

**TPC Benchmark™ C**  
**Full Disclosure Report**  
**for**  
**Dell PowerEdge 2900**  
**using**  
**Oracle 11g Database Server Standard Edition**  
**and**  
**Microsoft Windows Server 2003 Standard**  
**x64 Edition SP1**

First Edition  
Submitted for Review  
June 16, 2008

**First Edition, June 16, 2008**

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The pricing information given in this FDR is accurate as of the first publication date, June 16, 2008 and is generally available.

Benchmark results are highly dependent upon workload, specific application requirements, and system design and implementation. Relative system performance will vary as a result for 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 were obtained in a rigorously controlled environment. Actual performance experienced by a particular customer may vary due to differences in system layout and configuration, hardware and/or software revision levels, and background system activity. The content of this document is for informational purposes only.

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# Abstract

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## Overview

This report documents the methodology and results of the TPC Benchmark™ C test conducted on Dell PowerEdge 2900. The tests were run in a client/server configuration using one PowerEdge SC 1430 as client. The Database Management System used in this benchmark was Oracle 11g which was deployed on Microsoft Windows Server 2003 SP1 operating system on the database server and Microsoft Windows Server 2003 Standard Edition on the client. Microsoft COM+ provided the database connection queues. All tests were done in compliance with Revision 5.9 of the Transaction Processing Council's TPC Benchmark™ C Standard Specification. Two standard TPC Benchmark™ C metrics, transactions per second (tpmC) and price per tpmC (\$/tpmC) are reported and referred to in this document. The results from the tests are summarized below.

Hardware	Software	Total System Cost	tpmC	\$/tpmC	Availability Date
Dell PowerEdge 2900	Oracle Database 11g Standard Edition with Windows Server 2003 Standard x64 Edition SP1	\$65,910	97,083	\$.68	June 16, 2008

## Auditor

The results of the benchmark and test methodology used to produce the results were audited by Lorna Livingtree of Performance Metrics and have fully met the TPC-C rev 5.9 specifications.

Additional copies of this Full Disclosure Report can be obtained from either the Transaction Processing Performance Council or Dell at the following address:

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**PowerEdge 2900 Server with Oracle Database 11g Standard Edition One**

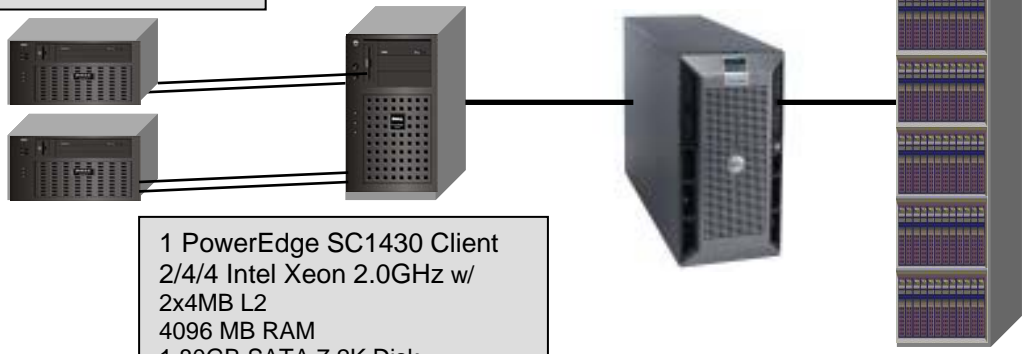
TPC-C Rev 5.9  
Original Report Date  
**June 16, 2008**

Total System Cost		TPC-C Throughput	Price/Performance	Availability Date
<b>\$65,910</b>		<b>97,083 tpmC</b>	<b>\$.68 / tpmC</b>	June 16, 2008
Processors	Database Manager	OS	Other Software	Number of Users
1/4/4 Quad Core Intel® Xeon® 5440, 2x6MB Cache, 2.83GHZ 1333MHZ FSB	Oracle Database 11g Standard Edition One	Microsoft Windows Server 2003 Standard x64 Edition SP1	Windows Server 2003 Standard Edition w/ COM+ Internet Information Server 6.0 Microsoft Visual C++	76,700

76,700 Emulated Users  
Running on 1 PE1600 and 1 R805 RTE Machines Connected Through Cross-over cables

PowerEdge 2900  
1/4/4 Quad Core Intel® Xeon® 5440, 2x6MB Cache, 2.83GHZ, 32GB 667MHz FBD  
3 Dell PERC6/E SAS RAID Controller, 1 Integrated PERC5i SAS RAID Controller.  
8 73GB, 3GBPS, SAS, 3.5IN, 15K  
2 On Board Broadcom ports

6 PowerVault MD1000 SAS Disk Pods  
90 73GB 15K RPM SAS Disks



1 PowerEdge SC1430 Client  
2/4/4 Intel Xeon 2.0GHz w/ 2x4MB L2  
4096 MB RAM  
1 80GB SATA 7.2K Disk  
1 Intel Pro 1000 Dual port NIC  
2 onboard Broadcom ports

System Component	Server		Each Client	
Processor/Core/Cache	1	1/4/4 Quad Core Intel® Xeon® 5440, 2x6MB Cache, 2.83GHZ, 1333	2	2/4/4 Intel® Xeon® w/ 2x4MB L2, 2.0 GHz
Memory		32GB 667 FB-DIMM		4 GB
Disk Controllers	3 1	Dell PERC6/E RAID Integrated PERC5i RAID	1	Onboard SATA
Disk Drives	38 60	73GB SAS 15K 36GB SAS 15K	1	80GB 7.2K SATA
Total Storage	98	4011 GB SAS	1	80GB SATA
Other	2 1	Broadcom NetXtreme II GigE ports CD-ROM	2 1 1	Broadcom on-board ports Dual port Intel Pro 1000 NIC CD-ROM



PowerEdge 2900

TPC-C 5.9  
 TPC Pricing 1.2  
 Report Date  
 June 16, 2008  
 Revision Date  
 Availability Date  
 June 16, 2008

Description	Part Number	Price Source	Unit Price	Qty	Extended Price	3 yr. Maint. Price
<b>Server Hardware</b>						
PE2900, QC XEON X5440, 2X6MB, 2.83GZ & 2 Broadcom NICs	223-4506	1	1,253.00	1	\$1,253.00	\$578.00
32GB 667MHz(8x4GB), 2R	311-6327	1	3,118.00	1	\$3,118.00	
PERC6/i, Integrated	341-5699	1	\$299.00	1	\$299.00	
PERC6/E SAS RAID, 2X4 EXTERNAL	341-5842	1	\$799.00	3	\$2,397.00	
DELL E157FP, 15 IN, 15.0 VIS	320-5090	1	\$189.00	1	\$189.00	
				<b>Subtotal</b>	<b>\$7,256.00</b>	<b>\$578.00</b>
<b>Server Storage</b>						
PV MD1000, RACK, 3U, 15 BAY, LBZL	222-2299	1	2,480.00	6	\$14,880.00	\$9,888.00
SINGLE ENCL MGT MODULES, SAS/SATA	420-5927	1	\$345.83	6	\$2,074.98	
SAS Cable, 1M, MD1000	310-7082	1	\$30.00	6	\$180.00	
73GB, 3GBPS, SAS, 3.5IN, 15K	341-3023	1	\$299.00	98	\$29,302.00	
42U Rack, CUST	340-4896	1	\$239.99	1	\$239.99	
				<b>Subtotal</b>	<b>\$46,676.97</b>	<b>\$9,888.00</b>
<b>Server Software</b>						
Oracle Database 11g Standard Edition One, Per Processor Unlimited Users, 3 years		2	\$2,498.00	1	\$2,498.00	
Windows Server 2003 Standard x64 Server	420-7118	1	\$799.00	1	\$799.00	
Microsoft Problem Resolution Services		3	\$245.00	1		\$245.00
Oracle Premium Support, 3 years		2	\$1,099.00	3		\$3,297.00
				<b>Subtotal</b>	<b>\$3,297.00</b>	<b>\$3,542.00</b>
<b>Client Hardware</b>						
Dell PowerEdge SC 1430, E5335 2.0GZ/2x4MB 1333FSB	223-1438	1	760.00	1	\$760.00	\$472.00
Additional processor	311-7416	1	599.00	1	\$599.00	
4GB 667MHz(2x2GB), 2R	311-6254	1	448.00	1	\$448.00	
Broadcom OnBoard NIC	430-1764	1	0.00	1	\$0.00	
Broadcom 5722 NIC	430-2608	1	59.00	1	\$59.00	
80GB, SATA, 1IN, 7.2K	341-3757	1	\$99.00	1	\$99.00	
DELL E157FP, 15 IN, 15.0 VIS	320-5090	1	\$149.00	1	\$149.00	
				<b>Subtotal</b>	<b>\$2,114.00</b>	<b>\$472.00</b>
<b>Client Software</b>						
Windows Server 2003 Standard x64 Server	420-7118	1	\$799.00	1	\$799.00	
Microsoft Visual Studio Standard 2005	127-00012	3	\$250.00	1	\$250.00	
				<b>Subtotal</b>	<b>\$1,049.00</b>	<b>\$0.00</b>
<b>User Connectivity</b>						
5 ft Xover cable	CBLC5C7	4	\$1.31	3	\$3.93	
				<b>Subtotal</b>	<b>\$3.93</b>	<b>\$0.00</b>
All hardware items from Dell(1) are discounted 16% based on total dollar volume.					<b>16% discount</b>	<b>(\$8,967.52)</b>
					<b>Total</b>	<b>\$51,429.38</b>
						<b>\$14,480.00</b>
Notes: *All hardware items from Dell(1) are discounted 16% based on total dollar volume of this configuration. Price Source: 1=Dell, 2=Oracle, 3=Microsoft, 4=Kalron Pricing may be verified by calling 1-800-BUY-DELL and referencing quote # 432979497 as a complex quote. <b>Audited by Lorna Livingtree, Performance Metrics Inc.</b>				<b>Three-Year Cost of Ownership:</b>	<b>\$65,910</b>	<b>USD</b>
				<b>TPC-C Throughput:</b>	<b>97,083.53</b>	<b>tpmC</b>
				<b>Price/Performance:</b>	<b>\$0.68</b>	<b>tpmC/USD</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 specifications. If you find that the stated prices are not available according to these items, please inform the TPC at <a href="mailto:pricing@tpc.org">pricing@tpc.org</a> .						

**MQTh**, computed Maximum Qualified Throughput

97,083 tpmC

**Response Times** (in seconds)

	Average	90 <sup>th</sup>	Max
- Neworder	0.16	0.20	1.49
- Payment	0.14	0.20	1.41
- Delivery (interactive portion)	0.11	0.12	1.08
- Stock-Level	0.68	1.00	2.14
- Order Status	0.15	0.30	1.40
- Delivery (deferred portion)	0.04	0.06	0.95
- Menu	0.11	0.12	1.41

Response time delay added for emulated components

Menu 0.1  
Resp 0.1

**Transaction Mix**, in percent of total transactions

- New-Order	44.92%
- Payment	43.00%
- Delivery	4.02%
- Stock-Level	4.01%
- Order-Status	4.02%

**Keying/Think Times** (in seconds),

	Min		Average		Max
- New-Order	18.00	0.0	18.01	12.03	18.03 120.32
- Payment	3.00	0.0	3.00	12.03	3.03 120.32
- Delivery	2.00	0.0	2.00	5.04	2.03 50.31
- Stock-Level	2.00	0.0	2.00	5.04	2.04 50.31
- Order-Status	2.00	0.0	2.00	10.04	2.03 100.32

**Test Duration**

- Ramp-up time	25 minutes
- Measurement interval	120 minutes
- Number of checkpoints	4
- Checkpoint interval	29.08 minutes
- Number of transactions (all types)	25,932,675

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# Introduction

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## **Document Structure**

The TPC Benchmark C Standard Specification Revision 5.9, written and approved by the Transaction Processing Performance Council (TPC), determines the contents of this report. The format of this report is based on this specification. Most sections of this report begin with the specification requirements printed in italic type, immediately followed by the detail in plain type of how Dell complied with the specification. Where extensive listings are required (such as listing of code), a note is included which references an appendix containing the listing.

## **Benchmark Overview**

TPC Benchmark™ C (TPC-C) is an OLTP workload. It is a mixture of read-only and update intensive transactions that simulate the activities found in complex OLTP application environments. It does so by exercising a breadth of system components associated with 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 on data access and update

The performance metric reported by TPC-C is a "business throughput" measuring the number of orders processed per minute. Multiple transactions are used to simulate the business activity of processing an order, and each transaction is subject to a response time constraint.

The performance metric for this benchmark is expressed in transactions-per-minute-C (tpmC). To be compliant with the TPC-C standard, all references to tpmC results must include the tpmC rate, the associated price-per-tpmC, and the availability date of the priced configuration.

Although these specifications express implementation in terms of a relational data model with conventional locking scheme, the database may be implemented using any commercially available database management system (DBMS), database server, file system, or other data repository that provides a functionally equivalent implementation. The terms "table", "row", and "column" are used in this document only as examples of logical data structures.

TPC-C uses terminology and metrics that are similar to other benchmarks, originated by the TPC or others. Such similarity in terminology does not in any way imply that TPC-C results are comparable to other benchmarks. The only benchmark results comparable to TPC-C are other TPC-C results conformant with the same revision.

Despite the fact that this benchmark offers a rich environment that emulates many OLTP applications, this benchmark does not reflect the entire range of OLTP requirements. In addition, the extent to which a customer can achieve the results reported by a vendor is highly dependent on how closely TPC-C approximates the customer application. The relative performance of

systems derived from this benchmark does not necessarily hold for other workloads or environments. Extrapolations to any other environment are not recommended.

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

### ***System Overview***

The hardware configuration used in this TPC-C test is a Dell PowerEdge 2900 server driven by one Dell PowerEdge SC1430 client. The client and server are networked together via cross-over cables. Two remote terminal emulators (RTE) systems PowerEdge 1600 and R805 emulate users executing the standard TPC-C workload. The RTE are connected to the client through cross-over cables. Oracle11g Database Server Standard Edition was the DBMS on the server machine. Microsoft Windows Server 2003, Standard x64 Edition SP1 was the operating system used on the server. Microsoft Windows Server 2003, Standard x64 Edition was used on the client.

The PowerEdge 2900 motherboard uses an Intel chipset and can hold up to 2/8/8 two Pentium® Xeon® Quad Core processors. This configuration used a single Quad processor 2.83 GHz 1333 with 2x6MB L2 cache. The system has 1 PCIe x8 slot, 3 PCIe x4 slots, and 2 PCI-x 64 Bit/133 MHz slots. The measured configuration used 32 GB of Fully Buffered 667 DDR2 RAM, which was achieved using 8 4GB DIMMs. The network adapters are embedded with Broadcom NetXtreme II GigE network adapters.

The PowerEdge 2900 has an integrated 6 slot riser board to which was attached 8 73GB SAS LFF DISKS in RAID 10 configuration containing the database log and OS via an internal channel on a Dell embedded PERC5i RAID controller. In addition, 3 Dell PERC6/E Dual Channel PCI-e RAID controllers were installed in PCI Express slots for the data volumes. The Dell PERC6/E PCI Express RAID controllers were connected to 6 MD1000 disk pods enclosing a total of 90 73GB 15K RPM SAS disks.

The client has 2 dual-core 1/2/2 2.0GHz Intel Xeon® processors with 2x4MB of L2 cache. The client has 4096 Mbytes of RAM, one 80 GB hard disk, one integrated Broadcomm NetXtreme Gigabit Ethernet adapter and one Intel Pro 1000 PCI Network Interface Card. The client was connected to the Database Server through a cross-over cable. The client was driven through two network segments to run a total of 76,700 emulated users.

## General Items

---

### **Test Sponsor**

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

Dell 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 application consists of a Remote Terminal Emulator (RTE) program emulating a set of users entering TPC-C transactions through web browsers, and communicating with Client machines running the Microsoft Internet Information Server (IIS) web server. The Client machines use the COM+ transaction monitor to communicate with the database server machine.

On each 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 with the database server through the COM+ transaction monitor. The application supplies fill-in screens to the user for each transaction, then parses the data in each request, and makes a call on the Oracle database Server through the COM+ layer, which manages a set of 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+.

The web Client code is listed in Appendix A.

### **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.*

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

Appendix C contains all the database, Windows 2003 Server, and Internet Information Service parameters used in this benchmark.

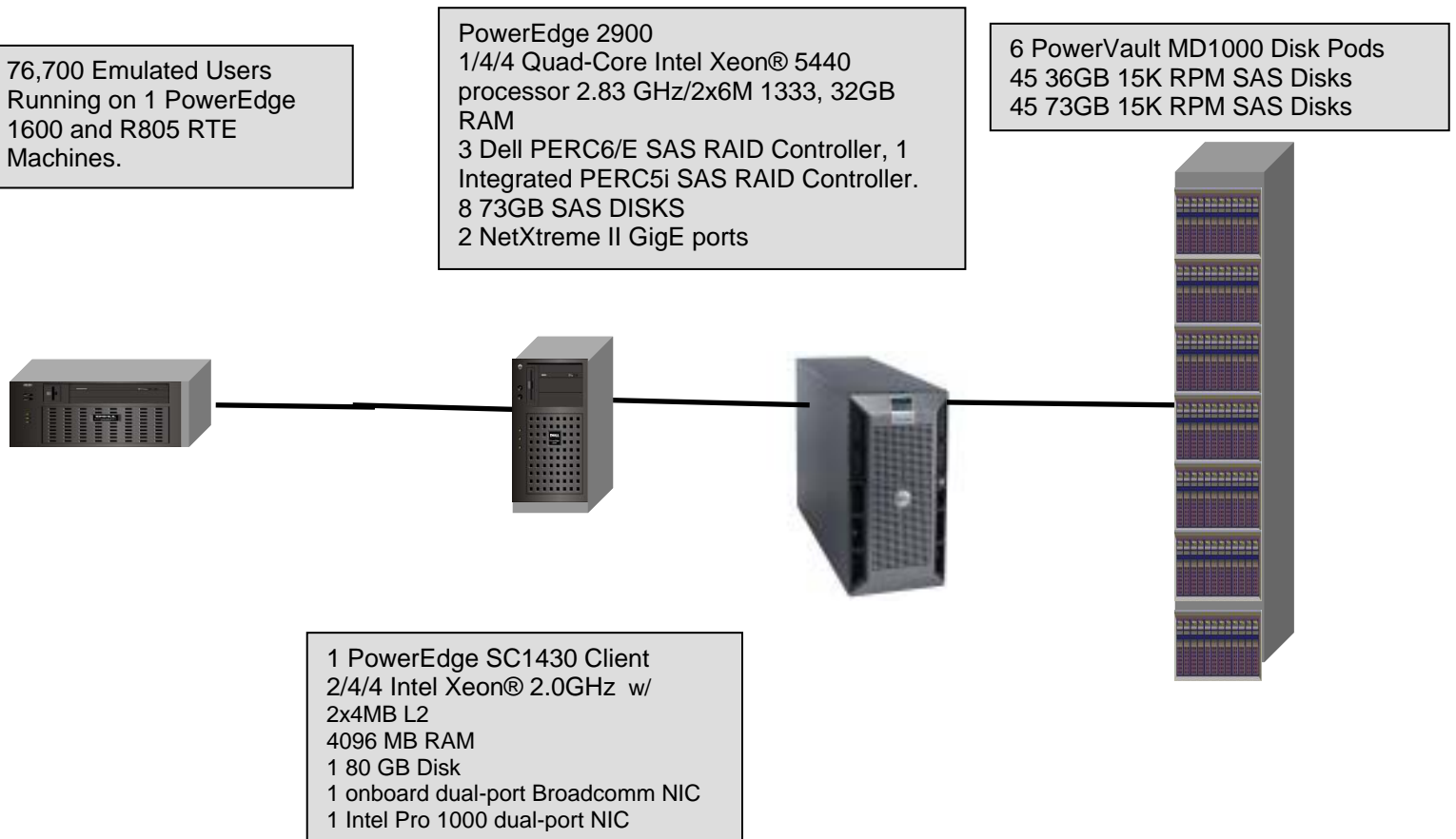
Appendix D contains the 60 day space calculations.

## Configuration Diagrams

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

Figures 1 and 2 respectively show the measured and priced full client/server configurations.

**Figure 1: Measured Configuration**



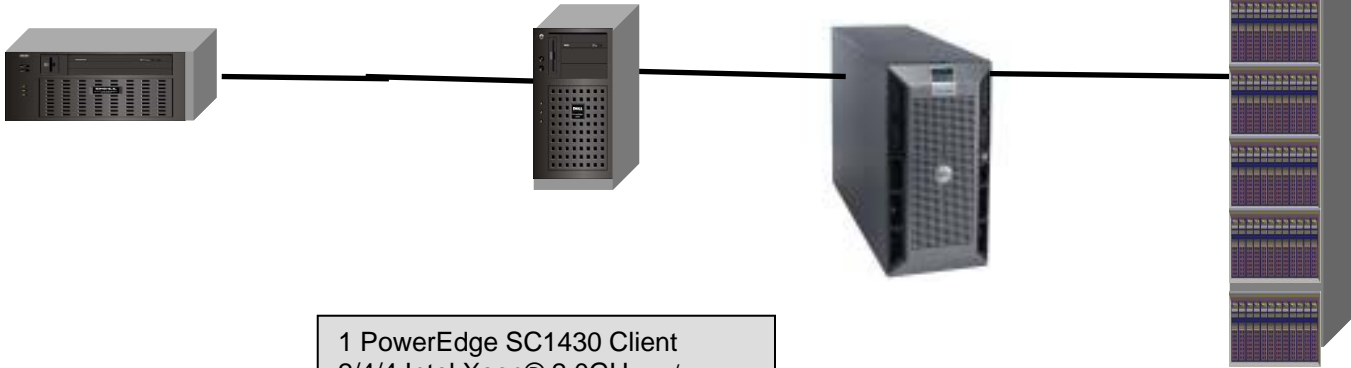


**Figure 2: Priced Configuration**

76,700 Emulated Users  
Running on 1 PowerEdge  
1600 and R805 RTE  
Machines.

PowerEdge 2900  
1/4/4 Quad-Core Intel Xeon® 5440  
processor 2.83 GHz/2x6M 1333, 32GB  
RAM  
3 Dell PERC6/E SAS RAID Controller, 1  
Integrated PERC5i SAS RAID Controller.  
8 73GB SAS DISKS  
2 NetXtreme II GigE ports

6 PowerVault MD1000 Disk Pods  
90 73GB 15K RPM SAS Disks



1 PowerEdge SC1430 Client  
2/4/4 Intel Xeon® 2.0GHz w/  
2x4MB L2  
4096 MB RAM  
1 80 GB Disk  
1 onboard dual-port Broadcom NIC  
1 Intel Pro 1000 dual-port NIC

## Clause 1 -- Logical Database Design Related Items

---

### **Table Definitions**

*Listings must be provided for all table definition statements and all other statements used to set-up the database. (8.1.2.1)*

Appendix B contains the code used to define and load the database tables.

### **Physical Organization of the Database**

*The physical organization of tables and indices, within the database, must be disclosed. (8.1.2.2)*

The measured configuration used 98 disk drives. The organization is shown in Table 5: Data Distribution.

### **Insert and Delete Operations**

*It must be ascertained that insert and/or delete operations to any of the tables can occur concurrently with the TPC-C transaction mix. Furthermore, any restriction in the SUT database implementation that precludes inserts beyond the limits defined in Clause 1.4.11 must be disclosed. This includes the maximum number of rows that can be inserted and the maximum key value for these new rows. (8.1.2.3)*

Insert and delete functionality was fully operational during the benchmark.

### **Horizontal and Vertical Partitioning**

*While there are a few restrictions placed upon horizontal or vertical partitioning of tables and rows in the TPC-C benchmark (see Clause 1.6), any such partitioning must be disclosed. (8.1.2.4)*

Partitioning was not used in this benchmark.

### **Replication**

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

Replication was not used in this benchmark.

### **Table Attributes**

*Additional and/or duplicated attributes in any table must be disclosed along with a statement on the impact on performance (see Clause 1.4.7). (8.1.2.6)*

No additional attributes were used in this benchmark.

## Clause 2 -- Transaction and Terminal Profiles Related Items

---

### **Random Number Generation**

*The method of verification for the random number generation must be described. (8.1.3.1)*

Random numbers were generated using the drand48() and lrand48() UNIX calls. These functions generate pseudo random numbers using the linear congruential algorithm and 48-bit integer arithmetic. The random number generators are initially seeded using the srand48() call.

### **Screen Layout**

*The actual layouts of the terminal input/output screens must be disclosed. (8.1.3.2)*

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. There are some very minor differences based on the fact that this is a web client implementation.

### **Terminal Verification**

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

The terminal features were verified by allowing the auditor to manually execute each of the five transaction types.

### **Intelligent Terminals**

*Any usage of presentation managers or intelligent terminals must be explained. (8.1.3.4)*

**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 involved in the manipulation of data was run on the client. 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.

### **Transaction Profiles**

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

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

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

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

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

*The percentage of Delivery transactions that were skipped as a result of an insufficient number of rows in the NEW-ORDER table must be disclosed. (8.1.3.10)*

---

**Table 1: Transaction Statistics**

---

Transaction	Function	Value
New Order	Home Warehouse Items	99.00%
	Remote Warehouse Items	1.00%
	Rolled Back Transactions	1.00%
	Average Lines Per Order	10.00
Payment	Home Warehouse	85.00%
	Remote Warehouse	15.00%
	Non-Primary Key Access	60.01%
Order Status	Non-Primary Key Access	59.98%
Delivery	Skipped Transactions	0

### **Transaction Mix**

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

**Table 2: Transaction mix**

Transaction	Percentage
New Order	44.92%
Payment	43.01%
Order Status	4.02%
Delivery	4.02%
Stock Level	4.01%

### **Deferred Delivery Mechanism**

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

The application creates a thread pool consisting of a user-specified number of threads, which open 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.

## Clause 3 -- Transaction and System Properties Related Items

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### **ACID Tests**

*The results of the ACID tests must be disclosed along with a description of how the ACID requirements were met. This includes disclosing which case was followed for the execution of Isolation Test 7. (8.1.4.1)*

All ACID property tests were successful. The executions are described below.

### **Atomicity**

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

### **Completed Transactions**

A row was selected in a script from the warehouse, district and customer tables, and the balances noted. A payment transaction was started with the same warehouse, district and customer identifiers and a known amount. The payment transaction was committed and the rows were verified to contain correctly updated balances.

### **Aborted Transactions**

A row was selected in a script from the warehouse, district and customer tables, and the balances noted. A payment transaction was started with the same warehouse, district and customer identifiers and a known amount. The payment transaction was rolled back and the rows were verified to contain the original balances.

### **Consistency**

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

Consistency conditions one through four were tested using a shell script to issue queries to the database. The results of the queries verified that the database was consistent for all four tests. A run was executed under full load lasting over ten (10) minutes and included a checkpoint. The shell script was executed again. The result of the same queries verified that the database remained consistent after the run.

### **Isolation**

*Sufficient conditions must be enabled at either the system or application level to ensure the required isolation defined above (clause 3.4.1) is obtained.*

Isolation tests one through seven were executed using shell scripts to issue queries to the database. Each script included timestamps to demonstrate the concurrency of operations. The results of the queries were captured to files. The captured files were verified by the auditor to demonstrate the required isolation had been met.

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

---

For Isolation test seven, case D was followed.

## **Durability**

*The tested system must guarantee durability: 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.*

### **Durable Media Failure**

Durability from media failure was demonstrated on the 8000 warehouse database. The standard driving mechanism was used to generate the full transaction load of 76700 users for the Loss of Data.

### **Loss of Data/ Loss of Log**

Loss of data was demonstrated on the 8000 warehouse database. The standard driving mechanism was used to generate the transaction load of 76700 users for the test. To demonstrate recovery from a permanent failure of durable media containing TPC-C tables, the following steps were executed:

1. The 8000 warehouse database was used for this test.
2. A partition of a disk was backed up using an Oracle backup facility.
3. A sum of D\_NEXT\_O\_ID was taken.
4. 78000 users were logged in to the database and ran transactions.
5. The system was run at steady state for 30 minutes.
6. The backed up partition was overwritten with garbage.
7. Oracle11g recorded errors about corrupt data on the partition. The database and the RTE were then shut down.
8. The backed up database partition was restored.
9. The database was then started and recovered using the recover command from SQLPLUS. The database was then opened.
10. Consistency was verified.
11. A new count of D\_NEXT\_O\_ID was taken.
12. This number was compared with the number of new orders reported by the RTE. The difference was valid per the spec.
13. Samples were taken from the RTE files and used to query the database to demonstrate successful transactions had corresponding rows in the ORDER table.

### **Instantaneous Interruption and Loss of Memory**

Instantaneous Interruption and Loss of Memory were demonstrated on the database with 8000 warehouses in a single test. The standard driving mechanism was used to generate the transaction load of 76700 users for the test. To demonstrate recovery an instantaneous system interruption caused by powering off the Server, the following steps were executed:

1. The full database was used.
2. A sum of D\_NEXT\_O\_ID was taken.
3. 76700 users were logged in to the database and ran transactions.
4. The system was run is steady state for 30 minutes
5. The Server was powered off by normal means, causing instantaneous interruption. No battery or UPS was providing power for the server.

- 
6. The RTE was allowed to continue running. Completed transactions enroute from the clients were recorded. Error messages began appearing on the RTE screen.
  7. The RTE was stopped.
  8. The server was powered on again and rebooted.
  9. The database was restarted and automatically recovered.
  10. A new count of D\_NEXT\_O\_ID was taken.
  11. Consistency was verified
  12. This number was compared with the number of new orders reported by the RTE. The difference was valid per the spec.
  13. Samples were taken from RTE transaction logs and used to query the database. It was demonstrated that successful transactions had corresponding rows in the ORDERS table.

---

## Clause 4 -- Scaling and Database Population Related Items

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### **Table Cardinality**

The cardinality (e.g., the number of rows) of each table, as it existed at the start of the benchmark run (see Clause 4.2), must be disclosed. If the database was over-scaled and inactive rows of the WAREHOUSE table were deleted (see Clause 4.2.2), the cardinality of the WAREHOUSE table as initially configured and the number of rows deleted must be disclosed. (8.1.5.1)

The database was originally built with 8000 warehouses.

**Table 3: Table Cardinality**

Table	Cardinality as Benchmarked
Warehouse	8000
District	80000
Customer	240000000
History	240000000
NewOrder	72000000
Orders	240000000
OrderLine	2400381448
Item	100000
Stock	800000000
Deleted Warehouses	0

### **Constant Values**

The following values were used as constant value inputs to the NURand function for this benchmark.

**Table 4: Constant Values**

Function	Constant C Value
C_LAST (Build)	1
C_LAST (Run)	100

### **Data Distribution**

The distribution of tables and logs across all media must be explicitly depicted for the tested and priced systems. (8.1.5.2)

The Database was built using a total of 98 disks: 60 36GB and 30 73GB for data, 8 73GB for log and OS and application software. The data drives were configured as hardware RAID 0. Logs and OS were configured as hardware RAID 10. Each Dell Perc6/E was configured with 2 logical drives each. Each logical drive spanned 15 disk drives. The embedded PERC5i RAID Controller 0 was configured with 1 logical drive spanning 8 73GB drives. Each Windows 2003 data drive contained raw partitions for database files and data backups. The details are shown in

Table 5.



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**Table 5: Data Distribution**

Slot	Controller	Disks	Capacity	Usage
0	Dell PERC5i	8x73GB,15K,SAS RAID10	Disk 6 15GB	OS
			279.99GB 260GB	Logs
3	Dell PERC6/E	15x36GB,15K,SAS RAID0	Disk 2 488.92GB	DB data
		15x36GB,15K,SAS RAID0	Disk 3 488.92GB	DB data
4	Dell PERC6/E	15x36GB,15K,SAS RAID0	Disk 4 488.92GB	DB data
		15x36GB,15K,SAS RAID0	Disk 5 488.92GB	DB data
6	Dell PERC6/E	15x73GB,15K,SAS RAID0	Disk 0 1016.23GB	DB data
		15x73GB,15K,SAS RAID0	Disk 1 1016.23GB	DB data

### **Partition Mapping**

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

**Comment:** *The intent is to provide sufficient detail about partitioning and replication to allow independent reconstruction of the test database. (8.1.5.3)*

*An description of a database partitioning scheme is presented below as an example. The nomenclature of this example was outlined using the CUSTOMER table (in Clause 8.1.2.1), and has been extended to use the ORDER and ORDER\_LINE tables as well.*

The database was not replicated.

### **60 day Space Calculation**

*Details of the 60 day space computations along with proof that the database is configured to sustain 8 hours of growth for the dynamic tables (Order, Order-Line, and History) must be disclosed (see Clause 4.2.3). (8.1.5.5)*

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 size of the log groups was determined.
2. The checkpoint interval due to log switches was noted.
3. The final log space usage was calculated based on 1 and 2 above.
4. The log space usage for 8hr was extrapolated from 3 above.

The results of the above steps yielded a requirement 233.33 GB to sustain the log for 8 hours. Space available on the transaction log volume was 234.97 GB , indicating that enough storage was configured to sustain 8 hours of growth.

The same methodology was used to compute growth requirements for dynamic tables Order, Order-Line and History.

The details of the 60-day space requirement is shown in Appendix D.

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

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### **Measured TpmC**

*Measured tpmC must be reported. (8.1.6.1)*

Measured TpmC                      97,083.53  
Price per TpmC                      \$ .68

### **Response Times**

*Ninetieth percentile, maximum and average response times must be reported for all transaction types as well as for the Menu response time. (8.1.6.2)*

**Table 6: Transaction Response Times**

<b>Transaction</b>	<b>Average</b>	<b>90%</b>	<b>Maximum</b>
New Order	0.160	0.200	1.49
Payment	0.140	0.200	1.41
Order Status	0.150	0.300	1.40
Interactive Delivery	0.110	0.120	1.08
Stock Level	0.680	1.000	2.14
Deferred Delivery	0.040	0.064	0.95
Menu	0.110	0.120	1.41

### **Think Times & Key Times**

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

**Table 7: Transaction Key Times**

<b>Transaction</b>	<b>Minimum</b>	<b>Average</b>	<b>Maximum</b>
New Order	18.00	18.01	18.03
Payment	3.00	3.00	3.03
Order Status	2.00	2.00	2.03
Delivery	2.00	2.00	2.03
Stock Level	2.00	2.00	2.03

**Table 8: Transaction Think Times**

Transaction	Minimum	Average	Maximum
New Order	0.00	12.03	120.32
Payment	0.00	12.03	120.32
Order Status	0.00	10.03	100.32
Delivery	0.00	5.03	50.31
Stock Level	0.00	5.04	50.31

*Response Time Distribution Curves*

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

**Figure 3: New Order Response Time Distribution**

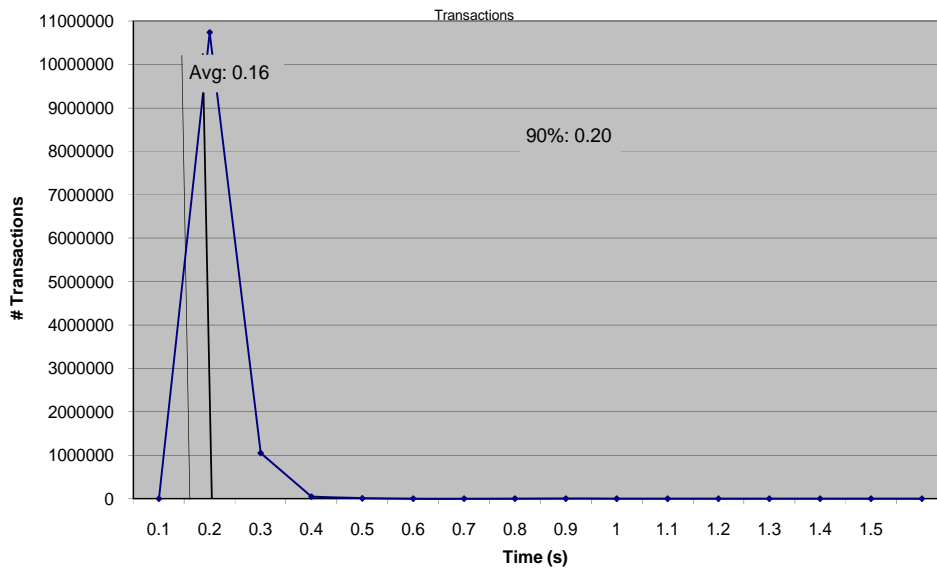


Figure 4: Payment Response Time Distribution

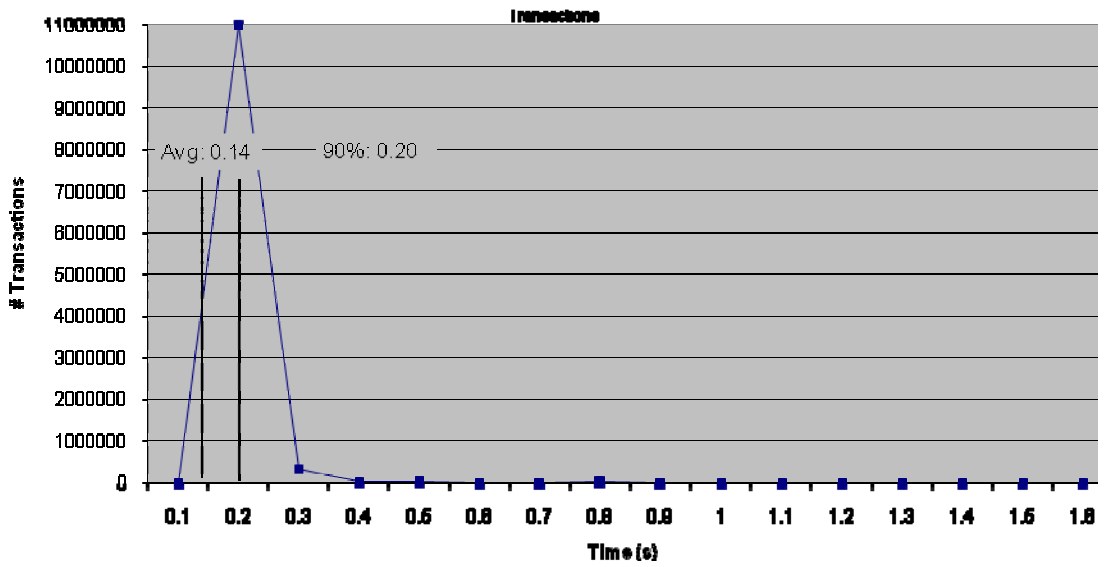


Figure 5: Order Status Response Time Distribution

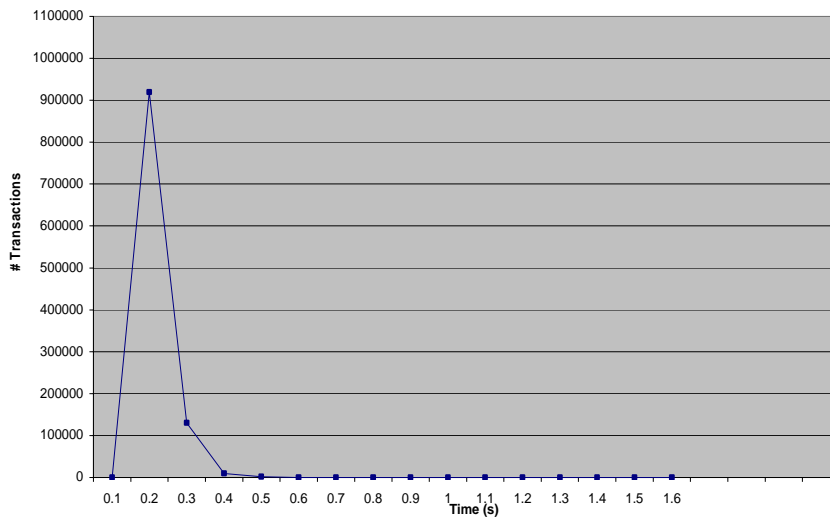


Figure 6: Delivery Response Time Distribution

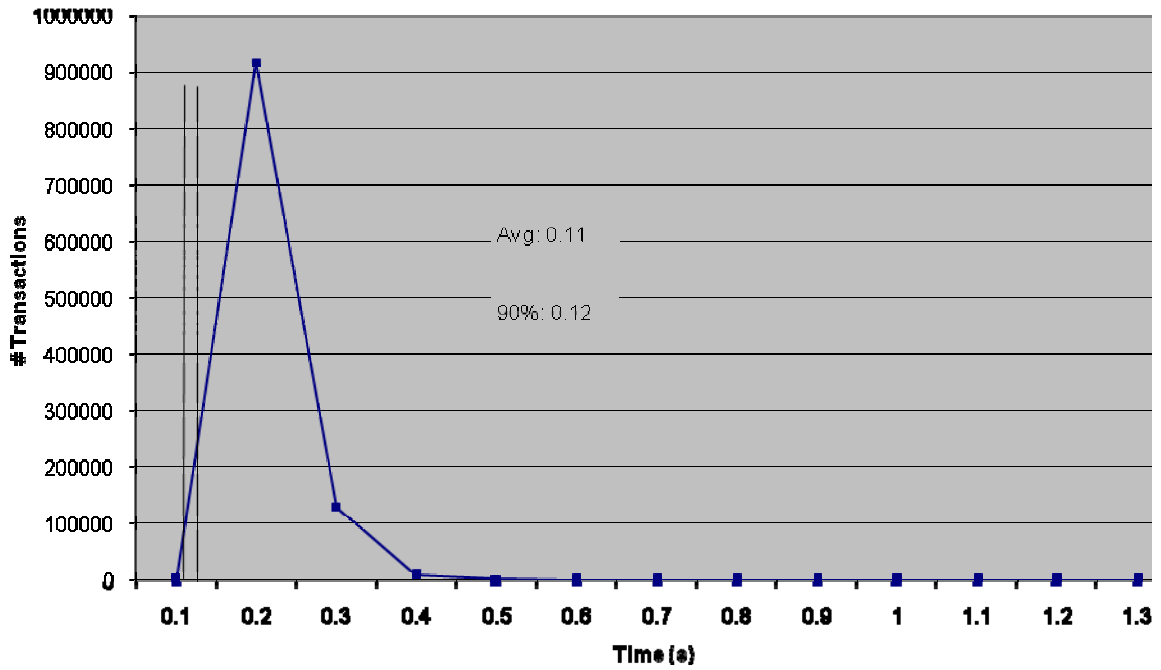
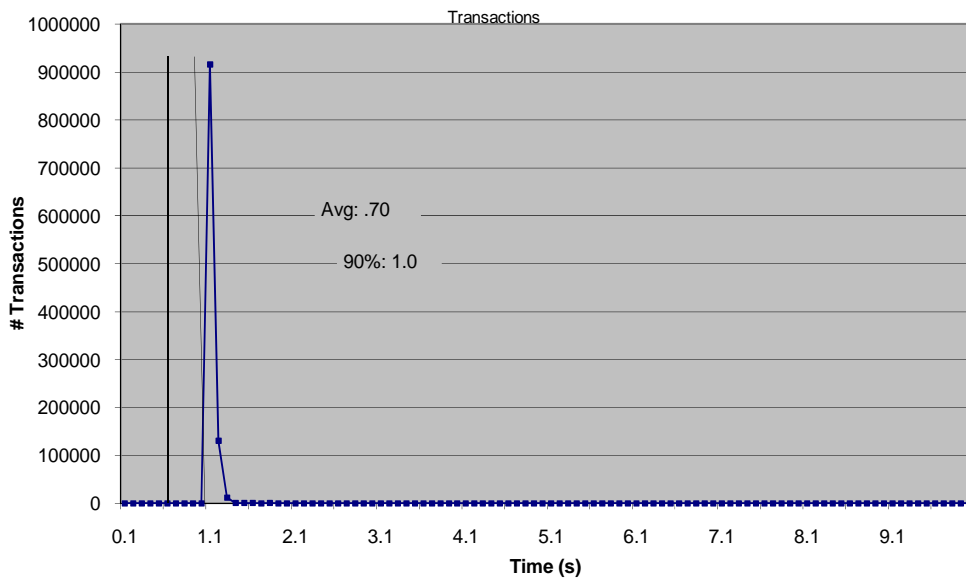


Figure 7: Stock Level Response Time Distribution

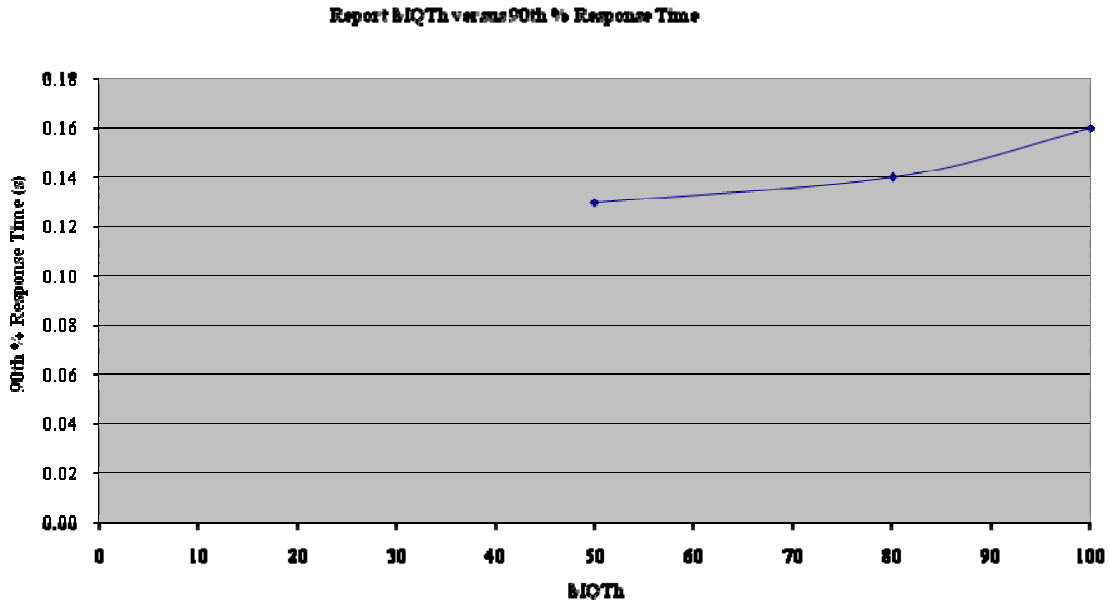


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### New-Order Response Time vs. Throughput Graph

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

Figure 8: New Order Response Time vs. Throughput

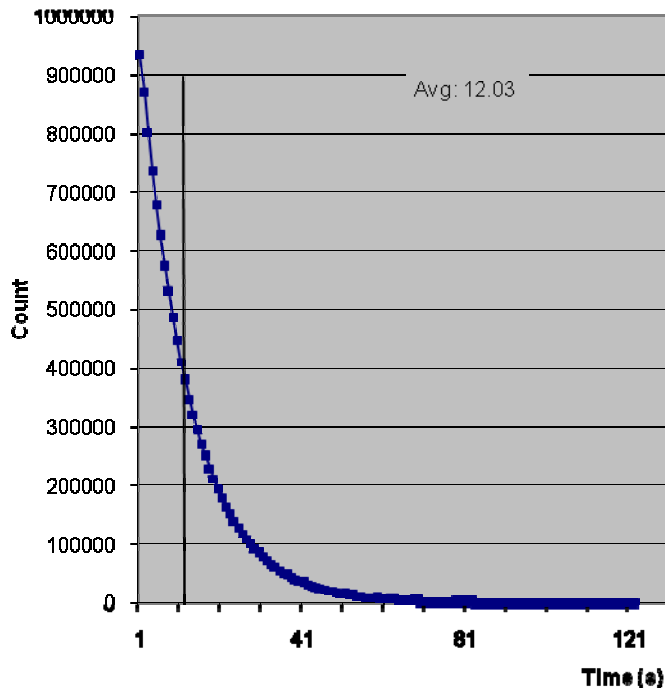


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**New-Order Think Time Distribution Graph**

Think Time frequency distribution curves (see Clause 5.6.3) must be reported for the New-Order transaction (8.1.6.6)

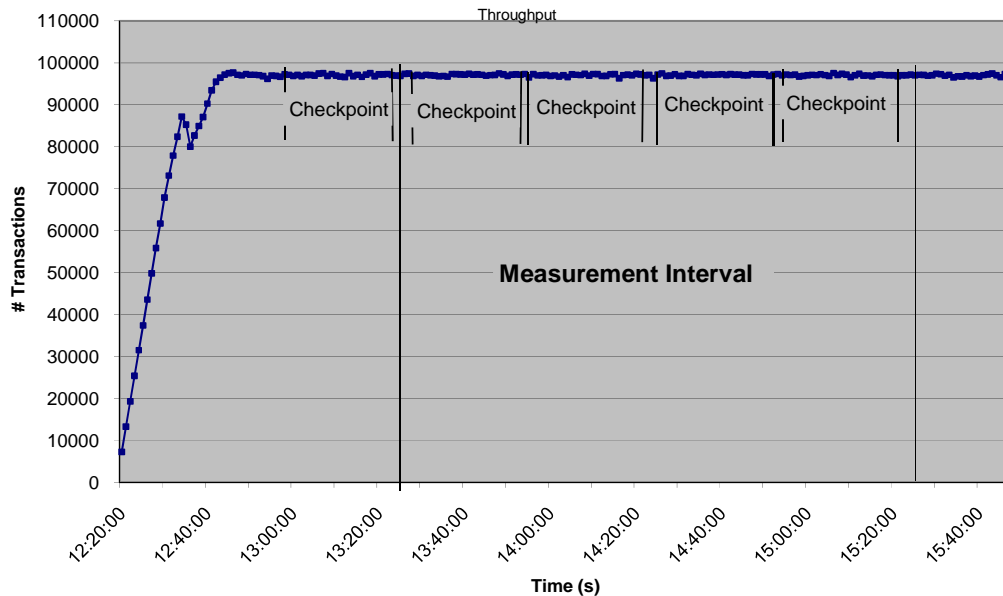
**Figure 9: New Order Think Time Distribution**



**Steady-State Graph**

A graph of throughput versus elapsed time (see Clause 5.6.5) must be reported for the New-Order transaction. (8.1.6.8)

**Figure 10: New Order Throughput vs. Time**



### **Steady-State Methodology**

*The method used to determine that the SUT had reached a steady state prior to commencing the measurement interval (see Clause 5.5) must be described. (8.1.6.9)*

Steady state was determined using real time monitor utilities from both the operating system and the RTE. Steady state was further confirmed by the throughput data collected during the run and graphed in Figure 10.

### **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. (8.1.6.10)*

The RTE generated the required input data to choose a transaction from the menu. This data was timestamped. The menu response 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 starting at selecting another transaction from the menu.

The RTE transmissions were sent to the web-based application program running on the client machine through Ethernet LANs. The web client managed the emulated web browser interface as well as all requests to the database on the server. The applications communicated with the database server over another Ethernet LAN using the COM+ transaction monitor.



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### **Measurement Interval**

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

The measurement interval was 7200 minutes.

### **Measurement Period Duration and Checkpoint Duration**

*The start time and duration in seconds of at least the four (4) longest checkpoints during the measurement interval must be disclosed (see clause 5.5.2.2(2) ) (8.1.6.11)*

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

	<b>Start</b>	<b>End</b>	<b>Duration</b>
Measurement Interval	13:24:57	15:24:54	7,200
1 <sup>st</sup> Checkpoint	13:25:44	13:52:02	1578
2 <sup>nd</sup> Checkpoint	13:54:52	14:21:16	1582
3 <sup>rd</sup> Checkpoint	14:24:05	14:50:00	1555
4 <sup>th</sup> Checkpoint	14:52:58	15:18:52	1554

### **Transaction Mix**

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

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

*The percentage of the total mix for each transaction type must be disclosed. (8.1.6.14)*

**Table 9: Transaction Mix**

<b>Transaction</b>	<b>Percentage</b>
New Order	44.92%
Payment	43.00%
Delivery	4.02%
Stock Level	4.01%
Order Status	4.02%

### **Other Metrics**

*The percentage of New-Order transactions rolled back as a result of invalid item number must be disclosed. (8.1.6.15)*

*The average number of order-lines entered per New-Order transaction must be disclosed. (8.1.6.16)*

*The percentage of remote order-lines entered per New-Order transaction must be disclosed. (8.1.6.17)*

*The percentage of remote Payment transactions must be disclosed. (8.1.6.18)*

*The percentage of customer selections by customer last name in the Payment and Order-Status transactions must be disclosed. (8.1.6.19)*

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*The percentage of Delivery transactions skipped due to there being fewer than necessary orders in the New-Order table must be disclosed. (8.1.6.20)*

**Table 10: Transaction Statistics**

<b>Transaction</b>	<b>Function</b>	<b>Value</b>
New Order	Home Warehouse Items	99.00%
	Remote Warehouse Items	1.00%
	Rolled Back Transactions	1.00%
	Average Lines Per Order	10.00
Payment	Home Warehouse	85.00%
	Remote Warehouse	15.00%
	Non-Primary Key Access	60.01%
Order Status	Non-Primary Key Access	59.98%
Delivery	Skipped Transactions	0

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## Clause 6 -- SUT, Driver, and Communication Definition Related Items

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### **RTE Parameters**

*The RTE input parameters, code fragments, functions, etc. used to generate each transaction input field must be disclosed. (8.1.7.1)*

**Comment:** *The intent is to demonstrate the RTE was configured to generate transaction input data as specified in Clause 2.*

The RTE input parameters are listed in Appendix C - Tunable Parameters.

### **Emulated Components**

*It must be demonstrated that the functionality and performance of the components being emulated in the Driver System are equivalent to that of the priced system. The results of the test described in Clause 6.6.3.4 must be disclosed. (8.1.7.2)*

No components were emulated.

### **Benchmarked and Targeted System Configuration Diagrams**

*A complete functional diagram of both the benchmark configuration and the configuration of the proposed (target) system must be disclosed. A detailed list of all software and hardware functionality being performed on the Driver System, and its interface to the SUT must be disclosed (see Clause 6.6.3.6). (8.1.7.3)*

The driver system performed transaction data generation and communication to the client through the standard web browser (HTTP) protocol. It also captured and timestamped the SUT output data for post-processing of the reported metrics. No other functionality was included on the driver system.

Figures 1 & 2 of this report contain detailed diagrams of both the benchmark configuration and the priced configuration.

### **Network Configuration**

*The network configurations of both the tested services and the proposed (target) services which are being represented and a thorough explanation of exactly which parts of the proposed configuration are being replaced with the Driver System must be disclosed (see Clause 6.6.4). (8.1.7.4)*

The network configurations of the benchmarked and priced configurations were identical.

### **Network Bandwidth**

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

The bandwidth of the tested and priced networks were as follows:

- 1000 BaseT (1000 Mbit/sec) network segments between the RTE/Emulated Users and the Client.
- 1000 BaseT (1000 Mbit/sec) between the Clients and Server.

---

**Operator Intervention**

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

This configuration does not require any operator intervention to sustain eight hours of the reported throughput.

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## Clause 7 -- Pricing Related Items

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### **Hardware and Software List**

*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 date. If package-pricing is used, vendor part number of the package and a description uniquely identifying each of the components of the package must be disclosed.*

*Pricing source(s) and effective date(s) of price(s) must also be reported. (8.1.8.1)*

*The total 5-year price of the entire configuration must be reported, including: hardware, software, and maintenance charges. Separate component pricing is recommended. The basis of all discounts used must be disclosed. (8.1.8.2)*

The details of the hardware and software are reported in the front of this report as part of the executive summary. All third party quotations are included at the end of this report as Appendix E.

### **Availability Date**

*The committed delivery date for general availability (availability date) of products used in the price calculations must be reported. When the priced system includes products with different availability dates, the reported availability date for the priced system must be the date at which all components are committed to be available. (8.1.8.3)*

Hardware Availability Date: June 16, 2008  
Software Availability Date: June 16, 2008

### **Measured TpmC**

*A statement of the measured tpmC, as well as the respective calculations for 5-year pricing, price/performance (price/tpmC), and the availability date must be included. (8.1.8.4)*

Maximum Qualified Throughput: 97,083 tpmC  
Price Performance Metric: \$.68

### **Country Specific Pricing**

*Additional Clause 7 related items may be included in the Full Disclosure Report for each country specific priced configuration. Country specific pricing is subject to Clause 7.1.7. (8.1.8.5)*

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

### **Usage Pricing**

*For any usage pricing, the sponsor must disclose (8.1.8.6):*

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

**Comment:** *Usage pricing may include, but is not limited to, the operating system and database management software.*

The component pricing based on usage is shown below:

- 
- 1 Microsoft Windows Server 2003, Standard x64 Edition License.
  - 1 Oracle Database 11g Standard Edition
  - 1 Microsoft Visual C++ Standard Edition.
  - 3 Year Support for Hardware Components.

### **System Pricing**

*System pricing should include subtotals for the following components: Server Hardware, Server Software, Client Hardware, Client Software, and Network Components used for terminal connection (see Clause 7.2.2.3). Clause 6.1 describes the Server and Client components. An example of the standard pricing sheet is shown in Appendix B. (8.1.8.7)*

*System pricing must include line item indication where non-sponsoring companies' brands are used. System pricing must also include line item indication of third party pricing. See example in Appendix B. (8.1.8.8)*

The details of the hardware and software are reported in the front of this report as part of the executive summary. All third party quotations are included at the end of this report as Appendix E.

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## Clause 9 -- Audit Related Items

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### **Auditor**

*The auditor's name, address, phone number, and a copy of the auditor's attestation letter indicating compliance must be included in the Full Disclosure Report. (8.1.9.1)*

*A review of the pricing model is required to ensure that all components required are priced (see Clause 9.2.8). The auditor is not required to review the final Full Disclosure Report or the final pricing prior to issuing the attestations letter. (8.1.9.2)*

This TPC-C benchmark has been audited by Lorna Livingtree of Performance Metrics.

### **Availability of the Full Disclosure Report**

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

Requests for this TPC Benchmark C Full Disclosure Report should be sent to:

Transaction Processing Performance Council  
c/o Administrator, TPC  
Presidio of San Francisco  
Bldg 572B Ruger St.  
San Francisco, CA 94129-0920  
Phone: (415) 561-6272, Fax (415)561-6120  
[www.tpc.org](http://www.tpc.org)

or:

One Dell Way  
Round Rock, TX 78682  
Attention: Mike Molloy, Ph.D.



June 16, 2008

Mr. Nicholas Wakou  
Dell Computer Corporation  
One Dell Way  
Round Rock, TX 78682

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

Platform: Dell PowerEdge 2900  
Database Manager: Oracle Database 11g  
Operating System: Microsoft Windows Server 2003 Enterprise x64 Edition  
Transaction Monitor: COM+

System Under Test: Dell PowerEdge 2900 with:				
CPU's	Memory	Disks (total)	90% Response	TpmC
1 quad core Intel @ 2.83 Ghz	Main: 32 GB	60 @36GB 38 @ 73GB	0.20	97,083

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 8,000 warehouses, 7,670 of which were active during the measured interval.
- \* The ACID properties were successfully demonstrated.
- \* Data loss durability was demonstrated on a subset of the SUT configured with a database properly populated for 3,850 warehouses.
- \* Input data was generated according to the specified percentages.
- \* Eight hours of mirrored log space 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.
- \* One checkpoint was taken in steady state before the measured interval opened.
- \* Four checkpoints were completed inside the measured interval.
- \* The system pricing was checked for major components and maintenance.
- \* Third party quotes were verified for compliance.



---

Auditor Notes:

The tested configuration had 60 disk drives @ 36GB and 38 disk drives @ 73GB. Because the 36GB drives are no longer orderable, the 73GB drives were priced. This substitution is compliant with the substitution requirements.

Sincerely,

A handwritten signature in cursive script that reads "Lorna Livingtree".

Lorna Livingtree  
Auditor



## Appendix A - Application Source Code

### modtpcc.cpp

```
// modtpcc.cpp : Defines the entry point for the DLL application.
//

#include "stdafx.h"
#include "modtpcc.h"
#include <httpext.h>

#ifdef DEBUG
#define DELIVERY_MUTEX
#define NEW_ALLOCATE_FORM
#endif

BOOL APIENTRY DllMain( HANDLE hModule,
                     DWORD ul_reason_for_call,
                     LPVOID lpReserved
                     )
{
    char string[MAXLEN];

    if (ul_reason_for_call == DLL_PROCESS_ATTACH) {
        int i;
        GetModuleFileName((HMODULE)hModule,
            DllPath, MAXLEN-1);

        strcpy(origin, DllPath);
        if (DllPath[0]!='\ ' && DllPath[1]!='\ ' &&
            DllPath[2]!='?' && DllPath[3]!='\ ')
            strcpy(DllPath, DllPath+4);
        for (i=strlen(DllPath); DllPath[i]!='\ ' && i--);
        DllPath[i]='\0';
        sprintf(InitFile, "%s\\%s", DllPath, InitName);
        sprintf(DllFile, "%s\\%s", DllPath, DllName);
        sprintf(LogFile, "%s\\%s", DllPath, LogName);

        OCIInitialize(OCI_THREADED|OCI_OBJECT,(dvoid *)0,0,0,0);

        //          sprintf(LogFile,
        "d:\\%s", LogName);

        /* load DBConnection.dll */

        if ((dllinstance = LoadLibrary(DllFile)) == NULL)
            return FALSE;

        if ((mod_tpcc_neworder=(int
            (FAR*)(T_neworder_data *) GetProcAddress((HMODULE)dllinstance,
            "mod_tpcc_neworder"))==NULL)
            return FALSE;

        if ((mod_tpcc_payment=(int
            (FAR*)(T_payment_data *) GetProcAddress((HMODULE)dllinstance,
            "mod_tpcc_payment"))==NULL)
            return FALSE;

        if ((mod_tpcc_delivery=(int
            (FAR*)(T_delivery_data *, int) GetProcAddress((HMODULE)dllinstance,
            "mod_tpcc_delivery"))==NULL)
            return FALSE;

        if ((mod_tpcc_orderstatus=(int
            (FAR*)(T_orderstatus_data *) GetProcAddress((HMODULE)dllinstance,
            "mod_tpcc_orderstatus"))==NULL)
            return FALSE;

        if ((mod_tpcc_stocklevel=(int
            (FAR*)(T_stocklevel_data *) GetProcAddress((HMODULE)dllinstance,
            "mod_tpcc_stocklevel"))==NULL)
            return FALSE;

        if ((userlog=(void (FAR*)(char * str, ...))
            GetProcAddress((HMODULE)dllinstance, "userlog"))==NULL)
            return FALSE;

        if ((initDelLog=(void (FAR*)(int)
            GetProcAddress((HMODULE)dllinstance, "initDelLog"))==NULL)
            return FALSE;

        if ((endDelLog=(void (FAR*)(int)
            GetProcAddress((HMODULE)dllinstance, "endDelLog"))==NULL)
            return FALSE;
    }
}
```

```

DllPath);
        userlog("load modtpcc.dll, DllPath: %s\n",

        if ((TlsPointer = TlsAlloc()) == 0xFFFFFFFF) {
            userlog("Error during TlsAlloc\n");
            return FALSE;
        }
        InitializeCriticalSection(&critical_initDelQueue);
        InitializeCriticalSection(&critical_memory);

        InitializeCriticalSection(&critical_DelQueue_free);

        InitializeCriticalSection(&critical_DelQueue_work);

        /* read ini parameters */
        readInit(string, "DBConnections",
            Default_DBConnections);
        DBConnections = atoi(string);
        userlog("number of DBConnections is %d\n",
            DBConnections);

#ifdef NEW_ALLOCATE_FORM
        readInit(string, "StartTerm",
            Default_StartTerm);
        userlog("number of Start Term is %s\n", string);
        /* StartTerm starts from 1 */
        if ((StartTerm = atoi(string) ) < 0) {
            userlog("error: Start Term is
            %d\n", StartTerm);
            return FALSE;
        }
        /* w_id starts from 1, d_id starts from 1 */
        StartTerm+=10;
#endif

        readInit(string, "KMaxterms",
            Default_Maxterms);
        userlog("number of Max Terms is %s000\n",
            string);
        /* add one more form for special characters */
        if ((Maxterms = atoi(string) * 1000 + 1) <= 1) {
            userlog("number of Max Terms is
            %d\n", Maxterms - 1);
            return FALSE;
        }
        readInit(string, "DeliveryQueues",
            Default_DeliveryQueues);
        userlog("number of Delivery Queues is %s\n",
            string);
        if ((DeliveryQueues = atoi(string)) <= 0) {
            userlog("number of Delivery
            Queues is %d\n", DeliveryQueues);
            return FALSE;
        }
        readInit(string, "DeliveryThreads",
            Default_DeliveryThreads);
        userlog("number of Delivery Threads is %s\n",
            string);
        if ((DeliveryThreads = atoi(string)) <= 0) {
            userlog("number of Delivery
            Threads is %d\n", DeliveryThreads);
            return FALSE;
        }
        initDelLog(DeliveryThreads);

        modtpcc_ready=1;
    }
    else if (ul_reason_for_call == DLL_PROCESS_DETACH) {
        endDelLog(DeliveryThreads);

        if ((TlsFree(TlsPointer)) == NULL) {
            userlog("Error during TlsFree\n");
            return FALSE;
        }
        if (!deleteDelQueue())
        {
            userlog("Error during
            deleteDelQueue\n");
            return FALSE;
        }
        DeleteCriticalSection(&critical_initDelQueue);
        DeleteCriticalSection(&critical_memory);

        DeleteCriticalSection(&critical_DelQueue_free);

        DeleteCriticalSection(&critical_DelQueue_work);
    }
}

```

## APPENDIX A - APPLICATION SOURCE CODE

```

DeleteCriticalSection(&(resp_global_pool.form_template_spinlock));
DeleteCriticalSection(&(txn_data_pool.form_template_spinlock));

int i_type, i_pool;
#define GPOOL txn_global_pool[i_type][i_pool]
for (i_type = 0; i_type <
POOL_TYPE_TXN_MAX; i_type++)
for (i_pool = 0; i_pool <
TXN_TYPE_MAX; i_pool++)

DeleteCriticalSection(&(GPOOL.form_template_spinlock));
#undef GPOOL
}

return TRUE;
}

BOOL WINAPI GetExtensionVersion(HSE_VERSION_INFO *pVer)
{
pVer->dwExtensionVersion = HSE_VERSION;
strncpy(pVer->lpszExtensionDesc,
"IIS ISAPI Extension", HSE_MAX_EXT_DLL_NAME_LEN);
return TRUE;
}

DWORD WINAPI HttpExtensionProc(EXTENSION_CONTROL_BLOCK
*pECB)
{
if (!modtpcc_ready)
return FALSE;

if (!memory_ready) {
EnterCriticalSection(&critical_memory);
if (!memory_ready) {
allocateMemoryPool();
memory_ready=1;
}
LeaveCriticalSection(&critical_memory);
}

if (!queue_ready) {
EnterCriticalSection(&critical_initDelQueue);
if (!queue_ready) {
if (!initDelQueue()) {
userlog("init
Delivery Queue failed\n");
LeaveCriticalSection(&critical_initDelQueue);
return FALSE;
}
queue_ready=1;
}
LeaveCriticalSection(&critical_initDelQueue);
}

return process_query(pECB)==TRUE ?
HSE_STATUS_SUCCESS_AND_KEEP_CONN :
HSE_STATUS_ERROR;
/*

HSE_SEND_HEADER_EX_INFO info = { 0 };

char szOut[256];
DWORD nOut;

nOut = sprintf(szOut, "%s is the input, LogFile:%s, DIPath:%s,
DIFile:%s, origin:%s, ORACLE_HOME: %s", pECB-
>lpszQueryString, LogFile, DIPath, DIFile, origin,
getenv("ORACLE_HOME"));

char szHeader[256];
DWORD nHeader = sprintf(szHeader, "Content-Type: text/html\n\n"
"Content-Length: %d\r\n\r\n", nOut);

info.pszStatus = "200 OK";
info.cchStatus = strlen(info.pszStatus);
info.pszHeader = szHeader;
info.cchHeader = nHeader;
info.fKeepConn = false;

if (!pECB->ServerSupportFunction(pECB->ConnID,
HSE_REQ_SEND_RESPONSE_HEADER_EX, &info, 0, 0)

```

```

return HSE_STATUS_ERROR;

if (!pECB->WriteClient(pECB->ConnID, szOut, &nOut, HSE_IO_SYNC))
return HSE_STATUS_ERROR;

return HSE_STATUS_SUCCESS;
*/
}

/*****
* initialize / delete Delivery Queue
*****/

int deleteDelQueue()
{
DelQueue_info *ptr = DelQueue_begin, *next;

DeliveryThreadstop = 1;

for (int i=0; i<DeliveryThreads; i++) {
if (!SetEvent(waitDelWork)) {
userlog("Error on
SetEvent(waitDelWork) on deleteDelQueue\n");
}

if (WaitForSingleObject(DelThreadRunning,
100000) != WAIT_OBJECT_0) {
userlog("Delivery Thread is not
loaded after 100 seconds\n");
}

if (waitAvailableDelQueue != 0) {
if (!CloseHandle(waitAvailableDelQueue))
userlog("error on
CloseHandle(waitAvailableDelQueue)\n");
waitAvailableDelQueue = 0;
}

if (waitDelWork != 0) {
if (!CloseHandle(waitDelWork))
userlog("error on
CloseHandle(waitDelWork)\n");
waitDelWork = 0;
}

if (DelThreadRunning != 0) {
if (!CloseHandle(DelThreadRunning))
userlog("error on
CloseHandle(DelThreadRunning)\n");
DelThreadRunning = 0;
}

while (ptr != NULL) {
next=ptr->Next;
}

#ifdef DELIVERY_MUTEX
CloseHandle(ptr->queue_lock);
#endif

free(ptr->pdata);
free(ptr);
ptr=next;
}

ptr = DelQueue_free;
while (ptr != NULL) {
next=ptr->Next;
}

#ifdef DELIVERY_MUTEX
CloseHandle(ptr->queue_lock);
#endif

free(ptr->pdata);
free(ptr);
ptr=next;
}

return TRUE;
}

int initDelQueue()
{
int i;

```

## APPENDIX A - APPLICATION SOURCE CODE

```

DelQueue_info *ptr, *curr;

userlog("execute initDelQueue\n");

for (i=0; i<DeliveryQueues; i++) {
    if ((ptr = (DelQueue_info *)
malloc(sizeof(DelQueue_info))) == NULL) {
        userlog("malloc error in
initDelQueue\n");
        return FALSE;
    }
    ptr->pdata=(T_delivery_data
*)malloc(sizeof(T_delivery_data));
#ifdef DELIVERY_MUTEX
    if ((ptr->queue_lock=CreateMutex(NULL,
FALSE, NULL))==NULL) {
        userlog("Cannot create mutex on
queue lock\n");
        return FALSE;
    }
#endif
    if (!i)
        DelQueue_free=curr=ptr;
    else {
        curr->Next = ptr;
        curr = ptr;
    }

    DelQueue_begin = DelQueue_end = curr->Next = NULL;

    if ((waitAvailableDelQueue = CreateEvent(NULL, FALSE,
FALSE, "Wait Empty Delivery Queue")) == NULL) {
        userlog("Cannot create event :
waitAvailableDelQueue\n");
        return FALSE;
    }

    if ((waitDelWork = CreateEvent(NULL, FALSE, FALSE,
"Wait Delivery Work")) == NULL) {
        userlog("Cannot create event :
waitDelWork\n");
        return FALSE;
    }

    if ((DelThreadRunning = CreateEvent(NULL, FALSE,
FALSE, "Delivery Thread Running")) == NULL) {
        userlog("Cannot create event :
DelThreadRunning\n");
        return FALSE;
    }

    for (i=0; i < DeliveryThreads; i++) {
        if (_beginthread(initDeliveryThread, 0, (void *)
&i) == -1) {
            userlog("Error on
initDeliveryThread %d\n", i);
            return FALSE;
        }
        /* wait for 100 seconds */
        if (WaitForSingleObject(DelThreadRunning,
100000) != WAIT_OBJECT_0) {
            userlog("Delivery Thread (%d)
hasn't initialized after 100 seconds\n", i);
            return FALSE;
        }
        userlog("receive Delivery Thread %d
confirmation\n", i);
    }
    return TRUE;
}

void initDeliveryThread(void *thread_no)
{
    int thread_number=(int *)thread_no;
    DelQueue_info *queue_info;

    if (!SetEvent(DelThreadRunning))
        userlog("SetEvent Error on
initDeliveryThread(%d)\n", thread_number);
    else {
        userlog("Delivery Thread %d is created\n",
thread_number);

        while (!DeliveryThreadstop) {
            queue_info = NULL;
            while (!DeliveryThreadstop &&
queue_info == NULL) {
                queue_info=DequeueDel();
                if (queue_info ==
NULL) {
                    if (queue_info ==
(WaitForSingleObject(waitDelWork, INFINITE) != WAIT_OBJECT_0) {
                        userlog("Error on WaitForSingleObject(waitDelQueueWork)
in initDeliveryThread\n");
                        endDeliveryThread(thread_number);
                        return;
                    }
                }
            }
            if (!DeliveryThreadstop) {
                (void)mod_tpcc_delivery(queue_info->pdata,
thread_number);
                addFreeDelQueue(queue_info);
            }
            endDeliveryThread(thread_number);
        }

        void endDeliveryThread(int thread_number)
        {
            if (!SetEvent(DelThreadRunning)) {
                userlog("SetEvent Error on
endDeliveryThread(%d)\n", thread_number);
            }
            _endthread();
        }

        /******
        * Delivery Queue dequeue/enqueue
        * *****/

        DelQueue_info *DequeueDel()
        {
            DelQueue_info *ptr;

            if (DelQueue_begin == NULL) return NULL;

            EnterCriticalSection(&critical_DelQueue_work);

            if (DelQueue_begin == NULL) {
                LeaveCriticalSection(&critical_DelQueue_work);
                return NULL;
            }

            if (DelQueue_begin == DelQueue_end) {
                ptr = DelQueue_begin;
                DelQueue_begin = DelQueue_end = NULL;
            }
            else {
                ptr = DelQueue_begin;
                DelQueue_begin = DelQueue_begin->Next;
            }

            LeaveCriticalSection(&critical_DelQueue_work);

            return ptr;
        }

        void EnqueueDel(DelQueue_info *queue_info)
        {
            EnterCriticalSection(&critical_DelQueue_work);
            if (DelQueue_begin == NULL)
                DelQueue_begin=DelQueue_end=queue_info;

```

## APPENDIX A - APPLICATION SOURCE CODE

```

        else {
            DelQueue_end->Next = queue_info;
            queue_info->Next = NULL;
            DelQueue_end = queue_info;
        }
    }
    LeaveCriticalSection(&critical_DelQueue_work);
}

void addFreeDelQueue(DelQueue_info *ptr)
{
    EnterCriticalSection(&critical_DelQueue_free);

    if (DelQueue_free==NULL) {
        DelQueue_free = ptr;
        ptr->Next = NULL;
    }
    else {
        ptr->Next = DelQueue_free;
        DelQueue_free = ptr;
    }
}
#ifdef DEBUG
useddel--;
if (useddel != 0 && useddel % 300 == 0)
    userlog("free a del queue: current: %d\n",
useddel);
#endif
LeaveCriticalSection(&critical_DelQueue_free);
if (!SetEvent(waitAvailableDelQueue))
    userlog("SetEvent Error on
addFreeDelQueue\n");
}

DelQueue_info *findFreeDelQueue()
{
    DelQueue_info *ptr=NULL;

    EnterCriticalSection(&critical_DelQueue_free);

    while (ptr==NULL) {
        if (DelQueue_free==NULL) {

            LeaveCriticalSection(&critical_DelQueue_free);
            if
            (WaitForSingleObject(waitAvailableDelQueue, INFINITE) !=
            WAIT_OBJECT_0) {

                userlog("WaitForSingleObject(waitAvailableDelQueue) in
            findFreeDelQueue\n");
            }
            userlog("Delivery queue is full,
            sleep for 10 seconds\n");
            #ifdef DEBUG
                userlog("used del queue: %d\n",
            useddel);
            #endif

            /* sleep for 10 seconds */
            Sleep(10000);

            EnterCriticalSection(&critical_DelQueue_free);
        }
        else {
            ptr = DelQueue_free;
            DelQueue_free =

            DelQueue_free->Next;
            #ifdef DEBUG
                useddel++;
                if (useddel % 300 == 0)
                    userlog("allocate a
            del queue current used: %d\n", useddel);
            #endif
        }
    }

    LeaveCriticalSection(&critical_DelQueue_free);

    return ptr;
}

/*****
* process query
*****/
int process_query(EXTENSION CONTROL BLOCK *pECB)
{
    int w_id, ld_id, form;
    char *ptr, *cmd;

    form = w_id = ld_id = 0;

    /*
    This process the request_rec http:server/tpcc
    */

    if (strlen(pECB->lpszQueryString) == 0)
        return sendform_welcome(pECB, "Welcome!");

    if (getcharvalue(pECB->lpszQueryString, '3', &ptr) {
        form = *ptr++;
        if (get_wid_did(ptr, &w_id, &ld_id, &ptr) == FALSE) {
            return
            send_error_message(pECB, 0, INVALID_TERMID, "", w_id, ld_id, 0);
        }
        else {
            form = '\0';
        }

        if (getcharvalue(ptr, '0', &cmd) == FALSE)
            return send_error_message(pECB, 0, COMMAND_UNDEFINED, "",
            w_id, ld_id, 0);

        if ((form == '\0') && !(CMD_BEGIN(cmd)))
            return send_error_message(pECB, 0,
            INVALID_FORM_AND_CMD_NOT_BEGIN, "", w_id, ld_id, 0);

        if (CMD_PROCESS(cmd)) { /* cmd = Process */

            if (form == 'N') {
                /* New Order transaction */
                return mod_neworder_query(pECB, w_id, ld_id, ptr);
            }
            else if (form == 'P') {
                /* Payment order transaction */
                return mod_payment_query(pECB, w_id, ld_id, ptr);
            }
            else if (form == 'D') {
                /* Delivery order transaction */
                return mod_delivery_query(pECB, w_id, ld_id, ptr);
            }
            else if (form == 'O') {
                /* Order Status order transaction
            */
                return mod_orderstatus_query(pECB, w_id, ld_id, ptr);
            }
            else if (form == 'S') {
                /* Stock Level order transaction */
                return mod_stocklevel_query(pECB, w_id, ld_id, ptr);
            }
            else
                return
            send_error_message(pECB, 0, INVALID_FORM, "", w_id, ld_id, 0);
        }
        else if (CMD_BEGIN(cmd))
            return
            mod_begin_cmd(pECB);
        else if (CMD_NEWORDER(cmd))
            return
            mod_neworder_cmd(pECB, w_id, ld_id);
        else if (CMD_PAYMENT(cmd))
            return
            mod_payment_cmd(pECB, w_id, ld_id);
        else if (CMD_DELIVERY(cmd))
            return mod_delivery_cmd(pECB,
            w_id, ld_id);
        else if (CMD_ORDERSTATUS(cmd))
            return
            mod_orderstatus_cmd(pECB, w_id, ld_id);
        else if (CMD_STOCKLEVEL(cmd))
            return mod_stocklevel_cmd(pECB,
            w_id, ld_id);
        else if (CMD_EXIT(cmd))
            return mod_exit_cmd(pECB);
        else if (CMD_MENU(cmd))
            return mod_menu_cmd(pECB, w_id,
            ld_id);
        else
            return send_error_message(pECB, 0, COMMAND_UNDEFINED, "",
            w_id, ld_id, 0);

        return TRUE;
    }

    int getcharvalue(char *iptr, char key, char **optr)
    {
        *optr = iptr;

        while (iptr) {
            if ((key == *iptr) && ('=' == **optr)) {
                *optr = ++iptr;
                return TRUE;
            }
            while (iptr) {
                if ('&' == *iptr) {
                    iptr++; break;
                }
            }
            iptr++;
        }
    }
}

```

## APPENDIX A - APPLICATION SOURCE CODE

```

    }
    return FALSE;
}

void readInit(char *output, char *parameter, char *default_value)
{
    if (_access(InitFile, 0x00) != NULL) {
        userlog("Cannot access init file: %s\n", InitFile);
        strcpy(output, default_value);
    }
    else
        GetPrivateProfileString("TPCC", parameter, default_value,
        output, MAXLEN, InitFile);
}

void allocateMemoryPool()
{
    userlog("Allocate Memory Pool\n");
    allocate_template_pool();
    allocate_response_pool();
    allocate_transaction_pool();
}

void allocate_response_pool()
{
    int i;

    InitializeCriticalSection(&(resp_global_pool.form_template_spinlock));
    resp_global_pool.form_template_length = BUF_SIZE;
    resp_global_pool.form_template_size =
    resp_global_pool.form_template_length * Maxterms;
    resp_global_pool.form_template_storage = (char
    *)malloc(resp_global_pool.form_template_size);
    resp_global_pool.free_slot = 0;
    resp_global_pool.free_list = (int *)malloc((Maxterms - 1) * sizeof(int));
    for (i = 0; i < (Maxterms - 2); i++) {
        resp_global_pool.free_list[i] = i + 1;
    }
    resp_global_pool.free_list[Maxterms - 2] = -1;
}

void make_txn_form_template(char *input_form, char
*input_form_template,
char *response_form, char *response_form_template, int txn_type)
{
    int length;
    /*
    For input form.
    */
    length = sprintf(input_form, FormHeader, mod_name);
    length = build_form_index(input_form, input_form_template,
    form_index[POOL_TYPE_TXN_INPUT][txn_type], length);
    length = (length + 16) & ~(int)7);

    txn_global_pool[POOL_TYPE_TXN_INPUT][txn_type].form_template_len
    gth = length+150;

    /*
    For output form.
    */
    length = sprintf(response_form, FormHeader, mod_name);
    length = build_form_index(response_form, response_form_template,
    form_index[POOL_TYPE_TXN_OUTPUT][txn_type], length);
    length = (length + 128) & ~(int)7);

    txn_global_pool[POOL_TYPE_TXN_OUTPUT][txn_type].form_template_l
    ength = length+250;
    return;
}

int build_form_index(char *form, char *form_template,
form_index_entry *f_index, int length)
{
    int current_index = 0;
    int i = 0;
    int j = 0;
    int current_length = length;

    while (form_template[j]) {
        if (form_template[j] != '#') {
            form[current_length] = form_template[j];
            i++; current_length++;
        } else {
            i = 0;

```

```

            f_index->index = current_length;
            while (form_template[j] == '#') {
                j++;
                form[current_length] = form_template[j];
                i++; current_length++;
            }
            f_index->length = j;
            f_index++; current_index++;
        }
    }
    form[current_length] = '\0'; current_length++;
    return current_length;
}

void allocate_template_pool()
{
#define FORM_PAD 64
#define GPOOL txn_global_pool[i_type][i_pool]

    char DeliveryInput[sizeof(DeliveryFormInput_Template)+FORM_PAD];
    char
    OrderStatusInput[sizeof(OrderStatusInput_Template)+FORM_PAD];
    char PaymentInput[sizeof(PaymentInput_Template)+FORM_PAD];
    char NewOrderInput[sizeof(NewOrderInput_Template)+FORM_PAD];
    char StockLevelInput[sizeof(StockLevelInput_Template)+FORM_PAD];

    char
    DeliveryOutput[sizeof(DeliveryFormOutput_Template)+FORM_PAD];
    char
    OrderStatusOutput[sizeof(OrderStatusOutput_Template)+FORM_PAD];
    char PaymentOutput[sizeof(PaymentOutput_Template)+FORM_PAD];
    char
    NewOrderOutput[sizeof(NewOrderOutput_Template)+FORM_PAD];
    char
    StockLevelOutput[sizeof(StockLevelOutput_Template)+FORM_PAD];
    int i_type, i_pool, i;

    make_txn_form_template(DeliveryInput, DeliveryFormInput_Template,
    DeliveryOutput, DeliveryFormOutput_Template,
    TXN_TYPE_DELIVERY);

    make_txn_form_template(OrderStatusInput,
    OrderStatusInput_Template,
    OrderStatusOutput, OrderStatusOutput_Template,
    TXN_TYPE_ORDERSTATUS);

    make_txn_form_template(PaymentInput, PaymentInput_Template,
    PaymentOutput, PaymentOutput_Template, TXN_TYPE_PAYMENT);

    make_txn_form_template(NewOrderInput, NewOrderInput_Template,
    NewOrderOutput, NewOrderOutput_Template,
    TXN_TYPE_NEWORDER);

    make_txn_form_template(StockLevelInput, StockLevelInput_Template,
    StockLevelOutput, StockLevelOutput_Template,
    TXN_TYPE_STOCKLEVEL);

    for (i_type = 0; i_type < POOL_TYPE_TXN_MAX; i_type++) {
        for (i_pool = 0; i_pool < TXN_TYPE_MAX; i_pool++) {
            int i, form_length;

            InitializeCriticalSection(&(GPOOL.form_template_spinlock));

            GPOOL.form_template_size = Maxterms;
            GPOOL.form_template_storage = (char *)malloc(Maxterms *
            GPOOL.form_template_length);
            GPOOL.free_list = (int *)malloc((Maxterms - 1) * sizeof(int));

            GPOOL.free_slot = 0;
            form_length = GPOOL.form_template_length;

            for (i = 0; i < (Maxterms - 2); i++) {
                GPOOL.free_list[i] = i + 1;
            }
            GPOOL.free_list[Maxterms-2] = -1;
        }
    }

    i_type = POOL_TYPE_TXN_INPUT; i_pool = TXN_TYPE_DELIVERY;
    strcpy((char *)GPOOL.form_template_storage,
    DeliveryInput);

    i_type = POOL_TYPE_TXN_OUTPUT; i_pool =
    TXN_TYPE_DELIVERY;
    strcpy((char *)GPOOL.form_template_storage,
    DeliveryOutput);

    i_type = POOL_TYPE_TXN_INPUT; i_pool =
    TXN_TYPE_STOCKLEVEL;

```

## APPENDIX A - APPLICATION SOURCE CODE

```

strcpy((char *) (GPOOL.form_template_storage),
StockLevelInput);

i_type = POOL_TYPE_TXN_OUTPUT; i_pool =
TXN_TYPE_STOCKLEVEL;
strcpy((char *) (GPOOL.form_template_storage),
StockLevelOutput);

i_type = POOL_TYPE_TXN_INPUT; i_pool =
TXN_TYPE_NEWORDER;
strcpy((char *) (GPOOL.form_template_storage),
NewOrderInput);

i_type = POOL_TYPE_TXN_OUTPUT; i_pool =
TXN_TYPE_NEWORDER;
strcpy((char *) (GPOOL.form_template_storage),
NewOrderOutput);

i_type = POOL_TYPE_TXN_INPUT; i_pool =
TXN_TYPE_ORDERSTATUS;
strcpy((char *) (GPOOL.form_template_storage),
OrderStatusInput);

i_type = POOL_TYPE_TXN_OUTPUT; i_pool =
TXN_TYPE_ORDERSTATUS;
strcpy((char *) (GPOOL.form_template_storage),
OrderStatusOutput);

i_type = POOL_TYPE_TXN_INPUT; i_pool = TXN_TYPE_PAYMENT;
strcpy((char *) (GPOOL.form_template_storage),
PaymentInput);

i_type = POOL_TYPE_TXN_OUTPUT; i_pool =
TXN_TYPE_PAYMENT;
strcpy((char *) (GPOOL.form_template_storage),
PaymentOutput);

for (i_type = 0; i_type < POOL_TYPE_TXN_MAX; i_type++) {
for (i_pool = 0; i_pool < TXN_TYPE_MAX; i_pool++) {
for (i = 1; i < GPOOL.form_template_size; i++) {
memcpy((char *) (GPOOL.form_template_storage + i *
GPOOL.form_template_length),
(char *) (GPOOL.form_template_storage),
GPOOL.form_template_length);
}
}
}

#undef FORM_PAD
#undef GPOOL
}

void allocate_transaction_pool()
{
int i, pool_size;

pool_size = 0;
pool_size = MAX(pool_size, sizeof(T_connect_data));
pool_size = MAX(pool_size, sizeof(T_delivery_data));
pool_size = MAX(pool_size, sizeof(T_neworder_data));
pool_size = MAX(pool_size, sizeof(T_stocklevel_data));
pool_size = MAX(pool_size, sizeof(T_orderstatus_data));
pool_size = MAX(pool_size, sizeof(T_payment_data));
pool_size = MAX(pool_size, sizeof(T_login_data));

InitializeCriticalSection(&txn_data_pool.form_template_spinlock);
txn_data_pool.form_template_length = pool_size;
txn_data_pool.form_template_size =
txn_data_pool.form_template_length * Maxterms;
txn_data_pool.form_template_storage = (char
*) malloc(txn_data_pool.form_template_size);
txn_data_pool.free_slot = 0;
txn_data_pool.free_list = (int *) malloc((Maxterms - 1) * sizeof(int));
for (i = 0; i < (Maxterms - 2); i++) {
txn_data_pool.free_list[i] = i + 1;
}
txn_data_pool.free_list[Maxterms - 2] = -1;
}

/*
This processes the form that provides the w_id and d_id of a terminal.
*/
int mod_begin_cmd(EXTENSION_CONTROL_BLOCK *pECB)
{
char *ptr;
int w_id, d_id;

if ((getcharvalue(pECB->IpszQueryString, '4', &ptr) == FALSE) || ((w_id =
atoi(ptr)) <= 0))
return sendform_welcome(pECB, "Error: Invalid Warehouse ID");

if ((getcharvalue(ptr, '5', &ptr) == FALSE) || ((d_id = atoi(ptr)) <= 0) ||
(d_id > 10))
return sendform_welcome(pECB, "Error: Invalid District DID");

/*
Perform activities related to database logon etc.
*/

return sendform_mainmenu(pECB, w_id, d_id);
}

int mod_exit_cmd(EXTENSION_CONTROL_BLOCK *pECB)
{
return sendform_welcome(pECB, "Goodbye!");
}

int mod_menu_cmd(EXTENSION_CONTROL_BLOCK *pECB, int w_id,
int d_id)
{
return sendform_mainmenu(pECB, w_id, d_id);
}

int get_wid_did(char *ptr, int *wid, int *did, char **optr)
{
int total = 0;
int c, pc;
int provided = FALSE;

*wid = *did = 0;
*optr = ptr;
pc = (int)(unsigned char) *ptr++;
if ((pc < '0') || (pc > '9'))
return FALSE;
c = (int)(unsigned char) *ptr++;
while ((c >= '0') && (c <= '9')) {
total = 10 * total + (pc - '0');
pc = c;
c = (int)(unsigned char) *ptr++;
provided = TRUE;
}
if (provided) {
*wid = total;
*did = (int) (pc - '0') + 1;
*optr = ptr;
return TRUE;
}
return FALSE;
}

int sendform_welcome(EXTENSION_CONTROL_BLOCK *pECB, char
*mesg)
{
char *response;
int index = -1, ret;

response = allocate_form(&resp_global_pool, &index);
sprintf(response, WelcomeForm, mod_name, mesg);
ret = send_response(pECB, response, strlen(response));
free_form(&resp_global_pool, response, index);
return ret;
}

int send_response(EXTENSION_CONTROL_BLOCK *pECB, char *form,
int size)
{
HSE_RESPONSE_VECTOR vec;
HSE_VECTOR_ELEMENT elem;
char szHeader[256];
DWORD nHeader = sprintf(szHeader, "Content-Type: text/html\r\n"
"Content-Length: %d\r\n" "Connection: Keep-Alive\r\n\r\n", size);

elem.ElementType =
HSE_VECTOR_ELEMENT_TYPE_MEMORY_BUFFER;
elem.cbOffset = 0;
elem.cbSize = size;
elem.pvContext = form;

vec.pszHeaders = szHeader;
vec.lpDataElementArray = &elem;
vec.nElementCount = 1;
}

```



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```

vec.pszStatus = "200 OK";
vec.dwFlags = HSE_IO_SEND_HEADERS;

if (!pECB->ServerSupportFunction(pECB->ConnID,
HSE_REQ_VECTOR_SEND, &vec, 0, 0))
{
    userlog("ServerSupportFunction() returns false");
    return FALSE;
}

pECB->dwHttpStatusCode = 200;

return TRUE;
}

char *allocate_form_new(form_template_pool *pool, int index)
{
    int pool_index=index-StartTerm;
    if (pool_index <= Maxterms)
        return (char *) (pool->form_template_storage +
pool_index * pool->form_template_length);
    else
        userlog("allocate_form_new failed
max_threads = %d", Maxterms);
    return (char *)0;
}

char *allocate_form(form_template_pool *pool, int *pool_index)
{
    int current;

