqec.dll
qutil	6.0.6001.18000	97.00 KB (99,328 bytes)	1/18/2008 10:34 PM	Microsoft Corporation	c:\windows\system32\qutil.dll
raschap	6.0.6001.18000	289.50 KB (296,448 bytes)	1/18/2008 10:37 PM	Microsoft Corporation	c:\windows\system32\raschap.dll
rastls	6.0.6001.18000	274.00 KB (280,576 bytes)	1/18/2008 10:37 PM	Microsoft Corporation	c:\windows\system32\rastls.dll
cryptui	6.0.6001.18000	1,010.50 KB (1,034,752 bytes)	1/18/2008 10:15 PM	Microsoft Corporation	c:\windows\system32\cryptui.dll
slsvc	6.0.6001.18000	2.06 MB (2,161,664 bytes)	1/18/2008 11:33 PM	Microsoft Corporation	c:\windows\system32\slsvc.exe
es	2001.12.6931.18000	346.00 KB (354,304 bytes)	1/18/2008 10:27 PM	Microsoft Corporation	c:\windows\system32\es.dll
nsisvc	6.0.6001.18000	24.00 KB (24,576 bytes)	1/18/2008 10:36 PM	Microsoft Corporation	c:\windows\system32\nsisvc.dll
wkssvc	6.0.6001.18000	198.00 KB (202,752 bytes)	1/18/2008 10:18 PM	Microsoft Corporation	c:\windows\system32\wkssvc.dll
w32time	6.0.6001.18000	364.00 KB (372,736 bytes)	1/18/2008 10:15 PM	Microsoft Corporation	c:\windows\system32\w32time.dll
netprofm	6.0.6001.18000	297.00 KB (304,128 bytes)	1/18/2008 10:38 PM	Microsoft Corporation	c:\windows\system32\netprofm.dll

npmproxy	6.0.6000.16386	31.50 KB (32,256 bytes)	1/18/2008 10:38 PM	Microsoft Corporation	c:\windows\system32\npmproxy.dll
SLUINotify	6.0.6001.18000	69.50 KB (71,168 bytes)	1/18/2008 10:17 PM	Microsoft Corporation	c:\windows\system32\sluinotify.dll
slcext	6.0.6001.18000	182.50 KB (186,880 bytes)	1/18/2008 10:17 PM	Microsoft Corporation	c:\windows\system32\slcext.dll
urlmon	7.0.6001.18000	1.35 MB (1,417,728 bytes)	1/18/2008 10:27 PM	Microsoft Corporation	c:\windows\system32\urlmon.dll
iertutil	7.0.6001.18000	366.00 KB (374,784 bytes)	1/18/2008 10:25 PM	Microsoft Corporation	c:\windows\system32\iertutil.dll
sstpsvc	6.0.6001.18000	138.00 KB (141,312 bytes)	1/18/2008 10:37 PM	Microsoft Corporation	c:\windows\system32\sstpsvc.dll
httpapi	6.0.6001.18000	32.50 KB (33,280 bytes)	1/18/2008 10:35 PM	Microsoft Corporation	c:\windows\system32\httpapi.dll
normaliz	6.0.6000.16386	3.00 KB (3,072 bytes)	1/18/2008 9:59 PM	Microsoft Corporation	c:\windows\system32\normaliz.dll
fdphost	6.0.6001.18000	15.00 KB (15,360 bytes)	1/18/2008 10:06 PM	Microsoft Corporation	c:\windows\system32\fdphost.dll
fdwsd	6.0.6001.18000	79.50 KB (81,408 bytes)	1/18/2008 10:06 PM	Microsoft Corporation	c:\windows\system32\fdwsd.dll
mlang	6.0.6001.18000	232.50 KB (238,080 bytes)	1/18/2008 10:22 PM	Microsoft Corporation	c:\windows\system32\mlang.dll
wsdapi	6.0.6001.18000	427.00 KB (437,248 bytes)	1/18/2008 10:07 PM	Microsoft Corporation	c:\windows\system32\wsdapi.dll
fdssdp	6.0.6001.18000	82.00 KB (83,968 bytes)	1/18/2008 10:06 PM	Microsoft Corporation	c:\windows\system32\fdssdp.dll
ssdpapi	6.0.6000.16386	49.00 KB (50,176 bytes)	1/18/2008 10:38 PM	Microsoft Corporation	c:\windows\system32\ssdpapi.dll
fdproxy	6.0.6000.16386	56.00 KB (57,344 bytes)	1/18/2008 10:06 PM	Microsoft Corporation	c:\windows\system32\fdproxy.dll

uxsms	6.0.6001.18000	32.00 KB (32,768 bytes)	1/18/2008 10:10 PM	Microsoft Corporation	c:\windows\system32\uxsms.dll
hidserv	6.0.6000.16386	23.50 KB (24,064 bytes)	1/18/2008 10:33 PM	Microsoft Corporation	c:\windows\system32\hidserv.dll
trkwks	6.0.6001.18000	114.50 KB (117,248 bytes)	1/18/2008 10:27 PM	Microsoft Corporation	c:\windows\system32\trkwks.dll
umrdp	6.0.6001.18000	247.00 KB (252,928 bytes)	1/19/2008 5:52 AM	Microsoft Corporation	c:\windows\system32\umrdp.dll
umb	6.0.6001.18000	58.50 KB (59,904 bytes)	1/18/2008 10:06 PM	Microsoft Corporation	c:\windows\system32\umb.dll
wdi	6.0.6001.18000	80.00 KB (81,920 bytes)	1/18/2008 10:03 PM	Microsoft Corporation	c:\windows\system32\wdi.dll
radardt	6.0.6000.16386	77.50 KB (79,360 bytes)	1/19/2008 5:52 AM	Microsoft Corporation	c:\windows\system32\radardt.dll
printui	6.0.6001.18000	957.50 KB (980,480 bytes)	1/18/2008 11:12 PM	Microsoft Corporation	c:\windows\system32\printui.dll
cfgmgr32	6.0.6001.18000	17.50 KB (17,920 bytes)	1/18/2008 9:59 PM	Microsoft Corporation	c:\windows\system32\cfgmgr32.dll
puiapi	6.0.6001.18000	185.50 KB (189,952 bytes)	1/18/2008 11:12 PM	Microsoft Corporation	c:\windows\system32\puiapi.dll
netman	6.0.6001.18000	340.00 KB (348,160 bytes)	1/18/2008 10:35 PM	Microsoft Corporation	c:\windows\system32\netman.dll
netshell	6.0.6001.18000	3.19 MB (3,341,312 bytes)	1/18/2008 10:35 PM	Microsoft Corporation	c:\windows\system32\netshell.dll
rasdlg	6.0.6001.18000	890.00 KB (911,360 bytes)	1/18/2008 10:37 PM	Microsoft Corporation	c:\windows\system32\rasdlg.dll
dnssrslvr	6.0.6001.18000	115.00 KB (117,760 bytes)	1/18/2008 10:20 PM	Microsoft Corporation	c:\windows\system32\dnssrslvr.dll
cryptsvc	6.0.6001.18000	161.50 KB (165,376 bytes)	1/18/2008 10:15 PM	Microsoft Corporation	c:\windows\system32\cryptsvc.dll

nlasvc 6.0.6001.18000 201.50 KB (206,336 bytes) 1/18/2008 10:36 PM  
 Microsoft Corporation  
 c:\windows\system32\nlasvc.dll

ncsi 6.0.6001.18000 106.50 KB (109,056 bytes) 1/18/2008 10:35 PM  
 Microsoft Corporation  
 c:\windows\system32\ncsi.dll

termsrv 6.0.6001.18000 534.00 KB (546,816 bytes) 1/18/2008 10:43 PM  
 Microsoft Corporation  
 c:\windows\system32\termsrv.dll

icaapi 6.0.6000.16386 20.00 KB (20,480 bytes) 1/18/2008 10:42 PM  
 Microsoft Corporation  
 c:\windows\system32\icaapi.dll

regapi 6.0.6001.18000 87.00 KB (89,088 bytes) 1/18/2008 10:42 PM  
 Microsoft Corporation  
 c:\windows\system32\regapi.dll

rdpwsx 6.0.6001.18000 115.00 KB (117,760 bytes) 1/18/2008 10:42 PM  
 Microsoft Corporation  
 c:\windows\system32\rdpwsx.dll

mstlsapi 6.0.6001.18000 135.00 KB (138,240 bytes) 1/18/2008 10:42 PM  
 Microsoft Corporation  
 c:\windows\system32\mstlsapi.dll

msdtckrm 2001.12.6931.18000 386.00 KB (395,264 bytes) 1/18/2008 10:27 PM  
 Microsoft Corporation  
 c:\windows\system32\msdtckrm.dll

wsmSvc 6.0.6001.18000 1.04 MB (1,091,072 bytes) 1/18/2008 10:14 PM  
 Microsoft Corporation  
 c:\windows\system32\wsmSvc.dll

wsmprov 6.0.6001.18000 71.50 KB (73,216 bytes) 1/18/2008 10:13 PM  
 Microsoft Corporation  
 c:\windows\system32\wsmprov.dll

winrsmgr 6.0.6001.18000 294.00 KB (301,056 bytes) 1/18/2008 10:14 PM  
 Microsoft Corporation  
 c:\windows\system32\winrsmgr.dll

wsmres 6.0.6001.18000 13.00 KB (13,312 bytes) 1/18/2008 10:13 PM  
 Microsoft Corporation  
 c:\windows\system32\wsmres.dll

wevtfwd 6.0.6001.18000 104.50 KB (107,008 bytes) 1/18/2008 10:12 PM  
 Microsoft Corporation  
 c:\windows\system32\wevtfwd.dll

bfe 6.0.6001.18000 447.50 KB (458,240 bytes) 1/18/2008 10:36 PM  
 Microsoft Corporation  
 c:\windows\system32\bfe.dll

mpssvc 6.0.6001.18000 587.00 KB (601,088 bytes) 1/18/2008 10:35 PM  
 Microsoft Corporation  
 c:\windows\system32\mpssvc.dll

wfapigp 6.0.6001.18000 20.00 KB (20,480 bytes) 1/18/2008 10:35 PM  
 Microsoft Corporation  
 c:\windows\system32\wfapigp.dll

dps 6.0.6001.18000 136.00 KB (139,264 bytes) 1/18/2008 10:03 PM  
 Microsoft Corporation  
 c:\windows\system32\dps.dll

taskschd 6.0.6001.18000 640.50 KB (655,872 bytes) 1/18/2008 10:13 PM  
 Microsoft Corporation  
 c:\windows\system32\taskschd.dll

taskeng 6.0.6001.18000 259.00 KB (265,216 bytes) 1/18/2008 10:13 PM  
 Microsoft Corporation  
 c:\windows\system32\taskeng.exe

dimsjob 6.0.6001.18000 43.00 KB (44,032 bytes) 1/18/2008 10:18 PM  
 Microsoft Corporation  
 c:\windows\system32\dimsjob.dll

pautoenr 6.0.6000.16386 46.00 KB (47,104 bytes) 1/18/2008 10:18 PM  
 Microsoft Corporation  
 c:\windows\system32\pautoenr.dll

certcli 6.0.6001.18000 434.00 KB (444,416 bytes) 1/18/2008 10:16 PM  
 Microsoft Corporation  
 c:\windows\system32\certcli.dll

CertEnroll 6.0.6001.18000 1.58 MB (1,658,368 bytes) 1/18/2008 10:19 PM  
 Microsoft Corporation  
 c:\windows\system32\certenroll.dll

wininet 7.0.6001.18000 988.00 KB (1,011,712 bytes) 1/18/2008 10:27 PM  
 Microsoft Corporation  
 c:\windows\system32\wininet.dll

spoolsv 6.0.6001.18000 261.00 KB (267,264 bytes) 1/18/2008 11:11 PM  
 Microsoft Corporation  
 c:\windows\system32\spoolsv.exe

spoolss 6.0.6001.18000 236.00 KB (241,664 bytes) 1/18/2008 11:34 PM  
 Microsoft Corporation  
 c:\windows\system32\spoolss.dll

localspl 6.0.6001.18000 770.00 KB (788,480 bytes) 1/18/2008 11:20 PM  
 Microsoft Corporation  
 c:\windows\system32\localspl.dll

sfc 6.0.6000.16386 6.00 KB (6,144 bytes) 1/18/2008 9:59 PM  
 Microsoft Corporation  
 c:\windows\system32\sfc.dll

tcpmon 6.0.6001.18000 165.00 KB (168,960 bytes) 1/18/2008 11:11 PM  
 Microsoft Corporation  
 c:\windows\system32\tcpmon.dll

snmpapi 6.0.6000.16386 27.00 KB (27,648 bytes) 1/18/2008 10:37 PM  
 Microsoft Corporation  
 c:\windows\system32\snmpapi.dll

wsnmp32 6.0.6001.18000 60.50 KB (61,952 bytes) 1/18/2008 10:37 PM  
 Microsoft Corporation  
 c:\windows\system32\wsnmp32.dll

msxml6 6.20.1076.0 1.65 MB (1,728,512 bytes) 1/18/2008 11:14 PM  
 Microsoft Corporation  
 c:\windows\system32\msxml6.dll

tcpmib 6.0.6000.16386 33.50 KB (34,304 bytes) 1/18/2008 11:11 PM  
 Microsoft Corporation  
 c:\windows\system32\tcpmib.dll

mgmtapi 6.0.6000.16386 22.00 KB (22,528 bytes) 1/18/2008 10:37 PM  
 Microsoft Corporation  
 c:\windows\system32\mgmtapi.dll

usbmon 6.0.6001.18000 43.00 KB (44,032 bytes) 1/18/2008 11:11 PM  
 Microsoft Corporation  
 c:\windows\system32\usbmon.dll

wls0wndh 6.0.6000.16386 9.50 KB (9,728 bytes) 1/18/2008 10:17 PM  
 Microsoft Corporation  
 c:\windows\system32\wls0wndh.dll

wsdmon 6.0.6001.18000 209.00 KB (214,016 bytes) 1/18/2008 11:11 PM  
 Microsoft Corporation  
 c:\windows\system32\wsdmon.dll

fundisc 6.0.6001.18000 162.50 KB (166,400 bytes) 1/18/2008 10:06 PM  
 Microsoft Corporation  
 c:\windows\system32\fundisc.dll

msxml3 8.100.1043.0 1.72 MB (1,807,360 bytes) 1/18/2008 11:14 PM  
 Microsoft Corporation  
 c:\windows\system32\msxml3.dll

hpzpphln 61.53.25.9 97.50 KB (99,840 bytes) 1/3/2010 7:39 PM  
 Hewlett-Packard Corporation  
 c:\windows\system32\spool\prtprocs\x64\hpzpphln.dll

win32spl 6.0.6001.18000 641.50 KB (656,896 bytes) 1/18/2008 11:12 PM  
 Microsoft Corporation  
 c:\windows\system32\win32spl.dll

netrap 6.0.6001.18000 21.00 KB (21,504 bytes) 1/18/2008 10:18 PM  
 Microsoft Corporation  
 c:\windows\system32\netrap.dll

printcom 6.0.6001.18000 43.50 KB (44,544 bytes) 1/18/2008 11:10 PM  
 Microsoft Corporation  
 c:\windows\system32\printcom.dll

sensapi 6.0.6001.18000 12.50 KB (12,800 bytes) 1/18/2008 10:27 PM  
 Microsoft Corporation  
 c:\windows\system32\sensapi.dll

apphostsvc 7.0.6001.18000 57.00 KB (58,368 bytes) 1/19/2008 5:52 AM  
 Microsoft Corporation  
 c:\windows\system32\inetsrv\apphostsvc.dll

sfc\_os 6.0.6001.18000 38.50 KB  
(39,424 bytes) 1/18/2008 9:59 PM  
Microsoft Corporation  
c:\windows\system32\sfc\_os.dll

iisutil 7.0.6001.18000 269.00  
KB (275,456 bytes) 1/19/2008 5:52 AM  
Microsoft Corporation  
c:\windows\system32\inetrv\iisutil.