    EnterCriticalSection(&(pool->form_template_spinlock));
    current = pool->free_slot;
    if (current >= 0) {
        pool->free_slot = pool->free_list[current];
        LeaveCriticalSection(&(pool->form_template_spinlock));
        *pool_index = current;
        return (char *) (pool->form_template_storage + current * pool-
>form_template_length);
    }
    LeaveCriticalSection(&(pool->form_template_spinlock));
    userlog("allocate_form failed max_threads = %d", Maxterms);
    *pool_index = -1;
    return (char *)0;
}

void free_form(form_template_pool *pool, char *form_template, int
pool_index)
{
    if (!form_template || pool_index < 0) return;

    EnterCriticalSection(&(pool->form_template_spinlock));
    pool->free_list[pool_index] = pool->free_slot;
    pool->free_slot = pool_index;
    LeaveCriticalSection(&(pool->form_template_spinlock));
}

int send_error_message(EXTENSION_CONTROL_BLOCK *pECB, int
error_type, int error,
char *error_msg, int w_id, int ld_id, void *context)
{
    char *response;
    char *mesg = "";
    int index = -1, ret;
    T_error_message *err = error_message;

    while (err->error_code) {
        if (err->error_code == error) {
            mesg = err->error_mesg; break;
        }
        err++;
    }
    response = allocate_form(&resp_global_pool, &index);
    sprintf(response, ErrorForm, mod_name, WIDID(w_id, ld_id), error_type,
error, mesg, error_msg);
    ret=send_response(pECB, response, strlen(response));
    free_form(&resp_global_pool, response, index);
    return ret;
}

int sendform_mainmenu(EXTENSION_CONTROL_BLOCK *pECB, int
w_id, int ld_id)
{
    char *response;
    int index = -1, ret;

    response = allocate_form(&resp_global_pool, &index);
    sprintf(response, MainForm, mod_name, WIDID(w_id, ld_id), "");
    ret=send_response(pECB, response, strlen(response));
    free_form(&resp_global_pool, response, index);
    return ret;
}

int sendform_neworderinput(EXTENSION_CONTROL_BLOCK *pECB, int
w_id, int ld_id)
{
    char *form;
    int index = w_id*10+ld_id, ret;
    form_template_pool *pool;
#define SUBI POOL_TYPE_TXN_INPUT][TXN_TYPE_NEWORDER

    pool = &txn_global_pool[SUBI];

#ifdef NEW_ALLOCATE_FORM
    form = allocate_form_new(pool, index);
#else
    form = allocate_form(pool, &index);
#endif

    fill_number(form, WIDID(w_id, ld_id),
form_index[SUBI][NO_TERMID].index,
form_index[SUBI][NO_TERMID].length);
    fill_number(form, w_id, form_index[SUBI][NO_WID].index,
form_index[SUBI][NO_WID].length);
    ret=send_response(pECB, form, strlen(form));

#ifdef NEW_ALLOCATE_FORM
    free_form(pool, form, index);
#endif

    return ret;
#undef SUBI
}

int sendform_deliveryinput(EXTENSION_CONTROL_BLOCK *pECB, int
w_id, int ld_id)
{
    char *form;
    int index = w_id*10+ld_id, ret;
    form_template_pool *pool;
#define SUBI POOL_TYPE_TXN_INPUT][TXN_TYPE_DELIVERY

    pool = &txn_global_pool[SUBI];

#ifdef NEW_ALLOCATE_FORM
    form = allocate_form_new(pool, index);
#else
    form = allocate_form(pool, &index);
#endif

    fill_number(form, WIDID(w_id, ld_id),
form_index[SUBI][DE_TERMID].index,
form_index[SUBI][DE_TERMID].length);
    fill_number(form, w_id, form_index[SUBI][DE_WID].index,
form_index[SUBI][DE_WID].length);
    ret=send_response(pECB, form, strlen(form));

#ifdef NEW_ALLOCATE_FORM
    free_form(pool, form, index);
#endif

    return ret;
#undef SUBI
}

int sendform_stocklevelinput(EXTENSION_CONTROL_BLOCK *pECB,
int w_id, int ld_id)
{
    char *form;
    int index = w_id*10+ld_id, ret;
    form_template_pool *pool;
#define SUBI POOL_TYPE_TXN_INPUT][TXN_TYPE_STOCKLEVEL

    pool = &txn_global_pool[SUBI];

#ifdef NEW_ALLOCATE_FORM
    form = allocate_form_new(pool, index);
#else
    form = allocate_form(pool, &index);
#endif
}

```

## APPENDIX A - APPLICATION SOURCE CODE

```

fill_number(form, WIDID(w_id, Id_id),
form_index[SUBI][SL_TERMID].index,
form_index[SUBI][SL_TERMID].length);
fill_number(form, w_id, form_index[SUBI][SL_WID].index,
form_index[SUBI][SL_WID].length);
fill_number(form, Id_id, form_index[SUBI][SL_DID].index,
form_index[SUBI][SL_DID].length);
ret=send_response(pECB, form, strlen(form));

#ifndef NEW_ALLOCATE_FORM
free_form(pool, form, index);
#endif

return ret;
#undef SUBI
}

int sendform_paymentinput(EXTENSION_CONTROL_BLOCK *pECB, int
w_id, int Id_id)
{
char *form;
int index = w_id*10+Id_id, ret;
form_template_pool *pool;
#define SUBI POOL_TYPE_TXN_INPUT[TXN_TYPE_PAYMENT

pool = &txn_global_pool[SUBI];

#ifdef NEW_ALLOCATE_FORM
form = allocate_form_new(pool, index);
#else
form = allocate_form(pool, &index);
#endif

fill_number(form, WIDID(w_id, Id_id),
form_index[SUBI][PA_INPUT_TERMID].index,
form_index[SUBI][PA_INPUT_TERMID].length);

fill_number(form, w_id, form_index[SUBI][PA_INPUT_WID].index,
form_index[SUBI][PA_INPUT_WID].length);

ret=send_response(pECB, form, strlen(form));

#ifndef NEW_ALLOCATE_FORM
free_form(pool, form, index);
#endif

return ret;
#undef SUBI
}

int sendform_orderstatusinput(EXTENSION_CONTROL_BLOCK *pECB,
int w_id, int Id_id)
{
char *form;
int index = w_id*10+Id_id, ret;
form_template_pool *pool;
#define SUBI POOL_TYPE_TXN_INPUT[TXN_TYPE_ORDERSTATUS

pool = &txn_global_pool[SUBI];

#ifdef NEW_ALLOCATE_FORM
form = allocate_form_new(pool, index);
#else
form = allocate_form(pool, &index);
#endif

fill_number(form, WIDID(w_id, Id_id),
form_index[SUBI][OS_TERMID].index,
form_index[SUBI][OS_TERMID].length);
fill_number(form, w_id, form_index[SUBI][OS_WID].index,
form_index[SUBI][OS_WID].length);
ret=send_response(pECB, form, strlen(form));

#ifndef NEW_ALLOCATE_FORM
free_form(pool, form, index);
#endif

return ret;
#undef SUBI
}

void fill_string(char *form, char *string, int index, int length, int *shift)
{
char *ptr;
int i;

for (i=0, ptr=string; i<length && (*ptr)!='\0'; i++, ptr++){
form[index+i]=(char)(*ptr);
switch (*ptr) {
case '\n' : (*shift)+=5;
break;
case '&' : (*shift)+=4;
break;
case '>' : (*shift)+=3;
break;
case '<' : (*shift)+=3;
break;
}
}

for (; i<length; i++)
form[index+i]=' ';

void adjust_form(char *form, int *indexes, int *length, int size, int formlen,
int totalshift)
{
int ptr, ptr2, ind;

for (ptr=formlen, ptr2=formlen+totalshift, ind=size-1; ptr>=0; ptr--) {
if (ind>=0 && ptr<indexes[ind])
ind--;
if (ind<0 || ptr>=indexes[ind]+length[ind])
form[ptr2--]=form[ptr];
else if (ptr>=indexes[ind] && ptr<indexes[ind]+length[ind])
switch (form[ptr]) {
case '\n' : form[ptr2--]=''; form[ptr2--]='t'; form[ptr2--]='o';
form[ptr2--]='u'; form[ptr2--]='q'; form[ptr2--]='&';
break;
case '&' : form[ptr2--]=''; form[ptr2--]='p'; form[ptr2--]='m';
form[ptr2--]='a'; form[ptr2--]='&';
break;
case '>' : form[ptr2--]=''; form[ptr2--]='t';
form[ptr2--]='l'; form[ptr2--]='&';
break;
case '<' : form[ptr2--]=''; form[ptr2--]='t';
form[ptr2--]='g'; form[ptr2--]='&';
break;
default : form[ptr2--]=form[ptr];
break;
}
}
}

void fill_double(char *form, double value, int index, int length)
{
int ptr = index + length - 1, DecPtr = ptr - 2;
int avalue=abs((int)(value*100.0));
int is_neg=(value<0.0);
char asterick[] = "*****";

if (avalue==0)
form[ptr--]='0';

while ((avalue!=0 && ptr>=index) || ptr > DecPtr) {
form[ptr--]='0' + avalue % 10;
avalue/=10;
if (ptr == DecPtr)
form[ptr--]='.';
}

if (ptr < index && (is_neg || avalue!=0))
memcpy(form+index, asterick, length);
else {
if (is_neg)
form[ptr--]='-';
while (ptr>=index)
form[ptr--]=' ';
}
}

void fill_number(char *form, int value, int index, int length)
{
char *pstart = (char *)form + index;
char *pend = pstart + length - 1;
char asterick[] = "*****";
int slen = length;
int is_neg, avalue;

is_neg = (value < 0);
avalue = abs(value);

do {
*pend = (avalue % 10) + '0';
avalue = avalue / 10;
if (--length) pend--;
} while (length);
/*
if (avalue==0 && length >0) {

```

## APPENDIX A - APPLICATION SOURCE CODE

```

do {
    *pend=' ';
    if (--length) pend--;
} while (length);
*/
if (avalue) {
    memcpy(pstart, asterick, slen);
    return;
}

if (is_neg) {
    if (*pend == '0') {
        *pend = '-';
    } else {
        memcpy(pstart, asterick, slen);
        return;
    }
}
}

int parse_query_string(char *iptr, int max_cnt,
    char *txn_chars, value_index_entry *txn_vals)
{
    char *ptr = iptr;
    int key, i;

    for (i = 0; i < max_cnt; i++) {
        key = txn_chars[i];
        txn_vals[i].value = NULL;
        txn_vals[i].length = 0;
        if ((key == *ptr) && ('-' == *++ptr)) {
            txn_vals[i].value = ++ptr;
        }
        while (ptr && ptr[0] != '\0') {
            if (&'-' == *ptr) {
                ptr++; break;
            }
            ptr++; txn_vals[i].length++;
        }
    }

    return TRUE;
}

int get_number(char *ptr, int *value)
{
    int c, total;
    int has_value = FALSE;
    int is_neg = FALSE;

    if (*ptr == '-') {
        is_neg = TRUE; ptr++;
    }
    c = (int) (unsigned char) *ptr++;

    total = 0;
    while ((c >= '0') && (c <= '9')) {
        total = 10 * total + (c - '0');
        c = (int) (unsigned char) *ptr++;
        has_value = TRUE;
    }
    if ((c == '\0') || (('&' == c) && has_value)) {
        *value = is_neg ? (0-total):total;
        return TRUE;
    }
    *value = 0;
    return FALSE;
}

/*****
*****
* mod transaction output
*****
*****/

int mod_neworder_query(EXTENSION_CONTROL_BLOCK *pECB, int
w_id, int ld_id, char *ptr)
{
    T_neworder_data *pdata;
    int index = w_id*10+ld_id, ret;
    int status = SUCCESS;

#ifdef NEW_ALLOCATE_FORM
    pdata = (T_neworder_data *)allocate_form_new(&txn_data_pool, index);
#else
    pdata = (T_neworder_data *)allocate_form(&txn_data_pool, &index);
#endif

    pdata->w_id = w_id; pdata->ld_id = ld_id; pdata->context = (void
*)pECB;

    status = parse_neworder_query(ptr, pdata);
    if (status != SUCCESS) {
        ret=send_error_message(pECB, 0, status, "", w_id, ld_id, 0);
    }

#ifdef NEW_ALLOCATE_FORM
    free_form(&txn_data_pool, (char *) pdata, index);
#endif

    return ret;
}

status = mod_tpcc_neworder(pdata);
ret=sendform_neworderoutput(status, pdata);

#ifdef NEW_ALLOCATE_FORM
    free_form(&txn_data_pool, (char *) pdata, index);
#endif

    return ret;
}

int mod_delivery_query(EXTENSION_CONTROL_BLOCK *pECB, int
w_id, int ld_id, char *ptr)
{
    DelQueue_info *queue_info;
    int index=-1, ret;
    int status = SUCCESS;

    queue_info = findFreeDelQueue();
    queue_info->pdata->w_id = w_id;
    queue_info->pdata->ld_id = ld_id;
    queue_info->pdata->context = (void *)pECB;

    status = parse_delivery_query(ptr, queue_info->pdata);
    if (status != SUCCESS) {
        ret=send_error_message(pECB, 0, status, "", w_id, ld_id, 0);
        return ret;
    }

    EnqueueDel(queue_info);
    if (!SetEvent(waitDelWork)) {
        userlog("Error on SetEvent(waitDelWork)\n");
        ret=sendform_deliveryoutput(status, queue_info->pdata);
        ret=FALSE;
    }
    else ret=sendform_deliveryoutput(status, queue_info->pdata);
    return ret;
}

int mod_payment_query(EXTENSION_CONTROL_BLOCK *pECB, int
w_id, int ld_id, char *ptr)
{
    T_payment_data *pdata;
    int index = w_id*10+ld_id, ret;
    int status = SUCCESS;

#ifdef NEW_ALLOCATE_FORM
    pdata = (T_payment_data *)allocate_form_new(&txn_data_pool, index);
#else
    pdata = (T_payment_data *)allocate_form(&txn_data_pool, &index);
#endif

    pdata->w_id = w_id; pdata->ld_id = ld_id; pdata->context = (void
*)pECB;

    status = parse_payment_query(ptr, pdata);
    if (status != SUCCESS) {
        ret=send_error_message(pECB, 0, status, "", w_id, ld_id, 0);
    }

#ifdef NEW_ALLOCATE_FORM
    free_form(&txn_data_pool, (char *) pdata, index);
#endif

    return ret;
}

status = mod_tpcc_payment(pdata);
ret=sendform_paymentoutput(status, pdata);

#ifdef NEW_ALLOCATE_FORM
    free_form(&txn_data_pool, (char *) pdata, index);
#endif

    return ret;
}

```

## APPENDIX A - APPLICATION SOURCE CODE

```

int mod_orderstatus_query(EXTENSION_CONTROL_BLOCK *pECB, int
w_id, int ld_id, char *ptr)
{
    T_orderstatus_data *pdata;
    int index = w_id*10+ld_id, ret;
    int status = SUCCESS;

#ifdef NEW_ALLOCATE_FORM
    pdata = (T_orderstatus_data *)allocate_form_new(&txn_data_pool,
index);
#else
    pdata = (T_orderstatus_data *)allocate_form(&txn_data_pool, &index);
#endif

    pdata->w_id = w_id; pdata->ld_id = ld_id; pdata->context = (void
*)pECB;

    status = parse_orderstatus_query(ptr, pdata);
    if (status != SUCCESS) {
        ret=send_error_message(pECB, 0, status, "", w_id, ld_id, 0);
    }

#ifdef NEW_ALLOCATE_FORM
    free_form(&txn_data_pool, (char *) pdata, index);
#endif

    return ret;
}

status = mod_tpcc_orderstatus(pdata);
ret=sendform_orderstatusoutput(status, pdata);

#ifdef NEW_ALLOCATE_FORM
    free_form(&txn_data_pool, (char *) pdata, index);
#endif

return ret;
}

int mod_stocklevel_query(EXTENSION_CONTROL_BLOCK *pECB, int
w_id, int ld_id, char *ptr)
{
    T_stocklevel_data *pdata;
    int index = w_id*10+ld_id, ret;
    int status = SUCCESS;

#ifdef NEW_ALLOCATE_FORM
    pdata = (T_stocklevel_data *)allocate_form_new(&txn_data_pool,
index);
#else
    pdata = (T_stocklevel_data *)allocate_form(&txn_data_pool, &index);
#endif

    pdata->w_id = w_id; pdata->ld_id = ld_id; pdata->context = (void
*)pECB;

    status = parse_stocklevel_query(ptr, pdata);

    if (status != SUCCESS) {
        ret=send_error_message(pECB, 0, status, "", w_id, ld_id, 0);
    }

#ifdef NEW_ALLOCATE_FORM
    free_form(&txn_data_pool, (char *) pdata, index);
#endif

    return ret;
}

status = mod_tpcc_stocklevel(pdata);
ret=sendform_stockleveloutput(status, pdata);

#ifdef NEW_ALLOCATE_FORM
    free_form(&txn_data_pool, (char *) pdata, index);
#endif

return ret;
}

/*****
* parse transaction query
*****/

int parse_neworder_query(char *iptr, T_neworder_data *pdata)
{
    int status, i, items;
    value_index_entry value_ptr[NO_INPUT_MAX];
    char *ptr;

```

```

status = parse_query_string(iptr, NO_INPUT_MAX, neworder_chars,
value_ptr);

if ((ptr = value_ptr[NO_INPUT_DID].value) == NULL) {
    return NEWORDER_MISSING_DID;
}
if ((status = get_number(ptr, &pdata->d_id)) == FALSE) {
    return NEWORDER_DISTRICT_INVALID;
}
if ((pdata->d_id > 10) || (pdata->d_id < 1)) {
    return NEWORDER_DISTRICT_RANGE;
}

if ((ptr = value_ptr[NO_INPUT_CID].value) == NULL) {
    return NEWORDER_CUSTOMER_KEY;
}
if ((status = get_number(ptr, &pdata->c_id)) == FALSE) {
    return NEWORDER_CUSTOMER_INVALID;
}
if ((pdata->c_id > 3000) || (pdata->c_id <= 0)) {
    return NEWORDER_CUSTOMER_RANGE;
}

pdata->o_all_local = 1;

for (i = 0, items = 0; i < 15; i++) {
    if ((ptr = value_ptr[i*3 + NO_INPUT_IID00].value) == NULL) {
        return NEWORDER_MISSING_IID_KEY;
    }
    if (value_ptr[i*3 + NO_INPUT_IID00].length > 0) {
        if ((status = get_number(ptr, &pdata->o_orderline[items].ol_i_id))
== FALSE) {
            return NEWORDER_ITEMID_INVALID;
        }
        if ((ptr = value_ptr[i*3 + NO_INPUT_SPW00].value) == NULL) {
            return NEWORDER_MISSING_SUPPW_KEY;
        }
        if ((status = get_number(ptr, &pdata-
>o_orderline[items].ol_supply_w_id)) == FALSE) {
            return NEWORDER_SUPPW_INVALID;
        }
        if ((ptr = value_ptr[i*3 + NO_INPUT_QTY00].value) == NULL) {
            return NEWORDER_MISSING_QTY_KEY;
        }
        if ((status = get_number(ptr, &pdata-
>o_orderline[items].ol_quantity)) == FALSE) {
            return NEWORDER_QTY_INVALID;
        }
        /*
        We use item number 111111 as the bad one.
        */
        if ((pdata->o_orderline[items].ol_i_id > 999999) ||
(pdata->o_orderline[items].ol_i_id < 1)) {
            return NEWORDER_ITEMID_RANGE;
        }
        if ((pdata->o_orderline[items].ol_quantity >= 100) ||
(pdata->o_orderline[items].ol_quantity < 1)) {
            return NEWORDER_QTY_RANGE;
        }
        if (pdata->o_all_local && pdata->o_orderline[items].ol_supply_w_id
!= pdata->w_id) {
            pdata->o_all_local = 0;
        }
        items++;
    } else {
        if (value_ptr[i*3 + NO_INPUT_SPW00].value == NULL) {
            return NEWORDER_MISSING_SUPPW_KEY;
        }
        if (value_ptr[i*3 + NO_INPUT_SPW00].length > 0) {
            return NEWORDER_SUPPW_WITHOUT_ITEMID;
        }
        if (value_ptr[i*3 + NO_INPUT_QTY00].value == NULL) {
            return NEWORDER_MISSING_QTY_KEY;
        }
        if (value_ptr[i*3 + NO_INPUT_QTY00].length > 0) {
            return NEWORDER_QTY_WITHOUT_ITEMID;
        }
    }
}

if (items == 0) {
    return NEWORDER_NOITEMS_ENTERED;
}
pdata->o_ol_cnt = items;
return SUCCESS;
}

int parse_payment_query(char *iptr, T_payment_data *pdata)
{
    int status, see_dot, i;
    value_index_entry value_ptr[PA_INPUT_MAX];
    char *ptr;

```

## APPENDIX A - APPLICATION SOURCE CODE

```

status = parse_query_string(iptr, PA_INPUT_MAX, payment_chars,
value_ptr);

if ((ptr = value_ptr[PA_INPUT_DID].value) == NULL) {
    return PAYMENT_MISSING_DID_KEY;
}
if ((status = get_number(ptr, &pdata->d_id) == FALSE) {
    return PAYMENT_DISTRICT_INVALID;
}
if ((pdata->d_id > 10) || (pdata->d_id < 1)) {
    return PAYMENT_DISTRICT_RANGE;
}

if ((ptr = value_ptr[PA_INPUT_CID].value) == NULL) {
    return PAYMENT_MISSING_CID_KEY;
}

if (value_ptr[PA_INPUT_CID].length == 0) { /* c_id == 0 */
    pdata->c_id = 0;
    pdata->by_last_name = 1;
    if ((ptr = value_ptr[PA_INPUT_NAME].value) == NULL) {
        return PAYMENT_MISSING_CLASTNAME_KEY;
    }
    if (value_ptr[PA_INPUT_NAME].length == 0) {
        return PAYMENT_MISSING_CLASTNAME;
    }
    memcpy(pdata->c_last, ptr, value_ptr[PA_INPUT_NAME].length);
    pdata->c_last[value_ptr[PA_INPUT_NAME].length] = '\0';
    STRING_UPPERCASE(pdata->c_last);
    if (value_ptr[PA_INPUT_NAME].length > 16) {
        return PAYMENT_LAST_NAME_TO_LONG;
    }
} else { /* c_id != 0 */
    pdata->by_last_name = 0;
    if ((status = get_number(ptr, &pdata->c_id) == FALSE) {
        return PAYMENT_CUSTOMER_INVALID;
    }
    if ((pdata->c_id > 3000) || (pdata->c_id <= 0)) {
        return PAYMENT_CID_RANGE;
    }
    if ((ptr = value_ptr[PA_INPUT_NAME].value) == NULL) {
        return PAYMENT_MISSING_CLASTNAME_KEY;
    }
    if (value_ptr[PA_INPUT_NAME].length > 0) {
        return PAYMENT_CID_AND_CLASTNAME;
    }
}

if ((ptr = value_ptr[PA_INPUT_CDID].value) == NULL) {
    return PAYMENT_MISSING_CDI_KEY;
}
if ((status = get_number(ptr, &pdata->c_d_id) == FALSE) {
    return PAYMENT_CDI_INVALID;
}
if ((pdata->c_d_id > 10) || (pdata->c_d_id < 1)) {
    return PAYMENT_CDI_RANGE;
}
if ((ptr = value_ptr[PA_INPUT_CWID].value) == NULL) {
    return PAYMENT_MISSING_CWL_KEY;
}
if ((status = get_number(ptr, &pdata->c_w_id) == FALSE) {
    return PAYMENT_CWL_INVALID;
}
if ((ptr = value_ptr[PA_INPUT_AMT].value) == NULL) {
    return PAYMENT_MISSING_HAM_KEY;
}

see_dot = FALSE;

for (i = 0; i < value_ptr[PA_INPUT_AMT].length; i++) {
    if (ptr[i] == '\0') {
        return PAYMENT_HAM_INVALID;
    }
    if (ptr[i] == '.') {
        if (see_dot) {
            return PAYMENT_HAM_INVALID;
        } else {
            see_dot = TRUE;
        }
    } else {
        if ((ptr[i] > '9') || (ptr[i] < '0')) {
            return PAYMENT_HAM_INVALID;
        }
    }
}
pdata->h_amount = atof(ptr);

if ((pdata->h_amount < 0) || (pdata->h_amount >= 10000.0)) {
    return PAYMENT_HAM_RANGE;
}
return SUCCESS;
}

```

```

int parse_delivery_query(char *iptr, T_delivery_data *pdata)
{
    int status = SUCCESS;
    value_index_entry value_ptr[DE_INPUT_MAX];
    int i, see_dot;
    char *ptr;

    status = parse_query_string(iptr, DE_INPUT_MAX, delivery_chars,
value_ptr);

    if ((ptr = value_ptr[DE_INPUT_DID].value) == NULL) {
        return DELIVERY_MISSING_OCD_KEY;
    }
    if ((status = get_number(ptr, &pdata->o_carrier_id) == FALSE) {
        return DELIVERY_CARRIER_INVALID;
    }
    if ((pdata->o_carrier_id > 10) || (pdata->o_carrier_id < 1)) {
        return DELIVERY_CARRIER_ID_RANGE;
    }

    if ((ptr = value_ptr[DE_INPUT_QTIME].value) == NULL) {
        GetLocalTime(&(pdata->enqueue_date_time));
        pdata->enqueue_time = GetTickCount();
        return SUCCESS;
    }

    if (value_ptr[DE_INPUT_QTIME].length == 0) {
        return DELIVERY_MISSING_QUEUEETIME_KEY;
    }

    see_dot = FALSE;

    for (i = 0; i < value_ptr[DE_INPUT_QTIME].length; i++) {
        if (ptr[i] == '\0') {
            return DELIVERY_MISSING_QUEUEETIME_KEY;
        }
        if (ptr[i] == '.') {
            if (see_dot) {
                return DELIVERY_MISSING_QUEUEETIME_KEY;
            } else {
                see_dot = TRUE;
            }
        } else {
            if ((ptr[i] > '9') || (ptr[i] < '0')) {
                return DELIVERY_MISSING_QUEUEETIME_KEY;
            }
        }
    }

    pdata->enqueue_time = atof(ptr);

    return SUCCESS;
}

int parse_orderstatus_query(char *iptr, T_orderstatus_data *pdata)
{
    int status = SUCCESS;
    value_index_entry value_ptr[OS_INPUT_MAX];
    char *ptr;

    status = parse_query_string(iptr, OS_INPUT_MAX, orderstatus_chars,
value_ptr);

    if ((ptr = value_ptr[OS_INPUT_DID].value) == NULL) {
        return ORDERSTATUS_MISSING_DID_KEY;
    }
    if ((status = get_number(ptr, &pdata->d_id) == FALSE) {
        return ORDERSTATUS_DID_INVALID;
    }
    if ((pdata->d_id > 10) || (pdata->d_id < 1)) {
        return ORDERSTATUS_DID_RANGE;
    }

    if ((ptr = value_ptr[OS_INPUT_CID].value) == NULL) {
        return ORDERSTATUS_MISSING_CID_KEY;
    }

    if (value_ptr[OS_INPUT_CID].length == 0) {
        pdata->c_id = 0;
        pdata->by_last_name = 1;
        if ((ptr = value_ptr[OS_INPUT_NAME].value) == NULL) {
            return ORDERSTATUS_MISSING_CLASTNAME_KEY;
        }
        memcpy(pdata->c_last, ptr, value_ptr[OS_INPUT_NAME].length);
        pdata->c_last[value_ptr[OS_INPUT_NAME].length] = '\0';
        STRING_UPPERCASE(pdata->c_last);
        if (value_ptr[OS_INPUT_NAME].length > 16) {
            return ORDERSTATUS_CLASTNAME_RANGE;
        }
    } else { /* c_id != 0 */
        pdata->by_last_name = 0;

```

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```

if ((status = get_number(ptr, &pdata->c_id) == FALSE) {
    return ORDERSTATUS_CID_INVALID;
}
if ((pdata->c_id > 3000) || (pdata->c_id <= 0) {
    return ORDERSTATUS_CID_RANGE;
}
if ((ptr = value_ptr[OS_INPUT_NAME].value) == NULL) {
    return ORDERSTATUS_MISSING_CLASTNAME_KEY;
}
if (value_ptr[OS_INPUT_NAME].length > 0) {
    return ORDERSTATUS_CID_AND_CLASTNAME;
}
}
return SUCCESS;
}

int parse_stocklevel_query(char *iptr, T_stocklevel_data *pdata)
{
    value_index_entry value_ptr[SL_INPUT_MAX];
    char *ptr;
    int status = SUCCESS;

    status = parse_query_string(iptr, SL_INPUT_MAX, stocklevel_chars,
    value_ptr);

    if ((ptr = value_ptr[SL_INPUT_THRESHOLD].value) == NULL) {
        return STOCKLEVEL_MISSING_THRESHOLD_KEY;
    }
    if ((status = get_number(ptr, &pdata->threshold) == FALSE) {
        return STOCKLEVEL_THRESHOLD_INVALID;
    }
    if ((pdata->threshold >= 100) || (pdata->threshold < 0) {
        return STOCKLEVEL_THRESHOLD_RANGE;
    }
}

return SUCCESS;
}

/*****
*****
* sendform output
*****
*****/

int sendform_neworderoutput(int status, T_neworder_data *pdata)
{
    EXTENSION_CONTROL_BLOCK *pECB;
    int w_id, ld_id, ret;
    char *form, *form2;
    char blank[] = " ";
    int index = -1, formlen, strcount=0, shift=0, i, j, lineStart=15;
    int indexes[NO_FORMINDEX_SIZE], indLen[NO_FORMINDEX_SIZE],
    index2=-1;
    form_template_pool *pool;

#define SUBI POOL_TYPE_TXN_OUTPUT[TXN_TYPE_NEWORDER
    w_id = pdata->w_id; ld_id = pdata->ld_id;
    pECB = (EXTENSION_CONTROL_BLOCK *) pdata-
>context;

    if (status != SUCCESS && status != DB_SUCCESS) {
        return send_error_message(pECB, 0, status, "", w_id, ld_id, 0);
    }

    if (pdata->txn_status != DB_RETURN_OCI_SUCCESS) {
        return send_error_message(pECB, 0, pdata-
>txn_status, " --- DATABASE ERROR ", w_id, ld_id, 0);
    }

    pool = &txn_global_pool[SUBI];
    index=w_id*10+ld_id;

#ifdef NEW_ALLOCATE_FORM
    form = allocate_form_new(pool, index);
#else
    form = allocate_form(pool, &index);
#endif

    formlen=strlen(form);

    fill_number(form, WIDID(w_id, ld_id),
    form_index[SUBI][NO_TERMID].index,
    form_index[SUBI][NO_TERMID].length);
    fill_number(form, w_id, form_index[SUBI][NO_WID].index,
    form_index[SUBI][NO_WID].length);

    fill_number(form, pdata->d_id, form_index[SUBI][NO_DID].index,
    form_index[SUBI][NO_DID].length);

```

```

if (!pdata->status) {
    fill_string(form, pdata->o_entry_d.DateString,
    form_index[SUBI][NO_DATE].index,
    form_index[SUBI][NO_DATE].length, &shift);
    indexes[strcount]=form_index[SUBI][NO_DATE].index;
    indLen[strcount++]=form_index[SUBI][NO_DATE].length;
} else {
    memcpy(form+form_index[SUBI][NO_DATE].index, blank,
    form_index[SUBI][NO_DATE].length);
}

fill_number(form, pdata->c_id, form_index[SUBI][NO_CID].index,
    form_index[SUBI][NO_CID].length);

fill_string(form, pdata->c_last, form_index[SUBI][NO_NAME].index,
    form_index[SUBI][NO_NAME].length, &shift);
indexes[strcount]=form_index[SUBI][NO_NAME].index;
indLen[strcount++]=form_index[SUBI][NO_NAME].length;

fill_string(form, pdata->c_credit, form_index[SUBI][NO_CREDIT].index,
    form_index[SUBI][NO_CREDIT].length, &shift);
indexes[strcount]=form_index[SUBI][NO_CREDIT].index;
indLen[strcount++]=form_index[SUBI][NO_CREDIT].length;

fill_double(form, pdata->c_discount,
    form_index[SUBI][NO_DISC].index,
    form_index[SUBI][NO_DISC].length);

fill_number(form, pdata->o_id, form_index[SUBI][NO_OID].index,
    form_index[SUBI][NO_OID].length);

fill_number(form, pdata->o_ol_cnt, form_index[SUBI][NO_LINES].index,
    form_index[SUBI][NO_LINES].length);

fill_double(form, pdata->w_tax, form_index[SUBI][NO_WTAX].index,
    form_index[SUBI][NO_WTAX].length);

fill_double(form, pdata->d_tax, form_index[SUBI][NO_DTAX].index,
    form_index[SUBI][NO_DTAX].length);

if (!pdata->status) {
    for (i=0; i<pdata->o_ol_cnt; i++) {
        fill_number(form, pdata->o_orderline[i].ol_supply_w_id,
        form_index[SUBI][NO_SUPPW+i*8].index,
        form_index[SUBI][NO_SUPPW+i*8].length);

        fill_number(form, pdata->o_orderline[i].ol_i_id,
        form_index[SUBI][NO_ITEMID+i*8].index,
        form_index[SUBI][NO_ITEMID+i*8].length);

        fill_string(form, pdata->o_orderline[i].i_name,
        form_index[SUBI][NO_INAME+i*8].index,
        form_index[SUBI][NO_INAME+i*8].length, &shift);
        indexes[strcount]=form_index[SUBI][NO_INAME+i*8].index;
        indLen[strcount++]=form_index[SUBI][NO_INAME+i*8].length;

        fill_number(form, pdata->o_orderline[i].ol_quantity,
        form_index[SUBI][NO_QTY+i*8].index,
        form_index[SUBI][NO_QTY+i*8].length);

        fill_number(form, pdata->o_orderline[i].s_quantity,
        form_index[SUBI][NO_STOCK+i*8].index,
        form_index[SUBI][NO_STOCK+i*8].length);

        fill_string(form, pdata->o_orderline[i].b_g,
        form_index[SUBI][NO_BRAND+i*8].index,
        form_index[SUBI][NO_BRAND+i*8].length, &shift);
        indexes[strcount]=form_index[SUBI][NO_BRAND+i*8].index;
        indLen[strcount++]=form_index[SUBI][NO_BRAND+i*8].length;

        fill_double(form, pdata->o_orderline[i].i_price,
        form_index[SUBI][NO_PRICE+i*8].index,
        form_index[SUBI][NO_PRICE+i*8].length);

        fill_double(form, pdata->o_orderline[i].ol_amount,
        form_index[SUBI][NO_AMOUNT+i*8].index,
        form_index[SUBI][NO_AMOUNT+i*8].length);
    }

    for (j=NO_SUPPW+i*8; j<NO_SUPPW+15*8; j++)

    memcpy(form+form_index[SUBI][j].index,blank,form_index[SUBI][j].length);

    for (lineStart=j=i; j<15; j++) {
        form[form_index[SUBI][NO_PRICE+j*8].index-1]=' ';
        form[form_index[SUBI][NO_AMOUNT+j*8].index-1]=' ';
    }
} else {

```

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```

/*
    for (j=NO_DISC; j<=NO_DTAX; j++)

memcpy(form+form_index[SUBI][j].index,blank,form_index[SUBI][j].length);
;
*/

    for (j=NO_SUPPW; j<NO_SUPPW+15*8; j++)

memcpy(form+form_index[SUBI][j].index,blank,form_index[SUBI][j].length);
;

    for (lineStart=0; j<15; j++) {
        form[form_index[SUBI][NO_PRICE+*8].index-1]=' ';
        form[form_index[SUBI][NO_AMOUNT+*8].index-1]=' ';
    }
}

if (!pdata->status) {
    fill_string(form, "Transaction committed",
        form_index[SUBI][NO_STATUS].index,
        form_index[SUBI][NO_STATUS].length, &shift);
    indexes[strcount]=form_index[SUBI][NO_STATUS].index;
    indLen[strcount++]=form_index[SUBI][NO_STATUS].length;

    fill_double(form, pdata->total_amount,
        form_index[SUBI][NO_TOTAL].index,
        form_index[SUBI][NO_TOTAL].length);
} else {
    fill_string(form, "Item number is not valid",
        form_index[SUBI][NO_STATUS].index,
        form_index[SUBI][NO_STATUS].length, &shift);
    indexes[strcount]=form_index[SUBI][NO_STATUS].index;
    indLen[strcount++]=form_index[SUBI][NO_STATUS].length;

    memcpy(form+form_index[SUBI][NO_TOTAL].index-1, blank,
        form_index[SUBI][NO_TOTAL].length+1);
}

if (shift)
    adjust_form(form, indexes, indLen, strcount, formlen, shift);

ret=send_response(pECB, form, strlen(form));

if (shift) {
    allocate_last_form(form2,pool);
    memcpy(form, form2, formlen+1);
}

for (j=lineStart; j<15; j++) {
    form[form_index[SUBI][NO_PRICE+*8].index-1]='$';
    form[form_index[SUBI][NO_AMOUNT+*8].index-1]='$';
}

#ifdef NEW_ALLOCATE_FORM
    free_form(pool, form, index);
#endif

    return ret;
#undef SUBI
}

int sendform_paymentoutput(int status, T_payment_data *pdata)
{
    EXTENSION_CONTROL_BLOCK *pECB;
    int w_id, ld_id, ret;
    char *form, *form2;
    char blank[] = " ";
    int index = -1, formlen, strcount=0, shift=0, i=0, j, datalen;
    int indexes[PA_FORMINDEX_SIZE], indLen[PA_FORMINDEX_SIZE],
    index2=-1;
    form_template_pool *pool;

    w_id = pdata->w_id; ld_id = pdata->ld_id;
    pECB = (EXTENSION_CONTROL_BLOCK *) pdata-
->context;

    if (status != SUCCESS && status != DB_SUCCESS) {
        return send_error_message(pECB, 0, status, "", w_id, ld_id, 0);
    }

    if (pdata->txn_status != DB_RETURN_OCI_SUCCESS) {
        return send_error_message(pECB, 0, pdata->txn_status, " ---
DATABASE ERROR ", w_id, ld_id, 0);
    }

#define SUBI POOL_TYPE_TXN_OUTPUT[TXN_TYPE_PAYMENT

    pool = &txn_global_pool[SUBI];
    index=w_id*10+ld_id;

#ifdef NEW_ALLOCATE_FORM
    form = allocate_form_new(pool, index);
#endif
}

```

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```

fill_string(form, pdata->c_last, form_index[SUBI][PA_CLAST].index,
            form_index[SUBI][PA_CLAST].length, &shift);
indexes[strcount]=form_index[SUBI][PA_CLAST].index;
indLen[strcount++]=form_index[SUBI][PA_CLAST].length;

fill_string(form, pdata->c_since, DateString,
            form_index[SUBI][PA_SINCE].index,
            form_index[SUBI][PA_SINCE].length, &shift);
indexes[strcount]=form_index[SUBI][PA_SINCE].index;
indLen[strcount++]=form_index[SUBI][PA_SINCE].length;

fill_string(form, pdata->c_street_1, form_index[SUBI][PA_CST1].index,
            form_index[SUBI][PA_CST1].length, &shift);
indexes[strcount]=form_index[SUBI][PA_CST1].index;
indLen[strcount++]=form_index[SUBI][PA_CST1].length;

fill_string(form, pdata->c_credit, form_index[SUBI][PA_CREDIT].index,
            form_index[SUBI][PA_CREDIT].length, &shift);
indexes[strcount]=form_index[SUBI][PA_CREDIT].index;
indLen[strcount++]=form_index[SUBI][PA_CREDIT].length;

fill_string(form, pdata->c_street_2, form_index[SUBI][PA_CST2].index,
            form_index[SUBI][PA_CST2].length, &shift);
indexes[strcount]=form_index[SUBI][PA_CST2].index;
indLen[strcount++]=form_index[SUBI][PA_CST2].length;

fill_double(form, pdata->c_discount, form_index[SUBI][PA_DISC].index,
            form_index[SUBI][PA_DISC].length);

fill_string(form, pdata->c_city, form_index[SUBI][PA_CCITY].index,
            form_index[SUBI][PA_CCITY].length, &shift);
indexes[strcount]=form_index[SUBI][PA_CCITY].index;
indLen[strcount++]=form_index[SUBI][PA_CCITY].length;

fill_string(form, pdata->c_state, form_index[SUBI][PA_CSTATE].index,
            form_index[SUBI][PA_CSTATE].length, &shift);
indexes[strcount]=form_index[SUBI][PA_CSTATE].index;
indLen[strcount++]=form_index[SUBI][PA_CSTATE].length;

fill_string(form, pdata->c_zip, form_index[SUBI][PA_CZIP].index,
            form_index[SUBI][PA_CZIP].length, &shift);
indexes[strcount]=form_index[SUBI][PA_CZIP].index;
indLen[strcount++]=form_index[SUBI][PA_CZIP].length;

fill_string(form, pdata->c_phone,
            form_index[SUBI][PA_CPHONE].index,
            form_index[SUBI][PA_CPHONE].length, &shift);
indexes[strcount]=form_index[SUBI][PA_CPHONE].index;
indLen[strcount++]=form_index[SUBI][PA_CPHONE].length;

fill_double(form, pdata->h_amount,
            form_index[SUBI][PA_AMOUNT].index,
            form_index[SUBI][PA_AMOUNT].length);

fill_double(form, pdata->c_balance, form_index[SUBI][PA_CBAL].index,
            form_index[SUBI][PA_CBAL].length);

fill_double(form, pdata->c_credit_lim,
            form_index[SUBI][PA_LLIMIT].index,
            form_index[SUBI][PA_LLIMIT].length);

if (pdata->c_credit[0]=='B' && pdata->c_credit[1]=='C') {
    datalen=strlen(pdata->c_data);
    for (i=0; i<4; i++) {
        if (i * form_index[SUBI][PA_CUSTDATA+i].length >= datalen) break;
        fill_string(form, pdata-
>c_data+(i*form_index[SUBI][PA_CUSTDATA+i].length),
                form_index[SUBI][PA_CUSTDATA+i].index,
                form_index[SUBI][PA_CUSTDATA+i].length, &shift);
        indexes[strcount]=form_index[SUBI][PA_CUSTDATA+i].index;
        indLen[strcount++]=form_index[SUBI][PA_CUSTDATA+i].length;
    }
}

for (j=1; j<4; j++)
    memcpy(form+form_index[SUBI][PA_CUSTDATA+j].index, blank,
           form_index[SUBI][PA_CUSTDATA+j].length);

if (shift)
    adjust_form(form, indexes, indLen, strcount, formlen, shift);

ret=send_response(pECB, form, strlen(form));

if (shift) {
    allocate_last_form(form2, pool);
    memcpy(form, form2, formlen+1);
}

#endif NEW_ALLOCATE_FORM
free_form(pool, form, index);
#endif

return ret;
#undef SUBI
}

int sendform_orderstatusoutput(int status, T_orderstatus_data *pdata)
{
    EXTENSION_CONTROL_BLOCK *pECB;
    int w_id, ld_id, indexes[OS_FORMINDEX_SIZE],
    indLen[OS_FORMINDEX_SIZE];
    char *form, *form2;
    int index = -1, strcount=0, formlen, shift=0, i, j, index2=-1, lineStart=15,
    ret;
    form_template_pool *pool;
    char blank[] = " ";

    w_id = pdata->w_id; ld_id = pdata->ld_id;
    pECB = (EXTENSION_CONTROL_BLOCK *) pdata-
>context;

    if (status != SUCCESS && status != DB_SUCCESS) {
        return send_error_message(pECB, 0, status, "", w_id, ld_id, 0);
    }

    if (pdata->txn_status != DB_RETURN_OCI_SUCCESS) {
        return send_error_message(pECB, 0, pdata->txn_status, " ---
DATABASE ERROR ", w_id, ld_id, 0);
    }

#define SUBI
POOL_TYPE_TXN_OUTPUT[TXN_TYPE_ORDERSTATUS

    pool = &txn_global_pool[SUBI];
    index=w_id*10+ld_id;

#ifdef NEW_ALLOCATE_FORM
    form = allocate_form_new(pool, index);
#else
    form = allocate_form(pool, &index);
#endif

    formlen = strlen(form);

    fill_number(form, WDID(w_id, ld_id),
    form_index[SUBI][OS_TERMID].index,
            form_index[SUBI][OS_TERMID].length);
    fill_number(form, w_id, form_index[SUBI][OS_WID].index,
            form_index[SUBI][OS_WID].length);
    fill_number(form, pdata->d_id, form_index[SUBI][OS_DID].index,
            form_index[SUBI][OS_DID].length);
    fill_number(form, pdata->c_id, form_index[SUBI][OS_CID].index,
            form_index[SUBI][OS_CID].length);
    fill_string(form, pdata->c_first, form_index[SUBI][OS_FIRST].index,
            form_index[SUBI][OS_FIRST].length, &shift);
    indexes[strcount]=form_index[SUBI][OS_FIRST].index;
    indLen[strcount++]=form_index[SUBI][OS_FIRST].length;

    fill_string(form, pdata->c_middle,
    form_index[SUBI][OS_MIDDLE].index,
            form_index[SUBI][OS_MIDDLE].length, &shift);
    indexes[strcount]=form_index[SUBI][OS_MIDDLE].index;
    indLen[strcount++]=form_index[SUBI][OS_MIDDLE].length;

    fill_string(form, pdata->c_last, form_index[SUBI][OS_LAST].index,
            form_index[SUBI][OS_LAST].length, &shift);
    indexes[strcount]=form_index[SUBI][OS_LAST].index;
    indLen[strcount++]=form_index[SUBI][OS_LAST].length;

    fill_double(form, pdata->c_balance,
    form_index[SUBI][OS_CBALANCE].index,
            form_index[SUBI][OS_CBALANCE].length);

    fill_number(form, pdata->o_id, form_index[SUBI][OS_OID].index,
            form_index[SUBI][OS_OID].length);

    fill_string(form, pdata->o_entry_d, DateString,
    form_index[SUBI][OS_ENTRY_DATE].index,
            form_index[SUBI][OS_ENTRY_DATE].length, &shift);
    indexes[strcount]=form_index[SUBI][OS_ENTRY_DATE].index;
    indLen[strcount++]=form_index[SUBI][OS_ENTRY_DATE].length;

    fill_number(form, pdata->o_carrier_id,
    form_index[SUBI][OS_CARID].index,
            form_index[SUBI][OS_CARID].length);

    for (i=0; i < pdata->o_ol_cnt; i++) {
        fill_number(form, pdata->o_orderline[i].ol_supply_w_id,
            form_index[SUBI][OS_SUPW+i*5].index,
            form_index[SUBI][OS_SUPW+i*5].length);

        fill_number(form, pdata->o_orderline[i].ol_id,

```



# APPENDIX A - APPLICATION SOURCE CODE

```

form_index[SUBI][OS_ITEMID+i*5].index,
form_index[SUBI][OS_ITEMID+i*5].length);

fill_number(form, pdata->o_orderline[i].ol_quantity,
form_index[SUBI][OS_QTY+i*5].index,
form_index[SUBI][OS_QTY+i*5].length);

fill_double(form, pdata->o_orderline[i].ol_amount,
form_index[SUBI][OS_AMOUNT+i*5].index,
form_index[SUBI][OS_AMOUNT+i*5].length);

fill_string(form, pdata->o_orderline[i].ol_delivery_d.DateString,
form_index[SUBI][OS_DELDATE+i*5].index,
form_index[SUBI][OS_DELDATE+i*5].length, &shift);
indexes[strcount]=form_index[SUBI][OS_DELDATE+i*5].index;
indLen[strcount++]=form_index[SUBI][OS_DELDATE+i*5].length;
}

for (lineStart=j; j<15;j++) {
memcpy(form+form_index[SUBI][OS_SUPW+j*5].index, blank,
form_index[SUBI][OS_SUPW+j*5].length);
memcpy(form+form_index[SUBI][OS_ITEMID+j*5].index, blank,
form_index[SUBI][OS_ITEMID+j*5].length);
memcpy(form+form_index[SUBI][OS_QTY+j*5].index, blank,
form_index[SUBI][OS_QTY+j*5].length);
memcpy(form+form_index[SUBI][OS_AMOUNT+j*5].index-1, blank,
form_index[SUBI][OS_AMOUNT+j*5].length+1);
memcpy(form+form_index[SUBI][OS_DELDATE+j*5].index, blank,
form_index[SUBI][OS_DELDATE+j*5].length);
}

if (shift)
adjust_form(form, indexes, indLen, strcount, formLen, shift);

ret=send_response(pECB, form, strlen(form));

if (shift) {
allocate_last_form(form2, pool);
memcpy(form, form2, formLen+1);
}

for (j=lineStart; j<15; j++)
form[form_index[SUBI][OS_AMOUNT+j*5].index-1]='$';

#ifdef NEW_ALLOCATE_FORM
free_form(pool, form, index);
#endif

return ret;
#undef SUBI
}

int sendform_deliveryoutput(int status, T_delivery_data *pdata)
{
EXTENSION_CONTROL_BLOCK *pECB;

int w_id, ld_id;
char *form;
int index = -1, ret;
form_template_pool *pool;

w_id = pdata->w_id; ld_id = pdata->ld_id;
pECB = (EXTENSION_CONTROL_BLOCK *) pdata-
>context;
if (status != SUCCESS && status != DB_SUCCESS) {
return send_error_message(pECB, 0, status, "", w_id, ld_id, 0);
}

#define SUBI_POOL_TYPE_TXN_OUTPUT[TXN_TYPE_DELIVERY
pool = &txn_global_pool[SUBI];
index=w_id*10+ld_id;

#ifdef NEW_ALLOCATE_FORM
form = allocate_form_new(pool, index);
#else
form = allocate_form(pool, &index);
#endif

fill_number(form, WIDID(w_id, ld_id),
form_index[SUBI][DE_TERMID].index,
form_index[SUBI][DE_TERMID].length);
fill_number(form, w_id, form_index[SUBI][DE_WID].index,
form_index[SUBI][DE_WID].length);
fill_number(form, ld_id, form_index[SUBI][DE_DID].index,
form_index[SUBI][DE_DID].length);
fill_number(form, pdata->threshold,
form_index[SUBI][SL_THRESHOLD].index,
form_index[SUBI][SL_THRESHOLD].length);
fill_number(form, pdata->low_stock,
form_index[SUBI][SL_LOWSTOCK].index,
form_index[SUBI][SL_LOWSTOCK].length);

ret=send_response(pECB, form, strlen(form));

#ifdef NEW_ALLOCATE_FORM
free_form(pool, form, index);
#endif

return ret;
#undef SUBI
}

int (FAR * mod_tpcc_neworder)(T_neworder_data *);
int (FAR * mod_tpcc_payment)(T_payment_data *);
int (FAR * mod_tpcc_delivery)(T_delivery_data *, int);
int (FAR * mod_tpcc_orderstatus)(T_orderstatus_data *);
int (FAR * mod_tpcc_stocklevel)(T_stocklevel_data *);
void (FAR * userlog)(char * str, ...);
void (FAR * initDelLog)(int);
void (FAR * endDelLog)(int);

#include "..\DBConnection\mod_tpcc.h"
#include "..\DBConnection\tpcc_struct.h"
#include "..\DBConnection\mod_tpcc_error.h"
#include <oratypes.h>
#include <oci.h>
#include <ocidfn.h>

#define allocate_last_form(form, pool) \
(form)=(char *)((pool)->form_template_storage + \
(Maxterms - 1) * (pool)->form_template_length)

#define MAXLEN 100
#define Default_DBConnections "20"
#define Default_Maxterms "100"

```

## APPENDIX A - APPLICATION SOURCE CODE

```
#define Default_DeliveryQueues "500"
#define Default_DeliveryThreads "50"
#define Default_StartTerm "1"
#define LogName "log\\modtpcc.log"
#define InitName "DBInit.ini"
#defineDllName "DBConnection.dll"
#define mod_name "tpcc/modtpcc.dll"

typedef struct DelQueue_info {
    DelQueue_info *Next;
    T_delivery_data *pdata;
    HANDLE queue_lock;
} DelQueue_info;

/*****
* global functions
*****/

//void userlog(char *, ...);
void readInit(char *, char *, char *);
void allocateMemoryPool();
int initDelQueue();
int deleteDelQueue();
void endDeliveryThread(int);
void initDeliveryThread(void *);
DelQueue_info *DequeueDel();
void EnqueueDel(DelQueue_info *);
void addFreeDelQueue(DelQueue_info *);
DelQueue_info *findFreeDelQueue();

int parse_neworder_query(char *ptr, T_neworder_data *pdata);
int parse_payment_query(char *ptr, T_payment_data *pdata);
int parse_delivery_query(char *ptr, T_delivery_data *pdata);
int parse_orderstatus_query(char *ptr, T_orderstatus_data *pdata);
int parse_stocklevel_query(char *ptr, T_stocklevel_data *pdata);

int sendform_neworderoutput(int status, T_neworder_data *pdata);
int sendform_paymentoutput(int status, T_payment_data *pdata);
int sendform_orderstatusoutput(int status, T_orderstatus_data *pdata);
int sendform_deliveryoutput(int status, T_delivery_data *pdata);
int sendform_stockleveloutput(int status, T_stocklevel_data *pdata);

extern int (FAR * mod_tpcc_neworder)(T_neworder_data *);
extern int (FAR * mod_tpcc_payment)(T_payment_data *);
extern int (FAR * mod_tpcc_delivery)(T_delivery_data *);
extern int (FAR * mod_tpcc_orderstatus)(T_orderstatus_data *);
extern int (FAR * mod_tpcc_stocklevel)(T_stocklevel_data *);
extern void (FAR * userlog)(char * str, ...);
extern void (FAR * initDelLog)(int);
extern void (FAR * endDelLog)(int);

/*****
* global variables
*****/

DWORD TIsPointer;
char DIIPath[MAXLEN];
char LogFile[MAXLEN];
char InitFile[MAXLEN];
char DIIFile[MAXLEN];
char origin[MAXLEN];
CRITICAL_SECTION critical_initDelQueue;
CRITICAL_SECTION critical_memory;
CRITICAL_SECTION critical_DelQueue_free;
CRITICAL_SECTION critical_DelQueue_work;
HANDLE waitAvailableDelQueue;
HANDLE waitDelWork;
HANDLE DelThreadRunning;
HINSTANCE dllinstance;
int useddel=0;
int DBConnections;
int Maxterms;
int DeliveryQueues;
int DeliveryThreads;
int modtpcc_ready=0;
int memory_ready=0;
int queue_ready=0;
int DeliveryThreadstop=0;
int StartTerm=1;
DelQueue_info *DelQueue_begin = NULL;
DelQueue_info *DelQueue_end = NULL;
DelQueue_info *DelQueue_free = NULL;
```

```
static form_index_entry
form_index[POOL_TYPE_TXN_MAX][TXN_TYPE_MAX][MAX_FORM_INDEX];
static form_template_pool
txn_global_pool[POOL_TYPE_TXN_MAX][TXN_TYPE_MAX];
static form_template_pool txn_data_pool;
static form_template_pool resp_global_pool;
```

```
char delivery_chars [] = {'6', '7'};
char orderstatus_chars [] = {'8', '9', 'Y'};
char payment_chars [] = {'8', '9', 'Z', 'v', 'Y', 'w'};
char stocklevel_chars [] = {'x'};
char neworder_chars [] = {'8', '9', 'A', 'B', 'C', 'D', 'E', 'F', 'G', 'H', 'I', 'J', 'K', 'L', 'M', 'N', 'O', 'P', 'Q', 'R', 'S', 'T', 'U', 'V', 'W', 'X', 'a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j', 'k', 'l', 'm', 'n', 'o', 'p', 'q', 'r', 's', 't', 'u'};
```

### stdafx.cpp

```
// stdafx.cpp : source file that includes just the standard includes
// modtpcc.pch will be the pre-compiled header
// stdafx.obj will contain the pre-compiled type information
```

```
#include "stdafx.h"
```

```
// TODO: reference any additional headers you need in STDAFX.H
// and not in this file
```

### stdafx.h

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

```
#if !defined(AFX_STDAFX_H__FBB80AB0_1068_4095_8E53_EEA38B5CF47B__INCLUDED_)
#define AFX_STDAFX_H__FBB80AB0_1068_4095_8E53_EEA38B5CF47B__INCLUDED_
```

```
#if _MSC_VER > 1000
#pragma once
#endif // _MSC_VER > 1000
```

```
// Insert your headers here
#define WIN32_LEAN_AND_MEAN // Exclude rarely-used stuff from Windows headers
```

```
#include <windows.h>
#include <stdio.h>
#include <stdlib.h>
#include <atlbase.h>
#include <io.h>
#include <time.h>
#include <process.h>
#include <sys/stat.h>
```

### dbconnection.cpp

```
// DBConnection.cpp : Defines the entry point for the DLL application.
//
```

```
#include "stdafx.h"
#include "DBConnection.h"
```

```
##define OPS_LOGIN
##define CONNECTION_MUTEX
##define DEBUG
##define DEBUG_DETAIL
##define LOOPBACK
```

## APPENDIX A - APPLICATION SOURCE CODE

```

BOOL WINAPI DIIMain( HANDLE hModule,
                    DWORD ul_reason_for_call,
                    LPVOID lpReserved
                    )
{
    char string[MAXLEN];

    if (ul_reason_for_call == DLL_PROCESS_ATTACH) {
        int i;

        DisableThreadLibraryCalls((HMODULE)hModule);

        GetModuleFileName((HMODULE)hModule, DllPath,
MAXLEN-1);
        if (DllPath[0]!='\' && DllPath[1]!='\' && DllPath[2]!='?' &&
DllPath[3]!='\')
            strcpy(DllPath, DllPath+4);
        for (i=strlen(DllPath); DllPath[i]!='\' && i--);
        DllPath[i]='\0';
        sprintf(LogFile, "%s\\%s", DllPath, LogName);
        sprintf(InitFile, "%s\\%s", DllPath, InitName);
        sprintf(DelLogFile, "%s\\%s", DllPath, DelLogName);

        if (!SetCurrentDirectory(DllPath)) {
            userlog("Cannot change current directory to %s, Error: %n", DllPath,
GetLastError());
            return FALSE;
        }

        if ((TlsPtr = TlsAlloc()) == 0xFFFFFFFF) {
            userlog("Error during TlsAlloc\n");
            return FALSE;
        }

        readInit(string, "DBConnections", Default_DBConnections);
        DBConnections = atoi(string);
        userlog("number of DBConnections is %d\n",
DBConnections);

        TotalLoop=DBConnections*2;

        DBExecution_lock=(HANDLE*)malloc(sizeof(HANDLE)*DBC
onnections);
        for (i=0; i<DBConnections; i++)
            if ((DBExecution_lock[i]=CreateMutex(NULL,
FALSE, NULL))==NULL) {
                userlog("Cannot create mutex :
DBExecution_lock[%d]\n", i);
                return FALSE;
            }

        if (initializeDBExecutionPool() != TRUE) {
            userlog("initializeDBExecutionPool failed\n");
            return FALSE;
        }

        if ((waitIdle = CreateEvent(NULL, FALSE, FALSE, "Wait Idle
Event")) == NULL) {
            userlog("Cannot create event : waitIdle\n");
            return FALSE;
        }

        ready=1;
    }
    else if (ul_reason_for_call == DLL_PROCESS_DETACH) {
        int i;

        if ((TlsFree(TlsPtr)) == NULL) {
            userlog("Error during TlsFree\n");
            return FALSE;
        }

        for (i=0; i<DBConnections; i++) {
            ((DBExecution
*)(DBExecution_pool[i].pointer))->TPCexit();
            free(DBExecution_pool[i].pointer);
        }
        free (DBExecution_pool);
        CloseHandle(waitIdle);

        for (i=0; i<DBConnections; i++)
            CloseHandle(DBExecution_lock[i]);
    }

    return TRUE;
}

void initDelLog(int DelThreads)

```

```

{
    char filename[MAXLEN];

    DelFiles=(FILE **)malloc(sizeof(FILE *)*DelThreads);
    for (int i=0; i<DelThreads; i++) {
        sprintf(filename, "%s%d", DelLogFile, i);

        if ((DelFiles[i]=fopen(filename, "a"))==(FILE *) NULL) {
            userlog("Can't open file : %s\n", filename);
            exit(-1);
        }
        setvbuf(DelFiles[i], NULL, _IOFBF, 102400);
    }
}

void endDelLog(int DelThreads)
{
    for (int i=0; i<DelThreads; i++) {
        fclose(DelFiles[i]);
    }
    free(DelFiles);
}

/*****
*****
* Execute transactions
*****
*****/

#ifdef LOOPBACK

int mod_tpcc_neworder(T_neworder_data *output)
{
    int i;
#ifdef CONNECTION_MUTEX
    HANDLE *mutexptr=NULL;
#endif
    DBExecution_pool_info* ptr;

    DBExecution *dbexec;
    struct newstruct input;

    input.newin.w_id = output->w_id;
    input.newin.d_id = output->d_id;
    input.newin.c_id = output->c_id;

    for (i=0; i<output->o_o_cnt; i++) {
        input.newin.ol_i_id[i] = output->o_orderline[i].ol_i_id;
        input.newin.ol_supply_w_id[i] = output-
>o_orderline[i].ol_supply_w_id;
        input.newin.ol_quantity[i] = output-
>o_orderline[i].ol_quantity;
    }

    for (; i<15; i++) {
        input.newin.ol_i_id[i] = 0;
        input.newin.ol_supply_w_id[i] = 0;
        input.newin.ol_quantity[i] = 0;
    }

#ifdef CONNECTION_MUTEX
    ptr=findIdleDBExecution(mutexptr);
#else
    ptr=findIdleDBExecution();
#endif
    dbexec=(DBExecution *) (ptr->pointer);
    ptr->neworder_count++;

    if (dbexec->TPCnew(&input) == -1) {
        convert_status(output->txn_status, dbexec-
>execstatus);
#ifdef CONNECTION_MUTEX
        freeDBExecution(ptr, mutexptr);
#else
        freeDBExecution(ptr);
#endif
        userlog("TPCnew returns -1\n");
        return SUCCESS;
    }
    else {
        output->txn_status = DB_RETURN_OCI_SUCCESS;
    }

    output->status = dbexec->status;

#ifdef CONNECTION_MUTEX
    freeDBExecution(ptr, mutexptr);
#else
    freeDBExecution(ptr);
#endif
}

output->o_id = input.newout.o_id;

```

## APPENDIX A - APPLICATION SOURCE CODE

```

        output->o_ol_cnt = input.newout.o_ol_cnt;
        output->c_discount = input.newout.c_discount;
        output->w_tax = input.newout.w_tax;
        output->d_tax = input.newout.d_tax;
        output->total_amount = input.newout.total_amount;
        strncpy(output->o_entry_d.DateString,
input.newout.o_entry_d,20);
        strncpy(output->c_last, input.newout.c_last,17);
        strncpy(output->c_credit, input.newout.c_credit,3);
        for (i=0; i<output->o_ol_cnt; i++) {
            output->o_orderline[i].ol_amount =
input.newout.ol_amount[i];
            output->o_orderline[i].i_price =
input.newout.i_price[i];
            output->o_orderline[i].s_quantity =
input.newout.s_quantity[i];
            output->o_orderline[i].b_g[0] =
input.newout.brand_generic[i];
            strncpy(output->o_orderline[i].i_name,
input.newout.i_name[i], 25);
        }

        return SUCCESS;
    }

int mod_tpcc_payment(T_payment_data *output)
{
#ifdef CONNECTION_MUTEX
    HANDLE *mutexptr=NULL;
#endif
    DBExecution_pool_info *ptr;
    DBExecution *dbexec;
    struct paystruct input;

    input.payin.w_id = output->w_id;
    input.payin.d_id = output->d_id;
    input.payin.c_w_id = output->c_w_id;
    input.payin.c_d_id = output->c_d_id;
    input.payin.bylastname = output->by_last_name;
    input.payin.h_amount = (int)(output->h_amount * 100);

    if (input.payin.bylastname) {
        input.payin.c_id = 0;
        strncpy(input.payin.c_last, output->c_last, 17);
        input.payin.c_last[16]='\0';
    } else {
        input.payin.c_id = output->c_id;
        input.payin.c_last[0]='\0';
    }

#ifdef CONNECTION_MUTEX
    ptr=findIdleDBExecution(mutexptr);
#else
    ptr=findIdleDBExecution();
#endif
    dbexec=(DBExecution *)(&ptr->pointer);
    // ptr->payment_count++;

    if (dbexec->TPCpay(&input) == -1) {
        convert_status(output->txn_status, dbexec-
>execstatus);
#ifdef CONNECTION_MUTEX
        freeDBExecution(ptr, mutexptr);
#else
        freeDBExecution(ptr);
#endif
        userlog("TPCpay returns -1\n");
        return SUCCESS;
    } else {
        output->txn_status =
DB_RETURN_OCI_SUCCESS;
    }

#ifdef CONNECTION_MUTEX
    freeDBExecution(ptr, mutexptr);
#else
    freeDBExecution(ptr);
#endif

    strncpy(output->w_street_1, input.payout.w_street_1, 21);
    strncpy(output->w_street_2, input.payout.w_street_2, 21);
    strncpy(output->w_city, input.payout.w_city, 21);
    strncpy(output->w_state, input.payout.w_state, 3);
    strncpy(output->w_zip, input.payout.w_zip, 10);
    strncpy(output->d_street_1, input.payout.d_street_1, 21);
    strncpy(output->d_street_2, input.payout.d_street_2, 21);
    strncpy(output->d_city, input.payout.d_city, 21);
    strncpy(output->d_state, input.payout.d_state, 3);
    strncpy(output->d_zip, input.payout.d_zip, 10);
    output->c_id = input.payout.c_id;
    strncpy(output->c_first, input.payout.c_first, 17);

```

```

        strncpy(output->c_middle, input.payout.c_middle, 3);
        strncpy(output->c_last, input.payout.c_last, 17);
        strncpy(output->c_street_1, input.payout.c_street_1, 21);
        strncpy(output->c_street_2, input.payout.c_street_2, 21);
        strncpy(output->c_city, input.payout.c_city, 21);
        strncpy(output->c_state, input.payout.c_state, 3);
        strncpy(output->c_zip, input.payout.c_zip, 10);
        strncpy(output->c_phone, input.payout.c_phone, 17);
        strncpy(output->c_credit, input.payout.c_credit, 3);
        strncpy(output->c_since.DateString, input.payout.c_since,
11);

        strncpy(output->h_date.DateString, input.payout.h_date, 20);
        strncpy(output->c_data, input.payout.c_data, 200);
        output->c_credit_lim = input.payout.c_credit_lim;
        output->c_discount = input.payout.c_discount;
        output->c_balance = input.payout.c_balance;

        return SUCCESS;
    }

int mod_tpcc_delivery(T_delivery_data *output, int id)
{
#ifdef CONNECTION_MUTEX
    HANDLE *mutexptr=NULL;
#endif
    DBExecution_pool_info *ptr;
    DBExecution *dbexec;
    struct delstruct input;

    input.delin.w_id = output->w_id;
    input.delin.plsqlflag = 1;
    input.delin.o_carrier_id = output->o_carrier_id;

#ifdef CONNECTION_MUTEX
    ptr=findIdleDBExecution(mutexptr);
#else
    ptr=findIdleDBExecution();
#endif
    dbexec=(DBExecution *)(&ptr->pointer);
    // ptr->delivery_count++;

    if (dbexec->TPCdel(&input) == -1) {
        convert_status(output->txn_status, dbexec-
>execstatus);
#ifdef CONNECTION_MUTEX
        freeDBExecution(ptr, mutexptr);
#else
        freeDBExecution(ptr);
#endif
        userlog("TPCdel returns -1\n");
        return SUCCESS;
    } else {
        output->txn_status =
DB_RETURN_OCI_SUCCESS;
    }

    output->complete_time = GetTickCount();
    for (int i=0; i<10; i++)
        output->o_id[i]=dbexec->del_o_id[i];

#ifdef CONNECTION_MUTEX
    freeDBExecution(ptr, mutexptr);
#else
    freeDBExecution(ptr);
#endif

    write_delivery_log(output, id);

    return SUCCESS;
}

int mod_tpcc_orderstatus(T_orderstatus_data *output)
{
#ifdef CONNECTION_MUTEX
    HANDLE *mutexptr=NULL;
#endif
    DBExecution_pool_info *ptr;
    DBExecution *dbexec;
    struct ordstruct input;

    input.ordin.w_id = output->w_id;
    input.ordin.d_id = output->d_id;
    input.ordin.bylastname = output->by_last_name;
    if (input.ordin.bylastname) {
        input.ordin.c_id = 0;
        strncpy(input.ordin.c_last, output->c_last, 17);
        input.ordin.c_last[16]='\0';
    }
    else {

```

## APPENDIX A - APPLICATION SOURCE CODE

```

        input.ordin.c_id = output->c_id;
        input.ordin.c_last[0]='\0';
    }

#ifdef CONNECTION_MUTEX
    ptr=findIdleDBExecution(mutexptr);
#else
    ptr=findIdleDBExecution();
#endif
    dbexec=(DBExecution *) (ptr->pointer);
    // ptr->orderstatus_count++;

    if (dbexec->TPCord(&input) == -1) {
        convert_status(output->txn_status, dbexec-
>execstatus);
#ifdef CONNECTION_MUTEX
        freeDBExecution(ptr, mutexptr);
#else
        freeDBExecution(ptr);
#endif
        userlog("TPCord returns -1\n");
        return SUCCESS;
    } else {
        output->txn_status =
DB_RETURN_OCI_SUCCESS;
    }

#ifdef CONNECTION_MUTEX
    freeDBExecution(ptr, mutexptr);
#else
    freeDBExecution(ptr);
#endif

    output->c_id = input.ordout.c_id;
    strncpy(output->c_last, input.ordout.c_last, 17);
    strncpy(output->c_first, input.ordout.c_first, 17);
    strncpy(output->c_middle, input.ordout.c_middle, 3);
    strncpy(output->o_entry_d.DateString,
input.ordout.o_entry_d, 20);
    output->c_balance = input.ordout.c_balance;
    output->o_id = input.ordout.o_id;
    output->o_carrier_id = input.ordout.o_carrier_id;
    output->o_ol_cnt = input.ordout.o_ol_cnt;
    for (int i=0; i<output->o_ol_cnt; i++) {
        output->o_orderline[i].ol_supply_w_id =
input.ordout.ol_supply_w_id[i];
        output->o_orderline[i].ol_i_id =
input.ordout.ol_i_id[i];
        output->o_orderline[i].ol_quantity =
input.ordout.ol_quantity[i];
        output->o_orderline[i].ol_amount =
input.ordout.ol_amount[i];
        strncpy(output-
>o_orderline[i].ol_delivery_d.DateString, input.ordout.ol_delivery_d[i], 11);
    }

    return SUCCESS;
}

int mod_tpcc_stocklevel(T_stocklevel_data *output)
{
#ifdef CONNECTION_MUTEX
    HANDLE *mutexptr=NULL;
#endif
    DBExecution_pool_info* ptr;
    DBExecution *dbexec;
    struct stostruct input;

    input.stoout.low_stock=-123;
    input.stoin.w_id = output->w_id;
    input.stoin.d_id = output->d_id;
    input.stoin.threshold = output->threshold;

#ifdef CONNECTION_MUTEX
    ptr=findIdleDBExecution(mutexptr);
#else
    ptr=findIdleDBExecution();
#endif
    dbexec=(DBExecution *) (ptr->pointer);
    // ptr->stocklevel_count++;

    if (dbexec->TPCsto(&input) == -1) {
        convert_status(output->txn_status, dbexec-
>execstatus);
#ifdef CONNECTION_MUTEX
        freeDBExecution(ptr, mutexptr);
#else
        freeDBExecution(ptr);
#endif
        userlog("TPCsto returns -1\n");
    }
}

} else {
    return SUCCESS;
}
    output->txn_status =
DB_RETURN_OCI_SUCCESS;
}

#ifdef CONNECTION_MUTEX
    freeDBExecution(ptr, mutexptr);
#else
    freeDBExecution(ptr);
#endif

    output->low_stock = input.stoout.low_stock;

    return SUCCESS;
}

#endif

void write_delivery_log(T_delivery_data *pdata, int threadId)
{
    fprintf(DelFiles[threadId],
"%d/%d/%d %d:%d:%d.%d %ld %ld %ld %d
%d %d %d %d %d %d %d %d %d\n",
        pdata->enqueue_date_time.wMonth, pdata-
>enqueue_date_time.wDay,
        pdata->enqueue_date_time.wYear, pdata-
>enqueue_date_time.wHour,
        pdata->enqueue_date_time.wMinute, pdata-
>enqueue_date_time.wSecond,
        pdata->enqueue_date_time.wMilliseconds,
        pdata->enqueue_time,
        pdata->complete_time, pdata->complete_time-
pdata->enqueue_time, pdata->w_id,
        pdata->ld_id, pdata->o_carrier_id, pdata-
>o_id[0], pdata->o_id[1],
        pdata->o_id[2], pdata->o_id[3], pdata->o_id[4],
        pdata->o_id[5],
        pdata->o_id[6], pdata->o_id[7], pdata->o_id[8],
        pdata->o_id[9]);
}

#ifdef CONNECTION_MUTEX
int freeDBExecution(DBExecution_pool_info *ptr, HANDLE *mutexptr)
#else
int freeDBExecution(DBExecution_pool_info *ptr)
#endif
{
    ptr->current_status = IDLE;

#ifdef DEBUG_DETAIL
    userlog("Thread %d release connection\n",
GetCurrentThreadId());
#endif

#ifdef CONNECTION_MUTEX
    if (mutexptr==NULL)
        userlog("Thread %d has mutexptr=NULL\n",
GetCurrentThreadId());
        ReleaseMutex((*mutexptr));
#endif
    if (!SetEvent(waitIdle)) {
        userlog("Error on SetEvent, in function: free
DBExecution\n");
        return FALSE;
    }
    return TRUE;
}

#ifdef CONNECTION_MUTEX
DBExecution_pool_info* findIdleDBExecution(HANDLE *mutexptr)
#else
DBExecution_pool_info* findIdleDBExecution()
#endif
{
    int current=GetCurrentThreadId() % DBConnections;

#ifdef DEBUG
    findDBExecutionCall++;
#endif
    while (1) {
        for (int count=0; count<TotalLoop; count++) {

```

## APPENDIX A - APPLICATION SOURCE CODE

```

        if
(DBExecution_pool[current].current_status == IDLE) {
    switch(WaitForSingleObject(DBExecution_lock[current], 0)) {
        case
WAIT_ABANDONED:
#ifdef DEBUG
        userlog("connection mutex returns WAIT_ABANDONED\n");
#endif
        case
WAIT_OBJECT_0:
#ifdef DEBUG_DETAIL
        userlog("Thread %d get connection: %d\n",
GetCurrentThreadId(), current);
#endif
        if (DBExecution_pool[current].current_status == IDLE) {
            DBExecution_pool[current].current_status =
IN_USE;
#ifdef CONNECTION_MUTEX
            ReleaseMutex(DBExecution_lock[current]);
#else
            mutexptr=&(DBExecution_lock[current]);
#endif
            TlsSetValue(TlsPtr, (void *)
DBExecution_pool[current].pointer);
            return &(DBExecution_pool[current]);
        }
        else {
            ReleaseMutex(DBExecution_lock[current]);
#ifdef DEBUG
            userlog("get connection mutex, but
current_status is not IDLE\n");
#endif
            break;
        }
        case
WAIT_TIMEOUT:
        default:
            userlog("Error on WaitForSingleObject, DBExecution\n");
            return NULL;
    }
}

current++;
if (current==DBConnections)
current=0;
}

#ifdef DEBUG
    findDBExecutionWait++;
    if (findDBExecutionWait !=0 &&
findDBExecutionWait % 100000 == 0)
        userlog("wait: %d, total call:
%d\n", findDBExecutionWait, findDBExecutionCall);
#endif

    if ((WaitForSingleObject(waitIdle, INFINITE)) !=
WAIT_OBJECT_0) {
        userlog("Error on
WaitForSingleObject, in function findIdleDBExecution\n");
        return NULL;
    }

    return NULL;
}

void readInit(char *output, char *parameter, char *default_value)
{
    if (_access(InitFile, 0x00) != NULL) {
        userlog("Cannot access init file: %s\n", InitFile);
        strcpy(output, default_value);
    }
    else
        GetPrivateProfileString("TPCC", parameter, default_value,
output, MAXLEN, InitFile);
}

int initializeDBExecutionPool()
{
    DBExecution *ptr;

    userlog("execute initializeDBExecutionPool()\n");

    DBExecution_pool = (DBExecution_pool_info *) malloc
(sizeof(DBExecution_pool_info)*DBConnections);
    if (DBExecution_pool == 0) {
        userlog("malloc failed in
initializeDBExecutionPool\n");
        return FALSE;
    }
    memset((void*)DBExecution_pool, 0,
sizeof(DBExecution_pool_info)*DBConnections);

    for (int i=0; i<DBConnections; i++) {
        if ((ptr=new DBExecution) == NULL) {
            userlog("Cannot create
DBExecution object\n");
            return FALSE;
        }
        if ((TlsSetValue(TlsPtr, (void *) ptr)) == NULL) {
            userlog("TlsSetValue failed\n");
            return FALSE;
        }
        if (ptr->TPCinit(i, "tpcc", "tpcc")) {
            userlog("TPCinit failed\n");
            return FALSE;
        }
        DBExecution_pool[i].current_status = IDLE;
        DBExecution_pool[i].pointer = (void *) ptr;
        userlog ("DBExecution %d is initialized\n", i);
    }

    return TRUE;
}

void userlog (char * str, ...)
{
    HANDLE logMutex;
    FILE *file;
    time_t t;
    struct tm *currtime;
    va_list va;
    int threadId;

    logMutex = CreateMutex(NULL, FALSE, "TPCC_LOG");
    // Wait for initialization ended
    WaitForSingleObject(logMutex, INFINITE);

    threadId = GetCurrentThreadId();

    time (&t);
    currtime = localtime(&t);

    if ((file=fopen(LogFile, "a"))==(FILE *) NULL) {
        fprintf(stderr, "Can't open file : %s\n", LogFile);
        exit(-1);
    }

    va_start(va, str);
    fprintf(file, "[Time %d:%d:%d Thread: %d] ", currtime-
>tm_hour, currtime->tm_min, currtime->tm_sec, threadId);
    vfprintf(file, str, va);
    fprintf(file, "\n");
    va_end(va);

    fclose(file);
}

```

# APPENDIX A - APPLICATION SOURCE CODE

```

        ReleaseMutex(logMutex);
        CloseHandle(logMutex);
    }

sb4 no_data(dvoid *ctxp, OCIBind *bp, ub4 iter, ub4 index,
            dvoid **bufpp, ub4 *alenp, ub1 *piecep,
            dvoid **indpp)
{
    *bufpp = (dvoid*)0;
    *alenp = 0;
    *indpp = (dvoid*)0;
    *piecep = OCI_ONE_PIECE;
    return (OCI_CONTINUE);
}

sb4 TPC_oid_data(dvoid *ctxp, OCIBind *bp, ub4 iter, ub4 index,
                dvoid **bufpp, ub4 *alenp, ub1 *piecep,
                dvoid **indpp, ub2 **rcodepp)
{
    DBExecution *dbc;

    dbc = (DBExecution*) TlsGetValue(TlsPtr);
    if (dbc == 0) {
        userlog("TlsGetValue failed in TPC_oid_data\n");
        exit(-1);
    }

    *bufpp = &dbc->dctx->del_o_id[iter];
    *indpp = &dbc->dctx->del_o_id_ind[iter];
    dbc->dctx->del_o_id_len[iter]=sizeof(dbc->dctx->del_o_id[0]);
    *alenp = &dbc->dctx->del_o_id_len[iter];
    *rcodepp = &dbc->dctx->del_o_id_rcode[iter];
    *piecep = OCI_ONE_PIECE;
    return (OCI_CONTINUE);
}

sb4 cid_data(dvoid *ctxp, OCIBind *bp, ub4 iter, ub4 index,
             dvoid **bufpp, ub4 *alenp, ub1 *piecep,
             dvoid **indpp, ub2 **rcodepp)
{
    DBExecution *dbc;

    dbc = (DBExecution*) TlsGetValue(TlsPtr);
    if (dbc == 0) {
        userlog("TlsGetValue failed in cid_data\n");
        exit(-1);
    }

    *bufpp = &dbc->dctx->c_id[iter];
    *indpp = &dbc->dctx->c_id_ind[iter];
    dbc->dctx->c_id_len[iter]=sizeof(dbc->dctx->c_id[0]);
    *alenp = &dbc->dctx->c_id_len[iter];
    *rcodepp = &dbc->dctx->c_id_rcode[iter];
    *piecep = OCI_ONE_PIECE;
    return (OCI_CONTINUE);
}

sb4 amt_data(dvoid *ctxp, OCIBind *bp, ub4 iter, ub4 index,
             dvoid **bufpp, ub4 *alenp, ub1 *piecep,
             dvoid **indpp, ub2 **rcodepp)
{
    amtctx *actx;
    actx = (amtctx*)ctxp;

    *bufpp = &actx->ol_amt[index];
    *indpp = &actx->ol_amt_ind[index];
    actx->ol_amt_len[index]=sizeof(actx->ol_amt[0]);
    *alenp = &actx->ol_amt_len[index];
    *rcodepp = &actx->ol_amt_rcode[index];
    *piecep = OCI_ONE_PIECE;
    return (OCI_CONTINUE);
}

/*****
* DBExecution member functions
*****/

DBExecution::DBExecution()
{
    tracelevel = 0;
    logon = 0;

```

```

new_init = 0;
pay_init = 0;
ord_init = 0;
del_init_oci = 0;
del_init_plsql = 0;
sto_init = 0;
}

DBExecution::~DBExecution()
{
}

#define SQLTXTNEW2 "BEGIN inittpc.init_no(:idx1arr); END;"
#define SQLTXTDEL "BEGIN inittpc.init_del; END;"
#define SQLTXTDEL1 "DELETE FROM nord WHERE no_d_id = :d_id \
AND no_w_id = :w_id and rownum <= 1 \
RETURNING no_o_id into :o_id "

#define SQLTXTDEL3 "UPDATE ordr SET o_carrier_id = :carrier_id \
WHERE o_id = :o_id and o_d_id = :d_id and o_w_id = :w_id \
returning o_c_id into :o_c_id"

#define SQLTXTDEL4 "UPDATE ordl \
SET ol_delivery_d = :cr_date \
WHERE ol_w_id = :w_id AND ol_d_id = :d_id AND ol_o_id = :o_id \
RETURNING sum(ol_amount) into :ol_amount "

#define SQLTXTDEL6 "UPDATE cust SET c_balance = c_balance + :amt, \
c_delivery_cnt = c_delivery_cnt + 1 WHERE c_w_id = :w_id AND \
c_d_id = :d_id AND c_id = :c_id"

#define SQLCUR0 "SELECT rowid FROM cust \
WHERE c_d_id = :d_id AND c_w_id = :w_id AND c_last = \
:c_last \
ORDER BY c_last, c_d_id, c_w_id, c_firs"

#define SQLCUR1 "SELECT /*+ USE_NL(cust) INDEX_DESC(ordr iordr2) \
*/ \
c_id, c_balance, c_first, c_middle, c_last, \
o_id, o_entry_d, o_carrier_id, o_ol_cnt \
FROM cust, ordr \
WHERE cust.rowid = :cust_rowid \
AND o_d_id = c_d_id AND o_w_id = c_w_id AND o_c_id = \
c_id \
ORDER BY o_c_id DESC, o_d_id DESC, o_w_id DESC, o_id \
DESC"

#define SQLCUR2 "SELECT /*+ USE_NL(cust) INDEX_DESC(ordr \
iordr2) */ \
c_balance, c_first, c_middle, c_last, \
o_id, o_entry_d, o_carrier_id, o_ol_cnt \
FROM cust, ordr \
WHERE c_id = :c_id AND c_d_id = :d_id AND c_w_id = :w_id \
AND o_d_id = c_d_id AND o_w_id = c_w_id AND o_c_id = c_id \
\
ORDER BY o_c_id DESC, o_d_id DESC, o_w_id DESC , o_id \
DESC"

#define SQLCUR3 "SELECT /*+ INDEX(ordl) */ \
ol_i_id, ol_supply_w_id, ol_quantity, ol_amount, ol_delivery_d \
FROM ordl \
WHERE ol_o_id = :o_id AND ol_d_id = :d_id AND ol_w_id = \
:w_id"

#define SQLCUR4 "SELECT count(c_last) FROM cust \
WHERE c_d_id = :d_id AND c_w_id = :w_id AND c_last = \
:c_last "

#ifdef PLSQLSTO
#define SQLTXTSTO "BEGIN stocklevel.getstocklevel (:w_id, :d_id, \
:threshold, \
:low_stock); END;"
#else
#define SQLTXTSTO "SELECT /*+ nocache (stok) */ count (DISTINCT \
s_i_id) \
FROM ordl, stok, dist \
WHERE d_id = :d_id AND d_w_id = :w_id AND \
d_id = ol_d_id AND d_w_id = ol_w_id AND \
ol_i_id = s_i_id AND ol_w_id = s_w_id AND \
s_quantity < :threshold AND \
ol_o_id BETWEEN (d_next_o_id - 20) AND (d_next_o_id - 1) \
order by ol_o_id desc"
#endif

#define SQLTXT_INIT "BEGIN inittpc.init_pay; END;"

```

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```

int DBExecution::sqlfile(char *fnam, text *linebuf)
{
    FILE *fd;
    int nulpt = 0;
    char realfile[512];

    sprintf(realfile,"%s",fnam);
    fd = fopen(realfile,"r");
    if (!fd){
        fprintf(stderr," fopen on %s failed %d\n",fnam,fd);
        exit(-1);
    }
    while (fgets((char *)linebuf+nulpt, SQL_BUF_SIZE,fd))
        nulpt = strlen((char *)linebuf);

    fclose(fd);

    return(nulpt);
}

int DBExecution::ocierror(char *fname, int lineno, OCIError *errhp, sword
status)
{
    text errbuf[512];
    sb4 errcode;
    sb4 lstat;
    ub4 recno=2;

    switch (status) {
    case OCI_SUCCESS:
        break;
    case OCI_SUCCESS_WITH_INFO:
        userlog("ocierror: Module %s Line %d\n", fname, lineno);
        userlog("ocierror: Error - OCI_SUCCESS_WITH_INFO\n");
        lstat = OCIErrorGet (errhp, recno++, (text *) NULL, &errcode, errbuf,
            (ub4) sizeof(errbuf), OCI_HTYPE_ERROR);
        userlog("ocierror: Error - %s\n", errbuf);
        break;
    case OCI_NEED_DATA:
        userlog("ocierror: Module %s Line %d\n", fname, lineno);
        userlog("ocierror: Error - OCI_NEED_DATA\n");
        return (IRRECERR);
    case OCI_NO_DATA:
        userlog("ocierror: Module %s Line %d\n", fname, lineno);
        userlog("ocierror: Error - OCI_NO_DATA\n");
        return (IRRECERR);
    case OCI_ERROR:
        lstat = OCIErrorGet (errhp, (ub4) 1,
            (text *) NULL, &errcode, errbuf,
            (ub4) sizeof(errbuf),
OCI_HTYPE_ERROR);
        if (errcode == NOT_SERIALIZABLE) return (errcode);
        if (errcode == SNAPSHOT_TOO_OLD) return (errcode);
        while (lstat != OCI_NO_DATA)
        {
            userlog("ocierror: Module %s Line %d\n", fname, lineno);
            userlog("ocierror: Error - %s\n", errbuf);
            lstat = OCIErrorGet (errhp, recno++, (text *) NULL, &errcode, errbuf,
                (ub4) sizeof(errbuf), OCI_HTYPE_ERROR);
        }
        return (errcode);
    /* vmm313 TPCexit(1); */
    /* vmm313 exit(1); */
    case OCI_INVALID_HANDLE:
        userlog("ocierror: Module %s Line %d\n", fname, lineno);
        userlog("ocierror: Error - OCI_INVALID_HANDLE\n");
        TPCexit();
        exit(-1);
    case OCI_STILL_EXECUTING:
        userlog("ocierror: Module %s Line %d\n", fname, lineno);
        userlog("ocierror: Error - OCI_STILL_EXECUTE\n");
        return (IRRECERR);
    case OCI_CONTINUE:
        userlog("ocierror: Module %s Line %d\n", fname, lineno);
        userlog("ocierror: Error - OCI_CONTINUE\n");
        return (IRRECERR);
    default:
        userlog("ocierror: Module %s Line %d\n", fname, lineno);
        userlog("ocierror: Status - %s\n", status);
        return (IRRECERR);
    }
    return (RECOVERR);
}

/*****
*****
* TPCinit TPCexit
*****/

```

```

*****/

int DBExecution::TPCinit (int id, char *uid, char *pwd)
{
    // OCIInitialize(OCI_DEFAULT|OCI_OBJECT,(dvoid *)0,0,0,0);
    // OCIEnvCreate(&tpcenv, OCI_DEFAULT|OCI_OBJECT,(dvoid
    *)0,0,0,0, (dvoid **)0);

    #ifndef LOOPBACK

        text stmbuff[100];
        int i;

        #define SQLTXT "alter session set isolation_level = serializable"
        #define SQLTXTTRC "alter session set sql_trace = true"
        #define SQLTXTTIM "alter session set timed_statistics = true"
        #define SQLTXTOPS "alter session set current_schema = tpcc"

        proc_no = id;
        /*
        char *temp;

        if ((temp = getenv("LOCAL"))==NULL)
            _putenv("LOCAL=tpcc");

        OCIInitialize(OCI_DEFAULT|OCI_OBJECT,(dvoid *)0,0,0,0); /*
        // OCIERROR(errhp, OCIInitialize(OCI_THREADED|OCI_OBJECT,(dvoid
        *)0,0,0,0);
        // OCIERROR(errhp, OCIEnvInit(&tpcenv, OCI_DEFAULT, 0, (dvoid **)0);

        OCIEnvCreate(&tpcenv, OCI_DEFAULT|OCI_OBJECT,(dvoid
        *)0,0,0,0, (dvoid **)0);

        OCIERROR(errhp, OCIHandleAlloc((dvoid *)tpcenv, (dvoid **)&tpcsrv,
        OCI_HTYPE_SERVER, 0, (dvoid **)0);
        OCIERROR(errhp, OCIHandleAlloc((dvoid *)tpcenv, (dvoid **)&errhp,
        OCI_HTYPE_ERROR, 0, (dvoid **)0);
        OCIERROR(errhp, OCIHandleAlloc((dvoid *)tpcenv, (dvoid **)&tpcsvc,
        OCI_HTYPE_SVCCTX, 0, (dvoid **)0);

        for (i=0; i<100; i++) {

            execstatus = OCIServerAttach(tpcsrv, errhp,
            (text *)0,0,OCI_DEFAULT);
            if (execstatus == OCI_SUCCESS || execstatus
            == OCI_SUCCESS_WITH_INFO)
                break;
            OCIERROR(errhp, execstatus);
            Sleep(10);
        }

        if (i==100) {
            userlog("Can't attach to Server after 100 tries\n");
            return -1;
        }

        OCIERROR(errhp, OCIAttrSet((dvoid *)tpcsvc, OCI_HTYPE_SVCCTX,
        (dvoid *)tpcsrv, (ub4)0,OCI_ATTR_SERVER, errhp));
        OCIERROR(errhp, OCIHandleAlloc((dvoid *)tpcenv, (dvoid **)&tpcusr,
        OCI_HTYPE_SESSION, 0, (dvoid **)0);
        #ifdef OPS_LOGIN
        OCIERROR(errhp, OCISessionBegin(tpcsvc, errhp, tpcusr,
        OCI_CRED_EXT, OCI_DEFAULT));
        #else
        OCIERROR(errhp, OCIAttrSet((dvoid *)tpcusr, OCI_HTYPE_SESSION,
        (dvoid *)uid, (ub4)strlen(uid),OCI_ATTR_USERNAME, errhp));
        OCIERROR(errhp, OCIAttrSet((dvoid *)tpcusr, OCI_HTYPE_SESSION,
        (dvoid *)pwd, (ub4)strlen(pwd),
        OCI_ATTR_PASSWORD, errhp));
        OCIERROR(errhp, OCISessionBegin(tpcsvc, errhp, tpcusr,
        OCI_CRED_RDBMS, OCI_DEFAULT));
        #endif