dll  
nativervd 7.0.6001.18000 407.00  
KB (416,768 bytes) 1/19/2008 5:52 AM  
Microsoft Corporation  
c:\windows\system32\inetrv\native

rd.dll  
iisres 7.0.6001.18000 188.50  
KB (193,024 bytes) 1/19/2008 5:52 AM  
Microsoft Corporation  
c:\windows\system32\inetrv\iisres.

dll  
cissesrv 6.18.0.64 160.00 KB (163,840  
bytes) 1/19/2010 10:48 AM Hewlett-  
Packard Company c:\program  
files\hp\cissesrv\cissesrv.exe  
cpqrcmc 5.21.0.0 22.04 KB (22,568  
bytes) 11/14/2008 12:21 PM Hewlett-  
Packard Company  
c:\windows\system32\cpqrcmc.exe

vcagent 6.0.0.840 1.23 MB (1,291,776  
bytes) 12/24/2009 3:51 PM Hewlett-  
Packard Company c:\hp\hpsmh\data\cgi-  
bin\vcagent\vcagent.exe  
xerces-c\_2\_7\_2.7.0.0 2.58 MB (2,710,528  
bytes) 6/25/2009 12:59 PM Apache  
Software Foundation c:\hp\hpsmh\data\cgi-  
bin\vcagent\xerces-c\_2\_7.dll  
msvcr80 8.0.50727.4053 783.81  
KB (802,624 bytes) 1/3/2010 2:49 AM  
Microsoft Corporation  
c:\windows\winsxs\amd64\_microsoft  
t.vc80.crt\_1fc8b3b9a1e18e3b\_8.0.50727.4053\_n  
one\_88e046c92fae6f57\msvcr80.dll  
Xalan-C\_1\_10 1.10.0.0 3.53 MB  
(3,704,832 bytes) 6/25/2009 5:00 PM  
Apache Software Foundation  
c:\hp\hpsmh\data\cgi-  
bin\vcagent\xalan-c\_1\_10.dll  
XalanMessages\_1\_10 Not Available 26.50 KB  
(27,136 bytes) 6/25/2009 4:54 PM  
Not Available c:\hp\hpsmh\data\cgi-  
bin\vcagent\xalanmessages\_1\_10.dll  
msvcp80 8.0.50727.4053 1.02 MB  
(1,068,368 bytes) 1/3/2010 2:49 AM  
Microsoft Corporation  
c:\windows\winsxs\amd64\_microsoft  
t.vc80.crt\_1fc8b3b9a1e18e3b\_8.0.50727.4053\_n  
one\_88e046c92fae6f57\msvcp80.dll  
ssleay32 Not Available 249.50 KB (255,488  
bytes) 1/3/2010 2:49 AM Not  
Available c:\hp\hpsmh\data\cgi-  
bin\vcagent\ssleay32.dll  
libeay32 Not Available 1.30 MB (1,362,944  
bytes) 1/3/2010 2:49 AM Not  
Available c:\hp\hpsmh\data\cgi-  
bin\vcagent\libeay32.dll  
wsock32 6.0.6001.18000 18.00 KB  
(18,432 bytes) 1/18/2008 10:37 PM  
Microsoft Corporation  
c:\windows\system32\wsock32.dll

ipsecsvc 6.0.6001.18000 519.00  
KB (531,456 bytes) 1/18/2008 10:36 PM  
Microsoft Corporation  
c:\windows\system32\ipsecsvc.dll  
FwRemoteSvr 6.0.6001.18000  
49.00 KB (50,176 bytes)  
1/18/2008 10:35 PM  
Microsoft Corporation  
c:\windows\system32\fwremotesvr.

dll  
regsvc 6.0.6001.18000 201.50  
KB (206,336 bytes) 1/18/2008 10:03 PM  
Microsoft Corporation  
c:\windows\system32\regsvc.dll

sysdown 1.2.0.0 17.54 KB (17,960  
bytes) 1/3/2010 2:53 AM Hewlett-  
Packard Company  
c:\windows\system32\sysdown.exe

smhstart 6.1.0.101 1.95 MB (2,041,856  
bytes) 1/3/2010 2:49 AM Hewlett-  
Packard Company  
c:\hp\hpsmh\bin\smhstart.exe

libapr-1 1.2.11.0 164.00 KB (167,936  
bytes) 1/3/2010 2:49 AM Apache  
Software Foundation  
c:\hp\hpsmh\bin\libapr-1.dll

libhttpd 6.1.0.101 333.50 KB (341,504  
bytes) 1/3/2010 2:49 AM Hewlett-  
Packard Company  
c:\hp\hpsmh\bin\libhttpd.dll

libaprutil-1 1.2.10.0 202.50 KB (207,360  
bytes) 1/3/2010 2:49 AM Apache  
Software Foundation  
c:\hp\hpsmh\bin\libaprutil-1.dll

libapriconv-1 1.2.0.0 34.50 KB (35,328  
bytes) 1/3/2010 2:49 AM Apache  
Software Foundation  
c:\hp\hpsmh\bin\libapriconv-1.dll

libxml2 Not Available 1.46 MB (1,531,392  
bytes) 1/3/2010 2:49 AM Not  
Available c:\hp\hpsmh\bin\libxml2.dll

iconv 1.9.0.0 873.50 KB (894,464  
bytes) 1/3/2010 2:49 AM Free  
Software Foundation  
c:\hp\hpsmh\bin\iconv.dll  
zlib1 1.2.2.0 71.00 KB (72,704  
bytes) 1/3/2010 2:49 AM Not  
Available c:\hp\hpsmh\bin\zlib1.dll  
wersvc 6.0.6001.18000 118.00  
KB (120,832 bytes) 1/18/2008 10:11 PM  
Microsoft Corporation  
c:\windows\system32\wersvc.dll

dagent 6.9.430.0 1.85 MB (1,937,232  
bytes) 8/11/2009 6:48 PM Altiris,  
Inc.  
c:\program  
files\altiris\acient\dagent.exe  
hpsmhd 6.1.0.101 23.00 KB (23,552  
bytes) 1/3/2010 2:49 AM Hewlett-  
Packard Company  
c:\hp\hpsmh\bin\hpsmhd.exe

mod\_authz\_host 6.1.0.101 12.00 KB  
(12,288 bytes) 1/3/2010 2:49 AM  
Hewlett-Packard Company  
c:\hp\hpsmh\modules\mod\_authz\_

host.so

mod\_authz\_user 6.1.0.101 9.50 KB  
(9,728 bytes) 1/3/2010 2:49 AM Hewlett-  
Packard Company  
c:\hp\hpsmh\modules\mod\_authz\_

mod\_alias 6.1.0.101 13.50 KB (13,824  
bytes) 1/3/2010 2:49 AM Hewlett-  
Packard Company  
c:\hp\hpsmh\modules\mod\_alias.so

mod\_cgi 6.1.0.101 22.00 KB (22,528  
bytes) 1/3/2010 2:49 AM Hewlett-  
Packard Company  
c:\hp\hpsmh\modules\mod\_cgi.so

mod\_dir 6.1.0.101 10.00 KB (10,240  
bytes) 1/3/2010 2:49 AM Hewlett-  
Packard Company  
c:\hp\hpsmh\modules\mod\_dir.so

mod\_env 6.1.0.101 9.50 KB (9,728 bytes)  
1/3/2010 2:49 AM Hewlett-  
Packard Company  
c:\hp\hpsmh\modules\mod\_env.so

mod\_imagemap 6.1.0.101 18.00 KB  
(18,432 bytes) 1/3/2010 2:49 AM  
Hewlett-Packard Company  
c:\hp\hpsmh\modules\mod\_image

map.so  
mod\_log\_config 6.1.0.101 23.50 KB  
(24,064 bytes) 1/3/2010 2:49 AM  
Hewlett-Packard Company  
c:\hp\hpsmh\modules\mod\_log\_co

nfig.so  
mod\_mime 6.1.0.101 18.50 KB (18,944  
bytes) 1/3/2010 2:49 AM Hewlett-  
Packard Company  
c:\hp\hpsmh\modules\mod\_mime.s

o  
mod\_proxy 6.1.0.101 66.50 KB (68,096  
bytes) 1/3/2010 2:49 AM Hewlett-  
Packard Company  
c:\hp\hpsmh\modules\mod\_proxy.s

o  
mod\_proxy\_connect 6.1.0.101 12.50 KB  
(12,800 bytes) 1/3/2010 2:49 AM  
Hewlett-Packard Company  
c:\hp\hpsmh\modules\mod\_proxy\_

connect.so  
mod\_proxy\_http 6.1.0.101 29.00 KB  
(29,696 bytes) 1/3/2010 2:49 AM  
Hewlett-Packard Company  
c:\hp\hpsmh\modules\mod\_proxy\_

http.so  
mod\_negotiation 6.1.0.101 33.50 KB  
(34,304 bytes) 1/3/2010 2:49 AM  
Hewlett-Packard Company  
c:\hp\hpsmh\modules\mod\_negotia

tion.so  
mod\_rewrite 6.1.0.101 54.50 KB (55,808  
bytes) 1/3/2010 2:49 AM Hewlett-  
Packard Company  
c:\hp\hpsmh\modules\mod\_rewrite.

so  
mod\_setenvif 6.1.0.101 12.50 KB (12,800  
bytes) 1/3/2010 2:49 AM Hewlett-  
Packard Company  
c:\hp\hpsmh\modules\mod\_setenvi

f.so  
mod\_headers 6.1.0.101 16.50 KB (16,896  
bytes) 1/3/2010 2:49 AM Hewlett-  
Packard Company  
c:\hp\hpsmh\modules\mod\_header