        OCIERROR(errhp, OCIAttrSet(tpcsvc, OCI_HTYPE_SVCCTX, tpcusr, 0,
        OCI_ATTR_SESSION, errhp));

        /* run all transaction in serializable mode */

        OCIHandleAlloc(tpcenv, (dvoid **)&curi, OCI_HTYPE_STMT, 0,
        (dvoid **)0);
        sprintf((char *) stmbuff, SQLTXT);
        OCISStmtPrepare(curi, errhp, stmbuff, strlen((char *)stmbuff),
        OCI_NTV_SYNTAX, OCI_DEFAULT);
        OCIERROR(errhp,OCISStmtExecute(tpcsvc, curi,
        errhp,1,0,0,0,OCI_DEFAULT));

        OCIHandleFree(curi, OCI_HTYPE_STMT);

    #endif OPS_LOGIN

```





## APPENDIX A - APPLICATION SOURCE CODE

```

        ADR(o_all_local), SIZ(o_all_local),SQLT_INT, &nctx-
->o_all_local_len);
    OCIBNDPL(nctx->curr1, nctx->o_all_cnt_bp, errhp,
    ":o_all_cnt",ADR(o_all_cnt),
        SIZ(o_all_cnt),SQLT_INT, &nctx->o_all_cnt_len);
    OCIBNDPL(nctx->curr1, nctx->w_tax_bp, errhp,
    ":w_tax",ADR(w_tax),SIZ(w_tax),
        SQLT_FLT, &nctx->w_tax_len);
    OCIBNDPL(nctx->curr1, nctx->d_tax_bp, errhp,
    ":d_tax",ADR(d_tax),SIZ(d_tax),
        SQLT_FLT, &nctx->d_tax_len);
    OCIBNDPL(nctx->curr1, nctx->o_id_bp, errhp,
    ":o_id",ADR(o_id),SIZ(o_id),
        SQLT_INT, &nctx->o_id_len);
    OCIBNDPL(nctx->curr1, nctx->c_discount_bp, errhp, "c_discount",
        ADR(c_discount),SIZ(c_discount),SQLT_FLT, &nctx-
->c_discount_len);
    OCIBNDPL(nctx->curr1, nctx->c_credit_bp, errhp, "c_credit",c_credit,
        SIZ(c_credit),SQLT_CHR, &nctx->c_credit_len);
    OCIBNDPL(nctx->curr1, nctx->c_last_bp, errhp,
    ":c_last",c_last,SIZ(c_last),
        SQLT_STR, &nctx->c_last_len);
    OCIBNDPL(nctx->curr1, nctx->retries_bp, errhp, "retry",ADR(retries),
        SIZ(retries),SQLT_INT, &nctx->retries_len);
    OCIBNDPL(nctx->curr1, nctx->cr_date_bp, errhp, "cr_date",&cr_date,
        SIZ(OCIDate), SQLT_ODT, &nctx->cr_date_len);

    OCIBNDPLA(nctx->curr1, nctx->ol_i_id_bp,errhp,":ol_i_id",noI_i_id,
        SIZ(int), SQLT_INT, nctx->noI_i_id_len,NITEMS,&nctx-
->noI_i_count);
    OCIBNDPLA(nctx->curr1, nctx->ol_supply_w_id_bp, errhp,
    ":ol_supply_w_id",
        noI_supply_w_id,SIZ(int),SQLT_INT, nctx->noI_supply_w_id_len,
        NITEMS, &nctx->noI_s_count);

#ifdef USE_IEEE_NUMBER
    OCIBNDPLA(nctx->curr1, nctx->ol_quantity_bp,errhp,":ol_quantity",
        noI_quantity, SIZ(double),SQLT_Bdouble,nctx->noI_quantity_len,
        NITEMS,&nctx->noI_q_count);

    OCIBNDPLA(nctx->curr1, nctx-
->i_price_bp,errhp,":i_price",i_price,SIZ(double),
        SQLT_Bdouble, nctx->i_price_len, NITEMS, &nctx-
->noI_item_count);
#else
    OCIBNDPLA(nctx->curr1, nctx->ol_quantity_bp,errhp,":ol_quantity",
        noI_quantity, SIZ(int),SQLT_INT,nctx->noI_quantity_len,
        NITEMS,&nctx->noI_q_count);

    OCIBNDPLA(nctx->curr1, nctx-
->i_price_bp,errhp,":i_price",i_price,SIZ(int),
        SQLT_INT, nctx->i_price_len, NITEMS, &nctx->noI_item_count);
#endif /* USE_IEEE_NUMBER */
    OCIBNDPLA(nctx->curr1, nctx->i_name_bp,errhp,":i_name",i_name,
        SIZ(i_name[0]),SQLT_STR, nctx->i_name_len,NITEMS,
        &nctx->noI_name_count);

#ifdef USE_IEEE_NUMBER
    OCIBNDPLA(nctx->curr1, nctx-
->s_quantity_bp,errhp,":s_quantity",s_quantity,
        SIZ(double), SQLT_Bdouble,nctx->s_quant_len,NITEMS,&nctx-
->noI_qty_count);
#else
    OCIBNDPLA(nctx->curr1, nctx-
->s_quantity_bp,errhp,":s_quantity",s_quantity,
        SIZ(int), SQLT_INT,nctx->s_quant_len,NITEMS,&nctx-
->noI_qty_count);
#endif /* USE_IEEE_NUMBER */

    OCIBNDPLA(nctx->curr1, nctx-
->s_bg_bp, errhp, "brand_generic",brand_generic,
        SIZ(char), SQLT_CHR,nctx->s_bg_len,NITEMS,&nctx-
->noI_bg_count);
#ifdef USE_IEEE_NUMBER
    OCIBNDPLA(nctx->curr1, nctx-
->ol_amount_bp,errhp,":ol_amount",noI_amount,
        SIZ(double),SQLT_Bdouble, nctx->noI_amount_len,NITEMS,&nctx-
->noI_am_count);

    OCIBNDPLA(nctx->curr1, nctx->s_remote_bp,errhp,":s_remote",nctx-
->s_remote,
        SIZ(double),SQLT_Bdouble, nctx->s_remote_len,NITEMS,&nctx-
->s_remote_count);
#else
    OCIBNDPLA(nctx->curr1, nctx-
->ol_amount_bp,errhp,":ol_amount",noI_amount,
        SIZ(int),SQLT_INT, nctx->noI_amount_len,NITEMS,&nctx-
->noI_am_count);

    OCIBNDPLA(nctx->curr1, nctx->s_remote_bp,errhp,":s_remote",nctx-
->s_remote,
        SIZ(int),SQLT_INT, nctx->s_remote_len,NITEMS,&nctx-
->s_remote_count);
#endif /* USE_IEEE_NUMBER */

    /* open second cursor */
    DISCARD OCIERROR(errhp,OCIHandleAlloc(tpcenv, (dvoid **)&nctx-
->curr2),
        OCI_HTYPE_STMT, 0, (dvoid**)0);
    DISCARD sprintf ((char *) stmbuf, SQLTXNEW2);
    DISCARD OCIERROR(errhp,OCIStmtPrepare(nctx->curr2, errhp,
    stmbuf,
        strlen((char *)stmbuf), OCI_NTV_SYNTAX, OCI_DEFAULT));

    /* execute second cursor to init newinit package */
    {
        int idx1arr[NITEMS];
        OCIBind "idx1arr_bp";
        ub2 idx1arr_len[NITEMS];
        sb2 idx1arr_ind[NITEMS];
        ub4 idx1arr_count;
        ub2 idx;

        for (idx = 0; idx < NITEMS; idx++) {
            idx1arr[idx] = idx + 1;
            idx1arr_ind[idx] = TRUE;
            idx1arr_len[idx] = sizeof(int);
        }
        idx1arr_count = NITEMS;
        o_all_cnt = NITEMS;

        /* Bind array */
        OCIBNDPLA(nctx->curr2, idx1arr_bp,errhp,":idx1arr",idx1arr,
            SIZ(int), SQLT_INT, idx1arr_len, NITEMS,&idx1arr_count);

        execstatus = OCIStmtExecute(tpcenv,nctx->curr2,errhp,1,0,
            NULL(CONST
            OCISnapshot),NULL(OCISnapshot),OCI_DEFAULT);

        if(execstatus != OCI_SUCCESS) {
            OCITransRollback(tpcenv,errhp,OCI_DEFAULT);
            errcode = OCIERROR(errhp,execstatus);
            return -1;
        }
    }

    return (0);
}

void DBExecution::tkvcndone ()
{
    if (nctx)
    {
        DISCARD OCIHandleFree((dvoid *)nctx->curr1,OCI_HTYPE_STMT);
        DISCARD OCIHandleFree((dvoid *)nctx->curr2,OCI_HTYPE_STMT);
        free (nctx);
    }
}

int DBExecution::tkvodinit (int plsqflag)
{
    text stmbuf[SQL_BUF_SIZE];

    if (plsqflag)
    {
        pldctx = (pldelctx *) malloc (sizeof(pldelctx));
        DISCARD memset(pldctx, (char)0, (ub4)sizeof(pldelctx));
        /* Initialize */
        DISCARD OCIHandleAlloc(tpcenv, (dvoid **)&pldctx->curr1,
            OCI_HTYPE_STMT, 0,
            (dvoid**)0);
        DISCARD sprintf ((char *) stmbuf, SQLTXTDEL);
        DISCARD OCIStmtPrepare(pldctx->curr1, errhp, stmbuf,
            (ub4) strlen((char *)stmbuf),
            OCI_NTV_SYNTAX, OCI_DEFAULT);
        DISCARD OCIERROR(errhp,
            OCIStmtExecute(tpcenv,pldctx-
->curr1,errhp,1,0,NULL(OCISnapshot),
            NULL(OCISnapshot), OCI_DEFAULT));

        DISCARD OCIHandleAlloc(tpcenv,(dvoid **)&pldctx->curr2,
            OCI_HTYPE_STMT,
            0, (dvoid**)0);
        #if defined(ISO5) || defined(ISO6) || defined(ISO8)
    }
}

```

# APPENDIX A - APPLICATION SOURCE CODE

```

#if defined(ISO5)
sqlfile(".\blocks\tkvcpedel_iso5.sql",stmbuf);
#endif
#if defined(ISO6)
sqlfile(".\blocks\tkvcpedel_iso6.sql",stmbuf);
#endif
#if defined(ISO8)
sqlfile(".\blocks\tkvcpedel_iso8.sql",stmbuf);
#endif
#else
sqlfile(".\blocks\tkvcpedel.sql",stmbuf);
#endif
DISCARD OCISmtPrepare(pldctx->curp2, errhp, stmbuf,
(ub4)strlen((char *)stmbuf), OCI_NTV_SYNTAX,
OCI_DEFAULT);
OCIBNDPL(pldctx->curp2, pldctx->w_id_bp, errhp, "w_id",
ADR(w_id), SIZ(int), SQLT_INT, &pldctx->w_id_len);
OCIBNDPL(pldctx->curp2, pldctx->ordcnt_bp, errhp, "ordcnt",
ADR(pldctx->ordcnt), SIZ(int), SQLT_INT, &pldctx->ordcnt_len);
OCIBNDPL(pldctx->curp2, pldctx->del_date_bp, errhp, "now",
ADR(pldctx->del_date), SIZ(OCIDate), SQLT_ODT, &pldctx-
>del_date_len);
OCIBNDPL(pldctx->curp2, pldctx->carrier_id_bp, errhp,
"carrier_id", ADR(o_carrier_id), SIZ(int),
SQLT_INT, &pldctx->carrier_id_len);

OCIBNDPLA(pldctx->curp2, pldctx->d_id_bp, errhp, "d_id",
pldctx->del_d_id, SIZ(int), SQLT_INT, pldctx->del_d_id_len,
NDISTS, &pldctx->del_d_id_rcnt);
OCIBNDPLA(pldctx->curp2, pldctx->o_id_bp, errhp, "order_id",
pldctx->del_o_id, SIZ(int), SQLT_INT, pldctx-
>del_o_id_len, NDISTS,
&pldctx->del_o_id_rcnt);
#endif USE_IEEE_NUMBER
OCIBNDPLA(pldctx->curp2, pldctx->sums_bp, errhp, "sums",
pldctx->sums, SIZ(double), SQLT_Bdouble, pldctx-
>sums_len, NDISTS,
&pldctx->sums_rcnt);
#else
OCIBNDPLA(pldctx->curp2, pldctx->sums_bp, errhp, "sums",
pldctx->sums, SIZ(int), SQLT_INT, pldctx->sums_len, NDISTS,
&pldctx->sums_rcnt);
#endif
}
else
{
dctx = (delctx *) malloc(sizeof(delctx));
memset(dctx, (char)0, sizeof(delctx));
dctx->norow = 0;
actx = (amtctx *) malloc(sizeof(amtctx));
memset(actx, (char)0, sizeof(amtctx));

OCIHandleAlloc(tpcenv, (dvoid **)&dctx->curd1), OCI_HTYPE_STMT,
0,
(dvoid**)0);
DISCARD sprintf((char *) stmbuf, "%s", SQLTXTDEL1);
DISCARD OCISmtPrepare(dctx->curd1, errhp, stmbuf,
strlen((char *)stmbuf), OCI_NTV_SYNTAX,
OCI_DEFAULT);

OCIBND(dctx->curd1, dctx->w_id_bp, errhp, "w_id", dctx->w_id, SIZ(int),
SQLT_INT);
OCIBNDRA(dctx->curd1, dctx->d_id_bp, errhp, "d_id", dctx-
>d_id, SIZ(int),
SQLT_INT, NULL, NULL, NULL);

OCIBNDRAD(dctx->curd1, dctx->del_o_id_bp, errhp, "o_id",
SIZ(int), SQLT_INT, NULL,
&dctx->oid_ctx, no_data, TPC_oid_data);

/* open third cursor */
DISCARD OCIHandleAlloc(tpcenv, (dvoid **)&dctx->curd3),
OCI_HTYPE_STMT,
0, (dvoid**)0);
DISCARD sprintf((char *) stmbuf, SQLTXTDEL3);
DISCARD OCISmtPrepare(dctx->curd3, errhp, stmbuf, strlen((char
*)stmbuf),
OCI_NTV_SYNTAX, OCI_DEFAULT);

/* bind variables */
OCIBNDRA(dctx->curd3, dctx->carrier_id_bp, errhp, "carrier id",

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dctx->carrier_id, SIZ(dctx->carrier_id[0]), SQLT_INT,
dctx->carrier_id_ind, dctx->carrier_id_len, dctx->carrier_id_rcode);

OCIBNDRA(dctx->curd3, dctx->w_id_bp3, errhp, "w_id", dctx-
>w_id, SIZ(int),
SQLT_INT, NULL, NULL, NULL);
OCIBNDRA(dctx->curd3, dctx->d_id_bp3, errhp, "d_id", dctx-
>d_id, SIZ(int),
SQLT_INT, NULL, NULL, NULL);
OCIBNDRA(dctx->curd3, dctx->del_o_id_bp3, errhp, "o_id", dctx-
>del_o_id,
SIZ(int), SQLT_INT, NULL, NULL, NULL);
OCIBNDRAD(dctx->curd3, dctx->c_id_bp3, errhp, "o_c_id", SIZ(int),
SQLT_INT, NULL, &dctx->cid_ctx, no_data, cid_data);

/* open fourth cursor */
DISCARD OCIHandleAlloc(tpcenv, (dvoid **)&dctx->curd4),
OCI_HTYPE_STMT, 0,
(dvoid**)0);
DISCARD sprintf((char *) stmbuf, SQLTXTDEL4);
DISCARD OCISmtPrepare(dctx->curd4, errhp, stmbuf, strlen((char
*)stmbuf),
OCI_NTV_SYNTAX, OCI_DEFAULT);

/* bind variables */
OCIBND(dctx->curd4, dctx->w_id_bp4, errhp, "w_id", dctx->w_id,
SIZ(int), SQLT_INT);
OCIBND(dctx->curd4, dctx->d_id_bp4, errhp, "d_id", dctx->d_id,
SIZ(int), SQLT_INT);
OCIBND(dctx->curd4, dctx->o_id_bp, errhp, "o_id", dctx->del_o_id,
SIZ(int), SQLT_INT);
OCIBND(dctx->curd4, dctx->cr_date_bp, errhp, "cr_date", dctx-
>del_date,
SIZ(OCIDate), SQLT_ODT);
OCIBNDRAD(dctx->curd4, dctx->olamt_bp, errhp, "o_lamount",
SIZ(int), SQLT_INT, NULL, actx, no_data, amt_data);

/* open sixth cursor */
DISCARD OCIHandleAlloc(tpcenv, (dvoid **)&dctx->curd6),
OCI_HTYPE_STMT,
0, (dvoid**)0);
DISCARD sprintf((char *) stmbuf, SQLTXTDEL6);
DISCARD OCISmtPrepare(dctx->curd6, errhp, stmbuf, strlen((char
*)stmbuf),
OCI_NTV_SYNTAX, OCI_DEFAULT);

/* bind variables */
OCIBND(dctx->curd6, dctx->amt_bp, errhp, "amt", dctx->amt, SIZ(int),
SQLT_INT);
OCIBND(dctx->curd6, dctx->w_id_bp6, errhp, "w_id", dctx-
>w_id, SIZ(int),
SQLT_INT);
OCIBND(dctx->curd6, dctx->d_id_bp6, errhp, "d_id", dctx->d_id, SIZ(int),
SQLT_INT);
OCIBND(dctx->curd6, dctx->c_id_bp, errhp, "c_id", dctx->c_id, SIZ(int),
SQLT_INT);
}
return (0);
}

void DBExecution::shiftdata(int from)
{
int i;
for (i=from; i<NDISTS-1; i++)
{
dctx->del_o_id_ind[i] = dctx->del_o_id_ind[i+1];
dctx->del_o_id[i] = dctx->del_o_id[i+1];
dctx->w_id[i] = dctx->w_id[i+1];
dctx->d_id[i] = dctx->d_id[i+1];
dctx->carrier_id[i] = dctx->carrier_id[i+1];
}
}

void DBExecution::tkvcddone(int plsqqflag)
{
if (plsqqflag)
{
if (pldctx)
{
DISCARD OCIHandleFree((dvoid *)dctx->curd0, OCI_HTYPE_STMT);

```

# APPENDIX A - APPLICATION SOURCE CODE

```

        DISCARD free(pldctx);
    }
}
else
{
    if (dctx)
    {
        OCIHandleFree((dvoid *)dctx->curd1,OCI_HTYPE_STMT);
        OCIHandleFree((dvoid *)dctx->curd2,OCI_HTYPE_STMT);
        OCIHandleFree((dvoid *)dctx->curd3,OCI_HTYPE_STMT);
        OCIHandleFree((dvoid *)dctx->curd4,OCI_HTYPE_STMT);
        OCIHandleFree((dvoid *)dctx->curd5,OCI_HTYPE_STMT);
        OCIHandleFree((dvoid *)dctx->curd6,OCI_HTYPE_STMT);
        DISCARD free (dctx);
    }
}

int DBExecution::tkvcoininit ()
{
    int i;
    text stmbuf[SQL_BUF_SIZE];

    octx = (ordctx *) malloc (sizeof(ordctx));
    DISCARD memset(octx,(char)0,sizeof(ordctx));
    octx->cs = 1;
    octx->norow = 0;
    octx->somerows = 10;
    for(i=0;i<100;i++) {
        DISCARD OCIERROR(errhp, OCIDescriptorAlloc(tpcenv,
            (dvoid**) &octx->c_rowid_ptr[i],
            OCI_DTYPE_ROWID,0,(dvoid**)0));
    }

    DISCARD OCIERROR(errhp,
        OCIHandleAlloc(tpcenv,(dvoid**) &octx-
        >curo0,OCI_HTYPE_STMT,0,(dvoid**)0));
    DISCARD OCIERROR(errhp,
        OCIHandleAlloc(tpcenv,(dvoid**) &octx-
        >curo0,OCI_HTYPE_STMT,0,(dvoid**)0));
    DISCARD OCIERROR(errhp,
        OCIHandleAlloc(tpcenv,(dvoid**) &octx-
        >curo1,OCI_HTYPE_STMT,0,(dvoid**)0));
    DISCARD OCIERROR(errhp,
        OCIHandleAlloc(tpcenv,(dvoid**) &octx-
        >curo2,OCI_HTYPE_STMT,0,(dvoid**)0));
    DISCARD OCIERROR(errhp,
        OCIHandleAlloc(tpcenv,(dvoid**) &octx-
        >curo3,OCI_HTYPE_STMT,0,(dvoid**)0));
    DISCARD OCIERROR(errhp,
        OCIHandleAlloc(tpcenv,(dvoid**) &octx-
        >curo4,OCI_HTYPE_STMT,0,(dvoid**)0));

    /* c_id = 0, use find customer by lastname. Get an array or rowid's back*/
    DISCARD sprintf((char *) stmbuf, SQLCUR0);
    DISCARD OCIERROR(errhp,
        OCISmtPrepare(octx->curo0,errhp,stmbuf,(ub4)strlen((char *)stmbuf),
            OCI_NTV_SYNTAX,OCI_DEFAULT));
    DISCARD OCIERROR(errhp,
        OCIAttrSet(octx->curo0,OCI_HTYPE_STMT,&octx->norow,0,
            OCI_ATTR_PREFETCH_ROWS,errhp));
    /* get order/customer info back based on rowid */
    DISCARD sprintf((char *) stmbuf, SQLCUR1);
    DISCARD OCIERROR(errhp,
        OCISmtPrepare(octx->curo1,errhp,stmbuf,(ub4)strlen((char *)stmbuf),
            OCI_NTV_SYNTAX,OCI_DEFAULT));
    DISCARD OCIERROR(errhp,
        OCIAttrSet(octx->curo1,OCI_HTYPE_STMT,&octx->norow,0,
            OCI_ATTR_PREFETCH_ROWS,errhp));

    /* c_id == 0, use lastname to find customer */
    DISCARD sprintf((char *) stmbuf, SQLCUR2);
    DISCARD OCIERROR(errhp,
        OCISmtPrepare(octx->curo2,errhp,stmbuf,(ub4)strlen((char *)stmbuf),
            OCI_NTV_SYNTAX,OCI_DEFAULT));
    DISCARD OCIERROR(errhp,
        OCIAttrSet(octx->curo2,OCI_HTYPE_STMT,&octx->norow,0,
            OCI_ATTR_PREFETCH_ROWS,errhp));

    DISCARD sprintf((char *) stmbuf, SQLCUR3);
    DISCARD OCIERROR(errhp,
        OCISmtPrepare(octx->curo3,errhp,stmbuf,(ub4)strlen((char *)stmbuf),
            OCI_NTV_SYNTAX,OCI_DEFAULT));
    DISCARD OCIERROR(errhp,
        OCIAttrSet(octx->curo3,OCI_HTYPE_STMT,&octx->norow,0,
            OCI_ATTR_PREFETCH_ROWS,errhp));

    DISCARD sprintf((char *) stmbuf, SQLCUR4);
    DISCARD OCIERROR(errhp,
        OCISmtPrepare(octx->curo4,errhp,stmbuf,(ub4)strlen((char *)stmbuf),
            OCI_NTV_SYNTAX,OCI_DEFAULT));
    DISCARD OCIERROR(errhp,
        OCIAttrSet(octx->curo4,OCI_HTYPE_STMT,&octx->norow,0,
            OCI_ATTR_PREFETCH_ROWS,errhp));

    for (i = 0; i < NITEMS; i++) {
        octx->ol_supply_w_id_len[i] = sizeof(int);
        octx->ol_i_id_len[i] = sizeof(int);
        octx->ol_quantity_len[i] = sizeof(int);
        octx->ol_amount_len[i] = sizeof(int);
        octx->ol_delivery_d_len[i] = sizeof(ol_d_base[0]);
    }
    octx->ol_supply_w_id_csize = NITEMS;
    octx->ol_i_id_csize = NITEMS;
    octx->ol_quantity_csize = NITEMS;
    octx->ol_amount_csize = NITEMS;
    octx->ol_delivery_d_csize = NITEMS;
    octx->ol_w_id_csize = NITEMS;
    octx->ol_o_id_csize = NITEMS;
    octx->ol_d_id_csize = NITEMS;
    octx->ol_w_id_len = sizeof(int);
    octx->ol_d_id_len = sizeof(int);
    octx->ol_o_id_len = sizeof(int);

    /* bind variables */

    /* c_id (customer id) is not known */
    OCIBND(octx->curo0,octx->w_id_bp[0],errhp,":w_id",ADR(w_id),
        SIZ(int),SQLT_INT);
    OCIBND(octx->curo0,octx->d_id_bp[0],errhp,":d_id",ADR(d_id),
        SIZ(int),SQLT_INT);
    OCIBND(octx->curo0,octx->c_last_bp[0],errhp,":c_last",c_last,
        SIZ(c_last),SQLT_STR);
    OCIDFNRA(octx->curo0,octx->c_rowid_dp,errhp,1,octx->c_rowid_ptr,
        SIZ(OCIRowid*),SQLT_RDD,NULL,octx->c_rowid_len,NULL);

    OCIBND(octx->curo1,octx->c_rowid_bp,errhp,":cust_rowid", &octx-
    >c_rowid_cust,
        sizeof(octx->c_rowid_ptr[0]),SQLT_RDD);
    OCIDEF(octx->curo1,octx-
    >c_id_dp,errhp,1,ADR(c_id),SIZ(int),SQLT_INT);
    #ifdef USE_IEEE_NUMBER
        OCIDEF(octx->curo1,octx->c_balance_dp[0],errhp,2,ADR(c_balance),
            SIZ(double),SQLT_BDOUBLE);
    #else
        OCIDEF(octx->curo1,octx->c_balance_dp[0],errhp,2,ADR(c_balance),
            SIZ(double),SQLT_FLT);
    #endif /* USE_IEEE_NUMBER */
    OCIDEF(octx->curo1,octx->c_first_dp[0],errhp,3,c_first,SIZ(c_first)-1,
        SQLT_CHR);
    OCIDEF(octx->curo1,octx->c_middle_dp[0],errhp,4,c_middle,
        SIZ(c_middle)-1,SQLT_AFC);
    OCIDEF(octx->curo1,octx->c_last_dp[0],errhp,5,c_last,SIZ(c_last)-1,
        SQLT_CHR);
    OCIDEF(octx->curo1,octx-
    >o_id_dp[0],errhp,6,ADR(o_id),SIZ(int),SQLT_INT);
    OCIDEF(octx->curo1,octx->o_entry_d_dp[0],errhp,7,
        &o_entry_d_base,SIZ(OCIDate),SQLT_ODT);
    OCIDEF(octx->curo1,octx->o_cr_id_dp[0],errhp,8,ADR(o_carrier_id),
        SIZ(int),SQLT_INT);
    OCIDEF(octx->curo1,octx->o_ol_cnt_dp[0],errhp,9,ADR(o_ol_cnt),
        SIZ(int),SQLT_INT);

    /* Bind for third cursor , no-zero customer id */
    OCIBND(octx->curo2,octx->w_id_bp[1],errhp,":w_id",ADR(w_id),
        SIZ(int),SQLT_INT);
    OCIBND(octx->curo2,octx->d_id_bp[1],errhp,":d_id",ADR(d_id),
        SIZ(int),SQLT_INT);
    OCIBND(octx->curo2,octx->c_id_bp,errhp,":c_id",ADR(c_id),
        SIZ(int),SQLT_INT);
    #ifdef USE_IEEE_NUMBER
        OCIDEF(octx->curo2,octx->c_balance_dp[1],errhp,1,ADR(c_balance),
            SIZ(double),SQLT_BDOUBLE);
    #else
        OCIDEF(octx->curo2,octx->c_balance_dp[1],errhp,1,ADR(c_balance),
            SIZ(double),SQLT_FLT);
    #endif /* USE_IEEE_NUMBER */
    OCIDEF(octx->curo2,octx->c_first_dp[1],errhp,2,c_first,SIZ(c_first)-1,
        SQLT_CHR);
    OCIDEF(octx->curo2,octx->c_middle_dp[1],errhp,3,c_middle,
        SIZ(c_middle)-1,SQLT_AFC);
    OCIDEF(octx->curo2,octx->c_last_dp[1],errhp,4,c_last,SIZ(c_last)-1,
        SQLT_CHR);
    OCIDEF(octx->curo2,octx-
    >o_id_dp[1],errhp,5,ADR(o_id),SIZ(int),SQLT_INT);
    OCIDEF(octx->curo2,octx->o_entry_d_dp[1],errhp,6, &o_entry_d_base,
        SIZ(OCIDate),SQLT_ODT);
    OCIDEF(octx->curo2,octx->o_cr_id_dp[1],errhp,7,ADR(o_carrier_id),
        SIZ(int),SQLT_INT);
    OCIDEF(octx->curo2,octx->o_ol_cnt_dp[1],errhp,8,ADR(o_ol_cnt),

```

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        SIZ(int),SQLT_INT);
/* Bind for last cursor */
        OCIBND(octx->cur03,octx->w_id_bp[2],errhp,":w_id",ADR(w_id),
        SIZ(int),SQLT_INT);
        OCIBND(octx->cur03,octx->d_id_bp[2],errhp,":d_id",ADR(d_id),
        SIZ(int),SQLT_INT);
        OCIBND(octx->cur03,octx->o_id_bp,errhp,":o_id",ADR(o_id),
        SIZ(int),SQLT_INT);
/*
        OCIBND(octx->cur03,octx->c_id_bp,errhp,":c_id",ADR(c_id),
        SIZ(int),SQLT_INT);
*/

        OCIDFNRA(octx->cur03, octx->ol_i_id_dp, errhp, 1,
        ol_i_id,SIZ(int),SQLT_INT,
                NULL,octx->ol_i_id_len, NULL);
        OCIDFNRA(octx->cur03,octx->ol_supply_w_id_dp,errhp,2,
        ol_supply_w_id,
                SIZ(int),SQLT_INT, NULL,
                octx->ol_supply_w_id_len, NULL);
#ifdef USE_IEEE_NUMBER
        OCIDFNRA(octx->cur03, octx->ol_quantity_dp,errhp,3,
        ol_quantity,SIZ(double),
                SQLT_Bdouble, NULL,octx->ol_quantity_len, NULL);
        OCIDFNRA(octx->cur03,octx->ol_amount_dp,errhp,4,ol_amount,
        SIZ(double),
                SQLT_Bdouble,NULL, octx->ol_amount_len, NULL);
#else
        OCIDFNRA(octx->cur03, octx->ol_quantity_dp,errhp,3,
        ol_quantity,SIZ(int),
                SQLT_INT, NULL,octx->ol_quantity_len, NULL);
        OCIDFNRA(octx->cur03,octx->ol_amount_dp,errhp,4,ol_amount,
        SIZ(int),
                SQLT_INT,NULL, octx->ol_amount_len, NULL);
#endif /* USE_IEEE_NUMBER */
        OCIDFNRA(octx->cur03,octx->ol_d_base_dp,errhp,5,ol_d_base,SIZ(OCIDate),
        SQLT_ODT, NULL,octx->ol_delivery_d_len,NULL);

        OCIBND(octx->cur04,octx->w_id_bp[3],errhp,":w_id",ADR(w_id),
        SIZ(int),SQLT_INT);
        OCIBND(octx->cur04,octx->d_id_bp[3],errhp,":d_id",ADR(d_id),
        SIZ(int),SQLT_INT);
        OCIBND(octx->cur04,octx->c_last_bp[1],errhp,":c_last",c_last,
        SIZ(c_last), SQLT_STR);
        OCIDEF(octx->cur04,octx->c_count_dp,errhp,1,ADR(octx->
        >rcount),SIZ(int),
                SQLT_INT);

        return (0);
}

void DBExecution::tkvcodone ()
{
        if (octx)
                free (octx);
}

int DBExecution::tkvcpinit (void)
{
        text stmbuff[SQL_BUF_SIZE];
        pctx = (payctx *)malloc(sizeof(payctx));
        memset(pctx,(char)0,sizeof(payctx));

/* cursor for init */
        DISCARD OCIERROR(errhp,OCIHandleAlloc(tpcenv, (dvoid **)&(pctx->
        >curpi)),
                OCI_HTYPE_STMT,0,(dvoid**)0);

        DISCARD OCIERROR(errhp,OCIHandleAlloc(tpcenv, (dvoid **)&(pctx->
        >curp0)),
                OCI_HTYPE_STMT,0,(dvoid**)0);
        DISCARD OCIERROR(errhp,OCIHandleAlloc(tpcenv, (dvoid **)&(pctx->
        >curp1)),
                OCI_HTYPE_STMT,0,(dvoid**)0);

/* build the init statement and execute it */

        sprintf ((char*)stmbuff, SQLTXT_INIT);
        DISCARD OCIERROR(errhp,OCIStmtPrepare(pctx->curpi, errhp,
        stmbuff,
                strlen((char *)stmbuff), OCI_NTV_SYNTAX, OCI_DEFAULT));
        DISCARD OCIERROR(errhp, OCIStmtExecute(tpcscv,pctx->
        >curpi,errhp,1,0,

```

```

        NULLP(CONST
        OCISnapshot),NULLP(OCISnapshot),OCI_DEFAULT));

/* customer id != 0, go by last name */

        sqlfile(".\\blocks\\paynz.sql",stmbuff);
        DISCARD OCIERROR(errhp,OCIStmtPrepare(pctx->curp0, errhp,
        stmbuff,
                strlen((char *)stmbuff), OCI_NTV_SYNTAX, OCI_DEFAULT));

/* customer id == 0, go by last name */

        sqlfile(".\\blocks\\payz.sql",stmbuff); /* sqlfile opens $O/bench/.../blocks/...
*/
        DISCARD OCIERROR(errhp,OCIStmtPrepare(pctx->curp1, errhp,
        stmbuff,
                strlen((char *)stmbuff), OCI_NTV_SYNTAX, OCI_DEFAULT));

        pctx->w_id_len = SIZ(w_id);
        pctx->d_id_len = SIZ(d_id);
        pctx->c_w_id_len = SIZ(c_w_id);
        pctx->c_d_id_len = SIZ(c_d_id);
        pctx->c_id_len = 0;
        pctx->h_amount_len = SIZ(h_amount);
        pctx->c_last_len = 0;
        pctx->w_street_1_len = 0;
        pctx->w_street_2_len = 0;
        pctx->w_city_len = 0;
        pctx->w_state_len = 0;
        pctx->w_zip_len = 0;
        pctx->d_street_1_len = 0;
        pctx->d_street_2_len = 0;
        pctx->d_city_len = 0;
        pctx->d_state_len = 0;
        pctx->d_zip_len = 0;
        pctx->c_first_len = 0;
        pctx->c_middle_len = 0;
        pctx->c_street_1_len = 0;
        pctx->c_street_2_len = 0;
        pctx->c_city_len = 0;
        pctx->c_state_len = 0;
        pctx->c_zip_len = 0;
        pctx->c_phone_len = 0;
        pctx->c_since_len = 0;
        pctx->c_credit_len = 0;
        pctx->c_credit_lim_len = 0;
        pctx->c_discount_len = 0;
        pctx->c_balance_len = sizeof(double);
        pctx->c_data_len = 0;
        pctx->h_date_len = 0;
        pctx->retries_len =SIZ(retries) ;
        pctx->cr_date_len = 7;

/* bind variables */

        OCIBNDPL(pctx->curp0, pctx->w_id_bp[0],
        errhp,":w_id",ADR(w_id),SIZ(int),
                SQLT_INT, NULL);
        OCIBNDPL(pctx->curp0, pctx->d_id_bp[0],
        errhp,":d_id",ADR(d_id),SIZ(int),
                SQLT_INT, NULL);
        OCIBND(pctx->curp0, pctx->c_w_id_bp[0],
        errhp,":c_w_id",ADR(c_w_id),SIZ(int),
                SQLT_INT);
        OCIBND(pctx->curp0, pctx->c_d_id_bp[0],
        errhp,":c_d_id",ADR(c_d_id),SIZ(int),
                SQLT_INT);
        OCIBND(pctx->curp0, pctx->c_id_bp[0], errhp,":c_id",ADR(c_id),SIZ(int),
                SQLT_INT);
#ifdef USE_IEEE_NUMBER
        OCIBNDPL(pctx->curp0, pctx->h_amount_bp[0],
        errhp,":h_amount",ADR(h_amount),
                SIZ(double),SQLT_Bdouble, &pctx->h_amount_len);
#else
        OCIBNDPL(pctx->curp0, pctx->h_amount_bp[0],
        errhp,":h_amount",ADR(h_amount),
                SIZ(int),SQLT_INT, &pctx->h_amount_len);
#endif /* USE_IEEE_NUMBER */
        OCIBNDPL(pctx->curp0, pctx->c_last_bp[0],
        errhp,":c_last",c_last,SIZ(c_last),
                SQLT_STR, &pctx->c_last_len);
        OCIBNDPL(pctx->curp0, pctx->w_street_1_bp[0],
        errhp,":w_street_1",w_street_1,
                SIZ(w_street_1),SQLT_STR, &pctx->w_street_1_len);
        OCIBNDPL(pctx->curp0, pctx->w_street_2_bp[0],
        errhp,":w_street_2",w_street_2,
                SIZ(w_street_2),SQLT_STR, &pctx->w_street_2_len);
        OCIBNDPL(pctx->curp0, pctx->w_city_bp[0],
        errhp,":w_city",w_city,SIZ(w_city),

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SQLT_STR, &pctx->w_city_len);
OCIBNDPL(pctx->curp0, pctx->w_state_bp[0], errhp,"w_state",w_state,
SIZ(w_state), SQLT_STR, &pctx->w_state_len);
OCIBNDPL(pctx->curp0, pctx->w_zip_bp[0],
errhp,"w_zip",w_zip,SIZ(w_zip),
SQLT_STR, &pctx->w_zip_len);
OCIBNDPL(pctx->curp0, pctx->d_street_1_bp[0],
errhp,"d_street_1",d_street_1,
SIZ(d_street_1),SQLT_STR, &pctx->d_street_1_len);
OCIBNDPL(pctx->curp0, pctx->d_street_2_bp[0],
errhp,"d_street_2",d_street_2,
SIZ(d_street_2),SQLT_STR, &pctx->d_street_2_len);
OCIBNDPL(pctx->curp0, pctx->d_city_bp[0],
errhp,"d_city",d_city,SIZ(d_city),
SQLT_STR, &pctx->d_city_len);
OCIBNDPL(pctx->curp0, pctx->d_state_bp[0], errhp,"d_state",d_state,
SIZ(d_state), SQLT_STR, &pctx->d_state_len);
OCIBNDPL(pctx->curp0, pctx->d_zip_bp[0],
errhp,"d_zip",d_zip,SIZ(d_zip),
SQLT_STR, &pctx->d_zip_len);
OCIBNDPL(pctx->curp0, pctx->c_first_bp[0], errhp,"c_first",c_first,
SIZ(c_first), SQLT_STR, &pctx->c_first_len);
OCIBNDPL(pctx->curp0, pctx->c_middle_bp[0],
errhp,"c_middle",c_middle,2,
SQLT_AFC, &pctx->c_middle_len);
OCIBNDPL(pctx->curp0, pctx->d_street_1_bp[0],
errhp,"c_street_1",c_street_1,
SIZ(c_street_1),SQLT_STR, &pctx->c_street_1_len);
OCIBNDPL(pctx->curp0, pctx->c_street_2_bp[0],
errhp,"c_street_2",c_street_2,
SIZ(c_street_2),SQLT_STR, &pctx->c_street_2_len);
OCIBNDPL(pctx->curp0, pctx->c_city_bp[0],
errhp,"c_city",c_city,SIZ(c_city),
SQLT_STR, &pctx->c_city_len);
OCIBNDPL(pctx->curp0, pctx->c_state_bp[0], errhp,"c_state",c_state,
SIZ(c_state), SQLT_STR, &pctx->c_state_len);
OCIBNDPL(pctx->curp0, pctx->c_zip_bp[0],
errhp,"c_zip",c_zip,SIZ(c_zip),
SQLT_STR, &pctx->c_zip_len);
OCIBNDPL(pctx->curp0, pctx->c_phone_bp[0],
errhp,"c_phone",c_phone,
SIZ(c_phone), SQLT_STR, &pctx->c_phone_len);
OCIBNDPL(pctx->curp0, pctx->c_since_bp[0],
errhp,"c_since",&c_since,
SIZ(OCIDate), SQLT_ODT, &pctx->c_since_len);
OCIBNDPL(pctx->curp0, pctx->c_credit_bp[0], errhp,"c_credit",c_credit,
SIZ(c_credit),SQLT_CHR, &pctx->c_credit_len);
OCIBNDPL(pctx->curp0, pctx->c_credit_lim_bp[0], errhp,"c_credit_lim",
ADR(c_credit_lim),SIZ(int), SQLT_INT, &pctx->c_credit_lim_len);
OCIBNDPL(pctx->curp0, pctx->c_discount_bp[0], errhp,"c_discount",
ADR(c_discount),SIZ(c_discount), SQLT_FLT, &pctx-
>c_discount_len);
#ifdef USE_IEEE_NUMBER
OCIBNDPL(pctx->curp0, pctx->c_balance_bp[0], errhp,"c_balance",
ADR(c_balance), SIZ(double),SQLT_BDOUBLE, &pctx-
>c_balance_len);
#else
OCIBNDPL(pctx->curp0, pctx->c_balance_bp[0], errhp,"c_balance",
ADR(c_balance), SIZ(double),SQLT_FLT, &pctx->c_balance_len);
#endif /* USE_IEEE_NUMBER */
OCIBNDPL(pctx->curp0, pctx->c_data_bp[0],
errhp,"c_data",c_data,SIZ(c_data),
SQLT_STR, &pctx->c_data_len);
/*
OCIBNDR(pctx->curp0, pctx->h_date_bp,
errhp,"h_date",h_date,SIZ(h_date),
SQLT_STR, &pctx->h_date_ind, &pctx->h_date_len, &pctx-
>h_date_ro);
*/
OCIBNDPL(pctx->curp0, pctx->retries_bp[0], errhp,"retry",ADR(retries),
SIZ(int), SQLT_INT, &pctx->retries_len);
OCIBNDPL(pctx->curp0, pctx->cr_date_bp[0],
errhp,"cr_date",ADR(cr_date),
SIZ(OCIDate),SQLT_ODT, &pctx->cr_date_len);

/* ---- Binds for the second cursor */

OCIBNDPL(pctx->curp1, pctx->w_id_bp[1],
errhp,"w_id",ADR(w_id),SIZ(int),
SQLT_INT, &pctx->w_id_len);
OCIBNDPL(pctx->curp1, pctx->d_id_bp[1],
errhp,"d_id",ADR(d_id),SIZ(int),
SQLT_INT, &pctx->d_id_len);
OCIBNDPL(pctx->curp1, pctx->c_w_id_bp[1],
errhp,"c_w_id",ADR(c_w_id),SIZ(int),
SQLT_INT);
OCIBNDPL(pctx->curp1, pctx->c_d_id_bp[1],
errhp,"c_d_id",ADR(c_d_id),SIZ(int),
SQLT_INT);
OCIBNDPL(pctx->curp1, pctx->c_id_bp[1],
errhp,"c_id",ADR(c_id),SIZ(int),

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SQLT_INT, &pctx->c_id_len);
#ifdef USE_IEEE_NUMBER
OCIBNDPL(pctx->curp1, pctx->h_amount_bp[1],
errhp,"h_amount",ADR(h_amount),
SIZ(double),SQLT_BDOUBLE, &pctx->h_amount_len);
#else
OCIBNDPL(pctx->curp1, pctx->h_amount_bp[1],
errhp,"h_amount",ADR(h_amount),
SIZ(int),SQLT_INT, &pctx->h_amount_len);
#endif /* USE_IEEE_NUMBER */
OCIBNDPL(pctx->curp1, pctx->c_last_bp[1],
errhp,"c_last",c_last,SIZ(c_last),
SQLT_STR);
OCIBNDPL(pctx->curp1, pctx->w_street_1_bp[1],
errhp,"w_street_1",w_street_1,
SIZ(w_street_1),SQLT_STR, &pctx->w_street_1_len);
OCIBNDPL(pctx->curp1, pctx->w_street_2_bp[1],
errhp,"w_street_2",w_street_2,
SIZ(w_street_2),SQLT_STR, &pctx->w_street_2_len);
OCIBNDPL(pctx->curp1, pctx->w_city_bp[1],
errhp,"w_city",w_city,SIZ(w_city),
SQLT_STR, &pctx->w_city_len);
OCIBNDPL(pctx->curp1, pctx->w_state_bp[1], errhp,"w_state",w_state,
SIZ(w_state), SQLT_STR, &pctx->w_state_len);
OCIBNDPL(pctx->curp1, pctx->w_zip_bp[1],
errhp,"w_zip",w_zip,SIZ(w_zip),
SQLT_STR, &pctx->w_zip_len);
OCIBNDPL(pctx->curp1, pctx->d_street_1_bp[1],
errhp,"d_street_1",d_street_1,
SIZ(d_street_1),SQLT_STR, &pctx->d_street_1_len);
OCIBNDPL(pctx->curp1, pctx->d_street_2_bp[1],
errhp,"d_street_2",d_street_2,
SIZ(d_street_2),SQLT_STR, &pctx->d_street_2_len);
OCIBNDPL(pctx->curp1, pctx->d_city_bp[1],
errhp,"d_city",d_city,SIZ(d_city),
SQLT_STR, &pctx->d_city_len);
OCIBNDPL(pctx->curp1, pctx->d_state_bp[1], errhp,"d_state",d_state,
SIZ(d_state), SQLT_STR, &pctx->d_state_len);
OCIBNDPL(pctx->curp1, pctx->d_zip_bp[1],
errhp,"d_zip",d_zip,SIZ(d_zip),
SQLT_STR, &pctx->d_zip_len);
OCIBNDPL(pctx->curp1, pctx->c_first_bp[1], errhp,"c_first",c_first,
SIZ(c_first), SQLT_STR, &pctx->c_first_len);
OCIBNDPL(pctx->curp1, pctx->c_middle_bp[1],
errhp,"c_middle",c_middle,2,
SQLT_AFC, &pctx->c_middle_len);

OCIBNDPL(pctx->curp1, pctx->c_street_1_bp[1],
errhp,"c_street_1",c_street_1,
SIZ(c_street_1),SQLT_STR, &pctx->c_street_1_len);
OCIBNDPL(pctx->curp1, pctx->c_street_2_bp[1],
errhp,"c_street_2",c_street_2,
SIZ(c_street_2),SQLT_STR, &pctx->c_street_2_len);
OCIBNDPL(pctx->curp1, pctx->c_city_bp[1],
errhp,"c_city",c_city,SIZ(c_city),
SQLT_STR, &pctx->c_city_len);
OCIBNDPL(pctx->curp1, pctx->c_state_bp[1], errhp,"c_state",c_state,
SIZ(c_state), SQLT_STR, &pctx->c_state_len);
OCIBNDPL(pctx->curp1, pctx->c_zip_bp[1],
errhp,"c_zip",c_zip,SIZ(c_zip),
SQLT_STR, &pctx->c_zip_len);
OCIBNDPL(pctx->curp1, pctx->c_phone_bp[1],
errhp,"c_phone",c_phone,
SIZ(c_phone), SQLT_STR, &pctx->c_phone_len);
OCIBNDPL(pctx->curp1, pctx->c_since_bp[1],
errhp,"c_since",&c_since,
SIZ(OCIDate), SQLT_ODT, &pctx->c_since_len);
OCIBNDPL(pctx->curp1, pctx->c_credit_bp[1], errhp,"c_credit",c_credit,
SIZ(c_credit),SQLT_CHR, &pctx->c_credit_len);
OCIBNDPL(pctx->curp1, pctx->c_credit_lim_bp[1], errhp,"c_credit_lim",
ADR(c_credit_lim),SIZ(int), SQLT_INT, &pctx->c_credit_lim_len);
OCIBNDPL(pctx->curp1, pctx->c_discount_bp[1], errhp,"c_discount",
ADR(c_discount),SIZ(c_discount), SQLT_FLT, &pctx-
>c_discount_len);
#ifdef USE_IEEE_NUMBER
OCIBNDPL(pctx->curp1, pctx->c_balance_bp[1], errhp,"c_balance",
ADR(c_balance), SIZ(double),SQLT_BDOUBLE, &pctx-
>c_balance_len);
#else
OCIBNDPL(pctx->curp1, pctx->c_balance_bp[1], errhp,"c_balance",
ADR(c_balance), SIZ(double),SQLT_FLT, &pctx->c_balance_len);
#endif /* USE_IEEE_NUMBER */
OCIBNDPL(pctx->curp1, pctx->c_data_bp[1],
errhp,"c_data",c_data,SIZ(c_data),
SQLT_STR, &pctx->c_data_len);
/*
OCIBNDR(pctx->curp1, pctx->h_date_bp1,
errhp,"h_date",h_date,SIZ(h_date),
SQLT_STR, &pctx->h_date_ind, &pctx->h_date_len, &pctx-
>h_date_ro);
*/
OCIBNDPL(pctx->curp1, pctx->retries_bp[1], errhp,"retry",ADR(retries),
SIZ(int), SQLT_INT, &pctx->retries_len);

```

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```

OCIBNDPL(pctx->curp1, pctx->cr_date_bp[1],
errhp, "cr_date", ADR(cr_date),
      SIZ(OCIDate), SQLT_ODT, &pctx->cr_date_len);

return (0);
}

void DBExecution::tkvcpdone ()
{
  if(pctx) {
    free(pctx);
  }
}

int DBExecution::tkvcsinit ()
{
  text stmbuff[SQL_BUF_SIZE];
  sctx = (stoctx *) malloc(sizeof(stoctx));
  memset(sctx, (char)0, sizeof(stoctx));

  sctx->norow=0;

  OCIERROR(errhp,
    OCIHandleAlloc(tpcenv, (dvoid**)&sctx-
> curs, OCI_HTYPE_STMT, 0, (dvoid**)0));
  sprintf ((char *) stmbuff, SQLTXTSTO);
  OCIERROR(errhp, OCIStmtPrepare(sctx->curs, errhp, stmbuff, strlen((char
*)stmbuff),
    OCI_NTV_SYNTAX, OCI_DEFAULT));
#ifdef PLSQLSTO
  OCIERROR(errhp,
    OCIAttrSet(sctx->curs, OCI_HTYPE_STMT, (dvoid*)&sctx->norow, 0,
    OCI_ATTR_PREFETCH_ROWS, errhp));
#endif

  /* bind variables */

  OCIBND(sctx->curs, sctx->w_id_bp, errhp, "w_id", ADR(w_id), sizeof(int),
    SQLT_INT);
  OCIBND(sctx->curs, sctx->d_id_bp, errhp, "d_id", ADR(d_id), sizeof(int),
    SQLT_INT);
#ifdef USE_IEEE_NUMBER
  OCIBND(sctx->curs, sctx->threshold_bp, errhp, "threshold",
  ADR(threshold),
    sizeof(double), SQLT_BDOUBLE);
#else
  OCIBND(sctx->curs, sctx->threshold_bp, errhp, "threshold",
  ADR(threshold),
    sizeof(int), SQLT_INT);
#endif /* USE_IEEE_NUMBER */
#ifdef PLSQLSTO
  OCIBND(sctx->curs, sctx->low_stock_bp, errhp, "low_stock",
  ADR(low_stock),
    sizeof(int), SQLT_INT);
#else
  OCIDEFINE(sctx->curs, sctx->low_stock_bp, errhp, 1, ADR(low_stock),
    sizeof(int), SQLT_INT);
#endif

return (0);
}

void DBExecution::tkvcsdone ()
{
  if(sctx) free(sctx);
}

/*****
* tkvcn tkvcd tkvcp tkvco tkvcs
*****/

int DBExecution::tkvcn ()
{
  int i;
  int rcount;

  retry:

  status = 0; /* number of invalid items */

  /* get number of order lines, and check if all are local */

  o_ol_cnt = NITEMS;
  o_all_local = 1;
  for (i = 0; i < NITEMS; i++) {
    if (nol_i_id[i] == 0) {
      o_ol_cnt = i;
      break;
    }
    if (nol_supply_w_id[i] != w_id) {
#ifdef USE_IEEE_NUMBER
      nctx->s_remote[i] = 1.0;
    #else
      nctx->s_remote[i] = 1;
    #endif /* USE_IEEE_NUMBER */
      o_all_local = 0;
    }
    else
      nctx->s_remote[i] = 0;
  }

  nctx->w_id_len = sizeof(w_id);
  nctx->d_id_len = sizeof(d_id);
  nctx->c_id_len = sizeof(c_id);
  nctx->o_all_local_len = sizeof(o_all_local);
  nctx->o_ol_cnt_len = sizeof(o_ol_cnt);
  nctx->w_tax_len = 0;
  nctx->d_tax_len = 0;
  nctx->o_id_len = sizeof(o_id);
  nctx->c_discount_len = 0;
  nctx->c_credit_len = 0;
  nctx->c_last_len = 0;
  nctx->retries_len = sizeof(retries);
  nctx->cr_date_len = sizeof(cr_date);
  /* this is the row count */
  rcount = o_ol_cnt;
  nctx->nol_i_count = o_ol_cnt;
  nctx->nol_q_count = o_ol_cnt;
  nctx->nol_s_count = o_ol_cnt;
  nctx->s_remote_count = o_ol_cnt;

  nctx->nol_qty_count = 0;
  nctx->nol_bg_count = 0;
  nctx->nol_item_count = 0;
  nctx->nol_name_count = 0;
  nctx->nol_am_count = 0;

  /* initialization for array operations */
  for (i = 0; i < o_ol_cnt; i++) {
    nctx->o_l_number[i] = i + 1;
    nctx->nol_i_id_len[i] = sizeof(int);
    nctx->nol_supply_w_id_len[i] = sizeof(int);
    nctx->nol_quantity_len[i] = sizeof(int);
    nctx->nol_amount_len[i] = sizeof(int);
    nctx->o_l_o_id_len[i] = sizeof(int);
    nctx->o_l_number_len[i] = sizeof(int);
    nctx->o_l_dist_info_len[i] = nctx->s_dist_info_len[i];
    nctx->s_remote_len[i] = sizeof(int);
    nctx->s_quant_len[i] = sizeof(int);
    nctx->i_name_len[i] = 0;
    nctx->s_bg_len[i] = 0;
  }
  for (i = o_ol_cnt; i < NITEMS; i++) {
    nctx->nol_i_id_len[i] = 0;
    nctx->nol_supply_w_id_len[i] = 0;
    nctx->nol_quantity_len[i] = 0;
    nctx->nol_amount_len[i] = 0;
    nctx->o_l_o_id_len[i] = 0;
    nctx->o_l_number_len[i] = 0;
    nctx->o_l_dist_info_len[i] = 0;
    nctx->s_remote_len[i] = 0;
    nctx->s_quant_len[i] = 0;
    nctx->i_name_len[i] = 0;
    nctx->s_bg_len[i] = 0;
  }

  execstatus = OCIStmtExecute(tpcsvc, nctx->cur1, errhp, 1, 0, 0, 0,
    OCI_DEFAULT |
OCI_COMMIT_ON_SUCCESS);

  if(execstatus != OCI_SUCCESS) {
    OCITransRollback(tpcsvc, errhp, OCI_DEFAULT);
    errcode = OCIERROR(errhp, execstatus);
    if(errcode == NOT_SERIALIZABLE) {
      retries++;
      goto retry;
    }
    else if (errcode == RECOVER) {
      retries++;
      goto retry;
    }
    else if (errcode == SNAPSHOT_TOO_OLD) {

```

## APPENDIX A - APPLICATION SOURCE CODE

```

        retries++;
        goto retry;
    } else {
        return -1;
    }
}

/* did the txn succeed ? */
if (rcount != o_ol_cnt)
{
    status = rcount - o_ol_cnt;
    o_ol_cnt = rcount;
}

total_amount = 0;
for (i = 0; i < o_ol_cnt; i++) total_amount += nol_amount[i];
total_amount *= ((double)(1.0 - c_discount)) *
    (double)(1.0 + (double)(d_tax) + (double)(w_tax));
total_amount = total_amount/100;

return (0);
}

int DBExecution::tkvcd (int plsqliflag)
{
    int i;
    int rpc,rcount;
    int invalid;

    if (plsqliflag)
    {
        pldctx->w_id_len = sizeof (int);
        pldctx->carrier_id_len = sizeof (int);
        for (i = 0; i < NDISTS; i++)
        {
            pldctx->del_o_id_len[i] = sizeof(int);
            del_o_id[i] = 0;
        }
        pldctx->del_date_len = DEL_DATE_LEN;
        DISCARD memcpy(&pldctx->del_date,&cr_date,sizeof(OCIDate));

        pldctx->retry=0;

        DISCARD OCIERROR(errhp,
            OCIStmtExecute(tpcsvc,pldctx->curp2,errhp,1,0,NULLP(CONST
            OCISnapshot),
                NULLP(OCISnapshot),OCI_DEFAULT));
        for (i = 0; i < NDISTS; i++)
        {
            del_o_id[i] = 0;
        }
        for (i = 0; i < (int)pldctx->del_o_id_rcnt; i++)
            del_o_id[pldctx->del_d_id[i] - 1] = pldctx->del_o_id[i];
    }
    else
    {
        retry:

        invalid = 0;

        /* initialization for array operations */

        for (i = 0; i < NDISTS; i++)
        {
            dctx->del_o_id_ind[i] = TRUE;
            dctx->d_id_ind[i] = TRUE;
            dctx->c_id_ind[i] = TRUE;
            dctx->del_date_ind[i] = TRUE;
            dctx->carrier_id_ind[i] = TRUE;
            dctx->amt_ind[i] = TRUE;

            dctx->del_o_id_len[i] = SIZ(dctx->del_o_id[0]);
            dctx->w_id_len[i] = SIZ(dctx->w_id[0]);
            dctx->d_id_len[i] = SIZ(dctx->d_id[0]);
            dctx->c_id_len[i] = SIZ(dctx->c_id[0]);
            dctx->del_date_len[i] = DEL_DATE_LEN;
            dctx->carrier_id_len[i] = SIZ(dctx->carrier_id[0]);
            dctx->amt_len[i] = SIZ(dctx->amt[0]);

            dctx->w_id[i] = w_id;
            dctx->d_id[i] = i+1;
            dctx->carrier_id[i] = o_carrier_id;
            memcpy(&dctx->del_date[i],&cr_date,sizeof(OCIDate));
        }

        memset(dctx, (char)0, sizeof(amtctx));
    }
}

```

```

/* array select from new_order and orders tables */

execstatus=OCIStmtExecute(tpcsvc,dctx->curd1,errhp,NDISTS,0,
    NULLP(CONST
    OCISnapshot),NULLP(OCISnapshot),OCI_DEFAULT);
if((execstatus != OCI_SUCCESS) && (execstatus != OCI_NO_DATA))
{
    DISCARD OCITransRollback(tpcsvc,errhp,OCI_DEFAULT);
    errcode = OCIERROR(errhp,execstatus);
    if(errcode == NOT_SERIALIZABLE)
    {
        retries++;
        goto retry;
    }
    else if (errcode == RECOVERR)
    {
        retries++;
        goto retry;
    }
    else if (errcode == SNAPSHOT_TOO_OLD)
    {
        retries++;
        goto retry;
    }
    else
    {
        return -1;
    }
}

/* mark districts with no new order */
DISCARD OCIAttrGet(dctx-
->curd1,OCI_HTYPE_STMT,&rcount,NULLP(ub4),
    OCI_ATTR_ROW_COUNT,errhp);

rpc = rcount;
if (rcount != NDISTS )
{
    int j = 0;
    for (i=0;i < NDISTS; i++)
    {
        if (dctx->del_o_id_ind[j] == 0) /* there is data here */
            j++;
        else
            shiftdata(j);
    }
}

execstatus=OCIStmtExecute(tpcsvc,dctx->curd3,errhp,rpc,0,
    NULLP(CONST
    OCISnapshot),NULLP(OCISnapshot),OCI_DEFAULT);
if((execstatus != OCI_SUCCESS)
{
    DISCARD OCITransRollback(tpcsvc,errhp,OCI_DEFAULT);
    errcode = OCIERROR(errhp,execstatus);
    if(errcode == NOT_SERIALIZABLE)
    {
        retries++;
        goto retry;
    }
    else if (errcode == RECOVERR)
    {
        retries++;
        goto retry;
    }
    else if (errcode == SNAPSHOT_TOO_OLD)
    {
        retries++;
        goto retry;
    }
    else
    {
        return -1;
    }
}

DISCARD OCIAttrGet(dctx-
->curd3,OCI_HTYPE_STMT,&rcount,NULLP(ub4),
    OCI_ATTR_ROW_COUNT,errhp);

if (rcount != rpc)
{
    userlog ("Error in TPC-C server %d: %d rows selected, %d ords
updated\n",
        proc_no, rpc, rcount);
    DISCARD OCITransRollback(tpcsvc,errhp,OCI_DEFAULT);
    return (-1);
}

/* array update of order_line table */
execstatus=OCIStmtExecute(tpcsvc,dctx->curd4,errhp,rpc,0,
    NULLP(CONST
    OCISnapshot),NULLP(OCISnapshot),OCI_DEFAULT);

```



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```

if(execstatus != OCI_SUCCESS)
{
DISCARD OCITransRollback(tpcsvc, errhp, OCI_DEFAULT);
errcode = OCIERROR(errhp, execstatus);
if(errcode == NOT_SERIALIZABLE)
{
retries++;
goto retry;
}
else if (errcode == RECOVERERR)
{
retries++;
goto retry;
}
else if (errcode == SNAPSHOT_TOO_OLD)
{
retries++;
goto retry;
}
else
{
return -1;
}
}
DISCARD OCIAttrGet(dctx-
>curd4, OCI_HTYPE_STMT, &rcount, NULLP(ub4),
OCI_ATTR_ROW_COUNT, errhp);
/* transfer amounts */
for (i=0; i<rpc; i++)
{
dctx->amt[i]=0;
if ( actx->ol_amt_rcode[i] == 0)
{
dctx->amt[i] = actx->ol_amt[i];
}
}
#ifdef OLD
if (rcount > rpc) {
userlog
("Error in TPC-C server %d: %d ordnrs updated, %d ord
updated\n",
proc_no, rpc, rcount);
}
#endif

/* array update of customer table */
execstatus=OCIStmtExecute(tpcsvc, dctx->curd6, errhp, rpc, 0,
NULLP(CONST OCI_Snapshot), NULLP(OCI_Snapshot),
OCI_COMMIT_ON_SUCCESS | OCI_DEFAULT);

if(execstatus != OCI_SUCCESS)
{
OCITransRollback(tpcsvc, errhp, OCI_DEFAULT);
errcode = OCIERROR(errhp, execstatus);
if(errcode == NOT_SERIALIZABLE)
{
retries++;
goto retry;
}
else if (errcode == RECOVERERR)
{
retries++;
goto retry;
}
else if (errcode == SNAPSHOT_TOO_OLD)
{
retries++;
goto retry;
}
else
{
return -1;
}
}

DISCARD OCIAttrGet(dctx-
>curd6, OCI_HTYPE_STMT, &rcount, NULLP(ub4),
OCI_ATTR_ROW_COUNT, errhp);

if (rcount != rpc) {
userlog ("Error in TPC-C server %d: %d rows selected, %d cust
updated\n",
proc_no, rpc, rcount);
DISCARD OCITransRollback(tpcsvc, errhp, OCI_DEFAULT);
return (-1);
}

/* return o_id's in district id order */

for (i = 0; i < NDISTS; i++)
del_o_id[i] = 0;
for (i = 0; i < rpc; i++)
del_o_id[dctx->d_id[i] - 1] = dctx->del_o_id[i];
}
return (0);
}

int DBExecution::tkvco ()
{
int i;
int rcount;

#ifdef ISO9
int secondread = 0;
char sdate[30];
ub4 datelen;
sysdate(sdate);
printf("Order Status started at: %s\n", sdate);
#endif

for (i = 0; i < NITEMS; i++) {
octx->ol_supply_w_id_len[i] = sizeof(int);
octx->ol_i_id_len[i] = sizeof(int);
octx->ol_quantity_len[i] = sizeof(int);
octx->ol_amount_len[i] = sizeof(int);
octx->ol_delivery_d_len[i] = sizeof(OCIDate);
}
octx->ol_supply_w_id_csize = NITEMS;
octx->ol_i_id_csize = NITEMS;
octx->ol_quantity_csize = NITEMS;
octx->ol_amount_csize = NITEMS;
octx->ol_delivery_d_csize = NITEMS;
retry:
if (bylastname)
{
cbctx.reexec = FALSE;
execstatus=OCIStmtExecute(tpcsvc, octx->куро0, errhp, 100, 0,
NULLP(CONST
OCI_Snapshot), NULLP(OCI_Snapshot), OCI_DEFAULT);
/* will get OCI_NO_DATA if <100 found */
if ((execstatus != OCI_NO_DATA) && (execstatus != OCI_SUCCESS))
{
errcode=OCIERROR(errhp, execstatus);
if((errcode == NOT_SERIALIZABLE) || (errcode == RECOVERERR))
{
DISCARD OCITransCommit(tpcsvc, errhp, OCI_DEFAULT);
retries++;
goto retry;
} else {
return -1;
}
}
if (execstatus == OCI_NO_DATA) /* there are no more rows */
{
/* get rowcount, find middle one */
DISCARD OCIAttrGet(octx-
>куро0, OCI_HTYPE_STMT, &rcount, NULL,
OCI_ATTR_ROW_COUNT, errhp);
if (rcount < 1)
{
/*
userlog("ORDERSTATUS
rcount=%d\n", rcount);
*/
return (-1);
}
octx->cust_idx=(rcount)/2 ;
}
else
{
/* count the number of rows */
execstatus=OCIStmtExecute(tpcsvc, octx->куро4, errhp, 1, 0,
NULLP(CONST
OCI_Snapshot), NULLP(OCI_Snapshot), OCI_DEFAULT);
if ((execstatus != OCI_NO_DATA) && (execstatus !=
OCI_SUCCESS))
{
errcode=OCIERROR(errhp, execstatus);
if ((errcode == NOT_SERIALIZABLE) || (errcode ==
RECOVERERR))
{
DISCARD OCITransCommit(tpcsvc, errhp, OCI_DEFAULT);
retries++;
goto retry;
} else {
return -1;
}
}
cbctx.reexec = TRUE;
cbctx.count = (octx->rcount+1)/2 ;
execstatus=OCIStmtExecute(tpcsvc, octx->куро0, errhp, cbctx.count,

```

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```

0,NULLP(CONST OCISnapshot),
NULLP(OCISnapshot),OCI_DEFAULT);

DISCARD OCIAttrGet(octx-
>curo0,OCI_HTYPE_STMT,&rcount,NULL,
OCI_ATTR_ROW_COUNT,errhp);

/* will get OCI_NO_DATA if <100 found */
if ((int)cbctx.count != rcount)
{
/*
userlog ("did not get all rows ");
*/
return (-1);
}

if ((execstatus != OCI_NO_DATA) && (execstatus !=
OCI_SUCCESS))
{
errcode=OCIERROR(errhp, execstatus);
if((errcode == NOT_SERIALIZABLE) || (errcode == RECOVER))
{
DISCARD OCITransCommit(tpcsvc,errhp,OCI_DEFAULT);
retries++;
goto retry;
} else {
return -1;
}
}
octx->cust_idx=cbctx.count - 1 ;
}

octx->c_rowid_cust = octx->c_rowid_ptr[octx->cust_idx];
execstatus=OCIStmtExecute(tpcsvc,octx->curo1,errhp,1,0,
NULLP(CONST
OCISnapshot),NULLP(OCISnapshot),OCI_DEFAULT);
if (execstatus != OCI_SUCCESS)
{
errcode=OCIERROR(errhp,execstatus);
DISCARD OCITransCommit(tpcsvc,errhp,OCI_DEFAULT);
if((errcode == NOT_SERIALIZABLE) || (errcode == RECOVER))
|| (errcode == SNAPSHOT_TOO_OLD))
{
retries++;
goto retry;
} else {
return -1;
}
}
} else
{
execstatus=OCIStmtExecute(tpcsvc,octx->curo2,errhp,1,0,
NULLP(CONST OCISnapshot),NULLP(OCISnapshot),
OCI_DEFAULT);
if (execstatus != OCI_SUCCESS)
{
errcode=OCIERROR(errhp,execstatus);
DISCARD OCITransCommit(tpcsvc,errhp,OCI_DEFAULT);
if((errcode == NOT_SERIALIZABLE) || (errcode == RECOVER))
|| (errcode == SNAPSHOT_TOO_OLD))
{
retries++;
goto retry;
} else
{
return -1;
}
}
}
#endif ISO9
sysdate (sdate);
if (!secondread)
printf ("----- FIRST READ RESULT (out) %s -----\\n", sdate);
else
printf ("----- SECOND READ RESULT (out) %s -----\\n", sdate);

printf ("c_id = %d\\n", c_id);
printf ("c_last = %s\\n", c_last);
printf ("c_first = %s\\n", c_first);
printf ("c_middle = %s\\n", c_middle);
printf ("c_balance = %7.2f\\n", (double)c_balance/100);
printf ("o_id = %d\\n", o_id);
datelen = sizeof(o_entry_d);

OCIERROR(errhp,OCIDateToText(errhp,&o_entry_d_base,(text*)FULLDA
TE,SIZ(FULLDATE),(text*)0,0,&datelen,o_entry_d));
printf ("o_entry_d = %s\\n", o_entry_d);
printf ("o_carrier_id = %d\\n", o_carrier_id);
printf ("o_ol_cnt = %d\\n", o_ol_cnt);
printf ("-----\\n\\n", sdate);

```

```

if (!secondread) {
printf ("Sleep before re-read order at: %s\\n", sdate);
sleep (30);
sysdate (sdate);
printf ("Wake up and reread at: %s\\n", sdate);
secondread = 1;
goto retry;
}
}
#endif /* ISO9 */
}
octx->o_l_w_id_len = sizeof(int);
octx->o_l_d_id_len = sizeof(int);
octx->o_l_o_id_len = sizeof(int);

execstatus = OCIStmtExecute(tpcsvc,octx->curo3,errhp,o_ol_cnt,0,
NULLP(CONST OCISnapshot),NULLP(OCISnapshot),
OCI_DEFAULT | OCI_COMMIT_ON_SUCCESS);
if (execstatus != OCI_SUCCESS )
{
errcode=OCIERROR(errhp,execstatus);
DISCARD OCITransCommit(tpcsvc,errhp,OCI_DEFAULT);
if((errcode == NOT_SERIALIZABLE) || (errcode == RECOVER))
|| (errcode == SNAPSHOT_TOO_OLD))
{
retries++;
goto retry;
}
} else
{
return -1;
}
}
/* clean up and convert the delivery dates */
for (i = 0; i < o_ol_cnt; i++)
{
o_l_del_len[i]=sizeof(o_l_delivery_d[i]);
DISCARD OCIERROR(errhp,OCIDateToText(errhp,&o_l_d_base[i],
(const text*)SHORTDATE,(ub1)strlen(SHORTDATE),(text*)0,0,
&o_l_del_len[i], o_l_delivery_d[i]));
/*
cvtdmy(o_l_d_base[i],o_l_delivery_d[i]);
*/
}
return (0);
}

int DBExecution::tkvcp ()
{
retry:

pctx->w_id_len = SIZ(w_id);
pctx->d_id_len = SIZ(d_id);
pctx->c_w_id_len = 0;
pctx->c_d_id_len = 0;
pctx->c_id_len = 0;
pctx->h_amount_len = SIZ(h_amount);
pctx->c_last_len = SIZ(c_last);
pctx->w_street_1_len = 0;
pctx->w_street_2_len = 0;
pctx->w_city_len = 0;
pctx->w_state_len = 0;
pctx->w_zip_len = 0;
pctx->d_street_1_len = 0;
pctx->d_street_2_len = 0;
pctx->d_city_len = 0;
pctx->d_state_len = 0;
pctx->d_zip_len = 0;
pctx->c_first_len = 0;
pctx->c_middle_len = 0;
pctx->c_street_1_len = 0;
pctx->c_street_2_len = 0;
pctx->c_city_len = 0;
pctx->c_state_len = 0;
pctx->c_zip_len = 0;
pctx->c_phone_len = 0;
pctx->c_since_len = 0;
pctx->c_credit_len = 0;
pctx->c_credit_lim_len = 0;
pctx->c_discount_len = 0;
pctx->c_balance_len = sizeof(double);
pctx->c_data_len = 0;
pctx->h_date_len = 0;
pctx->retries_len = SIZ(retries);
pctx->cr_date_len = 7;

w_street_1[0]='\0';

```

## APPENDIX A - APPLICATION SOURCE CODE

```

w_street_2[0]='\0';
w_city[0]='\0';
w_state[0]='\0';
w_zip[0]='\0';
c_first[0]='\0';
c_middle[0]='\0';
c_street_1[0]='\0';
c_street_2[0]='\0';
c_city[0]='\0';
c_state[0]='\0';
c_zip[0]='\0';
c_phone[0]='\0';
c_credit[0]='\0';
c_credit_lim=0;
c_discount=0.0;
c_balance=0.0;
c_data[0]='\0';
d_street_1[0]='\0';
d_street_2[0]='\0';
d_city[0]='\0';
d_state[0]='\0';
d_zip[0]='\0';

if (bylastname)
    c_id=0;
else
    c_last[0]='\0';

if(bylastname) {
    execstatus=OCIStmtExecute(tpcsvc,pctx->curp1,errhp,1,0,
        NULLP(CONST OCISnapshot),NULLP(OCISnapshot),
        OCI_DEFAULT|OCI_COMMIT_ON_SUCCESS);
} else {
    execstatus=OCIStmtExecute(tpcsvc,pctx->curp0,errhp,1,0,
        NULLP(CONST OCISnapshot),NULLP(OCISnapshot),
        OCI_DEFAULT|OCI_COMMIT_ON_SUCCESS);
}

if(execstatus != OCI_SUCCESS) {
    OCITransRollback(tpcsvc,errhp,OCI_DEFAULT);
    errcode = OCIERROR(errhp,execstatus);
    if(errcode == NOT_SERIALIZABLE) {
        retries++;
        goto retry;
    } else if (errcode == RECOVER) {
        retries++;
        goto retry;
    } else if (errcode == SNAPSHOT_TOO_OLD) {
        retries++;
        goto retry;
    } else {
        return -1;
    }
}
return 0;
}

int DBExecution::tkvcs ()
{
    retry:

    execstatus= OCIStmtExecute(tpcsvc,sctx->curs,errhp,1,0,0,0,
        OCI_COMMIT_ON_SUCCESS | OCI_DEFAULT);

    if (execstatus != OCI_SUCCESS)
    {
        errcode=OCIERROR(errhp,execstatus);
        OCITransCommit(tpcsvc,errhp,OCI_DEFAULT);
        if((errcode == NOT_SERIALIZABLE) || (errcode == RECOVER)
            || (errcode == SNAPSHOT_TOO_OLD))
        {
            retries++;
            goto retry;
        } else {
            return -1;
        }
    }

    return (0);
}

/*****
* TPCnew TPCpay TPCdel TPCord TPCsto
*
*****

```

```

*****/

int DBExecution::TPCnew (struct newstruct *str)
{
    int i;

    w_id = str->newin.w_id;
    d_id = str->newin.d_id;
    c_id = str->newin.c_id;
    for (i = 0; i < 15; i++) {
        nol_i_id[i] = str->newin.ol_i_id[i];
        nol_supply_w_id[i] = str->newin.ol_supply_w_id[i];
        nol_quantity[i] = str->newin.ol_quantity[i];
    }
    retries = 0;

#ifdef AVOID_DEADLOCK

    for (i = NITEMS; i > 0; i--) {
        if (nol_i_id[i-1] > 0) {
            ordl_cnt = i;
            break;
        }
    }

    for (i = 0; i < NITEMS; i++) indx[i] = i;
    q_sort(nol_i_id, str, 0, ordl_cnt-1);

#endif

    /*
    vgetdate(cr_date); */

    OCIERROR(errhp,OCIDateSysDate(errhp,&cr_date));

    if (str->newout.terror = tkvcn ()) {
        if (str->newout.terror != RECOVER)
            str->newout.terror = IRRERR;
        return (-1);
    }

    /* fill in date for o_entry_d from time in beginning of txn*/
    /*
    cvtdmyhms(cr_date,o_entry_d);
    */
    datelen = sizeof(o_entry_d);
    OCIERROR(errhp,

    OCIDateToText(errhp,&cr_date,(text*)FULLDATE,SIZ(FULLDATE),(text*)
    0,0,
        &datelen,o_entry_d));

    str->newout.terror = NOERR;
    str->newout.o_id = o_id;
    str->newout.o_ol_cnt = o_ol_cnt;
    strncpy (str->newout.c_last, c_last, 17);
    strncpy (str->newout.c_credit, c_credit, 3);
    str->newout.c_discount = c_discount;
    str->newout.w_tax = (double)(w_tax);
    str->newout.d_tax = (double)(d_tax);
    strncpy (str->newout.o_entry_d, (char*)o_entry_d, 20);
    str->newout.total_amount = total_amount;
    for (i = 0; i < o_ol_cnt; i++) {
        strncpy (str->newout.i_name[i], i_name[i], 25);
        str->newout.brand_generic[i] = brand_generic[i][0];
#ifdef USE_IEEE_NUMBER
        str->newout.s_quantity[i] = (int) s_quantity[i];
        str->newout.i_price[i] = i_price[i]/100;
        str->newout.ol_amount[i] = nol_amount[i]/100;
#else
        str->newout.s_quantity[i] = s_quantity[i];
        str->newout.i_price[i] = (double)(i_price[i])/100;
        str->newout.ol_amount[i] = (double)(nol_amount[i])/100;
#endif /* USE_IEEE_NUMBER */
    }

#ifdef AVOID_DEADLOCK
    q_sort(indx, str, 0, ordl_cnt-1);
#endif

    if (status)
        strcpy (str->newout.status, "Item number is not valid");
    else
        str->newout.status[0] = '\0';
    str->newout.retry = retries;
    return(1);
}

```

## APPENDIX A - APPLICATION SOURCE CODE

```

int DBExecution::TPCpay (struct paystruct *str)
{
    w_id = str->payin.w_id;
    d_id = str->payin.d_id;
    c_w_id = str->payin.c_w_id;
    c_d_id = str->payin.c_d_id;
#ifdef USE_IEEE_NUMBER
    h_amount = (double) str->payin.h_amount;
#else
    h_amount = str->payin.h_amount;
#endif /* USE_IEEE_NUMBER */
    bylastname = str->payin.bylastname;

    /*
    vgetdate(cr_date); */
    OCIErrror(errhp,OCIDateSysDate(errhp,&cr_date));

    if (bylastname) {
        c_id = 0;
        strncpy (c_last, str->payin.c_last, 17);
    }
    else {
        c_id = str->payin.c_id;
        strcpy (c_last, " ");
    }
    retries = 0;

    if (str->payout.terror = tkvcp ()) {
        if (str->payout.terror != RECOVERR)
            str->payout.terror = IRRECERR;
        return (-1);
    }

    /*
    cvtdmyhms(cr_date,h_date);
    */
    hlen=SZ(h_date);
    OCIErrror(errhp,OCIDateToText(errhp,&cr_date,
        (text*)FULLDATE,strlen(FULLDATE),(text*)0,0,&hlen,h_date));

    /*
    cvtdmy(c_since,c_since_d);
    */
    sincelen=SZ(c_since_d);
    OCIErrror(errhp,OCIDateToText(errhp,&c_since,
        (text*)SHORTDATE,strlen(SHORTDATE),(text*)0,0,&sincelen,c_since_d)
    );

    str->payout.terror = NOERR;
    strncpy (str->payout.w_street_1, w_street_1, 21);
    strncpy (str->payout.w_street_2, w_street_2, 21);
    strncpy (str->payout.w_city, w_city, 21);
    strncpy (str->payout.w_state, w_state, 3);
    strncpy (str->payout.w_zip, w_zip, 10);
    strncpy (str->payout.d_street_1, d_street_1, 21);
    strncpy (str->payout.d_street_2, d_street_2, 21);
    strncpy (str->payout.d_city, d_city, 21);
    strncpy (str->payout.d_state, d_state, 3);
    strncpy (str->payout.d_zip, d_zip, 10);
    str->payout.c_id = c_id;
    strncpy (str->payout.c_first, c_first, 17);
    strncpy (str->payout.c_middle, c_middle, 3);
    strncpy (str->payout.c_last, c_last, 17);
    strncpy (str->payout.c_street_1, c_street_1, 21);
    strncpy (str->payout.c_street_2, c_street_2, 21);
    strncpy (str->payout.c_city, c_city, 21);
    strncpy (str->payout.c_state, c_state, 3);
    strncpy (str->payout.c_zip, c_zip, 10);
    strncpy (str->payout.c_phone, c_phone, 17);
    strncpy (str->payout.c_since, (char*)c_since_d, 11);
    strncpy (str->payout.c_credit, c_credit, 3);
    str->payout.c_credit_lim = (double)(c_credit_lim)/100;
    str->payout.c_discount = c_discount;
    str->payout.c_balance = (double)(c_balance)/100;
    strncpy (str->payout.c_data, c_data, 201);
    strncpy (str->payout.h_date, (char*)h_date, 20);
    str->payout.retry = retries;
    return(1);
}

int DBExecution::TPCord (struct ordstruct *str)
{
    int i;
    w_id = str->ordin.w_id;
    d_id = str->ordin.d_id;
    bylastname = str->ordin.bylastname;
    if (bylastname) {
        c_id = 0;
        strncpy (c_last, str->ordin.c_last, 17);
    }
    else {
        c_id = str->ordin.c_id;
        strcpy (c_last, " ");
    }
    retries = 0;

    if (str->ordout.terror = tkvco ()) {
        if (str->ordout.terror != RECOVERR)
            str->ordout.terror = IRRECERR;
        return (-1);
    }

    datelen = sizeof(o_entry_d);
    OCIErrror(errhp,

    OCIDateToText(errhp,&o_entry_d_base,(text*)FULLDATE,SZ(FULLDAT
    E),(text*)0,0,
        &datelen,o_entry_d));

    str->ordout.terror = NOERR;
    str->ordout.c_id = c_id;
    strncpy (str->ordout.c_last, c_last, 17);
    strncpy (str->ordout.c_first, c_first, 17);
    strncpy (str->ordout.c_middle, c_middle, 3);
    str->ordout.c_balance = c_balance/100;
    str->ordout.o_id = o_id;
    strncpy (str->ordout.o_entry_d, (char*)o_entry_d, 20);
    if (o_carrier_id == 11 )
        str->ordout.o_carrier_id = 0;
    else
        str->ordout.o_carrier_id = o_carrier_id;
    str->ordout.o_ol_cnt = o_ol_cnt;
    for (i = 0; i < o_ol_cnt; i++) {
        ol_delivery_d[i][10] = '\0';
        if (!strcmp((char*)ol_delivery_d[i],"15-09-1911"))
            strncpy (char*)ol_delivery_d[i],"NOT DELIVR",10);
        str->ordout.ol_supply_w_id[i] = ol_supply_w_id[i];
        str->ordout.ol_i_id[i] = ol_i_id[i];
#ifdef USE_IEEE_NUMBER
        str->ordout.ol_quantity[i] = (int) ol_quantity[i];
        str->ordout.ol_amount[i] = ol_amount[i]/100;
#else
        str->ordout.ol_quantity[i] = ol_quantity[i];
        str->ordout.ol_amount[i] = (double)(ol_amount[i])/100;
#endif /* USE_IEEE_NUMBER */
        strncpy (str->ordout.ol_delivery_d[i], (char*)ol_delivery_d[i], 11);
    }
    str->ordout.retry = retries;
    return(1);
}

int DBExecution::TPCdel (struct delstruct *str)
{
    int i;

    w_id = str->delin.w_id;
    o_carrier_id = str->delin.o_carrier_id;
    retries = 0;

    /*
    vgetdate(cr_date); */
    OCIErrror(errhp,OCIDateSysDate(errhp,&cr_date));

    if (str->delout.terror = tkvcd (str->delin.plsqflag)) {
        if (str->delout.terror == DEL_ERROR)
            return DEL_ERROR;
        if (str->delout.terror != RECOVERR)
            str->delout.terror = IRRECERR;
        return (-1);
    }

    for (i = 0; i < 10; i++) {
        if (del_o_id[i] <= 0) {
            userlog ("DELIVERY: no new order for w_id: %d, d_id %d\n",
                w_id, i + 1);
        }
    }
    str->delout.terror = NOERR;
    str->delout.retry = retries;
    return(1);
}

```

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```

int DBExecution::TPCsto (struct stostruct *str)
{
    w_id = str->stoin.w_id;
    d_id = str->stoin.d_id;
    #ifdef USE_IEEE_NUMBER
        threshold = (double) str->stoin.threshold;
    #else
        threshold = str->stoin.threshold;
    #endif /* USE_IEEE_NUMBER */
    retries = 0;

    if (str->stoout.terror = tkvcs ()) {
        if (str->stoout.terror != RECOVERR)
            str->stoout.terror = IRRECERR;
        return (-1);
    }

    str->stoout.terror = NOERR;
    str->stoout.low_stock = low_stock;
    str->stoout.retry = retries;
    return(1);
}

#ifdef AVOID_DEADLOCK

void DBExecution::q_sort(int *arr,struct newstruct *str,int left, int right)
{
    int i, last;

    if(left >= right)
        return;
    swap(str,left,(left+right)/2);
    last = left;
    for(i=left+1;i<=right;i++)
        if(arr[i] < arr[left])
            swap(str,last,i);
    swap(str,left,last);
    q_sort(arr,str,left,last-1);
    q_sort(arr,str,last+1,right);
}

void DBExecution::swap(struct newstruct *str, int i, int j)
{
    int temp;
    double tempf;
    char tmpstr[25];
    char tmpch;
    #ifdef USE_IEEE_NUMBER
        double temp_double;
    #endif;

    temp = indx[i];
    indx[i] = indx[j];
    indx[j] = temp;

    temp = nol_i_id[i];
    nol_i_id[i] = nol_i_id[j];
    nol_i_id[j] = temp;

    temp = nol_supply_w_id[i];
    nol_supply_w_id[i] = nol_supply_w_id[j];
    nol_supply_w_id[j] = temp;

    #ifdef USE_IEEE_NUMBER
        temp_double = nol_quantity[i];
        nol_quantity[i] = nol_quantity[j];
        nol_quantity[j] = temp_double;

    temp_double = str->newout.i_price[i];
    str->newout.i_price[i] = str->newout.i_price[j];
    str->newout.i_price[j] = temp_double;

    temp_double = str->newout.ol_amount[i];
    str->newout.ol_amount[i] = str->newout.ol_amount[j];
    str->newout.ol_amount[j] = temp_double;

    temp_double = (double)str->newout.s_quantity[i];
    str->newout.s_quantity[i] = str->newout.s_quantity[j];
    str->newout.s_quantity[j] = (int)temp_double;
    #else
        temp = nol_quantity[i];
        nol_quantity[i] = nol_quantity[j];
        nol_quantity[j] = temp;

    tempf = str->newout.i_price[i];
    str->newout.i_price[i] = str->newout.i_price[j];
    str->newout.i_price[j] = tempf;

    temp = str->newout.s_quantity[i];
    str->newout.s_quantity[i] = str->newout.s_quantity[j];
    str->newout.s_quantity[j] = temp;

    strncpy(tmpstr,str->newout.i_name[i], 25);
    strncpy(str->newout.i_name[i],str->newout.i_name[j], 25);
    strncpy(str->newout.i_name[j],tmpstr, 25);

    tmpch = str->newout.brand_generic[i];
    str->newout.brand_generic[i] = str->newout.brand_generic[j];
    str->newout.brand_generic[j] = tmpch;
    }

#endif

#ifdef LOOPBACK

int mod_tpcc_neworder(T_neworder_data *output)
{
    output->txn_status= DB_RETURN_OCI_SUCCESS;
    output->d_id=1;
    output->c_id=1;
    output->o_cnt=7;
    output->o_all_local=0;
    strcpy(output->o_entry_d.DateString, "20-01-2004
11:59:10");
    strcpy(output->c_last, "TESTLASTNAME<>'&");
    strcpy(output->c_credit, "GC");
    output->c_discount=.1791;
    output->w_tax=.093099996;
    output->d_tax=.159700006;
    output->o_id=2101;

    output->o_orderline[0].ol_i_id=98752;
    output->o_orderline[0].ol_supply_w_id=2;
    output->o_orderline[0].ol_quantity=5;
    output->o_orderline[0].ol_amount=2576.48;
    output->o_orderline[0].i_price=3.71;
    output->o_orderline[0].s_quantity=45;
    strcpy(output->o_orderline[0].i_name, "item98752");
    output->o_orderline[0].b_g[0]='G';

    output->o_orderline[1].ol_i_id=80479;
    output->o_orderline[1].ol_supply_w_id=1;
    output->o_orderline[1].ol_quantity=6;
    output->o_orderline[1].ol_amount=3490.03;
    output->o_orderline[1].i_price=6.81;
    output->o_orderline[1].s_quantity=58;
    strcpy(output->o_orderline[1].i_name, "item80479");
    output->o_orderline[1].b_g[0]='G';

    output->o_orderline[2].ol_i_id=58617;
    output->o_orderline[2].ol_supply_w_id=1;
    output->o_orderline[2].ol_quantity=6;
    output->o_orderline[2].ol_amount=1234.56;
    output->o_orderline[2].i_price=4.01;
    output->o_orderline[2].s_quantity=22;
    strcpy(output->o_orderline[2].i_name, "item58617");
    output->o_orderline[2].b_g[0]='G';

    output->o_orderline[3].ol_i_id=3394;
    output->o_orderline[3].ol_supply_w_id=1;
    output->o_orderline[3].ol_quantity=5;
    output->o_orderline[3].ol_amount=2345.67;
    output->o_orderline[3].i_price=1.73;
    output->o_orderline[3].s_quantity=18;
    strcpy(output->o_orderline[3].i_name, "item3394");
    output->o_orderline[3].b_g[0]='G';

    output->o_orderline[4].ol_i_id=2242;
    output->o_orderline[4].ol_supply_w_id=1;
    output->o_orderline[4].ol_quantity=4;
    output->o_orderline[4].ol_amount=3456.78;
    output->o_orderline[4].i_price=4.48;
    output->o_orderline[4].s_quantity=29;
    strcpy(output->o_orderline[4].i_name, "item2242");
    output->o_orderline[4].b_g[0]='G';

    output->o_orderline[6].ol_i_id=37310;
    output->o_orderline[6].ol_supply_w_id=1;
    output->o_orderline[6].ol_quantity=5;
}

```

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```

        output->o_orderline[6].ol_amount=4567.89;
        output->o_orderline[6].i_price=5.50;
        output->o_orderline[6].s_quantity=21;
        strcpy(output->o_orderline[6].i_name, "item37310");
        output->o_orderline[6].b_g[0]='G';

        output->o_orderline[5].ol_i_id=19395;
        output->o_orderline[5].ol_supply_w_id=3;
        output->o_orderline[5].ol_quantity=6;
        output->o_orderline[5].ol_amount=5678.90;
        output->o_orderline[5].i_price=10.19;
        output->o_orderline[5].s_quantity=80;
        strcpy(output->o_orderline[5].i_name, "item19395");
        output->o_orderline[5].b_g[0]='G';

        return SUCCESS;
    }

```

```

int mod_tpcc_payment(T_payment_data *output)
{
    int i;
    char c;

    output->txn_status= DB_RETURN_OCI_SUCCESS;
    output->d_id=2;
    output->c_id=99;
    strcpy(output->c_last, "paymentCLast");
    output->c_w_id=2;
    output->c_d_id=5;
    output->h_amount=54321.09;
    strcpy(output->h_date.DateString, "20-01-2004 11:59:10");
    strcpy(output->w_street_1, "WareStreet1");
    strcpy(output->w_street_2, "WareStreet2");
    strcpy(output->w_city, "WareCity");
    strcpy(output->w_state, "WareState");
    strcpy(output->w_zip, "WareZip");
    strcpy(output->d_street_1, "DistStreet1");
    strcpy(output->d_street_2, "DistStreet2");
    strcpy(output->d_city, "DistCity");
    strcpy(output->d_state, "DistState");
    strcpy(output->d_zip, "DistZip");
    strcpy(output->c_first, "CFirst");
    strcpy(output->c_middle, "PA");
    strcpy(output->c_street_1, "CustStreet1");
    strcpy(output->c_street_2, "CustStreet2");
    strcpy(output->c_city, "CustCity");
    strcpy(output->c_state, "CustState");
    strcpy(output->c_zip, "CustZip");
    strcpy(output->c_phone, "9876543");
    strcpy(output->c_since.DateString, "20-01-2004 11:59:05");
    strcpy(output->c_credit, "BC");
    output->c_credit_lim=34567.89;
    output->c_discount=.234;
    output->c_balance=876543.21;

    for (i=0, c='a'; i<143; i++, c++) {
        if (c=='z') c='a';
        output->c_data[i]=(char) c;
    }
    return SUCCESS;
}

```

```

int mod_tpcc_delivery(T_delivery_data *output, int id)
{
    output->txn_status= DB_RETURN_OCI_SUCCESS;
    output->o_carrier_id=4;
    write_delivery_log(output, id);
    return SUCCESS;
}

```

```

int mod_tpcc_orderstatus(T_orderstatus_data *output)
{
    output->txn_status= DB_RETURN_OCI_SUCCESS;
    output->d_id=8;
    output->c_id=4321;
    strcpy(output->c_last, "orderstatusCLast");
    strcpy(output->c_first, "CFirst");
    strcpy(output->c_middle, "OS");
    output->c_balance=7543.21;
    output->o_id=9832;
    output->o_ol_cnt=5;
    output->o_carrier_id=2;
    strcpy(output->o_entry_d.DateString, "20-01-2004 11:59:08");

    output->o_orderline[0].ol_i_id=98752;
    output->o_orderline[0].ol_supply_w_id=2;

```

```

    output->o_orderline[0].ol_quantity=5;
    output->o_orderline[0].ol_amount=2576.48;
    strcpy(output->o_orderline[0].ol_delivery_d.DateString, "20-01-2004
11:58:00");

```

```

    output->o_orderline[1].ol_i_id=80479;
    output->o_orderline[1].ol_supply_w_id=1;
    output->o_orderline[1].ol_quantity=6;
    output->o_orderline[1].ol_amount=3490.03;
    strcpy(output->o_orderline[1].ol_delivery_d.DateString, "20-01-2004
11:58:01");

```

```

    output->o_orderline[2].ol_i_id=58617;
    output->o_orderline[2].ol_supply_w_id=1;
    output->o_orderline[2].ol_quantity=6;
    output->o_orderline[2].ol_amount=1234.56;
    strcpy(output->o_orderline[2].ol_delivery_d.DateString, "20-01-2004
11:58:02");

```

```

    output->o_orderline[3].ol_i_id=3394;
    output->o_orderline[3].ol_supply_w_id=1;
    output->o_orderline[3].ol_quantity=5;
    output->o_orderline[3].ol_amount=2345.67;
    strcpy(output->o_orderline[3].ol_delivery_d.DateString, "20-01-2004
11:58:03");

```

```

    output->o_orderline[4].ol_i_id=2242;
    output->o_orderline[4].ol_supply_w_id=1;
    output->o_orderline[4].ol_quantity=4;
    output->o_orderline[4].ol_amount=3456.78;
    strcpy(output->o_orderline[4].ol_delivery_d.DateString, "20-01-2004
11:58:04");

```

```

    return SUCCESS;
}

```

```

int mod_tpcc_stocklevel(T_stocklevel_data *output)
{
    output->threshold=10;
    output->low_stock=1;
    output->txn_status= DB_RETURN_OCI_SUCCESS;
    return SUCCESS;
}

```

```

#endif

```

### dbconnection.h

```

#include "tpccpl.h"
#include "tpccstruct.h"
#include "tpcc_struct.h"
#include "mod_tpcc_error.h"
#include "mod_tpcc.h"

#define MAXLEN 100
#define LogName "log\\DBConnection.log"
#define InitName "DBInit.ini"

// Execution Pool Status
#define IDLE 1
#define IN_USE 2

#define Default_DBConnections "20"
#define DelLogName "log\\DeliveryLog"

#define convert_status(A,B) \
{ \
    switch (B) { \
        case OCI_SUCCESS: (A)=DB_RETURN_OCI_SUCCESS; break; \
        case OCI_SUCCESS_WITH_INFO: \
        (A)=DB_RETURN_OCI_SUCCESS_WITH_INFO; break; \
        case OCI_NEED_DATA: (A)=DB_RETURN_OCI_NEED_DATA; break; \
        case OCI_NO_DATA: (A)=DB_RETURN_OCI_NO_DATA; break; \
        case OCI_ERROR: (A)=DB_RETURN_OCI_ERROR; break; \
        case OCI_INVALID_HANDLE: \
        (A)=DB_RETURN_OCI_INVALID_HANDLE; break; \
        case OCI_STILL_EXECUTING: \
        (A)=DB_RETURN_OCI_STILL_EXECUTING; break; \
        case OCI_CONTINUE: (A)=DB_RETURN_OCI_CONTINUE; break; \
    }; \
}

```

# APPENDIX A - APPLICATION SOURCE CODE

```

/*****
*****
* DBExecution_pool_info *
*****
*****/

typedef struct _DBExecution_pool_info {

    int current_status;
    int neworder_count;
    int payment_count;
    int orderstatus_count;
    int delivery_count;
    int stocklevel_count;
    void *pointer;

} DBExecution_pool_info;

/*****
*****
* global functions *
*****
*****/

sb4 no_data(dvoid *,OCIBind *,ub4,ub4,dvoid **,ub4 *,ub1 *,dvoid **);
sb4 TPC_oid_data(dvoid *,OCIBind *,ub4,ub4,dvoid **,ub4 **,ub1 *,dvoid
**,ub2 **);
sb4 cid_data(dvoid *,OCIBind *,ub4,ub4,dvoid **,ub4 **,ub1 *,dvoid **,ub2
**);
sb4 amt_data(dvoid *,OCIBind *,ub4,ub4,dvoid **,ub4 **,ub1 *,dvoid
**,ub2 **);
void userlog(char *,...);
void readInit(char *,char *,char *);
int initializeDBExecutionPool();

DBExecution_pool_info* findIdleDBExecution();
int freeDBExecution(DBExecution_pool_info *);

//DBExecution_pool_info* findIdleDBExecution(HANDLE *);
//int freeDBExecution(DBExecution_pool_info *,HANDLE *);

void write_delivery_log(T_delivery_data *pdata, int id);
void initDelLog(int);
void endDelLog(int);

/*****
*****
* global variables *
*****
*****/

HANDLE waitIdle;
HANDLE *DBExecution_lock;
DWORD TlsPtr;
DBExecution_pool_info *DBExecution_pool;
char DllPath[MAXLEN];
char LogFile[MAXLEN];
char InitFile[MAXLEN];
char DelLogFile[MAXLEN];
int TotalLoop=0;
int findDBExecutionCall=0;
int findDBExecutionWait=0;
int DBConnections;
int ready=0;
FILE **DelFiles;

/*****
*****
* DBExecution *
*****
*****/

class DBExecution
{
public:
    DBExecution();
    ~DBExecution();

    int TPCinit(int, char *, char *);
    int TPCnew(struct newstruct *);
    int TPCpay(struct paystruct *);
    int TPCdel(struct delstruct *);
    int TPCord(struct ordstruct *);
    int TPCsto(struct stostruct *);
    void TPCexit();

};

#ifndef AVOID_DEADLOCK
void swap(struct newstruct *, int, int);
#endif

```

```

void q_sort(int *, struct newstruct *, int, int);
#endif

int ocierror(char *, int, OCIError *, sword);
void shiftdata(int);
int sqlfile(char *, text *);

int tkvcninit();
int tkvcn();
void tkvcndone();

int tkvcpinit();
int tkvcp();
void tkvcpdone();

int tkvcnoinit();
int tkvcn();
void tkvcnodone();

int tkvcninit(int);
int tkvcn(int);
void tkvcndone(int);

int tkvcsinit();
int tkvcs();
void tkvcsdone();

delctx *dctx;
int execstatus;
int status;
int del_o_id[10];

private:
    int proc_no;
    int logon;
    int new_init;
    int pay_init;
    int ord_init;
    int del_init_oci;
    int del_init_plsql;
    int sto_init;
    int errcode;
    int indx[NITEMS];
    int ordl_cnt;

    /* for stock-level transaction */

    int w_id;

    int d_id;
    int c_id;
#ifdef USE_IEEE_NUMBER
    double threshold;
#else
    int threshold;
#endif /* USE_IEEE_NUMBER */
    int low_stock;

    /* for delivery transaction */

    int retries;

    /* for order-status transaction */

    int bylastname;
    char c_last[17];
    char c_first[17];
    char c_middle[3];
    double c_balance;
    int o_id;
    text o_entry_d[20];
    ub4 datelen;
    int o_carrier_id;
    int o_ol_cnt;
    int ol_supply_w_id[15];
    int ol_i_id[15];
#ifdef USE_IEEE_NUMBER
    double ol_quantity[15];
    double ol_amount[15];
#else
    int ol_quantity[15];
    int ol_amount[15];
#endif /* USE_IEEE_NUMBER */
    ub4 ol_del_len[15];
    text ol_delivery_d[15][11];
    OCIRowid *o_rowid;

    /* for payment transaction */

    int c_w_id;
    int c_d_id;
#ifdef USE_IEEE_NUMBER

```

```

double h_amount;
#else
int h_amount;
#endif /* USE_IEEE_NUMBER */
char w_street_1[21];
char w_street_2[21];
char w_city[21];
char w_state[3];
char w_zip[10];
char d_street_1[21];
char d_street_2[21];
char d_city[21];
char d_state[3];
char d_zip[10];
char c_street_1[21];
char c_street_2[21];
char c_city[21];
char c_state[3];
char c_zip[10];
char c_phone[17];
ub4 sincelen;
text c_since_d[11];
double c_discount;
char c_credit[3];
int c_credit_lim;
char c_data[201];
ub4 hlen;
text h_date[20];

/* for new order transaction */

int no_i_id[15];
int no_supply_w_id[15];
#endif USE_IEEE_NUMBER
double no_quantity[15];
double no_amount[15];
double s_quantity[15];
double i_price[15];
#else
int no_quantity[15];
int no_amount[15];
int s_quantity[15];
int i_price[15];
#endif /* USE_IEEE_NUMBER */
int no_quant10[15];
int no_quant9[15];
int no_ytdqty[15];
int o_all_local;
double w_tax;
double d_tax;
double total_amount;
char i_name[15][25];
char brand_gen[15];
char brand_generic[15][1];
int tracelevel;

OCIDate cr_date;
OCIDate c_since;
OCIDate o_entry_d_base;
OCIDate ol_d_base[15];
dvoid *xmem;

OCIEnv *tpcenv;
OCIError *errhp;
OCISvcCtx *tpcsvc;
OCIStmt *curi;

newctx *nctx;
ordctx *octx;
defctx *cbctx;
pldctx *pldctx;
amtctx *actx;
payctx *pctx;
stoctx *sctx;
};

```

### Dbconnection/loopback.cpp

```

#include "stdafx.h"
#include "DBConnection.h"

```

### Dbconnection/mod\_tpcc.h

```

/* Copyright (c) 2004, Oracle Corporation. All rights reserved. */

```

```

/*
NAME
    mod_tpcc.h - <one-line expansion of the name>

DESCRIPTION
    <short description of facility this file declares/defines>

RELATED DOCUMENTS
    <note any documents related to this facility>

EXPORT FUNCTION(S)
    <external functions declared for use outside package - one-line
    descriptions>

INTERNAL FUNCTION(S)
    <other external functions declared - one-line descriptions>

EXAMPLES

NOTES
    <other useful comments, qualifications, etc.>

MODIFIED (MM/DD/YY)
    xnie    01/30/04 - the real mod_tpcc.h
    shuang  01/22/04 - shuang_rte
    shuang  01/21/04 - Creation
*/

```

```

#include <httpext.h>

#define CMD_PROCESS(p)    (p[0] == 'P') && (p[1] == 'r')
#define CMD_NEWORDER(p)  (p[0] == 'N')
#define CMD_PAYMENT(p)   (p[0] == 'P') && (p[1] == 'a')
#define CMD_DELIVERY(p)  (p[0] == 'D')
#define CMD_ORDERSTATUS(p) (p[0] == 'O')
#define CMD_STOCKLEVEL(p) (p[0] == 'S')
#define CMD_EXIT(p)      (p[0] == 'E')
#define CMD_MENU(p)      (p[0] == 'M')
#define CMD_BEGIN(p)     (p[0] == 'B')

#define TXN_TYPE_DELIVERY    0
#define TXN_TYPE_STOCKLEVEL  1
#define TXN_TYPE_NEWORDER    2
#define TXN_TYPE_ORDERSTATUS 3
#define TXN_TYPE_PAYMENT     4
#define TXN_TYPE_MAX         5

#define POOL_TYPE_TXN_INPUT  0
#define POOL_TYPE_TXN_OUTPUT 1
#define POOL_TYPE_TXN_MAX    2

#define MAX_FORM_INDEX      164
#define BUF_SIZE             4096
#define FILENAMESIZE        128
#define MYLOGFILE            "/tmp/mod_tpcc.log"
#define WDDID(w_id,d_id)    (10 * w_id + (d_id - 1))

#define MAX(a,b)             ((a > b) ? a : b)
#define MIN(a,b)             ((a > b) ? b : a)
#define STRING_UPPERCASE(x) \
    { \
        int str_pos; \
        int len = strlen(x); \
        for (str_pos=0; str_pos < len; str_pos++) \
            x[str_pos] = toupper(x[str_pos]); \
    }

struct value_index_entry
{
    char *value;
    int length;
};
typedef struct value_index_entry value_index_entry;

struct form_index_entry
{
    int index;
    int length;
};
typedef struct form_index_entry form_index_entry;

struct form_template_pool
{
    CRITICAL_SECTION form_template_spinlock;
    /* mutex for serialisation */

```



## APPENDIX A - APPLICATION SOURCE CODE

```

int form_template_length; /* Length of each form */
int form_template_size; /* Number of form in the pool */
char *form_template_storage; /* The space allocated for the whole pool */

int free_slot;
int *free_list;
};
typedef struct form_template_pool form_template_pool;

//static int tpcc_handler(request_rec *r);
//static int tpcc_post_config(apr_pool_t *p, apr_pool_t *pl,
// apr_pool_t *pt, server_rec *s);
//static void tpcc_child_init(apr_pool_t *p, server_rec *s);
//static void tpcc_register_hooks(apr_pool_t *p);

void allocate_response_pool();
void allocate_transaction_pool();
void allocate_template_pool();

int sendform_mainmenu(EXTENSION_CONTROL_BLOCK *pECB, int
w_id, int ld_id);
int sendform_welcome(EXTENSION_CONTROL_BLOCK *, char *);
int sendform_neworderinput(EXTENSION_CONTROL_BLOCK *pECB, int
w_id, int ld_id);
int sendform_paymentinput(EXTENSION_CONTROL_BLOCK *pECB, int
w_id, int ld_id);
int sendform_orderstatusinput(EXTENSION_CONTROL_BLOCK *pECB,
int w_id, int ld_id);
int sendform_deliveryinput(EXTENSION_CONTROL_BLOCK *pECB, int
w_id, int ld_id);
int sendform_stocklevelinput(EXTENSION_CONTROL_BLOCK *pECB,
int w_id, int ld_id);

int mod_neworder_query(EXTENSION_CONTROL_BLOCK *pECB, int
w_id, int ld_id, char *ptr);
int mod_delivery_query(EXTENSION_CONTROL_BLOCK *pECB, int
w_id, int ld_id, char *ptr);
int mod_payment_query(EXTENSION_CONTROL_BLOCK *pECB, int
w_id, int ld_id, char *ptr);
int mod_orderstatus_query(EXTENSION_CONTROL_BLOCK *pECB, int
w_id, int ld_id, char *ptr);
int mod_stocklevel_query(EXTENSION_CONTROL_BLOCK *pECB, int
w_id, int ld_id, char *ptr);
int process_query(EXTENSION_CONTROL_BLOCK *);
int mod_begin_cmd(EXTENSION_CONTROL_BLOCK *);
int mod_menu_cmd(EXTENSION_CONTROL_BLOCK *, int, int);
int mod_exit_cmd(EXTENSION_CONTROL_BLOCK *);
int send_error_message(EXTENSION_CONTROL_BLOCK *, int, int, char
*,int,int,void *);

int get_wid_did(char *iptr, int *wid, int *did, char **optr);
int getcharvalue(char *iptr, char key, char **optr);
char *allocate_form(form_template_pool *pool, int *index);
char *allocate_form_new(form_template_pool *pool, int index);
void free_form(form_template_pool *pool, char *form_template, int index);
void make_txn_form_template(char *, char *, char *, char *, int);
int build_form_index(char *form, char *form_template, form_index_entry
*f_index, int length);
int send_response(EXTENSION_CONTROL_BLOCK *, char *, int);
void fill_number(char *form, int value, int index, int length);
void fill_double(char *form, double value, int index, int length);
void fill_string(char *form, char *string, int index, int length, int *shift);
void adjust_form(char *form, int *indexes, int *length, int size, int formlen,
int totalshift);
int get_number(char *ptr, int *value);
int parse_query_string(char *iptr, int max_cnt, char *txn_chars,
value_index_entry *txn_vals);

#define mod_neworder_cmd(rec, w_id, ld_id)
sendform_neworderinput(rec, w_id, ld_id)
#define mod_delivery_cmd(rec, w_id, ld_id)
sendform_deliveryinput(rec, w_id, ld_id)
#define mod_payment_cmd(rec, w_id, ld_id)
sendform_paymentinput(rec, w_id, ld_id)
#define mod_orderstatus_cmd(rec, w_id, ld_id)
sendform_orderstatusinput(rec, w_id, ld_id)
#define mod_stocklevel_cmd(rec, w_id, ld_id)
sendform_stocklevelinput(rec, w_id, ld_id)

/* -----
The following defines the form layout of the different screens (forms).

NAME=1 - Command.

VALUE = NewOrder - neworder bring out new order input form
Delivery - delivery bring out delivery input form
OrderStatus - order status bring out order status input form
Payment - payment bring out payment input form
StockLevel - stock level bring out stock level input form
Menu - display main menu
Process - perform the specified transaction after providing
input

```

```

Begin - send wid and did

NAME=2 - Form Type.

VALUE = d,n,p,s,o [D,N,P,S,O] output/input. Plus terminal ID.
= W logon
= M main menu

Delivery
3 - district number.

Order Status
3 - district number.
4 - customer id.
5 - customer last name.

Payment
3 - district number.
4 - customer id.
5 - customer warehouse.
6 - customer district.
7 - name
8 - amount paid

Stock Level
3 - stock level threshold

New Order
3 - district number.
4 - customer number.
----- */

#define TRANSACTION_MENU \
<HR>\
<INPUT TYPE=submit NAME=0 VALUE=NewOrder>\
<INPUT TYPE=submit NAME=0 VALUE=Payment>\
<INPUT TYPE=submit NAME=0 VALUE=Delivery>\
<INPUT TYPE=submit NAME=0 VALUE=StockLevel>\
<INPUT TYPE=submit NAME=0 VALUE=OrderStatus>\
<INPUT TYPE=submit NAME=0 VALUE=Exit>

/* static char WelcomeForm [] =
<BODY><FORM ACTION=%s METHOD=GET>
<INPUT TYPE=hidden NAME=2 VALUE=B000>
%s. Please provide your warehouse ID and district ID.<BR>
Warehouse ID <INPUT NAME=3 SIZE=7<BR>
District ID <INPUT NAME=4 SIZE=2<BR>
<HR>
<INPUT TYPE=submit NAME=1 VALUE=Begin>
</FORM></BODY>; */
static char WelcomeForm [] =
<BODY><FORM ACTION=%s METHOD=GET>
<INPUT TYPE=hidden NAME=3 VALUE=W000>
%s. Please provide your warehouse ID and district ID.<BR>
Warehouse ID <INPUT NAME=4 SIZE=7<BR>
District ID <INPUT NAME=5 SIZE=2<BR>
<HR>
<INPUT TYPE=submit NAME=0 VALUE=Begin>
</FORM></BODY>;

static char FormHeader [] =
<BODY><FORM ACTION=%s METHOD=GET>;

#define FORM_BEGIN "<BODY><FORM ACTION=%s
METHOD=GET>"
#define FORM_END "</FORM></BODY>"
#define FORM_SUBMIT "<INPUT TYPE=submit NAME=0
VALUE=Process>"
#define FORM_MENU "<INPUT TYPE=submit NAME=0
VALUE=Menu>"

static char MainForm [] =
FORM_BEGIN
<INPUT TYPE=hidden NAME=3 VALUE=M%07d>
"%60s<BR>"
"Please Select the Next Transaction.<BR>"
TRANSACTION_MENU
FORM_END;

static char ErrorForm [] =
FORM_BEGIN
<INPUT TYPE=hidden NAME=3 VALUE=e%06d>
"Error: %d %d %40s %s<BR>"
TRANSACTION_MENU
FORM_END;

/*
static char ErrorForm [] =
FORM_BEGIN

```



APPENDIX A - APPLICATION SOURCE CODE

```
#define PA_CMIDDLE PA_CFIRST+1
#define PA_CLAST PA_CMIDDLE+1
#define PA_SINCE PA_CLAST+1
#define PA_CST1 PA_SINCE+1
#define PA_CREDIT PA_CST1+1
#define PA_CST2 PA_CREDIT+1
#define PA_DISC PA_CST2+1
#define PA_CCITY PA_DISC+1
#define PA_CSTATE PA_CCITY+1
#define PA_CZIP PA_CSTATE+1
#define PA_CPHONE PA_CZIP+1
#define PA_AMOUNT PA_CPHONE+1
#define PA_CBAL PA_AMOUNT+1
#define PA_LIMIT PA_CBAL+1
#define PA_CUSTDATA PA_LIMIT+1
#define PA_FORMINDEX_SIZE PA_CUSTDATA+3+1

static char PaymentInput_Template [] =
"<INPUT TYPE=hidden NAME=3 VALUE=P#####>"
"<PRE>
Payment<BR>"
"Date: <BR><BR>"
"Warehouse: ##### District: <INPUT NAME=8
SIZE=2><BR>"
"<BR><BR><BR><BR>"
"Customer: <INPUT NAME=9 SIZE=4>"
"Cust-Warehouse: <INPUT NAME=Z SIZE=7>"
"Cust-District: <INPUT NAME=v SIZE=2><BR>"
"Name: <INPUT NAME=Y SIZE=16> Since: <BR>"
"
Credit: <BR>"
"
Disc: <BR>"
"
Phone: <BR><BR>"
"Amount Paid: $<INPUT NAME=w SIZE=7> New Cust Balance:
<BR>"
"Credit limit:<BR><BR>Cust-Data: <BR><BR><BR><BR></PRE><HR>"
FORM_MENU
FORM_SUBMIT
FORM_END;

static char PaymentOutput_Template [] =
"<INPUT TYPE=hidden NAME=3 VALUE=p#####>"
"<PRE>
Payment<BR>"
"Date: #####<BR>"
"Warehouse: ##### District: ##<BR>"
"#####<BR>"
"#####<BR>"
"#####<BR>"
"#####<BR>"
"#####<BR>"
"Customer: #### Cust-Warehouse: ##### Cust-District: ##<BR>"
"Name: ##### Since:
#####<BR>"
"
Credit: ##<BR>"
"
%Disc: ###<BR>"
"
Phone:
#####<BR>"
"<BR><BR>"
"Amount Paid: $##### New Cust Balance:
$#####<BR>"
"Credit Limit: $#####<BR><BR>"
"Cust-Data:
#####<BR>"
"#####<BR>"
"#####<BR>"
"#####<BR>"
"#####<BR>"
"</PRE>"
TRANSACTION_MENU
FORM_END;

#define SL_TERMID 0
#define SL_WID SL_TERMID+1
#define SL_DID SL_WID+1
#define SL_THRESHOLD SL_DID+1
#define SL_LOWSTOCK SL_THRESHOLD+1
#define SL_FORMINDEX_SIZE SL_LOWSTOCK

static char StockLevelInput_Template [] =
"<INPUT TYPE=hidden NAME=3 VALUE=S#####>"
"<PRE>
Stock-Level<BR>"
"Warehouse: ##### District ##<BR><BR>"
"Stock Level Threshold: <INPUT NAME=x SIZE=2><BR><BR>"
"low stock: <BR></PRE><HR>"
FORM_MENU
FORM_SUBMIT
FORM_END;

static char StockLevelOutput_Template [] =
"<INPUT TYPE=hidden NAME=3 VALUE=s#####>"
"<PRE>
Stock Level<BR>"
"Warehouse: ##### District ##<BR><BR>"
```

```
"Stock Level Threshold: ##<BR><BR>"
"low stock: ### <BR></PRE><HR>"
TRANSACTION_MENU
FORM_END;

#define NO_TERMID 0
#define NO_WID NO_TERMID+1
#define NO_DID NO_WID+1
#define NO_DATE NO_DID+1
#define NO_CID NO_DATE+1
#define NO_NAME NO_CID+1
#define NO_CREDIT NO_NAME+1
#define NO_DISC NO_CREDIT+1
#define NO_OID NO_DISC+1
#define NO_LINES NO_OID+1
#define NO_WTAX NO_LINES+1
#define NO_DTAX NO_WTAX+1
#define NO_SUPPW NO_DTAX+1
#define NO_ITEMID NO_SUPPW+1
#define NO_INAME NO_ITEMID+1
#define NO_QTY NO_INAME+1
#define NO_STOCK NO_QTY+1
#define NO_BRAND NO_STOCK+1
#define NO_PRICE NO_BRAND+1
#define NO_AMOUNT NO_PRICE+1
#define NO_STATUS NO_AMOUNT + 14*8 + 1
#define NO_TOTAL NO_STATUS+1
#define NO_FORMINDEX_SIZE NO_TOTAL+1

static char NewOrderInput_Template [] =
"<INPUT TYPE=hidden NAME=3 VALUE=N#####>"
"<PRE>
New Order<BR>"
"Warehouse: ##### District: <INPUT NAME=8 SIZE=2>
Date: <BR>"
"Customer: <INPUT NAME=9 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=A SIZE=6> <INPUT NAME=B SIZE=7><INPUT
NAME=C SIZE=2><BR>"
"<INPUT NAME=D SIZE=6> <INPUT NAME=E SIZE=7><INPUT
NAME=F SIZE=2><BR>"
"<INPUT NAME=G SIZE=6> <INPUT NAME=H SIZE=7><INPUT NAME=I
SIZE=2><BR>"
"<INPUT NAME=J SIZE=6> <INPUT NAME=K SIZE=7><INPUT NAME=L
SIZE=2><BR>"
"<INPUT NAME=M SIZE=6> <INPUT NAME=N SIZE=7><INPUT
NAME=O SIZE=2><BR>"
"<INPUT NAME=P SIZE=6> <INPUT NAME=Q SIZE=7><INPUT
NAME=R SIZE=2><BR>"
"<INPUT NAME=S SIZE=6> <INPUT NAME=T SIZE=7><INPUT
NAME=U SIZE=2><BR>"
"<INPUT NAME=V SIZE=6> <INPUT NAME=W SIZE=7><INPUT
NAME=X SIZE=2><BR>"
"<INPUT NAME=a SIZE=6> <INPUT NAME=b SIZE=7><INPUT NAME=c
SIZE=2><BR>"
"<INPUT NAME=d SIZE=6> <INPUT NAME=e SIZE=7><INPUT NAME=f
SIZE=2><BR>"
"<INPUT NAME=g SIZE=6> <INPUT NAME=h SIZE=7><INPUT NAME=i
SIZE=2><BR>"
"<INPUT NAME=j SIZE=6> <INPUT NAME=k SIZE=7><INPUT NAME=l
SIZE=2><BR>"
"<INPUT NAME=m SIZE=6> <INPUT NAME=n SIZE=7><INPUT
NAME=o SIZE=2><BR>"
"<INPUT NAME=p SIZE=6> <INPUT NAME=q SIZE=7><INPUT NAME=r
SIZE=2><BR>"
"<INPUT NAME=s SIZE=6> <INPUT NAME=t SIZE=7><INPUT NAME=u
SIZE=2><BR>"
"Execution Status: Total:<BR></PRE><HR>"
FORM_MENU
FORM_SUBMIT
FORM_END;

static char NewOrderOutput_Template [] =
"<INPUT TYPE=hidden NAME=3 VALUE=n#####>"
"<PRE>
New Order<BR>"
"Warehouse: ##### District: ## Date:
#####<BR>"
"Customer: #### 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>"
"#####<BR>"
"$#####<BR>"
"#####<BR>"
"$#####<BR>"
```



# APPENDIX A - APPLICATION SOURCE CODE

```

#define
OCIBNDRAA(stmp,bndp,errp,sqlvar,prog,progvl,ftype,indp,alen,arcode,ms,cu) \
ocierror(__FILE__,__LINE__,(errp), \

OCIHandleAlloc((stmp),&(bndp),OCI_HTYPE_BIND,0,(dvoid**)0); \
ocierror(__FILE__,__LINE__,(errp), \
OCIBindByName((stmp),&(bndp),(errp),(text
*)(sqlvar),strlen(sqlvar), \

(progvl),(progvl),(ftype),(indp),(alen),(arcode),(ms),(cu),OCI_DEFAULT);

#define OCIDEFINE(stmp,dfnp,errp,pos,prog,progvl,ftype) \
OCIDefineByPos((stmp),&(dfnp),(errp),(pos),(progvl),(progvl),(ftype), \
0,0,0,OCI_DEFAULT);

#define OCIDEF(stmp,dfnp,errp,pos,prog,progvl,ftype) \
OCIHandleAlloc((stmp),(dvoid**)&(dfnp),OCI_HTYPE_DEFINE,0, \
(dvoid**)0); \
OCIDefineByPos((stmp),&(dfnp),(errp),(pos),(progvl),(progvl), \
(ftype),NULL,NULL,NULL,OCI_DEFAULT); \

#define
OCIDFNRA(stmp,dfnp,errp,pos,prog,progvl,ftype,indp,alen,arcode) \
OCIHandleAlloc((stmp),(dvoid**)&(dfnp),OCI_HTYPE_DEFINE,0, \
(dvoid**)0); \
OCIDefineByPos((stmp),&(dfnp),(errp),(pos),(progvl), \
(progvl),(ftype),(indp),(alen), \
(arcode),OCI_DEFAULT); \

#define OBNDRV(lda,cursor,sqlvar,prog,progvl,ftype) \
if (obndrv((cursor),(text*)(sqlvar),NA,(ub1*)(progvl),(progvl),(ftype),NA, \
(sb2 *)0, (text *)0, NA, NA)) \
{errrpt(lda,cursor);return(-1);} \
else \
DISCARD 0

#define OBNDRA(lda,cursor,sqlvar,prog,progvl,ftype,indp,alen,arcode) \
if (obndra((cursor),(text*)(sqlvar),NA,(ub1*)(progvl),(progvl),(ftype),NA, \
(indp),(alen),(arcode),(ub4)0,(ub4)0,(text*)0,NA,NA)) \
{errrpt(lda,cursor);return(-1);} \
else \
DISCARD 0

#define
OBNDRAA(lda,cursor,sqlvar,prog,progvl,ftype,indp,alen,arcode,ms,cs) \
if (obndra((cursor),(text*)(sqlvar),NA,(ub1*)(progvl),(progvl),(ftype),NA, \
(indp),(alen),(arcode),(ub4)(ms),(ub4)(cs),(text*)0,NA,NA)) \
{errrpt(lda,cursor);return(-1);} \
else \
DISCARD 0

#define
ODEFIN(lda,cursor,pos,buf,buf1,ftype,scal,indp,fmt,fmtl,fmtr,rlen,rcode) \
if (odefin((cursor),(pos),(ub1*)(buf),(buf1),(ftype),(scal),(indp), \
(text*)(fmt),(fml),(fmr),(rlen),(rcode))) \
{errrpt(lda,cursor);return(-1);} \
else \
DISCARD 0

#define
OEXFET(lda,cursor,nrows,cancel,exact) \
if (oexfet((cursor),(nrows),(cancel),(exact)) \
{if ((cursor)->rc == 1403) \
{if (errrpt(lda,cursor); orol(lda); return(-1));} \
else if (errrpt(lda,cursor)==RECOVER) \
{orol(lda);return(RECOVER);} \
else{orol(lda);return(-1);}} \
else \
DISCARD 0

#define
OOPEN(lda,cursor) \
if (oopen((cursor),(lda),(text*)0,NA,NA,(text*)0,NA)) \
{errrpt(lda,cursor);return(-1);} \
else \
DISCARD 0

#define
OPARSE(lda,cursor,sqlstm,sql,(defflg),(ub4)(ingflg)) \
if (oparse((cursor),(sqlstm),(sb4)(sql),(defflg),(ub4)(ingflg)) \
{errrpt(lda,cursor);return(-1);} \
else \
DISCARD 0

#define
OFEN(lda,cursor,nrows) \
if (ofen((cursor),(nrows)) \
{if (errrpt(lda,cursor)==RECOVER) \
{orol(lda);return(RECOVER);} \
else{orol(lda);return(-1);}} \

else \
DISCARD 0

#define
OEXEC(lda,cursor) \
if (oexec((cursor)) \
{if (errrpt(lda,cursor)==RECOVER) \
{orol(lda);return(RECOVER);} \
else{orol(lda);return(-1);}} \
else \
DISCARD 0

#define
OCOM(lda,cursor) \
if (ocom((lda)) \
{errrpt(lda,cursor);orol(lda);return(-1);} \
else \
DISCARD 0

#define
OEXN(lda,cursor,itors,rowoff) \
if (oexn((cursor),(itors),(rowoff)) \
{if (errrpt(lda,cursor)==RECOVER) \
{orol(lda);return(RECOVER);} \
else{orol(lda);return(-1);}} \
else \
DISCARD 0

/* bind in/out for plsql without indicator and rcode */
#define
OCIBNDPL(stmp,bndp,errp,sqlvar,prog,progvl,ftype,alen) \
DISCARD ocierror(__FILE__,__LINE__,(errp), \

OCIHandleAlloc((stmp),(dvoid**)&(bndp),OCI_HTYPE_BIND,0,(dvoid**)0); \
DISCARD ocierror(__FILE__,__LINE__,(errp), \
OCIBindByName((stmp),&(bndp),(errp),(const text*)(sqlvar), \
(sb4)strlen((const char*)(sqlvar)),(dvoid*)(progvl),(progvl),(ftype), \
NULL(dvoid),(alen),NULL(ub2), \
0,NULL(ub4),OCI_DEFAULT));

/* bind in/out for plsql arrays without indicator and rcode */
#define
OCIBNDPLA(stmp,bndp,errp,sqlvar,prog,progvl,ftype,alen,ms,cu) \
DISCARD ocierror(__FILE__,__LINE__,(errp), \

OCIHandleAlloc((stmp),(dvoid**)&(bndp),OCI_HTYPE_BIND,0,(dvoid**)0); \
DISCARD ocierror(__FILE__,__LINE__,(errp), \
OCIBindByName((stmp),&(bndp),(errp),(CONST text*)(sqlvar), \
(sb4)strlen((CONST char*)(sqlvar)),(void*)(progvl), \
(progvl),(ftype),NULL,(alen),NULL,(ms),(cu),OCI_DEFAULT));

#define
OCIDEFINE(stmp,dfnp,errp,pos,prog,progvl,ftype) \
OCIDefineByPos((stmp),&(dfnp),(errp),(pos),(progvl),(progvl),(ftype), \
0,0,0,OCI_DEFAULT);

#define
OCIDEF(stmp,dfnp,errp,pos,prog,progvl,ftype) \
OCIHandleAlloc((stmp),(dvoid**)&(dfnp),OCI_HTYPE_DEFINE,0, \
(dvoid**)0); \
OCIDefineByPos((stmp),&(dfnp),(errp),(pos),(progvl),(progvl), \
(ftype),NULL,NULL,NULL,OCI_DEFAULT); \

#define
OCIDFNRA(stmp,dfnp,errp,pos,prog,progvl,ftype,indp,alen,arcode) \
OCIHandleAlloc((stmp),(dvoid**)&(dfnp),OCI_HTYPE_DEFINE,0, \
(dvoid**)0); \
OCIDefineByPos((stmp),&(dfnp),(errp),(pos),(progvl), \
(progvl),(ftype),(indp),(alen), \
(arcode),OCI_DEFAULT);

#define
OCIDFNDRY(stmp,dfnp,errp,pos,prog,progvl,ftype,indp,ctxp,cbf_data) \
ocierror(__FILE__,__LINE__,(errp), \
OCIHandleAlloc((stmp),(dvoid**)&(dfnp),OCI_HTYPE_DEFINE,0, \
(dvoid**)0); \
ocierror(__FILE__,__LINE__,(errp), \
OCIDefineByPos((stmp),&(dfnp),(errp),(pos),(progvl),(progvl),(ftype), \
(indp),NULL,NULL,OCI_DYNAMIC_FETCH)); \
ocierror(__FILE__,__LINE__,(errp), \
OCIDefineDynamic((dfnp),(errp),(ctxp),(cbf_data));

#endif

```

**Dbconnection/tpcc\_struct.h**

```

/* Copyright (c) 2004, Oracle Corporation. All rights reserved. */
/*
NAME
tpcc_struct.h - <one-line expansion of the name>

DESCRIPTION
<short description of facility this file declares/defines>

RELATED DOCUMENTS
<note any documents related to this facility>

EXPORT FUNCTION(S)
<external functions declared for use outside package - one-line
descriptions>

INTERNAL FUNCTION(S)
<other external functions declared - one-line descriptions>

EXAMPLES

NOTES
<other useful comments, qualifications, etc.>

MODIFIED (MM/DD/YY)
xnie 02/09/04 - add status field to carry error status
shuang 01/22/04 - shuang_rte
shuang 01/21/04 - Creation
*/

#define MAX_ORDERLINE 15
#define SMALL_BUF_SIZE 32

#define TXN_COMMON_DATA \
int w_id; \
int ld_id; \
int txn_status; \
int db_status; \
void *context

struct T_connect_data
{
TXN_COMMON_DATA;
};
typedef struct T_connect_data T_connect_data;

struct T_date
{
char DateString[20];
};
typedef struct T_date T_date;

struct T_delivery_data
{
TXN_COMMON_DATA;
SYSTEMTIME enqueue_date_time;
DWORD enqueue_time;
DWORD complete_time;
int o_carrier_id;
int o_id[10];
};
typedef struct T_delivery_data T_delivery_data;

struct T_orderline
{
int ol_i_id;
int ol_supply_w_id;
int ol_quantity;
char i_name[25];
int s_quantity;
char b_g[2];
double i_price;
double ol_amount;
};
typedef struct T_orderline T_orderline;

struct T_neworder_data
{
TXN_COMMON_DATA;
int d_id;
int c_id;
int o_ol_cnt;
int o_all_local;
T_orderline o_orderline[MAX_ORDERLINE];
T_date o_entry_d;
char o_lee[47];

```

```

char c_credit[3];
double c_discount;
double w_tax;
double d_tax;
int o_id;
double total_amount;
int status;
};
typedef struct T_neworder_data T_neworder_data;

struct T_stocklevel_data
{
TXN_COMMON_DATA;
int threshold;
int low_stock;
};
typedef struct T_stocklevel_data T_stocklevel_data;

struct T_orderline_status
{
int ol_supply_w_id;
int ol_i_id;
int ol_quantity;
double ol_amount;
T_date ol_delivery_d;
};
typedef struct T_orderline_status T_orderline_status;

struct T_orderstatus_data
{
TXN_COMMON_DATA;
int by_last_name;
int d_id;
int c_id;
char c_last[17];
char c_first[17];
char c_middle[3];
double c_balance;
int o_id;
T_date o_entry_d;
int o_carrier_id;
int o_ol_cnt;
T_orderline_status o_orderline[MAX_ORDERLINE];
};
typedef struct T_orderstatus_data T_orderstatus_data;

struct T_payment_data
{
TXN_COMMON_DATA;
int by_last_name;
int d_id;
int c_id;
char c_last[17];
int c_w_id;
int c_d_id;
double h_amount;
T_date h_date;
char w_street_1[21];
char w_street_2[21];
char w_city[21];
char w_state[3];
char w_zip[10];
char d_street_1[21];
char d_street_2[21];
char d_city[21];
char d_state[3];
char d_zip[10];
char c_first[17];
char c_middle[3];
char c_street_1[21];
char c_street_2[21];
char c_city[21];
char c_state[3];
char c_zip[10];
char c_phone[17];
T_date c_since;
char c_credit[3];
double c_credit_lim;
double c_discount;
double c_balance;
char c_data[201];
};
typedef struct T_payment_data T_payment_data;

struct T_transaction_data
{
int txn_type;
union {
T_delivery_data delivery_data;
T_payment_data payment_data;
T_neworder_data neworder_data;
};
};

```

## APPENDIX A - APPLICATION SOURCE CODE

```

T_stocklevel_data stocklevel_data;
T_orderstatus_data orderstatus_data;
} txn_data;

);
typedef struct T_transaction_data T_transaction_data;

struct T_login_data
{
    TXN_COMMON_DATA;
    char server[SMALL_BUF_SIZE];
    char database[SMALL_BUF_SIZE];
    char user[SMALL_BUF_SIZE];
    char password[SMALL_BUF_SIZE];
    char application[SMALL_BUF_SIZE];
};
typedef struct T_login_data T_login_data;

```

### Dbconnection/tpccstruct.h

```

#define NITEMS 15
#define ROWIDLEN 20
#define OCIROWLEN 20

struct newctx {

    ub2 nol_i_id_len[NITEMS];
    ub2 nol_supply_w_id_len[NITEMS];
    ub2 nol_quantity_len[NITEMS];
    ub2 nol_amount_len[NITEMS];
    ub2 s_quantity_len[NITEMS];
    ub2 i_name_len[NITEMS];
    ub2 i_price_len[NITEMS];
    ub2 s_dist_info_len[NITEMS];
    ub2 ol_o_id_len[NITEMS];
    ub2 ol_number_len[NITEMS];
    ub2 s_remote_len[NITEMS];
    ub2 s_quant_len[NITEMS];
    ub2 ol_dist_info_len[NITEMS];
    ub2 s_bg_len[NITEMS];

    int ol_o_id[NITEMS];
    int ol_number[NITEMS];

#ifdef USE_IEEE_NUMBER
    double s_remote[NITEMS];
#else
    int s_remote[NITEMS];
#endif
    char s_dist_info[NITEMS][25];
    OCIStmt *curn1;
    OCIBind *ol_i_id_bp;
    OCIBind *ol_supply_w_id_bp;
    OCIBind *i_price_bp;
    OCIBind *i_name_bp;
    OCIBind *s_bg_bp;
    ub4 nol_i_count;
    ub4 nol_s_count;
    ub4 nol_q_count;
    ub4 nol_item_count;
    ub4 nol_name_count;
    ub4 nol_qty_count;
    ub4 nol_bg_count;
    ub4 nol_am_count;
    ub4 s_remote_count;
    OCIStmt *curn2;
    OCIBind *ol_quantity_bp;
    OCIBind *s_remote_bp;
    OCIBind *s_quantity_bp;
    OCIBind *w_id_bp;
    OCIBind *d_id_bp;
    OCIBind *c_id_bp;
    OCIBind *o_all_local_bp;
    OCIBind *o_all_cnt_bp;
    OCIBind *w_tax_bp;
    OCIBind *d_tax_bp;
    OCIBind *o_id_bp;
    OCIBind *c_discount_bp;
    OCIBind *c_credit_bp;
    OCIBind *c_last_bp;
    OCIBind *retries_bp;
    OCIBind *cr_date_bp;
    OCIBind *ol_o_id_bp;

```

```

OCIBind *ol_amount_bp;

ub2 w_id_len;
ub2 d_id_len;
ub2 c_id_len;
ub2 o_all_local_len;
ub2 o_all_cnt_len;
ub2 w_tax_len;
ub2 d_tax_len;
ub2 o_id_len;
ub2 c_discount_len;
ub2 c_credit_len;
ub2 c_last_len;
ub2 retries_len;
ub2 cr_date_len;
};

typedef struct newctx newctx;

```

```

#define NDISTS 10
#define ROWIDLEN 20

```

```

struct delctx {
    sb2 del_o_id_ind[NDISTS];
    sb2 d_id_ind[NDISTS];
    sb2 c_id_ind[NDISTS];
    sb2 del_date_ind[NDISTS];
    sb2 carrier_id_ind[NDISTS];
    sb2 amt_ind[NDISTS];

    ub4 del_o_id_len[NDISTS];
    ub4 c_id_len[NDISTS];
    int oid_ctx;
    int cid_ctx;
    OCIBind *olamt_bp;

    ub2 w_id_len[NDISTS];
    ub2 d_id_len[NDISTS];
    ub2 del_date_len[NDISTS];
    ub2 carrier_id_len[NDISTS];
    ub2 amt_len[NDISTS];

    ub2 del_o_id_rcode[NDISTS];
    ub2 cons_rcode[NDISTS];
    ub2 w_id_rcode[NDISTS];
    ub2 d_id_rcode[NDISTS];
    ub2 c_id_rcode[NDISTS];
    ub2 del_date_rcode[NDISTS];
    ub2 carrier_id_rcode[NDISTS];
    ub2 amt_rcode[NDISTS];

    int del_o_id[NDISTS];
    int del_d_id[NDISTS];
    int cons[NDISTS];
    int w_id[NDISTS];
    int d_id[NDISTS];
    int c_id[NDISTS];
    int carrier_id[NDISTS];
    int amt[NDISTS];
    ub4 del_o_id_rcnt;
    int retry;
    OCIRowid *no_rowid_ptr[NDISTS];
    OCIRowid *o_rowid_ptr[NDISTS];
    OCIDate del_date[NDISTS];
    OCIStmt *curd0;
    OCIStmt *curd1;
    OCIStmt *curd2;
    OCIStmt *curd3;
    OCIStmt *curd4;
    OCIStmt *curd5;
    OCIStmt *curd6;
    OCIStmt *curdtest;

    OCIBind *w_id_bp;
    OCIBind *w_id_bp3;
    OCIBind *w_id_bp4;
    OCIBind *w_id_bp5;
    OCIBind *w_id_bp6;
    OCIBind *d_id_bp;
    OCIBind *d_id_bp3;
    OCIBind *d_id_bp4;
    OCIBind *d_id_bp6;
    OCIBind *o_id_bp;
    OCIBind *cr_date_bp;
    OCIBind *c_id_bp;
    OCIBind *c_id_bp3;
    OCIBind *no_rowid_bp;
    OCIBind *carrier_id_bp;
    OCIBind *o_rowid_bp;

```

## APPENDIX A - APPLICATION SOURCE CODE

```

OCIBind *del_o_id_bp;
OCIBind *del_o_id_bp3;
OCIBind *amt_bp;
OCIBind *bstr1_bp[10];
OCIBind *bstr2_bp[10];
OCIBind *retry_bp;
OCIDefine *inum_dp;
OCIDefine *d_id_dp;
OCIDefine *del_o_id_dp;
OCIDefine *no_rowid_dp;
OCIDefine *c_id_dp;
OCIDefine *o_rowid_dp;
OCIDefine *cons_dp;
OCIDefine *amt_dp;

int norow;
};

typedef struct delctx delctx;
struct pldelctx {

ub2 del_d_id_len[NDISTS];
ub2 del_o_id_len[NDISTS];

ub2 w_id_len;
ub2 d_id_len[NDISTS];
ub2 o_c_id_len[NDISTS];
ub2 sums_len[NDISTS];
ub2 carrier_id_len;
ub2 ordcnt_len;
ub2 del_date_len;

int del_o_id[NDISTS];
int del_d_id[NDISTS];
int o_c_id[NDISTS];
#ifdef USE_IEEE_NUMBER
double sums[NDISTS];
#else
int sums[NDISTS];
#endif
OCIDate del_date;
int carrier_id;
int ordcnt;

ub4 del_o_id_rcnt;
ub4 del_d_id_rcnt;
ub4 o_c_id_rcnt;
ub4 sums_rcnt;

int retry;
OCISmt *curp1;
OCISmt *curp2;
OCIBind *w_id_bp;
OCIBind *d_id_bp;
OCIBind *o_id_bp;
OCIBind *o_c_id_bp;
OCIBind *ordcnt_bp;
OCIBind *sums_bp;
OCIBind *del_date_bp;
OCIBind *carrier_id_bp;
OCIBind *retry_bp;

int norow;
};
typedef struct pldelctx pldelctx;

struct amtctx {
int ol_amt[NITEMS];
sb2 ol_amt_ind[NITEMS];
ub4 ol_amt_len[NITEMS];
ub2 ol_amt_rcode[NITEMS];
int ol_cnt;
};
typedef struct amtctx amtctx;

struct ordctx {

ub2 c_rowid_len[100];
ub2 ol_supply_w_id_len[NITEMS];
ub2 ol_i_id_len[NITEMS];
ub2 ol_quantity_len[NITEMS];
ub2 ol_amount_len[NITEMS];
ub2 ol_delivery_d_len[NITEMS];
ub2 ol_w_id_len;
ub2 ol_d_id_len;
ub2 ol_o_id_len;

ub4 ol_supply_w_id_csize;
ub4 ol_i_id_csize;
ub4 ol_quantity_csize;
ub4 ol_amount_csize;
ub4 ol_delivery_d_csize;
ub4 ol_w_id_csize;
ub4 ol_d_id_csize;
ub4 ol_o_id_csize;

OCISmt *curo0;
OCISmt *curo1;
OCISmt *curo2;
OCISmt *curo3;
OCISmt *curo4;
OCIBind *c_id_bp;
OCIBind *w_id_bp[4];
OCIBind *d_id_bp[4];
OCIBind *c_last_bp[2];
OCIBind *o_id_bp;
OCIBind *c_rowid_bp;
OCIDefine *c_rowid_dp;
OCIDefine *c_last_dp[2];
OCIDefine *c_id_dp;
OCIDefine *c_first_dp[2];
OCIDefine *c_middle_dp[2];
OCIDefine *c_balance_dp[2];
OCIDefine *o_id_dp[2];
OCIDefine *o_entry_d_dp[2];
OCIDefine *o_cr_id_dp[2];
OCIDefine *ol_cnt_dp[2];
OCIDefine *ol_d_dp;
OCIDefine *ol_i_id_dp;
OCIDefine *ol_supply_w_id_dp;
OCIDefine *ol_quantity_dp;
OCIDefine *ol_amount_dp;
OCIDefine *ol_d_base_dp;
OCIDefine *c_count_dp;
OCIRowid *c_rowid_ptr[100];
OCIRowid *c_rowid_cust;
int cs;
int cust_idx;
int norow;
int rcount;
int somerows;
};

typedef struct ordctx ordctx;

struct defctx
{
boolean reexec;
ub4 count;
};
typedef struct defctx defctx;

struct payctx {
OCISmt *curpi;
OCISmt *curp0;
OCISmt *curp1;
OCIBind *w_id_bp[2];
ub2 w_id_len;

OCIBind *d_id_bp[2];
ub2 d_id_len;

OCIBind *c_w_id_bp[2];
ub2 c_w_id_len;

OCIBind *c_d_id_bp[2];
ub2 c_d_id_len;

OCIBind *c_id_bp[2];
ub2 c_id_len;

OCIBind *h_amount_bp[2];
ub2 h_amount_len;

OCIBind *c_last_bp[2];
ub2 c_last_len;

OCIBind *w_street_1_bp[2];
ub2 w_street_1_len;

OCIBind *w_street_2_bp[2];
ub2 w_street_2_len;

OCIBind *w_city_bp[2];
ub2 w_city_len;

OCIBind *w_state_bp[2];
ub2 w_state_len;
};

```



## APPENDIX A - APPLICATION SOURCE CODE

```

OCIBind *w_zip_bp[2];
ub2 w_zip_len;

OCIBind *d_street_1_bp[2];
ub2 d_street_1_len;

OCIBind *d_street_2_bp[2];
ub2 d_street_2_len;

OCIBind *d_city_bp[2];
ub2 d_city_len;

OCIBind *d_state_bp[2];
ub2 d_state_len;

OCIBind *d_zip_bp[2];
ub2 d_zip_len;

OCIBind *c_first_bp[2];
ub2 c_first_len;

OCIBind *c_middle_bp[2];
ub2 c_middle_len;

OCIBind *c_street_1_bp[2];
ub2 c_street_1_len;

OCIBind *c_street_2_bp[2];
ub2 c_street_2_len;

OCIBind *c_city_bp[2];
ub2 c_city_len;

OCIBind *c_state_bp[2];
ub2 c_state_len;

OCIBind *c_zip_bp[2];
ub2 c_zip_len;

OCIBind *c_phone_bp[2];
ub2 c_phone_len;

OCIBind *c_since_bp[2];
ub2 c_since_len;

OCIBind *c_credit_bp[2];
ub2 c_credit_len;

OCIBind *c_credit_lim_bp[2];
ub2 c_credit_lim_len;

OCIBind *c_discount_bp[2];
ub2 c_discount_len;

OCIBind *c_balance_bp[2];
ub2 c_balance_len;

OCIBind *c_data_bp[2];
ub2 c_data_len;

OCIBind *h_date_bp[2];
ub2 h_date_len;

OCIBind *retries_bp[2];
ub2 retries_len;

OCIBind *cr_date_bp[2];
ub2 cr_date_len;

OCIBind *byln_bp[2];
ub2 byln_len;
};

typedef struct payctx payctx;

struct stoctx {
    OCISmit *curs;
    OCIBind *w_id_bp;
    OCIBind *d_id_bp;
    OCIBind *c_id_bp;
    OCIBind *threshold_bp;
#ifdef PLSQLSTO
    OCIBind *low_stock_bp;
#else
    OCIDefine *low_stock_bp;
#endif
    int norow;
};

typedef struct stoctx stoctx;

/* New order */

struct newinstruct {
    int w_id;
    int d_id;
    int c_id;
    int ol_i_id[15];
    int ol_supply_w_id[15];
    int ol_quantity[15];
};

struct newoutstruct {
    int terror;
    int o_id;
    int o_ol_cnt;
    char c_last[17];
    char c_credit[3];
    double c_discount;
    double w_tax;
    double d_tax;
    char o_entry_d[20];
    double total_amount;
    char i_name[15][25];
    int s_quantity[15];
    char brand_generic[15];
    double i_price[15];
    double ol_amount[15];
    char status[26];
    int retry;
};

struct newstruct {
    struct newinstruct newin;
    struct newoutstruct newout;
};

/* Payment */

struct payinstruct {
    int w_id;
    int d_id;
    int c_w_id;
    int c_d_id;
    int c_id;
    int bylastname;
    int h_amount;
    char c_last[17];
};

struct payoutstruct {
    int terror;
    char w_street_1[21];
    char w_street_2[21];
    char w_city[21];
    char w_state[3];
    char w_zip[10];
    char d_street_1[21];
    char d_street_2[21];
    char d_city[21];
    char d_state[3];
    char d_zip[10];
    int c_id;
    char c_first[17];
    char c_middle[3];
    char c_last[17];
    char c_street_1[21];
    char c_street_2[21];
    char c_city[21];
    char c_state[3];
    char c_zip[10];
    char c_phone[17];
    char c_since[11];
    char c_credit[3];
    double c_credit_lim;
    double c_discount;
    double c_balance;
    char c_data[20];
    char h_date[20];
    int retry;
};

struct paystruct {
    struct payinstruct payin;
    struct payoutstruct payout;
};

/* Order status */

struct ordinstruct {

```

```

int w_id;
int d_id;
int c_id;
int bylastname;
char c_last[17];
};

struct ordoutstruct {
int terror;
int c_id;
char c_last[17];
char c_first[17];
char c_middle[3];
double c_balance;
int o_id;
char o_entry_d[20];
int o_carrier_id;
int o_ol_cnt;
int ol_supply_w_id[15];
int ol_i_id[15];
int ol_quantity[15];
double ol_amount[15];
char ol_delivery_d[15][11];
int retry;
};

struct ordstruct {
struct ordinstruct ordin;
struct ordoutstruct ordout;
};

/* Delivery */

struct delinstruct {
int w_id;
int o_carrier_id;
double qtime;
int in_timing_int;
int plsqflag;
};

struct deloutstruct {
int terror;
int retry;
};

struct delstruct {
struct delinstruct delin;
struct deloutstruct delout;
};

/* Stock level */

struct stoinstruct {
int w_id;
int d_id;
int threshold;
};

struct stooutstruct {
int terror;
int low_stock;
int retry;
};

struct stostruct {
struct stoinstruct stoin;
struct stooutstruct stoout;
};

```

**Blocks/load\_ordordl.sql**

```

-- anonymous block for loading order/orderline

DECLARE
order_idx PLS_INTEGER;
order_rows PLS_INTEGER;
ordl_rows PLS_INTEGER;
ordl_idx PLS_INTEGER;
ordl_idx_hi PLS_INTEGER;
local_idx PLS_INTEGER;
BEGIN
order_rows := :order_rows;
ordl_rows := :ordl_rows;

```

```

order_idx := 1;
ordl_idx := 1;

WHILE (order_idx <= order_rows) LOOP

INSERT INTO ord (O_ID, O_D_ID, O_W_ID, O_C_ID, O_ENTRY_D,
O_CARRIER_ID, O_OL_CNT, O_ALL_LOCAL)
VALUES (:o_id(order_idx), :o_d_id(order_idx), :o_w_id(order_idx),
:o_c_id(order_idx), SYSDATE, :o_carrier_id(order_idx),
:o_ol_cnt(order_idx), 1);

ordl_idx_hi := ordl_idx + :o_ol_cnt(order_idx) - 1;

IF (:o_id(order_idx) < 2101) THEN
FORALL local_idx IN ordl_idx .. ordl_idx_hi
INSERT INTO ordl (OL_O_ID, OL_D_ID, OL_W_ID,
OL_NUMBER,
OL_DELIVERY_D, OL_I_ID, OL_SUPPLY_W_ID,
OL_QUANTITY,
OL_AMOUNT, OL_DIST_INFO)
VALUES (:ol_o_id(local_idx), :ol_d_id(local_idx),
:ol_w_id(local_idx), :ol_number(local_idx),
SYSDATE, :ol_i_id(local_idx),
:ol_supply_w_id(local_idx), 5, 0,
:ol_dist_info(local_idx));
ELSE
FORALL local_idx IN ordl_idx .. ordl_idx_hi
INSERT INTO ordl (OL_O_ID, OL_D_ID, OL_W_ID,
OL_NUMBER,
OL_DELIVERY_D, OL_I_ID, OL_SUPPLY_W_ID,
OL_QUANTITY,
OL_AMOUNT, OL_DIST_INFO)
VALUES (:ol_o_id(local_idx), :ol_d_id(local_idx),
:ol_w_id(local_idx), :ol_number(local_idx),
to_date('01-Jan-1811'), :ol_i_id(local_idx),
:ol_supply_w_id(local_idx), 5,
:ol_amount(local_idx), :ol_dist_info(local_idx));
END IF;
ordl_idx := ordl_idx_hi + 1;
order_idx := order_idx + 1;
END LOOP;
END;

```

**Blocks/paynz.sql**

```

DECLARE /* paynz */
not_serializable EXCEPTION;
PRAGMA EXCEPTION_INIT(not_serializable,-8177);
deadlock EXCEPTION;
PRAGMA EXCEPTION_INIT(deadlock,-60);
snapshot_too_old EXCEPTION;
PRAGMA EXCEPTION_INIT(snapshot_too_old,-1555);
BEGIN
LOOP BEGIN
UPDATE ware
SET w_ytd = w_ytd + :h_amount
WHERE w_id = :w_id
RETURNING w_name, w_street_1, w_street_2, w_city, w_state,
w_zip
INTO initpcc.ware_name, :w_street_1, :w_street_2, :w_city,
:w_state, :w_zip;

UPDATE cust
SET c_balance = c_balance - :h_amount,
c_ytd_payment = c_ytd_payment + :h_amount,
c_payment_cnt = c_payment_cnt+1
WHERE c_id = :c_id AND c_d_id = :c_d_id AND
c_w_id = :c_w_id
RETURNING rowid, c_first, c_middle, c_last, 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
INTO initpcc.cust_rowid, :c_first, :c_middle, :c_last, :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;
IF SQL%NOTFOUND THEN
raise NO_DATA_FOUND;
END IF;

IF :c_credit = 'BC' THEN
UPDATE cust
SET c_data = substr ((to_char (:c_id) || ' ' ||
to_char (:c_d_id) || ' ' ||

```

## APPENDIX A - APPLICATION SOURCE CODE

```

        to_char (:c_w_id) || '' ||
        to_char (:d_id) || '' ||
        to_char (:w_id) || '' ||
        to_char (:h_amount/100, '9999.99') || '' )
        || c_data, 1, 500)
WHERE rowid = inittpc.cust_rowid
RETURNING substr(c_data,1, 200)
INTO :c_data;

END IF;

UPDATE dist
SET d_ytd = d_ytd + :h_amount
WHERE d_id = :d_id
AND d_w_id = :w_id
RETURNING d_name, d_street_1, d_street_2, d_city, d_state, d_zip
INTO inittpc.dist_name, d_street_1, d_street_2, :d_city, :d_state,
:d_zip;
IF SQL%NOTFOUND THEN
raise NO_DATA_FOUND;
END IF;

INSERT INTO hist (h_c_id, h_c_d_id, h_c_w_id, h_d_id, h_w_id,
h_amount, h_date, h_data)
VALUES
(:c_id, :c_d_id, :c_w_id, :d_id, :w_id, :h_amount,
:cr_date, inittpc.ware_name || ' ' || inittpc.dist_name);
EXIT;

EXCEPTION
WHEN not_serializable OR deadlock OR snapshot_too_old THEN
ROLLBACK;
:retry := :retry + 1;
END;

END LOOP;
END;

```

### Blocks/payz.sql

```

DECLARE /* payz */
not_serializable EXCEPTION;
PRAGMA EXCEPTION_INIT(not_serializable,-8177);
deadlock EXCEPTION;
PRAGMA EXCEPTION_INIT(deadlock,-60);
snapshot_too_old EXCEPTION;
PRAGMA EXCEPTION_INIT(snapshot_too_old,-1555);
BEGIN
LOOP BEGIN
UPDATE ware
SET w_ytd = w_ytd+ :h_amount
WHERE w_id = :w_id
RETURNING w_name,
w_street_1, w_street_2, w_city, w_state, w_zip
INTO inittpc.ware_name,
:w_street_1, :w_street_2, :w_city, :w_state, :w_zip;

SELECT rowid
BULK COLLECT INTO inittpc.row_id
FROM cust
WHERE c_d_id = :c_d_id AND c_w_id = :c_w_id AND c_last =
:c_last
ORDER BY c_last, c_d_id, c_w_id, c_first;

inittpc.c_num := sql%rowcount;
inittpc.cust_rowid := inittpc.row_id((inittpc.c_num) / 2);

UPDATE cust
SET c_balance = c_balance - :h_amount,
c_ytd_payment = c_ytd_payment+ :h_amount,
c_payment_cnt = c_payment_cnt+1
WHERE rowid = inittpc.cust_rowid
RETURNING
c_id, c_first, c_middle, c_last, 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
INTO :c_id, :c_first, :c_middle, :c_last,
:c_street_1, :c_street_2, :c_city, :c_state,
:c_zip, :c_phone, :c_since, :c_credit,
:c_credit_lim, :c_discount, :c_balance;

:c_data := ' ';
IF :c_credit = 'BC' THEN

```

```

UPDATE cust
SET c_data = substr ((to_char (:c_id) || '' ||
to_char (:c_d_id) || '' ||
to_char (:c_w_id) || '' ||
to_char (:d_id) || '' ||
to_char (:w_id) || '' ||
to_char (:h_amount/100, '9999.99') || '' )
|| c_data, 1, 500)
WHERE rowid = inittpc.cust_rowid
RETURNING substr(c_data,1, 200)
INTO :c_data;

END IF;

UPDATE dist
SET d_ytd = d_ytd+ :h_amount
WHERE d_id = :d_id
AND d_w_id = :w_id
RETURNING d_name, d_street_1, d_street_2, d_city,
d_state, d_zip
INTO inittpc.dist_name, :d_street_1, :d_street_2, :d_city,
:d_state, :d_zip;

IF SQL%NOTFOUND
THEN
raise NO_DATA_FOUND;
END IF;

INSERT INTO hist (h_c_id, h_c_d_id, h_c_w_id, h_d_id, h_w_id,
h_amount, h_date, h_data)
VALUES (:c_id, :c_d_id, :c_w_id, :d_id, :w_id, :h_amount,
:cr_date, inittpc.ware_name || ' ' || inittpc.dist_name);
EXIT;

EXCEPTION
WHEN not_serializable OR deadlock OR snapshot_too_old THEN
ROLLBACK;
:retry := :retry + 1;
END;

END LOOP;
END;

```

### Blocks/tkvcpdel.sql

```

declare
TYPE numarray IS TABLE OF NUMBER INDEX BY BINARY_INTEGER;
TYPE numlist is varray (10) of number;
dist numarray;
amt numarray;
cnt pls_integer;

not_serializable EXCEPTION;
PRAGMA EXCEPTION_INIT(not_serializable, -8177);
deadlock EXCEPTION;
PRAGMA EXCEPTION_INIT(deadlock, -60);
snapshot_too_old EXCEPTION;
PRAGMA EXCEPTION_INIT(snapshot_too_old, -1555);

BEGIN
LOOP BEGIN
FORALL d IN 1..10
DELETE FROM nord N
WHERE no_d_id = inittpc.dist(d)
AND no_w_id = :w_id
AND no_o_id = (select min (no_o_id)
from nord
where no_d_id = N.no_d_id
and no_w_id = N.no_w_id)
RETURNING no_d_id, no_o_id BULK COLLECT INTO :d_id,
:order_id;

:ordcnt := SQL%ROWCOUNT;

FORALL o IN 1.. :ordcnt
UPDATE ord SET o_carrier_id = :carrier_id
WHERE o_id = :order_id (o)
AND o_d_id = :d_id (o)
AND o_w_id = :w_id
RETURNING o_c_id BULK COLLECT INTO :o_c_id;

FORALL o IN 1.. :ordcnt
UPDATE ord SET ol_delivery_d = :now
WHERE ol_w_id = :w_id
AND ol_d_id = :d_id (o)
AND ol_o_id = :order_id (o)

```

## APPENDIX A - APPLICATION SOURCE CODE

```

RETURNING sum(ol_amount) BULK COLLECT INTO :sums;

FORALL c IN 1.. :ordcnt
UPDATE cust
  SET c_balance = c_balance + :sums(c),
      c_delivery_cnt = c_delivery_cnt + 1
WHERE c_w_id = :w_id
  AND c_d_id = :d_id(c)
  AND c_id = :o_c_id(c);
COMMIT;
EXIT;
EXCEPTION
  WHEN not_serializable OR deadlock OR snapshot_too_old
  THEN
  ROLLBACK;
:retry := :retry + 1;
END;

END LOOP; -- for retry
END;

```

### Blocks/tkvcpnew

-- New Order Anonymous block

```

DECLARE
  idx          PLS_INTEGER;
  dummy_local  PLS_INTEGER;
  cache_ol_cnt PLS_INTEGER;
  not_serializable EXCEPTION;
  PRAGMA EXCEPTION_INIT(not_serializable,-8177);
  deadlock     EXCEPTION;
  PRAGMA EXCEPTION_INIT(deadlock,-60);
  snapshot_too_old EXCEPTION;
  PRAGMA EXCEPTION_INIT(snapshot_too_old,-1555);

PROCEDURE u1 IS
BEGIN
  FORALL idx IN 1 .. cache_ol_cnt
  UPDATE stock_item
  SET s_order_cnt = s_order_cnt + 1,
      s_ytd = s_ytd + :ol_quantity(idx),
      s_remote_cnt = s_remote_cnt + :s_remote(idx),
      s_quantity = (CASE WHEN s_quantity < :ol_quantity (idx) + 10
                      THEN s_quantity +91
                      ELSE s_quantity
                    END) - :ol_quantity(idx)
  WHERE i_id = :ol_i_id(idx)
  AND s_w_id = :ol_supply_w_id(idx)
  RETURNING i_price, i_name, s_quantity, s_dist_01,
            i_price*ol_quantity(idx),
            CASE WHEN i_data NOT LIKE '%ORIGINAL%'
            THEN 'G'
            ELSE (CASE WHEN s_data NOT LIKE '%ORIGINAL%'
            THEN 'G'
            ELSE 'B'
            END)
            END
  BULK COLLECT INTO :i_price, :i_name, :s_quantity, inittpc.s_dist,
                   :ol_amount,:brand_generic;
END u1;

PROCEDURE u2 IS
BEGIN
  FORALL idx IN 1 .. cache_ol_cnt
  UPDATE stock_item
  SET s_order_cnt = s_order_cnt + 1,
      s_ytd = s_ytd + :ol_quantity(idx),
      s_remote_cnt = s_remote_cnt + :s_remote(idx),
      s_quantity = (CASE WHEN s_quantity < :ol_quantity (idx) + 10
                      THEN s_quantity +91
                      ELSE s_quantity
                    END) - :ol_quantity(idx)
  WHERE i_id = :ol_i_id(idx)
  AND s_w_id = :ol_supply_w_id(idx)
  RETURNING i_price, i_name, s_quantity, s_dist_02,
            i_price*ol_quantity(idx),
            CASE WHEN i_data NOT LIKE '%ORIGINAL%'
            THEN 'G'
            ELSE (CASE WHEN s_data NOT LIKE '%ORIGINAL%'
            THEN 'G'
            ELSE 'B'
            END)
            END
  BULK COLLECT INTO :i_price, :i_name, :s_quantity, inittpc.s_dist,
                   :ol_amount,:brand_generic;

```

```

END u2;

PROCEDURE u3 IS
BEGIN
  FORALL idx IN 1 .. cache_ol_cnt
  UPDATE stock_item
  SET s_order_cnt = s_order_cnt + 1,
      s_ytd = s_ytd + :ol_quantity(idx),
      s_remote_cnt = s_remote_cnt + :s_remote(idx),
      s_quantity = (CASE WHEN s_quantity < :ol_quantity (idx) + 10
                      THEN s_quantity +91
                      ELSE s_quantity
                    END) - :ol_quantity(idx)
  WHERE i_id = :ol_i_id(idx)
  AND s_w_id = :ol_supply_w_id(idx)
  RETURNING i_price, i_name, s_quantity, s_dist_03,
            i_price*ol_quantity(idx),
            CASE WHEN i_data NOT LIKE '%ORIGINAL%'
            THEN 'G'
            ELSE (CASE WHEN s_data NOT LIKE '%ORIGINAL%'
            THEN 'G'
            ELSE 'B'
            END)
            END
  BULK COLLECT INTO :i_price, :i_name, :s_quantity, inittpc.s_dist,
                   :ol_amount,:brand_generic;
END u3;

PROCEDURE u4 IS
BEGIN
  FORALL idx IN 1 .. cache_ol_cnt
  UPDATE stock_item
  SET s_order_cnt = s_order_cnt + 1,
      s_ytd = s_ytd + :ol_quantity(idx),
      s_remote_cnt = s_remote_cnt + :s_remote(idx),
      s_quantity = (CASE WHEN s_quantity < :ol_quantity (idx) + 10
                      THEN s_quantity +91
                      ELSE s_quantity
                    END) - :ol_quantity(idx)
  WHERE i_id = :ol_i_id(idx)
  AND s_w_id = :ol_supply_w_id(idx)
  RETURNING i_price, i_name, s_quantity, s_dist_04,
            i_price*ol_quantity(idx),
            CASE WHEN i_data NOT LIKE '%ORIGINAL%'
            THEN 'G'
            ELSE (CASE WHEN s_data NOT LIKE '%ORIGINAL%'
            THEN 'G'
            ELSE 'B'
            END)
            END
  BULK COLLECT INTO :i_price, :i_name, :s_quantity, inittpc.s_dist,
                   :ol_amount,:brand_generic;
END u4;

PROCEDURE u5 IS
BEGIN
  FORALL idx IN 1 .. cache_ol_cnt
  UPDATE stock_item
  SET s_order_cnt = s_order_cnt + 1,
      s_ytd = s_ytd + :ol_quantity(idx),
      s_remote_cnt = s_remote_cnt + :s_remote(idx),
      s_quantity = (CASE WHEN s_quantity < :ol_quantity (idx) + 10
                      THEN s_quantity +91
                      ELSE s_quantity
                    END) - :ol_quantity(idx)
  WHERE i_id = :ol_i_id(idx)
  AND s_w_id = :ol_supply_w_id(idx)
  RETURNING i_price, i_name, s_quantity, s_dist_05,
            i_price*ol_quantity(idx),
            CASE WHEN i_data NOT LIKE '%ORIGINAL%'
            THEN 'G'
            ELSE (CASE WHEN s_data NOT LIKE '%ORIGINAL%'
            THEN 'G'
            ELSE 'B'
            END)
            END
  BULK COLLECT INTO :i_price, :i_name, :s_quantity, inittpc.s_dist,
                   :ol_amount,:brand_generic;
END u5;

PROCEDURE u6 IS
BEGIN
  FORALL idx IN 1 .. cache_ol_cnt
  UPDATE stock_item
  SET s_order_cnt = s_order_cnt + 1,
      s_ytd = s_ytd + :ol_quantity(idx),
      s_remote_cnt = s_remote_cnt + :s_remote(idx),
      s_quantity = (CASE WHEN s_quantity < :ol_quantity (idx) + 10
                      THEN s_quantity +91
                      ELSE s_quantity
                    END) - :ol_quantity(idx)
  WHERE i_id = :ol_i_id(idx)

```

## APPENDIX A - APPLICATION SOURCE CODE

```

AND s_w_id = :ol_supply_w_id(idx)
RETURNING i_price, i_name, s_quantity, s_dist_06,
         i_price*ol_quantity(idx),
CASE WHEN i_data NOT LIKE '%ORIGINAL%'
THEN 'G'
ELSE (CASE WHEN s_data NOT LIKE '%ORIGINAL%'
THEN 'G'
ELSE 'B'
END)
END
BULK COLLECT INTO :i_price, :i_name, :s_quantity, inittpc.s_dist,
                  :ol_amount, :brand_generic;
END u6;

PROCEDURE u7 IS
BEGIN
FORALL idx IN 1 .. cache_ol_cnt
UPDATE stock_item
SET s_order_cnt = s_order_cnt + 1,
s_ytd = s_ytd + :ol_quantity(idx),
s_remote_cnt = s_remote_cnt + :s_remote(idx),
s_quantity = (CASE WHEN s_quantity < :ol_quantity (idx) + 10
THEN s_quantity +91
ELSE s_quantity
END) - :ol_quantity(idx)
WHERE i_id = :ol_i_id(idx)
AND s_w_id = :ol_supply_w_id(idx)
RETURNING i_price, i_name, s_quantity, s_dist_07,
         i_price*ol_quantity(idx),
CASE WHEN i_data NOT LIKE '%ORIGINAL%'
THEN 'G'
ELSE (CASE WHEN s_data NOT LIKE '%ORIGINAL%'
THEN 'G'
ELSE 'B'
END)
END
BULK COLLECT INTO :i_price, :i_name, :s_quantity, inittpc.s_dist,
                  :ol_amount, :brand_generic;
END u7;

PROCEDURE u8 IS
BEGIN
FORALL idx IN 1 .. cache_ol_cnt
UPDATE stock_item
SET s_order_cnt = s_order_cnt + 1,
s_ytd = s_ytd + :ol_quantity(idx),
s_remote_cnt = s_remote_cnt + :s_remote(idx),
s_quantity = (CASE WHEN s_quantity < :ol_quantity (idx) + 10
THEN s_quantity +91
ELSE s_quantity
END) - :ol_quantity(idx)
WHERE i_id = :ol_i_id(idx)
AND s_w_id = :ol_supply_w_id(idx)
RETURNING i_price, i_name, s_quantity, s_dist_08,
         i_price*ol_quantity(idx),
CASE WHEN i_data NOT LIKE '%ORIGINAL%'
THEN 'G'
ELSE (CASE WHEN s_data NOT LIKE '%ORIGINAL%'
THEN 'G'
ELSE 'B'
END)
END
BULK COLLECT INTO :i_price, :i_name, :s_quantity, inittpc.s_dist,
                  :ol_amount, :brand_generic;
END u8;

PROCEDURE u9 IS
BEGIN
FORALL idx IN 1 .. cache_ol_cnt
UPDATE stock_item
SET s_order_cnt = s_order_cnt + 1,
s_ytd = s_ytd + :ol_quantity(idx),
s_remote_cnt = s_remote_cnt + :s_remote(idx),
s_quantity = (CASE WHEN s_quantity < :ol_quantity (idx) + 10
THEN s_quantity +91
ELSE s_quantity
END) - :ol_quantity(idx)
WHERE i_id = :ol_i_id(idx)
AND s_w_id = :ol_supply_w_id(idx)
RETURNING i_price, i_name, s_quantity, s_dist_09,
         i_price*ol_quantity(idx),
CASE WHEN i_data NOT LIKE '%ORIGINAL%'
THEN 'G'
ELSE (CASE WHEN s_data NOT LIKE '%ORIGINAL%'
THEN 'G'
ELSE 'B'
END)
END
BULK COLLECT INTO :i_price, :i_name, :s_quantity, inittpc.s_dist,
                  :ol_amount, :brand_generic;
END u9;

PROCEDURE u10 IS
BEGIN
FORALL idx IN 1 .. cache_ol_cnt
UPDATE stock_item
SET s_order_cnt = s_order_cnt + 1,
s_ytd = s_ytd + :ol_quantity(idx),
s_remote_cnt = s_remote_cnt + :s_remote(idx),
s_quantity = (CASE WHEN s_quantity < :ol_quantity (idx) + 10
THEN s_quantity +91
ELSE s_quantity
END) - :ol_quantity(idx)
WHERE i_id = :ol_i_id(idx)
AND s_w_id = :ol_supply_w_id(idx)
RETURNING i_price, i_name, s_quantity, s_dist_10,
         i_price*ol_quantity(idx),
CASE WHEN i_data NOT LIKE '%ORIGINAL%'
THEN 'G'
ELSE (CASE WHEN s_data NOT LIKE '%ORIGINAL%'
THEN 'G'
ELSE 'B'
END)
END
BULK COLLECT INTO :i_price, :i_name, :s_quantity, inittpc.s_dist,
                  :ol_amount, :brand_generic;
END u10;

PROCEDURE fix_items IS
rows_lost PLS_INTEGER;
max_index PLS_INTEGER;
temp_index PLS_INTEGER;
BEGIN
idx := 1;
rows_lost := 0;
max_index := dummy_local;

WHILE (max_index != cache_ol_cnt) LOOP

WHILE (idx <= sql%rowcount AND
sql%bulk_rowcount(idx + rows_lost) = 1)
LOOP
idx := idx + 1;
END LOOP;

temp_index := max_index;
WHILE (temp_index >= idx + rows_lost) LOOP
:ol_amount(temp_index + 1) := :ol_amount(temp_index);
:i_price(temp_index + 1) := :i_price(temp_index);
:i_name(temp_index + 1) := :i_name(temp_index);
:s_quantity(temp_index + 1) := :s_quantity(temp_index);
inittpc.s_dist(temp_index + 1) := inittpc.s_dist(temp_index);
:brand_generic(temp_index + 1) := :brand_generic(temp_index);
temp_index := temp_index - 1;
END LOOP;

IF (idx + rows_lost <= cache_ol_cnt) THEN
:i_price(idx + rows_lost) := 0;
:i_name(idx + rows_lost) := 'NO ITEM';
:s_quantity(idx + rows_lost) := 0;
inittpc.s_dist(idx + rows_lost) := NULL;
:brand_generic(idx + rows_lost) := '';
:ol_amount(idx + rows_lost) := 0;
rows_lost := rows_lost + 1;
max_index := max_index + 1;
END IF;

END LOOP;
END fix_items;

BEGIN
LOOP BEGIN
cache_ol_cnt := :o_ol_cnt;

UPDATE dist SET d_next_o_id = d_next_o_id + 1
WHERE d_id = :d_id AND d_w_id = :w_id
RETURNING d_tax, d_next_o_id-1
INTO :d_tax, :o_id;

SELECT c_discount, c_last, c_credit
INTO :c_discount, :c_last, :c_credit
FROM cust
WHERE c_id = :c_id AND c_d_id = :d_id AND c_w_id = :w_id;

SELECT w_tax
INTO :w_tax
FROM ware
WHERE w_id = :w_id;

INSERT INTO nord (no_o_id, no_d_id, no_w_id)
VALUES (:o_id, :d_id, :w_id);

INSERT INTO ord (o_id, o_d_id, o_w_id, o_c_id, o_entry_d,

```

```

o_carrier_id, o_ol_cnt, o_all_local)
VALUES (:o_id, :d_id, :w_id, :c_id,
:cr_date, 11, :o_ol_cnt, :o_all_local);

dummy_local := :d_id;

IF (dummy_local < 6) THEN
IF (dummy_local < 3) THEN
IF (dummy_local = 1) THEN
u1;
ELSE
u2;
END IF;
ELSE
IF (dummy_local = 3) THEN
u3;
ELSIF (dummy_local = 4) then
u4;
ELSE
u5;
END IF;
END IF;
ELSE
IF (dummy_local < 8) THEN
IF (dummy_local = 6) THEN
u6;
ELSE
u7;
END IF;
ELSE
IF (dummy_local = 8) THEN
u8;
ELSIF (dummy_local = 9) then
u9;
ELSE
u10;
END IF;
END IF;
END IF;
END IF;

dummy_local := sql%rowcount;

IF (dummy_local != cache_ol_cnt ) THEN fix_items; END IF;

FORALL idx IN 1..dummy_local
INSERT INTO ordl
(o_l_o_id, o_l_d_id, o_l_w_id, o_l_number, o_l_delivery_d, o_l_i_id,
o_l_supply_w_id, o_l_quantity, o_l_amount, o_l_dist_info)
VALUES (:o_id, :d_id, :w_id, inittpcc.idx1arr(idx), inittpcc.nulldate,
:o_l_i_id(idx), :o_l_supply_w_id(idx),
:o_l_quantity(idx), :o_l_amount(idx), inittpcc.s_dist(idx));

IF (dummy_local != :o_ol_cnt) THEN
:o_ol_cnt := dummy_local;
ROLLBACK;
END IF;

EXIT;

EXCEPTION
WHEN not_serializable OR deadlock OR snapshot_too_old THEN
ROLLBACK;
:retry := :retry + 1;
END;
END LOOP;
END;

```

## Blocks/views.sql

```

connect tpcc/tpcc;
set echo on;

create or replace view wh_cust
(w_id, w_tax, c_id, c_d_id, c_w_id, c_discount, c_last, c_credit)
as select w.w_id, w.w_tax,
c.c_id, c.c_d_id, c.c_w_id, c.c_discount, c.c_last, c.c_credit
from cust c, ware w
where w.w_id = c.c_w_id;

create or replace view wh_dist
(w_id, d_id, d_tax, d_next_o_id, w_tax )
as select w.w_id, d.d_id, d.d_tax, d.d_next_o_id, w.w_tax
from dist d, ware w
where w.w_id = d.d_w_id;

create or replace view stock_item
(i_id, s_w_id, i_price, i_name, i_data, s_data, s_quantity)

```

```

s_order_cnt, s_ytd, s_remote_cnt,
s_dist_01, s_dist_02, s_dist_03, s_dist_04, s_dist_05,
s_dist_06, s_dist_07, s_dist_08, s_dist_09, s_dist_10)
as
select /*+ leading(s) use_nl(i) */
i.i_id, s_w_id, i.i_price, i.i_name, i.i_data, s_data, s_quantity,
s_order_cnt, s_ytd, s_remote_cnt,
s_dist_01, s_dist_02, s_dist_03, s_dist_04, s_dist_05,
s_dist_06, s_dist_07, s_dist_08, s_dist_09, s_dist_10
from stok s, item i
where i.i_id = s.s_i_id;

set echo off

```

## modtpcc.h

```

#include "..\DBConnection\mod_tpcc.h"
#include "..\DBConnection\tpcc_struct.h"
#include "..\DBConnection\mod_tpcc_error.h"
#include <oratypes.h>
#include <oci.h>
#include <ocidfn.h>

#define allocate_last_form(form, pool) \
(form)=(char *)((pool)->form_template_storage + \
(Maxterms - 1) * (pool)->form_template_length)

```

```

#define MAXLEN 100
#define Default_DBConnections "20"
#define Default_Maxterms "100"
#define Default_DeliveryQueues "500"
#define Default_DeliveryThreads "50"
#define Default_StartTerm "1"
#define LogName "log\modtpcc.log"
#define InitName "DBInit.ini"
#define DLLName "DBConnection.dll"
#define mod_name "tpcc/modtpcc.dll"

```

```

typedef struct _DelQueue_info {
_DelQueue_info *Next;
T_delivery_data *pdata;
HANDLE queue_lock;
} DelQueue_info;

```

```

/*****
* global functions
*****/

```

```

//void userlog (char *, ...);
void readInit(char *, char *, char *);
void allocateMemoryPool();
long initDelQueue();
long deleteDelQueue();
void endDeliveryThread(long);
void initDeliveryThread(void *);
DelQueue_info *DequeueDel();
void EnqueueDel(DelQueue_info *);
void addFreeDelQueue(DelQueue_info *);
DelQueue_info *findFreeDelQueue();

```

```

long parse_neworder_query(char *ptr, T_neworder_data *pdata);
long parse_payment_query(char *ptr, T_payment_data *pdata);
long parse_delivery_query(char *ptr, T_delivery_data *pdata);
long parse_orderstatus_query(char *ptr, T_orderstatus_data *pdata);
long parse_stocklevel_query(char *ptr, T_stocklevel_data *pdata);

```

```

long sendform_neworderoutput(long status, T_neworder_data
*pdata);
long sendform_paymentoutput(long status, T_payment_data *pdata);
long sendform_orderstatusoutput(long status, T_orderstatus_data
*pdata);
long sendform_deliveryoutput(long status, T_delivery_data *pdata);
long sendform_stockleveloutput(long status, T_stocklevel_data
*pdata);

```

```

extern long (FAR * mod_tpcc_neworder)(T_neworder_data *);
extern long (FAR * mod_tpcc_payment)(T_payment_data *);
extern long (FAR * mod_tpcc_delivery)(T_delivery_data *, long);
extern long (FAR * mod_tpcc_orderstatus)(T_orderstatus_data *);
extern long (FAR * mod_tpcc_stocklevel)(T_stocklevel_data *);
extern void (FAR *userlog)(char * str, ...);
extern void (FAR *initDell_ol)(long);

```

## APPENDIX A - APPLICATION SOURCE CODE

```
extern void (FAR *endDelLog)(long);

/*****
*****
* global variables
*****
*****/

DWORD TlsPointer;
char DIIPath[MAXLEN];
char LogFile[MAXLEN];
char InitFile[MAXLEN];
char DIIFile[MAXLEN];
char origin[MAXLEN];
CRITICAL_SECTION critical_initDelQueue;
CRITICAL_SECTION critical_memory;
CRITICAL_SECTION critical_DelQueue_free;
CRITICAL_SECTION critical_DelQueue_work;
HANDLE waitAvailableDelQueue;
HANDLE waitDelWork;
HANDLE DelThreadRunning;
HINSTANCE dllinstance;
long useddel=0;
long DBConnections;
long Maxterms;
long DeliveryQueues;
long DeliveryThreads;
long modtpcc_ready=0;
long memory_ready=0;
long queue_ready=0;
long DeliveryThreadstop=0;
long StartTerm=1;
DelQueue_info *DelQueue_begin = NULL;
DelQueue_info *DelQueue_end = NULL;
DelQueue_info *DelQueue_free = NULL;

static form_index_entry
form_index[POOL_TYPE_TXN_MAX][TXN_TYPE_MAX][MAX_FORM_I
NDEX];
static form_template_pool
txn_global_pool[POOL_TYPE_TXN_MAX][TXN_TYPE_MAX];
static form_template_pool txn_data_pool;
static form_template_pool resp_global_pool;

char delivery_chars [] = {'6', '7'};
char orderstatus_chars [] = {'8', '9', 'Y'};
char payment_chars [] = {'8', '9', 'Z', 'v', 'Y', 'w'};
char stocklevel_chars [] = {'x'};
char neworder_chars [] = {'8', '9',
'A', 'B', 'C', 'D', 'E', 'F', 'G', 'H', 'I',
'J', 'K', 'L', 'M', 'N', 'O', 'P', 'Q', 'R',
'S', 'T', 'U', 'V', 'W', 'X', 'a', 'b', 'c',
'd', 'e', 'f', 'g', 'h', 'i', 'j', 'k', 'l',
'm', 'n', 'o', 'p', 'q', 'r', 's', 't', 'u'};
```

## APPENDIX B: DATABASE DESIGN

**defaultopts.sh**

```

# configurable vars
tpcc_os=unix
tpcc_version=ttt
tpcc_ldrive=1
tpcc_scale=10
tpcc_np=1
tpcc_cpu=1
#megabytes
tpcc_memsize=512
#minutes
tpcc_runlen=24

tpcc_temp_imp=temp
tpcc_temp_size=10M
tpcc_temp_ext=calc
tpcc_temp_nf=calc
tpcc_temp_bs=2K

tpcc_ware_imp=iot
tpcc_ware_size=10M
tpcc_ware_ext=calc
tpcc_ware_nf=calc
tpcc_ware_bs=auto

tpcc_ware_used=-1
tpcc_ware_free=-1
tpcc_ware_trans=-1

tpcc_ware_indices=1-

tpcc_ware_autospace=t
tpcc_ware_flg=30
tpcc_ware_fl=22

tpcc_iware_imp=none
tpcc_iware_size=1M
tpcc_iware_ext=calc
tpcc_iware_nf=calc
tpcc_iware_bs=2K

tpcc_iware_used=-1
tpcc_iware_free=-1
tpcc_iware_trans=-1

tpcc_iware_autospace=t
tpcc_iware_flg=30
tpcc_iware_fl=22

tpcc_iware_indices=1-

tpcc_dist_imp=cluster
tpcc_dist_size=10M
tpcc_dist_ext=calc
tpcc_dist_nf=calc
tpcc_dist_bs=auto

tpcc_dist_used=-1
tpcc_dist_free=-1
tpcc_dist_trans=-1

tpcc_dist_indices=2-1-

tpcc_dist_autospace=t
tpcc_dist_flg=30
tpcc_dist_fl=22

tpcc_idist_imp=index
tpcc_idist_size=1M
tpcc_idist_ext=calc
tpcc_idist_nf=calc
tpcc_idist_bs=2K

tpcc_idist_used=-1
tpcc_idist_free=-1
tpcc_idist_trans=-1

tpcc_idist_autospace=t
tpcc_idist_flg=30
tpcc_idist_fl=22

```

```

tpcc_idist_indices=2-1-

tpcc_item_imp=cluster
tpcc_item_size=15M
tpcc_item_ext=calc
tpcc_item_nf=calc
tpcc_item_bs=auto

tpcc_item_used=-1
tpcc_item_free=-1
tpcc_item_trans=-1

tpcc_item_indices=1-

tpcc_item_autospace=t
tpcc_item_flg=30
tpcc_item_fl=22

tpcc_iitem_imp=index
tpcc_iitem_size=1M
tpcc_iitem_ext=calc
tpcc_iitem_nf=calc
tpcc_iitem_bs=2K

tpcc_iitem_used=-1
tpcc_iitem_free=-1
tpcc_iitem_trans=-1

tpcc_iitem_autospace=t
tpcc_iitem_flg=30
tpcc_iitem_fl=22

tpcc_iitem_indices=1-

tpcc_nord_imp=iot
tpcc_nord_size=10M
tpcc_nord_ext=calc
tpcc_nord_nf=calc
tpcc_nord_bs=auto

tpcc_nord_used=-1
tpcc_nord_free=-1
tpcc_nord_trans=-1

tpcc_nord_indices=1-2-3-

tpcc_nord_autospace=t
tpcc_nord_flg=30
tpcc_nord_fl=22

tpcc_inord_imp=none
tpcc_inord_size=1M
tpcc_inord_ext=calc
tpcc_inord_nf=calc
tpcc_inord_bs=2K

tpcc_inord_used=-1
tpcc_inord_free=-1
tpcc_inord_trans=-1

tpcc_inord_autospace=t
tpcc_inord_flg=30
tpcc_inord_fl=22

tpcc_inord_indices=1-2-3-

tpcc_ord_imp=iot
tpcc_ord_size=10M
tpcc_ord_ext=calc
tpcc_ord_nf=calc
tpcc_ord_bs=auto

tpcc_ord_used=-1
tpcc_ord_free=-1
tpcc_ord_trans=-1

tpcc_ord_indices=1-2-3-4-

tpcc_ord_autospace=t
tpcc_ord_flg=30
tpcc_ord_fl=22

tpcc_iord_imp=none

```



## APPENDIX B: DATABASE DESIGN

```

tpcc_iordl_size=1M
tpcc_iordl_ext=calc
tpcc_iordl_nf=calc
tpcc_iordl_bs=2K

tpcc_iordl_used=-1
tpcc_iordl_free=-1
tpcc_iordl_trans=-1

tpcc_iordl_autospace=t
tpcc_iordl_flg=30
tpcc_iordl_fl=22

tpcc_iordl_indices=1-2-3-4-

tpcc_ordr_imp=table
tpcc_ordr_size=10M
tpcc_ordr_ext=calc
tpcc_ordr_nf=calc
tpcc_ordr_bs=auto

tpcc_ordr_used=-1
tpcc_ordr_free=-1
tpcc_ordr_trans=-1

tpcc_ordr_indices=2-3-1

tpcc_ordr_autospace=t
tpcc_ordr_flg=30
tpcc_ordr_fl=22

tpcc_iordr1_imp=index
tpcc_iordr1_size=1M
tpcc_iordr1_ext=calc
tpcc_iordr1_nf=calc
tpcc_iordr1_bs=2K

tpcc_iordr1_used=-1
tpcc_iordr1_free=-1
tpcc_iordr1_trans=-1

tpcc_iordr1_autospace=t
tpcc_iordr1_flg=30
tpcc_iordr1_fl=22

tpcc_iordr1_indices=2-3-1

tpcc_iordr2_imp=index
tpcc_iordr2_size=1M
tpcc_iordr2_ext=calc
tpcc_iordr2_nf=calc
tpcc_iordr2_bs=2K

tpcc_iordr2_used=-1
tpcc_iordr2_free=-1
tpcc_iordr2_trans=-1

tpcc_iordr2_autospace=t
tpcc_iordr2_flg=30
tpcc_iordr2_fl=22

tpcc_iordr2_indices=2-3-4-1

tpcc_stok_imp=cluster
tpcc_stok_size=35M
tpcc_stok_ext=calc
tpcc_stok_nf=calc
tpcc_stok_bs=auto

tpcc_stok_used=-1
tpcc_stok_free=-1
tpcc_stok_trans=-1

tpcc_stok_indices=1-2-

tpcc_stok_autospace=t
tpcc_stok_flg=30
tpcc_stok_fl=22

tpcc_istok_imp=index
tpcc_istok_size=1M
tpcc_istok_ext=calc
tpcc_istok_nf=calc
tpcc_istok_bs=2K

tpcc_istok_used=-1
tpcc_istok_free=-1
tpcc_istok_trans=-1

tpcc_istok_autospace=t

```

```

tpcc_istok_flg=30
tpcc_istok_fl=22

tpcc_istok_indices=1-2-

tpcc_cust_imp=cluster
tpcc_cust_size=25M
tpcc_cust_ext=calc
tpcc_cust_nf=calc
#bs
tpcc_cust_bs=2K

tpcc_cust_used=-1
tpcc_cust_free=-1
tpcc_cust_trans=-1

tpcc_cust_indices=1-2-3-

tpcc_cust_autospace=t
tpcc_cust_flg=30
tpcc_cust_fl=22

tpcc_icust1_imp=index
tpcc_icust1_size=1M
tpcc_icust1_ext=calc
tpcc_icust1_nf=calc
tpcc_icust1_bs=2K

tpcc_icust1_used=-1
tpcc_icust1_free=-1
tpcc_icust1_trans=-1

tpcc_icust1_autospace=t
tpcc_icust1_flg=30
tpcc_icust1_fl=22

tpcc_icust1_indices=1-2-3-

tpcc_icust2_imp=index
tpcc_icust2_size=1M
tpcc_icust2_ext=calc
tpcc_icust2_nf=calc
tpcc_icust2_bs=2K

tpcc_icust2_used=-1
tpcc_icust2_free=-1
tpcc_icust2_trans=-1

tpcc_icust2_autospace=t
tpcc_icust2_flg=30
tpcc_icust2_fl=22

tpcc_icust2_indices=6-7-1-2-3-

tpcc_hist_imp=table
tpcc_hist_size=10M
tpcc_hist_ext=calc
tpcc_hist_nf=calc
tpcc_hist_bs=auto

tpcc_hist_used=-1
tpcc_hist_free=-1
tpcc_hist_trans=-1

tpcc_hist_indices=no

tpcc_hist_autospace=t
tpcc_hist_flg=30

```

### **driver.sh**

```

#!/bin/sh

. ./stepenv.sh

if expr $# \< 1 > /dev/null; then
echo "$0 <starting stepname> <optional: only>"
echo OR use:
echo "$0 buildcreate - to build the database creation scripts"
echo "$0 create - to create the database (after buildcreate)"
echo "$0 steps - to list individual steps"
exit 1
fi

if expr x$1 = xsteps > /dev/null; then
echo stepnames are from creation scripts: $tpcc_create_steps
echo

```

## APPENDIX B: DATABASE DESIGN

```
echo or running steps: $tpcc_steps
echo "use the 'only' option to only do that step (otherwise all steps after
will also be executed.)"
echo " (e.g. $0 listfiles only)"
echo "use the 'through' option to do a sequence of steps (inclusively.)"
echo " (e.g. $0 shutdowndb through startupdb-p_build)"
exit 1
fi

startstep=$1
controlcmd=$2
endstep=$3

# Aliases for special steps
if test $startstep = buildcreate; then
    startstep=echo $tpcc_create_steps | cut -d ' ' -f1
fi

if test $startstep = create; then
    startstep=echo $tpcc_steps | cut -d ' ' -f1
fi

if test "$x$controlcmd" = x; then
    endstep=
    # Since endstep is null it won't match any other steps, so we keep going.
elif test "$x$controlcmd" = xonly; then
    controlcmd=only
    # this is allowed
elif test "$x$controlcmd" = xthrough; then
    actualstep=f
for step in $tpcc_create_steps $tpcc_steps ; do
    if test "$x$step" = "$x$endstep"; then
        actualstep=t
    fi
done
if test $actualstep = f; then
    echo "Invalid step $endstep. Use $0 steps to show steps."
    exit 1
fi
else
    echo "Invalid syntax. Use $0 by itself for help."
    exit 1
fi

echo Starting from step: $startstep

dostep=f
for step in $tpcc_create_steps $tpcc_steps ; do
    if expr $step = $startstep > /dev/null; then
        dostep=t
    fi

    if expr $dostep = t > /dev/null; then
        echo STEP: $step
        cd $tpcc_bench
        $tpcc_scripts/echo $step | cut -d -f1`.sh `echo $step | sed -e's/-/$/' |
cut -d -f2- | sed -e's/-/ /g`
        lasterror=?
        cd $tpcc_bench
        if test -n "`find $tpcc_bench/scripts -name *.log`"; then
            mv -f *.log `find $tpcc_bench/scripts -name *.log`
        $tpcc_bench/log/
        else
            if test -n "`find $tpcc_bench/ -name *.log`"; then
                mv -f *.log $tpcc_bench/log/
            fi
        fi

        if expr $lasterror != 0 > /dev/null; then
            if expr $lasterror != 99 > /dev/null; then
                echo Step $step failed. Stopping driver.
                exit 1
            else
                echo Step $step has completed and requested stop. Stopping driver.
                exit 0
            fi
        fi
        if test "$x$controlcmd" = xonly; then
            exit 0
        fi
        if test "$x$endstep" = "$x$step"; then
            echo The driver reached the last desired step. Stopping driver.
            exit 0
        fi
    fi
done

if expr $dostep = f > /dev/null; then
    echo No such step: $1
fi
```

## localoptions.sh

```
#!/LOCAL OPTION FILE- You must fill these in
# before the driver will work.