s.so

```

mod_ssl      6.1.0.101  143.50 KB (146,944
bytes)      1/3/2010 2:49 AM      Hewlett-
Packard Company
c:\hp\hpsmh\modules\mod_ssl.so

libeay32     Not Available 1.35 MB (1,411,584
bytes)      1/3/2010 2:49 AM      Not
Available   c:\hp\hpsmh\bin\libeay32.dll

ssleay32     Not Available 260.00 KB (266,240
bytes)      1/3/2010 2:49 AM      Not
Available   c:\hp\hpsmh\bin\ssleay32.dll

mod_smh_aa6.1.0.101  95.00 KB (97,280
bytes)      1/3/2010 2:49 AM      Hewlett-
Packard Company
c:\hp\hpsmh\modules\mod_smh_a
a.so
mod_smh_config  6.1.0.101  133.50
KB (136,704 bytes)      1/3/2010 2:49 AM      Hewlett-Packard Company
c:\hp\hpsmh\modules\mod_smh_co
nfig.so
libxml2     Not Available 1.46 MB (1,531,392
bytes)      1/3/2010 2:49 AM      Not
Available   c:\hp\hpsmh\modules\libxml2.dll

mod_smh_bc6.1.0.101  69.00 KB (70,656
bytes)      1/3/2010 2:49 AM      Hewlett-
Packard Company
c:\hp\hpsmh\modules\mod_smh_bc
.so
mod_smh_ui  6.1.0.101  52.50 KB (53,760
bytes)      1/3/2010 2:49 AM      Hewlett-
Packard Company
c:\hp\hpsmh\modules\mod_smh_ui
.so
mod_smh_pkcs  6.1.0.101  61.50 KB
(62,976 bytes)      1/3/2010 2:49 AM      Hewlett-Packard Company
c:\hp\hpsmh\modules\mod_smh_p
kcs.so
mod_smh_help  6.1.0.101  15.00 KB
(15,360 bytes)      1/3/2010 2:49 AM      Hewlett-Packard Company
c:\hp\hpsmh\modules\mod_smh_h
elp.so
php5apache25.2.9.9  34.00 KB (34,816
bytes)      1/3/2010 2:49 AM      The PHP
Group
c:\hp\hpsmh\modules\php5apache
2.so
php5ts      5.2.9.9  9.07 MB (9,509,888
bytes)      1/3/2010 2:49 AM      The PHP
Group
c:\hp\hpsmh\bin\php5ts.dll

cmd          6.0.6001.18000  354.50
KB (363,008 bytes)      1/18/2008 10:05 PM      Microsoft Corporation
c:\windows\system32\cmd.exe

rotatologs  6.1.0.101  51.50 KB (52,736
bytes)      1/3/2010 2:49 AM      Hewlett-
Packard Company
c:\hp\hpsmh\bin\rotatologs.exe

msdtc       2001.12.6931.18000  104.00
KB (106,496 bytes)      1/18/2008 10:27 PM      Microsoft Corporation
c:\windows\system32\msdtc.exe

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msdtctm     2001.12.6931.18000  1.43 MB
(1,497,088 bytes)      1/18/2008 10:28 PM      Microsoft Corporation
c:\windows\system32\msdtctm.dll
msdtcprx    2001.12.6931.18000  708.50
KB (725,504 bytes)      1/18/2008 10:27 PM      Microsoft Corporation
c:\windows\system32\msdtcprx.dll

mtxclu      2001.12.6931.18000  350.50
KB (358,912 bytes)      1/18/2008 10:27 PM      Microsoft Corporation
c:\windows\system32\mtxclu.dll

msdtclog    2001.12.6931.18000  113.00
KB (115,712 bytes)      1/18/2008 10:27 PM      Microsoft Corporation
c:\windows\system32\msdtclog.dll

xolehlp     2001.12.6931.18000  47.00 KB
(48,128 bytes)      1/18/2008 10:27 PM      Microsoft Corporation
c:\windows\system32\xolehlp.dll

comres      2001.12.6931.18000  1.23 MB
(1,291,264 bytes)      1/18/2008 10:27 PM      Microsoft Corporation
c:\windows\system32\comres.dll

msdtcVSp1res  2001.12.6931.18000  20.50 KB (20,992 bytes)
1/18/2008 10:27 PM      Microsoft Corporation
c:\windows\system32\msdtcvsp1res
.dll
mtxoci      2001.12.6931.18000  148.00
KB (151,552 bytes)      1/18/2008 10:27 PM      Microsoft Corporation
c:\windows\system32\mtxoci.dll

rdpclip     6.0.6001.18000  187.00
KB (191,488 bytes)      1/19/2008 5:51 AM      Microsoft Corporation
c:\windows\system32\rdpclip.exe

dwm         6.0.6001.18000  96.50 KB
(98,816 bytes)      1/18/2008 10:10 PM      Microsoft Corporation
c:\windows\system32\dwm.exe

dwmredir    6.0.6001.18000  100.00
KB (102,400 bytes)      1/18/2008 10:10 PM      Microsoft Corporation
c:\windows\system32\dwmredir.dll

slwga       6.0.6001.18000  14.00 KB
(14,336 bytes)      1/18/2008 10:17 PM      Microsoft Corporation
c:\windows\system32\slwga.dll

milcore     6.0.6001.18000  2.45 MB
(2,570,240 bytes)      1/18/2008 10:12 PM      Microsoft Corporation
c:\windows\system32\milcore.dll

explorer    6.0.6001.18000  2.94 MB
(3,080,704 bytes)      1/18/2008 10:22 PM      Microsoft Corporation
c:\windows\explorer.exe

shdocvw     6.0.6001.18000  1.14 MB
(1,195,008 bytes)      1/18/2008 10:22 PM      Microsoft Corporation
c:\windows\system32\shdocvw.dll

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dwmapi      6.0.6001.18000  38.50 KB
(39,424 bytes)      1/18/2008 10:10 PM      Microsoft Corporation
c:\windows\system32\dwmapi.dll
browseui    6.0.6001.18000  1.58 MB
(1,654,784 bytes)      1/18/2008 10:22 PM      Microsoft Corporation
c:\windows\system32\browseui.dll

WindowsCodecs  6.0.6001.18000  821.50 KB (841,216 bytes)
1/18/2008 10:11 PM      Microsoft Corporation
c:\windows\system32\windowscode
cs.dll
iconcodeservice  6.0.6000.16386  12.50 KB (12,800 bytes)
1/19/2008 5:51 AM      Microsoft Corporation
c:\windows\system32\iconcodeser
vice.dll
timedate    6.0.6001.18000  860.50
KB (881,152 bytes)      1/18/2008 10:23 PM      Microsoft Corporation
c:\windows\system32\timedate.cpl

actxprxy    6.0.6001.18000  979.00
KB (1,002,496 bytes)      1/18/2008 11:13 PM      Microsoft Corporation
c:\windows\system32\actxprxy.dll

msshqs      6.0.6001.18000  336.50
KB (344,576 bytes)      1/18/2008 10:58 PM      Microsoft Corporation
c:\windows\system32\msshqs.dll

NaturalLanguage6  6.0.6001.18000  1.30 MB (1,361,920 bytes)
1/18/2008 11:08 PM      Microsoft Corporation
c:\windows\system32\naturallangua
ge6.dll
msiltcfg    4.0.6000.16386  19.50 KB
(19,968 bytes)      1/18/2008 10:14 PM      Microsoft Corporation
c:\windows\system32\msiltcfg.dll

msi         4.0.6001.18000  2.74 MB
(2,877,952 bytes)      1/18/2008 10:16 PM      Microsoft Corporation
c:\windows\system32\msi.dll

ieframe     7.0.6001.18000  6.68 MB
(7,004,672 bytes)      1/18/2008 10:32 PM      Microsoft Corporation
c:\windows\system32\ieframe.dll

ExplorerFrame  6.0.6001.18000  39.00 KB (39,936 bytes)
1/18/2008 10:21 PM      Microsoft Corporation
c:\windows\system32\explorerfram
e.dll
mmdevapi    6.0.6001.18000  197.50
KB (202,240 bytes)      1/18/2008 10:44 PM      Microsoft Corporation
c:\windows\system32\mmdevapi.dll

ntshrui     6.0.6001.18000  347.00
KB (355,328 bytes)      1/18/2008 10:24 PM      Microsoft Corporation
c:\windows\system32\ntshrui.dll

```

cscapi 6.0.6001.18000 38.00 KB  
(38,912 bytes) 1/18/2008 9:55 PM  
Microsoft Corporation  
c:\windows\system32\cscapi.dll

thumbcache 6.0.6001.18000 102.00  
KB (104,448 bytes) 1/18/2008 10:22 PM  
Microsoft Corporation  
c:\windows\system32\thumbcache.

dll  
stobject 6.0.6001.18000 731.00  
KB (748,544 bytes) 1/18/2008 10:23 PM  
Microsoft Corporation  
c:\windows\system32\stobject.dll

batmeter 6.0.6001.18000 727.50  
KB (744,960 bytes) 1/18/2008 10:23 PM  
Microsoft Corporation  
c:\windows\system32\batmeter.dll

SndVolSSO 6.0.6000.16386 173.50  
KB (177,664 bytes) 1/18/2008 10:44 PM  
Microsoft Corporation  
c:\windows\system32\sndvolsslo.dll

pnidui 6.0.6001.18000 1.93 MB  
(2,024,960 bytes) 1/18/2008 10:35 PM  
Microsoft Corporation  
c:\windows\system32\pnidui.dll

wlanutil 6.0.6000.16386 10.00 KB  
(10,240 bytes) 1/18/2008 10:34 PM  
Microsoft Corporation  
c:\windows\system32\wlanutil.dll

cscui 6.0.6001.18000 656.50  
KB (672,256 bytes) 1/19/2008 5:51 AM  
Microsoft Corporation  
c:\windows\system32\cscui.dll

cscdll 6.0.6001.18000 28.00 KB  
(28,672 bytes) 1/18/2008 9:55 PM  
Microsoft Corporation  
c:\windows\system32\cscdll.dll

srchadmin 6.0.6001.18000 292.00  
KB (299,008 bytes) 1/18/2008 10:23 PM  
Microsoft Corporation  
c:\windows\system32\srchadmin.dll

webcheck 7.0.6001.18000 284.00  
KB (290,816 bytes) 1/18/2008 10:26 PM  
Microsoft Corporation  
c:\windows\system32\webcheck.dll

qagent 6.0.6001.18000 245.00  
KB (250,880 bytes) 1/18/2008 10:35 PM  
Microsoft Corporation  
c:\windows\system32\qagent.dll

bthprops 6.0.6001.18000 993.50  
KB (1,017,344 bytes) 1/18/2008 10:23 PM  
Microsoft Corporation  
c:\windows\system32\bthprops.cpl

twext 6.0.6001.18000 114.00  
KB (116,736 bytes) 1/19/2008 5:52 AM  
Microsoft Corporation  
c:\windows\system32\twext.dll

zipfldr 6.0.6001.18000 377.50  
KB (386,560 bytes) 1/18/2008 10:23 PM  
Microsoft Corporation  
c:\windows\system32\zipfldr.dll

sendmail 6.0.6001.18000 74.50 KB  
(76,288 bytes) 1/18/2008 10:22 PM  
Microsoft Corporation  
c:\windows\system32\sendmail.dll

mydocs 6.0.6001.18000 140.00  
KB (143,360 bytes) 1/18/2008 10:22 PM  
Microsoft Corporation  
c:\windows\system32\mydocs.dll

NlsData0009 6.0.6001.18000 6.05 MB  
(6,347,776 bytes) 1/18/2008 10:59 PM  
Microsoft Corporation  
c:\windows\system32\nlsdata0009.

dll  
NlsLexicons0009 6.0.6000.16386  
2.51 MB (2,628,608 bytes)  
1/18/2008 11:06 PM  
Microsoft Corporation  
c:\windows\system32\nlslexicons00

09.dll  
networkexplorer 6.0.6001.18000  
2.14 MB (2,247,168 bytes)  
1/18/2008 10:35 PM  
Microsoft Corporation  
c:\windows\system32\networkexplor

rer.dll  
networkitemfactory 6.0.6001.18000  
51.00 KB (52,224 bytes)  
1/18/2008 10:35 PM  
Microsoft Corporation  
c:\windows\system32\networkitemf

actory.dll  
dtsh 6.0.6000.16386 33.00 KB  
(33,792 bytes) 1/18/2008 10:35 PM  
Microsoft Corporation  
c:\windows\system32\dtsh.dll

fdwnet 6.0.6001.18000 27.00 KB  
(27,648 bytes) 1/18/2008 10:06 PM  
Microsoft Corporation  
c:\windows\system32\fdwnet.dll

cscobj 6.0.6001.18000 211.50  
KB (216,576 bytes) 1/19/2008 5:51 AM  
Microsoft Corporation  
c:\windows\system32\cscobj.dll

drprov 6.0.6001.18000 23.50 KB  
(24,064 bytes) 1/18/2008 10:43 PM  
Microsoft Corporation  
c:\windows\system32\drprov.dll

ntlanman 6.0.6001.18000 116.00  
KB (118,784 bytes) 1/18/2008 10:14 PM  
Microsoft Corporation  
c:\windows\system32\ntlanman.dll

cpqteam 9.90.0.15 72.00 KB (73,728  
bytes) 1/20/2010 6:46 AM Hewlett-  
Packard Company c:\program

files\hp\ncu\cpqteam.exe  
dagentui 6.9.430.0 827.83 KB (847,696  
bytes) 8/11/2009 6:48 PM Altiris,  
Inc. c:\program

files\altiris\acient\dagentui.exe  
comdlg32 6.0.6001.18000 536.50  
KB (549,376 bytes) 1/18/2008 10:21 PM  
Microsoft Corporation  
c:\windows\system32\comdlg32.dll

dagentui\_EN 6.9.430.0 416.34 KB (426,328  
bytes) 8/11/2009 6:48 PM Altiris,  
Inc. c:\program

files\altiris\acient\dagentui\_en.dll

MsCtfMonitor 6.0.6000.16386 25.50 KB  
(26,112 bytes) 1/18/2008 10:08 PM  
Microsoft Corporation  
c:\windows\system32\msctfmonitor

msctfui 6.0.6001.18000 222.50  
KB (227,840 bytes) 1/18/2008 10:08 PM  
Microsoft Corporation  
c:\windows\system32\msctfui.dll

PlaySndSrv 6.0.6000.16386 74.50 KB  
(76,288 bytes) 1/18/2008 10:43 PM  
Microsoft Corporation  
c:\windows\system32\playsndsrv.dll

dllhost 6.0.6000.16386 8.50 KB  
(8,704 bytes) 1/18/2008 10:27 PM  
Microsoft Corporation  
c:\windows\system32\dllhost.exe

comsvcs 2001.12.6931.18000 1.60 MB  
(1,682,944 bytes) 1/18/2008 10:29 PM  
Microsoft Corporation  
c:\windows\system32\comsvcs.dll

txflog 2001.12.6931.18000 116.50  
KB (119,296 bytes) 1/18/2008 10:27 PM  
Microsoft Corporation  
c:\windows\system32\txflog.dll

catsrv 2001.12.6931.18000 466.00  
KB (477,184 bytes) 1/18/2008 10:28 PM  
Microsoft Corporation  
c:\windows\system32\catsrv.dll

mfcsubs 2001.12.6931.18000 35.00 KB  
(35,840 bytes) 1/18/2008 10:27 PM  
Microsoft Corporation  
c:\windows\system32\mfcsubs.dll

catsrvps 2001.12.6931.18000 54.00 KB  
(55,296 bytes) 1/18/2008 10:27 PM  
Microsoft Corporation  
c:\windows\system32\catsrvps.dll

catsrvut 2001.12.6931.18000 520.50  
KB (532,992 bytes) 1/18/2008 10:28 PM  
Microsoft Corporation  
c:\windows\system32\catsrvut.dll

iisw3adm 7.0.6001.18000 415.00  
KB (424,960 bytes) 1/19/2008 5:52 AM  
Microsoft Corporation  
c:\windows\system32\inetrv\iisw3

adm.dll  
w3tp 7.0.6001.18000 18.00 KB  
(18,432 bytes) 1/19/2008 5:52 AM  
Microsoft Corporation  
c:\windows\system32\inetrv\w3tp.

dll  
inetinfo 7.0.6001.18000 15.50 KB  
(15,872 bytes) 1/19/2008 5:52 AM  
Microsoft Corporation  
c:\windows\system32\inetrv\inetin

fo.exe  
rpcref 7.0.6000.16386 9.00 KB  
(9,216 bytes) 1/19/2008 5:52 AM  
Microsoft Corporation  
c:\windows\system32\inetrv\rpcref