#oracle sid to use for the run
ORACLE_SID=tpcc

#folder location of the database files (or links to raw partitions)
#tpcc_disks_location=/location/of/db/files

#FOR NT
#tpcc_disks_location=\\\\.\\
tpcc_disks_location=C:\\mnt\\

#FOR RAC

#node id
#tpcc_rac_id=1

# How many createts_node*.sh will be run in this node, started from
tpcc_rac_id
# eq. if tpcc_rac_id is 3 and tpcc_rac_createts_count is 2
# createts_node3.sh and createts_node4.sh will be executed

#tpcc_rac_createts_count=1

#locations of various files used in the generation scripts.
#(you can usually leave these alone.)
tpcc_sql_dir=$(tpcc_bench)/scripts/sql
tpcc_log_dir=$(tpcc_bench)/log
tpcc_genscripts_dir=$(tpcc_bench)/scripts/generated

#Once you have filled all the options, comment
#out or delete this line.
```

## Options.sh

```
tpcc_os='nt'
tpcc_version='tnt'
tpcc_drive='6'
tpcc_scale='8000'
tpcc_np='1'
tpcc_cpu='4'
tpcc_memsize='16384'
tpcc_runlen='20'
tpcc_compress='t'
tpcc_overflow='t'
tpcc_defbs='2'
tpcc_jeec_number='f'
tpcc_numfiles='0'

tpcc_cust_imp='cluster'
tpcc_cust_size='calc'
tpcc_cust_ext='calc'
tpcc_cust_nf='calc'
tpcc_cust_bs='auto'
tpcc_cust_used='-1'
tpcc_cust_free='0'
tpcc_cust_trans='3'
tpcc_cust_autospace='t'
tpcc_cust_flg='43'
tpcc_cust_fl='22'
tpcc_cust_rsize='auto'
tpcc_cust_hkey='auto'
tpcc_cust_hash='auto'
tpcc_cust_bpool='recycle'
tpcc_cust_indices='3-2-1-

tpcc_dist_imp='cluster'
tpcc_dist_size='calc'
tpcc_dist_ext='calc'
tpcc_dist_nf='calc'
tpcc_dist_bs='auto'
tpcc_dist_used='-1'
tpcc_dist_free='-1'
tpcc_dist_trans='4'
tpcc_dist_autospace='t'
tpcc_dist_flg='43'
tpcc_dist_fl='22'
tpcc_dist_rsize='auto'
tpcc_dist_hkey='auto'
```

## APPENDIX B: DATABASE DESIGN

```

tpcc_dist_hash='auto'
tpcc_dist_bpool='default'
tpcc_dist_indices=2-1-

tpcc_hist_imp='table'
tpcc_hist_size='1791'
tpcc_hist_ext='calc'
tpcc_hist_nf='calc'
tpcc_hist_bs='auto'
tpcc_hist_used='-1'
tpcc_hist_free='5'
tpcc_hist_trans='4'
tpcc_hist_autospace='t'
tpcc_hist_flg='43'
tpcc_hist_fl='22'
tpcc_hist_rsize='auto'
tpcc_hist_hkey='auto'
tpcc_hist_hash='auto'
tpcc_hist_bpool='recycle'
tpcc_hist_indices=no

tpcc_item_imp='cluster'
tpcc_item_size='calc'
tpcc_item_ext='calc'
tpcc_item_nf='calc'
tpcc_item_bs='auto'
tpcc_item_used='-1'
tpcc_item_free='0'
tpcc_item_trans='3'
tpcc_item_autospace='t'
tpcc_item_flg='43'
tpcc_item_fl='22'
tpcc_item_rsize='auto'
tpcc_item_hkey='auto'
tpcc_item_hash='auto'
tpcc_item_bpool='keep'
tpcc_item_indices=1-

tpcc_nord_imp='queue'
tpcc_nord_size='178'
tpcc_nord_ext='calc'
tpcc_nord_nf='calc'
tpcc_nord_bs='auto'
tpcc_nord_used='-1'
tpcc_nord_free='5'
tpcc_nord_trans='4'
tpcc_nord_autospace='t'
tpcc_nord_flg='43'
tpcc_nord_fl='22'
tpcc_nord_rsize='auto'
tpcc_nord_hkey='auto'
tpcc_nord_hash='auto'
tpcc_nord_bpool='default'
tpcc_nord_indices=1-2-3-

tpcc_ordl_imp='queue'
tpcc_ordl_size='21775'
tpcc_ordl_ext='calc'
tpcc_ordl_nf='calc'
tpcc_ordl_bs='16K'
tpcc_ordl_used='-1'
tpcc_ordl_free='5'
tpcc_ordl_trans='4'
tpcc_ordl_autospace='t'
tpcc_ordl_flg='43'
tpcc_ordl_fl='22'
tpcc_ordl_rsize='auto'
tpcc_ordl_hkey='auto'
tpcc_ordl_hash='auto'
tpcc_ordl_bpool='default'
tpcc_ordl_indices=1-2-3-4-

tpcc_ordr_imp='queue'
tpcc_ordr_size='1206'
tpcc_ordr_ext='calc'
tpcc_ordr_nf='calc'
tpcc_ordr_bs='16K'
tpcc_ordr_used='-1'
tpcc_ordr_free='5'
tpcc_ordr_trans='4'
tpcc_ordr_autospace='t'
tpcc_ordr_flg='43'
tpcc_ordr_fl='22'
tpcc_ordr_rsize='auto'
tpcc_ordr_hkey='auto'
tpcc_ordr_hash='auto'
tpcc_ordr_bpool='default'
tpcc_ordr_indices=2-3-1-

tpcc_stok_imp='cluster'
tpcc_stok_size='calc'
tpcc_stok_ext='calc'
tpcc_stok_nf='calc'

```

```

tpcc_stok_bs='auto'
tpcc_stok_used='-1'
tpcc_stok_free='0'
tpcc_stok_trans='2'
tpcc_stok_autospace='t'
tpcc_stok_flg='43'
tpcc_stok_fl='22'
tpcc_stok_rsize='auto'
tpcc_stok_hkey='auto'
tpcc_stok_hash='auto'
tpcc_stok_bpool='keep'
tpcc_stok_indices=1-2-

tpcc_ware_imp='cluster'
tpcc_ware_size='calc'
tpcc_ware_ext='calc'
tpcc_ware_nf='calc'
tpcc_ware_bs='auto'
tpcc_ware_used='-1'
tpcc_ware_free='-1'
tpcc_ware_trans='2'
tpcc_ware_autospace='t'
tpcc_ware_flg='43'
tpcc_ware_fl='22'
tpcc_ware_rsize='auto'
tpcc_ware_hkey='auto'
tpcc_ware_hash='auto'
tpcc_ware_bpool='default'
tpcc_ware_indices=1-

tpcc_icust1_imp='index'
tpcc_icust1_size='736'
tpcc_icust1_ext='calc'
tpcc_icust1_nf='calc'
tpcc_icust1_bs='16K'
tpcc_icust1_used='-1'
tpcc_icust1_free='1'
tpcc_icust1_trans='3'
tpcc_icust1_autospace='t'
tpcc_icust1_flg='43'
tpcc_icust1_fl='22'
tpcc_icust1_rsize='auto'
tpcc_icust1_hkey='auto'
tpcc_icust1_hash='auto'
tpcc_icust1_bpool='default'
tpcc_icust1_indices=3-2-1-

tpcc_icust2_imp='index'
tpcc_icust2_size='4591'
tpcc_icust2_ext='calc'
tpcc_icust2_nf='calc'
tpcc_icust2_bs='auto'
tpcc_icust2_used='-1'
tpcc_icust2_free='1'
tpcc_icust2_trans='3'
tpcc_icust2_autospace='t'
tpcc_icust2_flg='43'
tpcc_icust2_fl='22'
tpcc_icust2_rsize='auto'
tpcc_icust2_hkey='auto'
tpcc_icust2_hash='auto'
tpcc_icust2_bpool='default'
tpcc_icust2_indices=6-3-2-7-1-

tpcc_idist_imp='index'
tpcc_idist_size='4'
tpcc_idist_ext='calc'
tpcc_idist_nf='calc'
tpcc_idist_bs='auto'
tpcc_idist_used='-1'
tpcc_idist_free='5'
tpcc_idist_trans='3'
tpcc_idist_autospace='t'
tpcc_idist_flg='43'
tpcc_idist_fl='22'
tpcc_idist_rsize='auto'
tpcc_idist_hkey='auto'
tpcc_idist_hash='auto'
tpcc_idist_bpool='default'
tpcc_idist_indices=2-1-

tpcc_item_imp='index'
tpcc_item_size='2048'
tpcc_item_ext='calc'
tpcc_item_nf='calc'
tpcc_item_bs='auto'
tpcc_item_used='-1'
tpcc_item_free='5'
tpcc_item_trans='4'
tpcc_item_autospace='t'
tpcc_item_flg='43'
tpcc_item_fl='22'
tpcc_item_rsize='auto'

```

## APPENDIX B: DATABASE DESIGN

```
tpcc_item_hkey='auto'  
tpcc_item_hash='auto'  
tpcc_item_bpool='default'  
tpcc_item_indices=1-
```

```
tpcc_inord_imp='none'  
tpcc_inord_size='229'  
tpcc_inord_ext='calc'  
tpcc_inord_nf='calc'  
tpcc_inord_bs='auto'  
tpcc_inord_used='-1'  
tpcc_inord_free='5'  
tpcc_inord_trans='4'  
tpcc_inord_autospace='t'  
tpcc_inord_flg='43'  
tpcc_inord_fl='22'  
tpcc_inord_rsize='auto'  
tpcc_inord_hkey='auto'  
tpcc_inord_hash='auto'  
tpcc_inord_bpool='default'  
tpcc_inord_indices=1-2-3-
```

```
tpcc_iordl_imp='none'  
tpcc_iordl_size='8072'  
tpcc_iordl_ext='calc'  
tpcc_iordl_nf='calc'  
tpcc_iordl_bs='auto'  
tpcc_iordl_used='-1'  
tpcc_iordl_free='5'  
tpcc_iordl_trans='4'  
tpcc_iordl_autospace='t'  
tpcc_iordl_flg='43'  
tpcc_iordl_fl='22'  
tpcc_iordl_rsize='auto'  
tpcc_iordl_hkey='auto'  
tpcc_iordl_hash='auto'  
tpcc_iordl_bpool='default'  
tpcc_iordl_indices=1-2-3-4-
```

```
tpcc_iordr1_imp='none'  
tpcc_iordr1_size='703'  
tpcc_iordr1_ext='calc'  
tpcc_iordr1_nf='calc'  
tpcc_iordr1_bs='auto'  
tpcc_iordr1_used='-1'  
tpcc_iordr1_free='1'  
tpcc_iordr1_trans='3'  
tpcc_iordr1_autospace='t'  
tpcc_iordr1_flg='43'  
tpcc_iordr1_fl='22'  
tpcc_iordr1_rsize='auto'  
tpcc_iordr1_hkey='auto'  
tpcc_iordr1_hash='auto'  
tpcc_iordr1_bpool='default'  
tpcc_iordr1_indices=2-3-1-
```

```
tpcc_iordr2_imp='index'  
tpcc_iordr2_size='1135'  
tpcc_iordr2_ext='calc'  
tpcc_iordr2_nf='calc'  
tpcc_iordr2_bs='auto'  
tpcc_iordr2_used='-1'  
tpcc_iordr2_free='25'  
tpcc_iordr2_trans='4'  
tpcc_iordr2_autospace='t'  
tpcc_iordr2_flg='43'  
tpcc_iordr2_fl='22'  
tpcc_iordr2_rsize='auto'  
tpcc_iordr2_hkey='auto'  
tpcc_iordr2_hash='auto'  
tpcc_iordr2_bpool='default'  
tpcc_iordr2_indices=2-3-4-1-
```

```
tpcc_istok_imp='index'  
tpcc_istok_size='2090'  
tpcc_istok_ext='calc'  
tpcc_istok_nf='calc'  
tpcc_istok_bs='16K'  
tpcc_istok_used='-1'  
tpcc_istok_free='1'  
tpcc_istok_trans='3'  
tpcc_istok_autospace='t'  
tpcc_istok_flg='43'  
tpcc_istok_fl='22'  
tpcc_istok_rsize='auto'  
tpcc_istok_hkey='auto'  
tpcc_istok_hash='auto'  
tpcc_istok_bpool='default'  
tpcc_istok_indices=1-2-
```

```
tpcc_iware_imp='index'  
tpcc_iware_size='1'  
tpcc_iware_ext='calc'
```

```
tpcc_iware_nf='calc'  
tpcc_iware_bs='auto'  
tpcc_iware_used='-1'  
tpcc_iware_free='1'  
tpcc_iware_trans='3'  
tpcc_iware_autospace='t'  
tpcc_iware_flg='43'  
tpcc_iware_fl='22'  
tpcc_iware_rsize='auto'  
tpcc_iware_hkey='auto'  
tpcc_iware_hash='auto'  
tpcc_iware_bpool='default'  
tpcc_iware_indices=1-
```

```
tpcc_temp_imp='temp'  
tpcc_temp_size='16145'  
tpcc_temp_ext='calc'  
tpcc_temp_nf='calc'  
tpcc_temp_bs='auto'  
tpcc_temp_used='-1'  
tpcc_temp_free='0'  
tpcc_temp_trans='3'  
tpcc_temp_autospace='t'  
tpcc_temp_flg='43'  
tpcc_temp_fl='22'  
tpcc_temp_rsize='auto'  
tpcc_temp_hkey='auto'  
tpcc_temp_hash='auto'  
tpcc_temp_bpool='default'  
tpcc_temp_indices=no
```

### *p\_build2.ora*

```
tpcc_os='nt'  
tpcc_version='tnt'  
tpcc_ldrive='6'  
tpcc_scale='8000'  
tpcc_np='1'  
tpcc_cpu='4'  
tpcc_memsize='16384'  
tpcc_runlen='20'  
tpcc_compress='t'  
tpcc_overflow='t'  
tpcc_defbs='2'  
tpcc_jeec_number='f'  
tpcc_numfiles='0'
```

```
tpcc_cust_imp='cluster'  
tpcc_cust_size='calc'  
tpcc_cust_ext='calc'  
tpcc_cust_nf='calc'  
tpcc_cust_bs='auto'  
tpcc_cust_used='-1'  
tpcc_cust_free='0'  
tpcc_cust_trans='3'  
tpcc_cust_autospace='t'  
tpcc_cust_flg='43'  
tpcc_cust_fl='22'  
tpcc_cust_rsize='auto'  
tpcc_cust_hkey='auto'  
tpcc_cust_hash='auto'  
tpcc_cust_bpool='recycle'  
tpcc_cust_indices=3-2-1-
```

```
tpcc_dist_imp='cluster'  
tpcc_dist_size='calc'  
tpcc_dist_ext='calc'  
tpcc_dist_nf='calc'  
tpcc_dist_bs='auto'  
tpcc_dist_used='-1'  
tpcc_dist_free='-1'  
tpcc_dist_trans='4'  
tpcc_dist_autospace='t'  
tpcc_dist_flg='43'  
tpcc_dist_fl='22'  
tpcc_dist_rsize='auto'  
tpcc_dist_hkey='auto'  
tpcc_dist_hash='auto'  
tpcc_dist_bpool='default'  
tpcc_dist_indices=2-1-
```

```
tpcc_hist_imp='table'  
tpcc_hist_size='1791'  
tpcc_hist_ext='calc'  
tpcc_hist_nf='calc'  
tpcc_hist_bs='auto'  
tpcc_hist_used='-1'  
tpcc_hist_free='5'  
tpcc_hist_trans='4'
```

## APPENDIX B: DATABASE DESIGN

tpcc\_hist\_autospace='t'  
 tpcc\_hist\_flg='43'  
 tpcc\_hist\_fl='22'  
 tpcc\_hist\_rsize='auto'  
 tpcc\_hist\_hkey='auto'  
 tpcc\_hist\_hash='auto'  
 tpcc\_hist\_bpool='recycle'  
 tpcc\_hist\_indices=no

tpcc\_item\_imp='cluster'  
 tpcc\_item\_size='calc'  
 tpcc\_item\_ext='calc'  
 tpcc\_item\_nf='calc'  
 tpcc\_item\_bs='auto'  
 tpcc\_item\_used='-1'  
 tpcc\_item\_free='0'  
 tpcc\_item\_trans='3'  
 tpcc\_item\_autospace='t'  
 tpcc\_item\_flg='43'  
 tpcc\_item\_fl='22'  
 tpcc\_item\_rsize='auto'  
 tpcc\_item\_hkey='auto'  
 tpcc\_item\_hash='auto'  
 tpcc\_item\_bpool='keep'  
 tpcc\_item\_indices=1-

tpcc\_nord\_imp='queue'  
 tpcc\_nord\_size='178'  
 tpcc\_nord\_ext='calc'  
 tpcc\_nord\_nf='calc'  
 tpcc\_nord\_bs='auto'  
 tpcc\_nord\_used='-1'  
 tpcc\_nord\_free='5'  
 tpcc\_nord\_trans='4'  
 tpcc\_nord\_autospace='t'  
 tpcc\_nord\_flg='43'  
 tpcc\_nord\_fl='22'  
 tpcc\_nord\_rsize='auto'  
 tpcc\_nord\_hkey='auto'  
 tpcc\_nord\_hash='auto'  
 tpcc\_nord\_bpool='default'  
 tpcc\_nord\_indices=1-2-3-

tpcc\_ordl\_imp='queue'  
 tpcc\_ordl\_size='21775'  
 tpcc\_ordl\_ext='calc'  
 tpcc\_ordl\_nf='calc'  
 tpcc\_ordl\_bs='16K'  
 tpcc\_ordl\_used='-1'  
 tpcc\_ordl\_free='5'  
 tpcc\_ordl\_trans='4'  
 tpcc\_ordl\_autospace='t'  
 tpcc\_ordl\_flg='43'  
 tpcc\_ordl\_fl='22'  
 tpcc\_ordl\_rsize='auto'  
 tpcc\_ordl\_hkey='auto'  
 tpcc\_ordl\_hash='auto'  
 tpcc\_ordl\_bpool='default'  
 tpcc\_ordl\_indices=1-2-3-4-

tpcc\_ordr\_imp='queue'  
 tpcc\_ordr\_size='1206'  
 tpcc\_ordr\_ext='calc'  
 tpcc\_ordr\_nf='calc'  
 tpcc\_ordr\_bs='16K'  
 tpcc\_ordr\_used='-1'  
 tpcc\_ordr\_free='5'  
 tpcc\_ordr\_trans='4'  
 tpcc\_ordr\_autospace='t'  
 tpcc\_ordr\_flg='43'  
 tpcc\_ordr\_fl='22'  
 tpcc\_ordr\_rsize='auto'  
 tpcc\_ordr\_hkey='auto'  
 tpcc\_ordr\_hash='auto'  
 tpcc\_ordr\_bpool='default'  
 tpcc\_ordr\_indices=2-3-1-

tpcc\_stok\_imp='cluster'  
 tpcc\_stok\_size='calc'  
 tpcc\_stok\_ext='calc'  
 tpcc\_stok\_nf='calc'  
 tpcc\_stok\_bs='auto'  
 tpcc\_stok\_used='-1'  
 tpcc\_stok\_free='0'  
 tpcc\_stok\_trans='2'  
 tpcc\_stok\_autospace='t'  
 tpcc\_stok\_flg='43'  
 tpcc\_stok\_fl='22'  
 tpcc\_stok\_rsize='auto'  
 tpcc\_stok\_hkey='auto'  
 tpcc\_stok\_hash='auto'  
 tpcc\_stok\_bpool='keep'  
 tpcc\_stok\_indices=1-2-

tpcc\_ware\_imp='cluster'  
 tpcc\_ware\_size='calc'  
 tpcc\_ware\_ext='calc'  
 tpcc\_ware\_nf='calc'  
 tpcc\_ware\_bs='auto'  
 tpcc\_ware\_used='-1'  
 tpcc\_ware\_free='-1'  
 tpcc\_ware\_trans='2'  
 tpcc\_ware\_autospace='t'  
 tpcc\_ware\_flg='43'  
 tpcc\_ware\_fl='22'  
 tpcc\_ware\_rsize='auto'  
 tpcc\_ware\_hkey='auto'  
 tpcc\_ware\_hash='auto'  
 tpcc\_ware\_bpool='default'  
 tpcc\_ware\_indices=1-

tpcc\_icut1\_imp='index'  
 tpcc\_icut1\_size='736'  
 tpcc\_icut1\_ext='calc'  
 tpcc\_icut1\_nf='calc'  
 tpcc\_icut1\_bs='16K'  
 tpcc\_icut1\_used='-1'  
 tpcc\_icut1\_free='1'  
 tpcc\_icut1\_trans='3'  
 tpcc\_icut1\_autospace='t'  
 tpcc\_icut1\_flg='43'  
 tpcc\_icut1\_fl='22'  
 tpcc\_icut1\_rsize='auto'  
 tpcc\_icut1\_hkey='auto'  
 tpcc\_icut1\_hash='auto'  
 tpcc\_icut1\_bpool='default'  
 tpcc\_icut1\_indices=3-2-1-

tpcc\_icut2\_imp='index'  
 tpcc\_icut2\_size='4591'  
 tpcc\_icut2\_ext='calc'  
 tpcc\_icut2\_nf='calc'  
 tpcc\_icut2\_bs='auto'  
 tpcc\_icut2\_used='-1'  
 tpcc\_icut2\_free='1'  
 tpcc\_icut2\_trans='3'  
 tpcc\_icut2\_autospace='t'  
 tpcc\_icut2\_flg='43'  
 tpcc\_icut2\_fl='22'  
 tpcc\_icut2\_rsize='auto'  
 tpcc\_icut2\_hkey='auto'  
 tpcc\_icut2\_hash='auto'  
 tpcc\_icut2\_bpool='default'  
 tpcc\_icut2\_indices=6-3-2-7-1-

tpcc\_idist\_imp='index'  
 tpcc\_idist\_size='4'  
 tpcc\_idist\_ext='calc'  
 tpcc\_idist\_nf='calc'  
 tpcc\_idist\_bs='auto'  
 tpcc\_idist\_used='-1'  
 tpcc\_idist\_free='5'  
 tpcc\_idist\_trans='3'  
 tpcc\_idist\_autospace='t'  
 tpcc\_idist\_flg='43'  
 tpcc\_idist\_fl='22'  
 tpcc\_idist\_rsize='auto'  
 tpcc\_idist\_hkey='auto'  
 tpcc\_idist\_hash='auto'  
 tpcc\_idist\_bpool='default'  
 tpcc\_idist\_indices=2-1-

tpcc\_item\_imp='index'  
 tpcc\_item\_size='2048'  
 tpcc\_item\_ext='calc'  
 tpcc\_item\_nf='calc'  
 tpcc\_item\_bs='auto'  
 tpcc\_item\_used='-1'  
 tpcc\_item\_free='5'  
 tpcc\_item\_trans='4'  
 tpcc\_item\_autospace='t'  
 tpcc\_item\_flg='43'  
 tpcc\_item\_fl='22'  
 tpcc\_item\_rsize='auto'  
 tpcc\_item\_hkey='auto'  
 tpcc\_item\_hash='auto'  
 tpcc\_item\_bpool='default'  
 tpcc\_item\_indices=1-

tpcc\_inord\_imp='none'  
 tpcc\_inord\_size='229'  
 tpcc\_inord\_ext='calc'  
 tpcc\_inord\_nf='calc'  
 tpcc\_inord\_bs='auto'  
 tpcc\_inord\_used='-1'  
 tpcc\_inord\_free='5'

```
tpcc_inord_trans='4'
tpcc_inord_autospace='t'
tpcc_inord_flg='43'
tpcc_inord_fl='22'
tpcc_inord_rsize='auto'
tpcc_inord_hkey='auto'
tpcc_inord_hash='auto'
tpcc_inord_bpool='default'
tpcc_inord_indices=1-2-3-
```

```
tpcc_iordl_imp='none'
tpcc_iordl_size='8072'
tpcc_iordl_ext='calc'
tpcc_iordl_nf='calc'
tpcc_iordl_bs='auto'
tpcc_iordl_used='-1'
tpcc_iordl_free='5'
tpcc_iordl_trans='4'
tpcc_iordl_autospace='t'
tpcc_iordl_flg='43'
tpcc_iordl_fl='22'
tpcc_iordl_rsize='auto'
tpcc_iordl_hkey='auto'
tpcc_iordl_hash='auto'
tpcc_iordl_bpool='default'
tpcc_iordl_indices=1-2-3-4-
```

```
tpcc_iordr1_imp='none'
tpcc_iordr1_size='703'
tpcc_iordr1_ext='calc'
tpcc_iordr1_nf='calc'
tpcc_iordr1_bs='auto'
tpcc_iordr1_used='-1'
tpcc_iordr1_free='1'
tpcc_iordr1_trans='3'
tpcc_iordr1_autospace='t'
tpcc_iordr1_flg='43'
tpcc_iordr1_fl='22'
tpcc_iordr1_rsize='auto'
tpcc_iordr1_hkey='auto'
tpcc_iordr1_hash='auto'
tpcc_iordr1_bpool='default'
tpcc_iordr1_indices=2-3-1-
```

```
tpcc_iordr2_imp='index'
tpcc_iordr2_size='1135'
tpcc_iordr2_ext='calc'
tpcc_iordr2_nf='calc'
tpcc_iordr2_bs='auto'
tpcc_iordr2_used='-1'
tpcc_iordr2_free='25'
tpcc_iordr2_trans='4'
tpcc_iordr2_autospace='t'
tpcc_iordr2_flg='43'
tpcc_iordr2_fl='22'
tpcc_iordr2_rsize='auto'
tpcc_iordr2_hkey='auto'
tpcc_iordr2_hash='auto'
tpcc_iordr2_bpool='default'
tpcc_iordr2_indices=2-3-4-1-
```

```
tpcc_istok_imp='index'
tpcc_istok_size='2090'
tpcc_istok_ext='calc'
tpcc_istok_nf='calc'
tpcc_istok_bs='16K'
tpcc_istok_used='-1'
tpcc_istok_free='1'
tpcc_istok_trans='3'
tpcc_istok_autospace='t'
tpcc_istok_flg='43'
tpcc_istok_fl='22'
tpcc_istok_rsize='auto'
tpcc_istok_hkey='auto'
tpcc_istok_hash='auto'
tpcc_istok_bpool='default'
tpcc_istok_indices=1-2-
```

```
tpcc_iware_imp='index'
tpcc_iware_size='1'
tpcc_iware_ext='calc'
tpcc_iware_nf='calc'
tpcc_iware_bs='auto'
tpcc_iware_used='-1'
tpcc_iware_free='1'
tpcc_iware_trans='3'
tpcc_iware_autospace='t'
tpcc_iware_flg='43'
tpcc_iware_fl='22'
tpcc_iware_rsize='auto'
tpcc_iware_hkey='auto'
tpcc_iware_hash='auto'
tpcc_iware_bpool='default'
tpcc_iware_indices=1-2-
```

```
tpcc_iware_indices=1-
```

```
tpcc_temp_imp='temp'
tpcc_temp_size='16145'
tpcc_temp_ext='calc'
tpcc_temp_nf='calc'
tpcc_temp_bs='auto'
tpcc_temp_used='-1'
tpcc_temp_free='0'
tpcc_temp_trans='3'
tpcc_temp_autospace='t'
tpcc_temp_flg='43'
tpcc_temp_fl='22'
tpcc_temp_rsize='auto'
tpcc_temp_hkey='auto'
tpcc_temp_hash='auto'
tpcc_temp_bpool='default'
tpcc_temp_indices=no
```

## ***p\_build.ora***

```
compatible = 10.1.0.0.0
db_name = tpcc
control_files = (C:\mnt\control_001,C:\mnt\control_002)
parallel_max_servers = 100
recovery_parallelism = 40
db_files = 208
db_cache_size = 2461M
db_8k_cache_size = 1024M
db_16k_cache_size = 1461M
dml_locks = 500
statistics_level = basic
log_buffer = 1048576
processes = 150
sessions = 150
transactions = 150
shared_pool_size = 512M
db_block_size = 2048
undo_management = auto
undo_retention = 2
plsql_optimize_level=2
```

```
UNDO_TABLESPACE = undo_1
db_4k_cache_size = 20M
```

## ***P\_create.ora***

```
compatible = 10.1.0.0.0
db_name = tpcc
control_files = (C:\mnt\control_001, C:\mnt\control_002)
db_block_size = 2048
db_cache_size = 2461M
db_8k_cache_size = 1024M
log_buffer = 1048576
db_16k_cache_size = 1461M
undo_management = manual
statistics_level = basic
shared_pool_size = 512M
plsql_optimize_level=2
db_4k_cache_size = 20M
```

## ***p\_run.ora***

```
compatible = 11.1.0.0.0
db_name = tpcc
control_files = (C:\mnt\control_001,C:\mnt\control_002)
processes = 500
sessions = 800
db_block_size = 2048
transactions = 600
db_files = 200
db_file_multiblock_read_count = 32
fast_start_mttr_target = 0
parallel_max_servers = 0
dml_locks = 500
remote_login_passwordfile = shared
aq_tm_processes = 0
```

## APPENDIX B: DATABASE DESIGN

```
utl_file_dir = *
max_dump_file_size = 1M
resource_manager_plan = "
statistics_level = basic

db_cache_size = 5500M
db_8k_cache_size = 512M
db_16k_cache_size = 7200M
db_keep_cache_size = 12500M
db_recycle_cache_size = 3500M
shared_pool_size = 1600M
```

```
log_buffer = 10485760
log_checkpoint_interval = 0
log_checkpoint_timeout = 0
log_checkpoints_to_alert = true
```

```
plsql_optimize_level = 2
db_writer_processes = 2
disk_asynch_io = true
replication_dependency_tracking = false
db_block_checking = false
db_block_checksum = false
undo_management = auto
undo_retention = 0
undo_tablespace = undo_1
transactions_per_rollback_segment = 1
trace_enabled = false
query_rewrite_enabled = false
```

```
timed_statistics = false
#timed_statistics = true
```

```
max_dump_file_size = 2G
```

### stepenv.sh

```
# forces any env variables we set to be exported
set -a
tpcc_kit=t
tpcc_bench=c:\tpcc8000
tpcc_scripts=$tpcc_bench/scripts
tpcc_require=$tpcc_scripts/require_vars.sh
tpcc_lcm=$tpcc_scripts/lcm.sh
tpcc_tokilobytes=$tpcc_scripts/tokilobytes.sh
tpcc_fromkilobytes=$tpcc_scripts/fromkilobytes.sh
tpcc_estsize=$tpcc_scripts/estsize.sh
tpcc_notneg=$tpcc_scripts/notneg.sh
tpcc_isneg=$tpcc_scripts/isneg.sh

# need a better way to check for bc, may
# resort to checking each directory in path
# if this doesn't work
#11/7/02 - alex.ni this is causing too many problems
#because systems have bc in some odd place. typically
#mangled cygwin installs w/ mksnt/cygwin mixes
#if test -x /usr/bin/bc -o -x /bin/bc; then
#tpcc_bcexpr=$tpcc_scripts/bcexpr.sh
#else
tpcc_bcexpr=expr
#fi

# the ksh version is a bit faster, so we want
# to use it if we have ksh. Otherwise we have
# a compatible version.
#if test -x /bin/ksh; then
#tpcc_createts=$tpcc_scripts/createts.ksh
#else
tpcc_createts=$tpcc_scripts/createts.sh
#fi

tpcc_tabledata=$tpcc_scripts/tabledata.sh
tpcc_load=$tpcc_bench/benchrun/bin/tpccload.exe
tpcc_createtablespace=$tpcc_scripts/createtablespace.sh

##
tpcc_sqlplus=cat
tpcc_sqlplus_args='/nolog'
tpcc_internal_connect='connect / as sysdba'
tpcc_user_pass='tpcc/tpcc'
tpcc_dba_user_pass='system/manager'
oracle_dba=system
oracle_dba_password=manager
tpcc_sqlplus=sqlplus
```

```
# import options generated by gui
. $(tpcc_bench)/options.sh

#8gb oracle filesize limit (in k)
tpcc_fsize_limit_k=8243200
#2gb - 1k oracle extent limit (in k)
tpcc_extent_limit_k=2048000
#file number limit: 1024
tpcc_file_number_limit=1024

# Runlen calculations should be in hours, but
# this was the old calculation, which assumed
# minutes, and also 8 times:
# tpcc_runlen=$tpcc_bcexpr 8 ` 60 ` $tpcc_runlen`
# we just want to keep the value as it is.

tpcc_system_size=400M
tpcc_kilo_bytes=1024
#tpcc_logfile_size=$tpcc_bcexpr 20 + ` ($tpcc_scale `)

if test $tpcc_np -gt 1 ; then
# 4.69k per commit * 2.1 commit per TPMC ~ 9.85K
# 9.85k * 30 minutes * 12.5 TPMC per Warehouse = 3693
tpcc_logfile_size=$tpcc_bcexpr ` ($tpcc_scale ` 3693 `) /
$tpcc_kilo_bytes
else
# 2.4k per commit * 2.1 commit per TPMC ~ 5k
# 5k * 30 minutes * 12.5 TPMC per Warehouse = 1875
tpcc_logfile_size=$tpcc_bcexpr ` ($tpcc_scale ` 1875 `) /
$tpcc_kilo_bytes
fi

if test $tpcc_logfile_size -lt 1024; then
tpcc_logfile_size=1024
fi
tpcc_logfile_size="($tpcc_logfile_size)M"

tpcc_undo_size=$tpcc_bcexpr 2 ` $tpcc_scale `
if test $tpcc_undo_size -gt 8096; then
tpcc_undo_size=8096
fi
if test $tpcc_undo_size -lt 512; then
tpcc_undo_size=512
fi
tpcc_undo_size="($tpcc_undo_size)M"

tpcc_undo_bs=8K

tpcc_statspack_size=$tpcc_bcexpr 1 ` $tpcc_scale `
if test $tpcc_statspack_size -gt 2048; then
tpcc_statspack_size=2048
fi
if test $tpcc_statspack_size -lt 300; then
tpcc_statspack_size=300
fi
tpcc_statspack_size="($tpcc_statspack_size)M"

tpcc_sysaux_size=120M

# fixed table params

#table list (note temp is always at the end since it may use numbers from
other tables, and it's not included in these lists)
tpcc_table_list='ware cust dist hist stok item ordr ordl iordr2 iordl inord'
tpcc_index_list='ware icust1 icust2 idist istok item iordr1 iordr2 iordl inord'
#for these I use average row length, calculated from multi-blocksize stats.
#we figure out how many new rows we will gain in a run (in
createtablespace.sh)
#and add that much to the base tablespace size.
tpcc_hist_growth=51
tpcc_ordr_growth=35
tpcc_nord_growth=regular
#tpcc_ordl_growth=660
tpcc_ordl_growth=900

#i started indices at 1/10th... need an exact figure
tpcc_iordr1_growth=20
tpcc_iordr2_growth=20
tpcc_iordl_growth=66
tpcc_inord_growth=2

tpcc_item_growth=0
tpcc_item_growth=0
tpcc_temp_growth=0

tpcc_cust_growth=regular
tpcc_icust1_growth=regular
tpcc_icust2_growth=regular

tpcc_stok_growth=regular
tpcc_istok_growth=regular

tpcc_ware_growth=regular
```

## APPENDIX B: DATABASE DESIGN

```
tpcc_iware_growth=regular

tpcc_dist_growth=regular
tpcc_idist_growth=regular

# minimum size of temp tablespace
tpcc_tempts_min=10240

# for Linux, set appropriate tablespace heuristics
# to set high io tables to have 64 files, and minimize
# others.
if expr $tpcc_os = linux > /dev/null; then
# for table in $tpcc_table_list $tpcc_index_list temp; do
#   eval "tpcc_${table}_tsfileinc=1"
# done
if test $tpcc_numfiles = 0 ; then
  tpcc_numfiles=256
fi
tpcc_os=unix

# tpcc_stok_tsfileinc=64
# tpcc_cust_tsfileinc=64
# tpcc_iordl2_tsfileinc=16
# tpcc_icust2_tsfileinc=16
# tpcc_iordl_tsfileinc=16
else
#in case someone changes out of linux, and the shell is stuck
for table in $tpcc_table_list $tpcc_index_list temp; do
  eval "tpcc_${table}_tsfileinc="
done
fi
tpcc_stok_tsfileinc=
tpcc_cust_tsfileinc=
tpcc_iordl2_tsfileinc=
tpcc_icust2_tsfileinc=
tpcc_iordl_tsfileinc=
##fi

# import local options
. ${tpcc_bench}/localoptions.sh

if expr `echo x$tpcc_no_options` = xt > /dev/null; then
  echo Please modify ${tpcc_bench}/localoptions.sh to configure the
  generator.
  exit 1
fi

tpcc_fixordrordl=${tpcc_genscripts_dir}/loadfixordrordl.sh
tpcc_updateordrordl=${tpcc_scripts}/updateordrordl.sh

#tp- get table param. (that is, $tpcc_tablename_tableparam)
tp(){
  eval echo `"$tpcc_$1_$2"`
}

# automatically generated variables
if expr `echo $tpcc_version | cut -b1` = t > /dev/null; then
  tpcc_auto_undo=t
else
  tpcc_auto_undo=f
fi
if expr `echo $tpcc_version | cut -b2` = t > /dev/null; then
  tpcc_autospace_avail=t
else
  tpcc_autospace_avail=f
fi
if expr `echo $tpcc_version | cut -b3` = t > /dev/null; then
  tpcc_queue_avail=t
  tpcc_use_sysaux=t
else
  tpcc_queue_avail=f
  tpcc_use_sysaux=f
fi

# for NT, ORACLE does not like $variables in sql scripts, so we must
# hardcode these things for it.
if test x$tpcc_os = xnt; then
fi

# make sure we have everything
if $tpcc_require ORACLE_SID \
  tpcc_tokilobytes tpcc_createts tpcc_lcm\
  tpcc_sqlplus tpcc_internal_connect\
  tpcc_np tpcc_cpu tpcc_os tpcc_runlen tpcc_ldrive tpcc_scale\
  tpcc_disks_location tpcc_auto_undo tpcc_tempts_min\
  tpcc_system_size tpcc_logfile_size\
  tpcc_undo_size tpcc_undo_bs\
  oracle_dba oracle_dba_password tpcc_dba_user_pass
then exit 1; fi

if test x$tpcc_hardcode != xt; then
  tpcc_disks_location=${tpcc_disks_location}/

tpcc_hardcode=t
else
  tpcc_hardcode=f
fi

# if this is unset we need to make sure it's something anyway
if test x$tpcc_defbs = x; then
  tpcc_defbs=2
fi

# used for loading program
if test x$tpcc_hash_overflow = xt; then
  tpcc_hash_overflow=t
else
  unset tpcc_hash_overflow
fi
if test x$tpcc_overflow = xt; then
  tpcc_hash_overflow=t
else
  unset tpcc_hash_overflow
fi

tpcc_create_steps="buildtpccflags buildcreatets buildcreatedb \
buildcreatetable-ware buildcreatetable-cust buildcreatetable-dist \
buildcreatetable-hist buildcreatetable-stok buildcreatetable-item \
buildcreatetable-ordr buildcreatetable-ordl buildcreatetable-nord \
buildloadware buildloadhist buildloaditem buildloadhist buildloadnord \
buildloadordrordl buildloadcust buildloadstok \
buildcreateindex-iware buildcreateindex-icust1 buildcreateindex-icust2 \
buildcreateindex-idist buildcreateindex-istok buildcreateindex-iitem \
buildcreateindex-iordr1 buildcreateindex-iordr2 buildcreateindex-iordl \
buildcreateindex-inord \
buildstoreprocsq buildspacestats listfiles
"

# remove runscript-loadfixordrordl - shuang, 030626

tpcc_steps="runsqllocal-createdb shutdowndb startupdb-p_build \
createuser ddview runscript-createts assigntemp \
runsql-createtable_ware runsql-createtable_cust runsql-createtable_dist \
runsql-createtable_hist runsql-createtable_stok runsql-createtable_item \
runsql-createtable_ordr runsql-createtable_ordl runsql-createtable_nord \
runscript-loadware runscript-loadhist runscript-loaditem runscript-loadhist \
runscript-loadnord runscript-loadordrordl runscript-loadcust runscript- \
loadstok \
analyze runsql-createindex_iware runsql-createindex_icust1 runsql- \
createindex_icust2 runsql-createindex_idist runsql-createindex_istok \
runsql-createindex_iitem runsql-createindex_iordr1 runsql- \
createindex_iordr2 runsql-createindex_iordl runsql-createindex_inord \
createtests createstoredprocs createspacestats createmisc"

tpcc_total_files=524

# no longer automatically exports env variables
set +a

# check for problems with configuration
badconf=
for table in $tpcc_table_list; do
  if expr `tp $table imp` = queue > /dev/null; then
    if expr $tpcc_queue_avail = f > /dev/null; then
      echo Table $table may not be a queue, since queues are
      echo are unavailable in the selected Oracle version.
      badconf=t
    fi
  fi
  if expr $tpcc_autospace_avail = f \& `tp $table autospace` = t > /dev/null;
then
  echo Table $table may not use bitmapped space management
  echo since it is not available in the selected Oracle version.
  badconf=t
fi
done

if test -n "$badconf"; then
  exit 1

# tpcc_sql_dir=$tpcc_sql_dir'
# tpcc_statspack_size=$tpcc_statspack_size'
# tpcc_genscripts_dir=$tpcc_genscripts_dir'
fi


```

**createdb.sql**



## APPENDIX B: DATABASE DESIGN

```
/* created automatically by /tmp/tpcc/scripts/buildcreatedb.sh Thu Apr 24
17:19:15 PDT 2008 */
spool createdb.log

set echo on

shutdown abort

startup pfile=p_create.ora nomount
create database tpcc
controlfile reuse
maxinstances 1
datafile
'C:\mnt\system_1' size 400M reuse
logfile 'C:\mnt\log_1_1' size 14500M reuse,
'C:\mnt\log_1_2' size 14500M reuse
sysaux datafile 'C:\mnt\tpccaux_0_0' size 120M reuse ;
```

```
create undo tablespace undo_1 datafile
'C:\mnt\roll1' size 8096M reuse blocksize 8K;

set echo off
exit sql.sqlcode
```

### **createindex\_icust1.sql**

```
/* created automatically by /scratch/shuang/tpcc/dell/tpcc-
kit/scripts/buildcreateindex.sh Mon Dec 3 10:23:11 PST 2007 */
set timing on
set sqlblanklines on
spool createindex_icust1.log ;
set echo on ;
drop index icust1 ;
create unique index icust1 on cust ( c_w_id
, c_d_id
, c_id )
pctfree 1 intrans 3
storage ( buffer_pool default )
parallel 1 compute statisticstablespace icust1_0 ;
set echo off
spool off
exit sql.sqlcode;
```

### **createindex\_icust2.sql**

```
/* created automatically by /scratch/shuang/tpcc/dell/tpcc-
kit/scripts/buildcreateindex.sh Mon Dec 3 10:23:12 PST 2007 */
set timing on
set sqlblanklines on
spool createindex_icust2.log ;
set echo on ;
drop index icust2 ;
create unique index icust2 on cust ( c_last
, c_w_id
, c_d_id
, c_first
, c_id )
pctfree 1 intrans 3
storage ( buffer_pool default )
parallel 1
compute statistics
tablespace icust2_0 ;
set echo off
spool off
exit sql.sqlcode;
```

### **createindex\_idist.sql**

```
/* created automatically by /scratch/shuang/tpcc/dell/tpcc-
kit/scripts/buildcreateindex.sh Mon Dec 3 10:23:13 PST 2007 */
set timing on
```

```
set sqlblanklines on
spool createindex_idist.log ;
set echo on ;
drop index idist ;
create unique index idist on dist ( d_w_id
, d_id )
pctfree 5 intrans 3
storage ( buffer_pool default )
parallel 1
compute statistics
tablespace idist_0 ;
set echo off
spool off
exit sql.sqlcode;
```

### **createindex\_iitem.sql**

```
/* created automatically by /scratch/shuang/tpcc/dell/tpcc-
kit/scripts/buildcreateindex.sh Mon Dec 3 10:23:16 PST 2007 */
set timing on
set sqlblanklines on
spool createindex_iitem.log ;
set echo on ;
drop index iitem ;
create unique index iitem on item ( i_id )
pctfree 5 intrans 4
storage ( buffer_pool default )

compute statistics
tablespace iitem_0 ;
set echo off
spool off
exit sql.sqlcode;
```

### **createindex\_inord.sql**

```
/* created automatically by /scratch/shuang/tpcc/dell/tpcc-
kit/scripts/buildcreateindex.sh Mon Dec 3 10:23:20 PST 2007 */
set timing on
exit 0;
```

### **createindex\_iordl.sql**

```
/* created automatically by /scratch/shuang/tpcc/dell/tpcc-
kit/scripts/buildcreateindex.sh Mon Dec 3 10:23:19 PST 2007 */
set timing on
exit 0;
```

### **createindex\_iordr1.sql**

```
/* created automatically by /scratch/shuang/tpcc/dell/tpcc-
kit/scripts/buildcreateindex.sh Mon Dec 3 10:23:17 PST 2007 */
set timing on
exit 0;
```

### **createindex\_iordr2.sql**

```
/* created automatically by /scratch/shuang/tpcc/dell/tpcc-
kit/scripts/buildcreateindex.sh Mon Dec 3 10:23:18 PST 2007 */
set timing on
set sqlblanklines on
spool createindex_iordr2.log ;
set echo on ;
drop index iordr2 ;
create unique index iordr2 on ordr ( o_c_id
, o_d_id
, o_w_id
, o_id )
pctfree 25 intrans 4
storage ( buffer_pool default )
parallel 1
```

```
compute statistics
tablespace iordr2_0 ;
set echo off
spool off
exit sql.sqlcode;
```

### ***createindex\_istok.sql***

```
/* created automatically by /scratch/shuang/tpcc/dell/tpcc-
kit/scripts/buildcreateindex.sh Mon Dec 3 10:23:15 PST 2007 */
set timing on
set sqlblanklines on
spool createindex_istok.log ;
set echo on ;
drop index istok ;
create unique index istok on stok ( s_i_id
, s_w_id )
pctfree 1 intrans 3
storage ( buffer_pool default )
parallel 1
compute statistics
tablespace istok_0 ;
set echo off
spool off
exit sql.sqlcode ;
```

### ***createindex\_aware.sql***

```
/* created automatically by /scratch/shuang/tpcc/dell/tpcc-
kit/scripts/buildcreateindex.sh Mon Dec 3 10:23:10 PST 2007 */
set timing on
set sqlblanklines on
spool createindex_aware.log ;
set echo on ;
drop index aware ;
create unique index aware on ware ( w_id )
pctfree 1 intrans 3
storage ( buffer_pool default )
parallel 1
compute statistics
tablespace aware_0 ;
set echo off
spool off
exit sql.sqlcode;
```

### ***createspacestats.sql***

```
@space_init
@space_get 12 10
@space_rpt
spool off
exit sql.sqlcode;
```

### ***createstoredprocs.sql***

```
spool createstoredprocs.log
@tkvcin.sql
spool off
exit sql.sqlcode;
```

### ***createtable\_cust.sql***

```
/* created automatically by /tmp/tpcc/scripts/buildcreatetable.sh Thu Apr
24 17:19:19 PDT 2008 */
set timing on
set sqlblanklines on
spool createtable_cust.log
set echo on
```

```
drop cluster custcluster including tables ;
```

```
create cluster custcluster (
c_id number
, c_d_id number
, c_w_id number
)
single table
hashkeys 240000000
hash is ( (c_id * ( 8000 * 10 ) + c_w_id * 10 + c_d_id ) )
size 180
pctfree 0 intrans 3
storage ( buffer_pool recycle ) parallel ( degree 4 )
tablespace cust_0;
```

```
create table cust (
c_id number
, c_d_id number
, c_w_id number
, c_discount number
, c_credit char(2)
, c_last varchar2(16)
, c_first varchar2(16)
, c_credit_lim number
, c_balance number
, c_ytd_payment number
, c_payment_cnt number
, c_delivery_cnt number
, c_street_1 varchar2(20)
, c_street_2 varchar2(20)
, c_city varchar2(20)
, c_state char(2)
, c_zip char(9)
, c_phone char(16)
, c_since date
, c_middle char(2)
, c_data char(500)
)
```

```
cluster custcluster (
c_id
, c_d_id
, c_w_id
);
set echo off
spool off
exit sql.sqlcode;
```

### ***createtable\_dist.sql***

```
/* created automatically by /tmp/tpcc/scripts/buildcreatetable.sh Thu Apr
24 17:19:24 PDT 2008 */
set timing on
set sqlblanklines on
spool createtable_dist.log
set echo on
drop cluster distcluster including tables ;
```

```
create cluster distcluster (
d_id number
, d_w_id number
)
single table
hashkeys 80000
hash is ( ((d_w_id * 10) + d_id ) )
size 1448
intrans 4
storage ( buffer_pool default )
tablespace dist_0;
```

```
create table dist (
d_id number
, d_w_id number
, d_ytd number
, d_next_o_id number
, d_tax number
, d_name varchar2(10)
, d_street_1 varchar2(20)
, d_street_2 varchar2(20)
, d_city varchar2(20)
, d_state char(2)
, d_zip char(9)
)
cluster distcluster (
d_id
, d_w_id
);
set echo off
spool off
```

```
exit sql.sqlcode;
```

### **createtable\_hist.sql**

```
/* created automatically by /tmp/tpcc/scripts/buildcreatetable.sh Thu Apr
24 17:19:27 PDT 2008 */
set timing on
set sqlblanklines on
spool createtable_hist.log
set echo on
drop table hist ;

create table hist (
  h_c_id number
, h_c_d_id number
, h_c_w_id number
, h_d_id number
, h_w_id number
, h_date date
, h_amount number
, h_data varchar2(24)
)
pctfree 5 intrans 4
storage ( buffer_pool recycle )
tablespace hist_0 ;
set echo off
spool off
exit sql.sqlcode;
```

### **createtable\_item.sql**

```
/* created automatically by /tmp/tpcc/scripts/buildcreatetable.sh Thu Apr
24 17:19:34 PDT 2008 */
set timing on
set sqlblanklines on
spool createtable_item.log
set echo on
drop cluster itemcluster including tables ;

create cluster itemcluster (
  i_id number(6,0)
)
single table
hashkeys 100000
hash is ( (i_id) )
size 120
pctfree 0 intrans 3
storage ( buffer_pool keep )
tablespace item_0;

create table item (
  i_id number(6,0)
, i_name varchar2(24)
, i_price number
, i_data varchar2(50)
, i_im_id number
)
cluster itemcluster (
  i_id
);
set echo off
spool off
exit sql.sqlcode;
```

### **createtable\_nord.sql**

```
/* created automatically by
/tmp/tpcc/scripts/buildcreatetable.sh Thu Apr 24 17:19:40 PDT 2008 */
set timing on
set sqlblanklines on
spool createtable_nord.log
set echo on
drop cluster nordcluster_queue including tables ;

create cluster nordcluster_queue (
  no_w_id number
, no_d_id number
, no_o_id number SORT
```

```
)
hashkeys 80000
hash is ( (no_w_id - 1) * 10 + no_d_id - 1 )
size 190
tablespace nord_0;

create table nord (
  no_w_id number
, no_d_id number
, no_o_id number sort
, constraint nord_uk primary key ( no_w_id
, no_d_id
, no_o_id )
)
cluster nordcluster_queue (
  no_w_id
, no_d_id
, no_o_id
);
set echo off
spool off
exit sql.sqlcode;
```

### **createtable\_ordl.sql**

```
/* created automatically by /tmp/tpcc/scripts/buildcreatetable.sh Thu Apr
24 17:19:38 PDT 2008 */
set timing on
set sqlblanklines on
spool createtable_ordl.log
set echo on
create table ordl (
  ol_w_id number
, ol_d_id number
, ol_o_id number sort
, ol_number number sort
, ol_i_id number
, ol_delivery_d date
, ol_amount number
, ol_supply_w_id number
, ol_quantity number
, ol_dist_info char(24)
, constraint ordl_uk primary key (ol_w_id, ol_d_id, ol_o_id, ol_number )
) CLUSTER ordcluster_queue(ol_w_id, ol_d_id, ol_o_id, ol_number) ;
set echo off
spool off
exit sql.sqlcode;
```

### **createtable\_ordr.sql**

```
/* created automatically by /tmp/tpcc/scripts/buildcreatetable.sh Thu Apr
24 17:19:36 PDT 2008 */
set timing on
set sqlblanklines on
spool createtable_ordr.log
set echo on
drop cluster ordcluster_queue including tables ;

create cluster ordcluster_queue (
  o_w_id number
, o_d_id number
, o_id number SORT
, o_number number SORT
)
hashkeys 80000
hash is ( (o_w_id - 1) * 10 + o_d_id - 1 )
size 1490
tablespace ordr_0;

create table ordr (
  o_id number sort
, o_w_id number
, o_d_id number
, o_c_id number
, o_carrier_id number
, o_o_cnt number
, o_all_local number
, o_entry_d date
, constraint ordr_uk primary key ( o_w_id
, o_d_id
, o_id )
)
cluster ordcluster_queue (
```

```
o_w_id
,o_d_id
,o_id
);
set echo off
spool off
exit sql.sqlcode;
```

**createtable\_stok.sql**

```
/* created automatically by /tmp/tpcc/scripts/buildcreatetable.sh Thu Apr
24 17:19:29 PDT 2008 */
```

```
set timing on
set sqlblanklines on
spool createtable_stok.log
set echo on
drop cluster stokcluster including tables ;
```

```
create cluster stokcluster (
s_i_id number
,s_w_id number
)
single table
hashkeys 800000000
hash is ((s_i_id * 8000 + s_w_id)
size 256
pctfree 0 intrans 2 maxtrans 2
storage ( buffer_pool keep ) parallel ( degree 4 )
tablespace stok_0;
```

```
create table stok (
s_i_id number
,s_w_id number
,s_quantity number
,s_ytd number
,s_order_cnt number
,s_remote_cnt number
,s_data varchar2(50)
,s_dist_01 char(24)
,s_dist_02 char(24)
,s_dist_03 char(24)
,s_dist_04 char(24)
,s_dist_05 char(24)
,s_dist_06 char(24)
,s_dist_07 char(24)
,s_dist_08 char(24)
,s_dist_09 char(24)
,s_dist_10 char(24)
)
cluster stokcluster (
s_i_id
,s_w_id
);
set echo off
spool off
exit sql.sqlcode;
```

**createtable\_ware.sql**

```
/* created automatically by /tmp/tpcc/scripts/buildcreatetable.sh Thu Apr
24 17:19:16 PDT 2008 */
```

```
set timing on
set sqlblanklines on
spool createtable_ware.log
set echo on
drop cluster warecluster including tables ;
```

```
create cluster warecluster (
w_id number
)
single table
hashkeys 8000
hash is ((w_id - 1)
size 1448
initrans 2
storage ( buffer_pool default )
tablespace ware_0;
```

```
create table ware (
w_id number
,w_ytd number
,w_tax number
```

```
,w_name varchar2(10)
,w_street_1 varchar2(20)
,w_street_2 varchar2(20)
,w_city varchar2(20)
,w_state char(2)
,w_zip char(9)
)
cluster warecluster (
w_id
);
set echo off
spool off
exit sql.sqlcode;
```

**space\_get.sql**

```
REM=====
=====+
REM Copyright (c) 1995 Oracle Corp. Redwood Shores, CA |
REM OPEN SYSTEMS PERFORMANCE GROUP |
REM All Rights Reserved |
REM=====
=====+
REM FILENAME
REM space_get.sql
REM DESCRIPTION
REM Get sizes of tables, indexes and tablespaces.
REM Usage: sqlplus 'sys/change_on_install as sysdba' @space_get
[<tpm> <# of warehouses>]
REM=====
=====*/
```

```
set echo on;
delete from tpcc_data;
delete from tpcc_space;
delete from tpcc_totSPACE;
```

```
insert into tpcc_data
select substr(segment_name,1,18), substr(segment_type,1,15),
sum(blocks), t.block_size,
round(sum(blocks) * 0.05), 0,
sum(blocks) + round(sum(blocks) * 0.05)
from dba_extents e, dba_tablespaces t
where owner = 'TPCC' AND ( segment_type = 'INDEX' OR
segment_type = 'INDEX PARTITION' OR segment_type =
'CLUSTER'
OR segment_type = 'TABLE' OR segment_type = 'TABLE
PARTITION')
AND e.tablespace_name <> 'SYSTEM' AND e.tablespace_name <>
'SP_0'
AND e.tablespace_name = t.tablespace_name
group by segment_name, segment_type, t.block_size;
```

```
insert into tpcc_data
select 'SYSTEM', 'SYS', sum(blocks), t.block_size, 0, 0, sum(blocks)
from dba_data_files f, dba_tablespaces t
where f.tablespace_name = 'SYSTEM' and t.tablespace_name =
f.tablespace_name
group by t.block_size;
```

```
insert into tpcc_data
select 'SYSAUX', 'SYS', sum(blocks), t.block_size, 0, 0, sum(blocks)
from dba_data_files f, dba_tablespaces t
where f.tablespace_name = 'SYSAUX' and t.tablespace_name =
f.tablespace_name
group by t.block_size;
```

```
insert into tpcc_data
select 'ROLL_SEG', 'SYS', sum(blocks), t.block_size, 0, 0,
sum(blocks)
from dba_data_files f, dba_tablespaces t
where f.tablespace_name like '%UNDO_TS%' and
f.tablespace_name = t.tablespace_name
group by f.tablespace_name, t.block_size;
```

```
insert into tpcc_data
select 'DB_STAT', 'SYS', sum(blocks), t.block_size, 0, 0, sum(blocks)
from dba_data_files f, dba_tablespaces t
where f.tablespace_name like '%SP_0%' and f.tablespace_name =
t.tablespace_name
group by f.tablespace_name, t.block_size;
```

```
update tpcc_data
set five_pct = 0,
daily_grow = round(blocks * &&1 / 62.5 / &&2),
total = blocks + round(blocks * &&1 / 62.5 / &&2)
where segment = 'HIST' OR segment = 'ORDRCLUSTER_QUEUE'
OR
segment = 'ORDL';
```

```

insert into tpcc_space
select substr(ex$.name,1,18), sum(sp$.sz_blocks), sp$.block_size, 0, 0,
0, 0
from
(select f.tablespace_name , sum(blocks) sz_blocks, t.block_size
block_size
from dba_data_files f, dba_tablespaces t
where f.tablespace_name <> 'SYSTEM' and f.tablespace_name =
t.tablespace_name
group by f.tablespace_name, t.block_size
) sp$,
(select distinct tablespace_name, segment_name name
from dba_extents
where owner = 'TPCC'
and (segment_type = 'CLUSTER' or segment_type = 'TABLE'
or segment_type = 'TABLE PARTITION' or segment_type = 'INDEX'
or segment_type = 'INDEX PARTITION')
and tablespace_name <> 'SYSTEM'
) ex$
where sp$.tablespace_name = ex$.tablespace_name
group by ex$.name, sp$.block_size;

insert into tpcc_space
select substr(f.tablespace_name,1,18), sum(blocks), t.block_size, 0, 0,
0, 0
from dba_data_files f, dba_tablespaces t
where (f.tablespace_name = 'SYSTEM' or f.tablespace_name =
'SYSAUX')
and f.tablespace_name = t.tablespace_name
group by f.tablespace_name, t.block_size;

insert into tpcc_space
select 'ROLL_SEG', sum(blocks), t.block_size, 0, 0, 0, 0
from dba_data_files f, dba_tablespaces t
where f.tablespace_name = 'UNDO_TS' and f.tablespace_name =
t.tablespace_name
group by f.tablespace_name, t.block_size;

insert into tpcc_space
select 'DB_STAT', sum(blocks), t.block_size, 0, 0, 0, 0
from dba_data_files f, dba_tablespaces t
where f.tablespace_name = 'SP_0' and f.tablespace_name =
t.tablespace_name
group by f.tablespace_name, t.block_size;

update tpcc_space
set required =
(
select sum(total)
from tpcc_data
where tpcc_data.segment = tpcc_space.segment
)
where segment in
(
select segment from tpcc_data
);

update tpcc_space
set static =
(
select sum(total)
from tpcc_data
where tpcc_data.segment = tpcc_space.segment
)
where segment in
(
select segment from tpcc_data
);

update tpcc_space
set static = 0,
dynamic =
(
select sum(blocks)
from tpcc_data
where tpcc_data.segment = tpcc_space.segment
)
where segment in ('HIST', 'ORDRCLUSTER_QUEUE', 'IORDL');

update tpcc_space
set oversize = blocks - required;

insert into tpcc_totSPACE
select &&1, &&2, sum(static * block_size)/1024, sum(dynamic *
block_size)/1024, sum(oversize * block_size)/1024, 0, 0, 0
from tpcc_space;

update tpcc_totSPACE
set daily_grow =
(
select sum(daily_grow * block_size)/1024

```

```

from tpcc_data
);
update tpcc_totSPACE
set space60 = static + 60 * daily_grow;
set echo off;

```

### space\_init.sql

```

REM=====
=====+
REM FILENAME
REM space_init.sql
REM DESCRIPTION
REM Create tables for space calculations.
REM Usage: sqlplus 'sys/change_on_install as sysdba' @space_init.sql
REM=====
=====*/
set echo on;
drop table tpcc_data;
drop table tpcc_space;
drop table tpcc_totSPACE;
create table tpcc_data (
segment varchar2(18),
type varchar2(15),
blocks number,
block_size number,
five_pct number,
daily_grow number,
total number
);
create table tpcc_space (
segment varchar2(18),
blocks number,
block_size number,
required number,
static number,
dynamic number,
oversize number
);
create table tpcc_totSPACE (
tpm number,
nware number,
static number,
dynamic number,
oversize number,
daily_grow number,
daily_spre number,
space60 number
);
create unique index tpcc_data on tpcc_data (segment);
create unique index tpcc_space on tpcc_space (segment);
set echo off;

```

### space\_rpt.sql

```

REM=====
=====+
REM Copyright (c) 1995 Oracle Corp, Redwood Shores, CA |
REM OPEN SYSTEMS PERFORMANCE GROUP |
REM All Rights Reserved |
REM=====
=====+
REM FILENAME
REM space_rpt.sql
REM DESCRIPTION
REM Generate space report and save it in space.rpt
REM Usage: sqlplus 'sys/change_on_install as sysdba' @space_rpt.sql
REM=====
=====*/
set space 2
set pagesize 2000
set echo off
set termout off
set verify off
set feedback off
set pagesize 60 linesize 120
spool space.rpt
select tpm, nware from tpcc_totSPACE;
select * from tpcc_data order by segment;
select * from tpcc_space order by segment;
select static, dynamic, oversize, daily_grow, daily_spre, space60
from tpcc_totSPACE;
spool off;

```

**tkvcinin.sql**

```
-- The initnew package for storing variables used in the
-- New Order anonymous block

CREATE OR REPLACE PACKAGE initppcc
AS
TYPE intarray IS TABLE OF INTEGER INDEX BY BINARY_INTEGER;
TYPE distarray IS TABLE OF VARCHAR(24) INDEX BY
BINARY_INTEGER;
nulldate DATE;
TYPE rowidarray IS TABLE OF ROWID INDEX BY PLS_INTEGER;
s_dist          distarray;
idx1arr         intarray;
s_remote        intarray;
dist            intarray;
row_id          rowidarray;
cust_rowid      rowid;
dist_name       VARCHAR2(11);
ware_name       VARCHAR2(11);
c_num           PLS_INTEGER;

PROCEDURE init_no(idxarr intarray);
PROCEDURE init_del;
PROCEDURE init_pay;
END initppcc;
/
show errors;

CREATE OR REPLACE PACKAGE BODY initppcc AS
PROCEDURE init_no(idxarr intarray)
IS
BEGIN
-- initialize null date
nulldate := TO_DATE('01-01-1811', 'MM-DD-YYYY');
idx1arr := idxarr;
END init_no;

PROCEDURE init_del
IS
BEGIN
FOR i IN 1 .. 10 LOOP
dist(i) := i;
END LOOP;
END init_del;

PROCEDURE init_pay IS
BEGIN
NULL;
END init_pay;

END initppcc;
/
show errors
exit
```

**createts.sh**

```
#!/bin/sh
#NOTE - ANY CHANGES MUST BE MADE TO CREATETS.KSH AS
WELL.
# createts.sh [name] [no. of file] [no. of partition] [filesize] [ext_size]
# [unix/nt] [1: temporary ts / 0: others] [filecount] [no of cpu]
# [blocksize] [t: bitmapped / f: manual manage / d:
dictionary ]

name=$1
fileno=$2
noofts=$3
filesize=$4
extsize=$5
ver=$6
isTemp=$7
filecount=$8
para= expr $9 ` 2`
#blocksize=${10} sh bug workaround
blocksize= echo $@ | cut -d ' ' -f10
#autospace=${11} sh bug workaround
autospace= echo $@ | cut -d ' ' -f11

addts=$tpcc_scripts/addts.sh
addfile=$tpcc_scripts/addfile.sh

if expr "x$tpcc_createts_print" = "xt" > /dev/null ; then
createtsout=${tpcc_genscripts_dir}/createts_node${tpcc_rac_node}.sh
fileavg= expr $fileno / $tpcc_np
```

```
if test $noofts -gt 1 ; then
avg_ts_node= expr $noofts / $tpcc_np
if test "x$tpcc_rac_createts_phase" = "x1" ; then
fileavg=$avg_ts_node
else
if test "x$tpcc_rac_createts_phase" = "x2" ; then
fileavg= expr $fileavg - $avg_ts_node
fi
fi
fi

fileend=`expr $fileavg ` $tpcc_rac_node`
filestart=`expr $fileend - $fileavg`
if expr $tpcc_rac_node = $tpcc_np > /dev/null; then
fileend=$fileno
fi
fi

#if test $ver = unix;
#then
fileaddr="$tpcc_disks_location";
#elif test $ver = nt;
#then
# fileaddr=\\\\.\\
#fi

filecounter=0
i=0
while test $i -lt $noofts; do

filecount=`expr $filecount + 1`;
if expr "x$tpcc_createts_print" = "xt" > /dev/null ; then
if test "x$tpcc_rac_createts_phase" = "x1" ; then
if test "x$name" = "xitem" -o "x$name" = "xitem" -o "x$name" =
"xtemp" -o "x$name" = "xrestbl" ; then
if test $tpcc_rac_node = 1 ; then
echo $addts $name\_ $i $fileaddr$name\_ $\_0 $filesize $extsize
$blocksize $isTemp $autospace \& >> $createtsout
rac_count= expr $rac_count + 1
if test "$rac_count" = "$para" ; then
rac_count=0
echo wait >> $createtsout
fi
fi
else
if test $filecounter -ge $filestart -a $filecounter -lt $fileend ; then
echo $addts $name\_ $i $fileaddr$name\_ $\_0 $filesize $extsize
$blocksize $isTemp $autospace \& >> $createtsout
rac_count= expr $rac_count + 1
if test "$rac_count" = "$para" ; then
rac_count=0
echo wait >> $createtsout
fi
fi
fi
fi
else
$addts $name\_ $i $fileaddr$name\_ $\_0 $filesize $extsize $blocksize
$isTemp $autospace \> junk$filecount 2>>\&1 \&
fi
eval "proc$filecount=$i"
filecounter= expr $filecounter + 1

p=`expr $filecount % $para` ;
if test $p = 0;
then
k=`expr $filecount - $para + 1` ;
if test $k -le $8;
then
k=`expr $8 + 1` ;
fi
while test $k -le $filecount ; do
# wait `eval echo $proc$k`
wait
eval "proc$k=$?"
k=`expr $k + 1` ;
done
fi

i=`expr $i + 1` ;

done

p=`expr $filecount % $para`
if test $p != 0;
then
k=`expr $filecount - $p + 1` ;
if test $k -le $8;
then
k=`expr $8 + 1` ;
fi
fi
while test $k -le $filecount; do
# wait `eval echo $proc$k`
```

## APPENDIX B: DATABASE DESIGN

```

wait
eval "proc$k=$?"
k=`expr $k + 1`
done
fi

if test "x$tpcc_createts_print" = "xt" -a "x$tpcc_rac_createts_phase" = "x1"
; then
echo $rac_count
exit 0
fi

if test "x$tpcc_createts_print" = "xt" -a $noofts -gt 1 -a
"x$tpcc_rac_createts_phase" = "x2"; then
filecounter=0
fi

filecount=0
fileperts=`expr $fileno / $noofts - 1`
if test $fileperts -gt 0;
then
i=0
while test $i -lt $noofts; do
j=0;
while test $j -lt $fileperts; do

filecount=`expr $filecount + 1`;
if expr "x$tpcc_createts_print" = "xt" > /dev/null; then
if test "x$tpcc_rac_createts_phase" = "x2"; then
if test "x$name" = "xitem" -o "x$name" = "xtemp" -o "x$name" =
"xrestbl"; then
if test $tpcc_rac_node = 1; then
echo $addfile $name\_ $i $fileaddr$name\_ $\i\_ `expr $j + 1`
$filesize $isTemp \& >> $createtsout
rac_count=`expr $rac_count + 1`
if test "$rac_count" = "$para"; then
rac_count=0
echo wait >> $createtsout
fi
fi
else
if test $filecounter -ge $filestart -a $filecounter -lt $fileend; then
echo $addfile $name\_ $i $fileaddr$name\_ $\i\_ `expr $j + 1`
$filesize $isTemp \& >> $createtsout
rac_count=`expr $rac_count + 1`
if test "$rac_count" = "$para"; then
rac_count=0
echo wait >> $createtsout
fi
fi
fi
else
$addfile $name\_ $i $fileaddr$name\_ $\i\_ `expr $j + 1` $filesize
$isTemp \> junk$filecount 2\>\&1 &
fi
eval "proc$filecount=$!"

filecounter=`expr $filecounter + 1`

p=`expr $filecount % $para`;
if test $p = 0;
then
wait
# k=`expr $filecount - $para + 1`;
# if test $k -le $8;
# then
# k=`expr $8 + 1`;
# fi
# while test $k -le $filecount; do
# wait
# eval "proc$k=$?"
# k=`expr $k + 1`;
# done
fi

j=`expr $j + 1`
done

i=`expr $i + 1`
done

p=`expr $filecount % $para`
if test $p != 0;
then
k=`expr $filecount - $p + 1`;
if test $k -le $8;
then
k=`expr $8 + 1`;
fi
while test $k -le $filecount; do
# wait `eval echo $proc$k`
wait

```

```

eval "proc$k=$?"
k=`expr $k + 1`
done
fi

if test "x$tpcc_createts_print" = "xt"; then
echo $rac_count
fi

exit 0

i=`expr $8 + 1`
proc=0
while test $i -le $filecount; do
eval `process=$proc`"$i"
proc=`expr $proc + $process`
i=`expr $i + 1`
done

out=`expr $proc % 127`
# Added wait here for all tablespaces to be created
wait
if expr x$tpcc_listfiles = xt > /dev/null; then
exit 0
fi

if test $out -ne 0
then
exit 1;
else
exit 0;
fi

#created automatically by /tmp/tpcc/scripts/buildcreatets.sh Thu Apr 24
17:18:55 PDT 2008

# Tablespace ware, ts size 20M (20480K)
# each file 20M (20480K)
# extents 18144K (18144K)
# 1 files

$tpcc_createts ware 1 1 20M 18144K nt 0 0 4 auto t
if expr $? != 0 > /dev/null; then
echo Creating tablespace for ware failed. Exiting.
exit 0
fi

# Tablespace cust, ts size 215100M (220262400K)
# each file 7170M (7342080K)
# extents 104782K (104782K)
# 30 files

$tpcc_createts cust 30 1 7170M 104782K nt 0 1 4 auto t
if expr $? != 0 > /dev/null; then
echo Creating tablespace for cust failed. Exiting.
exit 0
fi

# Tablespace dist, ts size 180M (184320K)
# each file 180M (184320K)
# extents 172224K (172224K)
# 1 files

$tpcc_createts dist 1 1 180M 172224K nt 0 31 4 auto t
if expr $? != 0 > /dev/null; then
echo Creating tablespace for dist failed. Exiting.
exit 0
fi

# Tablespace hist, ts size 24000M (24576000K)
# each file 4000M (4096000K)
# extents 102170K (102170K)
# 6 files

$tpcc_createts hist 6 1 4000M 102170K nt 0 32 4 auto t
if expr $? != 0 > /dev/null; then
echo Creating tablespace for hist failed. Exiting.
exit 0
fi

# Tablespace stok, ts size 241500M (247296000K)
# each file 8050M (8243200K)
# extents 104218K (104218K)
# 30 files

```

### generated/createts.sh

## APPENDIX B: DATABASE DESIGN

```
$tpcc_createts stok 30 1 8050M 104218K nt 0 38 4 auto t
if expr $? != 0 > /dev/null; then
    echo Creating tablespace for stok failed. Exiting.
    exit 0
fi

# Tablespace item, ts size 20M (20480K)
# each file 20M (20480K)
# extents 16892K (16892K)
# 1 files

$tpcc_createts item 1 1 20M 16892K nt 0 68 4 auto t
if expr $? != 0 > /dev/null; then
    echo Creating tablespace for item failed. Exiting.
    exit 0
fi

# Tablespace iordr, ts size 341820M (350023680K)
# each file 56970M (58337280K)
# extents 103424K (103424K)
# 6 files

$tpcc_createts iordr 8 1 43000M 103424K nt 0 69 4 16K t
if expr $? != 0 > /dev/null; then
    echo Creating tablespace for iordr failed. Exiting.
    exit 0
fi

# Tablespace nord, ts size 2800M (2867200K)
# each file 2800M (2867200K)
# extents 286358K (286358K)
# 1 files

$tpcc_createts nord 1 1 2800M 286358K nt 0 77 4 auto t
if expr $? != 0 > /dev/null; then
    echo Creating tablespace for nord failed. Exiting.
    exit 0
fi

# Tablespace iware, ts size 20M (20480K)
# each file 20M (20480K)
# extents 11264K (11264K)
# 1 files

$tpcc_createts iware 1 1 20M 11264K nt 0 78 4 auto t
if expr $? != 0 > /dev/null; then
    echo Creating tablespace for iware failed. Exiting.
    exit 0
fi

# Tablespace icust1, ts size 5660M (5795840K)
# each file 5660M (5795840K)
# extents 181024K (181024K)
# 1 files

$tpcc_createts icust1 1 1 5660M 181024K nt 0 79 4 16K t
if expr $? != 0 > /dev/null; then
    echo Creating tablespace for icust1 failed. Exiting.
    exit 0
fi

# Tablespace icust2, ts size 14280M (14622720K)
# each file 2380M (2437120K)
# extents 76024K (76024K)
# 6 files

$tpcc_createts icust2 3 1 5610M 179148 nt 0 80 4 auto t
if expr $? != 0 > /dev/null; then
    echo Creating tablespace for icust2 failed. Exiting.
    exit 0
fi

# Tablespace idist, ts size 50M (51200K)
# each file 50M (51200K)
# extents 41024K (41024K)
# 1 files

$tpcc_createts idist 1 1 50M 41024K nt 0 88 4 auto t
if expr $? != 0 > /dev/null; then
    echo Creating tablespace for idist failed. Exiting.
    exit 0
fi

# Tablespace istok, ts size 16710M (17111040K)
# each file 16710M (17111040K)
# extents 534368K (534368K)
# 1 files

$tpcc_createts istok 1 1 16710M 534368K nt 0 87 4 16K t
if expr $? != 0 > /dev/null; then
    echo Creating tablespace for istok failed. Exiting.
    exit 0
fi
```

```
# Tablespace iitem, ts size 20M (20480K)
# each file 20M (20480K)
# extents 11264K (11264K)
# 1 files

$tpcc_createts iitem 1 1 20M 11264K nt 0 86 4 auto t
if expr $? != 0 > /dev/null; then
    echo Creating tablespace for iitem failed. Exiting.
    exit 0
fi

# Tablespace iordr2, ts size 13740M (14069760K)
# each file 2290M (2344960K)
# extents 73138K (73138K)
# 6 files

$tpcc_createts iordr2 3 1 5410M 102518K nt 0 87 4 auto t
if expr $? != 0 > /dev/null; then
    echo Creating tablespace for iordr2 failed. Exiting.
    exit 0
fi

# Tablespace temp, ts size 41940M (42946560K)
# each file 6990M (7157760K)
# extents 204198K (204198K)
# 6 files

$tpcc_createts temp 9 1 5530M 202082K nt 1 93 4 auto t
if expr $? != 0 > /dev/null; then
    echo Creating tablespace for temp failed. Exiting.
    exit 0
fi
```

### loadcust.sh

```
##created automatically by /tmp/tpcc/scripts/evenload.sh Thu Apr 24
17:19:42 PDT 2008
rm -f loadcust*.log
cd $tpcc_bench
allprocs=
$tpcc_load -M 8000 -C -l 1 -m 375 >> loadcust0.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -C -l 376 -m 750 >> loadcust1.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -C -l 751 -m 1125 >> loadcust2.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -C -l 1126 -m 1500 >> loadcust3.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -C -l 1501 -m 1875 >> loadcust4.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -C -l 1876 -m 2250 >> loadcust5.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -C -l 2251 -m 2625 >> loadcust6.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -C -l 2626 -m 3000 >> loadcust7.log 2>&1 &
allprocs="$allprocs ${!}"
error=0
for curproc in $allprocs; do
    wait $curproc
    error=$(( expr $? + $error`
done
exit `expr $error != 0`
```

### loaddist.sh

```
cd $tpcc_bench
$tpcc_load -M $tpcc_scale -d > loaddist.log 2>&1
```

### loadhist.sh

```
##created automatically by /tmp/tpcc/scripts/evenload.sh Thu Apr 24
17:19:41 PDT 2008
rm -f loadhist*.log
cd $tpcc_bench
allprocs=
$tpcc_load -M 8000 -h -b 1 -e 1000 >> loadhist0.log 2>&1 &
allprocs="$allprocs ${!}"
```



```

$tpcc_load -M 8000 -h -b 1001 -e 2000 >> loadhist1.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -h -b 2001 -e 3000 >> loadhist2.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -h -b 3001 -e 4000 >> loadhist3.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -h -b 4001 -e 5000 >> loadhist4.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -h -b 5001 -e 6000 >> loadhist5.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -h -b 6001 -e 7000 >> loadhist6.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -h -b 7001 -e 8000 >> loadhist7.log 2>&1 &
allprocs="$allprocs ${!}"
error=0
for curproc in $allprocs; do
    wait $curproc
    error= expr $? + $error
done
exit `expr $error != 0`

```

## loaditem.sh

```

cd $tpcc_bench
$tpcc_load -M $tpcc_scale -i > loaditem.log 2>&1

```

## loadnord.sh

```

#created automatically by /tmp/tpcc/scripts/evenload.sh Thu Apr 24
17:19:41 PDT 2008
rm -f loadnord*.log
cd $tpcc_bench
allprocs=
$tpcc_load -M 8000 -n -b 1 -e 8000 >> loadnord0.log 2>&1 &
allprocs="$allprocs ${!}"
error=0
for curproc in $allprocs; do
    wait $curproc
    error= expr $? + $error
done
exit `expr $error != 0`

```

## loadordrordl.sh

```

#created automatically by /tmp/tpcc/scripts/evenload.sh Thu Apr 24
17:19:42 PDT 2008
rm -f loadordrordl*.log
cd $tpcc_bench
allprocs=
$tpcc_load -M 8000 -o \\\.\dummy0.dat -b 1 -e 1000 >> loadordrordl0.log
2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -o \\\.\dummy1.dat -b 1001 -e 2000 >>
loadordrordl1.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -o \\\.\dummy2.dat -b 2001 -e 3000 >>
loadordrordl2.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -o \\\.\dummy3.dat -b 3001 -e 4000 >>
loadordrordl3.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -o \\\.\dummy4.dat -b 4001 -e 5000 >>
loadordrordl4.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -o \\\.\dummy5.dat -b 5001 -e 6000 >>
loadordrordl5.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -o \\\.\dummy6.dat -b 6001 -e 7000 >>
loadordrordl6.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -o \\\.\dummy7.dat -b 7001 -e 8000 >>
loadordrordl7.log 2>&1 &
allprocs="$allprocs ${!}"
error=0
for curproc in $allprocs; do
    wait $curproc
    error= expr $? + $error
done
exit `expr $error != 0`

```

## loadstok.sh

```

#created automatically by /tmp/tpcc/scripts/evenload.sh Thu Apr 24
17:19:43 PDT 2008
rm -f loadstok*.log
cd $tpcc_bench
allprocs=
$tpcc_load -M 8000 -S -j 1 -k 12500 >> loadstok0.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -S -j 12501 -k 25000 >> loadstok1.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -S -j 25001 -k 37500 >> loadstok2.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -S -j 37501 -k 50000 >> loadstok3.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -S -j 50001 -k 62500 >> loadstok4.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -S -j 62501 -k 75000 >> loadstok5.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -S -j 75001 -k 87500 >> loadstok6.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 8000 -S -j 87501 -k 100000 >> loadstok7.log 2>&1 &
allprocs="$allprocs ${!}"
error=0
for curproc in $allprocs; do
    wait $curproc
    error= expr $? + $error
done
exit `expr $error != 0`

```

## loadware.sh

```

cd $tpcc_bench
$tpcc_load -M $tpcc_scale -w > loadware.log 2>&1

```

## analyze.sql

```

#!/bin/sh
$tpcc_sqlplus $tpcc_user_pass @$tpcc_sql_dir/analyze >
$tpcc_log_dir/junk 2>&1

if test $? -ne 0
then
    exit 1;
else
    exit 0;
fi

```

## assigntemp.sql

```

#!/bin/sh

echo Assigning temporary tablespace to user tpcc...
$tpcc_sqlplus $tpcc_dba_user_pass @$tpcc_sql_dir/assigntemp > junk
2>&1
if test $? -ne 0
then
    exit 1;
else
    exit 0;
fi

```

## createuser.sql

```

#!/bin/sh

echo Creating user tpcc...
$tpcc_sqlplus $tpcc_dba_user_pass @$tpcc_sql_dir/createuser > junk
2>&1
if test $? -ne 0
then
    exit 1;
else
    exit 0;
fi

```

fi

***DBInit.ini***

[TPCC]

StartTerm=1  
 DBConnections=330  
 KMaxterms=80  
 DeliveryQueues=400  
 DeliveryThreads=100

***Create\_raw\_partitions***

```

select disk=0
create partition extended
select disk=1
create partition extended
select disk=2
create partition extended
select disk=3
create partition extended
select disk=4
create partition extended
select disk=5
create partition extended
select disk=6
create partition extended

select disk=0
create partition logical size=100
assign mount=c:\mnt\ware_0_0

select disk=1
create partition logical size=8500
assign mount=c:\mnt\cust_0_0

select disk=2
create partition logical size=8500
assign mount=c:\mnt\cust_0_1

select disk=3
create partition logical size=8500
assign mount=c:\mnt\cust_0_2

select disk=4
create partition logical size=8500
assign mount=c:\mnt\cust_0_3

select disk=5
create partition logical size=8500
assign mount=c:\mnt\cust_0_4

select disk=0
create partition logical size=8500
assign mount=c:\mnt\cust_0_5

select disk=1
create partition logical size=8500
assign mount=c:\mnt\cust_0_6

select disk=2
create partition logical size=8500
assign mount=c:\mnt\cust_0_7

select disk=3
create partition logical size=8500
assign mount=c:\mnt\cust_0_8

select disk=4
create partition logical size=8500
assign mount=c:\mnt\cust_0_9

select disk=5
create partition logical size=8500
assign mount=c:\mnt\cust_0_10

select disk=0
create partition logical size=8500
assign mount=c:\mnt\cust_0_11

select disk=1
create partition logical size=8500
assign mount=c:\mnt\cust_0_12

```