.dll  
iisrtl 7.0.6001.18000 187.50  
KB (192,000 bytes) 1/19/2008 5:52 AM  
Microsoft Corporation  
c:\windows\system32\iisrtl.dll

```

iisadmin 7.0.6001.18000 23.50 KB
(24,064 bytes) 1/19/2008 5:52 AM
Microsoft Corporation
c:\windows\system32\inetrv\iisad
min.dll
coadmin 7.0.6001.18000 81.00 KB
(82,944 bytes) 1/19/2008 5:52 AM
Microsoft Corporation
c:\windows\system32\inetrv\coad
min.dll
admwprox 7.0.6001.18000 53.50 KB
(54,784 bytes) 1/19/2008 5:52 AM
Microsoft Corporation
c:\windows\system32\admwprox.dll

iiscfg 7.0.6001.18000 1.01 MB
(1,057,792 bytes) 1/19/2008 5:52 AM
Microsoft Corporation
c:\windows\system32\inetrv\iiscfg.
dll
abocomp 7.0.6001.18000 224.50
KB (229,888 bytes) 1/19/2008 5:52 AM
Microsoft Corporation
c:\windows\system32\inetrv\aboco
mp.dll
metadata 7.0.6001.18000 278.00
KB (284,672 bytes) 1/19/2008 5:52 AM
Microsoft Corporation
c:\windows\system32\inetrv\meta
data.dll
svcxext 7.0.6001.18000 16.50 KB
(16,896 bytes) 1/19/2008 5:52 AM
Microsoft Corporation
c:\windows\system32\inetrv\svcx
t.dll
wamreg 7.0.6001.18000 37.00 KB
(37,888 bytes) 1/19/2008 5:52 AM
Microsoft Corporation
c:\windows\system32\inetrv\wamr
eg.dll
wuauclt 7.0.6001.18000 44.50 KB
(45,568 bytes) 1/18/2008 11:09 PM
Microsoft Corporation
c:\windows\system32\wuauclt.exe

wucltux 7.0.6001.18000 1.64 MB
(1,717,248 bytes) 1/18/2008 11:09 PM
Microsoft Corporation
c:\windows\system32\wucltux.dll

tapisrv 6.0.6001.18000 311.00
KB (318,464 bytes) 1/18/2008 11:13 PM
Microsoft Corporation
c:\windows\system32\tapisrv.dll

unimdm 6.0.6001.18000 312.00
KB (319,488 bytes) 1/18/2008 10:38 PM
Microsoft Corporation
c:\windows\system32\unimdm.tsp

uniplat 6.0.6001.18000 21.00 KB
(21,504 bytes) 1/18/2008 10:38 PM
Microsoft Corporation
c:\windows\system32\uniplat.dll

kmdvsp 6.0.6000.16386 45.50 KB
(46,592 bytes) 1/18/2008 10:37 PM
Microsoft Corporation
c:\windows\system32\kmdvsp.tsp

ndptsp 6.0.6000.16386 58.00 KB
(59,392 bytes) 1/18/2008 10:37 PM
Microsoft Corporation
c:\windows\system32\ndptsp.tsp

```

```

hidphone 6.0.6000.16386 38.50 KB
(39,424 bytes) 1/18/2008 11:13 PM
Microsoft Corporation
c:\windows\system32\hidphone.tsp
msinfo32 6.0.6001.18000 477.50
KB (488,960 bytes) 1/18/2008 10:03 PM
Microsoft Corporation
c:\windows\system32\msinfo32.exe

mfc42u 6.6.8063.0 1.29 MB (1,357,824
bytes) 1/18/2008 11:09 PM
Microsoft Corporation
c:\windows\system32\mfc42u.dll

odbc32 6.0.6001.18000 448.00
KB (458,752 bytes) 1/18/2008 10:56 PM
Microsoft Corporation
c:\windows\system32\odbc32.dll

odbcint 6.0.6000.16386 224.00
KB (229,376 bytes) 1/18/2008 10:56 PM
Microsoft Corporation
c:\windows\system32\odbcint.dll

wmiprvse 6.0.6001.18000 340.50
KB (348,672 bytes) 1/18/2008 10:13 PM
Microsoft Corporation
c:\windows\system32\wbem\wmipr
vse.exe
cimwin32 6.0.6001.18000 1.99 MB
(2,082,304 bytes) 1/18/2008 10:14 PM
Microsoft Corporation
c:\windows\system32\wbem\cimwi
n32.dll
framedynos 6.0.6001.18000 275.00
KB (281,600 bytes) 1/18/2008 10:13 PM
Microsoft Corporation
c:\windows\system32\framedynos.d
ll
ntevt 6.0.6001.18000 250.00
KB (256,000 bytes) 1/18/2008 10:13 PM
Microsoft Corporation
c:\windows\system32\wbem\ntevt.
dll
provthrd 6.0.6001.18000 327.50
KB (335,360 bytes) 1/18/2008 10:13 PM
Microsoft Corporation
c:\windows\system32\provthrd.dll

msvcirt 7.0.6000.16386 78.50 KB
(80,384 bytes) 1/18/2008 9:52 PM
Microsoft Corporation
c:\windows\system32\msvcirt.dll

security 6.0.6000.16386 5.50 KB
(5,632 bytes) 1/18/2008 10:16 PM
Microsoft Corporation
c:\windows\system32\security.dll

unidrvui 0.3.6001.18000 863.50
KB (884,224 bytes) 1/19/2008 1:38 AM
Microsoft Corporation
c:\windows\system32\spool\drivers
\{x64}\3\unidrvui.dll
signdrv 6.0.6000.16386 53.50 KB
(54,784 bytes) 1/18/2008 10:03 PM
Microsoft Corporation
c:\windows\system32\signdrv.dll

riched32 6.0.6001.18000 10.50 KB
(10,752 bytes) 1/18/2008 10:08 PM
Microsoft Corporation
c:\windows\system32\riched32.dll

```

```

riched20 5.31.23.1228 592.00 KB (606,208
bytes) 1/18/2008 10:08 PM
Microsoft Corporation
c:\windows\system32\riched20.dll
cryptnet 6.0.6001.18000 127.00
KB (130,048 bytes) 1/18/2008 10:15 PM
Microsoft Corporation
c:\windows\system32\cryptnet.dll

WmiPerfClass6.0.6001.18000 134.00
KB (137,216 bytes) 1/18/2008 10:03 PM
Microsoft Corporation
c:\windows\system32\wbem\wmipre
fclass.dll
pdh 6.0.6001.18000 301.50
KB (308,736 bytes) 1/18/2008 10:03 PM
Microsoft Corporation
c:\windows\system32\pdh.dll

[Services]

Display Name Name State
Start Mode Service Type Path
Error Control Start Name Tag ID

Application Experience AeLookupSvc Running
Auto Share Process
c:\windows\system32\svchost.exe -
k netsvcs Normal localSystem 0

Application Layer Gateway Service ALG
Stopped Manual Own
Process c:\windows\system32\alg.exe
Normal NT
AUTHORITY\LocalService 0
Altiris Deployment Agent Altiris Deployment
Agent Running Auto Own
Process "c:\program
files\altiris\client\dagent.exe" -
load=default.dll,config.dll,autoupdate.dll Ignore
LocalSystem 0

Application Host Helper Service
AppHostSvc Running Auto
Share Process
c:\windows\system32\svchost.exe -
k apphost Normal LocalSystem 0

Application Information Appinfo Stopped
Manual Share Process
c:\windows\system32\svchost.exe -
k netsvcs Normal LocalSystem 0

Application Management AppMgmt Running
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
k64\v2.0.50727\aspnet_state.exe Normal
NT AUTHORITY\NetworkService
0

Windows Audio Endpoint Builder
AudioEndpointBuilder Stopped
Manual Share Process
c:\windows\system32\svchost.exe -
k localsystemnetworkrestricted Normal
LocalSystem 0

```

Windows Audio	AudioSrv	Stopped
Manual	Share Process	
c:\windows\system32\svchost.exe -		
k localservicenetworkrestricted	Normal	
NT AUTHORITY\LocalService		0
Base Filtering Engine	BFE	Running
Auto	Share Process	
c:\windows\system32\svchost.exe -		
k localservicenetwork	Normal	NT
AUTHORITY\LocalService		0
Background Intelligent Transfer Service	BITS	
Running	Auto	Share
c:\windows\system32\svchost.exe -		
k netsvcs	Normal	LocalSystem 0
Computer Browser	Browser	Stopped
Disabled	Share Process	
c:\windows\system32\svchost.exe -		
k netsvcs	Normal	LocalSystem 0
Certificate Propagation	CertPropSvc	Running
Manual	Share Process	
c:\windows\system32\svchost.exe -		
k netsvcs	Normal	LocalSystem 0
HP Smart Array SAS/SATA Event Notification Service	Cissesrv	Running
Auto	Own Process "c:\program files\hp\cissesrv\cissesrv.exe"	Normal
LocalSystem 0		
Microsoft .NET Framework NGEN v2.0.50727_X86 clr_optimization_v2.0.50727_32		Stopped
Manual	Own	
Process		
c:\windows\microsoft.net\framework\v2.0.50727\mscorsvw.exe		Ignore
LocalSystem 0		
Microsoft .NET Framework NGEN v2.0.50727_X64 clr_optimization_v2.0.50727_64		Stopped
Manual	Own	
Process		
c:\windows\microsoft.net\framework\v2.0.50727\mscorsvw.exe		Ignore
LocalSystem 0		
COM+ System Application COMSysApp		Running
Manual	Own Process	
c:\windows\system32\dlhhost.exe		
/processid:{02d4b3f1-fd88-11d1-960d-00805fc79235}		Normal
LocalSystem 0		
HP ProLiant Remote Monitor Service	CpqRcmc	Running
Auto	Own Process	
c:\windows\system32\cpqrcmc.exe		Normal
LocalSystem 0		
HP Version Control Agent	cpqvcagent	Running
Auto	Own Process	
c:\hp\hpsmh\data\cgi-bin\vcagent\vcagent.exe		Normal
LocalSystem 0		
Cryptographic Services	CryptSvc	Running
Auto	Share Process	
c:\windows\system32\svchost.exe -		
k networkservice	Normal	NT
Authority\NetworkService		0
Offline Files	CscService	Stopped
Share Process	Disabled	
c:\windows\system32\svchost.exe -		
k localsystemnetworkrestricted	Normal	
LocalSystem 0		

DCOM Server Process Launcher	DcomLaunch	Running	Auto
Share Process			
c:\windows\system32\svchost.exe -			
k dcomlaunch	Normal		
DHCP Client	DhcpSystem	Running	Auto
Share Process			
c:\windows\system32\svchost.exe -			
k localservicenetworkrestricted	Normal		
NT Authority\LocalService			0
DNS Client	Dnscache	Running	Auto
Share Process			
c:\windows\system32\svchost.exe -			
k networkservice	Normal	NT	
AUTHORITY\NetworkService			0
Wired AutoConfig	dot3svc	Stopped	
Manual	Share Process		
c:\windows\system32\svchost.exe -			
k localsystemnetworkrestricted	Normal		
localSystem 0			
Diagnostic Policy Service	DPS	Running	
Auto	Share Process		
c:\windows\system32\svchost.exe -			
k localservicenetwork	Normal	NT	
AUTHORITY\LocalService			0
Extensible Authentication Protocol	EapHost	Stopped	Share
Manual			
c:\windows\system32\svchost.exe -			
k netsvcs	Normal	localSystem 0	
Windows Event Log	EventLog	Running	
Auto	Share Process		
c:\windows\system32\svchost.exe -			
k localservicenetworkrestricted	Normal		
NT AUTHORITY\LocalService			0
COM+ Event System	EventSystem	Running	
Auto	Share Process		
c:\windows\system32\svchost.exe -			
k localservice	Normal	NT	
AUTHORITY\LocalService			0
Microsoft Fibre Channel Platform Registration Service	FCRegSvc	Stopped	Manual
Share Process			
c:\windows\system32\svchost.exe -			
k localservicenetworkrestricted	Normal		
NT AUTHORITY\LocalService			0
Function Discovery Provider Host	fdPHost	Running	Manual
Share Process			
c:\windows\system32\svchost.exe -			
k localservice	Normal	NT	
AUTHORITY\LocalService			0
Group Policy Client	gpsvc	Running	
Auto	Own Process		
c:\windows\system32\svchost.exe -			
k gpsvcgroup	Normal	LocalSystem 0	
Human Interface Device Access	hidserv	Running	Auto
Share			
c:\windows\system32\svchost.exe -			
k localsystemnetworkrestricted	Normal		
LocalSystem 0			

Health Key and Certificate Management	hkmsvc	Stopped	Manual	Share
Process				
c:\windows\system32\svchost.exe -				
k netsvcs	Normal	localSystem 0		
IIS Admin Service	IISADMIN	Running		
Auto	Share Process			
c:\windows\system32\inet\inetinfo.exe		Normal	LocalSystem 0	
IKE and AuthIP IPsec Keying Modules	IKEEXT	Running	Auto	Share
Process				
c:\windows\system32\svchost.exe -				
k netsvcs	Normal	LocalSystem 0		
PnP-X IP Bus Enumerator	IPBusEnum	Stopped		
Disabled	Share Process			
c:\windows\system32\svchost.exe -				
k localsystemnetworkrestricted	Normal			
LocalSystem 0				
IP Helper	iphlpvc	Running	Auto	
Share Process				
c:\windows\system32\svchost.exe -				
k netsvcs	Normal	LocalSystem 0		
CNG Key Isolation	KeyIso	Stopped		
Manual	Share Process			
c:\windows\system32\lsass.exe				
Normal	LocalSystem 0			
KtmRm for Distributed Transaction Coordinator	KtmRm	Running	Auto	
Share Process				
c:\windows\system32\svchost.exe -				
k networkservice	Normal	NT		
AUTHORITY\NetworkService				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 localservice	Normal	NT		
AUTHORITY\LocalService				0
Link-Layer Topology Discovery Mapper	lldsvcs	Stopped	Manual	Share
Process				
c:\windows\system32\svchost.exe -				
k localservice	Normal	NT		
AUTHORITY\LocalService				0
TCP/IP NetBIOS Helper	lmhosts	Running		
Auto	Share Process			
c:\windows\system32\svchost.exe -				
k localservicenetworkrestricted	Normal			
NT AUTHORITY\LocalService				0
Multimedia Class Scheduler	MMCSS	Stopped		
Manual	Share Process			
c:\windows\system32\svchost.exe -				
k netsvcs	Normal	LocalSystem 0		
Windows Firewall	MpsSvc	Running		
Auto	Share Process			
c:\windows\system32\svchost.exe -				
k localservicenetwork	Normal	NT		
Authority\LocalService				0
Distributed Transaction Coordinator	MSDTC	Running	Auto	Own
Process				
c:\windows\system32\msdtc.exe		Normal	NT	
AUTHORITY\NetworkService				0

Microsoft iSCSI Initiator Service MSISCSI  
 Stopped Manual Share  
 Process c:\windows\system32\svchost.exe -  
 k netsvcs Normal LocalSystem 0

Windows Installer msiserver Stopped  
 Manual Own Process  
 c:\windows\system32\msiexec /v  
 Normal LocalSystem 0

Network Access Protection Agent  
 napagent Stopped Manual  
 Share Process  
 c:\windows\system32\svchost.exe -  
 k networkservice Normal NT  
 AUTHORITY\NetworkService 0

Netlogon 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 localsystemnetworkrestricted Normal  
 LocalSystem 0

Network List Service netprofm Running  
 Auto Share Process  
 c:\windows\system32\svchost.exe -  
 k localservice Normal NT  
 AUTHORITY\LocalService 0

Network Location Awareness NlaSvc  
 Running Auto Share  
 Process c:\windows\system32\svchost.exe -  
 k networkservice Normal NT  
 AUTHORITY\NetworkService 0

Network Store Interface Service nsi  
 Running Auto Share  
 Process c:\windows\system32\svchost.exe -  
 k localservice Normal NT  
 Authority\LocalService 0