```

select disk=2
create partition logical size=8500
assign mount=c:\mnt\cust_0_13

select disk=3
create partition logical size=8500
assign mount=c:\mnt\cust_0_14

select disk=4
create partition logical size=8500
assign mount=c:\mnt\cust_0_15

select disk=5
create partition logical size=8500
assign mount=c:\mnt\cust_0_16

select disk=0
create partition logical size=8500
assign mount=c:\mnt\cust_0_17

select disk=1
create partition logical size=8500
assign mount=c:\mnt\cust_0_18

select disk=2
create partition logical size=8500
assign mount=c:\mnt\cust_0_19

select disk=3
create partition logical size=8500
assign mount=c:\mnt\cust_0_20

select disk=4
create partition logical size=8500
assign mount=c:\mnt\cust_0_21

select disk=5
create partition logical size=8500
assign mount=c:\mnt\cust_0_22

select disk=0
create partition logical size=8500
assign mount=c:\mnt\cust_0_23

select disk=1
create partition logical size=8500
assign mount=c:\mnt\cust_0_24

select disk=2
create partition logical size=8500
assign mount=c:\mnt\cust_0_25

select disk=3
create partition logical size=8500
assign mount=c:\mnt\cust_0_26

select disk=4
create partition logical size=8500
assign mount=c:\mnt\cust_0_27

select disk=5
create partition logical size=8500
assign mount=c:\mnt\cust_0_28

select disk=0
create partition logical size=8500
assign mount=c:\mnt\cust_0_29

select disk=1
create partition logical size=8500
assign mount=c:\mnt\cust_0_30

select disk=2
create partition logical size=8500
assign mount=c:\mnt\cust_0_31

select disk=3
create partition logical size=8500
assign mount=c:\mnt\cust_0_32

select disk=4
create partition logical size=400
assign mount=c:\mnt\dist_0_0

select disk=5
create partition logical size=5300
assign mount=c:\mnt\hist_0_0

select disk=0
create partition logical size=5300
assign mount=c:\mnt\hist_0_1

select disk=1

```

## APPENDIX B: DATABASE DESIGN

```
create partition logical size=5300
assign mount=c:\mnt\hist_0_2

select disk=2
create partition logical size=5300
assign mount=c:\mnt\hist_0_3

select disk=3
create partition logical size=5300
assign mount=c:\mnt\hist_0_4

select disk=4
create partition logical size=5300
assign mount=c:\mnt\hist_0_5

select disk=5
create partition logical size=8700
assign mount=c:\mnt\stok_0_0

select disk=0
create partition logical size=8700
assign mount=c:\mnt\stok_0_1

select disk=1
create partition logical size=8700
assign mount=c:\mnt\stok_0_2

select disk=2
create partition logical size=8700
assign mount=c:\mnt\stok_0_3

select disk=3
create partition logical size=8700
assign mount=c:\mnt\stok_0_4

select disk=4
create partition logical size=8700
assign mount=c:\mnt\stok_0_5

select disk=5
create partition logical size=8700
assign mount=c:\mnt\stok_0_6

select disk=0
create partition logical size=8700
assign mount=c:\mnt\stok_0_7

select disk=1
create partition logical size=8700
assign mount=c:\mnt\stok_0_8

select disk=2
create partition logical size=8700
assign mount=c:\mnt\stok_0_9

select disk=3
create partition logical size=8700
assign mount=c:\mnt\stok_0_10

select disk=4
create partition logical size=8700
assign mount=c:\mnt\stok_0_11

select disk=5
create partition logical size=8700
assign mount=c:\mnt\stok_0_12

select disk=0
create partition logical size=8700
assign mount=c:\mnt\stok_0_13

select disk=1
create partition logical size=8700
assign mount=c:\mnt\stok_0_14

select disk=2
create partition logical size=8700
assign mount=c:\mnt\stok_0_15

select disk=3
create partition logical size=8700
assign mount=c:\mnt\stok_0_16

select disk=4
create partition logical size=8700
assign mount=c:\mnt\stok_0_17

select disk=5
create partition logical size=8700
assign mount=c:\mnt\stok_0_18

select disk=0
create partition logical size=8700
```

```
assign mount=c:\mnt\stok_0_19

select disk=1
create partition logical size=8700
assign mount=c:\mnt\stok_0_20

select disk=2
create partition logical size=8700
assign mount=c:\mnt\stok_0_21

select disk=3
create partition logical size=8700
assign mount=c:\mnt\stok_0_22

select disk=4
create partition logical size=8700
assign mount=c:\mnt\stok_0_23

select disk=5
create partition logical size=8700
assign mount=c:\mnt\stok_0_24

select disk=0
create partition logical size=8700
assign mount=c:\mnt\stok_0_25

select disk=1
create partition logical size=8700
assign mount=c:\mnt\stok_0_26

select disk=2
create partition logical size=8700
assign mount=c:\mnt\stok_0_27

select disk=3
create partition logical size=8700
assign mount=c:\mnt\stok_0_28

select disk=4
create partition logical size=8700
assign mount=c:\mnt\stok_0_29

select disk=5
create partition logical size=8700
assign mount=c:\mnt\stok_0_30

select disk=0
create partition logical size=8700
assign mount=c:\mnt\stok_0_31

select disk=1
create partition logical size=8700
assign mount=c:\mnt\stok_0_32

select disk=2
create partition logical size=8700
assign mount=c:\mnt\stok_0_33

select disk=3
create partition logical size=8700
assign mount=c:\mnt\stok_0_34

select disk=4
create partition logical size=8700
assign mount=c:\mnt\stok_0_35

select disk=5
create partition logical size=80
assign mount=c:\mnt\item_0_0

select disk=0
create partition logical size=52000
assign mount=c:\mnt\lordr_0_0

select disk=1
create partition logical size=52000
assign mount=c:\mnt\lordr_0_1

select disk=2
create partition logical size=52000
assign mount=c:\mnt\lordr_0_2

select disk=3
create partition logical size=52000
assign mount=c:\mnt\lordr_0_3

select disk=4
create partition logical size=52000
assign mount=c:\mnt\lordr_0_4

select disk=5
create partition logical size=52000
assign mount=c:\mnt\lordr_0_5
```

## APPENDIX B: DATABASE DESIGN

```
select disk=0
create partition logical size=52000
assign mount=c:\mnt\ldr_0_6

select disk=1
create partition logical size=52000
assign mount=c:\mnt\ldr_0_7

select disk=2
create partition logical size=52000
assign mount=c:\mnt\ldr_0_8

select disk=3
create partition logical size=80
assign mount=c:\mnt\ware_0_0

select disk=4
create partition logical size=8000
assign mount=c:\mnt\cust1_0_0

select disk=5
create partition logical size=6500
assign mount=c:\mnt\cust2_0_0

select disk=0
create partition logical size=6500
assign mount=c:\mnt\cust2_0_1

select disk=1
create partition logical size=6500
assign mount=c:\mnt\cust2_0_2

select disk=2
create partition logical size=100
assign mount=c:\mnt\dist_0_0

select disk=3
create partition logical size=23000
assign mount=c:\mnt\stok_0_0

select disk=4
create partition logical size=100
assign mount=c:\mnt\item_0_0

select disk=5
create partition logical size=6500
assign mount=c:\mnt\ldr2_0_0

select disk=0
create partition logical size=6500
assign mount=c:\mnt\ldr2_0_1

select disk=1
create partition logical size=6500
assign mount=c:\mnt\ldr2_0_2

select disk=2
create partition logical size=6500
assign mount=c:\mnt\temp_0_0

select disk=3
create partition logical size=6500
assign mount=c:\mnt\temp_0_1

select disk=4
create partition logical size=6500
assign mount=c:\mnt\temp_0_2

select disk=5
create partition logical size=6500
assign mount=c:\mnt\temp_0_3

select disk=0
create partition logical size=6500
assign mount=c:\mnt\temp_0_4

select disk=1
create partition logical size=6500
assign mount=c:\mnt\temp_0_5

select disk=2
create partition logical size=6500
assign mount=c:\mnt\temp_0_6

select disk=3
create partition logical size=6500
assign mount=c:\mnt\temp_0_7

select disk=4
create partition logical size=6500
assign mount=c:\mnt\temp_0_8
```

```
select disk=5
create partition logical size=300
assign mount=c:\mnt\tpccaux_0_0

select disk=0
create partition logical size=80
assign mount=c:\mnt\control_001

select disk=1
create partition logical size=80
assign mount=c:\mnt\control_002

select disk=2
create partition logical size=3000
assign mount=c:\mnt\sp_0

select disk=3
create partition logical size=600
assign mount=c:\mnt\system_1

select disk=4
create partition logical size=10000
assign mount=c:\mnt\roll1

select disk=5
create partition logical size=4400
assign mount=c:\mnt\nord_0_0

select disk=6
create partition logical size=20000
assign mount=c:\mnt\log_1_1

select disk=6
create partition logical size=20000
assign mount=c:\mnt\log_1_2

select disk=0
create partition logical size=100
assign mount=c:\mnt\bk_ware_0_0

select disk=1
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_0

select disk=2
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_1

select disk=3
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_2

select disk=4
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_3

select disk=5
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_4

select disk=0
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_5

select disk=1
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_6

select disk=2
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_7

select disk=3
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_8

select disk=4
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_9

select disk=5
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_10

select disk=0
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_11

select disk=1
create partition logical size=8500
```

## APPENDIX B: DATABASE DESIGN

```
assign mount=c:\mnt\bk_cust_0_12

select disk=2
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_13

select disk=3
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_14

select disk=4
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_15

select disk=5
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_16

select disk=0
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_17

select disk=1
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_18

select disk=2
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_19

select disk=3
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_20

select disk=4
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_21

select disk=5
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_22

select disk=0
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_23

select disk=1
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_24

select disk=2
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_25

select disk=3
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_26

select disk=4
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_27

select disk=5
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_28

select disk=0
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_29

select disk=1
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_30

select disk=2
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_31

select disk=3
create partition logical size=8500
assign mount=c:\mnt\bk_cust_0_32

select disk=4
create partition logical size=400
assign mount=c:\mnt\bk_dist_0_0

select disk=5
create partition logical size=5300
assign mount=c:\mnt\bk_hist_0_0

select disk=0
create partition logical size=5300
assign mount=c:\mnt\bk_hist_0_1
```

```
select disk=1
create partition logical size=5300
assign mount=c:\mnt\bk_hist_0_2

select disk=2
create partition logical size=5300
assign mount=c:\mnt\bk_hist_0_3

select disk=3
create partition logical size=5300
assign mount=c:\mnt\bk_hist_0_4

select disk=4
create partition logical size=5300
assign mount=c:\mnt\bk_hist_0_5

select disk=5
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_0

select disk=0
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_1

select disk=1
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_2

select disk=2
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_3

select disk=3
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_4

select disk=4
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_5

select disk=5
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_6

select disk=0
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_7

select disk=1
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_8

select disk=2
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_9

select disk=3
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_10

select disk=4
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_11

select disk=5
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_12

select disk=0
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_13

select disk=1
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_14

select disk=2
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_15

select disk=3
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_16

select disk=4
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_17

select disk=5
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_18
```

## APPENDIX B: DATABASE DESIGN

```
select disk=0
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_19

select disk=1
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_20

select disk=2
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_21

select disk=3
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_22

select disk=4
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_23

select disk=5
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_24

select disk=0
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_25

select disk=1
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_26

select disk=2
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_27

select disk=3
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_28

select disk=4
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_29

select disk=5
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_30

select disk=0
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_31

select disk=1
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_32

select disk=2
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_33

select disk=3
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_34

select disk=4
create partition logical size=8700
assign mount=c:\mnt\bk_stok_0_35

select disk=5
create partition logical size=80
assign mount=c:\mnt\bk_item_0_0

select disk=0
create partition logical size=52000
assign mount=c:\mnt\bk_ordr_0_0

select disk=1
create partition logical size=52000
assign mount=c:\mnt\bk_ordr_0_1

select disk=2
create partition logical size=52000
assign mount=c:\mnt\bk_ordr_0_2

select disk=3
create partition logical size=52000
assign mount=c:\mnt\bk_ordr_0_3

select disk=4
create partition logical size=52000
assign mount=c:\mnt\bk_ordr_0_4

select disk=5
```

```
create partition logical size=52000
assign mount=c:\mnt\bk_ordr_0_5

select disk=0
create partition logical size=52000
assign mount=c:\mnt\bk_ordr_0_6

select disk=1
create partition logical size=52000
assign mount=c:\mnt\bk_ordr_0_7

select disk=2
create partition logical size=52000
assign mount=c:\mnt\bk_ordr_0_8

select disk=3
create partition logical size=80
assign mount=c:\mnt\bk_iware_0_0

select disk=4
create partition logical size=8000
assign mount=c:\mnt\bk_icust1_0_0

select disk=5
create partition logical size=6500
assign mount=c:\mnt\bk_icust2_0_0

select disk=0
create partition logical size=6500
assign mount=c:\mnt\bk_icust2_0_1

select disk=1
create partition logical size=6500
assign mount=c:\mnt\bk_icust2_0_2

select disk=2
create partition logical size=100
assign mount=c:\mnt\bk_idist_0_0

select disk=3
create partition logical size=23000
assign mount=c:\mnt\bk_istok_0_0

select disk=4
create partition logical size=100
assign mount=c:\mnt\bk_item_0_0

select disk=5
create partition logical size=6500
assign mount=c:\mnt\bk_iordr2_0_0

select disk=0
create partition logical size=6500
assign mount=c:\mnt\bk_iordr2_0_1

select disk=1
create partition logical size=6500
assign mount=c:\mnt\bk_iordr2_0_2

select disk=2
create partition logical size=6500
assign mount=c:\mnt\bk_temp_0_0

select disk=3
create partition logical size=6500
assign mount=c:\mnt\bk_temp_0_1

select disk=4
create partition logical size=6500
assign mount=c:\mnt\bk_temp_0_2

select disk=5
create partition logical size=6500
assign mount=c:\mnt\bk_temp_0_3

select disk=0
create partition logical size=6500
assign mount=c:\mnt\bk_temp_0_4

select disk=1
create partition logical size=6500
assign mount=c:\mnt\bk_temp_0_5

select disk=2
create partition logical size=6500
assign mount=c:\mnt\bk_temp_0_6

select disk=3
create partition logical size=6500
assign mount=c:\mnt\bk_temp_0_7

select disk=4
create partition logical size=6500
```

## APPENDIX B: DATABASE DESIGN

---

assign mount=c:\mnt\bk\_temp\_0\_8

select disk=5  
create partition logical size=300  
assign mount=c:\mnt\bk\_tpccaux\_0\_0

select disk=0  
create partition logical size=80  
assign mount=c:\mnt\bk\_control\_001

select disk=1  
create partition logical size=80  
assign mount=c:\mnt\bk\_control\_002

select disk=2  
create partition logical size=3000  
assign mount=c:\mnt\bk\_sp\_0

select disk=3  
create partition logical size=600  
assign mount=c:\mnt\bk\_system\_1

select disk=4  
create partition logical size=10000  
assign mount=c:\mnt\bk\_roll1

select disk=5  
create partition logical size=4400  
assign mount=c:\mnt\bk\_nord\_0\_0

select disk=6  
create partition logical size=20000  
assign mount=c:\mnt\bk\_log\_1\_1

select disk=6  
create partition logical size=20000  
assign mount=c:\mnt\bk\_log\_1\_2

## **Appendix C - Tunable Parameters**

### ***Server Configuration Parameters***

#### ***Microsoft Windows 2003 Server Parameters***

The following services were disabled on the server:

- \* Alerter
- \* Automatic Updates
- \* Computer Browser
- \* Cryptographic Services
- \* DHCP Client
- \* Distributed File System
- \* Distributed Link Tracking Client
- \* DNS Client
- \* Global Array Manager Server
- \* Help and Support
- \* IPSEC Policy Agent
- \* License Logging Service
- \* Messenger
- \* MSSQLserver
- \* Microsoft Search
- \* Print Spooler
- \* Process Control Service
- \* Remote Registry Service
- \* Removable Storage
- \* Run as Service
- \* System Event Notification
- \* SSDP Discovery service
- \* Task Scheduler
- \* Wireless configuration

#### ***Oracle Startup Sequence***

1. Boot up systems: clients, servers, & RTEs.
2. Startup the database on the server using p\_run.ora.
3. Start the RTE.
4. Adjust RTE throttle.

#### ***DB Server msinfo32 export***

System Information report written at: 05/28/08 14:12:12

---



## APPENDIX C - TUNABLE PARAMETERS

---

System Name: PE2900\_2  
[System Summary]

Item Value

OS Name Microsoft(R) Windows(R) Server 2003 Standard x64 Edition  
Version 5.2.3790 Service Pack 1 Build 3790  
Other OS Description Not Available  
OS Manufacturer Microsoft Corporation  
System Name PE2900\_2  
System Manufacturer Dell Inc.  
System Model PowerEdge 2900  
System Type x64-based PC  
Processor EM64T Family 6 Model 23 Stepping 4 GenuineIntel ~2826 Mhz  
Processor EM64T Family 6 Model 23 Stepping 4 GenuineIntel ~2826 Mhz  
Processor EM64T Family 6 Model 23 Stepping 4 GenuineIntel ~2826 Mhz  
Processor EM64T Family 6 Model 23 Stepping 4 GenuineIntel ~2826 Mhz  
BIOS Version/Date Dell Inc. 2.0.1, 10/27/2007  
SMBIOS Version 2.4  
Windows Directory C:\WINDOWS  
System Directory C:\WINDOWS\system32  
Boot Device \Device\HarddiskVolume155  
Locale United States  
Hardware Abstraction Layer Version = "5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447)"  
User Name Not Available  
Time Zone Central Daylight Time  
Total Physical Memory 32,762.63 MB  
Available Physical Memory 30.87 GB  
Total Virtual Memory 33.06 GB  
Available Virtual Memory 32.77 GB  
Page File Space 2.00 GB  
Page File C:\pagefile.sys

[Hardware Resources]

[Conflicts/Sharing]

Resource	Device
I/O Port 0x00000000-0x00000CF7	PCI bus
I/O Port 0x00000000-0x00000CF7	Direct memory access controller
IRQ 20	Standard Universal PCI to USB Host Controller
IRQ 20	Standard Universal PCI to USB Host Controller
IRQ 21	Standard Universal PCI to USB Host Controller
IRQ 21	Standard Universal PCI to USB Host Controller
IRQ 21	Standard Enhanced PCI to USB Host Controller
Memory Address 0xDA000000-0xDDFFFFFF	PCI standard PCI-to-PCI bridge
Memory Address 0xDA000000-0xDDFFFFFF	PCI standard PCI-to-PCI bridge
Memory Address 0xDA000000-0xDDFFFFFF	Broadcom BCM5708C NetXtreme II GigE
I/O Port 0x0000E000-0x0000EFFF	PCI standard PCI-to-PCI bridge
I/O Port 0x0000E000-0x0000EFFF	PCI standard PCI-to-PCI bridge
I/O Port 0x0000E000-0x0000EFFF	PCI standard PCI-to-PCI bridge

## APPENDIX C - TUNABLE PARAMETERS

---

Memory Address 0xD6000000-0xD9FFFFFF PCI standard PCI-to-PCI bridge  
Memory Address 0xD6000000-0xD9FFFFFF PCI standard PCI-to-PCI bridge  
Memory Address 0xD6000000-0xD9FFFFFF Broadcom BCM5708C NetXtreme II GigE

IRQ 16 PCI standard host CPU bridge  
IRQ 16 PCI standard PCI-to-PCI bridge  
IRQ 16 PCI standard PCI-to-PCI bridge  
IRQ 16 PCI standard PCI-to-PCI bridge  
IRQ 16 Broadcom BCM5708C NetXtreme II GigE  
IRQ 16 PCI standard PCI-to-PCI bridge  
IRQ 16 PCI standard PCI-to-PCI bridge  
IRQ 16 PCI standard PCI-to-PCI bridge  
IRQ 16 RAID Controller  
IRQ 16 PCI standard PCI-to-PCI bridge  
IRQ 16 PCI standard PCI-to-PCI bridge  
IRQ 16 RAID Controller  
IRQ 16 PCI standard PCI-to-PCI bridge  
IRQ 16 Broadcom BCM5708C NetXtreme II GigE

Memory Address 0xA0000-0xBFFFF PCI bus  
Memory Address 0xA0000-0xBFFFF Standard VGA Graphics Adapter

Memory Address 0xF8000000-0xF80FFFFF PCI standard PCI-to-PCI bridge  
Memory Address 0xF8000000-0xF80FFFFF PCI standard PCI-to-PCI bridge

### [DMA]

Resource	Device	Status
Channel 4	Direct memory access controller	OK
Channel 2	Standard floppy disk controller	OK

### [Forced Hardware]

Device PNP Device ID

### [I/O]

Resource	Device	Status
0x00000000-0x00000CF7	PCI bus	OK
0x00000000-0x00000CF7	Direct memory access controller	OK
0x00000D00-0x0000FFFF	PCI bus	OK
0x0000E000-0x0000EFFF	PCI standard PCI-to-PCI bridge	OK
0x0000E000-0x0000EFFF	PCI standard PCI-to-PCI bridge	OK
0x0000E000-0x0000EFFF	PCI standard PCI-to-PCI bridge	OK
0x0000EC00-0x0000ECFF	RAID Controller	OK
0x0000D000-0x0000DFFF	PCI standard PCI-to-PCI bridge	OK
0x0000DC00-0x0000DCFF	RAID Controller	OK
0x0000C000-0x0000CFFF	PCI standard PCI-to-PCI bridge	OK
0x0000CC00-0x0000CCFF	RAID Controller	OK
0x0000ACE0-0x0000ACFF	Standard Universal PCI to USB Host Controller	OK
0x0000ACC0-0x0000ACDF	Standard Universal PCI to USB Host Controller	OK
0x0000ACA0-0x0000ACBF	Standard Universal PCI to USB Host Controller	OK
0x0000AC80-0x0000AC9F	Standard Universal PCI to USB Host Controller	OK

APPENDIX C - TUNABLE PARAMETERS

0x0000BC00-0x0000BCFF	Standard VGA Graphics Adapter	OK
0x000003B0-0x000003BB	Standard VGA Graphics Adapter	OK
0x000003C0-0x000003DF	Standard VGA Graphics Adapter	OK
0x00000080-0x0000009F	Direct memory access controller	OK
0x000000C0-0x000000DF	Direct memory access controller	OK
0x000000F0-0x000000FF	Numeric data processor	OK
0x00000020-0x0000003F	Programmable interrupt controller	OK
0x000000A0-0x000000BF	Programmable interrupt controller	OK
0x000004D0-0x000004D1	Programmable interrupt controller	OK
0x00000061-0x00000061	System board	OK
0x00000070-0x0000007F	System CMOS/real time clock	OK
0x00000040-0x0000005F	System timer	OK
0x000003F0-0x000003F5	Standard floppy disk controller	OK
0x000003F7-0x000003F7	Standard floppy disk controller	OK
0x000003F8-0x000003FF	Communications Port (COM1)	OK
0x000002F8-0x000002FF	Communications Port (COM2)	OK
0x00000800-0x0000087F	System board	OK
0x00000880-0x000008BF	System board	OK
0x000008C0-0x000008DF	System board	OK
0x000008E0-0x000008E3	System board	OK
0x00000900-0x00000900	System board	OK
0x00000C00-0x00000C7F	System board	OK
0x00000CA0-0x00000CA7	System board	OK
0x00000CA9-0x00000CAB	System board	OK
0x00000CAD-0x00000CAF	System board	OK
0x00000060-0x00000060	System board	OK
0x00000064-0x00000064	System board	OK
0x00000CA8-0x00000CA8	System board	OK
0x00000CAC-0x00000CAC	System board	OK
0x0000FC00-0x0000FC0F	Standard Dual Channel PCI IDE Controller	OK
0x000001F0-0x000001F7	Primary IDE Channel	OK
0x000003F6-0x000003F6	Primary IDE Channel	OK
0x00000170-0x00000177	Secondary IDE Channel	OK
0x00000376-0x00000376	Secondary IDE Channel	OK
0x0000AC78-0x0000AC7F	Standard Dual Channel PCI IDE Controller	OK
0x0000AC70-0x0000AC73	Standard Dual Channel PCI IDE Controller	OK
0x0000AC60-0x0000AC67	Standard Dual Channel PCI IDE Controller	OK
0x0000AC58-0x0000AC5B	Standard Dual Channel PCI IDE Controller	OK
0x0000AC40-0x0000AC4F	Standard Dual Channel PCI IDE Controller	OK

[IRQs]

Resource	Device	Status
IRQ 9	Microsoft ACPI-Compliant System	OK
IRQ 16	PCI standard host CPU bridge	OK
IRQ 16	PCI standard PCI-to-PCI bridge	OK
IRQ 16	PCI standard PCI-to-PCI bridge	OK
IRQ 16	PCI standard PCI-to-PCI bridge	OK
IRQ 16	Broadcom BCM5708C NetXtreme II GigE	OK
IRQ 16	PCI standard PCI-to-PCI bridge	OK
IRQ 16	PCI standard PCI-to-PCI bridge	OK
IRQ 16	PCI standard PCI-to-PCI bridge	OK
IRQ 16	RAID Controller	OK
IRQ 16	PCI standard PCI-to-PCI bridge	OK
IRQ 16	PCI standard PCI-to-PCI bridge	OK

APPENDIX C - TUNABLE PARAMETERS

IRQ 16 RAID Controller OK  
 IRQ 16 PCI standard PCI-to-PCI bridge OK  
 IRQ 16 Broadcom BCM5708C NetXtreme II GigE OK  
 IRQ 17 RAID Controller OK  
 IRQ 142 DELL PERC 5/I Adapter RAID Controller OK  
 IRQ 21 Standard Universal PCI to USB Host Controller OK  
 IRQ 21 Standard Universal PCI to USB Host Controller OK  
 IRQ 21 Standard Enhanced PCI to USB Host Controller OK  
 IRQ 20 Standard Universal PCI to USB Host Controller OK  
 IRQ 20 Standard Universal PCI to USB Host Controller OK  
 IRQ 13 Numeric data processor OK  
 IRQ 8 System CMOS/real time clock OK  
 IRQ 0 System timer OK  
 IRQ 6 Standard floppy disk controller OK  
 IRQ 4 Communications Port (COM1) OK  
 IRQ 3 Communications Port (COM2) OK  
 IRQ 14 Primary IDE Channel OK  
 IRQ 23 Standard Dual Channel PCI IDE Controller OK

[Memory]

Resource	Device	Status
0xA0000-0xBFFFF	PCI bus	OK
0xA0000-0xBFFFF	Standard VGA Graphics Adapter	OK
0x80000000-0xFDFFFFFF	PCI bus	OK
0xD2000000-0xD9FFFFFF	PCI standard PCI-to-PCI bridge	OK
0xD4000000-0xD9FFFFFF	PCI standard PCI-to-PCI bridge	OK
0xD6000000-0xD9FFFFFF	PCI standard PCI-to-PCI bridge	OK
0xD6000000-0xD9FFFFFF	PCI standard PCI-to-PCI bridge	OK
0xD6000000-0xD9FFFFFF	Broadcom BCM5708C NetXtreme II GigE	OK
0xD5E00000-0xD5FFFFFF	PCI standard PCI-to-PCI bridge	OK
0xD5F80000-0xD5FBFFFF	RAID Controller	OK
0xD5F40000-0xD5F7FFFF	RAID Controller	OK
0xDE500000-0xDE6FFFFF	PCI standard PCI-to-PCI bridge	OK
0xDE680000-0xDE6BFFFF	RAID Controller	OK
0xDE640000-0xDE67FFFF	RAID Controller	OK
0xDE700000-0xDE9FFFFFF	PCI standard PCI-to-PCI bridge	OK
0xF8000000-0xF80FFFFF	PCI standard PCI-to-PCI bridge	OK
0xF8000000-0xF80FFFFF	PCI standard PCI-to-PCI bridge	OK
0xDE800000-0xDE9FFFFFF	PCI standard PCI-to-PCI bridge	OK
0xF80F0000-0xF80FFFFF	DELL PERC 5/I Adapter RAID Controller	OK
0xDE9C0000-0xDE9DFFFF	DELL PERC 5/I Adapter RAID Controller	OK
0xDE300000-0xDE4FFFFF	PCI standard PCI-to-PCI bridge	OK
0xDE480000-0xDE4BFFFF	RAID Controller	OK
0xDE440000-0xDE47FFFF	RAID Controller	OK
0xDA000000-0xDDFFFFFF	PCI standard PCI-to-PCI bridge	OK
0xDA000000-0xDDFFFFFF	PCI standard PCI-to-PCI bridge	OK
0xDA000000-0xDDFFFFFF	Broadcom BCM5708C NetXtreme II GigE	OK
0xDEA00400-0xDEA007FF	Standard Enhanced PCI to USB Host Controller	OK
0xF0000000-0xF7FFFFFF	Standard VGA Graphics Adapter	OK
0xDE2D0000-0xDE2DFFFF	Standard VGA Graphics Adapter	OK
0xDEA00000-0xDEA003FF	Standard Dual Channel PCI IDE Controller	OK
0xE0000000-0xEFFFFFFF	Motherboard resources	OK
0xFED00000-0xFED003FF	High precision event timer	OK

## APPENDIX C - TUNABLE PARAMETERS

---

### [Components]

#### [Multimedia]

#### [Audio Codecs]

CODEC	Manufacturer	Description	Status	File	Version	Size	Creation Date
c:\windows\system32\tsssoft32.acm	DSP GROUP, INC.		OK				
	C:\WINDOWS\system32\TSSOFT32.ACM		1.01		13.50 KB (13,824 bytes)		3/25/2005 6:00 AM
c:\windows\system32\msgsm32.acm	Microsoft Corporation		OK				
	C:\WINDOWS\system32\MSGSM32.ACM		5.2.3790.1830	(srv03_sp1_rtm.050324-1447)	34.50 KB (35,328 bytes)		3/25/2005 6:00 AM
c:\windows\system32\msg711.acm	Microsoft Corporation		OK				
	C:\WINDOWS\system32\MSG711.ACM		5.2.3790.1830	(srv03_sp1_rtm.050324-1447)	13.50 KB (13,824 bytes)		3/25/2005 6:00 AM
c:\windows\system32\imaadp32.acm	Microsoft Corporation		OK				
	C:\WINDOWS\system32\IMAADP32.ACM		5.2.3790.1830	(srv03_sp1_rtm.050324-1447)	24.00 KB (24,576 bytes)		3/25/2005 6:00 AM
c:\windows\system32\msadp32.acm	Microsoft Corporation		OK				
	C:\WINDOWS\system32\MSADP32.ACM		5.2.3790.1830	(srv03_sp1_rtm.050324-1447)	23.50 KB (24,064 bytes)		3/25/2005 6:00 AM

#### [Video Codecs]

CODEC	Manufacturer	Description	Status	File	Version	Size	Creation Date
c:\windows\system32\msyuv.dll	Microsoft Corporation		OK				
	C:\WINDOWS\system32\MSYUV.DLL		5.2.3790.1830	(srv03_sp1_rtm.050324-1447)	21.00 KB (21,504 bytes)		3/24/2005 11:21 AM
c:\windows\system32\msvidc32.dll	Microsoft Corporation		OK				
	C:\WINDOWS\system32\MSVIDC32.DLL		5.2.3790.1830	(srv03_sp1_rtm.050324-1447)	43.00 KB (44,032 bytes)		3/25/2005 6:00 AM
c:\windows\system32\msrle32.dll	Microsoft Corporation		OK				
	C:\WINDOWS\system32\MSRLE32.DLL		5.2.3790.1830	(srv03_sp1_rtm.050324-1447)	15.50 KB (15,872 bytes)		3/25/2005 6:00 AM
c:\windows\system32\iyuv_32.dll	Microsoft Corporation		OK				
	C:\WINDOWS\system32\IYUV_32.DLL		5.2.3790.1830	(srv03_sp1_rtm.050324-1447)	52.50 KB (53,760 bytes)		3/24/2005 11:19 AM
c:\windows\system32\tsbyuv.dll	Microsoft Corporation		OK				
	C:\WINDOWS\system32\TSBYUV.DLL		5.2.3790.1830	(srv03_sp1_rtm.050324-1447)	12.50 KB (12,800 bytes)		3/24/2005 11:34 AM

#### [CD-ROM]

Item	Value
Drive	D:
Description	CD-ROM Drive
Media Loaded	Yes
Media Type	CD-ROM
Name	HL-DT-ST DVD-ROM GDR8164B
Manufacturer	(Standard CD-ROM drives)
Status	OK
Transfer Rate	Not Available

## APPENDIX C - TUNABLE PARAMETERS

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SCSI Target ID 0  
PNP Device ID IDE\CDROMHL-DT-ST\_DVD-  
ROM\_GDR8164B\_\_\_\_\_0D08\_\_\_\_\5&41A3CB2&0&0.0.0  
Driver c:\windows\system32\drivers\cdrom.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447),  
75.50 KB (77,312 bytes), 3/25/2005 6:00 AM)

### [Sound Device]

Item Value

### [Display]

Item Value  
Name Standard VGA Graphics Adapter  
PNP Device ID  
PCIIVEN\_1002&DEV\_515E&SUBSYS\_01B11028&REV\_02\4&2014205D&0&68F0  
Adapter Type Not Available  
Adapter Description (Standard display types)  
Adapter RAM Not Available  
Installed Drivers Not Available  
Driver Version Not Available  
INF File 5.2.3790.1830 (display.inf section)  
Color Planes vga  
Color Table Entries Not Available  
Resolution Not Available  
Bits/Pixel Not Available  
Memory Address 0xF0000000-0xF7FFFFFF  
I/O Port 0x0000BC00-0x0000BCFF  
Memory Address 0xDE2D0000-0xDE2DFFFF  
I/O Port 0x000003B0-0x000003BB  
I/O Port 0x000003C0-0x000003DF  
Memory Address 0xA0000-0xBFFFF  
Driver c:\windows\system32\drivers\vgapnp.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447),  
33.00 KB (33,792 bytes), 4/1/2008 6:37 PM)

### [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\_09AE&PID\_0002&MI\_00\6&8FA055B&0&0000  
Number of Function Keys 12  
Driver c:\windows\system32\drivers\hidusb.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447),  
18.50 KB (18,944 bytes), 3/25/2005 6:00 AM)

### [Pointing Device]

## APPENDIX C - TUNABLE PARAMETERS

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Item Value  
Hardware Type USB Human Interface Device  
Number of Buttons 3  
Status OK  
PNP Device ID USB\VID\_09AE&PID\_0002&MI\_01\6&8FA055B&0&0001  
Power Management Supported No  
Double Click Threshold 6  
Handedness Right Handed Operation  
Driver c:\windows\system32\drivers\hidusb.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447), 18.50 KB (18,944 bytes), 3/25/2005 6:00 AM)

### [Modem]

Item Value

### [Network]

#### [Adapter]

Item Value  
Name [00000001] RAS Async Adapter  
Adapter Type Not Available  
Product Type RAS Async Adapter  
Installed Yes  
PNP Device ID Not Available  
Last Reset 5/28/2008 1:41 PM  
Index 1  
Service Name AsyncMac  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address Not Available

Name [00000002] WAN Miniport (L2TP)  
Adapter Type Not Available  
Product Type WAN Miniport (L2TP)  
Installed Yes  
PNP Device ID ROOTMS\_L2TPMINIPORT\0000  
Last Reset 5/28/2008 1:41 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

## APPENDIX C - TUNABLE PARAMETERS

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Name [00000003] WAN Miniport (PPTP)  
Adapter Type Wide Area Network (WAN)  
Product Type WAN Miniport (PPTP)  
Installed Yes  
PNP Device ID ROOT\MS\_PPTPMINIPOINT\0000  
Last Reset 5/28/2008 1:41 PM  
Index 3  
Service Name PptpMiniport  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address 50:50:54:50:30:30

Name [00000004] WAN Miniport (PPPOE)  
Adapter Type Wide Area Network (WAN)  
Product Type WAN Miniport (PPPOE)  
Installed Yes  
PNP Device ID ROOT\MS\_PPPOEMINIPOINT\0000  
Last Reset 5/28/2008 1:41 PM  
Index 4  
Service Name RasPppoe  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address 33:50:6F:45:30:30

Name [00000005] Direct Parallel  
Adapter Type Not Available  
Product Type Direct Parallel  
Installed Yes  
PNP Device ID ROOT\MS\_PTIMINIPOINT\0000  
Last Reset 5/28/2008 1:41 PM  
Index 5  
Service Name Raspti  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address Not Available

Name [00000006] WAN Miniport (IP)  
Adapter Type Not Available  
Product Type WAN Miniport (IP)  
Installed Yes



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PNP Device ID ROOT\MS\_NDISWANIP\0000  
Last Reset 5/28/2008 1:41 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

Name [00000007] Broadcom BCM5708C NetXtreme II GigE (NDIS VBD Client)  
Adapter Type Ethernet 802.3  
Product Type Broadcom BCM5708C NetXtreme II GigE (NDIS VBD Client)  
Installed Yes  
PNP Device ID  
B06BDR\VL2ND&PCI\_164C14E4&SUBSYS\_01B11028&REV\_12\6&2F68317E&0&2005  
0500  
Last Reset 5/28/2008 1:41 PM  
Index 7  
Service Name l2nd  
IP Address 192.1.1.107  
IP Subnet 255.255.255.0  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address 00:1E:4F:1F:47:D8  
Driver c:\windows\system32\drivers\bxnd52a.sys (2.6.14.0 built by: WinDDK, 78.00 KB (79,872 bytes), 4/3/2006 2:53 PM)

Name [00000008] Broadcom BCM5708C NetXtreme II GigE (NDIS VBD Client)  
Adapter Type Ethernet 802.3  
Product Type Broadcom BCM5708C NetXtreme II GigE (NDIS VBD Client)  
Installed Yes  
PNP Device ID  
B06BDR\VL2ND&PCI\_164C14E4&SUBSYS\_01B11028&REV\_12\8&126A2D63&0&2005  
0900  
Last Reset 5/28/2008 1:41 PM  
Index 8  
Service Name l2nd  
IP Address 0.0.0.0  
IP Subnet 0.0.0.0  
Default IP Gateway Not Available  
DHCP Enabled Yes  
DHCP Server  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address 00:1E:4F:1F:47:DA  
Driver c:\windows\system32\drivers\bxnd52a.sys (2.6.14.0 built by: WinDDK, 78.00 KB (79,872 bytes), 4/3/2006 2:53 PM)

## APPENDIX C - TUNABLE PARAMETERS

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[Protocol]

Item Value  
Name MSAFD Tcpi [TCP/IP]  
Connectionless Service No  
Guarantees Delivery Yes  
Guarantees Sequencing Yes  
Maximum Address Size 16 bytes  
Maximum Message Size 0 bytes  
Message Oriented No  
Minimum Address Size 16 bytes  
Pseudo Stream Oriented No  
Supports Broadcasting No  
Supports Connect Data No  
Supports Disconnect Data No  
Supports Encryption No  
Supports Expedited Data Yes  
Supports Graceful Closing Yes  
Supports Guaranteed Bandwidth No  
Supports Multicasting No

Name MSAFD Tcpi [UDP/IP]  
Connectionless Service Yes  
Guarantees Delivery No  
Guarantees Sequencing No  
Maximum Address Size 16 bytes  
Maximum Message Size 63.93 KB (65,467 bytes)  
Message Oriented Yes  
Minimum Address Size 16 bytes  
Pseudo Stream Oriented No  
Supports Broadcasting Yes  
Supports Connect Data No  
Supports Disconnect Data No  
Supports Encryption No  
Supports Expedited Data No  
Supports Graceful Closing No  
Supports Guaranteed Bandwidth No  
Supports Multicasting Yes

Name RSVP UDP Service Provider  
Connectionless Service Yes  
Guarantees Delivery No  
Guarantees Sequencing No  
Maximum Address Size 16 bytes  
Maximum Message Size 63.93 KB (65,467 bytes)  
Message Oriented Yes  
Minimum Address Size 16 bytes  
Pseudo Stream Oriented No  
Supports Broadcasting Yes  
Supports Connect Data No  
Supports Disconnect Data No  
Supports Encryption Yes  
Supports Expedited Data No  
Supports Graceful Closing No  
Supports Guaranteed Bandwidth No

## APPENDIX C - TUNABLE PARAMETERS

---

Supports Multicasting Yes

Name RSVP TCP Service Provider  
Connectionless Service No  
Guarantees Delivery Yes  
Guarantees Sequencing Yes  
Maximum Address Size 16 bytes  
Maximum Message Size 0 bytes  
Message Oriented No  
Minimum Address Size 16 bytes  
Pseudo Stream Oriented No  
Supports Broadcasting No  
Supports Connect Data No  
Supports Disconnect Data No  
Supports Encryption Yes  
Supports Expedited Data Yes  
Supports Graceful Closing Yes  
Supports Guaranteed Bandwidth No  
Supports Multicasting No

### [WinSock]

Item Value  
File c:\windows\system32\wsock32.dll  
Size 24.50 KB (25,088 bytes)  
Version 5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447)

### [Ports]

### [Serial]

Item Value  
Name Communications Port (COM1)  
Status OK  
PNP Device ID ACPI\PNP0501\1  
Maximum Input Buffer Size 0  
Maximum Output Buffer Size No  
Settable Baud Rate Yes  
Settable Data Bits Yes  
Settable Flow Control Yes  
Settable Parity Yes  
Settable Parity Check Yes  
Settable Stop Bits Yes  
Settable RLSD Yes  
Supports RLSD Yes  
Supports 16 Bit Mode No  
Supports Special Characters No  
Baud Rate 9600  
Bits/Byte 8  
Stop Bits 1  
Parity None  
Busy No  
Abort Read/Write on Error No  
Binary Mode Enabled Yes

## APPENDIX C - TUNABLE PARAMETERS

---

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 Control0  
XOnXOff OutFlow Control 0  
I/O Port 0x000003F8-0x000003FF  
IRQ Channel IRQ 4  
Driver c:\windows\system32\drivers\serial.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447),  
118.50 KB (121,344 bytes), 3/25/2005 6:00 AM)

Name Communications Port (COM2)

Status OK

PNP Device ID ACPI\PNP0501\2

Maximum Input Buffer Size 0

Maximum Output Buffer Size No

Settable Baud Rate Yes

Settable Data Bits Yes

Settable Flow Control Yes

Settable Parity Yes

Settable Parity Check Yes

Settable Stop Bits Yes

Settable RLSD Yes

Supports RLSD Yes

Supports 16 Bit Mode No

Supports Special Characters No

Baud Rate 9600

Bits/Byte 8

Stop Bits 1

Parity None

Busy No

Abort Read/Write on Error No

Binary Mode Enabled Yes

Continue XMit on XOff No

CTS Outflow Control No

Discard NULL Bytes No

DSR Outflow Control 0

DSR Sensitivity 0

DTR Flow Control Type Enable

EOF Character 0

Error Replace Character 0

Error Replacement Enabled No

Event Character 0

## APPENDIX C - TUNABLE PARAMETERS

---

Parity Check Enabled No  
RTS Flow Control Type Enable  
XOff Character 19  
XOffXMit Threshold 512  
XOn Character 17  
XOnXMit Threshold 2048  
XOnXOff InFlow Control0  
XOnXOff OutFlow Control 0  
I/O Port 0x000002F8-0x000002FF  
IRQ Channel IRQ 3  
Driver c:\windows\system32\drivers\serial.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447),  
118.50 KB (121,344 bytes), 3/25/2005 6:00 AM)

[Parallel]

Item Value

[Storage]

[Drives]

Item Value

Drive A:  
Description 3 1/2 Inch Floppy Drive

Drive C:  
Description Local Fixed Disk  
Compressed No  
File System NTFS  
Size 36.00 GB (38,658,781,184 bytes)  
Free Space 23.18 GB (24,884,924,416 bytes)  
Volume Name  
Volume Serial Number 287D4B2D

Drive D:  
Description CD-ROM Disc

Drive E:  
Description Local Fixed Disk  
Compressed No  
File System NTFS  
Size 10.43 GB (11,194,605,568 bytes)  
Free Space 10.37 GB (11,135,696,896 bytes)  
Volume Name New Volume  
Volume Serial Number 50ADAE84

Drive Y:  
Description Network Connection  
Provider Name \\tpccarm\c\$

Drive Z:  
Description Network Connection  
Provider Name \\192.1.1.106\c\$

## APPENDIX C - TUNABLE PARAMETERS

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### [Disks]

Item Value  
Description Disk drive  
Manufacturer (Standard disk drives)  
Model DELL PERC 5/i SCSI Disk Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 5  
SCSI Bus 1  
SCSI Logical Unit 0  
SCSI Port 7  
SCSI Target ID 0  
Sectors/Track 63  
Size 270.99 GB (290,977,505,280 bytes)  
Total Cylinders 35,376  
Total Sectors 568,315,440  
Total Tracks 9,020,880  
Tracks/Cylinder 255  
Partition Disk #6, Partition #0  
Partition Size 36.00 GB (38,658,783,744 bytes)  
Partition Starting Offset 32,256 bytes  
Partition Disk #6, Partition #1  
Partition Size 234.99 GB (252,318,689,280 bytes)  
Partition Starting Offset 38,658,816,000 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model DELL PERC 6/E Adapter SCSI Disk Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 38  
SCSI Bus 1  
SCSI Logical Unit 0  
SCSI Port 5  
SCSI Target ID 2  
Sectors/Track 63  
Size 488.93 GB (524,986,721,280 bytes)  
Total Cylinders 63,826  
Total Sectors 1,025,364,690  
Total Tracks 16,275,630  
Tracks/Cylinder 255  
Partition Disk #2, Partition #0  
Partition Size 488.92 GB (524,978,496,000 bytes)  
Partition Starting Offset 8,225,280 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model DELL PERC 6/E Adapter SCSI Disk Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 38

## APPENDIX C - TUNABLE PARAMETERS

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SCSI Bus 1  
SCSI Logical Unit 0  
SCSI Port 5  
SCSI Target ID 3  
Sectors/Track 63  
Size 488.93 GB (524,986,721,280 bytes)  
Total Cylinders 63,826  
Total Sectors 1,025,364,690  
Total Tracks 16,275,630  
Tracks/Cylinder 255  
Partition Disk #3, Partition #0  
Partition Size 488.92 GB (524,978,496,000 bytes)  
Partition Starting Offset 8,225,280 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model DELL PERC 6/E Adapter SCSI Disk Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 38  
SCSI Bus 1  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 4  
Sectors/Track 63  
Size 500.62 GB (537,538,498,560 bytes)  
Total Cylinders 65,352  
Total Sectors 1,049,879,880  
Total Tracks 16,664,760  
Tracks/Cylinder 255  
Partition Disk #4, Partition #0  
Partition Size 500.61 GB (537,530,273,280 bytes)  
Partition Starting Offset 8,225,280 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model DELL PERC 6/E Adapter SCSI Disk Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 39  
SCSI Bus 1  
SCSI Logical Unit 0  
SCSI Port 6  
SCSI Target ID 5  
Sectors/Track 63  
Size 500.62 GB (537,538,498,560 bytes)  
Total Cylinders 65,352  
Total Sectors 1,049,879,880  
Total Tracks 16,664,760  
Tracks/Cylinder 255  
Partition Disk #5, Partition #0  
Partition Size 500.61 GB (537,530,273,280 bytes)  
Partition Starting Offset 8,225,280 bytes

## APPENDIX C - TUNABLE PARAMETERS

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Description Disk drive  
Manufacturer (Standard disk drives)  
Model DELL PERC 6/E Adapter SCSI Disk Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 38  
SCSI Bus 1  
SCSI Logical Unit 0  
SCSI Port 4  
SCSI Target ID 0  
Sectors/Track 63  
Size 1,016.24 GB (1,091,182,095,360 bytes)  
Total Cylinders 132,662  
Total Sectors 2,131,215,030  
Total Tracks 33,828,810  
Tracks/Cylinder 255  
Partition Disk #0, Partition #0  
Partition Size 1,016.23 GB (1,091,173,870,080 bytes)  
Partition Starting Offset 8,225,280 bytes

Description Disk drive  
Manufacturer (Standard disk drives)  
Model DELL PERC 6/E Adapter SCSI Disk Device  
Bytes/Sector 512  
Media Loaded Yes  
Media Type Fixed hard disk  
Partitions 39  
SCSI Bus 1  
SCSI Logical Unit 0  
SCSI Port 4  
SCSI Target ID 1  
Sectors/Track 63  
Size 1,016.24 GB (1,091,182,095,360 bytes)  
Total Cylinders 132,662  
Total Sectors 2,131,215,030  
Total Tracks 33,828,810  
Tracks/Cylinder 255  
Partition Disk #1, Partition #0  
Partition Size 1,005.81 GB (1,079,979,264,000 bytes)  
Partition Starting Offset 8,225,280 bytes  
Partition Disk #1, Partition #1  
Partition Size 10.43 GB (11,194,606,080 bytes)  
Partition Starting Offset 1,079,987,489,280 bytes

[SCSI]

Item Value  
Name RAID Controller  
Manufacturer Not Available  
Status OK  
PNP Device ID  
PCIIVEN\_1000&DEV\_0060&SUBSYS\_1F0A1028&REV\_04\6&26D2E9F4&0&00080010  
Memory Address 0xD5F80000-0xD5FBFFFF

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## APPENDIX C - TUNABLE PARAMETERS

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I/O Port 0x0000EC00-0x0000ECFF  
Memory Address 0xD5F40000-0xD5F7FFFF  
IRQ Channel IRQ 17  
Driver c:\windows\system32\drivers\msas2k3.sys (2.8.0.64 built by: WinDDK, 26.50 KB (27,136 bytes), 4/1/2008 6:28 PM)

Name RAID Controller  
Manufacturer Not Available  
Status OK  
PNP Device ID  
PCIIVEN\_1000&DEV\_0060&SUBSYS\_1F0A1028&REV\_04\4&201440C3&0&0020  
Memory Address 0xDE680000-0xDE6BFFFF  
I/O Port 0x0000DC00-0x0000DCFF  
Memory Address 0xDE640000-0xDE67FFFF  
IRQ Channel IRQ 16  
Driver c:\windows\system32\drivers\msas2k3.sys (2.8.0.64 built by: WinDDK, 26.50 KB (27,136 bytes), 4/1/2008 6:28 PM)

Name DELL PERC 5/I Adapter RAID Controller  
Manufacturer LSI Logic Corp.,  
Status OK  
PNP Device ID  
PCIIVEN\_1028&DEV\_0015&SUBSYS\_1F031028&REV\_00\5&22FD9970&0&700028  
Memory Address 0xF80F0000-0xF80FFFFF  
Memory Address 0xDE9C0000-0xDE9DFFFF  
IRQ Channel IRQ 142  
Driver c:\windows\system32\drivers\msas2k3.sys (2.8.0.64 built by: WinDDK, 26.50 KB (27,136 bytes), 4/1/2008 6:28 PM)

Name RAID Controller  
Manufacturer Not Available  
Status OK  
PNP Device ID  
PCIIVEN\_1000&DEV\_0060&SUBSYS\_1F0A1028&REV\_04\4&149DD53B&0&0030  
Memory Address 0xDE480000-0xDE4BFFFF  
I/O Port 0x0000CC00-0x0000CCFF  
Memory Address 0xDE440000-0xDE47FFFF  
IRQ Channel IRQ 16  
Driver c:\windows\system32\drivers\msas2k3.sys (2.8.0.64 built by: WinDDK, 26.50 KB (27,136 bytes), 4/1/2008 6:28 PM)

[IDE]

Item	Value
Name	Standard Dual Channel PCI IDE Controller
Manufacturer	(Standard IDE ATA/ATAPI controllers)
Status	OK
PNP Device ID	PCIIVEN_8086&DEV_269E&SUBSYS_01B11028&REV_09\3&61AAA01&0&F9
I/O Port	0x0000FC00-0x0000FC0F
Driver	c:\windows\system32\drivers\pciide.sys (5.2.3790.1830 (srv03_sp1_rtm.050324-1447), 6.00 KB (6,144 bytes), 3/25/2005 6:00 AM)

Name Primary IDE Channel  
Manufacturer (Standard IDE ATA/ATAPI controllers)  
Status OK

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PNP Device ID PCIIDE\IDECHANNEL\4&1D8A9C03&0&0  
I/O Port 0x000001F0-0x000001F7  
I/O Port 0x000003F6-0x000003F6  
IRQ Channel IRQ 14  
Driver c:\windows\system32\drivers\atapi.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447), 145.00 KB (148,480 bytes), 3/25/2005 6:00 AM)

Name Secondary IDE Channel  
Manufacturer (Standard IDE ATA/ATAPI controllers)  
Status OK

PNP Device ID PCIIDE\IDECHANNEL\4&1D8A9C03&0&1  
I/O Port 0x00000170-0x00000177  
I/O Port 0x00000376-0x00000376  
Driver c:\windows\system32\drivers\atapi.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447), 145.00 KB (148,480 bytes), 3/25/2005 6:00 AM)

Name Standard Dual Channel PCI IDE Controller  
Manufacturer (Standard IDE ATA/ATAPI controllers)  
Status OK

PNP Device ID PCI\VEN\_8086&DEV\_2680&SUBSYS\_01B11028&REV\_09\3&61AAA01&0&FA  
I/O Port 0x0000AC78-0x0000AC7F  
I/O Port 0x0000AC70-0x0000AC73  
I/O Port 0x0000AC60-0x0000AC67  
I/O Port 0x0000AC58-0x0000AC5B  
I/O Port 0x0000AC40-0x0000AC4F  
Memory Address 0xDEA00000-0xDEA003FF  
IRQ Channel IRQ 23  
Driver c:\windows\system32\drivers\pciide.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447), 6.00 KB (6,144 bytes), 3/25/2005 6:00 AM)

Name Primary IDE Channel  
Manufacturer (Standard IDE ATA/ATAPI controllers)  
Status OK

PNP Device ID PCIIDE\IDECHANNEL\4&1AB79DC0&0&0  
Driver c:\windows\system32\drivers\atapi.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447), 145.00 KB (148,480 bytes), 3/25/2005 6:00 AM)

Name Secondary IDE Channel  
Manufacturer (Standard IDE ATA/ATAPI controllers)  
Status OK

PNP Device ID PCIIDE\IDECHANNEL\4&1AB79DC0&0&1  
Driver c:\windows\system32\drivers\atapi.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447), 145.00 KB (148,480 bytes), 3/25/2005 6:00 AM)

[Printing]

Name	Driver	Port Name	Server Name
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[Problem Devices]

Device	PNP Device ID	Error Code
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[USB]

Device	PNP Device ID
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APPENDIX C - TUNABLE PARAMETERS

Standard Universal PCI to USB Host Controller  
 PCI\VEN\_8086&DEV\_2688&SUBSYS\_01B11028&REV\_09\3&61AAA01&0&E8  
 Standard Universal PCI to USB Host Controller  
 PCI\VEN\_8086&DEV\_2689&SUBSYS\_01B11028&REV\_09\3&61AAA01&0&E9  
 Standard Universal PCI to USB Host Controller  
 PCI\VEN\_8086&DEV\_268A&SUBSYS\_01B11028&REV\_09\3&61AAA01&0&EA  
 Standard Universal PCI to USB Host Controller  
 PCI\VEN\_8086&DEV\_268B&SUBSYS\_01B11028&REV\_09\3&61AAA01&0&EB  
 Standard Enhanced PCI to USB Host Controller  
 PCI\VEN\_8086&DEV\_268C&SUBSYS\_01B11028&REV\_09\3&61AAA01&0&EF

[Software Environment]

[System Drivers]

Name	Description	File	Type	Started	Start Mode	State	Status	Error Control
	Accept Pause	Accept	Stop					
abiosdsk	Abiosdsk		Not Available	Kernel Driver	No	Disabled		
	Stopped	OK	Ignore	No	No			
acpi	Microsoft ACPI Driver	c:\windows\system32\drivers\acpi.sys	Kernel Driver	Yes				
	Boot	Running	OK	Normal	No	Yes		
acpiec	ACPIEC	c:\windows\system32\drivers\acpiec.sys	Kernel Driver	No				
	Disabled	Stopped	OK	Normal	No	No		
adpu160m	adpu160m		Not Available	Kernel Driver	No	Disabled		
	Stopped	OK	Normal	No	No			
adpu320	adpu320		Not Available	Kernel Driver	No	Disabled		
	Stopped	OK	Normal	No	No			
afd	AFD	c:\windows\system32\drivers\afd.sys	Kernel Driver	Yes			System	
	Running	OK	Normal	No	Yes			
aic78u2	aic78u2	Not Available	Kernel Driver	No	Disabled	Stopped		OK
	Normal	No	No					
aic78xx	aic78xx	Not Available	Kernel Driver	No	Disabled	Stopped		OK
	Normal	No	No					
aliide	Aliide	Not Available	Kernel Driver	No	Disabled	Stopped		OK
	Normal	No	No					
amdide	Amdlde	Not Available	Kernel Driver	No	Disabled	Stopped		OK
	Normal	No	No					
arc	arc	Not Available	Kernel Driver	No	Disabled	Stopped		OK
	Normal	No	No					
asynctac	RAS Asynchronous Media Driver	c:\windows\system32\drivers\asynctac.sys	Kernel Driver	No	Manual			
	Stopped	OK	Normal	No	No			
atapi	Standard IDE/ESDI Hard Disk Controller	c:\windows\system32\drivers\atapi.sys	Kernel	Yes				
Driver	Yes	Boot	Running	OK	Normal	No	Yes	
atdisk	Atdisk	Not Available	Kernel Driver	No	Disabled	Stopped		OK
	Ignore	No	No					
atmarpc	ATM ARP Client Protocol	c:\windows\system32\drivers\atmarpc.sys	Kernel Driver	No	Manual	Stopped		
	Kernel Driver	No	Manual	Stopped	OK	Normal	No	No
audstub	Audio Stub Driver	c:\windows\system32\drivers\audstub.sys	Kernel Driver	Yes				
	Yes	Manual	Running	OK	Normal	No	Yes	
b06bdrv	Broadcom NetXtreme II VBD	c:\windows\system32\drivers\b06bdrv.sys	Kernel Driver	Yes	Boot	Running	OK	Normal
	Kernel Driver	Yes	Boot	Running	OK	Normal	No	Yes

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beep	Beep	c:\windows\system32\drivers\beep.sys	Kernel Driver	Yes	System				
	Running	OK	Normal	No	Yes				
blfp	Broadcom Advanced Server Program Driver	c:\windows\system32\drivers\basamd64.sys	Kernel Driver	No	Manual				
	Stopped	OK	Normal	No	No				
cdac15ba	CdaC15BA	c:\windows\system32\drivers\cdac15ba.sys	Kernel Driver						
	Yes	Auto	Running	OK	Normal	No	Yes		
cdad10ba	CdaD10BA	c:\windows\system32\drivers\cdad10ba.sys	Kernel Driver						
	Yes	Auto	Running	OK	Normal	No	Yes		
cdfs	Cdfs	c:\windows\system32\drivers\cdfs.sys	File System Driver		No				
	Disabled	Stopped	OK	Normal	No	No			
cdrom	CD-ROM Driver	c:\windows\system32\drivers\cdrom.sys	Kernel Driver	Yes	System				
	Running	OK	Normal	No	Yes				
changer	Changer	Not Available	Kernel Driver	No	System Stopped				
	OK	Ignore	No	No					
clusdisk	Cluster Disk Driver	c:\windows\system32\drivers\clusdisk.sys	Kernel Driver						
	No	Disabled	Stopped	OK	Normal	No	No		
cmdide	CmdIde	Not Available	Kernel Driver	No	Disabled	Stopped	OK		
	Normal	No	No						
cpqccissm	cpqccissm	Not Available	Kernel Driver	No	Disabled				
	Stopped	OK	Normal	No	No				
crcdisk	CRC Disk Filter Driver	c:\windows\system32\drivers\crcdisk.sys	Kernel Driver	Yes					
	Boot	Running	OK	Normal	No	Yes			
dfsdriver	DfsDriver	c:\windows\system32\drivers\dfs.sys	File System Driver						
	Yes	Boot	Running	OK	Normal	No	Yes		
disk	Disk Driver	c:\windows\system32\drivers\disk.sys	Kernel Driver	Yes	Boot				
	Running	OK	Normal	No	Yes				
dmboot	dmboot	c:\windows\system32\drivers\dmboot.sys	Kernel Driver	No					
	Disabled	Stopped	OK	Normal	No	No			
dmio	Logical Disk Manager Driver	c:\windows\system32\drivers\dmio.sys	Kernel Driver						
	Yes	Boot	Running	OK	Normal	No	Yes		
dmload	dmload	c:\windows\system32\drivers\dmload.sys	Kernel Driver	Yes	Boot				
	Running	OK	Normal	No	Yes				
dpti2o	dpti2o	Not Available	Kernel Driver	No	Disabled	Stopped	OK		
	Normal	No	No						
elxstor	elxstor	Not Available	Kernel Driver	No	Disabled	Stopped	OK		
	Normal	No	No						
fastfat	Fastfat	c:\windows\system32\drivers\fastfat.sys	File System Driver	No					
	Disabled	Stopped	OK	Normal	No	No			
fdc	Floppy Disk Controller Driver	c:\windows\system32\drivers\fdc.sys	Kernel Driver						
	Yes	Manual	Running	OK	Normal	No	Yes		
fips	Fips	c:\windows\system32\drivers\fips.sys	Kernel Driver	Yes	System				
	Running	OK	Normal	No	Yes				
flpydisk	Floppy Disk Driver	c:\windows\system32\drivers\flpydisk.sys	Kernel Driver						
	Yes	Manual	Running	OK	Normal	No	Yes		
fltmgr	FltMgr	c:\windows\system32\drivers\fltmgr.sys	File System Driver	Yes	Boot				
	Running	OK	Normal	No	Yes				
ftdisk	Volume Manager Driver	c:\windows\system32\drivers\ftdisk.sys	Kernel Driver	Yes					
	Boot	Running	OK	Normal	No	Yes			
gpc	Generic Packet Classifier	c:\windows\system32\drivers\msgpc.sys	Kernel Driver						
	Yes	Manual	Running	OK	Normal	No	Yes		
hidusb	Microsoft HID Class Driver	c:\windows\system32\drivers\hidusb.sys	Kernel Driver						
	Yes	Manual	Running	OK	Ignore	No	Yes		
hpciss	hpciss	Not Available	Kernel Driver	No	Disabled	Stopped	OK		
	Normal	No	No						

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http	HTTP	c:\windows\system32\drivers\http.sys	Kernel Driver	No	Manual		
	Stopped	OK	Normal	No	No		
i2omgmt	i2omgmt	Not Available	Kernel Driver	No	System Stopped		
	OK	Normal	No	No			
i8042prt	i8042prt	c:\windows\system32\drivers\i8042prt.sys	Kernel Driver				
	No	System Stopped	OK	Ignore	No	No	
iirsp	iirsp	Not Available	Kernel Driver	No	Disabled	Stopped	OK
	Normal	No	No				
imapi	CD-Burning Filter Driver	c:\windows\system32\drivers\imapi.sys	Kernel Driver	No			
	System Stopped	OK	Normal	No	No		
intelide	IntelIde	Not Available	Kernel Driver	No	Disabled	Stopped	OK
	Normal	No	No				
intelppm	Intel Processor Driver	c:\windows\system32\drivers\intelppm.sys	Kernel				
Driver	Yes	Manual	Running	OK	Normal	No	Yes
ip6fw	IPv6 Windows Firewall Driver	c:\windows\system32\drivers\ip6fw.sys	Kernel Driver				
	No	Manual	Stopped	OK	Normal	No	No
ipfilterdriver	IP Traffic Filter Driver	c:\windows\system32\drivers\ipfltdrv.sys	Kernel Driver				
	No	Manual	Stopped	OK	Normal	No	No
ipinip	IP in IP Tunnel Driver	c:\windows\system32\drivers\ipinip.sys	Kernel Driver	No			
	Manual	Stopped	OK	Normal	No	No	
ipnat	IP Network Address Translator	c:\windows\system32\drivers\ipnat.sys	Kernel Driver				
	No	Manual	Stopped	OK	Normal	No	No
ipsec	IPSEC driver	c:\windows\system32\drivers\ipsec.sys	Kernel Driver	Yes	System		
	Running	OK	Normal	No	Yes		
irenum	IR Enumerator Service	c:\windows\system32\drivers\irenum.sys	Kernel Driver	No			
	Manual	Stopped	OK	Normal	No	No	
isapnp	PnP ISA/EISA Bus Driver	c:\windows\system32\drivers\isapnp.sys	Kernel Driver				
	Yes	Boot	Running	OK	Critical	No	Yes
kbdclass	Keyboard Class Driver	c:\windows\system32\drivers\kbdclass.sys	Kernel				
Driver	Yes	System	Running	OK	Normal	No	Yes
kbdhid	Keyboard HID Driver	c:\windows\system32\drivers\kbdhid.sys	Kernel Driver	Yes			
	System	Running	OK	Ignore	No	Yes	
ksecdd	KSecDD	c:\windows\system32\drivers\ksecdd.sys	Kernel Driver	Yes	Boot		
	Running	OK	Normal	No	Yes		
ksthunk	Kernel Streaming WOW64 Thunk Service	c:\windows\system32\drivers\ksthunk.sys	Kernel Driver	Yes	Manual		
	Running	OK	Normal	No	Yes		
l2nd	Broadcom NetXtreme II BXND	c:\windows\system32\drivers\bxnd52a.sys	Kernel				
Driver	Yes	Manual	Running	OK	Normal	No	Yes
lp6nds35	lp6nds35	Not Available	Kernel Driver	No	Disabled		
	Stopped	OK	Normal	No	No		
mnmdd	mnmdd	c:\windows\system32\drivers\mnmdd.sys	Kernel Driver	Yes	System		
	Running	OK	Ignore	No	Yes		
modem	Modem	c:\windows\system32\drivers\modem.sys	Kernel Driver	No	Manual		
	Stopped	OK	Ignore	No	No		
mouclass	Mouse Class Driver	c:\windows\system32\drivers\mouclass.sys	Kernel				
Driver	Yes	System	Running	OK	Normal	No	Yes
mouhid	Mouse HID Driver	c:\windows\system32\drivers\mouhid.sys	Kernel Driver				
	Yes	Manual	Running	OK	Ignore	No	Yes
mountmgr	Mount Point Manager	c:\windows\system32\drivers\mountmgr.sys	Kernel				
Driver	Yes	Boot	Running	OK	Normal	No	Yes
mraid35x	mraid35x	Not Available	Kernel Driver	No	Disabled		
	Stopped	OK	Normal	No	No		
mrxdav	WebDav Client Redirector	c:\windows\system32\drivers\mrxdav.sys	File				
System Driver	No	Manual	Stopped	OK	Normal	No	No

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mrxsmb	MRXSMB	c:\windows\system32\drivers\mrxsmb.sys	File System Driver					
	Yes	System Running	OK	Normal	No	Yes		
msas2k3	msas2k3	c:\windows\system32\drivers\msas2k3.sys	Kernel Driver					
	Yes	Boot Running	OK	Normal	No	Yes		
msfs	Msfs	c:\windows\system32\drivers\msfs.sys	File System Driver	Yes	System			
	Running	OK	Normal	No	Yes			
mssmbios	Microsoft System Management BIOS Driver							
		c:\windows\system32\drivers\mssmbios.sys	Kernel Driver	Yes	Manual			
	Running	OK	Normal	No	Yes			
mup	Mup	c:\windows\system32\drivers\mup.sys	File System Driver	Yes	Boot			
	Running	OK	Normal	No	Yes			
ndis	NDIS System Driver	c:\windows\system32\drivers\ndis.sys	Kernel Driver	Yes				
	Boot	Running	OK	Normal	No	Yes		
ndistapi	Remote Access NDIS TAPI Driver							
		c:\windows\system32\drivers\ndistapi.sys	Kernel Driver	Yes	Manual	Running	OK	Normal
				No	Yes			
ndisuio	NDIS Usermode I/O Protocol	c:\windows\system32\drivers\ndisuio.sys	Kernel Driver					
	No	Manual Stopped	OK	Normal	No	No		
ndiswan	Remote Access NDIS WAN Driver							
		c:\windows\system32\drivers\ndiswan.sys	Kernel Driver	Yes	Manual			
	Running	OK	Normal	No	Yes			
ndproxy	NDIS Proxy	c:\windows\system32\drivers\ndproxy.sys	Kernel Driver	Yes				
	Manual	Running	OK	Normal	No	Yes		
netbios	NetBIOS Interface		c:\windows\system32\drivers\netbios.sys	File System				
Driver	Yes	System Running	OK	Normal	No	Yes		
netbt	NetBios over Tcpip		c:\windows\system32\drivers\netbt.sys	Kernel Driver	Yes			
	System	Running	OK	Normal	No	Yes		
nfrd960	nfrd960	Not Available	Kernel Driver	No	Disabled	Stopped	OK	
	Normal	No	No					
npfs	Npfs	c:\windows\system32\drivers\npfs.sys	File System Driver	Yes	System			
	Running	OK	Normal	No	Yes			
ntfs	Ntfs	c:\windows\system32\drivers\ntfs.sys	File System Driver	Yes				
	Disabled	Running	OK	Normal	No	Yes		
null	Null	c:\windows\system32\drivers\null.sys	Kernel Driver	Yes	System			
	Running	OK	Normal	No	Yes			
parport	Parport	c:\windows\system32\drivers\parport.sys	Kernel Driver	No	Manual			
	Stopped	OK	Ignore	No	No			
partmgr	Partition Manager							
	Yes	Boot Running	OK	Normal	No	Yes		
pci	PCI Bus Driver	c:\windows\system32\drivers\pci.sys	Kernel Driver	Yes	Boot			
	Running	OK	Critical	No	Yes			
pciide	PCIIde	c:\windows\system32\drivers\pciide.sys	Kernel Driver	Yes	Boot			
	Running	OK	Normal	No	Yes			
pcmcia	Pcmcia	c:\windows\system32\drivers\pcmcia.sys	Kernel Driver	No	Disabled			
	Stopped	OK	Normal	No	No			
pdcomp	PDCOMP	Not Available	Kernel Driver	No	Manual	Stopped	OK	
	Ignore	No	No					
pdframe	PDFRAME	Not Available	Kernel Driver	No	Manual	Stopped		
	OK	Ignore	No	No				
pdreli	PDRELI	Not Available	Kernel Driver	No	Manual	Stopped	OK	
	Ignore	No	No					
pdrframe	PDRFRAME	Not Available	Kernel Driver	No	Manual	Stopped		
	OK	Ignore	No	No				
pptpminiport	WAN Miniport (PPTP)		c:\windows\system32\drivers\raspptp.sys	Kernel				
Driver	Yes	Manual Running	OK	Normal	No	Yes		

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ptilink	Direct Parallel Link Driver	c:\windows\system32\drivers\ptilink.sys	Kernel Driver					
	Yes Manual Running	OK Normal No Yes						
ql2300	ql2300 Not Available	Kernel Driver	No Disabled	Stopped	OK			
	Normal No No							
rasacd	Remote Access Auto Connection Driver	c:\windows\system32\drivers\rasacd.sys	Kernel Driver					
Driver	Yes System Running	OK Normal No Yes						
rasl2tp	WAN Miniport (L2TP)	c:\windows\system32\drivers\rasl2tp.sys	Kernel Driver	Yes				
	Manual Running	OK Normal No Yes						
rasppoe	Remote Access PPPOE Driver	c:\windows\system32\drivers\rasppoe.sys						
	Kernel Driver Yes Manual Running	OK Normal No Yes						
raspti	Direct Parallel	c:\windows\system32\drivers\raspti.sys	Kernel Driver	Yes	Manual			
	Running OK Normal No Yes							
rdcss	Rdbss	c:\windows\system32\drivers\rdbss.sys	File System Driver	Yes	System			
	Running OK Normal No Yes							
rdpcdd	RDPCCDD	c:\windows\system32\drivers\rdpcdd.sys	Kernel Driver	Yes	System			
	Running OK Ignore No Yes							
rdpdr	Terminal Server Device Redirector Driver	c:\windows\system32\drivers\rdpdr.sys						
	Kernel Driver Yes Manual Running	OK Normal No Yes						
rdpwd	RDPWD	c:\windows\system32\drivers\rdpwd.sys	Kernel Driver	Yes	Manual			
	Running OK Ignore No Yes							
redbook	Digital CD Audio Playback Filter Driver	c:\windows\system32\drivers\redbook.sys	Kernel Driver	Yes	System			
	Running OK Normal No Yes							
secdrv	Security Driver	c:\windows\system32\drivers\secdrv.sys	Kernel Driver	Yes	Auto			
	Running OK Normal No Yes							
serenum	Serenum Filter Driver	c:\windows\system32\drivers\serenum.sys						
Driver	Yes Manual Running	OK Normal No Yes						
serial	Serial port driver	c:\windows\system32\drivers\serial.sys	Kernel Driver	Yes				
	System Running	OK Ignore No Yes						
sfloppy	Sfloppy	c:\windows\system32\drivers\sfloppy.sys	Kernel Driver	No	System			
	Stopped OK Ignore No No							
simbad	Simbad Not Available	Kernel Driver	No Disabled	Stopped	OK			
	Normal No No							
srv	Srv	c:\windows\system32\drivers\srv.sys	File System Driver	Yes	Manual			
	Running OK Normal No Yes							
swenum	Software Bus Driver	c:\windows\system32\drivers\swenum.sys						
Driver	Yes Manual Running	OK Normal No Yes						
symc8xx	symc8xx	Not Available	Kernel Driver	No	Disabled			
	Stopped OK Normal No No							
symmpi	symmpi Not Available	Kernel Driver	No Disabled	Stopped	OK			
	Normal No No							
sym_hi	sym_hi Not Available	Kernel Driver	No Disabled	Stopped	OK			
	Normal No No							
sym_u3	sym_u3 Not Available	Kernel Driver	No Disabled	Stopped	OK			
	Normal No No							
tcpip	TCP/IP Protocol Driver	c:\windows\system32\drivers\tcpip.sys	Kernel Driver	Yes				
	System Running	OK Normal No Yes						
tdpipe	TDPIPE	c:\windows\system32\drivers\tdpipe.sys	Kernel Driver	No	Manual			
	Stopped OK Ignore No No							
tdtcp	TDTCP	c:\windows\system32\drivers\tdtcp.sys	Kernel Driver	Yes	Manual			
	Running OK Ignore No Yes							
termdd	Terminal Device Driver	c:\windows\system32\drivers\termdd.sys	Kernel Driver	Yes				
	System Running	OK Normal No Yes						
toside	Toside Not Available	Kernel Driver	No Disabled	Stopped	OK			
	Normal No No							

APPENDIX C - TUNABLE PARAMETERS

udfs	Udfs	c:\windows\system32\drivers\udfs.sys	File System Driver	Yes				
	Disabled	Running	OK	Normal	No	Yes		
ultra	ultra	Not Available	Kernel Driver	No	Disabled	Stopped	OK	
	Normal	No						
update	Microcode Update Driver	c:\windows\system32\drivers\update.sys	Kernel Driver	Yes	Manual	Running	OK	Normal
	Yes	Manual	Running	OK	Normal	No	Yes	
usbccgp	Microsoft USB Generic Parent Driver	c:\windows\system32\drivers\usbccgp.sys	Kernel Driver	Yes	Manual	Running	OK	Normal
	Running	OK	Normal	No	Yes			
usbehci	Microsoft USB 2.0 Enhanced Host Controller Miniport Driver	c:\windows\system32\drivers\usbehci.sys	Kernel Driver	Yes	Manual	Running	OK	Normal
	Running	OK	Normal	No	Yes			
usbhub	Microsoft USB Standard Hub Driver	c:\windows\system32\drivers\usbhub.sys	Kernel Driver	Yes	Manual	Running	OK	Normal
	Kernel Driver	Yes	Manual	Running	OK	Normal	No	Yes
usbstor	USB Mass Storage Driver	c:\windows\system32\drivers\usbstor.sys	Kernel Driver	Yes	Manual	Running	OK	Normal
Driver	No	Manual	Stopped	OK	Normal	No	No	
usbuhci	Microsoft USB Universal Host Controller Miniport Driver	c:\windows\system32\drivers\usbuhci.sys	Kernel Driver	Yes	Manual	Running	OK	Normal
	Running	OK	Normal	No	Yes			
vga	vga	c:\windows\system32\drivers\vgapnp.sys	Kernel Driver	Yes	Manual	Running	OK	Ignore
	Running	OK	Ignore	No	Yes			
vgasave	VGA Display Controller	c:\windows\system32\drivers\vga.sys	Kernel Driver	Yes	Manual	Running	OK	Ignore
	No	System	Stopped	OK	Ignore	No	No	
viaide	Vialde	Not Available	Kernel Driver	No	Disabled	Stopped	OK	
	Normal	No						
volsnap	Storage volumes	c:\windows\system32\drivers\volsnap.sys	Kernel Driver	Yes	Manual	Running	OK	Normal
	Yes	Boot	Running	OK	Normal	No	Yes	
wanarp	Remote Access IP ARP Driver	c:\windows\system32\drivers\wanarp.sys	Kernel Driver	Yes	Manual	Running	OK	Normal
Driver	Yes	Manual	Running	OK	Normal	No	Yes	
wdica	WDICA	Not Available	Kernel Driver	No	Manual	Stopped	OK	Ignore
	No	No						
wlbs	Network Load Balancing	c:\windows\system32\drivers\wlbs.sys	Kernel Driver	Yes	Manual	Running	OK	Normal
	No	Manual	Stopped	OK	Normal	No	No	

[Signed Drivers]

Device Name	Signed	Device Class	Driver Version	Driver Date	Manufacturer	INF
Name	Driver Name	Device ID				
Microsoft System Management BIOS Driver	Yes	Standard system devices	SYSTEM	5.2.3790.1830	10/1/2002	machine.inf
	10/1/2002	(Standard system devices)		Not Available	ROOT\SYSTEM\0002	Not Available
Microcode Update Device	Yes	Standard system devices	SYSTEM	5.2.3790.1830	10/1/2002	machine.inf
	(Standard system devices)		machine.inf	Not Available	ROOT\SYSTEM\0001	
Plug and Play Software Device Enumerator	Yes	Standard system devices	SYSTEM	5.2.3790.1830	10/1/2002	machine.inf
	10/1/2002	(Standard system devices)		Not Available	ROOT\SYSTEM\0000	
Terminal Server Mouse Driver	Yes	Standard system devices	SYSTEM	5.2.3790.1830	10/1/2002	machine.inf
	(Standard system devices)		machine.inf	Not Available	ROOT\RDP_MOU\0000	
Terminal Server Keyboard Driver	Yes	Standard system devices	SYSTEM	5.2.3790.1830	10/1/2002	machine.inf
	(Standard system devices)		machine.inf	Not Available	ROOT\RDP_KBD\0000	
Terminal Server Device Redirector	Yes	Standard system devices	SYSTEM	5.2.3790.1830	10/1/2002	machine.inf
	(Standard system devices)		machine.inf	Not Available	ROOT\RDPDR\0000	
Direct Parallel	Yes	NET	5.2.3790.1830	10/1/2002	Microsoft	netrasa.inf
	Not Available	ROOTMS_PTMINIPOINT\0000				



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WAN Miniport (PPTP) netrasa.inf	Yes Not Available	NET	5.2.3790.1830	10/1/2002	Microsoft	ROOT\MS_PPTPMINI PORT\0000
WAN Miniport (PPPOE) netrasa.inf	Yes Not Available	NET	5.2.3790.1830	10/1/2002	Microsoft	ROOT\MS_PPPOEMINI PORT\0000
WAN Miniport (IP) netrasa.inf	Yes Not Available	NET	5.2.3790.1830	10/1/2002	Microsoft	ROOT\MS_NDISWANIP \0000
WAN Miniport (L2TP) netrasa.inf	Yes Not Available	NET	5.2.3790.1830	10/1/2002	Microsoft	ROOT\MS_L2TPMINI PORT\0000
Video Codecs wave.inf	Yes Not Available	MEDIA	5.2.3790.1830	10/1/2002	(Standard system devices)	ROOT\MEDIA\MS_MM VID
Legacy Video Capture Devices wave.inf	Yes Not Available	MEDIA	5.2.3790.1830	10/1/2002	(Standard system devices)	ROOT\MEDIA\MS_MM VCD
Media Control Devices wave.inf	Yes Not Available	MEDIA	5.2.3790.1830	10/1/2002	(Standard system devices)	ROOT\MEDIA\MS_MM MCI
Legacy Audio Drivers wave.inf	Yes Not Available	MEDIA	5.2.3790.1830	10/1/2002	(Standard system devices)	ROOT\MEDIA\MS_MM DRV
Audio Codecs wave.inf	Yes Not Available	MEDIA	5.2.3790.1830	10/1/2002	(Standard system devices)	ROOT\MEDIA\MS_MM ACM
Remote Access IP ARP Driver Available	Not Available Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	Not Available ROOT\LEGACY_WAN ARP\0000
volsnap	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available ROOT\LEGACY_VOLS SNAP\0000
TDTCP	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available ROOT\LEGACY_TDT TCP\0000
TCP/IP Protocol Driver	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available ROOT\LEGACY_TC PIP\0000
Security Driver Available	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available ROOT\LEGACY_SEC DRV\0000
RDPWD Available	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available ROOT\LEGACY_RDP PWD\0000
RDPCDD Available	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available ROOT\LEGACY_RDP CDD\0000
Remote Access Auto Connection Driver	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available ROOT\LEGACY_RAS ACD\0000
Partition Manager	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available ROOT\LEGACY_PART MGR\0000
Null	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available ROOT\LEGACY_NULL \0000
NetBios over Tcpi	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available ROOT\LEGACY_NET BT\0000
NDProxy Available	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available ROOT\LEGACY_ND PROXY\0000
NDIS Usermode I/O Protocol Available	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available ROOT\LEGACY_NDIS UIO\0000
Remote Access NDIS TAPI Driver	Not Available	LEGACYDRIVER	Not Available	LEGACYDRIVER	Not Available	Not Available ROOT\LEGACY_NDIS TAPI\0000
NDIS System Driver	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available ROOT\LEGACY_NDIS \0000
mountmgr Available	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available	Not Available ROOT\LEGACY_MOUN TMGR\0000

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mnmdd	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
	Not Available	Not Available	ROOTLEGACY_MNMDD\0000		
ksecdd	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
	Not Available	Not Available	ROOTLEGACY_KSECDD\0000		
IPSEC driver	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
	Not Available	Not Available	ROOTLEGACY_IPSEC\0000		
IP Network Address Translator	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
	Not Available	Not Available	Not Available	ROOTLEGACY_IPNAT\0000	
Generic Packet Classifier	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
	Not Available	Not Available	Not Available	ROOTLEGACY_GPC\0000	
Fips	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
	Not Available	Not Available	ROOTLEGACY_FIPS\0000		
dmload	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
	Not Available	Not Available	ROOTLEGACY_DMLOAD\0000		
dmboot	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
	Not Available	Not Available	ROOTLEGACY_DMBOOT\0000		
CRC Disk Filter Driver	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
	Not Available	Not Available	Not Available	ROOTLEGACY_CRCDISK\0000	
CdaD10BA	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
	Not Available	Not Available	ROOTLEGACY_CDAD10BA\0000		
CdaC15BA	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
	Not Available	Not Available	ROOTLEGACY_CDAC15BA\0000		
Beep	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
	Not Available	Not Available	ROOTLEGACY_BEEP\0000		
AFD	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
	Not Available	Not Available	ROOTLEGACY_AFD\0000		
Generic volume Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft	
volume.inf	Not Available				
	STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET7158D1E200LE				
NGTH5641800					
Generic volume Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft	
volume.inf	Not Available				
	STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET6FC263E800LE				
NGTH1966D7C00					
Generic volume Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft	
volume.inf	Not Available				
	STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET6E2BF5EE00LE				
NGTH1966D7C00					
Generic volume Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft	
volume.inf	Not Available				
	STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET6C9587F400LE				
NGTH1966D7C00					
Generic volume Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft	
volume.inf	Not Available				
	STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET5FE3132800LEN				
GTHCB2744E00					
Generic volume Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft	
volume.inf	Not Available				
	STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET53309E5C00LE				
NGTHCB2744E00					
Generic volume Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft	
volume.inf	Not Available				
	STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET51106CB000LE				
NGTH220312E00					

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Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET4EF03B0400LE NGTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET4CD0095800LE NGTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET4AAFD7AC00LE NGTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET488FA60000LEN GTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET466F745400LEN GTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET4524090C00LEN GTH14B6ACA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET4310969400LEN GTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET40FD241C00LE NGTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET3EE9B1A400LE NGTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET3CD63F2C00LE NGTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET3AC2CCB400LE NGTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET38AF5A3C00LE NGTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET38A9F5A600LE NGTH5641800				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft

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STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET371387AC00LE					
NGTH1966D7C00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET357D19B200LE					
NGTH1966D7C00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET33E6ABB800LE					
NGTH1966D7C00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET273436EC00LE					
NGTHCB2744E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET1A81C22000LE					
NGTHCB2744E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET1861907400LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET16415EC800LE					
NGTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET14212D1C00LE					
NGTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET1200FB7000LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSETFE0C9C400LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSETD0C981800LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSETC752CD000LEN					
GTH14B6ACA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSETA61BA5800LEN					
GTH21371FA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET84E47E000LEN					
GTH21371FA00					

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Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET63AD56800LEN GTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET42762F000LEN GTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET213F07800LEN GTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSET7E0000LENGTH 21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE70BC56F3OFFSETFB74454A00LE NGTH29B402200				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET6D3EAC2600LE NGTH5641800				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET6BA83E2C00LE NGTH1966D7C00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET6A11D03200LEN GTH1966D7C00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET687B623800LEN GTH1966D7C00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET5BC8ED6C00LE NGTHCB2744E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET4F1678A000LEN GTHCB2744E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET4CF646F400LEN GTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET4AD6154800LEN GTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft

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STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET48B5E39C00LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET4695B1F000LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET4475804400LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET42554E9800LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET4109E35000LEN					
GTH14B6ACA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET3EF670D800LEN					
GTH21371FA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET3CE2FE6000LE					
NGTH21371FA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET3ACF8BE800LE					
NGTH21371FA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET38BC197000LEN					
GTH21371FA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET36A8A6F800LEN					
GTH21371FA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET36A2475E00LEN					
GTH65F1C00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET369CE2C800LE					
NGTH5641800					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET350674CE00LEN					
GTH1966D7C00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET337006D400LEN					
GTH1966D7C00					

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Generic volume Yes volume.inf STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET31D998DA00LE NGTH1966D7C00	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
Generic volume Yes volume.inf STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET2527240E00LEN GTHCB2744E00	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
Generic volume Yes volume.inf STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET1874AF4200LEN GTHCB2744E00	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
Generic volume Yes volume.inf STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET16547D9600LEN GTH220312E00	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
Generic volume Yes volume.inf STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET14344BEA00LEN GTH220312E00	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
Generic volume Yes volume.inf STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET12141A3E00LEN GTH220312E00	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
Generic volume Yes volume.inf STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSETFF3E89200LEN GTH220312E00	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
Generic volume Yes volume.inf STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSETDD3B6E600LEN GTH220312E00	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
Generic volume Yes volume.inf STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSETBB3853A00LEN GTH220312E00	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
Generic volume Yes volume.inf STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSETA6819F200LENG TH14B6ACA00	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
Generic volume Yes volume.inf STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET854A77A00LEN GTH21371FA00	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
Generic volume Yes volume.inf STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET641350200LENG TH21371FA00	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
Generic volume Yes volume.inf STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET42DC28A00LEN GTH21371FA00	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft

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STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET21A501200LENG					
TH21371FA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET6DD9A00LENGT					
H21371FA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATUREA0932386OFFSET7E0000LENGTH					
65F1C00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET561EB95000LEN					
GTH113096400					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET550BAF6E00LEN					
GTH113096400					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET54F890A000LEN					
GTH131E5000					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET536222A600LEN					
GTH1966D7C00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET51CBB4AC00LE					
NGTH1966D7C00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET503546B200LEN					
GTH1966D7C00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET4382D1E600LEN					
GTHCB2744E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET437D6D5000LEN					
GTH5641800					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET415D3BA400LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET3F3D09F800LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET3D1CD84C00LE					
NGTH220312E00					

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Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET3AFCA6A000LE NGTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET38DC74F400LEN GTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET36BC434800LEN GTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET3570D80000LEN GTH14B6ACA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET335D658800LEN GTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET3149F31000LEN GTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET2F36809800LEN GTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET2D230E2000LEN GTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET2B0F9BA800LEN GTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET29FC91C600LEN GTH113096400				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET29E972F800LEN GTH131E5000				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET285304FE00LEN GTH1966D7C00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET26BC970400LEN GTH1966D7C00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft

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STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET2526290A00LEN					
GTH1966D7C00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET1873B43E00LEN					
GTHCB2744E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET186E4FA800LEN					
GTH5641800					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET164E1DFC00LE					
NGTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET142DEC5000LE					
NGTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET120DBAA400LE					
NGTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSETFED88F800LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSETDCD574C00LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSETBAD25A000LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSETA61BA5800LEN					
GTH14B6ACA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET84E47E000LEN					
GTH21371FA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET63AD56800LEN					
GTH21371FA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET42762F000LENG					
TH21371FA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET213F07800LENG					
TH21371FA00					

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Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589557OFFSET7E0000LENGTH 21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET5732BE3600LEN GTH27115F800				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET559C503C00LEN GTH1966D7C00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET5405E24200LEN GTH1966D7C00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET53FF82A800LEN GTH65F1C00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET520B70B000LEN GTH1F4117A00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET4558FBE400LEN GTHCB2744E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET4338CA3800LEN GTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET4118988C00LEN GTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET3EF866E000LEN GTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET3CD8353400LEN GTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET3AB8038800LEN GTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET3897D1DC00LE NGTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft

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STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET374C669400LEN					
GTH14B6ACA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET373365AE00LEN					
GTH19006800					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET351FF33600LEN					
GTH21371FA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET330C80BE00LEN					
GTH21371FA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET30F90E4600LEN					
GTH21371FA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET2EE59BCE00LE					
NGTH21371FA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET2CD2295600LEN					
GTH21371FA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET2A6112E000LEN					
GTH27115F800					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET28CAA4E600LE					
NGTH1966D7C00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET273436EC00LEN					
GTH1966D7C00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET272DD75200LEN					
GTH65F1C00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET2539C55A00LEN					
GTH1F4117A00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET1887508E00LEN					
GTHCB2744E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET16671EE200LEN					
GTH220312E00					

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Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET1446ED3600LENGTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET1226BB8A00LENGTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET100689DE00LENGTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSETDE6583200LENGTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSETBC6268600LENGTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSETA7ABB3E00LENGTH14B6ACA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSETA61BA5800LENGTH19006800				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET84E47E000LENGTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET63AD56800LENGTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET42762F000LENGTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET213F07800LENGTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589554OFFSET7E0000LENGTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET602E15DA00LENGTH25BF9C00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft

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STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET5E97A7E000LEN					
GTH1966D7C00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET5D0139E600LEN					
GTH1966D7C00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET5763477C00LEN					
GTH59DF1EC00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET575DE2E600LEN					
GTH5641800					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET4AAB6E1A00LE					
NGTHCB2744E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET488B3C6E00LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET466B0AC200LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET444AD91600LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET422AA76A00LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET400A75BE00LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET3DEA441200LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET3C9ED8CA00LE					
NGTH14B6ACA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET3A8B665200LEN					
GTH21371FA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET3877F3DA00LEN					
GTH21371FA00					

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Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET3664816200LEN GTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET34510EEA00LEN GTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET323D9C7200LEN GTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET302A29FA00LEN GTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET300469E000LEN GTH25BF9C00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET2E6DFBE600LE NGTH1966D7C00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET2CD78DEC00LE NGTH1966D7C00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET27399B8200LEN GTH59DF1EC00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET273436EC00LEN GTH5641800				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET1A81C22000LEN GTHCB2744E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET1861907400LEN GTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET16415EC800LEN GTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET14212D1C00LEN GTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft

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STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET1200FB7000LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSETFE0C9C400LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSETD0981800LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSETC752CD000LEN					
GTH14B6ACA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSETA61BA5800LEN					
GTH21371FA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET84E47E000LEN					
GTH21371FA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET63AD56800LEN					
GTH21371FA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET42762F000LENG					
TH21371FA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET213F07800LENG					
TH21371FA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589555OFFSET7E0000LENGTH					
21371FA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET6EEF160A00LEN					
GTHBBC50000					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET6D58A81000LEN					
GTH1966D7C00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET6BC23A1600LEN					
GTH1966D7C00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET6BBBDA7C00LE					
NGTH65F1C00					



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Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET5F0965B000LEN GTHCB2744E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET5256F0E400LEN GTHCB2744E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET5036BF3800LEN GTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET4E168D8C00LE NGTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET4BF65BE000LEN GTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET49D62A3400LEN GTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET47B5F88800LEN GTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET4595C6DC00LE NGTH220312E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET444A5B9400LEN GTH14B6ACA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET4236E91C00LEN GTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET402376A400LEN GTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET3E10042C00LEN GTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET3BFC91B400LE NGTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft

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STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET39E91F3C00LEN					
GTH21371FA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET37D5ACC400LE					
NGTH21371FA00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET3719E74600LEN					
GTHBBC50000					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET3583794C00LEN					
GTH1966D7C00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET33ED0B5200LEN					
GTH1966D7C00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET33E6ABB800LE					
NGTH65F1C00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET273436EC00LEN					
GTHCB2744E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET1A81C22000LEN					
GTHCB2744E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET1861907400LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET16415EC800LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET14212D1C00LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET1200FB7000LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSETFE0C9C400LEN					
GTH220312E00					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf		Not Available			
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSETD0C981800LEN					
GTH220312E00					

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Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSETC752CD000LEN GTH14B6ACA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSETA61BA5800LEN GTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET84E47E000LEN GTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET63AD56800LEN GTH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET42762F000LENG TH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET213F07800LENG TH21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE9B589552OFFSET7E0000LENGTHH 21371FA00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE5210521OFFSET17A6C5FA00LEN GTH4E22C6E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE5210521OFFSET12C4990E00LENG TH4E22C6E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE5210521OFFSETDE26C2200LENG TH4E22C6E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE5210521OFFSET9003F3600LENGT H4E22C6E00				
Generic volume Yes volume.inf	VOLUME Not Available	5.2.3790.1830	10/1/2002	Microsoft
STORAGE\VOLUME\1&30A96598&0&SIGNATURE5210521OFFSET7E00LENGTHH900 3E3A00				
Volume Manager system devices)machine.inf	Yes Not Available	SYSTEM	5.2.3790.1830	10/1/2002 (Standard ROOT\FTDISK\0000
Logical Disk Manager system devices)machine.inf	Yes Not Available	SYSTEM	5.2.3790.1830	10/1/2002 (Standard ROOT\DMIO\0000
ACPI Fixed Feature Button (Standard system devices)	Yes machine.inf	SYSTEM	5.2.3790.1830	10/1/2002 Not Available
ACPI\FIXEDBUTTON\2&DABA3FF&0				

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High precision event timer (Standard system devices)	Yes	SYSTEM	5.2.3790.1830	10/1/2002	machine.inf	Not Available	ACPI\PNP0103\0
Motherboard resources (Standard system devices)	Yes	SYSTEM	5.2.3790.1830	10/1/2002	machine.inf	Not Available	ACPI\PNP0C02\0
Secondary IDE Channel (Standard IDE ATA/ATAPI controllers)	Yes	HDC	5.2.3790.1830	10/1/2002	mshdc.inf	Not Available	PCI\IDE\IDECHANNEL\4&1AB79DC0&0&1
Primary IDE Channel (Standard IDE ATA/ATAPI controllers)	Yes	HDC	5.2.3790.1830	10/1/2002	mshdc.inf	Not Available	PCI\IDE\IDECHANNEL\4&1AB79DC0&0&0
Standard Dual Channel PCI IDE Controller (Standard IDE ATA/ATAPI controllers)	Yes	HDC	5.2.3790.1830	10/1/2002	mshdc.inf	Not Available	PCI\VEN_8086&DEV_2680&SUBSYS_01B11028&REV_09\3&61AAA01&0&FA
Secondary IDE Channel (Standard IDE ATA/ATAPI controllers)	Yes	HDC	5.2.3790.1830	10/1/2002	mshdc.inf	Not Available	PCI\IDE\IDECHANNEL\4&1D8A9C03&0&1
CD-ROM Drive (Standard CD-ROM drives)	Yes	CDROM	5.2.3790.1830	10/1/2002	cdrom.inf	Not Available	IDE\CDROMHL-DT-ST_DVD-ROM_GDR8164B_____0D08____\5&41A3CB2&0&0.0.0
Primary IDE Channel (Standard IDE ATA/ATAPI controllers)	Yes	HDC	5.2.3790.1830	10/1/2002	mshdc.inf	Not Available	PCI\IDE\IDECHANNEL\4&1D8A9C03&0&0
Standard Dual Channel PCI IDE Controller (Standard IDE ATA/ATAPI controllers)	Yes	HDC	5.2.3790.1830	10/1/2002	mshdc.inf	Not Available	PCI\VEN_8086&DEV_269E&SUBSYS_01B11028&REV_09\3&61AAA01&0&F9
System board (Standard system devices)	Yes	SYSTEM	5.2.3790.1830	10/1/2002	machine.inf	Not Available	ACPI\PI0001\5
System board (Standard system devices)	Yes	SYSTEM	5.2.3790.1830	10/1/2002	machine.inf	Not Available	ACPI\PNP0C01\0
Communications Port (Standard port types)	Yes	PORTS	5.2.3790.1830	10/1/2002	msports.inf	Not Available	ACPI\PNP0501\2
Communications Port (Standard port types)	Yes	PORTS	5.2.3790.1830	10/1/2002	msports.inf	Not Available	ACPI\PNP0501\1
Floppy disk drive (Standard floppy disk drives)	Yes	FLOPPYDISK	5.2.3790.1830	10/1/2002	flpydisk.inf	Not Available	FDC\GENERIC_FLOPPY_DRIVE\5&33C0F973&0&0
Standard floppy disk controller (Standard floppy disk controllers)	Yes	FDC	5.2.3790.1830	10/1/2002	fdc.inf	Not Available	ACPI\PNP0700\4&2AA4AD3D&0
System timer (Standard system devices)	Yes	SYSTEM	5.2.3790.1830	10/1/2002	machine.inf	Not Available	ACPI\PNP0100\4&2AA4AD3D&0
System CMOS/real time clock (Standard system devices)	Yes	SYSTEM	5.2.3790.1830	10/1/2002	machine.inf	Not Available	ACPI\PNP0B00\4&2AA4AD3D&0
System board (Standard system devices)	Yes	SYSTEM	5.2.3790.1830	10/1/2002	machine.inf	Not Available	ACPI\PNP0C01\2
Programmable interrupt controller (Standard system devices)	Yes	SYSTEM	5.2.3790.1830	10/1/2002	machine.inf	Not Available	ACPI\PNP0000\4&2AA4AD3D&0
Numeric data processor (Standard system devices)	Yes	SYSTEM	5.2.3790.1830	10/1/2002	machine.inf	Not Available	ACPI\PNP0C04\4&2AA4AD3D&0
Direct memory access controller (Standard system devices)	Yes	SYSTEM	5.2.3790.1830	10/1/2002	machine.inf	Not Available	ACPI\PNP0200\4&2AA4AD3D&0

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PCI standard ISA bridge	Yes	SYSTEM	5.2.3790.1830	10/1/2002	(Standard system devices)
machine.inf	Not Available				
PCI\VEN_8086&DEV_2670&SUBSYS_00000000&REV_09\3&61AAA01&0&F8					
Default Monitor types)	Yes	MONITOR	5.2.3790.1830	10/1/2002	(Standard monitor types)
monitor.inf	Not Available				
DISPLAY\DEFAULT_MONITOR\5&EEED524&0&12345678&10&0D					
Standard VGA Graphics Adapter	Yes	DISPLAY	5.2.3790.1830	10/1/2002	(Standard display types)
display.inf	Not Available				
PCI\VEN_1002&DEV_515E&SUBSYS_01B11028&REV_02\4&2014205D&0&68F0					
Intel(R) 82801 PCI Bridge - 244E	Yes	SYSTEM	5.2.3790.1830	10/1/2002	
Intel machine.inf	Not Available				
PCI\VEN_8086&DEV_244E&SUBSYS_00000000&REV_D9\3&61AAA01&0&F0					
Generic USB Hub	Yes	USB	5.2.3790.1830	10/1/2002	(Generic USB Hub)
usb.inf	Not Available				
USB\VID_04B4&PID_6560\5&6F526B7&0&7					
USB Root Hub	Yes	USB	5.2.3790.1830	10/1/2002	(Standard USB Host Controller)
usbport.inf	Not Available				
USB\ROOT_HUB2\4&25F3EE70&0					
Standard Enhanced PCI to USB Host Controller	Yes	USB	5.2.3790.1830	10/1/2002	(Standard USB Host Controller)
usbport.inf	Not Available				
PCI\VEN_8086&DEV_268C&SUBSYS_01B11028&REV_09\3&61AAA01&0&EF					
USB Root Hub	Yes	USB	5.2.3790.1830	10/1/2002	(Standard USB Host Controller)
usbport.inf	Not Available				
USB\ROOT_HUB\4&1C386FEF&0					
Standard Universal PCI to USB Host Controller	Yes	USB	5.2.3790.1830	10/1/2002	(Standard USB Host Controller)
usbport.inf	Not Available				
PCI\VEN_8086&DEV_268B&SUBSYS_01B11028&REV_09\3&61AAA01&0&EB					
USB Root Hub	Yes	USB	5.2.3790.1830	10/1/2002	(Standard USB Host Controller)
usbport.inf	Not Available				
USB\ROOT_HUB\4&2DD355BC&0					
Standard Universal PCI to USB Host Controller	Yes	USB	5.2.3790.1830	10/1/2002	(Standard USB Host Controller)
usbport.inf	Not Available				
PCI\VEN_8086&DEV_268A&SUBSYS_01B11028&REV_09\3&61AAA01&0&EA					
HID-compliant mouse	Yes	MOUSE	5.2.3790.1830	10/1/2002	Microsoft
msmouse.inf	Not Available				
HID\VID_09AE&PID_0002&MI_01\7&FDD9F08&0&0000					
USB Human Interface Device	Yes	HIDCLASS	5.2.3790.1830	10/1/2002	(Standard system devices)
input.inf	Not Available				
USB\VID_09AE&PID_0002&MI_01\6&8FA055B&0&0001					
HID Keyboard Device	Yes	KEYBOARD	5.2.3790.1830	10/1/2002	(Standard keyboards)
keyboard.inf	Not Available				
HID\VID_09AE&PID_0002&MI_00\7&38484CD1&0&0000					
USB Human Interface Device	Yes	HIDCLASS	5.2.3790.1830	10/1/2002	(Standard system devices)
input.inf	Not Available				
USB\VID_09AE&PID_0002&MI_00\6&8FA055B&0&0000					
USB Composite Device	Yes	USB	5.2.3790.1830	10/1/2002	(Standard USB Host Controller)
usb.inf	Not Available				
USB\VID_09AE&PID_0002\USB_COMPOSITE_DEVICE					
USB Root Hub	Yes	USB	5.2.3790.1830	10/1/2002	(Standard USB Host Controller)
usbport.inf	Not Available				
USB\ROOT_HUB\4&2DC298A6&0					
Standard Universal PCI to USB Host Controller	Yes	USB	5.2.3790.1830	10/1/2002	(Standard USB Host Controller)
usbport.inf	Not Available				
PCI\VEN_8086&DEV_2689&SUBSYS_01B11028&REV_09\3&61AAA01&0&E9					
USB Root Hub	Yes	USB	5.2.3790.1830	10/1/2002	(Standard USB Host Controller)
usbport.inf	Not Available				
USB\ROOT_HUB\4&1C492D05&0					
Standard Universal PCI to USB Host Controller	Yes	USB	5.2.3790.1830	10/1/2002	(Standard USB Host Controller)
usbport.inf	Not Available				
PCI\VEN_8086&DEV_2688&SUBSYS_01B11028&REV_09\3&61AAA01&0&E8					
Broadcom BCM5708C NetXtreme II GigE (NDIS VBD Client)	Yes	NET	2.6.14.0	4/3/2006	Broadcom Corporation
oem3.inf	Not Available				

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B06BDRV\L2ND&PCI\_164C14E4&SUBSYS\_01B11028&REV\_12\6&2F68317E&0&2005  
0500  
Broadcom BCM5708C NetXtreme II GigE Yes SYSTEM 2.6.22.0  
11/13/2006 Broadcom Corporation oem5.inf Not Available  
PCIIVEN\_14E4&DEV\_164C&SUBSYS\_01B11028&REV\_12\5&43097C6&0&0000E0  
PCI standard PCI-to-PCI bridge Yes SYSTEM 5.2.3790.1830 10/1/2002  
(Standard system devices) machine.inf Not Available  
PCIIVEN\_1166&DEV\_0103&SUBSYS\_00000000&REV\_C3\4&187919FE&0&00E0  
PCI standard PCI-to-PCI bridge Yes SYSTEM 5.2.3790.1830 10/1/2002  
(Standard system devices) machine.inf Not Available  
PCIIVEN\_8086&DEV\_2690&SUBSYS\_00000000&REV\_09\3&61AAA01&0&E0  
PCI standard host CPU bridge Yes SYSTEM 5.2.3790.1830 10/1/2002  
(Standard system devices) machine.inf Not Available  
PCIIVEN\_8086&DEV\_25F6&SUBSYS\_00000000&REV\_12\3&61AAA01&0&B0  
PCI standard host CPU bridge Yes SYSTEM 5.2.3790.1830 10/1/2002  
(Standard system devices) machine.inf Not Available  
PCIIVEN\_8086&DEV\_25F5&SUBSYS\_00000000&REV\_12\3&61AAA01&0&A8  
PCI standard host CPU bridge Yes SYSTEM 5.2.3790.1830 10/1/2002  
(Standard system devices) machine.inf Not Available  
PCIIVEN\_8086&DEV\_25F3&SUBSYS\_00000000&REV\_12\3&61AAA01&0&98  
PCI standard host CPU bridge Yes SYSTEM 5.2.3790.1830 10/1/2002  
(Standard system devices) machine.inf Not Available  
PCIIVEN\_8086&DEV\_25F1&SUBSYS\_00000000&REV\_12\3&61AAA01&0&88  
PCI standard host CPU bridge Yes SYSTEM 5.2.3790.1830 10/1/2002  
(Standard system devices) machine.inf Not Available  
PCIIVEN\_8086&DEV\_25F0&SUBSYS\_00000000&REV\_12\3&61AAA01&0&82  
PCI standard host CPU bridge Yes SYSTEM 5.2.3790.1830 10/1/2002  
(Standard system devices) machine.inf Not Available  
PCIIVEN\_8086&DEV\_25F0&SUBSYS\_00000000&REV\_12\3&61AAA01&0&81  
PCI standard host CPU bridge Yes SYSTEM 5.2.3790.1830 10/1/2002  
(Standard system devices) machine.inf Not Available  
PCIIVEN\_8086&DEV\_25F0&SUBSYS\_00000000&REV\_12\3&61AAA01&0&80  
PCI standard PCI-to-PCI bridge Yes SYSTEM 5.2.3790.1830 10/1/2002  
(Standard system devices) machine.inf Not Available  
PCIIVEN\_8086&DEV\_25E7&SUBSYS\_00000000&REV\_12\3&61AAA01&0&38  
LSI Logic MegaRAID Virtual Device Yes SYSTEM 2.8.0.64 12/15/2006  
LSI Logic Corp. oem0.inf Not Available  
SCSI\OTHER&VEN\_\_RAID&PROD\_\_DUMMYDEVICE&REV\_0001\5&2AFBCD5B&1&  
1400  
Disk drive Yes DISKDRIVE 5.2.3790.1830 10/1/2002 (Standard disk drives)  
disk.inf Not Available  
SCSI\DISK&VEN\_DELL&PROD\_PERC\_6/E\_ADAPTER&REV\_1.11\5&2AFBCD5B&1&1  
30  
Disk drive Yes DISKDRIVE 5.2.3790.1830 10/1/2002 (Standard disk drives)  
disk.inf Not Available  
SCSI\DISK&VEN\_DELL&PROD\_PERC\_6/E\_ADAPTER&REV\_1.11\5&2AFBCD5B&1&1  
20  
RAID Controller Not Available Not Available Not Available Not Available Not Available  
Not Available Not Available  
PCIIVEN\_1000&DEV\_0060&SUBSYS\_1F0A1028&REV\_04\4&149DD53B&0&0030  
PCI standard PCI-to-PCI bridge Yes SYSTEM 5.2.3790.1830 10/1/2002  
(Standard system devices) machine.inf Not Available  
PCIIVEN\_8086&DEV\_25F9&SUBSYS\_00000000&REV\_12\3&61AAA01&0&30

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PCI standard PCI-to-PCI bridge Yes SYSTEM 5.2.3790.1830 10/1/2002  
 (Standard system devices) machine.inf Not Available  
 PCI\VEN\_8086&DEV\_0372&SUBSYS\_00000000&REV\_00\4&28CEA4F8&0&0228

LSI Logic MegaRAID Virtual Device Yes SYSTEM 2.8.0.64 12/15/2006  
 LSI Logic Corp. oem0.inf Not Available  
 SCSI\OTHER&VEN\_\_\_RAID&PROD\_\_DUMMYDEVICE&REV\_0001\6&107D05B&0&14  
 00

Disk drive Yes DISKDRIVE 5.2.3790.1830 10/1/2002 (Standard disk drives)  
 disk.inf Not Available  
 SCSI\DISK&VEN\_DELL&PROD\_PERC\_5\I&REV\_1.00\6&107D05B&0&100

DELL PERC 5/I Adapter RAID Controller No SCSIADAPTER 2.8.0.64  
 12/15/2006 LSI Logic Corp., oem1.inf Not Available  
 PCI\VEN\_1028&DEV\_0015&SUBSYS\_1F031028&REV\_00\5&22FD9970&0&700028

PCI standard PCI-to-PCI bridge Yes SYSTEM 5.2.3790.1830 10/1/2002  
 (Standard system devices) machine.inf Not Available  
 PCI\VEN\_8086&DEV\_0370&SUBSYS\_00000000&REV\_00\4&28CEA4F8&0&0028

PCI standard PCI-to-PCI bridge Yes SYSTEM 5.2.3790.1830 10/1/2002  
 (Standard system devices) machine.inf Not Available  
 PCI\VEN\_8086&DEV\_25E5&SUBSYS\_00000000&REV\_12\3&61AAA01&0&28

LSI Logic MegaRAID Virtual Device Yes SYSTEM 2.8.0.64 12/15/2006  
 LSI Logic Corp. oem0.inf Not Available  
 SCSI\OTHER&VEN\_\_\_RAID&PROD\_\_DUMMYDEVICE&REV\_0001\5&67C9239&1&14  
 00

Disk drive Yes DISKDRIVE 5.2.3790.1830 10/1/2002 (Standard disk drives)  
 disk.inf Not Available  
 SCSI\DISK&VEN\_DELL&PROD\_PERC\_6\E\_ADAPTER&REV\_1.11\5&67C9239&1&150

Disk drive Yes DISKDRIVE 5.2.3790.1830 10/1/2002 (Standard disk drives)  
 disk.inf Not Available  
 SCSI\DISK&VEN\_DELL&PROD\_PERC\_6\E\_ADAPTER&REV\_1.11\5&67C9239&1&140

RAID Controller Not Available Not Available Not Available Not Available Not Available  
 Not Available Not Available  
 PCI\VEN\_1000&DEV\_0060&SUBSYS\_1F0A1028&REV\_04\4&201440C3&0&0020

PCI standard PCI-to-PCI bridge Yes SYSTEM 5.2.3790.1830 10/1/2002  
 (Standard system devices) machine.inf Not Available  
 PCI\VEN\_8086&DEV\_25E4&SUBSYS\_00000000&REV\_12\3&61AAA01&0&20

PCI standard PCI-to-PCI bridge Yes SYSTEM 5.2.3790.1830 10/1/2002  
 (Standard system devices) machine.inf Not Available  
 PCI\VEN\_8086&DEV\_25E3&SUBSYS\_00000000&REV\_12\3&61AAA01&0&18

PCI standard PCI-to-PCI bridge Yes SYSTEM 5.2.3790.1830 10/1/2002  
 (Standard system devices) machine.inf Not Available  
 PCI\VEN\_8086&DEV\_350C&SUBSYS\_00000000&REV\_01\4&3667122&0&0310

LSI Logic MegaRAID Virtual Device Yes SYSTEM 2.8.0.64 12/15/2006  
 LSI Logic Corp. oem0.inf Not Available  
 SCSI\OTHER&VEN\_\_\_RAID&PROD\_\_DUMMYDEVICE&REV\_0001\7&30B2985A&1&1  
 400

Disk drive Yes DISKDRIVE 5.2.3790.1830 10/1/2002 (Standard disk drives)  
 disk.inf Not Available  
 SCSI\DISK&VEN\_DELL&PROD\_PERC\_6\E\_ADAPTER&REV\_1.11\7&30B2985A&1&11  
 0

Disk drive Yes DISKDRIVE 5.2.3790.1830 10/1/2002 (Standard disk drives)  
 disk.inf Not Available  
 SCSI\DISK&VEN\_DELL&PROD\_PERC\_6\E\_ADAPTER&REV\_1.11\7&30B2985A&1&10  
 0

APPENDIX C - TUNABLE PARAMETERS

RAID Controller	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
PCI standard PCI-to-PCI bridge	Yes	SYSTEM	5.2.3790.1830	10/1/2002			
(Standard system devices) machine.inf Not Available							
Broadcom BCM5708C NetXtreme II GigE (NDIS VBD Client)	Yes	NET	2.6.14.0				
4/3/2006 Broadcom Corporation oem3.inf Not Available							
B06BDRV\12ND&PCI_164C14E4&SUBSYS_01B11028&REV_1218&126A2D63&0&20050900							
Broadcom BCM5708C NetXtreme II GigE	Yes	SYSTEM	2.6.22.0				
11/13/2006 Broadcom Corporation oem5.inf Not Available							
PCIIVEN_14E4&DEV_164C&SUBSYS_01B11028&REV_1217&2A8A8A3B&0&00000000							
PCI standard PCI-to-PCI bridge	Yes	SYSTEM	5.2.3790.1830	10/1/2002			
(Standard system devices) machine.inf Not Available							
PCIIVEN_1166&DEV_0103&SUBSYS_00000000&REV_C3\6&6336DE7&0&00000010							
PCI standard PCI-to-PCI bridge	Yes	SYSTEM	5.2.3790.1830	10/1/2002			
(Standard system devices) machine.inf Not Available							
PCIIVEN_8086&DEV_3510&SUBSYS_00000000&REV_01\5&2D9FD309&0&000010							
PCI standard PCI-to-PCI bridge	Yes	SYSTEM	5.2.3790.1830	10/1/2002			
(Standard system devices) machine.inf Not Available							
PCIIVEN_8086&DEV_3500&SUBSYS_00000000&REV_01\4&3667122&0&0010							
PCI standard PCI-to-PCI bridge	Yes	SYSTEM	5.2.3790.1830	10/1/2002			
(Standard system devices) machine.inf Not Available							
PCIIVEN_8086&DEV_25E2&SUBSYS_00000000&REV_12\3&61AAA01&0&10							
PCI standard host CPU bridge	Yes	SYSTEM	5.2.3790.1830	10/1/2002			
(Standard system devices) machine.inf Not Available							
PCIIVEN_8086&DEV_25C0&SUBSYS_00000000&REV_12\3&61AAA01&0&00							
PCI bus	Yes	SYSTEM	5.2.3790.1830	10/1/2002	(Standard system devices)		
machine.inf Not Available ACPI\PNP0A03\2&DABA3FF&0							
System board	Yes	SYSTEM	5.2.3790.1830	10/1/2002	(Standard system devices)		
machine.inf Not Available ACPI\PNP0C33\WHEA							
Intel Processor Available	Yes	PROCESSOR	5.2.3790.1830	10/1/2002	Intel	cpu.inf	Not
ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_23\3							
Intel Processor Available	Yes	PROCESSOR	5.2.3790.1830	10/1/2002	Intel	cpu.inf	Not
ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_23\2							
Intel Processor Available	Yes	PROCESSOR	5.2.3790.1830	10/1/2002	Intel	cpu.inf	Not
ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_23\1							
Intel Processor Available	Yes	PROCESSOR	5.2.3790.1830	10/1/2002	Intel	cpu.inf	Not
ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_23\0							
Microsoft ACPI-Compliant System	Yes	SYSTEM	5.2.3790.1830	10/1/2002			
Microsoft acpi.inf Not Available ACPI_HAL\PNP0C08\0							
ACPI Multiprocessor x64-based PC	Yes	COMPUTER	5.2.3790.1830	10/1/2002			
(Standard computers) hal.inf Not Available ROOT\ACPI_HAL\0000							
Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
Not Available Not Available HTREE\ROOT\0							

[Environment Variables]

Variable	Value	User Name
ClusterLog	C:\WINDOWS\Cluster\cluster.log	<SYSTEM>
ComSpec	%SystemRoot%\system32\cmd.exe	<SYSTEM>
FP_NO_HOST_CHECKNO	<SYSTEM>	
NUMBER_OF_PROCESSORS	4	<SYSTEM>



APPENDIX C - TUNABLE PARAMETERS

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ORACLE_HOME      c:\app\Administrator\product\11.1.0\DB      <SYSTEM>
ORACLE_SID tpcc <SYSTEM>
OS Windows_NT <SYSTEM>
Path
    C:\mksnt;C:\app\Administrator\product\11.1.0\DB\bin;%SystemRoot%\system32;%SystemRoot%\SystemRoot%\System32\Wbem <SYSTEM>
PATHEXT .COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH <SYSTEM>
PROCESSOR_ARCHITECTURE AMD64 <SYSTEM>
PROCESSOR_IDENTIFIER EM64T Family 6 Model 23 Stepping 4, GenuineIntel <SYSTEM>
PROCESSOR_LEVEL 6 <SYSTEM>
PROCESSOR_REVISION 1704 <SYSTEM>
TEMP %SystemRoot%\TEMP <SYSTEM>
TMP %SystemRoot%\TEMP <SYSTEM>
windir %SystemRoot% <SYSTEM>
TEMP %USERPROFILE%\Local Settings\Temp NT AUTHORITY\SYSTEM
TMP %USERPROFILE%\Local Settings\Temp NT AUTHORITY\SYSTEM
TEMP %USERPROFILE%\Local Settings\Temp NT AUTHORITY\LOCAL SERVICE
TMP %USERPROFILE%\Local Settings\Temp NT AUTHORITY\LOCAL SERVICE
TEMP %USERPROFILE%\Local Settings\Temp NT AUTHORITY\NETWORK SERVICE
TMP %USERPROFILE%\Local Settings\Temp NT AUTHORITY\NETWORK SERVICE
TEMP %USERPROFILE%\Local Settings\Temp PE2900_2\Administrator
TMP %USERPROFILE%\Local Settings\Temp PE2900_2\Administrator
    
```

[Print Jobs]

Document	Size	Owner	Notify	Status	Time Submitted	Start Time	Until Time
Elapsed Time	Pages	Printed	Job ID	Priority	Parameters	Driver	Print Processor
Host	Print Queue	Data Type	Name				

[Network Connections]

Local Name	Remote Name	Type	Status	User Name
Y:	\\tpccarm\c\$	Disk	Persistent Connection	PE2900_2\Administrator
Z:	\\192.1.1.106\c\$	Disk	Persistent Connection	PE2900_2\Administrator

[Running Tasks]

Name	Path	Process ID	Priority	Min Working Set	Max Working Set	Start Time	Version	Size	File Date
system idle process		Not Available	0	0	Not Available	Not Available	Not Available	Not Available	Not Available
system	Not Available	4	8	0	1413120	Not Available	Not Available	Not Available	Not Available
smss.exe	Not Available	360	11	204800	1413120	5/28/2008 1:41 PM	Not Available	Not Available	Not Available
csrss.exe	Not Available	560	13	Not Available	Not Available	5/28/2008 1:41 PM	Not Available	Not Available	Not Available
winlogon.exe	c:\windows\system32\winlogon.exe	616	13	204800	1413120	5/28/2008 1:41 PM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	901.00 KB	(922,624 bytes) 3/25/2005 6:00 AM
services.exe	c:\windows\system32\services.exe	676	9	204800	1413120	5/28/2008 1:41 PM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	216.50 KB	(221,696 bytes) 3/25/2005 6:00 AM

APPENDIX C - TUNABLE PARAMETERS

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lsass.exe	c:\windows\system32\lsass.exe	688	9	204800	1413120		
	5/28/2008 1:41 PM	5.2.3790.1830	(srv03_sp1_rtm.050324-1447)	14.00 KB	(14,336 bytes)	3/25/2005 6:00 AM	
svchost.exe	c:\windows\system32\svchost.exe	856	8	204800	1413120		
	5/28/2008 1:41 PM	5.2.3790.1830	(srv03_sp1_rtm.050324-1447)	24.50 KB	(25,088 bytes)	3/25/2005 6:00 AM	
svchost.exe	Not Available	964	8	Not Available	Not Available	5/28/2008 1:41 PM	Not Available
svchost.exe	Not Available	144	8	Not Available	Not Available	5/28/2008 1:41 PM	Not Available
svchost.exe	Not Available	236	8	Not Available	Not Available	5/28/2008 1:41 PM	Not Available
svchost.exe	c:\windows\system32\svchost.exe	312	8	204800	1413120		
	5/28/2008 1:41 PM	5.2.3790.1830	(srv03_sp1_rtm.050324-1447)	24.50 KB	(25,088 bytes)	3/25/2005 6:00 AM	
msdtc.exe	Not Available	876	8	Not Available	Not Available	5/28/2008 1:41 PM	Not Available
svchost.exe	c:\windows\system32\svchost.exe	1144	8	204800	1413120		
	5/28/2008 1:41 PM	5.2.3790.1830	(srv03_sp1_rtm.050324-1447)	24.50 KB	(25,088 bytes)	3/25/2005 6:00 AM	
tnslsnr.exe	c:\app\administrator\product\11.1.0\db\bin\tnslsnr.exe	1172	8	204800	1413120	5/28/2008 1:41 PM	Not Available
	4/9/2008 3:41 PM			541.50 KB	(554,496 bytes)		
oracle.exe	c:\app\administrator\product\11.1.0\db\bin\oracle.exe	1396	8	204800	1413120	5/28/2008 1:41 PM	11.1.0.6.0 Production
	4/9/2008 3:41 PM			103.41 MB	(108,431,872 bytes)		
oravssw.exe	c:\app\administrator\product\11.1.0\db\bin\oravssw.exe	1428	8	204800	1413120	5/28/2008 1:41 PM	Not Available
	4/9/2008 3:42 PM			230.50 KB	(236,032 bytes)		
svchost.exe	Not Available	1472	8	Not Available	Not Available	5/28/2008 1:41 PM	Not Available
vivaldiframework.exe	c:\program files (x86)\megaraid storage manager\framework\vivaldiframework.exe	1612	8	204800	1413120	5/28/2008 1:41 PM	Not Available
				52.00 KB	(53,248 bytes)	11/29/2006 7:05 PM	
cmd.exe	c:\windows\system32\cmd.exe	1684	8	204800	1413120	5/28/2008 1:41 PM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)
				538.50 KB	(551,424 bytes)	3/25/2005 6:00 AM	
javaw.exe	c:\program files (x86)\megaraid storage manager\jre\bin\javaw.exe	1696	8	204800	1413120	5/28/2008 1:41 PM	6.0.0.105
				132.00 KB	(135,168 bytes)	12/21/2006 4:40 PM	
mrmonitor.exe	c:\program files (x86)\megaraid storage manager\megamonitor\mrmonitor.exe	1760	8	204800	1413120	5/28/2008 1:41 PM	Not Available
				408.00 KB	(417,792 bytes)	11/15/2006 11:57 AM	
svchost.exe	c:\windows\system32\svchost.exe	1788	8	204800	1413120	5/28/2008 1:41 PM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)
				24.50 KB	(25,088 bytes)	3/25/2005 6:00 AM	
wmiprvse.exe	Not Available	548	8	Not Available	Not Available	5/28/2008 1:41 PM	Not Available
csrss.exe	Not Available	1900	13	Not Available	Not Available	5/28/2008 2:06 PM	Not Available
winlogon.exe	c:\windows\system32\winlogon.exe	1996	13	204800	1413120	5/28/2008 2:06 PM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)
				901.00 KB	(922,624 bytes)	3/25/2005 6:00 AM	

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rdpclip.exe	c:\windows\system32\rdpclip.exe	1216	8	204800	1413120	5/28/2008 2:06 PM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	99.00 KB (101,376 bytes)	4/2/2008 12:39 AM
explorer.exe	c:\windows\explorer.exe	1656	8	204800	1413120	5/28/2008 2:06 PM	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	1.30 MB (1,364,480 bytes)	3/25/2005 6:00 AM
bacstray.exe	c:\program files\broadcom\bacs\bacstray.exe	2008	8	204800	1413120	5/28/2008 2:06 PM	8, 3, 11, 0	105.00 KB (107,520 bytes)	4/4/2006 10:42 PM
popup.exe	c:\program files (x86)\megaraid storage manager\megapopup\popup.exe	1680	8	204800	1413120	5/28/2008 2:06 PM	1.00-21	76.09 KB (77,920 bytes)	8/15/2006 4:00 PM
wuauclt.exe	c:\windows\system32\wuauclt.exe	484	8	204800	1413120	5/28/2008 2:06 PM	5.7.3790.1830 (srv03_sp1_rtm.050324-1447)	156.00 KB (159,744 bytes)	4/2/2008 12:40 AM
wmiprvse.exe	Not Available	2532	8	Not Available	Not Available	5/28/2008 2:07 PM	Not Available	Not Available	Not Available
helpctr.exe	c:\windows\pchealth\helpctr\binaries\helpctr.exe	2888	8	204800	1413120	5/28/2008 2:07 PM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.30 MB (1,363,456 bytes)	4/2/2008 12:40 AM
helpsvc.exe	c:\windows\pchealth\helpctr\binaries\helpsvc.exe	2984	8	204800	1413120	5/28/2008 2:07 PM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.52 MB (1,591,296 bytes)	4/2/2008 12:40 AM

[Loaded Modules]

Name	Version	Size	File Date	Manufacturer	Path
winlogon	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	901.00 KB (922,624 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\winlogon.exe
ntdll	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.20 MB (1,257,472 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\ntdll.dll
kernel32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.43 MB (1,500,160 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\kernel32.dll
advapi32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.00 MB (1,051,136 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\advapi32.dll
rpcrt4	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.63 MB (1,714,176 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\rpcrt4.dll
crypt32	5.131.3790.1830 (srv03_sp1_rtm.050324-1447)	1.36 MB (1,428,992 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\crypt32.dll
msasn1	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	152.50 KB (156,160 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\msasn1.dll
msvcrt	7.0.3790.1830 (srv03_sp1_rtm.050324-1447)	508.00 KB (520,192 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\msvcrt.dll
user32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.04 MB (1,085,952 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\user32.dll
gdi32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	592.00 KB (606,208 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\gdi32.dll
nddeapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	25.00 KB (25,600 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\nddeapi.dll
profmap	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	36.00 KB (36,864 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\profmap.dll
netapi32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	589.00 KB (603,136 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\netapi32.dll
userenv	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.02 MB (1,069,056 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\userenv.dll

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psapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	29.00 KB (29,696 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\psapi.dll
regapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	108.50 KB (111,104 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\regapi.dll
secur32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	120.00 KB (122,880 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\secur32.dll
setupapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.45 MB (1,523,200 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\setupapi.dll
version	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	28.00 KB (28,672 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\version.dll
winsta	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	89.00 KB (91,136 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\winsta.dll
ws2_32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	176.50 KB (180,736 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\ws2_32.dll
ws2help	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	30.50 KB (31,232 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\ws2help.dll
msgina	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.14 MB (1,193,472 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\msgina.dll
shsvcs	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	193.50 KB (198,144 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\shsvcs.dll
shlwapi	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	606.50 KB (621,056 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\shlwapi.dll
sfc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	6.00 KB (6,144 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\sfc.dll
sfc_os	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	183.50 KB (187,904 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\sfc_os.dll
wintrust	5.131.3790.1830 (srv03_sp1_rtm.050324-1447)	297.50 KB (304,640 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\wintrust.dll
imagehlp	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	57.50 KB (58,880 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\imagehlp.dll
ole32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	2.43 MB (2,543,616 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\ole32.dll
comctl32	6.0 (srv03_sp1_rtm.050324-1447)	1.51 MB (1,584,128 bytes)	4/1/2008 6:32 PM	Microsoft Corporation	c:\windows\winsxs\amd64_microsoft.windows.common-controls_6595b64144ccf1df_6.0.3790.1830_x-ww_aced72af\comctl32.dll
winscard	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	230.00 KB (235,520 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\winscard.dll
wtsapi32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	29.00 KB (29,696 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\wtsapi32.dll
winmm	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	303.50 KB (310,784 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\winmm.dll
sxs	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.91 MB (2,003,968 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\sxs.dll
shell32	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	10.01 MB (10,492,416 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\shell32.dll
wldap32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	390.00 KB (399,360 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\wldap32.dll
rsaenh	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	241.96 KB (247,768 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\rsaenh.dll
cscdll	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	151.50 KB (155,136 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\cscdll.dll
dimsntfy	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	28.00 KB (28,672 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\dimsntfy.dll

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APPENDIX C - TUNABLE PARAMETERS

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wlnotify	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	148.00 KB (151,552 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\wlnotify.dll
mpr	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	115.00 KB (117,760 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\mpr.dll
oleaut32	5.2.3790.1830	1.06 MB (1,116,160 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation		c:\windows\system32\oleaut32.dll
winspool	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	247.00 KB (252,928 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\winspool.drv
comctl32	5.82 (srv03_sp1_rtm.050324-1447)	934.50 KB (956,928 bytes)	
	4/1/2008 6:32 PM	Microsoft Corporation	c:\windows\winsxs\amd64_microsoft.windows.common-
controls_6595b64144ccf1df_5.82.3790.1830_x-ww_4d792d2a\comctl32.dll			
uxtheme	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	494.50 KB (506,368 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\uxtheme.dll
scredir	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	38.50 KB (39,424 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation		c:\windows\system32\scredir.dll
samlib	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	69.00 KB (70,656 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation		c:\windows\system32\samlib.dll
clbcatq	2001.12.4720.1830 (srv03_sp1_rtm.050324-1447)	865.00 KB (885,760 bytes)	
	4/2/2008 12:39 AM	Microsoft Corporation	c:\windows\system32\clbcatq.dll
comres	2001.12.4720.1830 (srv03_sp1_rtm.050324-1447)	779.50 KB (798,208 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\comres.dll
cscui	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	441.00 KB (451,584 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\cscui.dll
rdpsnd	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	25.00 KB (25,600 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation		c:\windows\system32\rdpsnd.dll
msacm32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	31.00 KB (31,744 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\msacm32.drv
msacm32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	112.00 KB (114,688 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\msacm32.dll
imaadp32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	24.00 KB (24,576 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\imaadp32.acm
msadp32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	23.50 KB (24,064 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\msadp32.acm
msg7115	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	13.50 KB (13,824 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation		c:\windows\system32\msg711.acm
msgsm32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	34.50 KB (35,328 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\msgsm32.acm
tssoft32	1.01	13.50 KB (13,824 bytes)	3/25/2005 6:00 AM
		DSP GROUP, INC.	c:\windows\system32\tssoft32.acm
tsd32	1.03	24.50 KB (25,088 bytes)	3/25/2005 6:00 AM
		DSP GROUP, INC.	c:\windows\system32\tsd32.dll
drprov	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	24.00 KB (24,576 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation		c:\windows\system32\drprov.dll
ntlanman	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	71.50 KB (73,216 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\ntlanman.dll
netui0	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	130.00 KB (133,120 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\netui0.dll
netui1	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	338.50 KB (346,624 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\netui1.dll
davclnt	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	38.00 KB (38,912 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation		c:\windows\system32\davclnt.dll
mprui	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	67.50 KB (69,120 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation		c:\windows\system32\mprui.dll

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netui2	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	542.00 KB (555,008 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\netui2.dll
comdlg32	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	446.50 KB (457,216 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\comdlg32.dll
netmsg	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	179.00 KB (183,296 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\netmsg.dll
ntmarta	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	222.50 KB (227,840 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\ntmarta.dll
xpsp2res	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	2.77 MB (2,899,456 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\xpsp2res.dll
services	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	216.50 KB (221,696 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\services.exe
ncobjapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	80.00 KB (81,920 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\ncobjapi.dll
msvcp60	7.0.3790.1830 (srv03_sp1_rtm.050324-1447)	919.50 KB (941,568 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\msvcp60.dll
scesrv	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	594.50 KB (608,768 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\scesrv.dll
authz	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	167.00 KB (171,008 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\authz.dll
umpnpgm	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	205.00 KB (209,920 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\umpnpgm.dll
eventlog	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	127.00 KB (130,048 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\eventlog.dll
cryptnet	5.131.3790.1830 (srv03_sp1_rtm.050324-1447)	108.50 KB (111,104 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\cryptnet.dll
sensapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	10.50 KB (10,752 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\sensapi.dll
cabinet	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	138.50 KB (141,824 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\cabinet.dll
imm32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	208.00 KB (212,992 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\imm32.dll
apphelp	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	241.00 KB (246,784 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\apphelp.dll
lsass	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	14.00 KB (14,336 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\lsass.exe
lsasrv	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.50 MB (1,568,256 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\lsasrv.dll
ntdsapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	127.50 KB (130,560 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\ntdsapi.dll
dnsapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	297.50 KB (304,640 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\dnsapi.dll
samsrv	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.01 MB (1,059,328 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\samsrv.dll
cryptdll	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	47.00 KB (48,128 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\cryptdll.dll
msprivs	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	47.50 KB (48,640 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\msprivs.dll
kerberos	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	698.00 KB (714,752 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\kerberos.dll
msv1_0	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	253.00 KB (259,072 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\msv1_0.dll
iphlpapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	177.00 KB (181,248 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\iphlpapi.dll

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netlogon	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	666.00 KB (681,984 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\netlogon.dll
w32time	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	400.50 KB (410,112 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\w32time.dll
schannel	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	248.00 KB (253,952 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\schannel.dll
wdigest	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	130.50 KB (133,632 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\wdigest.dll
rassfm	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	36.00 KB (36,864 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation		c:\windows\system32\rassfm.dll
kdcsvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	409.00 KB (418,816 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\kdcsvc.dll
ntlsa	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	2.81 MB (2,948,096 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\ntlsa.dll
esent	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	2.26 MB (2,366,976 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\esent.dll
ntdsatq	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	51.00 KB (52,224 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation		c:\windows\system32\ntdsatq.dll
msswsock	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	478.00 KB (489,472 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\msswsock.dll
scecli	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	308.00 KB (315,392 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\scecli.dll
ws03res	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	794.00 KB (813,056 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\ws03res.dll
hnetcfg	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	561.00 KB (574,464 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\hnetcfg.dll
wshtcpip	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	29.00 KB (29,696 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\wshtcpip.dll
ipsecsvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	358.50 KB (367,104 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\ipsecsvc.dll
oakley	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	372.50 KB (381,440 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\oakley.dll
winiipsec	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	52.50 KB (53,760 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\winiipsec.dll
pstorsvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	36.00 KB (36,864 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\pstorsvc.dll
psbase	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	124.00 KB (126,976 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\psbase.dll
dssenh	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	226.96 KB (232,408 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\dssenh.dll
wlbsctrl	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	137.50 KB (140,800 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\wlbsctrl.dll
svchost	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	24.50 KB (25,088 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation		c:\windows\system32\svchost.exe
rpcss	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	672.00 KB (688,128 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\rpcss.dll
schedsvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	308.50 KB (315,904 bytes)	
	4/2/2008 12:40 AM	Microsoft Corporation	c:\windows\system32\schedsvc.dll
msidle	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	9.00 KB (9,216 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation		c:\windows\system32\msidle.dll
wkssvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	221.00 KB (226,304 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\wkssvc.dll
wiarpc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	57.00 KB (58,368 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation		c:\windows\system32\wiarpc.dll

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aelupsvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	31.50 KB (32,256 bytes)
	3/25/2005 6:00 AM	Microsoft Corporation c:\windows\system32\aelupsvc.dll
cryptsvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	114.00 KB (116,736 bytes)
	3/25/2005 6:00 AM	Microsoft Corporation c:\windows\system32\cryptsvc.dll
certcli	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	372.00 KB (380,928 bytes)
	3/25/2005 6:00 AM	Microsoft Corporation c:\windows\system32\certcli.dll
atl	3.05.2284	96.50 KB (98,816 bytes)3/25/2005 6:00 AM
		Microsoft Corporation c:\windows\system32\atl.dll
vssapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.26 MB (1,320,960 bytes)
	3/25/2005 6:00 AM	Microsoft Corporation c:\windows\system32\vssapi.dll
dmserver	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	36.50 KB (37,376 bytes)
	3/25/2005 6:00 AM	Microsoft Corporation c:\windows\system32\dmserver.dll
es	2001.12.4720.1830 (srv03_sp1_rtm.050324-1447)	357.00 KB (365,568 bytes)
	3/25/2005 6:00 AM	Microsoft Corporation c:\windows\system32\es.dll
pchsvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	76.00 KB (77,824 bytes)4/2/2008 12:40 AM
	Microsoft Corporation	c:\windows\pchealth\helpctr\binaries\pchsvc.dll
hidserv	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	24.00 KB (24,576 bytes)4/1/2008 6:37 PM
	Microsoft Corporation	c:\windows\system32\hidserv.dll
hid	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	33.00 KB (33,792 bytes)3/24/2005 11:18 AM
	Microsoft Corporation	c:\windows\system32\hid.dll
srvsvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	156.50 KB (160,256 bytes)
	3/25/2005 6:00 AM	Microsoft Corporation c:\windows\system32\srvsvc.dll
comsvcs	2001.12.4720.1830 (srv03_sp1_rtm.050324-1447)	2.06 MB (2,156,544 bytes) 4/2/2008 12:39 AM
	Microsoft Corporation	c:\windows\system32\comsvcs.dll
seclogon	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	27.50 KB (28,160 bytes)
	3/25/2005 6:00 AM	Microsoft Corporation c:\windows\system32\seclogon.dll
sens	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	63.50 KB (65,024 bytes)3/25/2005 6:00 AM
	Microsoft Corporation	c:\windows\system32\sens.dll
trkwks	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	177.50 KB (181,760 bytes)
	3/25/2005 6:00 AM	Microsoft Corporation c:\windows\system32\trkwks.dll
wmisvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	227.00 KB (232,448 bytes)
	4/2/2008 12:39 AM	Microsoft Corporation c:\windows\system32\wbem\wmisvc.dll
wuauerv	5.7.3790.1830 (srv03_sp1_rtm.050324-1447)	12.00 KB (12,288 bytes)
	4/2/2008 12:40 AM	Microsoft Corporation c:\windows\system32\wuauerv.dll
browser	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	125.50 KB (128,512 bytes)
	3/25/2005 6:00 AM	Microsoft Corporation c:\windows\system32\browser.dll
wuaueng	5.7.3790.1830 (srv03_sp1_rtm.050324-1447)	2.17 MB (2,270,720 bytes)
	4/2/2008 12:40 AM	Microsoft Corporation c:\windows\system32\wuaueng.dll
advpack	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	146.00 KB (149,504 bytes)
	3/25/2005 6:00 AM	Microsoft Corporation c:\windows\system32\advpack.dll
mspatcha	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	48.00 KB (49,152 bytes)
	3/25/2005 6:00 AM	Microsoft Corporation c:\windows\system32\mspachta.dll
shfolder	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	34.00 KB (34,816 bytes)3/25/2005 6:00 AM
	Microsoft Corporation	c:\windows\system32\shfolder.dll
winhttp	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	508.50 KB (520,704 bytes)
	4/1/2008 6:32 PM	Microsoft Corporation c:\windows\winsxs\amd64_microsoft.windows.winhttp_6595b64144ccf1df_5.1.3790.1830_x-ww_a61ef4db\winhttp.dll
wbemcore	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.24 MB (1,299,968 bytes)
	4/2/2008 12:39 AM	Microsoft Corporation c:\windows\system32\wbem\wbemcore.dll
esscli	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	626.50 KB (641,536 bytes)
	4/2/2008 12:39 AM	Microsoft Corporation c:\windows\system32\wbem\esscli.dll

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wbemcomn	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	524.00 KB (536,576 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	
	c:\windows\system32\wbem\wbemcomn.dll	
fastprox	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	866.50 KB (887,296 bytes)
	4/2/2008 12:39 AM Microsoft Corporation	
	c:\windows\system32\wbem\fastprox.dll	
wbemsvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	58.00 KB (59,392 bytes)
	4/2/2008 12:39 AM Microsoft Corporation	
	c:\windows\system32\wbem\wbemsvc.dll	
wmiutils	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	171.00 KB (175,104 bytes)
	4/2/2008 12:39 AM Microsoft Corporation	
	c:\windows\system32\wbem\wmiutils.dll	
repdrvfs	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	353.50 KB (361,984 bytes)
	4/2/2008 12:39 AM Microsoft Corporation	
	c:\windows\system32\wbem\repdrvfs.dll	
wmiprvsd	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	743.00 KB (760,832 bytes)
	4/2/2008 12:39 AM Microsoft Corporation	
	c:\windows\system32\wbem\wmiprvsd.dll	
wbemess	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	532.50 KB (545,280 bytes)
	4/2/2008 12:39 AM Microsoft Corporation	
	c:\windows\system32\wbem\wbemess.dll	
ncprov	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	73.00 KB (74,752 bytes)
	4/2/2008 12:39 AM Microsoft Corporation	
	c:\windows\system32\wbem\ncprov.dll	
actxprxy	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	220.50 KB (225,792 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	
	c:\windows\system32\actxprxy.dll	
netman	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	457.00 KB (467,968 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	
	c:\windows\system32\netman.dll	
mprapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	154.50 KB (158,208 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	
	c:\windows\system32\mprapi.dll	
activeds	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	348.50 KB (356,864 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	
	c:\windows\system32\activeds.dll	
adslidpc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	240.50 KB (246,272 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	
	c:\windows\system32\adslidpc.dll	
credui	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	202.00 KB (206,848 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	
	c:\windows\system32\credui.dll	
rtutils	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	66.00 KB (67,584 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	
	c:\windows\system32\rtutils.dll	
netshell	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	2.32 MB (2,437,120 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	
	c:\windows\system32\netshell.dll	
clusapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	127.00 KB (130,048 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	
	c:\windows\system32\clusapi.dll	
rasapi32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	410.00 KB (419,840 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	
	c:\windows\system32\rasapi32.dll	
rasman	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	95.50 KB (97,792 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	
	c:\windows\system32\rasman.dll	
tapi32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	332.50 KB (340,480 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	
	c:\windows\system32\tapi32.dll	
wininet	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	1.13 MB (1,186,304 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	
	c:\windows\system32\wininet.dll	
wzcsapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	49.00 KB (50,176 bytes)
	3/24/2005 11:35 AM Microsoft Corporation	
	c:\windows\system32\wzcsapi.dll	
wzcsvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	492.00 KB (503,808 bytes)
	3/24/2005 11:35 AM Microsoft Corporation	
	c:\windows\system32\wzcsvc.dll	
wmi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	5.50 KB (5,632 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	
	c:\windows\system32\wmi.dll	
dhcpcsvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	219.00 KB (224,256 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	
	c:\windows\system32\dhcpcsvc.dll	

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wbemcons	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	65.50 KB (67,072 bytes)	
	4/2/2008 12:39 AM	Microsoft Corporation	
	c:\windows\system32\wbem\wbemcons.dll		
netcfgx	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.29 MB (1,354,240 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\netcfgx.dll
wbemprox	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	38.00 KB (38,912 bytes)	
	4/2/2008 12:39 AM	Microsoft Corporation	
	c:\windows\system32\wbem\wbemprox.dll		
wups	5.7.3790.1830 (srv03_sp1_rtm.050324-1447)	37.50 KB (38,400 bytes)	4/2/2008 12:40 AM
	Microsoft Corporation	c:\windows\system32\wups.dll	
rasdlg	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	859.50 KB (880,128 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\rasdlg.dll
rasadhlp	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	12.00 KB (12,288 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\rasadhlp.dll
ersvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	31.00 KB (31,744 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation	c:\windows\system32\ersvc.dll	
tnslsnr	Not Available	541.50 KB (554,496 bytes)	4/9/2008 3:41 PM Not Available
	c:\app\administrator\product\11.1.0\db\bin\tnslsnr.exe		
oransgr11	11.1.0.6.0 Production	158.50 KB (162,304 bytes)	4/9/2008 3:42 PM
	Oracle Corporation	c:\app\administrator\product\11.1.0\db\bin\oransgr11.dll	
oran11	11.1.0.6.0 Production	4.59 MB (4,810,240 bytes)	4/9/2008 3:42 PM Oracle Corporation
		c:\app\administrator\product\11.1.0\db\bin\oran11.dll	
oranl11	11.1.0.6.0 Production	452.00 KB (462,848 bytes)	4/9/2008 3:42 PM Oracle Corporation
		c:\app\administrator\product\11.1.0\db\bin\oranl11.dll	
orantcp11	11.1.0.6.0 Production	201.50 KB (206,336 bytes)	4/9/2008 3:42 PM Oracle Corporation
		c:\app\administrator\product\11.1.0\db\bin\orantcp11.dll	
oracore11	11.1.0.6.0 Production	1.26 MB (1,320,960 bytes)	4/9/2008 3:42 PM Oracle Corporation
		c:\app\administrator\product\11.1.0\db\bin\oracore11.dll	
orans11	11.1.0.6.0 Production	992.00 KB (1,015,808 bytes)	4/9/2008 3:41 PM Oracle Corporation
		c:\app\administrator\product\11.1.0\db\bin\orans11.dll	
oraunls11	11.1.0.6.0 Production	100.00 KB (102,400 bytes)	4/9/2008 3:41 PM Oracle Corporation
		c:\app\administrator\product\11.1.0\db\bin\oraunls11.dll	
orauts	11.1.0.6.0 Production	9.50 KB (9,728 bytes)	4/9/2008 3:42 PM Oracle Corporation
		c:\app\administrator\product\11.1.0\db\bin\orauts.dll	
orageneric11	11.1.0.6.0 Production	12.45 MB (13,056,512 bytes)	4/9/2008 3:42 PM Oracle Corporation
		c:\app\administrator\product\11.1.0\db\bin\orageneric11.dll	
orasnls11	11.1.0.6.0 Production	199.50 KB (204,288 bytes)	4/9/2008 3:41 PM Oracle Corporation
		c:\app\administrator\product\11.1.0\db\bin\orasnls11.dll	
oracommon11	11.1.0.6.0 Production	1.82 MB (1,911,296 bytes)	4/9/2008 3:42 PM Oracle Corporation
		c:\app\administrator\product\11.1.0\db\bin\oracommon11.dll	
oraclient11	11.1.0.6.0 Production	3.87 MB (4,059,136 bytes)	4/9/2008 3:42 PM Oracle Corporation
		c:\app\administrator\product\11.1.0\db\bin\oraclient11.dll	
oravsn11	11.1.0.6.0 Production	7.00 KB (7,168 bytes)	4/9/2008 3:42 PM Oracle Corporation
		c:\app\administrator\product\11.1.0\db\bin\oravsn11.dll	
oraldapclnt11	11.1.0.6.0 Production	1.82 MB (1,909,760 bytes)	4/9/2008 3:42 PM Oracle Corporation
		c:\app\administrator\product\11.1.0\db\bin\oraldapclnt11.dll	
orannzsb11	11.1.0.6.0 Production	1.83 MB (1,919,488 bytes)	4/9/2008 3:42 PM Oracle Corporation
		c:\app\administrator\product\11.1.0\db\bin\orannzsb11.dll	
orancrypt11	11.1.0.6.0 Production	119.50 KB (122,368 bytes)	4/9/2008 3:42 PM Oracle Corporation
		c:\app\administrator\product\11.1.0\db\bin\orancrypt11.dll	
wsock32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	24.50 KB (25,088 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\wsock32.dll
oraxml11	11.1.0.6.0 Production	2.82 MB (2,952,704 bytes)	4/9/2008 3:42 PM Oracle Corporation
		c:\app\administrator\product\11.1.0\db\bin\oraxml11.dll	

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msvcirt	7.0.3790.1830 (srv03_sp1_rtm.050324-1447)	91.00 KB (93,184 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\msvcirt.dll
oranro11	11.1.0.6.0 Production	340.50 KB (348,672 bytes)	4/9/2008 3:42 PM	Oracle Corporation	c:\app\administrator\product\11.1.0\db\bin\oranro11.dll
orapls11	11.1.0.6.0 Production	4.89 MB (5,123,072 bytes)	4/9/2008 3:41 PM	Oracle Corporation	c:\app\administrator\product\11.1.0\db\bin\orapls11.dll
ORASLAX11	11.0.0.1.0 Production	25.50 KB (26,112 bytes)	4/9/2008 3:41 PM	Oracle Corporation	c:\app\administrator\product\11.1.0\db\bin\oraslax11.dll
oraplp11	11.1.0.6.0 Production	4.16 MB (4,363,264 bytes)	4/9/2008 3:41 PM	Oracle Corporation	c:\app\administrator\product\11.1.0\db\bin\oraplp11.dll
orasql11	11.1.0.6.0 Production	393.00 KB (402,432 bytes)	4/9/2008 3:42 PM	Oracle Corporation	c:\app\administrator\product\11.1.0\db\bin\orasql11.dll
orahasgen11	11.1.0.6.0 Production	505.50 KB (517,632 bytes)	4/9/2008 3:42 PM	Oracle Corporation	c:\app\administrator\product\11.1.0\db\bin\orahasgen11.dll
oraocr11	11.1.0.6.0 Production	549.50 KB (562,688 bytes)	4/9/2008 3:42 PM	Oracle Corporation	c:\app\administrator\product\11.1.0\db\bin\oraocr11.dll
oraocrb11	11.1.0.6.0 Production	418.50 KB (428,544 bytes)	4/9/2008 3:42 PM	Oracle Corporation	c:\app\administrator\product\11.1.0\db\bin\oraocrb11.dll
orazt11	11.1.0.6.0 Production	52.50 KB (53,760 bytes)	4/9/2008 3:42 PM	Oracle Corporation	c:\app\administrator\product\11.1.0\db\bin\orazt11.dll
oranldap11	11.1.0.6.0 Production	311.50 KB (318,976 bytes)	4/9/2008 3:42 PM	Oracle Corporation	c:\app\administrator\product\11.1.0\db\bin\oranldap11.dll
oranhst11	11.1.0.6.0 Production	26.00 KB (26,624 bytes)	4/9/2008 3:42 PM	Oracle Corporation	c:\app\administrator\product\11.1.0\db\bin\oranhst11.dll
orancds11	11.1.0.6.0 Production	5.00 KB (5,120 bytes)	4/9/2008 3:42 PM	Oracle Corporation	c:\app\administrator\product\11.1.0\db\bin\orancds11.dll
orantns11	11.1.0.6.0 Production	41.00 KB (41,984 bytes)	4/9/2008 3:42 PM	Oracle Corporation	c:\app\administrator\product\11.1.0\db\bin\orantns11.dll
oraztkg11	11.1.0.6.0 Production	686.50 KB (702,976 bytes)	4/9/2008 3:42 PM	Oracle Corporation	c:\app\administrator\product\11.1.0\db\bin\oraztkg11.dll
onsclnt	Not Available	58.50 KB (59,904 bytes)	4/9/2008 3:42 PM	Not Available	c:\app\administrator\product\11.1.0\db\bin\onsclnt.dll
winnr	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	30.00 KB (30,720 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\winnr.dll
oranipc11	11.1.0.6.0 Production	89.00 KB (91,136 bytes)	4/9/2008 3:42 PM	Oracle Corporation	c:\app\administrator\product\11.1.0\db\bin\oranipc11.dll
oraocrutl11	11.1.0.6.0 Production	39.00 KB (39,936 bytes)	4/9/2008 3:42 PM	Oracle Corporation	c:\app\administrator\product\11.1.0\db\bin\oraocrutl11.dll
oraclsra11	11.1.0.6.0 Production	44.00 KB (45,056 bytes)	4/9/2008 3:41 PM	Oracle Corporation	c:\app\administrator\product\11.1.0\db\bin\oraclsra11.dll
oradbcfg11	11.1.0.6.0 Production	108.50 KB (111,104 bytes)	4/9/2008 3:41 PM	Oracle Corporation	c:\app\administrator\product\11.1.0\db\bin\oradbcfg11.dll
oracle	11.1.0.6.0 Production	103.41 MB (108,431,872 bytes)	4/9/2008 3:41 PM	Oracle Corporation	c:\app\administrator\product\11.1.0\db\bin\oracle.exe
libmmd	8.1.8.2	816.00 KB (835,584 bytes)	4/9/2008 3:41 PM	Intel Corporation	c:\app\administrator\product\11.1.0\db\bin\libmmd.dll
orawwg	10.1.2.0.0 Production	170.50 KB (174,592 bytes)	4/9/2008 3:41 PM	Oracle Corporation	c:\app\administrator\product\11.1.0\db\bin\orawwg.dll
dbghelp	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.22 MB (1,274,368 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\dbghelp.dll
oraimr11	10, 1, 0, 2	118.50 KB (121,344 bytes)	4/9/2008 3:42 PM	Oracle Corporation	c:\app\administrator\product\11.1.0\db\bin\oraimr11.dll
oravssw	Not Available	230.50 KB (236,032 bytes)	4/9/2008 3:42 PM	Not Available	c:\app\administrator\product\11.1.0\db\bin\oravssw.exe

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oci	11.1.0.1.0	635.50 KB (650,752 bytes)	4/9/2008 3:42 PM	Oracle Corporation	c:\app\administrator\product\11.1.0\db\bin\oci.dll
VivaldiFramework	Not Available	52.00 KB (53,248 bytes)	11/29/2006 7:05 PM	Not Available	c:\program files (x86)\megaraid storage manager\framework\vivaldiframework.exe
wow64	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	245.00 KB (250,880 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\wow64.dll
wow64win	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	280.00 KB (286,720 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\wow64win.dll
wow64cpu	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	18.50 KB (18,944 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\wow64cpu.dll
cmd	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	538.50 KB (551,424 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\cmd.exe
javaw	6.0.0.105	132.00 KB (135,168 bytes)	12/21/2006 4:40 PM	Sun Microsystems, Inc.	c:\program files (x86)\megaraid storage manager\jre\bin\javaw.exe
mrmonitor	Not Available	408.00 KB (417,792 bytes)	11/15/2006 11:57 AM	Not Available	c:\program files (x86)\megaraid storage manager\megamonitor\mrmonitor.exe
termsrv	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	354.50 KB (363,008 bytes)	4/2/2008 12:39 AM	Microsoft Corporation	c:\windows\system32\termsrv.dll
icaapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	27.50 KB (28,160 bytes)	4/2/2008 12:39 AM	Microsoft Corporation	c:\windows\system32\icaapi.dll
mstlsapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	187.00 KB (191,488 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\mstlsapi.dll
rdpwsx	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	170.13 KB (174,216 bytes)	4/2/2008 12:39 AM	Microsoft Corporation	c:\windows\system32\rdpwsx.dll
rdpclip	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	99.00 KB (101,376 bytes)	4/2/2008 12:39 AM	Microsoft Corporation	c:\windows\system32\rdpclip.exe
urlmon	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	1.02 MB (1,074,176 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\urlmon.dll
explorer	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	1.30 MB (1,364,480 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\explorer.exe
browseui	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	1.53 MB (1,601,536 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\browseui.dll
shdocvw	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	2.30 MB (2,416,128 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\shdocvw.dll
cryptui	5.131.3790.1830 (srv03_sp1_rtm.050324-1447)	705.50 KB (722,432 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\cryptui.dll
themeui	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	530.50 KB (543,232 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\themeui.dll
msimg32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	6.50 KB (6,656 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\msimg32.dll
linkinfo	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	30.00 KB (30,720 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\linkinfo.dll
ntshru	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	184.00 KB (188,416 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\ntshru.dll
msi	3.1.4000.1830	4.27 MB (4,476,416 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\msi.dll
webcheck	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	439.00 KB (449,536 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\webcheck.dll
stobject	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	142.50 KB (145,920 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\stobject.dll
batmeter	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	41.50 KB (42,496 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\batmeter.dll
powrprof	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	32.50 KB (33,280 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\powrprof.dll

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browselc	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	63.00 KB (64,512 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\browselc.dll
shdoclc	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	589.50 KB (603,648 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\shdoclc.dll
bacstray	8, 3, 11, 0	105.00 KB (107,520 bytes)	4/4/2006 10:42 PM
	Broadcom Corporation		c:\program files\broadcom\bacs\bacstray.exe
mfc42	6.50.9146.0	1.40 MB (1,470,464 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation		c:\windows\system32\mfc42.dll
popup	1.00-21	76.09 KB (77,920 bytes)	8/15/2006 4:00 PM
	(x86)\megaraid storage manager\megapopup\popup.exe		c:\program files
wuauclt	5.7.3790.1830 (srv03_sp1_rtm.050324-1447)	156.00 KB (159,744 bytes)	
	4/2/2008 12:40 AM	Microsoft Corporation	c:\windows\system32\wuauclt.exe
wuauclpl	5.7.3790.1830 (srv03_sp1_rtm.050324-1447)	177.50 KB (181,760 bytes)	
	4/2/2008 12:40 AM	Microsoft Corporation	c:\windows\system32\wuauclpl.cpl
helpctr	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.30 MB (1,363,456 bytes)	
	4/2/2008 12:40 AM	Microsoft Corporation	c:\windows\pchealth\helpctr\binaries\helpctr.exe
hcappres	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	7.50 KB (7,680 bytes)	
	4/2/2008 12:40 AM	Microsoft Corporation	c:\windows\pchealth\helpctr\binaries\hcappres.dll
itss	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	208.00 KB (212,992 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\itss.dll
msxml3	8.70.1104.0	2.04 MB (2,141,184 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation		c:\windows\system32\msxml3.dll
pchshell	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	155.00 KB (158,720 bytes)	
	4/2/2008 12:40 AM	Microsoft Corporation	c:\windows\pchealth\helpctr\binaries\pchshell.dll
mlang	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	686.00 KB (702,464 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\mlang.dll
mshtml	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	5.65 MB (5,928,448 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\mshtml.dll
msls31	3.10.349.0	357.00 KB (365,568 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation		c:\windows\system32\msls31.dll
msimtf	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	380.50 KB (389,632 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\msimtf.dll
msctf	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	617.50 KB (632,320 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\msctf.dll
jscript	5.6.0.8827	974.50 KB (997,888 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation		c:\windows\system32\jscript.dll
mshtmlmed	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	905.50 KB (927,232 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\mshtmlmed.dll
vbscript	5.6.0.8827	646.50 KB (662,016 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation		c:\windows\system32\vbscript.dll
msinfo	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	636.00 KB (651,264 bytes)	
	4/2/2008 12:40 AM	Microsoft Corporation	c:\windows\pchealth\helpctr\binaries\msinfo.dll
mfc42u	6.50.9146.0	1.39 MB (1,462,272 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation		c:\windows\system32\mfc42u.dll
riched32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	7.00 KB (7,168 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\riched32.dll
riched20	5.31.23.1224	1.10 MB (1,157,120 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation		c:\windows\system32\riched20.dll
helpsvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.52 MB (1,591,296 bytes)	
	4/2/2008 12:40 AM	Microsoft Corporation	c:\windows\pchealth\helpctr\binaries\helpsvc.exe

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APPENDIX C - TUNABLE PARAMETERS

[Services]

Display Name	Name	State	Start Mode	Service Type	Path	Error Control	Start
Name	Tag ID						
Application Experience Lookup Service	AeLookupSvc	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0
Alerter	Alerter	Stopped	Disabled	Share Process	c:\windows\system32\svchost.exe -k localservice	Normal NT	
AUTHORITY\LocalService		0					
Application Layer Gateway Service	ALG	Stopped	Manual	Own Process	c:\windows\system32\alg.exe	Normal NT AUTHORITY\LocalService	0
Application Management	AppMgmt	Stopped	Manual	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0
Windows Audio	AudioSrv	Stopped	Manual	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0
Background Intelligent Transfer Service	BITS	Stopped	Manual	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0
Computer Browser	Browser	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0
Indexing Service	CiSvc	Stopped	Disabled	Share Process	c:\windows\system32\cisvc.exe	Normal LocalSystem	0
ClipBook	ClipSrv	Stopped	Disabled	Own Process	c:\windows\system32\clipsrv.exe	Normal LocalSystem	0
COM+ System Application	COMSysApp	Stopped	Manual	Own Process	c:\windows\system32\dlhhost.exe /processid:{02d4b3f1-fd88-11d1-960d-00805fc79235}	Normal LocalSystem	0
Cryptographic Services	CryptSvc	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0
DCOM Server Process Launcher	DcomLaunch	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k dcomlaunch	Normal LocalSystem	0
Distributed File System	Dfs	Stopped	Manual	Own Process	c:\windows\system32\dfssvc.exe	Normal LocalSystem	0
DHCP Client	Dhcp	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k networkservice	Normal NT	
AUTHORITY\NetworkService		0					
Logical Disk Manager Administrative Service	dmadmin	Stopped	Manual	Share Process	c:\windows\system32\dmadmin.exe /com	Normal LocalSystem	0
Logical Disk Manager	dmserver	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0
DNS Client	Dnscache	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k networkservice	Normal NT	
AUTHORITY\NetworkService		0					
Error Reporting Service	ERSvc	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k winerr	Ignore LocalSystem	0
Event Log	Eventlog	Running	Auto	Share Process	c:\windows\system32\services.exe	Normal LocalSystem	0
COM+ Event System	EventSystem	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0
Help and Support	helpsvc	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0
HID Input Service	HidServ	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0
HTTP SSL	HTTPFilter	Stopped	Manual	Share Process	c:\windows\system32\lsass.exe	Normal LocalSystem	0

APPENDIX C - TUNABLE PARAMETERS

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IAS Jet Database Access	IASJet	Stopped	Manual	Share Process	
c:\windows\syswow64\svchost.exe -k iasjet			Normal	LocalSystem	0
InstallDriver Table Manager	IDriverT	Stopped	Manual	Own Process	"c:\program files (x86)\common files\installshield\driver\1050\intel 32\idrivert.exe"
			Ignore	LocalSystem	0
IMAPI CD-Burning COM Service	ImapiService	Stopped	Disabled	Own	
Process c:\windows\system32\imapi.exe			Normal	LocalSystem	0
Intersite Messaging	IsmServ	Stopped	Disabled	Own Process	
c:\windows\system32\ismserv.exe			Normal	LocalSystem	0
Kerberos Key Distribution Center	kdc	Stopped	Disabled	Share Process	
c:\windows\system32\lsass.exe			Normal	LocalSystem	0
Server lanmanserver	Running	Auto	Share Process		
c:\windows\system32\svchost.exe -k netsvcs			Normal	LocalSystem	0
Workstation lanmanworkstation	Running	Auto	Share Process		
c:\windows\system32\svchost.exe -k netsvcs			Normal	LocalSystem	0
License Logging	LicenseService	Stopped	Disabled	Own Process	
c:\windows\system32\llssrv.exe			Normal	NT AUTHORITY\NetworkService	0
TCP/IP NetBIOS Helper LmHosts	Running	Auto	Share Process		
c:\windows\system32\svchost.exe -k localservice			Normal	NT AUTHORITY\LocalService	0
MRMonitor MegaMonitorSrv	Running	Auto	Own Process	"c:\program files (x86)\megaraid storage manager\megamonitor\mrmonitor.exe"	
			Normal	LocalSystem	0
Messenger Messenger	Stopped	Disabled	Share Process		
c:\windows\system32\svchost.exe -k netsvcs			Normal	LocalSystem	0
NetMeeting Remote Desktop Sharing	mnmsrvc	Stopped	Disabled	Own	
Process c:\windows\system32\mnmsrvc.exe			Normal	LocalSystem	0
Distributed Transaction Coordinator	MSDTC	Running	Auto	Own Process	
c:\windows\system32\msdtc.exe			Normal	NT AUTHORITY\NetworkService	0
Windows Installer MSIServer	Stopped	Manual	Share Process		
c:\windows\system32\msiexec.exe /v			Normal	LocalSystem	0
MSMFramework MSMFramework	Running	Auto	Own Process	"c:\program files (x86)\megaraid storage manager\framework\vivaldiframework.exe"	
			Normal	LocalSystem	0
Network DDE NetDDE	Stopped	Disabled	Share Process		
c:\windows\system32\netdde.exe			Normal	LocalSystem	0
Network DDE DSDM NetDDEdsdm	Stopped	Disabled	Share Process		
c:\windows\system32\netdde.exe			Normal	LocalSystem	0
Net Logon Netlogon	Stopped	Manual	Share Process		
c:\windows\system32\lsass.exe			Normal	LocalSystem	0
Network Connections Netman	Running	Manual	Share Process		
c:\windows\system32\svchost.exe -k netsvcs			Normal	LocalSystem	0
Network Location Awareness (NLA)	Nla	Running	Manual	Share Process	
c:\windows\system32\svchost.exe -k netsvcs			Normal	LocalSystem	0
File Replication NtFrs	Stopped	Manual	Own Process	c:\windows\system32\ntfrs.exe	
			Ignore	LocalSystem	0
NT LM Security Support Provider	NtLmSsp	Stopped	Manual	Share Process	
c:\windows\system32\lsass.exe			Normal	LocalSystem	0
Removable Storage NtmsSvc	Stopped	Manual	Share Process		
c:\windows\system32\svchost.exe -k netsvcs			Normal	LocalSystem	0
OracleJobScheduler tpcc	OracleJobScheduler tpcc	Stopped	Disabled		
Own Process c:\app\administrator\product\11.1.0\db\bin\extjob.exe			tpcc	Normal	
			LocalSystem	0	
OracleOraDb11g_home1TNSListener	OracleOraDb11g_home1TNSListener	Running	Auto	Own Process	c:\app\administrator\product\11.1.0\db\bin\tnslsnr
			LocalSystem	0	Normal

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APPENDIX C - TUNABLE PARAMETERS

OracleServicetpcc	OracleServicetpcc	Running	Auto	Own Process
c:\app\administrator\product\11.1.0\db\bin\oracle.exe tpcc				Normal LocalSystem 0
Oracle tpc VSS Writer Service	OracleVssWritertpc	Running	Auto	Own Process
c:\app\administrator\product\11.1.0\db\bin\oravssw.exe tpcc				Normal LocalSystem 0
Plug and Play	PlugPlay	Running	Auto	Share Process
c:\windows\system32\services.exe				Normal LocalSystem 0
IPSEC ServicesPolicyAgent		Running	Auto	Share Process
c:\windows\system32\lsass.exe		Normal		LocalSystem 0
Protected Storage	ProtectedStorage	Running	Auto	Share Process
c:\windows\system32\lsass.exe		Normal		LocalSystem 0
Remote Access Auto Connection Manager	RasAuto	Stopped		Manual Share Process
c:\windows\system32\svchost.exe -k netsvcs		Normal		LocalSystem 0
Remote Access Connection Manager	RasMan	Stopped		Manual Share Process
c:\windows\system32\svchost.exe -k netsvcs		Normal		LocalSystem 0
Remote Desktop Help Session Manager	RDSessMgr	Stopped		Manual Own Process
c:\windows\system32\sessmgr.exe		Normal		LocalSystem 0
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	sacsrv	Stopped		Manual Share Process
c:\windows\system32\svchost.exe -k netsvcs		Normal		LocalSystem 0
Security Accounts Manager	SamSs	Running	Auto	Share Process
c:\windows\system32\lsass.exe		Normal		LocalSystem 0
Smart Card	SCardSvr	Stopped		Manual Share Process
c:\windows\system32\scardsvr.exe		Ignore		NT AUTHORITY\LocalService 0
Task Scheduler	Schedule	Running	Auto	Share Process
c:\windows\system32\svchost.exe -k netsvcs		Normal		LocalSystem 0
Secondary Logon	seclogon	Running	Auto	Share Process
c:\windows\system32\svchost.exe -k netsvcs		Ignore		LocalSystem 0
System Event Notification	SENS	Running	Auto	Share Process
c:\windows\system32\svchost.exe -k netsvcs		Normal		LocalSystem 0
Windows Firewall/Internet Connection Sharing (ICS)		Disabled	Share Process	Stopped
c:\windows\system32\svchost.exe -k netsvcs				Normal LocalSystem 0
Shell Hardware Detection	ShellHWDetection	Running	Auto	Share Process
c:\windows\system32\svchost.exe -k netsvcs		Ignore		LocalSystem 0
Print Spooler	Spooler	Stopped		Manual Own Process
c:\windows\system32\spoolsv.exe		Normal		LocalSystem 0
Windows Image Acquisition (WIA)	stisvc	Stopped	Disabled	Share Process
c:\windows\system32\svchost.exe -k imgsvc		Normal		NT AUTHORITY\LocalService 0
Microsoft Software Shadow Copy Provider	swprv	Stopped		Manual Own Process
c:\windows\system32\svchost.exe -k swprv		Normal		LocalSystem 0



APPENDIX C - TUNABLE PARAMETERS

Performance Logs and Alerts	SysmonLog	Stopped	Auto	Own Process	
	c:\windows\system32\smlogsvc.exe	Normal	NT Authority\NetworkService	0	
Telephony	TapiSrv	Stopped	Manual	Share Process	
	c:\windows\system32\svchost.exe -k tapisrv	Normal	LocalSystem	0	
Terminal Services	TermService	Running	Manual	Share Process	
	c:\windows\system32\svchost.exe -k termsvcs	Normal	LocalSystem	0	
Themes	Themes	Stopped	Disabled	Share Process	
	c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0	
Telnet	TlntSvr	Stopped	Disabled	Own Process	c:\windows\system32\tlntsvr.exe
		Normal	NT AUTHORITY\LocalService	0	
Distributed Link Tracking Server	TrkSvr	Stopped	Disabled	Share Process	
	c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0	
Distributed Link Tracking Client	TrkWks	Running	Auto	Share Process	
	c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0	
Terminal Services Session Directory	Tssdis	Stopped	Disabled	Own Process	
	c:\windows\system32\tssdis.exe	Normal	LocalSystem	0	
Windows User Mode Driver Framework	UMWdf	Stopped	Manual	Own Process	
	c:\windows\system32\wdfmgr.exe	Normal	NT AUTHORITY\LocalService	0	
Uninterruptible Power Supply	UPS	Stopped	Manual	Own Process	
	c:\windows\system32\ups.exe	Normal	NT AUTHORITY\LocalService	0	
Virtual Disk Service	vds	Stopped	Manual	Own Process	
	c:\windows\system32\vds.exe	Normal	LocalSystem	0	
Volume Shadow Copy	VSS	Stopped	Manual	Own Process	
	c:\windows\system32\vssvc.exe	Normal	LocalSystem	0	
Windows Time	W32Time	Stopped	Manual	Share Process	
	c:\windows\system32\svchost.exe -k localservice	Normal	NT AUTHORITY\LocalService	0	
WebClient	WebClient	Stopped	Disabled	Share Process	
	c:\windows\system32\svchost.exe -k localservice	Normal	NT AUTHORITY\LocalService	0	
WinHTTP Web Proxy Auto-Discovery Service	WinHttpAutoProxySvc	Stopped	Manual	Share Process	
	c:\windows\system32\svchost.exe -k localservice	Normal	NT AUTHORITY\LocalService	0	
Windows Management Instrumentation	winmgmt	Running	Auto	Share Process	
	c:\windows\system32\svchost.exe -k netsvcs	Ignore	LocalSystem	0	
Portable Media Serial Number Service	WmdmPmSN	Stopped	Manual	Share Process	
	c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0	
Windows Management Instrumentation Driver Extensions	Wmi	Stopped	Manual	Share Process	
	c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0	
WMI Performance Adapter	WmiApSrv	Stopped	Manual	Own Process	
	c:\windows\system32\wbem\wmiapsrv.exe	Normal	LocalSystem	0	
Automatic Updates	wuauerv	Running	Auto	Share Process	
	c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0	
Wireless Configuration	WZCSVC	Stopped	Manual	Share Process	
	c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0	
Network Provisioning Service	xmlprov	Stopped	Manual	Share Process	
	c:\windows\system32\svchost.exe -k netsvcs	Normal	LocalSystem	0	

[Program Groups]

Group Name	Name	User Name	Default User
Accessories	Default User:Accessories		Default User
Accessories\Accessibility	Default User:Accessories\Accessibility		Default User
Accessories\Entertainment	Default User:Accessories\Entertainment		Default User

APPENDIX C - TUNABLE PARAMETERS

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Startup	Default User:Startup	Default User	
Accessories	All Users:Accessories	All Users	
Accessories\Accessibility	All Users:Accessories\Accessibility	All Users	
Accessories\Communications	All Users:Accessories\Communications	All Users	
Accessories\Entertainment	All Users:Accessories\Entertainment	All Users	
Accessories\System Tools	All Users:Accessories\System Tools	All Users	
Administrative Tools	All Users:Administrative Tools	All Users	
Broadcom	All Users:Broadcom	All Users	
Cygwin	All Users:Cygwin	All Users	
MegaRAID Storage Manager	All Users:MegaRAID Storage Manager	All Users	
Oracle - OraDb11g_home1	All Users:Oracle - OraDb11g_home1	All Users	
Oracle - OraDb11g_home1\Application Development	All Users:Oracle - OraDb11g_home1\Application Development	All Users	
Oracle - OraDb11g_home1\Configuration and Migration Tools	All Users:Oracle - OraDb11g_home1\Configuration and Migration Tools	All Users	
Oracle - OraDb11g_home1\Integrated Management Tools	All Users:Oracle - OraDb11g_home1\Integrated Management Tools	All Users	
Oracle - OraDb11g_home1\Oracle Installation Products	All Users:Oracle - OraDb11g_home1\Oracle Installation Products	All Users	
Oracle - OraDb11g_home1\Warehouse Builder	All Users:Oracle - OraDb11g_home1\Warehouse Builder	All Users	
Oracle - OraDb11g_home1\Warehouse Builder\Administration	All Users:Oracle - OraDb11g_home1\Warehouse Builder\Administration	All Users	
Startup	All Users:Startup	All Users	
Accessories	NT AUTHORITY\SYSTEM:Accessories	NT AUTHORITY\SYSTEM	
Accessories\Accessibility	NT AUTHORITY\SYSTEM:Accessories\Accessibility	NT AUTHORITY\SYSTEM	
Accessories\Entertainment	NT AUTHORITY\SYSTEM:Accessories\Entertainment	NT AUTHORITY\SYSTEM	
Startup	NT AUTHORITY\SYSTEM:Startup	NT AUTHORITY\SYSTEM	
Accessories	PE2900_2\Administrator:Accessories	PE2900_2\Administrator	
Accessories\Accessibility	PE2900_2\Administrator:Accessories\Accessibility	PE2900_2\Administrator	
Accessories\Entertainment	PE2900_2\Administrator:Accessories\Entertainment	PE2900_2\Administrator	
Startup	PE2900_2\Administrator:Startup	PE2900_2\Administrator	

[Startup Programs]

Program	Command	User Name	Location
desktop	desktop.ini	NT AUTHORITY\SYSTEM	Startup
desktop	desktop.ini	PE2900_2\Administrator	Startup
desktop	desktop.ini	.DEFAULT	Startup
desktop	desktop.ini	All Users	Common Startup
bacstray	c:\program files\broadcom\bacs\bacstray.exe	All Users	HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Run

[OLE Registration]

Object	Local Server
Sound (OLE2)	sndrec32.exe
Media Clip	mplay32.exe
Video Clip	mplay32.exe /avi
MIDI Sequence	mplay32.exe /mid
Sound	Not Available

## APPENDIX C - TUNABLE PARAMETERS

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Media Clip Not Available  
WordPad Document "%programfiles%\windows nt\accessories\wordpad.exe"  
Bitmap Image mspaint.exe

### [Windows Error Reporting]

Time Type Details  
4/18/2008 8:12 PM Application Error Faulting application tpccacid\_iso5.exe, version 0.0.0.0, faulting module OraClient11.Dll, version 11.1.0.6, fault address 0x000000000102b19.&#x000d;&#x000a;

### [Internet Settings]

### [Internet Explorer]

[ Following are sub-categories of this main category ]

#### [Summary]

Item Value  
Version 6.0.3790.1830  
Build 63790.1830  
Application Path C:\Program Files\Internet Explorer  
Language English (United States)  
Active Printer Not Available

Cipher Strength 128-bit  
Content Advisor Disabled  
IEAK Install No

### [File Versions]

File	Version	Size	Date	Path	Company
actxprxy.dll	6.0.3790.1830	221 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
advpack.dll	6.0.3790.1830	146 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
asctrls.ocx	6.0.3790.1830	147 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
browselc.dll	6.0.3790.1830	63 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
browseui.dll	6.0.3790.1830	1,564 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
cdfview.dll	6.0.3790.1830	216 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
comctl32.dll	5.82.3790.1830	935 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
dxttrans.dll	6.3.3790.1830	320 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
dxtmsft.dll	6.3.3790.1830	549 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
iecont.dll	<File Missing>	Not Available	Not Available	Not Available	Not Available
iecontlc.dll	<File Missing>	Not Available	Not Available	Not Available	Not Available

APPENDIX C - TUNABLE PARAMETERS

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iedkcs32.dll	16.0.3790.1830	417 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
iepeers.dll	6.0.3790.1830	361 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
iesetup.dll	6.0.3790.1830	71 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
ieunit.inf	Not Available	24 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Not Available
ieexplore.exe	6.0.3790.1830	94 KB	3/25/2005 7:00:00 AM	C:\Program Files\Internet Explorer	Microsoft Corporation
imgutil.dll	6.0.3790.1830	61 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
inetctl.cpl	6.0.3790.1830	428 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
inetctl.dll	6.0.3790.1830	110 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
inseng.dll	6.0.3790.1830	147 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
mlang.dll	6.0.3790.1830	686 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
msencode.dll	<File Missing>	Not Available	Not Available	Not Available	Not Available
mshta.exe	6.0.3790.1830	38 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
mshtml.dll	6.0.3790.1830	5,790 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
mshtml.tlb	6.0.3790.1830	1,320 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
mshtml.dll	6.0.3790.1830	906 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
mshtml.dll	6.0.3790.1830	56 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
msident.dll	6.0.3790.1830	69 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
msidntld.dll	6.0.3790.1830	16 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
msieftp.dll	6.0.3790.1830	369 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
msrating.dll	6.0.3790.1830	240 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
mstime.dll	6.0.3790.1830	878 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
occache.dll	6.0.3790.1830	126 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
proctexe.ocx	<File Missing>	Not Available	Not Available	Not Available	Not Available
sendmail.dll	6.0.3790.1830	64 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
shdoclc.dll	6.0.3790.1830	590 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
shdocvw.dll	6.0.3790.1830	2,360 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
shfolder.dll	6.0.3790.1830	34 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
shlwapi.dll	6.0.3790.1830	607 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation

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## APPENDIX C - TUNABLE PARAMETERS

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tdc.ocx 1.3.0.3130 91 KB 3/25/2005 7:00:00 AM C:\WINDOWS\system32  
Microsoft Corporation  
url.dll 6.0.3790.1830 40 KB 3/25/2005 7:00:00 AM C:\WINDOWS\system32  
Microsoft Corporation  
urlmon.dll 6.0.3790.1830 1,049 KB 3/25/2005 7:00:00 AM  
C:\WINDOWS\system32 Microsoft Corporation  
webcheck.dll 6.0.3790.1830 439 KB 3/25/2005 7:00:00 AM C:\WINDOWS\system32  
Microsoft Corporation  
wininet.dll 6.0.3790.1830 1,159 KB 3/25/2005 7:00:00 AM  
C:\WINDOWS\system32 Microsoft Corporation

### [Connectivity]

Item Value  
Connection Preference Never dial

### LAN Settings

AutoConfigProxy wininet.dll  
AutoProxyDetectMode Disabled  
AutoConfigURL  
Proxy Disabled  
ProxyServer  
ProxyOverride

### [Cache]

[ Following are sub-categories of this main category ]  
[Summary]

Item Value  
Page Refresh Type Automatic  
Temporary Internet Files Folder C:\Documents and Settings\Administrator\Local  
Settings\Temporary Internet Files  
Total Disk Space Not Available  
Available Disk Space Not Available  
Maximum Cache Size Not Available  
Available Cache Size Not Available

### [List of Objects]

Program File Status CodeBase  
No cached object information available

### [Content]

[ Following are sub-categories of this main category ]  
[Summary]

Item Value  
Content Advisor Disabled

### [Personal Certificates]

Issued To	Issued By	Validity	Signature	Algorithm
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## APPENDIX C - TUNABLE PARAMETERS

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No personal certificate information available

[Other People Certificates]

Issued To      Issued By      Validity Signature Algorithm  
No other people certificate information available

[Publishers]

Name  
No publisher information available

[Security]

Zone    Security Level  
My Computer    Custom  
Local intranet    Custom  
Trusted sites    Custom  
Internet High  
Restricted sites Custom

### ***Client msinfo32 export***

System Information report written at: 05/28/08 13:42:15

System Name: PE1430

[System Summary]

Item    Value

OS Name            Microsoft(R) Windows(R) Server 2003 Standard x64 Edition  
Version 5.2.3790 Service Pack 1 Build 3790  
Other OS Description    Not Available  
OS Manufacturer        Microsoft Corporation  
System Name    PE1430  
System Manufacturer    Dell Inc.  
System Model    PowerEdge SC1430  
System Type    x64-based PC  
Processor        EM64T Family 6 Model 15 Stepping 11 GenuineIntel ~1995 Mhz  
Processor        EM64T Family 6 Model 15 Stepping 11 GenuineIntel ~1995 Mhz  
Processor        EM64T Family 6 Model 15 Stepping 11 GenuineIntel ~1995 Mhz  
Processor        EM64T Family 6 Model 15 Stepping 11 GenuineIntel ~1995 Mhz  
Processor        EM64T Family 6 Model 15 Stepping 11 GenuineIntel ~1995 Mhz  
Processor        EM64T Family 6 Model 15 Stepping 11 GenuineIntel ~1995 Mhz  
Processor        EM64T Family 6 Model 15 Stepping 11 GenuineIntel ~1995 Mhz  
Processor        EM64T Family 6 Model 15 Stepping 11 GenuineIntel ~1995 Mhz  
BIOS Version/Date      Dell Inc. 1.4.0, 8/6/2007  
SMBIOS Version        2.4  
Windows Directory     C:\WINDOWS  
System Directory       C:\WINDOWS\system32  
Boot Device    \Device\HarddiskVolume1  
Locale    United States  
Hardware Abstraction Layer    Version = "5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447)"  
User Name    PE1430\Administrator  
Time Zone    Central Daylight Time

## APPENDIX C - TUNABLE PARAMETERS

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Total Physical Memory 4,094.99 MB  
Available Physical Memory 3.45 GB  
Total Virtual Memory 5.75 GB  
Available Virtual Memory 5.44 GB  
Page File Space 2.00 GB  
Page File C:\pagefile.sys

### [Hardware Resources]

### [Conflicts/Sharing]

Resource	Device
I/O Port 0x00000000-0x00000CF7	PCI bus
I/O Port 0x00000000-0x00000CF7	Direct memory access controller

IRQ 20 Standard Universal PCI to USB Host Controller  
IRQ 20 Standard Universal PCI to USB Host Controller

IRQ 21 Standard Universal PCI to USB Host Controller  
IRQ 21 Standard Universal PCI to USB Host Controller  
IRQ 21 Standard Enhanced PCI to USB Host Controller

IRQ 16 PCI standard host CPU bridge  
IRQ 16 PCI standard PCI-to-PCI bridge  
IRQ 16 PCI standard PCI-to-PCI bridge  
IRQ 16 PCI standard PCI-to-PCI bridge  
IRQ 16 PCI standard PCI-to-PCI bridge  
IRQ 16 PCI standard PCI-to-PCI bridge  
IRQ 16 Intel(R) PRO/1000 PT Quad Port Server Adapter  
IRQ 16 PCI standard PCI-to-PCI bridge  
IRQ 16 Broadcom NetXtreme Gigabit Ethernet