Performance Counter DLL Host PerfHost  
 Stopped Manual Own  
 Process c:\windows\syswow64\perfhst.exe  
 Normal NT  
 AUTHORITY\LocalService 0

Performance Logs & Alerts pla Stopped  
 Manual Share Process  
 c:\windows\system32\svchost.exe -  
 k localservicenetwork Normal NT  
 AUTHORITY\LocalService 0

Plug and PlayPlugPlay Running Auto  
 Share Process  
 c:\windows\system32\svchost.exe -  
 k dcomlaunch Normal  
 LocalSystem 0

IPsec Policy Agent PolicyAgent Running  
 Auto Share Process  
 c:\windows\system32\svchost.exe -  
 k networkservicenetworkrestricted Normal  
 NT Authority\NetworkService  
 0

User Profile Service ProfSvc Running  
 Auto Share Process  
 c:\windows\system32\svchost.exe -  
 k netsvcs Normal LocalSystem 0

Protected Storage ProtectedStorage  
 Stopped Manual 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  
 Running Manual Share  
 Process c:\windows\system32\svchost.exe -  
 k netsvcs Normal LocalSystem 0

Routing and Remote Access  
 RemoteAccess Stopped  
 Disabled Share Process  
 c:\windows\system32\svchost.exe -  
 k netsvcs Normal LocalSystem 0

Remote Registry RemoteRegistry  
 Running Auto Share  
 Process c:\windows\system32\svchost.exe -  
 k regsvc Normal NT  
 AUTHORITY\LocalService 0

Remote Procedure Call (RPC) Locator  
 RpcLocator Stopped Manual  
 Own Process  
 c:\windows\system32\locator.exe  
 Normal NT  
 AUTHORITY\NetworkService 0

Remote Procedure Call (RPC) RpcSs  
 Running Auto Share  
 Process c:\windows\system32\svchost.exe -  
 k rpcss Normal 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  
 Running Manual Share  
 Process c:\windows\system32\svchost.exe -  
 k netsvcs Normal LocalSystem 0

Security Accounts ManagerSamSs Running  
 Auto Share Process  
 c:\windows\system32\lsass.exe  
 Normal LocalSystem 0

Smart Card SCardSvr Stopped Manual  
 Share Process  
 c:\windows\system32\svchost.exe -  
 k localservice Normal NT  
 AUTHORITY\LocalService 0

Task Scheduler Schedule Running  
 Auto Share Process  
 c:\windows\system32\svchost.exe -  
 k netsvcs Normal LocalSystem 0

Smart Card Removal Policy SCPolicySvc 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 Normal LocalSystem 0

System Event Notification Service SENS  
 Running Auto Share  
 Process c:\windows\system32\svchost.exe -  
 k netsvcs Normal LocalSystem 0

Terminal Services Configuration  
 SessionEnv Running Manual  
 Share Process  
 c:\windows\system32\svchost.exe -  
 k netsvcs Normal LocalSystem 0

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

Software Licensing slsvc Running  
 Auto Own Process  
 c:\windows\system32\slsvc.exe  
 Normal NT  
 AUTHORITY\NetworkService 0

SL UI Notification Service SLUINotify Running  
 Manual Share Process  
 c:\windows\system32\svchost.exe -  
 k localservice Normal NT  
 AUTHORITY\LocalService 0

SNMP Trap SNMPTRAP Stopped Manual  
 Own Process  
 c:\windows\system32\snmptrap.exe  
 Normal NT  
 AUTHORITY\LocalService 0

Print Spooler Spooler Running Auto  
 Own Process  
 c:\windows\system32\spoolsv.exe  
 Normal LocalSystem 0

SSDP Discovery SSDPSRV Stopped  
 Disabled Share Process  
 c:\windows\system32\svchost.exe -  
 k localservice Normal NT  
 AUTHORITY\LocalService 0

Secure Socket Tunneling Protocol Service  
 SstpSvc Running Manual  
 Share Process  
 c:\windows\system32\svchost.exe -  
 k localservice 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

HP ProLiant System Shutdown Service sysdown  
 Running Auto Own  
 Process c:\windows\system32\sysdown.exe  
 Normal LocalSystem 0

Superfetch SysMain Stopped Disabled  
 Share Process  
 c:\windows\system32\svchost.exe -  
 k localsystemnetworkrestricted Ignore  
 LocalSystem 0

HP System Management Homepage  
 SysMgmtHp Running Auto  
 Own Process  
 c:\hp\hpsmh\bin\smhstart.exe  
 Normal LocalSystem 0



Telephony TapiSrv Running Manual  
Own Process  
c:\windows\system32\svchost.exe -  
k tapisrv Normal NT  
AUTHORITY\NetworkService 0

TPM Base Services TBS Stopped  
Auto Share Process  
c:\windows\system32\svchost.exe -  
k localservice Normal NT  
AUTHORITY\LocalService 0

Terminal Services TermService Running  
Auto Share Process  
c:\windows\system32\svchost.exe -  
k networkservice Normal NT  
Authority\NetworkService 0

Themes Themes Stopped Disabled  
Share Process  
c:\windows\system32\svchost.exe -  
k netsvcs Normal LocalSystem 0

Thread Ordering Server THREADORDER  
Stopped Manual Share  
Process c:\windows\system32\svchost.exe -  
k localservice Normal NT  
AUTHORITY\LocalService 0

Distributed Link Tracking Client TrkWks  
Running Auto Share  
Process c:\windows\system32\svchost.exe -  
k localsystemnetworkrestricted Normal  
LocalSystem 0

Windows Modules Installer TrustedInstaller  
Stopped Manual Own  
Process  
c:\windows\servicing\trustedinstalle  
r.exe Normal localSystem 0

Interactive Services Detection  
UI0Detect Stopped Manual  
Own Process  
c:\windows\system32\ui0detect.exe  
Normal LocalSystem 0

Terminal Services UserMode Port Redirector  
UmRdpService Running  
Manual Share Process  
c:\windows\system32\svchost.exe -  
k localsystemnetworkrestricted Normal  
localSystem 0

UPnP Device Host upnphost Stopped  
Disabled Share Process  
c:\windows\system32\svchost.exe -  
k localservice Normal NT  
AUTHORITY\LocalService 0

Desktop Window Manager Session Manager  
UxSms Running Auto  
Share Process  
c:\windows\system32\svchost.exe -  
k localsystemnetworkrestricted Normal  
localSystem 0

Virtual Disk vds Stopped Manual  
Own Process  
c:\windows\system32\vds.exe  
Normal LocalSystem 0

Volume Shadow Copy VSS Stopped  
Manual Own Process  
c:\windows\system32\vssvc.exe  
Normal LocalSystem 0

Windows Time W32Time Running  
Auto Share Process  
c:\windows\system32\svchost.exe -  
k localservice Normal NT  
AUTHORITY\LocalService 0

World Wide Web Publishing Service W3SVC  
Running Auto Share  
Process c:\windows\system32\svchost.exe -  
k iissvcs Normal LocalSystem 0

Windows Process Activation Service WAS  
Running Manual Share  
Process c:\windows\system32\svchost.exe -  
k iissvcs Normal LocalSystem 0

Windows Color System WcsPlugInService  
Stopped Manual Share  
Process c:\windows\system32\svchost.exe -  
k wcssvc Normal NT  
AUTHORITY\LocalService 0

Diagnostic Service Host WdiServiceHost  
Stopped Manual Share  
Process c:\windows\system32\svchost.exe -  
k wdisvc Normal NT  
AUTHORITY\LocalService 0

Diagnostic System Host WdiSystemHost  
Running Manual Share  
Process c:\windows\system32\svchost.exe -  
k localsystemnetworkrestricted Normal  
LocalSystem 0

Windows Event Collector Wevcsvc Stopped  
Manual Share Process  
c:\windows\system32\svchost.exe -  
k networkservice Normal NT  
AUTHORITY\NetworkService 0

Problem Reports and Solutions Control Panel  
Support wercplsupport Stopped  
Manual Share Process  
c:\windows\system32\svchost.exe -  
k netsvcs Normal localSystem 0

Windows Error Reporting Service WerSvc  
Running Auto Share  
Process c:\windows\system32\svchost.exe -  
k wersvcgroup Ignore  
localSystem 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

Windows Remote Management (WS-  
Management) WinRM Running  
Auto Share Process  
c:\windows\system32\svchost.exe -  
k networkservice Normal NT  
AUTHORITY\NetworkService 0

WMI Performance Adapter wmiApSrv Stopped  
Manual Own Process  
c:\windows\system32\wbem\wmiap  
srv.exe Normal localSystem 0

Portable Device Enumerator Service  
WPDBusEnum Stopped  
Manual Share Process  
c:\windows\system32\svchost.exe -  
k localsystemnetworkrestricted Normal  
LocalSystem 0

Windows Update wuauserv Running  
Auto Share Process  
c:\windows\system32\svchost.exe -  
k netsvcs Normal LocalSystem 0

Windows Driver Foundation - User-mode Driver  
Framework wudfsvc Stopped Manual  
Share Process  
c:\windows\system32\svchost.exe -  
k localsystemnetworkrestricted Normal  
LocalSystem 0

[Program Groups]

Group Name	Name	User Name
Start Menu	Default:Start Menu	Default
Start Menu\Programs	Default:Start Menu\Programs	Default
Start Menu\Programs\Accessories	Default:Start Menu\Programs\Accessories	Default
Start Menu\Programs\Accessories\Accessibility	Default:Start Menu\Programs\Accessories\Accessibility	Default
Start Menu\Programs\Accessories\System Tools	Default:Start Menu\Programs\Accessories\System Tools	Default
Start Menu\Programs\Maintenance	Default:Start Menu\Programs\Maintenance	Default
Start Menu	Public:Start Menu	Public
Start Menu\Programs	Public:Start Menu\Programs	Public
Start Menu\Programs\Accessories	Public:Start Menu\Programs\Accessories	Public
Start Menu\Programs\Accessories\Accessibility	Public:Start Menu\Programs\Accessories\Accessibility	Public
Start Menu\Programs\Accessories\System Tools	Public:Start Menu\Programs\Accessories\System Tools	Public
Start Menu\Programs\Administrative Tools	Public:Start Menu\Programs\Administrative Tools	Public
Start Menu\Programs\Administrative Tools\Terminal Services	Public:Start Menu\Programs\Administrative Tools\Terminal Services	Public
Start Menu\Programs\Altiris\Deployment Solution	Public:Start Menu\Programs\Altiris\Deployment Solution	Public
Start Menu\Programs\Extras and Upgrades	Public:Start Menu\Programs\Extras and Upgrades	Public
Start Menu\Programs\HP Management Agents	Public:Start Menu\Programs\HP Management Agents	Public
Start Menu\Programs\HP System Tools	Public:Start Menu\Programs\HP System Tools	Public

```

Start Menu\Programs\HP System Tools\HP Array
Configuration Utility Public:Start
Menu\Programs\HP System Tools\HP Array
Configuration Utility Public
Start Menu\Programs\HP System Tools\HP Array
Configuration Utility CLI Public:Start
Menu\Programs\HP System Tools\HP Array
Configuration Utility Public
Start Menu\Programs\HP System Tools\HP Array
Diagnostic Utility Public:Start
Menu\Programs\HP System Tools\HP Array
Diagnostic Utility Public
Start Menu\Programs\HP System Tools\HP
Insight Diagnostics Online Edition for Windows
Public:Start Menu\Programs\HP
System Tools\HP Insight Diagnostics Online
Edition for Windows Public
Start Menu\Programs\HP System Tools\HP
Lights-Out Online Configuration Utility
Public:Start Menu\Programs\HP
System Tools\HP Lights-Out Online Configuration
Utility Public
Start Menu\Programs\Maintenance
Public:Start
Menu\Programs\Maintenance Public

Start Menu\Programs\Startup
Public:Start Menu\Programs\Startup
Public
Start Menu C7KBAY1\Administrator:Start Menu
C7KBAY1\Administrator
Start Menu\Programs
C7KBAY1\Administrator:Start
Menu\Programs
C7KBAY1\Administrator
Start Menu\Programs\Accessories
C7KBAY1\Administrator:Start
Menu\Programs\Accessories
C7KBAY1\Administrator
Start Menu\Programs\Accessories\Accessibility
C7KBAY1\Administrator:Start
Menu\Programs\Accessories\Accessibility
C7KBAY1\Administrator
Start Menu\Programs\Accessories\System Tools
C7KBAY1\Administrator:Start
Menu\Programs\Accessories\System Tools
C7KBAY1\Administrator
Start Menu\Programs\Administrative Tools
C7KBAY1\Administrator:Start
Menu\Programs\Administrative Tools
C7KBAY1\Administrator
Start Menu\Programs\Maintenance
C7KBAY1\Administrator:Start
Menu\Programs\Maintenance
C7KBAY1\Administrator
Start Menu\Programs\Startup
C7KBAY1\Administrator:Start
Menu\Programs\Startup
C7KBAY1\Administrator

[Startup Programs]

Program Command User Name Location

CPQTEAM c:\program
files\hp\ncu\cpqteam.exe Public
HKLM\SOFTWARE\Microsoft\Windo
ws\CurrentVersion\Run
DagentUI c:\program
files\aitiris\aclient\dagentui.exe Public
HKLM\SOFTWARE\Microsoft\Windo
ws\CurrentVersion\Run

[OLE Registration]

```

```

WordPad Document Server
"%programfiles%\windows
nt\accessories\wordpad.exe"
Package Not Available

```

[Windows Error Reporting]

Time	Type	Details
4/16/2010 4:03 AM	Application Error	Faulting application w3wp.exe, version 7.0.6001.18000, time stamp 0x47919413, faulting module ole32.dll, version 6.0.6001.18000, time stamp 0x4791a74c, exception code 0xc0000005, fault offset 0x00008b00, process id 0xd74, application start time 0x01cadd15ca2eb2b4.
4/18/2010 6:02 PM	Application Error	Faulting application w3wp.exe, version 7.0.6001.18000, time stamp 0x47919413, faulting module ole32.dll, version 6.0.6001.18000, time stamp 0x4791a74c, exception code 0xc0000005, fault offset 0x00008b00, process id 0x61c, application start time 0x01cadf1eb30af894.
1/7/2010 3:34 AM	Application Hang	The program install.exe version 0.0.0.0 stopped interacting with Windows and was closed. To see if more information about the problem is available, check the problem history in the Problem Reports and Solutions control panel. Process ID: 11e4 Start Time: 01ca8f4a2107e040 Termination Time: 0

#### COM+ Settings

TPCC.AITxnS:  
Activation:

- Enable Object Pooling selected
- Minimum Pool Size: 200
- Maximum Pool Size: 200
- Creation Timeout: 60000
- Enable Object Construction
- Enable Just In Time Activation

Concurrency:  
Concurrency Required

#### Microsoft IIS7Parameters

IIS7 Manager.  
Default Web Site:  
# of connections: 120000  
CxnTimeout: 9600

Application Pool:  
DefaultAppPool:  
Advanced Settings:  
Queue Length  
Queue Length: 25000

#### TPCC Application Registry Parameters

Windows Registry Editor Version 5.00

```

[HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432N
ode\Microsoft\TPCC]
"Path"="C:\inetpub\wwwroot\"
"NumberOfDeliveryThreads"=dword:00000014
"MaxConnections"=dword:0001d4c0
"MaxPendingDeliveries"=dword:000007d0
"DB_Protocol"="ODBC"
"TxnMonitor"="COM"
"DbServer"="192.168.4.1,2002"
"DbName"="tpcc"
"DbUser"="sa"
"DbPassword"="ssdl"
"COM_SinglePool"="YES"
"ConnectDelay"=dword:0000000a
"CallNoDuplicatesNewOrder"=dword:00000001

```

NOTE: This is representative of 1 web client. DBServer was varied on every web client to connect to the appropriate SoftNuma node

#### TCP/IP Registry Parameters

No settings. Windows 2008/R2 default settings now accommodate more connections.

#### RTE Input Parameters

#### DL380 3Tier Profile

Profile: DL380 3 tier 4 nodes 16 clients  
63996 WH  
File Path: D:\DL380G7\Profiles\Three  
Tier\DL380 3 tier 4 nodes 16 clients 63996  
WH.xml  
Version: 5

Number of Engines: 48

Name: DRIVER01  
Description: Driver 1.1  
Directory:  
c:\tpcc\logs2\driver1.log  
Machine: 15.1.120.1  
Parameter Set:  
Shutdown  
Index: 0  
Seed: 36954  
Configured Users:  
12420  
Pipe Name:  
DRIVER1358197936  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10

233 CLIENT\_NURAND:  
CPU: 0  
Additional Options:  
Name: DRIVER02  
Description: Driver 1.2  
Directory:  
c:\tpcc\logs2\driver2.log  
Machine: 15.1.120.1  
Parameter Set:  
Shutdown  
Index: 10000000  
Seed: 36954  
Configured Users:  
12420  
Pipe Name:  
DRIVER2362130050  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
233  
CPU: 1  
Additional Options:  
Name: DRIVER03  
Description: Driver 2.1  
Directory:  
c:\tpcc\logs2\driver3.log  
Machine: 15.1.120.2  
Parameter Set:  
Shutdown  
Index: 20000000  
Seed: 36954  
Configured Users:  
12420  
Pipe Name:  
DRIVER3362233588  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
233  
CPU: 0  
Additional Options:  
Name: DRIVER04  
Description: Driver 2.2  
Directory:  
c:\tpcc\logs2\driver4.log  
Machine: 15.1.120.2  
Parameter Set:  
Shutdown  
Index: 30000000  
Seed: 36954  
Configured Users:  
12420  
Pipe Name:  
DRIVER4362250296  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
233  
CPU: 1  
Additional Options:  
Name: DRIVER05  
Description: Driver 3.1

c:\tpcc\logs2\driver5.log  
Directory:  
Machine: 15.1.120.3  
Parameter Set:  
Shutdown  
Index: 40000000  
Seed: 36954  
Configured Users:  
12420  
Pipe Name:  
DRIVER5446286178  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
233  
CPU: 0  
Additional Options:  
Name: DRIVER06  
Description: Driver 3.2  
Directory:  
c:\tpcc\logs2\driver6.log  
Machine: 15.1.120.3  
Parameter Set:  
Shutdown  
Index: 50000000  
Seed: 36954  
Configured Users:  
12420  
Pipe Name:  
DRIVER6446398233  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
233  
CPU: 1  
Additional Options:  
Name: DRIVER07  
Description: Driver 4.1  
Directory:  
c:\tpcc\logs2\driver7.log  
Machine: 15.1.120.4  
Parameter Set:  
Shutdown  
Index: 60000000  
Seed: 36954  
Configured Users:  
12420  
Pipe Name:  
DRIVER7446448887  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
233  
CPU: 0  
Additional Options:  
Name: DRIVER08  
Description: Driver 4.2  
Directory:  
c:\tpcc\logs2\driver8.log  
Machine: 15.1.120.4  
Parameter Set:  
Shutdown  
Index: 70000000  
Seed: 36954

12420 Configured Users:  
Pipe Name:  
DRIVER8446479042  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
233  
CPU: 1  
Additional Options:  
Name: DRIVER09  
Description: Driver 5.1  
Directory:  
c:\tpcc\logs2\driver9.log  
Machine: 15.1.120.5  
Parameter Set:  
Shutdown  
Index: 80000000  
Seed: 36954  
Configured Users:  
12420  
Pipe Name:  
DRIVER1358197976  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
233  
CPU: 0  
Additional Options:  
Name: DRIVER10  
Description: Driver 5.2  
Directory:  
c:\tpcc\logs2\driver10.log  
Machine: 15.1.120.5  
Parameter Set:  
Shutdown  
Index: 90000000  
Seed: 36954  
Configured Users:  
12420  
Pipe Name:  
DRIVER2362137050  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
233  
CPU: 1  
Additional Options:  
Name: DRIVER11  
Description: Driver 6.1  
Directory:  
c:\tpcc\logs2\driver11.log  
Machine: 15.1.120.6  
Parameter Set:  
Shutdown  
Index: 100000000  
Seed: 36954  
Configured Users:  
12420  
Pipe Name:  
DRIVER3362237588  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10

233 CLIENT\_NURAND:  
CPU: 0  
Additional Options:  
Name: DRIVER12  
Description: Driver 6.2  
Directory:  
c:\tpcc\logs2\driver12.log  
Machine: 15.1.120.6  
Parameter Set:  
Shutdown  
Index: 110000000  
Seed: 36954  
Configured Users:  
12420  
Pipe Name:  
DRIVER4362257296  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
233  
CPU: 1  
Additional Options:  
Name: DRIVER13  
Description: Driver 7.1  
Directory:  
c:\tpcc\logs2\driver13.log  
Machine: 15.1.120.7  
Parameter Set:  
Shutdown  
Index: 120000000  
Seed: 36954  
Configured Users:  
12960  
Pipe Name:  
DRIVER5446287178  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
233  
CPU: 0  
Additional Options:  
Name: DRIVER14  
Description: Driver 7.2  
Directory:  
c:\tpcc\logs2\driver14.log  
Machine: 15.1.120.7  
Parameter Set:  
Shutdown  
Index: 130000000  
Seed: 36954  
Configured Users:  
12960  
Pipe Name:  
DRIVER6446397233  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
233  
CPU: 1  
Additional Options:  
Name: DRIVER15  
Description: Driver 8.1

Directory:  
c:\tpcc\logs2\driver15.log  
Machine: 15.1.120.8  
Parameter Set:  
Shutdown  
Index: 140000000  
Seed: 36954  
Configured Users:  
12960  
Pipe Name:  
DRIVER7446447887  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
233  
CPU: 0  
Additional Options:  
Name: DRIVER16  
Description: Driver 8.2  
Directory:  
c:\tpcc\logs2\driver16.log  
Machine: 15.1.120.8  
Parameter Set:  
Shutdown  
Index: 150000000  
Seed: 36954  
Configured Users:  
12960  
Pipe Name:  
DRIVER8346477042  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
233  
CPU: 1  
Additional Options:  
Name: DRIVER17  
Description: Driver 9.1  
Directory:  
c:\tpcc\logs2\driver17.log  
Machine: 15.1.120.9  
Parameter Set:  
Shutdown  
Index: 160000000  
Seed: 36954  
Configured Users:  
12960  
Pipe Name:  
DRIVER1458197936  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
233  
CPU: 0  
Additional Options:  
Name: DRIVER18  
Description: Driver 9.2  
Directory:  
c:\tpcc\logs2\driver18.log  
Machine: 15.1.120.9  
Parameter Set:  
Shutdown  
Index: 170000000  
Seed: 36954

12960 Configured Users:  
Pipe Name:  
DRIVER2462130050  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
233  
CPU: 1  
Additional Options:  
Name: DRIVER19  
Description: Driver  
Directory:  
c:\tpcc\logs2\driver19.log  
Machine: 15.1.120.10  
Parameter Set:  
Shutdown  
Index: 180000000  
Seed: 36954  
Configured Users:  
12960  
Pipe Name:  
DRIVER3352233588  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
233  
CPU: 0  
Additional Options:  
Name: DRIVER20  
Description: Driver  
Directory:  
c:\tpcc\logs2\driver20.log  
Machine: 15.1.120.10  
Parameter Set:  
Shutdown  
Index: 190000000  
Seed: 36954  
Configured Users:  
12960  
Pipe Name:  
DRIVER4352250296  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
233  
CPU: 1  
Additional Options:  
Name: DRIVER21  
Description: Driver  
Directory:  
c:\tpcc\logs2\driver21.log  
Machine: 15.1.120.11  
Parameter Set:  
Shutdown  
Index: 200000000  
Seed: 36954  
Configured Users:  
12960  
Pipe Name:  
DRIVER5456286178  
Connect Rate: 10000

233 Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
  
CPU: 0  
Additional Options:  
  
Name: DRIVER22  
Description: Driver  
  
Directory:  
c:\tpcc\logs2\driver22.log  
Machine: 15.1.120.11  
Parameter Set:  
  
Shutdown  
Index: 210000000  
Seed: 36954  
Configured Users:  
  
12960  
Pipe Name:  
DRIVER6456398233  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
  
233 CPU: 1  
Additional Options:  
  
Name: DRIVER23  
Description: Driver  
  
Directory:  
c:\tpcc\logs2\driver23.log  
Machine: 15.1.120.12  
Parameter Set:  
  
Shutdown  
Index: 220000000  
Seed: 36954  
Configured Users:  
  
12960  
Pipe Name:  
DRIVER7456448887  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
  
233 CPU: 0  
Additional Options:  
  
Name: DRIVER24  
Description: Driver  
  
Directory:  
c:\tpcc\logs2\driver24.log  
Machine: 15.1.120.12  
Parameter Set:  
  
Shutdown  
Index: 230000000  
Seed: 36954  
Configured Users:  
  
12960  
Pipe Name:  
DRIVER8456479042  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
  
233

CPU: 1  
Additional Options:  
  
Name: DRIVER25  
Description: Driver  
  
Directory:  
c:\tpcc\logs2\driver25.log  
Machine: 15.1.120.17  
Parameter Set:  
  
Shutdown  
Index: 240000000  
Seed: 36954  
Configured Users:  
  
14850  
Pipe Name:  
DRIVER1348197976  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
  
233 CPU: 0  
Additional Options:  
  
Name: DRIVER26  
Description: Driver  
  
Directory:  
c:\tpcc\logs2\driver26.log  
Machine: 15.1.120.17  
Parameter Set:  
  
Shutdown  
Index: 250000000  
Seed: 36954  
Configured Users:  
  
14850  
Pipe Name:  
DRIVER2352137050  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
  
233 CPU: 1  
Additional Options:  
  
Name: DRIVER27  
Description: Driver  
  
Directory:  
c:\tpcc\logs2\driver27.log  
Machine: 15.1.120.18  
Parameter Set:  
  
Shutdown  
Index: 260000000  
Seed: 36954  
Configured Users:  
  
14850  
Pipe Name:  
DRIVER3352237588  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
  
233 CPU: 0  
Additional Options:  
  
Name: DRIVER28

14.2 Description: Driver  
Directory:  
c:\tpcc\logs2\driver28.log  
Machine: 15.1.120.18  
  
Parameter Set:  
Shutdown  
Index: 270000000  
Seed: 36954  
Configured Users:  
  
14850  
Pipe Name:  
DRIVER4352257296  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
  
233 CPU: 1  
Additional Options:  
  
Name: DRIVER29  
Description: Driver  
  
Directory:  
c:\tpcc\logs2\driver29.log  
Machine: 15.1.120.19  
Parameter Set:  
  
Shutdown  
Index: 280000000  
Seed: 36954  
Configured Users:  
  
14850  
Pipe Name:  
DRIVER5456287178  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
  
233 CPU: 0  
Additional Options:  
  
Name: DRIVER30  
Description: Driver  
  
Directory:  
c:\tpcc\logs2\driver30.log  
Machine: 15.1.120.19  
Parameter Set:  
  
Shutdown  
Index: 290000000  
Seed: 36954  
Configured Users:  
  
14850  
Pipe Name:  
DRIVER6456397233  
Connect Rate: 10000  
Start Rate: 800  
Max. Concurrency: -1  
Concurrency Rate: 10  
CLIENT\_NURAND:  
  
233 CPU: 1  
Additional Options:  
  
Name: DRIVER31  
Description: Driver  
  
Directory:  
c:\tpcc\logs2\driver31.log  
Machine: 15.1.120.20

Shutdown	Parameter Set: Index: 300000000 Seed: 36954 Configured Users:	DRIVER2363130050	Pipe Name: Connect Rate: 10000 Start Rate: 800 Max. Concurrency: -1 Concurrency Rate: 10 CLIENT_NURAND:	233	CLIENT_NURAND: CPU: 0 Additional Options:
14850					Name: DRIVER38 Description: Driver
DRIVER7456447887	Pipe Name:	233	CPU: 1 Additional Options:	19.2	Directory: c:\tpcc\logs2\driver38.log
	Connect Rate: 10000 Start Rate: 800 Max. Concurrency: -1 Concurrency Rate: 10 CLIENT_NURAND:		Name: DRIVER35 Description: Driver	Shutdown	Machine: 15.1.120.23 Parameter Set:
233	CPU: 0 Additional Options:	18.1	Directory:	13100	Index: 370000000 Seed: 36954 Configured Users:
	Name: DRIVER32 Description: Driver	c:\tpcc\logs2\driver35.log	Machine: 15.1.120.22 Parameter Set:	DRIVER6443398233	Pipe Name:
16.2	Directory:	Shutdown	Index: 340000000 Seed: 36954 Configured Users:		Connect Rate: 10000 Start Rate: 800 Max. Concurrency: -1 Concurrency Rate: 10 CLIENT_NURAND:
c:\tpcc\logs2\driver32.log	Machine: 15.1.120.20 Parameter Set:	14850	Pipe Name:	233	CPU: 1 Additional Options:
Shutdown	Index: 310000000 Seed: 36954 Configured Users:	DRIVER3363233588	Connect Rate: 10000 Start Rate: 800 Max. Concurrency: -1 Concurrency Rate: 10 CLIENT_NURAND:		Name: DRIVER39 Description: Driver
14850	Pipe Name:	233	CPU: 0 Additional Options:	20.1	Directory:
DRIVER8453477042	Connect Rate: 10000 Start Rate: 800 Max. Concurrency: -1 Concurrency Rate: 10 CLIENT_NURAND:		Name: DRIVER36 Description: Driver	c:\tpcc\logs2\driver39.log	Machine: 15.1.120.24 Parameter Set:
	CPU: 1 Additional Options:	18.2	Directory:	Shutdown	Index: 380000000 Seed: 36954 Configured Users:
233	Name: DRIVER33 Description: Driver	c:\tpcc\logs2\driver36.log	Machine: 15.1.120.22 Parameter Set:	13100	Pipe Name:
17.1	Directory:	Shutdown	Index: 350000000 Seed: 36954 Configured Users:	DRIVER7443448887	Connect Rate: 10000 Start Rate: 800 Max. Concurrency: -1 Concurrency Rate: 10 CLIENT_NURAND:
c:\tpcc\logs2\driver33.log	Machine: 15.1.120.21 Parameter Set:	14850	Pipe Name:	233	CPU: 0 Additional Options:
Shutdown	Index: 320000000 Seed: 36954 Configured Users:	DRIVER4363250296	Connect Rate: 10000 Start Rate: 800 Max. Concurrency: -1 Concurrency Rate: 10 CLIENT_NURAND:		Name: DRIVER40 Description: Driver
14850	Pipe Name:	233	CPU: 1 Additional Options:	20.2	Directory:
DRIVER1353197936	Connect Rate: 10000 Start Rate: 800 Max. Concurrency: -1 Concurrency Rate: 10 CLIENT_NURAND:		Name: DRIVER37 Description: Driver	c:\tpcc\logs2\driver40.log	Machine: 15.1.120.24 Parameter Set:
	CPU: 0 Additional Options:	19.1	Directory:	Shutdown	Index: 390000000 Seed: 36954 Configured Users:
233	Name: DRIVER34 Description: Driver	c:\tpcc\logs2\driver37.log	Machine: 15.1.120.23 Parameter Set:	13100	Pipe Name:
17.2	Directory:	Shutdown	Index: 360000000 Seed: 36954 Configured Users:	DRIVER8443479042	Connect Rate: 10000 Start Rate: 800 Max. Concurrency: -1 Concurrency Rate: 10 CLIENT_NURAND:
c:\tpcc\logs2\driver34.log	Machine: 15.1.120.21 Parameter Set:	13100	Pipe Name:	233	CPU: 1 Additional Options:
Shutdown	Index: 330000000 Seed: 36954 Configured Users:	DRIVER5443286178	Connect Rate: 10000 Start Rate: 800 Max. Concurrency: -1 Concurrency Rate: 10		Name: DRIVER41
14850					

21.1	Description: Driver	Shutdown	Parameter Set: Index: 430000000 Seed: 36954 Configured Users:	DRIVER7443447887	Pipe Name: Connect Rate: 10000 Start Rate: 800 Max. Concurrency: -1 Concurrency Rate: 10 CLIENT_NURAND:
	Directory: c:\tpcc\logs2\driver41.log	13100		233	CPU: 0 Additional Options:
Shutdown	Machine: 15.1.120.25 Parameter Set:	DRIVER4363257296	Pipe Name:		Name: DRIVER48 Description: Driver
13100	Index: 400000000 Seed: 36954 Configured Users:	233	Connect Rate: 10000 Start Rate: 800 Max. Concurrency: -1 Concurrency Rate: 10 CLIENT_NURAND:	24.2	Directory: c:\tpcc\logs2\driver48.log
DRIVER1353197976	Pipe Name:		CPU: 1 Additional Options:		Machine: 15.1.120.28 Parameter Set:
233	Connect Rate: 10000 Start Rate: 800 Max. Concurrency: -1 Concurrency Rate: 10 CLIENT_NURAND:	23.1	Name: DRIVER45 Description: Driver	Shutdown	Index: 470000000 Seed: 36954 Configured Users:
	CPU: 0 Additional Options:	c:\tpcc\logs2\driver45.log	Directory:	13100	Pipe Name:
21.2	Name: DRIVER42 Description: Driver	Shutdown	Machine: 15.1.120.27 Parameter Set:	DRIVER8343477042	Connect Rate: 10000 Start Rate: 800 Max. Concurrency: -1 Concurrency Rate: 10 CLIENT_NURAND:
	Directory: c:\tpcc\logs2\driver42.log	13100	Index: 440000000 Seed: 36954 Configured Users:	233	CPU: 1 Additional Options:
Shutdown	Machine: 15.1.120.25 Parameter Set:	DRIVER5443287178	Pipe Name:		Number of User groups: 48
13100	Index: 410000000 Seed: 36954 Configured Users:	233	Connect Rate: 10000 Start Rate: 800 Max. Concurrency: -1 Concurrency Rate: 10 CLIENT_NURAND:	DRIVER01	Driver Engine:
DRIVER2363137050	Pipe Name:		CPU: 0 Additional Options:	sqloctanec	IIS Server: 15.1.115.1 SQL Server:
233	Connect Rate: 10000 Start Rate: 800 Max. Concurrency: -1 Concurrency Rate: 10 CLIENT_NURAND:	23.2	Name: DRIVER46 Description: Driver		Database: tpcc User: sa Protocol: HTML w_id Range: 1 - 1242 w_id Min Warehouse:
	CPU: 1 Additional Options:	c:\tpcc\logs2\driver46.log	Directory:	1	w_id Max Warehouse:
22.1	Name: DRIVER43 Description: Driver	Shutdown	Machine: 15.1.120.27 Parameter Set:	63996	Scale: Normal User Count: 12420 District id: 1 Scale Down: No
	Directory: c:\tpcc\logs2\driver43.log	13100	Index: 450000000 Seed: 36954 Configured Users:	DRIVER02	Driver Engine:
Shutdown	Machine: 15.1.120.26 Parameter Set:	DRIVER6443397233	Pipe Name:	sqloctanec	IIS Server: 15.1.115.1 SQL Server:
13100	Index: 420000000 Seed: 36954 Configured Users:	233	Connect Rate: 10000 Start Rate: 800 Max. Concurrency: -1 Concurrency Rate: 10 CLIENT_NURAND:		Database: tpcc User: sa Protocol: HTML w_id Range: 1243 -
DRIVER3363237588	Pipe Name:		CPU: 1 Additional Options:	2484	w_id Min Warehouse:
233	Connect Rate: 10000 Start Rate: 800 Max. Concurrency: -1 Concurrency Rate: 10 CLIENT_NURAND:	24.1	Name: DRIVER47 Description: Driver	1	w_id Max Warehouse:
	CPU: 0 Additional Options:	c:\tpcc\logs2\driver47.log	Directory:	63996	Scale: Normal User Count: 12420 District id: 1 Scale Down: No
22.2	Name: DRIVER44 Description: Driver	Shutdown	Machine: 15.1.120.28 Parameter Set:	DRIVER03	Driver Engine:
	Directory: c:\tpcc\logs2\driver44.log	13100	Index: 460000000 Seed: 36954 Configured Users:		IIS Server: 15.1.115.1
	Machine: 15.1.120.26				

sqloctanec	SQL Server:	sqloctanec	SQL Server: 15.1.115.3	sqloctanec	SQL Server: 15.1.115.4
3726	Database: tpcc User: sa Protocol: HTML w_id Range: 2485 -	8694	Database: tpcc User: sa Protocol: HTML w_id Range: 7453 -	13662	Database: tpcc User: sa Protocol: HTML w_id Range: 12421 -
1	w_id Min Warehouse:	1	w_id Min Warehouse:	1	w_id Min Warehouse:
63996	w_id Max Warehouse:	63996	w_id Max Warehouse:	63996	w_id Max Warehouse:
	Scale: Normal User Count: 12420 District id: 1 Scale Down: No		Scale: Normal User Count: 12420 District id: 1 Scale Down: No		Scale: Normal User Count: 12420 District id: 1 Scale Down: No
DRIVER04	Driver Engine:	DRIVER08	Driver Engine:	DRIVER12	Driver Engine:
sqloctanec	IIS Server: 15.1.115.2 SQL Server:	sqloctanec	IIS Server: 15.1.115.3 SQL Server:	sqloctanec	IIS Server: 15.1.115.4 SQL Server:
4968	Database: tpcc User: sa Protocol: HTML w_id Range: 3727 -	9936	Database: tpcc User: sa Protocol: HTML w_id Range: 8695 -	14904	Database: tpcc User: sa Protocol: HTML w_id Range: 13663 -
1	w_id Min Warehouse:	1	w_id Min Warehouse:	1	w_id Min Warehouse:
63996	w_id Max Warehouse:	63996	w_id Max Warehouse:	63996	w_id Max Warehouse:
	Scale: Normal User Count: 12420 District id: 1 Scale Down: No		Scale: Normal User Count: 12420 District id: 1 Scale Down: No		Scale: Normal User Count: 12420 District id: 1 Scale Down: No
DRIVER05	Driver Engine:	DRIVER09	Driver Engine:	DRIVER13	Driver Engine:
sqloctanec	IIS Server: 15.1.115.2 SQL Server:	sqloctanec	IIS Server: 15.1.115.3 SQL Server:	sqloctanec	IIS Server: 15.1.115.5 SQL Server:
6210	Database: tpcc User: sa Protocol: HTML w_id Range: 4969 -	11178	Database: tpcc User: sa Protocol: HTML w_id Range: 9937 -	16200	Database: tpcc User: sa Protocol: HTML w_id Range: 14905 -
1	w_id Min Warehouse:	1	w_id Min Warehouse:	1	w_id Min Warehouse:
63996	w_id Max Warehouse:	63996	w_id Max Warehouse:	63996	w_id Max Warehouse:
	Scale: Normal User Count: 12420 District id: 1 Scale Down: No		Scale: Normal User Count: 12420 District id: 1 Scale Down: No		Scale: Normal User Count: 12960 District id: 1 Scale Down: No
DRIVER06	Driver Engine:	DRIVER10	Driver Engine:	DRIVER14	Driver Engine:
sqloctanec	IIS Server: 15.1.115.2 SQL Server:	sqloctanec	IIS Server: 15.1.115.4 SQL Server:	sqloctanec	IIS Server: 15.1.115.5 SQL Server:
7452	Database: tpcc User: sa Protocol: HTML w_id Range: 6211 -	12420	Database: tpcc User: sa Protocol: HTML w_id Range: 11179 -	17496	Database: tpcc User: sa Protocol: HTML w_id Range: 16201 -
1	w_id Min Warehouse:	1	w_id Min Warehouse:	1	w_id Min Warehouse:
63996	w_id Max Warehouse:	63996	w_id Max Warehouse:	63996	w_id Max Warehouse:
	Scale: Normal User Count: 12420 District id: 1 Scale Down: No		Scale: Normal User Count: 12420 District id: 1 Scale Down: No		Scale: Normal User Count: 12960 District id: 1 Scale Down: No
DRIVER07	Driver Engine:	DRIVER11	Driver Engine:	DRIVER15	Driver Engine:



sqloctanec	IIS Server: 15.1.115.5 SQL Server:  Database: tpcc User: sa Protocol: HTML w_id Range: 17497 -	DRIVER19	Driver Engine: IIS Server: 15.1.115.7 SQL Server:  Database: tpcc User: sa Protocol: HTML w_id Range: 22681 -	DRIVER23	Driver Engine: IIS Server: 15.1.115.8 SQL Server:  Database: tpcc User: sa Protocol: HTML w_id Range: 27865 -
18792	w_id Min Warehouse:	23976	w_id Min Warehouse:	29160	w_id Min Warehouse:
1	w_id Max Warehouse:	1	w_id Max Warehouse:	1	w_id Max Warehouse:
63996	Scale: Normal User Count: 12960 District id: 1 Scale Down: No	63996	Scale: Normal User Count: 12960 District id: 1 Scale Down: No	63996	Scale: Normal User Count: 12960 District id: 1 Scale Down: No
DRIVER16	Driver Engine:  IIS Server: 15.1.115.6 SQL Server:	DRIVER20	Driver Engine:  IIS Server: 15.1.115.7 SQL Server:	DRIVER24	Driver Engine:  IIS Server: 15.1.115.8 SQL Server:
sqloctanec	Database: tpcc User: sa Protocol: HTML w_id Range: 18793 -	sqloctanec	Database: tpcc User: sa Protocol: HTML w_id Range: 23977 -	sqloctanec	Database: tpcc User: sa Protocol: HTML w_id Range: 29161 -
20088	w_id Min Warehouse:	25272	w_id Min Warehouse:	30456	w_id Min Warehouse:
1	w_id Max Warehouse:	1	w_id Max Warehouse:	1	w_id Max Warehouse:
63996	Scale: Normal User Count: 12960 District id: 1 Scale Down: No	63996	Scale: Normal User Count: 12960 District id: 1 Scale Down: No	63996	Scale: Normal User Count: 12960 District id: 1 Scale Down: No
DRIVER17	Driver Engine:  IIS Server: 15.1.115.6 SQL Server:	DRIVER21	Driver Engine:  IIS Server: 15.1.115.7 SQL Server:	DRIVER25	Driver Engine:  IIS Server: 15.1.115.9 SQL Server:
sqloctanec	Database: tpcc User: sa Protocol: HTML w_id Range: 20089 -	sqloctanec	Database: tpcc User: sa Protocol: HTML w_id Range: 25273 -	sqloctanec	Database: tpcc User: sa Protocol: HTML w_id Range: 30457 -
21384	w_id Min Warehouse:	26568	w_id Min Warehouse:	31941	w_id Min Warehouse:
1	w_id Max Warehouse:	1	w_id Max Warehouse:	1	w_id Max Warehouse:
63996	Scale: Normal User Count: 12960 District id: 1 Scale Down: No	63996	Scale: Normal User Count: 12960 District id: 1 Scale Down: No	63996	Scale: Normal User Count: 14850 District id: 1 Scale Down: No
DRIVER18	Driver Engine:  IIS Server: 15.1.115.6 SQL Server:	DRIVER22	Driver Engine:  IIS Server: 15.1.115.8 SQL Server:	DRIVER26	Driver Engine:  IIS Server: 15.1.115.9 SQL Server:
sqloctanec	Database: tpcc User: sa Protocol: HTML w_id Range: 21385 -	sqloctanec	Database: tpcc User: sa Protocol: HTML w_id Range: 26569 -	sqloctanec	Database: tpcc User: sa Protocol: HTML w_id Range: 31942 -
22680	w_id Min Warehouse:	27864	w_id Min Warehouse:	33426	w_id Min Warehouse:
1	w_id Max Warehouse:	1	w_id Max Warehouse:	1	w_id Max Warehouse:
63996	Scale: Normal User Count: 12960 District id: 1 Scale Down: No	63996	Scale: Normal User Count: 12960 District id: 1 Scale Down: No	63996	Scale: Normal User Count: 14850 District id: 1 Scale Down: No

DRIVER27	Driver Engine: IIS Server: 15.1.115.9 SQL Server: Database: tpcc User: sa Protocol: HTML w_id Range: 33427 - w_id Min Warehouse: w_id Max Warehouse: Scale: Normal User Count: 14850 District id: 1 Scale Down: No	DRIVER31	15.1.115.11 sqloctanec 40851 1 63996	DRIVER35	15.1.115.12 sqloctanec 46791 1 63996	1 63996	w_id Min Warehouse: w_id Max Warehouse: Scale: Normal User Count: 14850 District id: 1 Scale Down: No Driver Engine: IIS Server: SQL Server: Database: tpcc User: sa Protocol: HTML w_id Range: 45307 - w_id Min Warehouse: w_id Max Warehouse: Scale: Normal User Count: 14850 District id: 1 Scale Down: No
DRIVER28	Driver Engine: IIS Server: SQL Server: Database: tpcc User: sa Protocol: HTML w_id Range: 34912 - w_id Min Warehouse: w_id Max Warehouse: Scale: Normal User Count: 14850 District id: 1 Scale Down: No	DRIVER32	15.1.115.11 sqloctanec 42336 1 63996	DRIVER36	15.1.115.12 sqloctanec 48276 1 63996	1 63996	Scale: Normal User Count: 14850 District id: 1 Scale Down: No Driver Engine: IIS Server: SQL Server: Database: tpcc User: sa Protocol: HTML w_id Range: 46792 - w_id Min Warehouse: w_id Max Warehouse: Scale: Normal User Count: 14850 District id: 1 Scale Down: No
DRIVER29	Driver Engine: IIS Server: SQL Server: Database: tpcc User: sa Protocol: HTML w_id Range: 36397 - w_id Min Warehouse: w_id Max Warehouse: Scale: Normal User Count: 14850 District id: 1 Scale Down: No	DRIVER33	15.1.115.11 sqloctanec 43821 1 63996	DRIVER37	15.1.115.13 sqloctanec 49586 1 63996	1 63996	Scale: Normal User Count: 14850 District id: 1 Scale Down: No Driver Engine: IIS Server: SQL Server: Database: tpcc User: sa Protocol: HTML w_id Range: 48277 - w_id Min Warehouse: w_id Max Warehouse: Scale: Normal User Count: 13100 District id: 1 Scale Down: No
DRIVER30	Driver Engine: IIS Server: SQL Server: Database: tpcc User: sa Protocol: HTML w_id Range: 37882 - w_id Min Warehouse: w_id Max Warehouse: Scale: Normal	DRIVER34	15.1.115.12 sqloctanec 45306	DRIVER38	15.1.115.13 sqloctanec	1 63996	Scale: Normal User Count: 14850 District id: 1 Scale Down: No Driver Engine: IIS Server: SQL Server: Database: tpcc

50896	User: sa Protocol: HTML w_id Range: 49587 -	15.1.115.14 sqloctanec	IIS Server: SQL Server:	DRIVER46	Scale Down: No Driver Engine:
1	w_id Min Warehouse:		Database: tpcc User: sa Protocol: HTML w_id Range: 54827 -	15.1.115.16 sqloctanec	IIS Server: SQL Server:
63996	w_id Max Warehouse:	56136	w_id Min Warehouse:		Database: tpcc User: sa Protocol: HTML w_id Range: 60067 -
	Scale: Normal User Count: 13100 District id: 1 Scale Down: No	1	w_id Max Warehouse:	61376	w_id Min Warehouse:
DRIVER39	Driver Engine:	63996	Scale: Normal User Count: 13100 District id: 1 Scale Down: No	1	w_id Max Warehouse:
15.1.115.13	IIS Server:		Driver Engine:	63996	Scale: Normal User Count: 13100 District id: 1 Scale Down: No
sqloctanec	SQL Server:	DRIVER43	IIS Server:		Driver Engine:
	Database: tpcc User: sa Protocol: HTML w_id Range: 50897 -	15.1.115.15 sqloctanec	SQL Server:	DRIVER47	IIS Server:
52206	w_id Min Warehouse:		Database: tpcc User: sa Protocol: HTML w_id Range: 56137 -	15.1.115.16 sqloctanec	SQL Server:
1	w_id Max Warehouse:	57446	w_id Min Warehouse:		Database: tpcc User: sa Protocol: HTML w_id Range: 61377 -
63996	Scale: Normal User Count: 13100 District id: 1 Scale Down: No	1	w_id Max Warehouse:	62686	w_id Min Warehouse:
DRIVER40	Driver Engine:	63996	Scale: Normal User Count: 13100 District id: 1 Scale Down: No	1	w_id Max Warehouse:
15.1.115.14	IIS Server:		Driver Engine:	63996	Scale: Normal User Count: 13100 District id: 1 Scale Down: No
sqloctanec	SQL Server:	DRIVER44	IIS Server:		Driver Engine:
	Database: tpcc User: sa Protocol: HTML w_id Range: 52207 -	15.1.115.15 sqloctanec	SQL Server:	DRIVER48	IIS Server:
53516	w_id Min Warehouse:		Database: tpcc User: sa Protocol: HTML w_id Range: 57447 -	15.1.115.16 sqloctanec	SQL Server:
1	w_id Max Warehouse:	58756	w_id Min Warehouse:		Database: tpcc User: sa Protocol: HTML w_id Range: 62687 -
63996	Scale: Normal User Count: 13100 District id: 1 Scale Down: No	1	w_id Max Warehouse:	63996	w_id Min Warehouse:
DRIVER41	Driver Engine:	63996	Scale: Normal User Count: 13100 District id: 1 Scale Down: No	1	w_id Max Warehouse:
15.1.115.14	IIS Server:		Driver Engine:	63996	Scale: Normal User Count: 13100 District id: 1 Scale Down: No
sqloctanec	SQL Server:	DRIVER45	IIS Server:		Number of Parameter Sets: 3
	Database: tpcc User: sa Protocol: HTML w_id Range: 53517 -	15.1.115.15 sqloctanec	SQL Server:		~Default Default Parameter Set
54826	w_id Min Warehouse:		Database: tpcc User: sa Protocol: HTML w_id Range: 58757 -		Txn
1	w_id Max Warehouse:	60066	w_id Min Warehouse:		Weight
63996	Scale: Normal User Count: 13100 District id: 1 Scale Down: No	1	w_id Max Warehouse:		
DRIVER42	Driver Engine:	63996	Scale: Normal User Count: 13100 District id: 1		

Think	Key	RT	RT	Menu	Delay	Weight
10.00		12.05	5.00	18.00	0.10	

		Payment	10.00
12.05		3.00	0.10
5.00		0.10	
		Delivery	1.00
5.05		2.00	0.10
5.00		0.10	
		Stock Level	1.00
5.05		2.00	0.10
20.00		0.10	
		Order Status	1.00
10.05		2.00	0.10
5.00		0.10	

Shutdown

Think	Key	RT	RT	Menu	Txn
Time	Time	Delay	Fence	Delay	Weight
10.00		500.00		2.00	0.10
		5.00		0.10	
				New Order	
		500.00		2.00	10.00
		5.00		0.10	0.10
				Payment	
		500.00		2.00	1.00
		5.00		0.10	0.10
				Delivery	
		500.00		2.00	1.00
		5.00		0.10	0.10
				Stock Level	
		500.00		2.00	1.00
		5.00		0.10	0.10
				Order Status	
		500.00		2.00	1.00
		5.00		0.10	0.10

Audit

Think	Key	RT	RT	Menu	Txn
Time	Time	Delay	Fence	Delay	Weight
44.92		12.05		18.00	0.10
		5.00		0.10	
				New Order	
		12.05		3.00	43.02
		5.00		0.10	0.10
				Payment	
		5.05		2.00	4.02
		5.00		0.10	0.10
				Delivery	
		5.05		2.00	4.02
		5.00		0.10	0.10
				Stock Level	
		10.05		2.00	4.02
		5.00		0.10	0.10
				Order Status	
		10.05		2.00	1.00
		5.00		0.10	0.10

## Appendix D 60 Day Space Requirements

TPC-C 60 Day Space Requirements						
Warehouses	68000				TpmC	803,068.40
Table	Rows	Data KB	Index KB	Extra 5% KB	8hr Space	Total Space KB
Warehouse	68000	7360	1104	423		8887
District	680000	75656	1216	3,844		80716
Customer	2040000000	1483636448	92567448	78,810,195		1655014091
History	2056776923	123760912	914664		3,530,419	124675576
NewOrder	613716209	15969664	52904	801,128		16823696
Orders	2057382039	72052160	300768		3,393,949	72352928
OrderLine	20573893306	1362115344	6306712		69,062,550	1368422056
Item	100000	9416	992	520		10928
Stock	6800000000	2176000000	4586456	109,029,323		2289615779
Total		5,233,626,960	104,732,264	188,645,433	75,986,918	5,527,004,657
		MB				
Dynamic Space	1,521,414	Sum of Data for Order, Orderline and History				
Static Space	3,876,051	Sum of Data+Index+5%-Dynamic Space				
Free Space	na	Total Allocated Spac - ( Dynamic + Static Space)				
Daily Growth	287,482	(Dynamic Space/(W*62.5))*tpmc				
Daily Spread	-	(Free Space -1.5*Daily Growth) Zero Assumed				
60 Day Space MB	21,124,991					
60 Day Space GB	20,629.87	GB				
Log Size	1,250,000.00	MB				
KB Per New Order	1.02	KB				
8 hr log MB	383,253.23	MB				
8 hr log GB	374.27	GB				
		Disks	Disks	Formatted	Space	
Space Usage	GB Needed	Measured	Size	Size	Available	
180 Day Space DB	20,629.87	128	120GB	111.790	14309.12	
		56	500GB	465.730	26080.88	
			4GB		0.00	
Total DB		184.00			40390.00	
8-hr log + mirror	748.5415	12	500GB	465.730	5588.76	
OS, Swap	3	2	72	68.330	136.66	
Total Storage	21,381.42	GB			46,115.42	

## Appendix E 3<sup>rd</sup> Party Pricing

Microsoft Corporation  
One Microsoft Way  
Redmond, WA 98052-6399

Tel 425 882 8080  
Fax 425 936 7329  
<http://www.microsoft.com/>

**Microsoft**

May 6, 2010

Hewlett-Packard  
Eric Deehr  
One Microsoft Way  
Redmond, WA 98052

Here is the information you requested regarding pricing for several Microsoft products to be used in conjunction with your TPC-C benchmark testing.

All pricing shown is in US Dollars (\$).

Part Number	Description	Unit Price	Quantity	Price
810-03134	<b>SQL Server 2005 Enterprise x64 Edition</b> <i>Per Processor License</i> <i>Discount Schedule: Open Program - Level C</i> <i>Unit Price reflects a 6% discount from the retail unit price of \$24,999.</i>	\$23,432	2	\$46,864
P72-04217	<b>Windows Server 2008 R2 Enterprise Edition</b> <i>Server License with 25 CALs</i> <i>Discount Schedule: Open Program - Level C</i> <i>Unit Price reflects a 43% discount from the retail unit price of \$3,999.</i>	\$2,280	1	\$2,280
P73-04165	<b>Windows Server 2008 Standard Edition (x64)</b> <i>Server License with 5 CALs</i> <i>Discount Schedule: Open Program - Level C</i> <i>Unit Price reflects a 29% discount from the retail unit price of \$999.</i>	\$711	16	\$11,376
127-00166	<b>Visual Studio 2008 Standard Edition</b> <i>Full License</i> <i>No Discount Applied</i>	\$275	1	\$275
N/A	<b>Microsoft Problem Resolution Services</b> <i>Professional Support</i> <i>(1 Incident).</i>	\$259	1	\$259

SQL Server 2005 Enterprise Edition, Windows Server 2008 R2 Enterprise Edition, Windows Server 2008 Standard Edition, and Visual Studio 2008 Standard Edition are currently orderable and available through Microsoft's normal distribution channels. A list of Microsoft's resellers can be found at the Microsoft Product Information Center at

**<http://www.microsoft.com/products/info/render.aspx?view=22&type=how>**

Defect support is included in the purchase price. Additional support is available from Microsoft PSS on an incident by incident basis at \$259 per call.

This quote is valid for the next 90 days.

Reference ID: TPCC\_g3wOpiq6ZAsO5Qbmmd7N9cl1uGYEbDe4\_V1.0.0.



QUOTE-0003

**Microland Electronics**

DATE: MAY 5, 2010

1883 Ringwood Ave San Jose, CA 95131  
 Tel 408.850.9102 Fax 408.441.1767  
 raymondh@microlandusa.com

TO Jason Goertz  
 Shipping Address:  
 Hewlett-Packard Company  
 c/o Microsoft Corporation  
 1 Microsoft Way  
 Redmond, WA 98052  
 Customer ID: HEWLETPP

SALESPERSON	JOB	SHIPPING METHOD	SHIPPING TERMS	DELIVERY DATE	PAYMENT TERMS	DUE DATE
Raymond Huang	Account Manager	Upon request	Prepaid & bill	Upon request	C.C.	

QTY	ITEM #	DESCRIPTION	UNIT PRICE	LINE TOTAL
6	LSI00188	LSI 9200_8e (All LSI controller cards come with 3 year warranty)  *Actual shipping cost, sales tax, C.C fee will be added to total amount	\$328.00	\$328.00

SUBTOTAL	\$1,968.00
SALES TAX	
C.C FEE	
SHIPPING	
TOTAL	\$1,968.00

Quotation prepared by: Raymond Huang

This is a quotation on the goods named, subject to the conditions noted below: (Describe any conditions pertaining to these prices and any additional terms of the agreement. You may want to include contingencies that will affect the quotation.)

To accept this quotation, sign here and return: \_\_\_\_\_

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## Appendix F System Availability

The DL380G7 will be available May 11, 2010

The D2700 drive enclosure is currently available.

The 120 GB SSD drives are currently available.

The SSD drives will not be supported in the D2700 enclosure until September 1, 2010.

All other hardware is currently available.

HP Direct: 800-203-6748

For price verification before order date: e-mail [hp.pricing.desk@hp.com](mailto:hp.pricing.desk@hp.com)