Memory Address 0xE0000000-0xFDFFFFFF	PCI bus
Memory Address 0xE0000000-0xFDFFFFFF	Motherboard resources

Memory Address 0xA0000-0xBFFFF	PCI bus
Memory Address 0xA0000-0xBFFFF	Standard VGA Graphics Adapter

I/O Port 0x0000D000-0x0000EFFF	PCI standard PCI-to-PCI bridge
I/O Port 0x0000D000-0x0000EFFF	PCI standard PCI-to-PCI bridge
I/O Port 0x0000D000-0x0000EFFF	PCI standard PCI-to-PCI bridge

### [DMA]

Resource	Device	Status
Channel 4	Direct memory access controller	OK
Channel 2	Standard floppy disk controller	OK

### [Forced Hardware]

Device PNP Device ID

APPENDIX C - TUNABLE PARAMETERS

[I/O]

Resource	Device	Status
0x00000000-0x00000CF7	PCI bus	OK
0x00000000-0x00000CF7	Direct memory access controller	OK
0x00000D00-0x0000FFFF	PCI bus	OK
0x0000D000-0x0000EFFF	PCI standard PCI-to-PCI bridge	OK
0x0000D000-0x0000EFFF	PCI standard PCI-to-PCI bridge	OK
0x0000D000-0x0000EFFF	PCI standard PCI-to-PCI bridge	OK
0x0000E000-0x0000EFFF	PCI standard PCI-to-PCI bridge	OK
0x0000ECE0-0x0000ECFF	Intel(R) PRO/1000 PT Quad Port Server Adapter	OK
0x0000DCE0-0x0000DCFF	Intel(R) PRO/1000 PT Quad Port Server Adapter #3	OK
0x0000BCE0-0x0000BCFF	Standard Universal PCI to USB Host Controller	OK
0x0000BCC0-0x0000BCDF	Standard Universal PCI to USB Host Controller	OK
0x0000BCA0-0x0000BCBF	Standard Universal PCI to USB Host Controller	OK
0x0000BC80-0x0000BC9F	Standard Universal PCI to USB Host Controller	OK
0x0000CC00-0x0000CCFF	Standard VGA Graphics Adapter	OK
0x000003B0-0x000003BB	Standard VGA Graphics Adapter	OK
0x000003C0-0x000003DF	Standard VGA Graphics Adapter	OK
0x00000080-0x0000009F	Direct memory access controller	OK
0x000000C0-0x000000DF	Direct memory access controller	OK
0x000000F0-0x000000FF	Numeric data processor	OK
0x00000020-0x0000003F	Programmable interrupt controller	OK
0x000000A0-0x000000BF	Programmable interrupt controller	OK
0x000004D0-0x000004D1	Programmable interrupt controller	OK
0x00000061-0x00000061	System board	OK
0x00000070-0x0000007F	System CMOS/real time clock	OK
0x00000040-0x0000005F	System timer	OK
0x000003F8-0x000003FF	Communications Port (COM1)	OK
0x000003F0-0x000003F5	Standard floppy disk controller	OK
0x000003F7-0x000003F7	Standard floppy disk controller	OK
0x00000378-0x0000037F	ECP Printer Port (LPT1)	OK
0x00000778-0x0000077F	ECP Printer Port (LPT1)	OK
0x00000800-0x0000087F	System board	OK
0x00000880-0x000008BF	System board	OK
0x000008C0-0x000008DF	System board	OK
0x000008E0-0x000008E3	System board	OK
0x00000C00-0x00000C7F	System board	OK
0x00000060-0x00000060	System board	OK
0x00000064-0x00000064	System board	OK
0x0000FC00-0x0000FC0F	Standard Dual Channel PCI IDE Controller	OK
0x000001F0-0x000001F7	Primary IDE Channel	OK
0x000003F6-0x000003F6	Primary IDE Channel	OK
0x00000170-0x00000177	Secondary IDE Channel	OK
0x00000376-0x00000376	Secondary IDE Channel	OK
0x0000BC78-0x0000BC7F	Standard Dual Channel PCI IDE Controller	OK
0x0000BC70-0x0000BC73	Standard Dual Channel PCI IDE Controller	OK
0x0000BC60-0x0000BC67	Standard Dual Channel PCI IDE Controller	OK
0x0000BC58-0x0000BC5B	Standard Dual Channel PCI IDE Controller	OK
0x0000BC40-0x0000BC4F	Standard Dual Channel PCI IDE Controller	OK

[IRQs]

Resource	Device	Status
IRQ 9	Microsoft ACPI-Compliant System	OK



## APPENDIX C - TUNABLE PARAMETERS

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IRQ 16 PCI standard host CPU bridge OK  
IRQ 16 PCI standard PCI-to-PCI bridge OK  
IRQ 16 PCI standard PCI-to-PCI bridge OK  
IRQ 16 PCI standard PCI-to-PCI bridge OK  
IRQ 16 PCI standard PCI-to-PCI bridge OK  
IRQ 16 PCI standard PCI-to-PCI bridge OK  
IRQ 16 Intel(R) PRO/1000 PT Quad Port Server Adapter OK  
IRQ 16 PCI standard PCI-to-PCI bridge OK  
IRQ 16 Broadcom NetXtreme Gigabit Ethernet OK  
IRQ 17 Intel(R) PRO/1000 PT Quad Port Server Adapter #3 OK  
IRQ 21 Standard Universal PCI to USB Host Controller OK  
IRQ 21 Standard Universal PCI to USB Host Controller OK  
IRQ 21 Standard Enhanced PCI to USB Host Controller OK  
IRQ 20 Standard Universal PCI to USB Host Controller OK  
IRQ 20 Standard Universal PCI to USB Host Controller OK  
IRQ 13 Numeric data processor OK  
IRQ 8 System CMOS/real time clock OK  
IRQ 0 System timer OK  
IRQ 4 Communications Port (COM1) OK  
IRQ 6 Standard floppy disk controller OK  
IRQ 14 Primary IDE Channel OK  
IRQ 23 Standard Dual Channel PCI IDE Controller OK

### [Memory]

Resource	Device	Status
0xA0000-0xBFFFF	PCI bus	OK
0xA0000-0xBFFFF	Standard VGA Graphics Adapter	OK
0xE0000000-0xFDFFFFFF	PCI bus	OK
0xE0000000-0xFDFFFFFF	Motherboard resources	OK
0xFDB00000-0xFDCFFFFFF	PCI standard PCI-to-PCI bridge	OK
0xFD500000-0xFDAFFFFFF	PCI standard PCI-to-PCI bridge	OK
0xFD600000-0xFDAFFFFFF	PCI standard PCI-to-PCI bridge	OK
0xFD900000-0xFDAFFFFFF	PCI standard PCI-to-PCI bridge	OK
0xFD9E0000-0xFD9FFFFFF	Intel(R) PRO/1000 PT Quad Port Server Adapter	OK
0xFD9C0000-0xFD9DFFFF	Intel(R) PRO/1000 PT Quad Port Server Adapter	OK
0xFD700000-0xFD8FFFFFF	PCI standard PCI-to-PCI bridge	OK
0xFD7E0000-0xFD7FFFFFF	Intel(R) PRO/1000 PT Quad Port Server Adapter #3	OK
0xFD7C0000-0xFD7DFFFF	Intel(R) PRO/1000 PT Quad Port Server Adapter #3	OK
0xFDD00000-0xFDEFFFFFF	PCI standard PCI-to-PCI bridge	OK
0xFDDF0000-0xFDDFFFFFF	Broadcom NetXtreme Gigabit Ethernet	OK
0xFDF00400-0xFDF007FF	Standard Enhanced PCI to USB Host Controller	OK
0xF0000000-0xF7FFFFFF	Standard VGA Graphics Adapter	OK
0xFD3F0000-0xFD3FFFFFF	Standard VGA Graphics Adapter	OK
0xFDF00000-0xFDF003FF	Standard Dual Channel PCI IDE Controller	OK
0xFED00000-0xFED003FF	High precision event timer	OK

### [Components]

### [Multimedia]

APPENDIX C - TUNABLE PARAMETERS

[Audio Codecs]

CODEC	Manufacturer	Description	Status	File	Version	Size	Creation Date
c:\windows\system32\imaadp32.acm	Microsoft Corporation		OK				
		C:\WINDOWS\system32\IMAADP32.ACM		5.2.3790.1830	(srv03_sp1_rtm.050324-1447)	24.00 KB (24,576 bytes)	3/25/2005 6:00 AM
c:\windows\system32\tsssoft32.acm	DSP GROUP, INC.		OK				
		C:\WINDOWS\system32\TSSOFT32.ACM		1.01		13.50 KB (13,824 bytes)	3/25/2005 6:00 AM
c:\windows\system32\msg711.acm	Microsoft Corporation		OK				
		C:\WINDOWS\system32\MSG711.ACM		5.2.3790.1830	(srv03_sp1_rtm.050324-1447)	13.50 KB (13,824 bytes)	3/25/2005 6:00 AM
c:\windows\system32\msgsm32.acm	Microsoft Corporation		OK				
		C:\WINDOWS\system32\MSGSM32.ACM		5.2.3790.1830	(srv03_sp1_rtm.050324-1447)	34.50 KB (35,328 bytes)	3/25/2005 6:00 AM
c:\windows\system32\msadp32.acm	Microsoft Corporation		OK				
		C:\WINDOWS\system32\MSADP32.ACM		5.2.3790.1830	(srv03_sp1_rtm.050324-1447)	23.50 KB (24,064 bytes)	3/25/2005 6:00 AM

[Video Codecs]

CODEC	Manufacturer	Description	Status	File	Version	Size	Creation Date
c:\windows\system32\msyuv.dll	Microsoft Corporation		OK				
		C:\WINDOWS\system32\MSYUV.DLL		5.2.3790.1830	(srv03_sp1_rtm.050324-1447)	21.00 KB (21,504 bytes)	3/24/2005 11:21 AM
c:\windows\system32\msvidc32.dll	Microsoft Corporation		OK				
		C:\WINDOWS\system32\MSVIDC32.DLL		5.2.3790.1830	(srv03_sp1_rtm.050324-1447)	43.00 KB (44,032 bytes)	3/25/2005 6:00 AM
c:\windows\system32\iyuv_32.dll	Microsoft Corporation		OK				
		C:\WINDOWS\system32\IYUV_32.DLL		5.2.3790.1830	(srv03_sp1_rtm.050324-1447)	52.50 KB (53,760 bytes)	3/24/2005 11:19 AM
c:\windows\system32\tsbyuv.dll	Microsoft Corporation		OK				
		C:\WINDOWS\system32\TSBYUV.DLL		5.2.3790.1830	(srv03_sp1_rtm.050324-1447)	12.50 KB (12,800 bytes)	3/24/2005 11:34 AM
c:\windows\system32\msrle32.dll	Microsoft Corporation		OK				
		C:\WINDOWS\system32\MSRLE32.DLL		5.2.3790.1830	(srv03_sp1_rtm.050324-1447)	15.50 KB (15,872 bytes)	3/25/2005 6:00 AM

[CD-ROM]

Item Value

Drive D:

Description CD-ROM Drive

Media Loaded No

Media Type CD-ROM

Name PBDS CD-ROM DH-48N1P

Manufacturer (Standard CD-ROM drives)

Status OK

Transfer Rate Not Available

SCSI Target ID 0

PNP Device ID IDE\CDROMPBDS\_CD-ROM\_DH-48N1P\_\_\_\_\_AD11\_\_\_\_\5&1ADA0B61&0&0.0.0

Driver c:\windows\system32\drivers\cdrom.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447), 75.50 KB (77,312 bytes), 3/25/2005 6:00 AM)

## APPENDIX C - TUNABLE PARAMETERS

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### [Sound Device]

Item Value

### [Display]

Item Value

Name Standard VGA Graphics Adapter

PNP Device ID

PCI\VEN\_1002&DEV\_515E&SUBSYS\_01B91028&REV\_02\4&2014205D&0&48F0

Adapter Type Not Available

Adapter Description (Standard display types)

Adapter RAM Not Available

Installed Drivers Not Available

Driver Version Not Available

INF File 5.2.3790.1830 (display.inf section)

Color Planes vga

Color Table Entries Not Available

Resolution Not Available

Bits/Pixel Not Available

Memory Address 0xF0000000-0xF7FFFFFF

I/O Port 0x0000CC00-0x0000CCFF

Memory Address 0xFD3F0000-0xFD3FFFFF

I/O Port 0x000003B0-0x000003BB

I/O Port 0x000003C0-0x000003DF

Memory Address 0xA0000-0xBFFFF

Driver c:\windows\system32\drivers\vgapnp.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447), 33.00 KB (33,792 bytes), 3/5/2008 7:23 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\_09AE&PID\_0002&MI\_00\6&8FA055B&0&0000

Number of Function Keys 12

Driver c:\windows\system32\drivers\hidusb.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447), 18.50 KB (18,944 bytes), 3/25/2005 6:00 AM)

### [Pointing Device]

Item Value

Hardware Type USB Human Interface Device

Number of Buttons 3

Status OK

PNP Device ID USB\VID\_09AE&PID\_0002&MI\_01\6&8FA055B&0&0001

## APPENDIX C - TUNABLE PARAMETERS

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Power Management Supported No  
Double Click Threshold 6  
Handedness Right Handed Operation  
Driver c:\windows\system32\drivers\hidusb.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447),  
18.50 KB (18,944 bytes), 3/25/2005 6:00 AM)

[Modem]

Item Value

[Network]

[Adapter]

Item Value

Name [00000001] RAS Async Adapter  
Adapter Type Not Available  
Product Type RAS Async Adapter  
Installed Yes  
PNP Device ID Not Available  
Last Reset 5/27/2008 11:50 AM  
Index 1  
Service Name AsyncMac  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address Not Available

Name [00000002] WAN Miniport (L2TP)  
Adapter Type Not Available  
Product Type WAN Miniport (L2TP)  
Installed Yes  
PNP Device ID ROOT\MS\_L2TPMINIPORT\0000  
Last Reset 5/27/2008 11:50 AM  
Index 2  
Service Name Rasl2tp  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address Not Available  
Driver c:\windows\system32\drivers\rasl2tp.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447),  
132.00 KB (135,168 bytes), 3/25/2005 6:00 AM)

Name [00000003] WAN Miniport (PPTP)  
Adapter Type Wide Area Network (WAN)

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## APPENDIX C - TUNABLE PARAMETERS

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Product Type WAN Miniport (PPTP)  
Installed Yes  
PNP Device ID ROOT\MS\_PPTP\MINI\PORT\0000  
Last Reset 5/27/2008 11:50 AM  
Index 3  
Service Name PptpMiniport  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address 50:50:54:50:30:30  
Driver c:\windows\system32\drivers\raspptp.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447), 117.50 KB (120,320 bytes), 3/25/2005 6:00 AM)

Name [00000004] WAN Miniport (PPPOE)  
Adapter Type Wide Area Network (WAN)  
Product Type WAN Miniport (PPPOE)  
Installed Yes  
PNP Device ID ROOT\MS\_PPPOE\MINI\PORT\0000  
Last Reset 5/27/2008 11:50 AM  
Index 4  
Service Name RasPppoe  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address 33:50:6F:45:30:30  
Driver c:\windows\system32\drivers\raspppoe.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447), 67.50 KB (69,120 bytes), 3/25/2005 6:00 AM)

Name [00000005] Direct Parallel  
Adapter Type Not Available  
Product Type Direct Parallel  
Installed Yes  
PNP Device ID ROOT\MS\_PT\MINI\PORT\0000  
Last Reset 5/27/2008 11:50 AM  
Index 5  
Service Name Raspti  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address Not Available  
Driver c:\windows\system32\drivers\raspti.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447), 30.50 KB (31,232 bytes), 3/25/2005 6:00 AM)

## APPENDIX C - TUNABLE PARAMETERS

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Name [00000006] WAN Miniport (IP)  
Adapter Type Not Available  
Product Type WAN Miniport (IP)  
Installed Yes  
PNP Device ID ROOT\MS\_NDISWANIP\0000  
Last Reset 5/27/2008 11:50 AM  
Index 6  
Service Name NdisWan  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address Not Available  
Driver c:\windows\system32\drivers\ndiswan.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447), 157.50 KB (161,280 bytes), 3/25/2005 6:00 AM)

Name [00000007] Broadcom NetXtreme Gigabit Ethernet  
Adapter Type Ethernet 802.3  
Product Type Broadcom NetXtreme Gigabit Ethernet  
Installed Yes  
PNP Device ID  
PCI\VEN\_14E4&DEV\_1677&SUBSYS\_01B91028&REV\_21\4&187919FE&0&00E0  
Last Reset 5/27/2008 11:50 AM  
Index 7  
Service Name b57nd  
IP Address 192.1.1.110  
IP Subnet 255.255.255.0  
Default IP Gateway 192.1.1.200  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address 00:1E:4F:B0:3B:AB  
Memory Address 0xFDDDF0000-0xFDDFFFFFF  
IRQ Channel IRQ 16  
Driver c:\windows\system32\drivers\b57amd64.sys (8.48.0.0 built by: WinDDK, 233.50 KB (239,104 bytes), 3/5/2008 7:16 PM)

Name [00000009] Intel(R) PRO/1000 PT Quad Port Server Adapter  
Adapter Type Not Available  
Product Type Intel(R) PRO/1000 PT Quad Port Server Adapter  
Installed Yes  
PNP Device ID  
PCI\VEN\_8086&DEV\_10A4&SUBSYS\_10A48086&REV\_06\6&1A840AB9&0&01000018  
Last Reset 5/27/2008 11:50 AM  
Index 9  
Service Name e1express  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available

## APPENDIX C - TUNABLE PARAMETERS

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DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address Not Available  
Driver c:\windows\system32\drivers\e1e5132e.sys (9.6.31.0 built by: WinDDK, 369.40 KB (378,264 bytes), 11/1/2006 12:39 PM)

Name [00000010] Intel(R) PRO/1000 PT Quad Port Server Adapter  
Adapter Type Ethernet 802.3  
Product Type Intel(R) PRO/1000 PT Quad Port Server Adapter  
Installed Yes  
PNP Device ID  
PCIIVEN\_8086&DEV\_10A4&SUBSYS\_10A48086&REV\_06\6&BF71098&0&00080018  
Last Reset 5/27/2008 11:50 AM  
Index 10  
Service Name e1express  
IP Address 192.1.4.110  
IP Subnet 255.255.255.0  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address 00:15:17:15:B8:9E  
Memory Address 0xFD7E0000-0xFD7FFFFFF  
Memory Address 0xFD7C0000-0xFD7DFFFF  
I/O Port 0x0000DCE0-0x0000DCFF  
IRQ Channel IRQ 17  
Driver c:\windows\system32\drivers\e1e5132e.sys (9.6.31.0 built by: WinDDK, 369.40 KB (378,264 bytes), 11/1/2006 12:39 PM)

Name [00000011] Intel(R) PRO/1000 PT Quad Port Server Adapter  
Adapter Type Not Available  
Product Type Intel(R) PRO/1000 PT Quad Port Server Adapter  
Installed Yes  
PNP Device ID  
PCIIVEN\_8086&DEV\_10A4&SUBSYS\_10A48086&REV\_06\6&BF71098&0&01080018  
Last Reset 5/27/2008 11:50 AM  
Index 11  
Service Name e1express  
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\e1e5132e.sys (9.6.31.0 built by: WinDDK, 369.40 KB (378,264 bytes), 11/1/2006 12:39 PM)

Name [00000012] Intel(R) PRO/1000 PT Quad Port Server Adapter  
Adapter Type Ethernet 802.3  
Product Type Intel(R) PRO/1000 PT Quad Port Server Adapter  
Installed Yes

## APPENDIX C - TUNABLE PARAMETERS

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### PNP Device ID

PCIIVEN\_8086&DEV\_10A4&SUBSYS\_10A48086&REV\_06\6&1A840AB9&0&00000018  
Last Reset 5/27/2008 11:50 AM  
Index 12  
Service Name e1express  
IP Address 192.1.2.110  
IP Subnet 255.255.255.0  
Default IP Gateway Not Available  
DHCP Enabled No  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address 00:15:17:15:B8:9C  
Memory Address 0xFD9E0000-0xFD9FFFFFF  
Memory Address 0xFD9C0000-0xFD9DFFFF  
I/O Port 0x0000ECE0-0x0000ECFF  
IRQ Channel IRQ 16  
Driver c:\windows\system32\drivers\le1e5132e.sys (9.6.31.0 built by: WinDDK, 369.40 KB (378,264 bytes), 11/1/2006 12:39 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
Pseudo Stream Oriented	No
Supports Broadcasting	No
Supports Connect Data	No
Supports Disconnect Data	No
Supports Encryption	No
Supports Expedited Data	Yes
Supports Graceful Closing	Yes
Supports Guaranteed Bandwidth	No
Supports Multicasting	No

Name	MSAFD Tcpip [UDP/IP]
Connectionless Service	Yes
Guarantees Delivery	No
Guarantees Sequencing	No
Maximum Address Size	16 bytes
Maximum Message Size	63.93 KB (65,467 bytes)
Message Oriented	Yes
Minimum Address Size	16 bytes
Pseudo Stream Oriented	No
Supports Broadcasting	Yes
Supports Connect Data	No
Supports Disconnect Data	No
Supports Encryption	No
Supports Expedited Data	No



## APPENDIX C - TUNABLE PARAMETERS

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Supports Graceful Closing No  
Supports Guaranteed Bandwidth No  
Supports Multicasting Yes

Name RSVP UDP Service Provider  
Connectionless Service Yes  
Guarantees Delivery No  
Guarantees Sequencing No  
Maximum Address Size 16 bytes  
Maximum Message Size 63.93 KB (65,467 bytes)  
Message Oriented Yes  
Minimum Address Size 16 bytes  
Pseudo Stream Oriented No  
Supports Broadcasting Yes  
Supports Connect Data No  
Supports Disconnect Data No  
Supports Encryption Yes  
Supports Expedited Data No  
Supports Graceful Closing No  
Supports Guaranteed Bandwidth No  
Supports Multicasting Yes

Name RSVP TCP Service Provider  
Connectionless Service No  
Guarantees Delivery Yes  
Guarantees Sequencing Yes  
Maximum Address Size 16 bytes  
Maximum Message Size 0 bytes  
Message Oriented No  
Minimum Address Size 16 bytes  
Pseudo Stream Oriented No  
Supports Broadcasting No  
Supports Connect Data No  
Supports Disconnect Data No  
Supports Encryption Yes  
Supports Expedited Data Yes  
Supports Graceful Closing Yes  
Supports Guaranteed Bandwidth No  
Supports Multicasting No

### [WinSock]

Item Value  
File c:\windows\system32\wsock32.dll  
Size 24.50 KB (25,088 bytes)  
Version 5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447)

### [Ports]

### [Serial]

Item Value  
Name Communications Port (COM1)

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## APPENDIX C - TUNABLE PARAMETERS

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Status OK  
PNP Device ID ACPI\PNP0501\1  
Maximum Input Buffer Size 0  
Maximum Output Buffer Size No  
Settable Baud Rate Yes  
Settable Data Bits Yes  
Settable Flow Control Yes  
Settable Parity Yes  
Settable Parity Check Yes  
Settable Stop Bits Yes  
Settable RLSD Yes  
Supports RLSD Yes  
Supports 16 Bit Mode No  
Supports Special Characters No  
Baud Rate 9600  
Bits/Byte 8  
Stop Bits 1  
Parity None  
Busy No  
Abort Read/Write on Error No  
Binary Mode Enabled Yes  
Continue XMit on XOff No  
CTS Outflow Control No  
Discard NULL Bytes No  
DSR Outflow Control 0  
DSR Sensitivity 0  
DTR Flow Control Type Enable  
EOF Character 0  
Error Replace Character 0  
Error Replacement Enabled No  
Event Character 0  
Parity Check Enabled No  
RTS Flow Control Type Enable  
XOff Character 19  
XOffXMit Threshold 512  
XOn Character 17  
XOnXMit Threshold 2048  
XOnXOff InFlow Control 0  
XOnXOff OutFlow Control 0  
I/O Port 0x000003F8-0x000003FF  
IRQ Channel IRQ 4  
Driver c:\windows\system32\drivers\serial.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447),  
118.50 KB (121,344 bytes), 3/25/2005 6:00 AM)

### [Parallel]

Item Value  
Name LPT1  
PNP Device ID ACPI\PNP0401\4&2AA4AD3D&0  
I/O Port 0x00000378-0x0000037F  
I/O Port 0x00000778-0x0000077F  
Driver c:\windows\system32\drivers\parport.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447),  
131.00 KB (134,144 bytes), 3/24/2005 11:22 AM)

### [Storage]

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[Drives]

Item Value  
 Drive C:  
 Description Local Fixed Disk  
 Compressed No  
 File System NTFS  
 Size 74.50 GB (79,990,812,672 bytes)  
 Free Space 59.48 GB (63,866,130,432 bytes)  
 Volume Name  
 Volume Serial Number 30C3F4E2

Drive D:  
 Description CD-ROM Disc

[Disks]

Item Value  
 Description Disk drive  
 Manufacturer (Standard disk drives)  
 Model WDC WD800AAJS-18TDA1  
 Bytes/Sector 512  
 Media Loaded Yes  
 Media Type Fixed hard disk  
 Partitions 1  
 SCSI Bus 0  
 SCSI Logical Unit 0  
 SCSI Port 1  
 SCSI Target ID 0  
 Sectors/Track 63  
 Size 74.50 GB (79,999,073,280 bytes)  
 Total Cylinders 9,726  
 Total Sectors 156,248,190  
 Total Tracks 2,480,130  
 Tracks/Cylinder 255  
 Partition Disk #0, Partition #0  
 Partition Size 74.50 GB (79,990,815,744 bytes)  
 Partition Starting Offset 32,256 bytes

[SCSI]

Item Value

[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\_269E&SUBSYS\_01B91028&REV\_09\3&61AAA01&0&F9  
 I/O Port 0x0000FC00-0x0000FC0F

## APPENDIX C - TUNABLE PARAMETERS

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Driver c:\windows\system32\drivers\pciide.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447), 6.00 KB (6,144 bytes), 3/25/2005 6:00 AM)

Name Primary IDE Channel  
Manufacturer (Standard IDE ATA/ATAPI controllers)  
Status OK  
PNP Device ID PCIIDE\IDECHANNEL\4&18B1FEB&0&0  
I/O Port 0x000001F0-0x000001F7  
I/O Port 0x000003F6-0x000003F6  
IRQ Channel IRQ 14  
Driver c:\windows\system32\drivers\atapi.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447), 145.00 KB (148,480 bytes), 3/25/2005 6:00 AM)

Name Secondary IDE Channel  
Manufacturer (Standard IDE ATA/ATAPI controllers)  
Status OK  
PNP Device ID PCIIDE\IDECHANNEL\4&18B1FEB&0&1  
I/O Port 0x00000170-0x00000177  
I/O Port 0x00000376-0x00000376  
Driver c:\windows\system32\drivers\atapi.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447), 145.00 KB (148,480 bytes), 3/25/2005 6:00 AM)

Name Standard Dual Channel PCI IDE Controller  
Manufacturer (Standard IDE ATA/ATAPI controllers)  
Status OK  
PNP Device ID PCI\VEN\_8086&DEV\_2680&SUBSYS\_01B91028&REV\_09\3&61AAA01&0&FA  
I/O Port 0x0000BC78-0x0000BC7F  
I/O Port 0x0000BC70-0x0000BC73  
I/O Port 0x0000BC60-0x0000BC67  
I/O Port 0x0000BC58-0x0000BC5B  
I/O Port 0x0000BC40-0x0000BC4F  
Memory Address 0xFDF00000-0xFDF003FF  
IRQ Channel IRQ 23  
Driver c:\windows\system32\drivers\pciide.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447), 6.00 KB (6,144 bytes), 3/25/2005 6:00 AM)

Name Primary IDE Channel  
Manufacturer (Standard IDE ATA/ATAPI controllers)  
Status OK  
PNP Device ID PCIIDE\IDECHANNEL\4&36B719D8&0&0  
Driver c:\windows\system32\drivers\atapi.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447), 145.00 KB (148,480 bytes), 3/25/2005 6:00 AM)

Name Secondary IDE Channel  
Manufacturer (Standard IDE ATA/ATAPI controllers)  
Status OK  
PNP Device ID PCIIDE\IDECHANNEL\4&36B719D8&0&1  
Driver c:\windows\system32\drivers\atapi.sys (5.2.3790.1830 (srv03\_sp1\_rtm.050324-1447), 145.00 KB (148,480 bytes), 3/25/2005 6:00 AM)

[Printing]

Name	Driver	Port Name	Server Name
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[Problem Devices]

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APPENDIX C - TUNABLE PARAMETERS

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Device PNP Device ID Error Code  
 Intel(R) PRO/1000 PT Quad Port Server Adapter #2  
 PCI\VEN\_8086&DEV\_10A4&SUBSYS\_10A48086&REV\_06\6&1A840AB9&0&01000018  
 This device is disabled.  
 Intel(R) PRO/1000 PT Quad Port Server Adapter #4  
 PCI\VEN\_8086&DEV\_10A4&SUBSYS\_10A48086&REV\_06\6&BF71098&0&01080018  
 This device is disabled.

[USB]

Device PNP Device ID  
 Standard Universal PCI to USB Host Controller  
 PCI\VEN\_8086&DEV\_2688&SUBSYS\_01B91028&REV\_09\3&61AAA01&0&E8  
 Standard Universal PCI to USB Host Controller  
 PCI\VEN\_8086&DEV\_2689&SUBSYS\_01B91028&REV\_09\3&61AAA01&0&E9  
 Standard Universal PCI to USB Host Controller  
 PCI\VEN\_8086&DEV\_268A&SUBSYS\_01B91028&REV\_09\3&61AAA01&0&EA  
 Standard Universal PCI to USB Host Controller  
 PCI\VEN\_8086&DEV\_268B&SUBSYS\_01B91028&REV\_09\3&61AAA01&0&EB  
 Standard Enhanced PCI to USB Host Controller  
 PCI\VEN\_8086&DEV\_268C&SUBSYS\_01B91028&REV\_09\3&61AAA01&0&EF

[Software Environment]

[System Drivers]

Name	Description	File	Type	Started	Start Mode	State	Status	Error Control
	Accept Pause	Accept	Stop					
abiosdsk	Abiosdsk	OK	Ignore	No	No	No	Disabled	
acpi	Microsoft ACPI Driver	c:\windows\system32\drivers\acpi.sys	Kernel Driver	Running	Normal	No	Yes	Yes
acpiec	ACPIEC	c:\windows\system32\drivers\acpiec.sys	Kernel Driver	Disabled	Stopped	OK	No	No
adpu160m	adpu160m	OK	Normal	No	No	No	Disabled	
adpu320	adpu320	OK	Normal	No	No	No	Disabled	
afd	AFD	c:\windows\system32\drivers\afd.sys	Kernel Driver	Running	Normal	No	Yes	System
aic78u2	aic78u2	Not Available	Kernel Driver	Normal	No	No	Disabled	Stopped
aic78xx	aic78xx	Not Available	Kernel Driver	Normal	No	No	Disabled	Stopped
aliide	Aliide	Not Available	Kernel Driver	Normal	No	No	Disabled	Stopped
amdide	AmdIde	Not Available	Kernel Driver	Normal	No	No	Disabled	Stopped
arc	arc	Not Available	Kernel Driver	Normal	No	No	Disabled	Stopped

APPENDIX C - TUNABLE PARAMETERS

asynmac	RAS Asynchronous Media Driver		c:\windows\system32\drivers\asynmac.sys	Kernel Driver	No	Manual		
	Stopped	OK	Normal	No	No			
atapi	Standard IDE/ESDI Hard Disk Controller		c:\windows\system32\drivers\atapi.sys	Kernel				
Driver	Yes	Boot	Running	OK	Normal	No	Yes	
atdisk	Atdisk	Not Available	Kernel Driver	No	Disabled	Stopped	OK	
	Ignore	No	No					
atmarpc	ATM ARP Client Protocol		c:\windows\system32\drivers\atmarpc.sys	Kernel Driver	No	Manual	Stopped	OK
	Kernel Driver	No	Manual	Stopped	OK	Normal	No	No
audstub	Audio Stub Driver		c:\windows\system32\drivers\audstub.sys	Kernel Driver				
	Yes	Manual	Running	OK	Normal	No	Yes	
b57nd	Broadcom NetXtreme Gigabit Ethernet		c:\windows\system32\drivers\b57amd64.sys	Kernel Driver	Yes	Manual	Running	OK
	Kernel Driver	Yes	Manual	Running	OK	Normal	No	Yes
beep	Beep		c:\windows\system32\drivers\beep.sys	Kernel Driver	Yes	System		
	Running	OK	Normal	No	Yes			
blfp	Broadcom Advanced Server Program Driver		c:\windows\system32\drivers\basamd64.sys	Kernel Driver	No	Manual		
	Stopped	OK	Normal	No	No			
cdac15ba	CdaC15BA		c:\windows\system32\drivers\cdac15ba.sys	Kernel Driver				
	Yes	Auto	Running	OK	Normal	No	Yes	
cdad10ba	CdaD10BA		c:\windows\system32\drivers\cdad10ba.sys	Kernel Driver				
	Yes	Auto	Running	OK	Normal	No	Yes	
cdfs	CdFs		c:\windows\system32\drivers\cdfs.sys	File System Driver			Yes	
	Disabled	Running	OK	Normal	No	Yes		
cdrom	CD-ROM Driver		c:\windows\system32\drivers\cdrom.sys	Kernel Driver	Yes	System		
	Running	OK	Normal	No	Yes			
changer	Changer		Not Available	Kernel Driver	No	System	Stopped	
	OK	Ignore	No	No				
clusdisk	Cluster Disk Driver		c:\windows\system32\drivers\clusdisk.sys	Kernel Driver				
	No	Disabled	Stopped	OK	Normal	No	No	
cmdide	CmdIde		Not Available	Kernel Driver	No	Disabled	Stopped	OK
	Normal	No	No					
cpqcissm	cpqcissm		Not Available	Kernel Driver	No	Disabled		
	Stopped	OK	Normal	No	No			
crcdisk	CRC Disk Filter Driver		c:\windows\system32\drivers\crcdisk.sys	Kernel Driver	Yes			
	Boot	Running	OK	Normal	No	Yes		
dfsdriver	DfsDriver		c:\windows\system32\drivers\dfs.sys	File System Driver				
	Yes	Boot	Running	OK	Normal	No	Yes	
disk	Disk Driver		c:\windows\system32\drivers\disk.sys	Kernel Driver	Yes	Boot		
	Running	OK	Normal	No	Yes			
dmboot	dmboot		c:\windows\system32\drivers\dmboot.sys	Kernel Driver	No			
	Disabled	Stopped	OK	Normal	No	No		
dmio	Logical Disk Manager Driver		c:\windows\system32\drivers\dmio.sys	Kernel Driver				
	Yes	Boot	Running	OK	Normal	No	Yes	
dmload	dmload		c:\windows\system32\drivers\dmload.sys	Kernel Driver	Yes	Boot		
	Running	OK	Normal	No	Yes			
dpti2o	dpti2o		Not Available	Kernel Driver	No	Disabled	Stopped	OK
	Normal	No	No					
e1express	Intel(R) PRO/1000 PCI Express Network Connection Driver		c:\windows\system32\drivers\e1e5132e.sys	Kernel Driver	Yes	Manual		
	Running	OK	Normal	No	Yes			
elxstor	elxstor		Not Available	Kernel Driver	No	Disabled	Stopped	OK
	Normal	No	No					
fastfat	Fastfat		c:\windows\system32\drivers\fastfat.sys	File System Driver		No		
	Disabled	Stopped	OK	Normal	No	No		

APPENDIX C - TUNABLE PARAMETERS

fdc	Floppy Disk Controller Driver	c:\windows\system32\drivers\fdc.sys	Kernel Driver					
	Yes	Manual Running	OK	Normal	No	Yes		
fips	Fips	c:\windows\system32\drivers\fips.sys	Kernel Driver	Yes	System			
	Running	OK	Normal	No	Yes			
flpydisk	Flpydisk	c:\windows\system32\drivers\flpydisk.sys	Kernel Driver	No				
	System Stopped	OK	Ignore	No	No			
fltmgr	FltMgr	c:\windows\system32\drivers\fltmgr.sys	File System Driver	Yes	Boot			
	Running	OK	Normal	No	Yes			
ftdisk	Volume Manager Driver	c:\windows\system32\drivers\ftdisk.sys	Kernel Driver	Yes				
	Boot Running	OK	Normal	No	Yes			
gpc	Generic Packet Classifier	c:\windows\system32\drivers\msgpc.sys	Kernel Driver					
	Yes	Manual Running	OK	Normal	No	Yes		
hidusb	Microsoft HID Class Driver	c:\windows\system32\drivers\hidusb.sys	Kernel Driver					
	Yes	Manual Running	OK	Ignore	No	Yes		
hpciss	hpciss	Not Available	Kernel Driver	No	Disabled	Stopped	OK	
	Normal	No	No					
http	HTTP	c:\windows\system32\drivers\http.sys	Kernel Driver	Yes	Manual			
	Running	OK	Normal	No	Yes			
i2omgmt	i2omgmt	Not Available	Kernel Driver	No	System Stopped			
	OK	Normal	No	No				
i8042prt	i8042prt	c:\windows\system32\drivers\i8042prt.sys	Kernel Driver					
	No	System Stopped	OK	Ignore	No	No		
iirsp	iirsp	Not Available	Kernel Driver	No	Disabled	Stopped	OK	
	Normal	No	No					
imapi	CD-Burning Filter Driver	c:\windows\system32\drivers\imapi.sys	Kernel Driver	No				
	System Stopped	OK	Normal	No	No			
intelide	IntelIde	Not Available	Kernel Driver	No	Disabled	Stopped	OK	
	Normal	No	No					
intelppm	Intel Processor Driver	c:\windows\system32\drivers\intelppm.sys	Kernel					
	Driver	Yes	Manual Running	OK	Normal	No	Yes	
ip6fw	IPv6 Windows Firewall Driver	c:\windows\system32\drivers\ip6fw.sys	Kernel Driver					
	No	Manual Stopped	OK	Normal	No	No		
ipfilterdriver	IP Traffic Filter Driver	c:\windows\system32\drivers\ipfltdrv.sys	Kernel Driver					
	No	Manual Stopped	OK	Normal	No	No		
ipinip	IP in IP Tunnel Driver	c:\windows\system32\drivers\ipinip.sys	Kernel Driver	No				
	Manual Stopped	OK	Normal	No	No			
ipnat	IP Network Address Translator	c:\windows\system32\drivers\ipnat.sys	Kernel Driver					
	No	Manual Stopped	OK	Normal	No	No		
ipsec	IPSEC driver	c:\windows\system32\drivers\ipsec.sys	Kernel Driver	Yes	System			
	Running	OK	Normal	No	Yes			
irenum	IR Enumerator Service	c:\windows\system32\drivers\irenum.sys	Kernel Driver	No				
	Manual Stopped	OK	Normal	No	No			
isapnp	PnP ISA/EISA Bus Driver	c:\windows\system32\drivers\isapnp.sys	Kernel Driver					
	Yes	Boot Running	OK	Critical	No	Yes		
kbdclass	Keyboard Class Driver	c:\windows\system32\drivers\kbdclass.sys	Kernel					
	Driver	Yes	System Running	OK	Normal	No	Yes	
kbdhid	Keyboard HID Driver	c:\windows\system32\drivers\kbdhid.sys	Kernel Driver	Yes				
	System Running	OK	Ignore	No	Yes			
ksecdd	KSecDD	c:\windows\system32\drivers\ksecdd.sys	Kernel Driver	Yes	Boot			
	Running	OK	Normal	No	Yes			
ksthunk	Kernel Streaming WOW64 Thunk Service	c:\windows\system32\drivers\ksthunk.sys	Kernel Driver	Yes	Manual			
	Running	OK	Normal	No	Yes			
lp6nds35	lp6nds35	Not Available	Kernel Driver	No	Disabled			
	Stopped	OK	Normal	No	No			

APPENDIX C - TUNABLE PARAMETERS

mnmd	mnmd	c:\windows\system32\drivers\mnmd.sys	Kernel Driver	Yes	System				
	Running	OK	Ignore	No	Yes				
modem	Modem	c:\windows\system32\drivers\modem.sys	Kernel Driver	No	Manual				
	Stopped	OK	Ignore	No	No				
mouclass	Mouse Class Driver	c:\windows\system32\drivers\mouclass.sys	Kernel Driver	Yes	System	Running	OK	Normal	No
	Driver	Yes	System	Running	OK	Normal	No	Yes	
mouhid	Mouse HID Driver	c:\windows\system32\drivers\mouhid.sys	Kernel Driver	Yes	Manual	Running	OK	Ignore	No
	Driver	Yes	Manual	Running	OK	Ignore	No	Yes	
mountmgr	Mount Point Manager	c:\windows\system32\drivers\mountmgr.sys	Kernel Driver	Yes	Boot	Running	OK	Normal	No
	Driver	Yes	Boot	Running	OK	Normal	No	Yes	
mraid35x	mraid35x	Not Available	Kernel Driver	No	Disabled	Stopped	OK	Normal	No
	Driver	Not Available	Kernel Driver	No	Disabled	Stopped	OK	Normal	No
mrxdav	WebDav Client Redirector	c:\windows\system32\drivers\mrxdav.sys	File System Driver	No	Manual	Stopped	OK	Normal	No
	Driver	No	Manual	Stopped	OK	Normal	No	No	
mrxsbm	MRXSMB	c:\windows\system32\drivers\mrxsbm.sys	File System Driver	Yes	System	Running	OK	Normal	No
	Driver	Yes	System	Running	OK	Normal	No	Yes	
msfs	Msfs	c:\windows\system32\drivers\msfs.sys	File System Driver	Yes	System	Running	OK	Normal	No
	Driver	Yes	System	Running	OK	Normal	No	Yes	
mssmbios	Microsoft System Management BIOS Driver	c:\windows\system32\drivers\mssmbios.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No
	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
	Driver	Yes	Boot	Running	OK	Normal	No	Yes	
ndis	NDIS System Driver	c:\windows\system32\drivers\ndis.sys	Kernel Driver	Yes	Boot	Running	OK	Normal	No
	Driver	Yes	Boot	Running	OK	Normal	No	Yes	
ndistapi	Remote Access NDIS TAPI Driver	c:\windows\system32\drivers\ndistapi.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No
	Driver	Yes	Manual	Running	OK	Normal	No	Yes	
ndisuio	NDIS Usermode I/O Protocol	c:\windows\system32\drivers\ndisuio.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No
	Driver	Yes	Manual	Running	OK	Normal	No	Yes	
ndiswan	Remote Access NDIS WAN Driver	c:\windows\system32\drivers\ndiswan.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No
	Driver	Yes	Manual	Running	OK	Normal	No	Yes	
ndproxy	NDIS Proxy	c:\windows\system32\drivers\ndproxy.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No
	Driver	Yes	Manual	Running	OK	Normal	No	Yes	
netbios	NetBIOS Interface	c:\windows\system32\drivers\netbios.sys	File System Driver	Yes	System	Running	OK	Normal	No
	Driver	Yes	System	Running	OK	Normal	No	Yes	
netbt	NetBios over Tcpip	c:\windows\system32\drivers\netbt.sys	Kernel Driver	Yes	System	Running	OK	Normal	No
	Driver	Yes	System	Running	OK	Normal	No	Yes	
nfrd960	nfrd960	Not Available	Kernel Driver	No	Disabled	Stopped	OK	Normal	No
	Driver	Not Available	Kernel Driver	No	Disabled	Stopped	OK	Normal	No
npfs	Npfs	c:\windows\system32\drivers\npfs.sys	File System Driver	Yes	System	Running	OK	Normal	No
	Driver	Yes	System	Running	OK	Normal	No	Yes	
ntfs	Ntfs	c:\windows\system32\drivers\ntfs.sys	File System Driver	Yes	System	Disabled	Running	OK	Normal
	Driver	Yes	System	Disabled	Running	OK	Normal	No	Yes
null	Null	c:\windows\system32\drivers\null.sys	Kernel Driver	Yes	System	Running	OK	Normal	No
	Driver	Yes	System	Running	OK	Normal	No	Yes	
parport	Parallel port driver	c:\windows\system32\drivers\parport.sys	Kernel Driver	Yes	Manual	Running	OK	Normal	No
	Driver	Yes	Manual	Running	OK	Normal	No	Yes	
partmgr	Partition Manager	c:\windows\system32\drivers\partmgr.sys	Kernel Driver	Yes	Boot	Running	OK	Normal	No
	Driver	Yes	Boot	Running	OK	Normal	No	Yes	
pci	PCI Bus Driver	c:\windows\system32\drivers\pci.sys	Kernel Driver	Yes	Boot	Running	OK	Critical	No
	Driver	Yes	Boot	Running	OK	Critical	No	Yes	
pciide	PCIIde	c:\windows\system32\drivers\pciide.sys	Kernel Driver	Yes	Boot	Running	OK	Normal	No
	Driver	Yes	Boot	Running	OK	Normal	No	Yes	



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pcmcia	Pcmcia	c:\windows\system32\drivers\pcmcia.sys	Kernel Driver	No	Disabled		
	Stopped	OK	Normal	No	No		
pdcomp	PDCOMP	Not Available	Kernel Driver	No	Manual	Stopped	OK
	Ignore	No	No				
pdframe	PDFRAME	Not Available	Kernel Driver	No	Manual	Stopped	
	OK	Ignore	No	No			
pdreli	PDRELI	Not Available	Kernel Driver	No	Manual	Stopped	OK
	Ignore	No	No				
pdrframe	PDRFRAME	Not Available	Kernel Driver	No	Manual	Stopped	
	OK	Ignore	No	No			
pptpminiport	WAN Miniport (PPTP)	c:\windows\system32\drivers\raspppt.sys	Kernel Driver	Yes	Manual	Running	OK
Driver	Yes	Manual	Running	OK	Normal	No	Yes
ptilink	Direct Parallel Link Driver	c:\windows\system32\drivers\ptilink.sys	Kernel Driver	Yes	Manual	Running	OK
	Yes	Manual	Running	OK	Normal	No	Yes
ql2300	ql2300	Not Available	Kernel Driver	No	Disabled	Stopped	OK
	Normal	No	No				
rasacd	Remote Access Auto Connection Driver	c:\windows\system32\drivers\rasacd.sys	Kernel Driver	Yes	System	Running	OK
Driver	Yes	System	Running	OK	Normal	No	Yes
rasl2tp	WAN Miniport (L2TP)	c:\windows\system32\drivers\rasl2tp.sys	Kernel Driver	Yes	Manual	Running	OK
	Manual	Running	OK	Normal	No	Yes	
rasppoe	Remote Access PPPOE Driver	c:\windows\system32\drivers\rasppoe.sys	Kernel Driver	Yes	Manual	Running	OK
	Kernel Driver	Yes	Manual	Running	OK	Normal	No
raspti	Direct Parallel	c:\windows\system32\drivers\raspti.sys	Kernel Driver	Yes	Manual	Running	OK
	Running	OK	Normal	No	Yes		
rdcss	Rdbss	c:\windows\system32\drivers\rdbss.sys	File System Driver	Yes	System	Running	OK
	Running	OK	Normal	No	Yes		
rdpcdd	RDPCDD	c:\windows\system32\drivers\rdpcdd.sys	Kernel Driver	Yes	System	Running	OK
	Running	OK	Ignore	No	Yes		
rdpdr	Terminal Server Device Redirector Driver	c:\windows\system32\drivers\rdpdr.sys	Kernel Driver	Yes	Manual	Running	OK
	Kernel Driver	Yes	Manual	Running	OK	Normal	No
rdpwd	RDPWD	c:\windows\system32\drivers\rdpwd.sys	Kernel Driver	Yes	Manual	Running	OK
	Running	OK	Ignore	No	Yes		
redbook	Digital CD Audio Playback Filter Driver	c:\windows\system32\drivers\redbook.sys	Kernel Driver	Yes	System	Running	OK
	Running	OK	Normal	No	Yes		
secdrv	Security Driver	c:\windows\system32\drivers\secdrv.sys	Kernel Driver	Yes	Auto	Running	OK
	Running	OK	Normal	No	Yes		
serenum	Serenum Filter Driver	c:\windows\system32\drivers\serenum.sys	Kernel Driver	Yes	Manual	Running	OK
Driver	Yes	Manual	Running	OK	Normal	No	Yes
serial	Serial port driver	c:\windows\system32\drivers\serial.sys	Kernel Driver	Yes	System	Running	OK
	System	Running	OK	Ignore	No	Yes	
sfloppy	Sfloppy	c:\windows\system32\drivers\sfloppy.sys	Kernel Driver	No	System	Stopped	OK
	Stopped	OK	Ignore	No	No		
simbad	Simbad	Not Available	Kernel Driver	No	Disabled	Stopped	OK
	Normal	No	No				
srv	Srv	c:\windows\system32\drivers\srv.sys	File System Driver	Yes	Manual	Running	OK
	Running	OK	Normal	No	Yes		
swenum	Software Bus Driver	c:\windows\system32\drivers\swenum.sys	Kernel Driver	Yes	Manual	Running	OK
Driver	Yes	Manual	Running	OK	Normal	No	Yes
symc8xx	symc8xx	Not Available	Kernel Driver	No	Disabled	Stopped	OK
	Stopped	OK	Normal	No	No		
symmpi	symmpi	Not Available	Kernel Driver	No	Disabled	Stopped	OK
	Normal	No	No				
sym_hi	sym_hi	Not Available	Kernel Driver	No	Disabled	Stopped	OK
	Normal	No	No				

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sym_u3	sym_u3	Not Available	Kernel Driver	No	Disabled	Stopped	OK
	Normal	No					
tcpip	TCP/IP Protocol Driver		c:\windows\system32\drivers\tcpip.sys	Kernel Driver	Yes		
	System Running	OK	Normal	No	Yes		
tdpipe	TDPIPE		c:\windows\system32\drivers\tdpipe.sys	Kernel Driver	No	Manual	
	Stopped	OK	Ignore	No	No		
tdtcp	TDTCP		c:\windows\system32\drivers\tdtcp.sys	Kernel Driver	Yes	Manual	
	Running	OK	Ignore	No	Yes		
termdd	Terminal Device Driver		c:\windows\system32\drivers\termdd.sys	Kernel Driver	Yes		
	System Running	OK	Normal	No	Yes		
toside	Toside	Not Available	Kernel Driver	No	Disabled	Stopped	OK
	Normal	No					
udfs	Udfs		c:\windows\system32\drivers\udfs.sys	File System Driver	No		
	Disabled	Stopped	OK	Normal	No	No	
ultra	ultra	Not Available	Kernel Driver	No	Disabled	Stopped	OK
	Normal	No					
update	Microcode Update Driver		c:\windows\system32\drivers\update.sys	Kernel Driver			
	Yes	Manual	Running	OK	Normal	No	Yes
usbccgp	Microsoft USB Generic Parent Driver		c:\windows\system32\drivers\usbccgp.sys	Kernel Driver	Yes	Manual	
	Running	OK	Normal	No	Yes		
usbhci	Microsoft USB 2.0 Enhanced Host Controller Miniport Driver		c:\windows\system32\drivers\usbhci.sys	Kernel Driver	Yes	Manual	
	Running	OK	Normal	No	Yes		
usbhub	USB2 Enabled Hub		c:\windows\system32\drivers\usbhub.sys	Kernel Driver			
	Yes	Manual	Running	OK	Normal	No	Yes
usbstor	USB Mass Storage Driver		c:\windows\system32\drivers\usbstor.sys	Kernel			
Driver	No	Manual	Stopped	OK	Normal	No	No
usbuhci	Microsoft USB Universal Host Controller Miniport Driver		c:\windows\system32\drivers\usbuhci.sys	Kernel Driver	Yes	Manual	
	Running	OK	Normal	No	Yes		
vga	vga		c:\windows\system32\drivers\vgapnp.sys	Kernel Driver	Yes	Manual	
	Running	OK	Ignore	No	Yes		
vgasave	VGA Display Controller		c:\windows\system32\drivers\vga.sys	Kernel Driver			
	No	System	Stopped	OK	Ignore	No	No
viaide	Vialde	Not Available	Kernel Driver	No	Disabled	Stopped	OK
	Normal	No					
volsnap	Storage volumes		c:\windows\system32\drivers\volsnap.sys	Kernel Driver			
	Yes	Boot	Running	OK	Normal	No	Yes
wanarp	Remote Access IP ARP Driver		c:\windows\system32\drivers\wanarp.sys	Kernel			
Driver	Yes	Manual	Running	OK	Normal	No	Yes
wdica	WDICA	Not Available	Kernel Driver	No	Manual	Stopped	OK
	No	No					Ignore
wlbs	Network Load Balancing		c:\windows\system32\drivers\wlbs.sys	Kernel Driver			
	No	Manual	Stopped	OK	Normal	No	No

[Signed Drivers]

Device Name	Signed	Device Class	Driver Version	Driver Date	Manufacturer	INF
Name	Driver Name	Device ID				
Microsoft System Management BIOS Driver	Yes	Standard system devices)	SYSTEM	5.2.3790.1830	10/1/2002	ROOT\SYSTEM\0002
10/1/2002			machine.inf	Not Available		
Microcode Update Device	Yes	Standard system devices)	SYSTEM	5.2.3790.1830	10/1/2002	ROOT\SYSTEM\0001
(Standard system devices)			machine.inf	Not Available		

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Plug and Play Software Device Enumerator	Yes	SYSTEM	5.2.3790.1830	10/1/2002	Not Available	ROOT\SYSTEM\0000
10/1/2002 (Standard system devices)		machine.inf				
Terminal Server Mouse Driver	Yes	SYSTEM	5.2.3790.1830	10/1/2002	Not Available	ROOT\RDP_MOU\0000
(Standard system devices)		machine.inf				
Terminal Server Keyboard Driver	Yes	SYSTEM	5.2.3790.1830	10/1/2002	Not Available	ROOT\RDP_KBD\0000
(Standard system devices)		machine.inf				
Terminal Server Device Redirector	Yes	SYSTEM	5.2.3790.1830	10/1/2002	Not Available	ROOT\RDPDR\0000
(Standard system devices)		machine.inf				
Direct Parallel	Yes	NET	5.2.3790.1830	10/1/2002	Microsoft	netrasa.inf
Not Available		ROOT\MS_PTMINIPORT\0000				
WAN Miniport (PPTP)	Yes	NET	5.2.3790.1830	10/1/2002	Microsoft	netrasa.inf
Not Available		ROOT\MS_PPTPMINIPORT\0000				
WAN Miniport (PPPOE)	Yes	NET	5.2.3790.1830	10/1/2002	Microsoft	netrasa.inf
Not Available		ROOT\MS_PPPOEMINIPORT\0000				
WAN Miniport (IP)	Yes	NET	5.2.3790.1830	10/1/2002	Microsoft	netrasa.inf
Not Available		ROOT\MS_NDISWANIP\0000				
WAN Miniport (L2TP)	Yes	NET	5.2.3790.1830	10/1/2002	Microsoft	netrasa.inf
Not Available		ROOT\MS_L2TPMINIPORT\0000				
Video Codecs	Yes	MEDIA	5.2.3790.1830	10/1/2002	(Standard system devices)	wave.inf
Not Available		ROOT\MEDIA\MS_MMVID				
Legacy Video Capture Devices	Yes	MEDIA	5.2.3790.1830	10/1/2002	(Standard system devices)	wave.inf
Not Available		ROOT\MEDIA\MS_MMVCD				
Media Control Devices	Yes	MEDIA	5.2.3790.1830	10/1/2002	(Standard system devices)	wave.inf
Not Available		ROOT\MEDIA\MS_MMMCI				
Legacy Audio Drivers	Yes	MEDIA	5.2.3790.1830	10/1/2002	(Standard system devices)	wave.inf
Not Available		ROOT\MEDIA\MS_MMDRV				
Audio Codecs	Yes	MEDIA	5.2.3790.1830	10/1/2002	(Standard system devices)	wave.inf
Not Available		ROOT\MEDIA\MS_MMACM				
Remote Access IP ARP Driver	Not Available	LEGACYDRIVER			Not Available	Not Available
Not Available	Not Available	Not Available	Not Available	Not Available		ROOT\LEGACY_WANARP\0000
volsnap	Not Available	LEGACYDRIVER			Not Available	Not Available
Not Available	Not Available	Not Available	Not Available	Not Available		ROOT\LEGACY_VOLSNAP\0000
TDTCP	Not Available	LEGACYDRIVER			Not Available	Not Available
Not Available	Not Available	Not Available	Not Available	Not Available		ROOT\LEGACY_TDTCP\0000
TCP/IP Protocol Driver	Not Available	LEGACYDRIVER			Not Available	Not Available
Not Available	Not Available	Not Available	Not Available	Not Available		ROOT\LEGACY_TCPIP\0000
Security Driver	Not Available	LEGACYDRIVER			Not Available	Not Available
Not Available	Not Available	Not Available	Not Available	Not Available		ROOT\LEGACY_SECDRV\0000
RDPWD	Not Available	LEGACYDRIVER			Not Available	Not Available
Not Available	Not Available	Not Available	Not Available	Not Available		ROOT\LEGACY_RDPWD\0000
RDPCDD	Not Available	LEGACYDRIVER			Not Available	Not Available
Not Available	Not Available	Not Available	Not Available	Not Available		ROOT\LEGACY_RDPCDD\0000
Remote Access Auto Connection Driver	Not Available	LEGACYDRIVER			Not Available	
Not Available	Not Available	Not Available	Not Available	Not Available		ROOT\LEGACY_RASACD\0000
Partition Manager	Not Available	LEGACYDRIVER			Not Available	Not Available
Not Available	Not Available	Not Available	Not Available	Not Available		ROOT\LEGACY_PARTMGR\0000
Null	Not Available	LEGACYDRIVER			Not Available	Not Available
Not Available	Not Available	Not Available	Not Available	Not Available		ROOT\LEGACY_NULL\0000
NetBios over Tcpi	Not Available	LEGACYDRIVER			Not Available	Not Available
Not Available	Not Available	Not Available	Not Available	Not Available		ROOT\LEGACY_NETBT\0000
NDProxy	Not Available	LEGACYDRIVER			Not Available	Not Available
Not Available	Not Available	Not Available	Not Available	Not Available		ROOT\LEGACY_NDPROXY\0000

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NDIS Usermode I/O Protocol	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
Available	Not Available	Not Available	Not Available	Not Available	Not Available
ROOTLEGACY_NDISUIO\0000					
Remote Access NDIS TAPI Driver	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
ROOTLEGACY_NDISTAPI\0000					
NDIS System Driver	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
ROOTLEGACY_NDIS\0000					
mountmgr	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
Available	Not Available	Not Available	Not Available	Not Available	Not Available
ROOTLEGACY_MOUNTMGR\0000					
mnmdd	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
ROOTLEGACY_MNMDD\0000					
ksecdd	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
ROOTLEGACY_KSECDD\0000					
IPSEC driver	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
Available	Not Available	Not Available	Not Available	Not Available	Not Available
ROOTLEGACY_IPSEC\0000					
IP Network Address Translator	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
Available	Not Available	Not Available	Not Available	Not Available	Not Available
ROOTLEGACY_IPNAT\0000					
HTTP	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
ROOTLEGACY_HTTP\0000					
Generic Packet Classifier	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
Available	Not Available	Not Available	Not Available	Not Available	Not Available
ROOTLEGACY_GPC\0000					
Fips	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
ROOTLEGACY_FIPS\0000					
dmload	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
ROOTLEGACY_DMLOAD\0000					
dmboot	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
ROOTLEGACY_DMBOOT\0000					
CRC Disk Filter Driver	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
ROOTLEGACY_CRCDISK\0000					
CdaD10BA	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
Available	Not Available	Not Available	Not Available	Not Available	Not Available
ROOTLEGACY_CDAD10BA\0000					
CdaC15BA	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
Available	Not Available	Not Available	Not Available	Not Available	Not Available
ROOTLEGACY_CDAC15BA\0000					
Beep	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
ROOTLEGACY_BEEP\0000					
AFD	Not Available	LEGACYDRIVER	Not Available	Not Available	Not Available
Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
ROOTLEGACY_AFD\0000					
Generic volume	Yes	VOLUME	5.2.3790.1830	10/1/2002	Microsoft
volume.inf	Not Available	Not Available	Not Available	Not Available	Not Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE80OFFSET7E00LENGTH129FD2FC					
00					
Volume Manager	Yes	SYSTEM	5.2.3790.1830	10/1/2002	(Standard
system devices)machine.inf	Not Available	Not Available	Not Available	Not Available	Not Available
ROOTFTDISK\0000					
Logical Disk Manager	Yes	SYSTEM	5.2.3790.1830	10/1/2002	(Standard
system devices)machine.inf	Not Available	Not Available	Not Available	Not Available	Not Available
ROOTDMIO\0000					
ACPI Fixed Feature Button	Yes	SYSTEM	5.2.3790.1830	10/1/2002	
(Standard system devices)	machine.inf	Not Available	Not Available	Not Available	Not Available
ACPI\FIXEDBUTTON\2&DABA3FF&0					
High precision event timer	Yes	SYSTEM	5.2.3790.1830	10/1/2002	
(Standard system devices)	machine.inf	Not Available	Not Available	Not Available	Not Available
ACPI\PNP0103\0					
Motherboard resources	Yes	SYSTEM	5.2.3790.1830	10/1/2002	(Standard
system devices)machine.inf	Not Available	Not Available	Not Available	Not Available	Not Available
ACPI\PNP0C02\0					

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Secondary IDE Channel ATA/ATAPI controllers)	Yes mshdc.inf	HDC Not Available	5.2.3790.1830	10/1/2002	(Standard IDE PCI\IDE\IDECHANNEL\4&36B719D8&0&1
Disk drive	Yes disk.inf	DISKDRIVE Not Available	5.2.3790.1830	10/1/2002	(Standard disk drives) IDE\DISKWDC_WD800AAJS-18TDA1_____01.00A04\5&2A0CF612&0&0.0.0
Primary IDE Channel ATA/ATAPI controllers)	Yes mshdc.inf	HDC Not Available	5.2.3790.1830	10/1/2002	(Standard IDE PCI\IDE\IDECHANNEL\4&36B719D8&0&0
Standard Dual Channel PCI IDE Controller (Standard IDE ATA/ATAPI controllers)	Yes mshdc.inf	HDC Not Available	5.2.3790.1830	10/1/2002	PCI\VEN_8086&DEV_2680&SUBSYS_01B91028&REV_09\3&61AAA01&0&FA
Secondary IDE Channel ATA/ATAPI controllers)	Yes mshdc.inf	HDC Not Available	5.2.3790.1830	10/1/2002	(Standard IDE PCI\IDE\IDECHANNEL\4&18B1FEB&0&1
CD-ROM Drive drives)	Yes cdrom.inf	CDROM Not Available	5.2.3790.1830	10/1/2002	(Standard CD-ROM IDE\CDROMPBDS_CD-ROM_DH-48N1P_____AD11_____5&1ADA0B61&0&0.0.0
Primary IDE Channel ATA/ATAPI controllers)	Yes mshdc.inf	HDC Not Available	5.2.3790.1830	10/1/2002	(Standard IDE PCI\IDE\IDECHANNEL\4&18B1FEB&0&0
Standard Dual Channel PCI IDE Controller (Standard IDE ATA/ATAPI controllers)	Yes mshdc.inf	HDC Not Available	5.2.3790.1830	10/1/2002	PCI\VEN_8086&DEV_269E&SUBSYS_01B91028&REV_09\3&61AAA01&0&F9
System board devices)	Yes machine.inf	SYSTEM Not Available	5.2.3790.1830	10/1/2002	(Standard system ACPI\PNP0C010
Printer Port (Standard system devices)	Logical machine.inf	Interface Not Available	5.2.3790.1830	10/1/2002	SYSTEM LPTENUMMICROSOFTRAWPORT\5&387F7EE5&0&LPT1
ECP Printer Port	Yes msports.inf	PORTS Not Available	5.2.3790.1830	10/1/2002	(Standard port types) ACPI\PNP0401\4&2AA4AD3D&0
Standard floppy disk controller floppy disk controllers)	Yes fdc.inf	FDC Not Available	5.2.3790.1830	10/1/2002	(Standard ACPI\PNP0700\4&2AA4AD3D&0
Communications Port	Yes msports.inf	PORTS Not Available	5.2.3790.1830	10/1/2002	(Standard port types) ACPI\PNP0501\1
System timer devices)	Yes machine.inf	SYSTEM Not Available	5.2.3790.1830	10/1/2002	(Standard system ACPI\PNP0100\4&2AA4AD3D&0
System CMOS/real time clock (Standard system devices)	Yes machine.inf	SYSTEM Not Available	5.2.3790.1830	10/1/2002	ACPI\PNP0B00\4&2AA4AD3D&0
System board devices)	Yes machine.inf	SYSTEM Not Available	5.2.3790.1830	10/1/2002	(Standard system ACPI\PNP0C01\2
Programmable interrupt controller (Standard system devices)	Yes machine.inf	SYSTEM Not Available	5.2.3790.1830	10/1/2002	ACPI\PNP0000\4&2AA4AD3D&0
Numeric data processor system devices)	Yes machine.inf	SYSTEM Not Available	5.2.3790.1830	10/1/2002	(Standard ACPI\PNP0C04\4&2AA4AD3D&0
Direct memory access controller (Standard system devices)	Yes machine.inf	SYSTEM Not Available	5.2.3790.1830	10/1/2002	ACPI\PNP0200\4&2AA4AD3D&0
PCI standard ISA bridge system devices)	Yes machine.inf	SYSTEM Not Available	5.2.3790.1830	10/1/2002	(Standard PCI\VEN_8086&DEV_2670&SUBSYS_00000000&REV_09\3&61AAA01&0&F8

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Default Monitor types)	Yes	MONITOR	5.2.3790.1830	10/1/2002	(Standard monitor types)
monitor.inf		Not Available			
		DISPLAY\DEFAULT_MONITOR\5&2A694D8A&0&12345678&0B&09			
Standard VGA Graphics Adapter	Yes	DISPLAY	5.2.3790.1830	10/1/2002	(Standard display types)
display.inf		Not Available			
		PCI\VEN_1002&DEV_515E&SUBSYS_01B91028&REV_02\4&2014205D&0&48F0			
Intel(R) 82801 PCI Bridge - 244E	Yes	SYSTEM	5.2.3790.1830	10/1/2002	(Standard system devices)
Intel machine.inf		Not Available			
		PCI\VEN_8086&DEV_244E&SUBSYS_00000000&REV_D9\3&61AAA01&0&F0			
USB Root Hub	Yes	USB	5.2.3790.1830	10/1/2002	(Standard USB Host Controller)
usbport.inf		Not Available			
		USB\ROOT_HUB20\4&658A081&0			
Standard Enhanced PCI to USB Host Controller	Yes	USB	5.2.3790.1830	10/1/2002	(Standard USB Host Controller)
usbport.inf		Not Available			
		PCI\VEN_8086&DEV_268C&SUBSYS_01B91028&REV_09\3&61AAA01&0&EF			
USB Root Hub	Yes	USB	5.2.3790.1830	10/1/2002	(Standard USB Host Controller)
usbport.inf		Not Available			
		USB\ROOT_HUB\4&38F3D7&0			
Standard Universal PCI to USB Host Controller	Yes	USB	5.2.3790.1830	10/1/2002	(Standard USB Host Controller)
usbport.inf		Not Available			
		PCI\VEN_8086&DEV_268B&SUBSYS_01B91028&REV_09\3&61AAA01&0&EB			
USB Root Hub	Yes	USB	5.2.3790.1830	10/1/2002	(Standard USB Host Controller)
usbport.inf		Not Available			
		USB\ROOT_HUB\4&35CD017&0			
Standard Universal PCI to USB Host Controller	Yes	USB	5.2.3790.1830	10/1/2002	(Standard USB Host Controller)
usbport.inf		Not Available			
		PCI\VEN_8086&DEV_268A&SUBSYS_01B91028&REV_09\3&61AAA01&0&EA			
HID-compliant mouse	Yes	MOUSE	5.2.3790.1830	10/1/2002	Microsoft
msmouse.inf		Not Available			
		HID\VID_09AE&PID_0002&MI_01\7&FDD9F08&0&0000			
USB Human Interface Device	Yes	HIDCLASS	5.2.3790.1830	10/1/2002	(Standard system devices)
input.inf		Not Available			
		USB\VID_09AE&PID_0002&MI_01\6&8FA055B&0&0001			
HID Keyboard Device	Yes	KEYBOARD	5.2.3790.1830	10/1/2002	(Standard keyboards)
keyboard.inf		Not Available			
		HID\VID_09AE&PID_0002&MI_00\7&38484CD1&0&0000			
USB Human Interface Device	Yes	HIDCLASS	5.2.3790.1830	10/1/2002	(Standard system devices)
input.inf		Not Available			
		USB\VID_09AE&PID_0002&MI_00\6&8FA055B&0&0000			
USB Composite Device	Yes	USB	5.2.3790.1830	10/1/2002	(Standard USB Host Controller)
usb.inf		Not Available			
		USB\VID_09AE&PID_0002\USB_COMPOSITE_DEVICE			
USB Root Hub	Yes	USB	5.2.3790.1830	10/1/2002	(Standard USB Host Controller)
usbport.inf		Not Available			
		USB\ROOT_HUB\4&11C31C8E&0			
Standard Universal PCI to USB Host Controller	Yes	USB	5.2.3790.1830	10/1/2002	(Standard USB Host Controller)
usbport.inf		Not Available			
		PCI\VEN_8086&DEV_2689&SUBSYS_01B91028&REV_09\3&61AAA01&0&E9			
USB Root Hub	Yes	USB	5.2.3790.1830	10/1/2002	(Standard USB Host Controller)
usbport.inf		Not Available			
		USB\ROOT_HUB\4&3848A91D&0			
Standard Universal PCI to USB Host Controller	Yes	USB	5.2.3790.1830	10/1/2002	(Standard USB Host Controller)
usbport.inf		Not Available			
		PCI\VEN_8086&DEV_2688&SUBSYS_01B91028&REV_09\3&61AAA01&0&E8			
Broadcom NetXtreme Gigabit Ethernet	Yes	NET	8.48.0.0	10/31/2005	
Broadcom oem0.inf		Not Available			
		PCI\VEN_14E4&DEV_1677&SUBSYS_01B91028&REV_21\4&187919FE&0&00E0			
PCI standard PCI-to-PCI bridge	Yes	SYSTEM	5.2.3790.1830	10/1/2002	(Standard system devices)
machine.inf		Not Available			
		PCI\VEN_8086&DEV_2690&SUBSYS_00000000&REV_09\3&61AAA01&0&E0			

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PCI standard host CPU bridge	Yes	SYSTEM	5.2.3790.1830	10/1/2002
(Standard system devices)		machine.inf	Not Available	
PCIIVEN_8086&DEV_25F6&SUBSYS_00000000&REV_92\3&61AAA01&0&B0				
PCI standard host CPU bridge	Yes	SYSTEM	5.2.3790.1830	10/1/2002
(Standard system devices)		machine.inf	Not Available	
PCIIVEN_8086&DEV_25F5&SUBSYS_00000000&REV_92\3&61AAA01&0&A8				
PCI standard host CPU bridge	Yes	SYSTEM	5.2.3790.1830	10/1/2002
(Standard system devices)		machine.inf	Not Available	
PCIIVEN_8086&DEV_25F3&SUBSYS_00000000&REV_92\3&61AAA01&0&98				
PCI standard host CPU bridge	Yes	SYSTEM	5.2.3790.1830	10/1/2002
(Standard system devices)		machine.inf	Not Available	
PCIIVEN_8086&DEV_25F1&SUBSYS_00000000&REV_92\3&61AAA01&0&88				
PCI standard host CPU bridge	Yes	SYSTEM	5.2.3790.1830	10/1/2002
(Standard system devices)		machine.inf	Not Available	
PCIIVEN_8086&DEV_25F0&SUBSYS_00000000&REV_92\3&61AAA01&0&82				
PCI standard host CPU bridge	Yes	SYSTEM	5.2.3790.1830	10/1/2002
(Standard system devices)		machine.inf	Not Available	
PCIIVEN_8086&DEV_25F0&SUBSYS_00000000&REV_92\3&61AAA01&0&81				
PCI standard host CPU bridge	Yes	SYSTEM	5.2.3790.1830	10/1/2002
(Standard system devices)		machine.inf	Not Available	
PCIIVEN_8086&DEV_25F0&SUBSYS_00000000&REV_92\3&61AAA01&0&80				
Intel(R) PRO/1000 PT Quad Port Server Adapter	Yes	NET	9.6.31.0	
10/31/2006	Intel	oem6.inf	Not Available	
PCIIVEN_8086&DEV_10A4&SUBSYS_10A48086&REV_06\6&BF71098&0&01080018				
Intel(R) PRO/1000 PT Quad Port Server Adapter	Yes	NET	9.6.31.0	
10/31/2006	Intel	oem6.inf	Not Available	
PCIIVEN_8086&DEV_10A4&SUBSYS_10A48086&REV_06\6&BF71098&0&00080018				
PCI standard PCI-to-PCI bridge	Yes	SYSTEM	5.2.3790.1830	10/1/2002
(Standard system devices)		machine.inf	Not Available	
PCIIVEN_111D&DEV_8018&SUBSYS_00000000&REV_04\5&E457461&0&080018				
Intel(R) PRO/1000 PT Quad Port Server Adapter	Yes	NET	9.6.31.0	
10/31/2006	Intel	oem6.inf	Not Available	
PCIIVEN_8086&DEV_10A4&SUBSYS_10A48086&REV_06\6&1A840AB9&0&01000018				
Intel(R) PRO/1000 PT Quad Port Server Adapter	Yes	NET	9.6.31.0	
10/31/2006	Intel	oem6.inf	Not Available	
PCIIVEN_8086&DEV_10A4&SUBSYS_10A48086&REV_06\6&1A840AB9&0&00000018				
PCI standard PCI-to-PCI bridge	Yes	SYSTEM	5.2.3790.1830	10/1/2002
(Standard system devices)		machine.inf	Not Available	
PCIIVEN_111D&DEV_8018&SUBSYS_00000000&REV_04\5&E457461&0&000018				
PCI standard PCI-to-PCI bridge	Yes	SYSTEM	5.2.3790.1830	10/1/2002
(Standard system devices)		machine.inf	Not Available	
PCIIVEN_111D&DEV_8018&SUBSYS_00000000&REV_04\4&3382D5D3&0&0018				
PCI standard PCI-to-PCI bridge	Yes	SYSTEM	5.2.3790.1830	10/1/2002
(Standard system devices)		machine.inf	Not Available	
PCIIVEN_8086&DEV_25E3&SUBSYS_00000000&REV_92\3&61AAA01&0&18				
PCI standard PCI-to-PCI bridge	Yes	SYSTEM	5.2.3790.1830	10/1/2002
(Standard system devices)		machine.inf	Not Available	
PCIIVEN_8086&DEV_350C&SUBSYS_00000000&REV_01\4&A27001&0&0310				
PCI standard PCI-to-PCI bridge	Yes	SYSTEM	5.2.3790.1830	10/1/2002
(Standard system devices)		machine.inf	Not Available	
PCIIVEN_8086&DEV_3514&SUBSYS_00000000&REV_01\5&1E0A8BA7&0&080010				
PCI standard PCI-to-PCI bridge	Yes	SYSTEM	5.2.3790.1830	10/1/2002
(Standard system devices)		machine.inf	Not Available	
PCIIVEN_8086&DEV_3510&SUBSYS_00000000&REV_01\5&1E0A8BA7&0&000010				

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APPENDIX C - TUNABLE PARAMETERS

PCI standard PCI-to-PCI bridge	Yes	SYSTEM	5.2.3790.1830	10/1/2002		
(Standard system devices)		machine.inf	Not Available			
PCI\VEN_8086&DEV_3500&SUBSYS_00000000&REV_014&A27001&0&0010						
PCI standard PCI-to-PCI bridge	Yes	SYSTEM	5.2.3790.1830	10/1/2002		
(Standard system devices)		machine.inf	Not Available			
PCI\VEN_8086&DEV_25E2&SUBSYS_00000000&REV_92\3&61AAA01&0&10						
PCI standard host CPU bridge	Yes	SYSTEM	5.2.3790.1830	10/1/2002		
(Standard system devices)		machine.inf	Not Available			
PCI\VEN_8086&DEV_25D4&SUBSYS_00000000&REV_92\3&61AAA01&0&00						
PCI bus	Yes	SYSTEM	5.2.3790.1830	10/1/2002	(Standard system devices)	
machine.inf		Not Available	ACPI\PNP0A03\2&DABA3FF&0			
Intel Processor Available	Yes	PROCESSOR	5.2.3790.1830	10/1/2002	Intel	cpu.inf Not
		ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_15\7				
Intel Processor Available	Yes	PROCESSOR	5.2.3790.1830	10/1/2002	Intel	cpu.inf Not
		ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_15\6				
Intel Processor Available	Yes	PROCESSOR	5.2.3790.1830	10/1/2002	Intel	cpu.inf Not
		ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_15\5				
Intel Processor Available	Yes	PROCESSOR	5.2.3790.1830	10/1/2002	Intel	cpu.inf Not
		ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_15\4				
Intel Processor Available	Yes	PROCESSOR	5.2.3790.1830	10/1/2002	Intel	cpu.inf Not
		ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_15\3				
Intel Processor Available	Yes	PROCESSOR	5.2.3790.1830	10/1/2002	Intel	cpu.inf Not
		ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_15\2				
Intel Processor Available	Yes	PROCESSOR	5.2.3790.1830	10/1/2002	Intel	cpu.inf Not
		ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_15\1				
Intel Processor Available	Yes	PROCESSOR	5.2.3790.1830	10/1/2002	Intel	cpu.inf Not
		ACPI\GENUINEINTEL_-_EM64T_FAMILY_6_MODEL_15\0				
Microsoft ACPI-Compliant System	Yes	SYSTEM	5.2.3790.1830	10/1/2002		
Microsoft		acpi.inf	Not Available	ACPI_HAL\PNP0C08\0		
ACPI Multiprocessor x64-based PC	Yes	COMPUTER	5.2.3790.1830	10/1/2002		
(Standard computers)		hal.inf	Not Available	ROOT\ACPI_HAL\0000		
Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
Not Available	Not Available	Not Available	HTREE\ROOT\0			

[Environment Variables]

Variable	Value	User Name
ClusterLog	C:\WINDOWS\Cluster\cluster.log	<SYSTEM>
ComSpec	%SystemRoot%\system32\cmd.exe	<SYSTEM>
FP_NO_HOST_CHECK	NO	<SYSTEM>
LD_LIBRARY_PATH	%ORACLE_HOME%\oci\lib\msvc;%ORACLE_HOME%\LIB	<SYSTEM>
LOCAL TPCC2		<SYSTEM>
NUMBER_OF_PROCESSORS	8	<SYSTEM>
ORACLE_HOME	c:\app\Administrator\product\11.1.0\client_1	<SYSTEM>
OS	Windows_NT	<SYSTEM>
Path	%ORACLE_HOME%\BIN;C:\app\Administrator\product\11.1.0\client_1\bin;c:\mksnt;%SystemRoot%\system32;%SystemRoot%;%SystemRoot%\System32\Wbem;C:\Program Files\Intel\DMIX	<SYSTEM>
PATHEXT	.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH	<SYSTEM>
PROCESSOR_ARCHITECTURE	AMD64	<SYSTEM>
PROCESSOR_IDENTIFIER	EM64T Family 6 Model 15 Stepping 11, GenuineIntel	<SYSTEM>
PROCESSOR_LEVEL	6	<SYSTEM>



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PROCESSOR_REVISION    0f0b <SYSTEM>
TEMP %SystemRoot%\TEMP <SYSTEM>
TMP %SystemRoot%\TEMP <SYSTEM>
VS90COMNTOOLS      C:\Program Files (x86)\Microsoft Visual Studio 9.0\Common7\Tools\
<SYSTEM>
windir %SystemRoot% <SYSTEM>
TEMP %USERPROFILE%\Local Settings\Temp NT AUTHORITY\SYSTEM
TMP %USERPROFILE%\Local Settings\Temp NT AUTHORITY\SYSTEM
TEMP %USERPROFILE%\Local Settings\Temp NT AUTHORITY\LOCAL SERVICE
TMP %USERPROFILE%\Local Settings\Temp NT AUTHORITY\LOCAL SERVICE
TEMP %USERPROFILE%\Local Settings\Temp NT AUTHORITY\NETWORK SERVICE
TMP %USERPROFILE%\Local Settings\Temp NT AUTHORITY\NETWORK SERVICE
TEMP %USERPROFILE%\Local Settings\Temp PE1430\Administrator
TMP %USERPROFILE%\Local Settings\Temp PE1430\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
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[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
system	Not Available	4	8	0	1413120	Not Available	Not Available	Not Available	Not Available
smss.exe	Not Available	588	11	204800	1413120	5/27/2008 11:51 AM	Not Available	Not Available	Not Available
csrss.exe	Not Available	740	13	Not Available	Not Available	5/27/2008 11:51 AM	Not Available	Not Available	Not Available
winlogon.exe	c:\windows\system32\winlogon.exe	964	13	204800	1413120	5/27/2008 11:51 AM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	901.00 KB	(922,624 bytes) 3/25/2005 6:00 AM
services.exe	c:\windows\system32\services.exe	192	9	204800	1413120	5/27/2008 11:51 AM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	216.50 KB	(221,696 bytes) 3/25/2005 6:00 AM
lsass.exe	c:\windows\system32\lsass.exe	188	9	204800	1413120	5/27/2008 11:51 AM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	14.00 KB	(14,336 bytes) 3/25/2005 6:00 AM
svchost.exe	c:\windows\system32\svchost.exe	420	8	204800	1413120	5/27/2008 11:51 AM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	24.50 KB	(25,088 bytes) 3/25/2005 6:00 AM
svchost.exe	Not Available	640	8	Not Available	Not Available	5/27/2008 11:51 AM	Not Available	Not Available	Not Available
svchost.exe	Not Available	772	8	Not Available	Not Available	5/27/2008 11:51 AM	Not Available	Not Available	Not Available
svchost.exe	Not Available	912	8	Not Available	Not Available	5/27/2008 11:51 AM	Not Available	Not Available	Not Available

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svchost.exe	c:\windows\system32\svchost.exe	936	8	204800	1413120	
	5/27/2008 11:51 AM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)			24.50 KB	
(25,088 bytes)	3/25/2005 6:00 AM					
msdtc.exe	Not Available	1808	8	Not Available	Not Available	5/27/2008
11:51 AM	Not Available	Not Available	Not Available			
svchost.exe	c:\windows\system32\svchost.exe	1980	8	204800	1413120	
	5/27/2008 11:51 AM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)			24.50 KB	
(25,088 bytes)	3/25/2005 6:00 AM					
svchost.exe	Not Available	580	8	Not Available	Not Available	5/27/2008
11:51 AM	Not Available	Not Available	Not Available			
svchost.exe	c:\windows\system32\svchost.exe	1752	8	204800	1413120	
	5/27/2008 11:51 AM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)			24.50 KB	
(25,088 bytes)	3/25/2005 6:00 AM					
wmiprvse.exe	Not Available	1172	8	Not Available	Not Available	5/27/2008
11:52 AM	Not Available	Not Available	Not Available			
csrss.exe	Not Available	1608	13	Not Available	Not Available	5/27/2008
12:13 PM	Not Available	Not Available	Not Available			
winlogon.exe	c:\windows\system32\winlogon.exe	1512	13	204800	1413120	
	5/27/2008 12:13 PM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)			901.00 KB	
(922,624 bytes)	3/25/2005 6:00 AM					
rdpclip.exe	c:\windows\system32\rdpclip.exe	1880	8	204800	1413120	
	5/27/2008 12:13 PM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)			99.00 KB	
(101,376 bytes)	3/5/2008 3:37 PM					
explorer.exe	c:\windows\explorer.exe	980	8	204800	1413120	5/27/2008
12:13 PM	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)				1.30 MB (1,364,480 bytes)	
	3/25/2005 6:00 AM					
bacstray.exe	c:\program files\broadcom\bacs\bacstray.exe	556	8	204800		
1413120	5/27/2008 12:13 PM	8, 3, 11, 0			105.00 KB (107,520 bytes)	
	4/5/2006 12:42 AM					
svchost.exe	c:\windows\system32\svchost.exe	2120	8	204800	1413120	
	5/27/2008 12:13 PM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)			24.50 KB	
(25,088 bytes)	3/25/2005 6:00 AM					
mmc.exe	c:\windows\system32\mmc.exe	2404	8	204800	1413120	
	5/27/2008 12:13 PM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)			1.83 MB	
(1,920,512 bytes)	3/25/2005 6:00 AM					
explorer.exe	c:\windows\explorer.exe	2388	8	204800	1413120	5/27/2008
12:15 PM	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)				1.30 MB (1,364,480 bytes)	
	3/25/2005 6:00 AM					
bacstray.exe	c:\program files\broadcom\bacs\bacstray.exe	2488	8	204800		
1413120	5/27/2008 12:15 PM	8, 3, 11, 0			105.00 KB (107,520 bytes)	
	4/5/2006 12:42 AM					
cmd.exe	c:\windows\system32\cmd.exe	3376	8	204800	1413120	
	5/27/2008 1:50 PM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)			538.50 KB	
(551,424 bytes)	3/25/2005 6:00 AM					
bash.exe	c:\cygwin\bin\bash.exe	716	8	204800	1413120	5/27/2008 1:50
PM	Not Available	459.50 KB (470,528 bytes)			3/6/2008 3:51 PM	
bash.exe	c:\cygwin\bin\bash.exe	3804	8	204800	1413120	5/27/2008 1:50
PM	Not Available	459.50 KB (470,528 bytes)			3/6/2008 3:51 PM	
csrss.exe	Not Available	2924	13	Not Available	Not Available	5/27/2008 4:41
PM	Not Available	Not Available	Not Available			
winlogon.exe	c:\windows\system32\winlogon.exe	1396	13	204800	1413120	
	5/27/2008 4:41 PM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)			901.00 KB	
(922,624 bytes)	3/25/2005 6:00 AM					

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rdpclip.exe	c:\windows\system32\rdpclip.exe	1504	8	204800	1413120	5/27/2008 4:42 PM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	99.00 KB
(101,376 bytes) 3/5/2008 3:37 PM								
tsadmin.exe	c:\windows\system32\tsadmin.exe	3724	8	204800	1413120	5/27/2008 4:48 PM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	423.00 KB
(433,152 bytes) 3/5/2008 3:37 PM								
logon.scr	Not Available	2892	4	Not Available	Not Available	5/27/2008 4:52 PM	Not Available	Not Available
inetinfo.exe c:\windows\system32\inetinfo.exe 2704 8 204800								
1413120 5/27/2008 8:52 PM 6.0.3790.1830 (srv03_sp1_rtm.050324-1447)								
17.50 KB (17,920 bytes) 3/6/2008 4:24 PM								
svchost.exe	c:\windows\system32\svchost.exe	608	8	204800	1413120	5/27/2008 8:52 PM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	24.50 KB
(25,088 bytes) 3/25/2005 6:00 AM								
scrnsave.scr	c:\windows\system32\scrnsave.scr	1124	4	204800	1413120	5/28/2008 2:01 AM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	11.00 KB
(11,264 bytes) 3/25/2005 6:00 AM								
helpctr.exe	c:\windows\pchealth\helpctr\binaries\helpctr.exe	3492	8	204800	1413120	5/28/2008 1:40 PM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.30 MB (1,363,456 bytes) 3/5/2008 3:40 PM
helpsvc.exe	c:\windows\pchealth\helpctr\binaries\helpsvc.exe	2344	8	204800	1413120	5/28/2008 1:40 PM	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.52 MB (1,591,296 bytes) 3/5/2008 3:40 PM
wmiprvse.exe	Not Available	3028	8	Not Available	Not Available	5/28/2008 1:40 PM	Not Available	Not Available

[Loaded Modules]

Name	Version	Size	File Date	Manufacturer	Path
winlogon	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	901.00 KB (922,624 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\winlogon.exe
ntdll	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.20 MB (1,257,472 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\ntdll.dll
kernel32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.43 MB (1,500,160 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\kernel32.dll
advapi32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.00 MB (1,051,136 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\advapi32.dll
rpcrt4	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.63 MB (1,714,176 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\rpcrt4.dll
crypt32	5.131.3790.1830 (srv03_sp1_rtm.050324-1447)	1.36 MB (1,428,992 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\crypt32.dll
msasn1	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	152.50 KB (156,160 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\msasn1.dll
msvcrt	7.0.3790.1830 (srv03_sp1_rtm.050324-1447)	508.00 KB (520,192 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\msvcrt.dll
user32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.04 MB (1,085,952 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\user32.dll
gdi32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	592.00 KB (606,208 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\gdi32.dll
nddeapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	25.00 KB (25,600 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\nddeapi.dll
profmap	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	36.00 KB (36,864 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\profmap.dll
netapi32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	589.00 KB (603,136 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\netapi32.dll

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userenv	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.02 MB (1,069,056 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\userenv.dll
psapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	29.00 KB (29,696 bytes)
AM	Microsoft Corporation	c:\windows\system32\psapi.dll
regapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	108.50 KB (111,104 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\regapi.dll
secur32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	120.00 KB (122,880 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\secur32.dll
setupapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.45 MB (1,523,200 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\setupapi.dll
version	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	28.00 KB (28,672 bytes)
AM	Microsoft Corporation	c:\windows\system32\version.dll
winsta	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	89.00 KB (91,136 bytes)
AM	Microsoft Corporation	c:\windows\system32\winsta.dll
ws2_32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	176.50 KB (180,736 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\ws2_32.dll
ws2help	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	30.50 KB (31,232 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\ws2help.dll
msgina	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.14 MB (1,193,472 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\msgina.dll
shsvcs	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	193.50 KB (198,144 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\shsvcs.dll
shlwapi	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	606.50 KB (621,056 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\shlwapi.dll
sfc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	6.00 KB (6,144 bytes)
AM	Microsoft Corporation	c:\windows\system32\sfc.dll
sfc_os	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	183.50 KB (187,904 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\sfc_os.dll
wintrust	5.131.3790.1830 (srv03_sp1_rtm.050324-1447)	297.50 KB (304,640 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\wintrust.dll
imagehlp	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	57.50 KB (58,880 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\imagehlp.dll
ole32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	2.43 MB (2,543,616 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\ole32.dll
comctl32	6.0 (srv03_sp1_rtm.050324-1447)	1.51 MB (1,584,128 bytes)
	3/5/2008 7:19 AM Microsoft Corporation	c:\windows\winsxs\amd64_microsoft.windows.common-
controls_6595b64144ccf1df_6.0.3790.1830_x-ww_aced72af\comctl32.dll		
winscard	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	230.00 KB (235,520 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\winscard.dll
wtsapi32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	29.00 KB (29,696 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\wtsapi32.dll
sxs	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.91 MB (2,003,968 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\sxs.dll
winmm	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	303.50 KB (310,784 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\winmm.dll
shell32	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	10.01 MB (10,492,416 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\shell32.dll
rsaenh	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	241.96 KB (247,768 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\rsaenh.dll
wldap32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	390.00 KB (399,360 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\wldap32.dll
cscdll	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	151.50 KB (155,136 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\cscdll.dll

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dimsntfy	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	28.00 KB (28,672 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\dimsntfy.dll
wlnotify	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	148.00 KB (151,552 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\wlnotify.dll
mpr	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	115.00 KB (117,760 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\mpr.dll
oleaut32	5.2.3790.1830	1.06 MB (1,116,160 bytes) 3/25/2005 6:00 AM
	Microsoft Corporation	c:\windows\system32\oleaut32.dll
winspool	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	247.00 KB (252,928 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\winspool.drv
comctl32	5.82 (srv03_sp1_rtm.050324-1447)	934.50 KB (956,928 bytes)
	3/5/2008 7:19 AM Microsoft Corporation	c:\windows\winsxs\amd64_microsoft.windows.common-
controls_6595b64144ccf1df_5.82.3790.1830_x-ww_4d792d2a\comctl32.dll		
uxtheme	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	494.50 KB (506,368 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\uxtheme.dll
samlib	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	69.00 KB (70,656 bytes)3/25/2005 6:00 AM
	Microsoft Corporation	c:\windows\system32\samlib.dll
clbcatq	2001.12.4720.1830 (srv03_sp1_rtm.050324-1447)	865.00 KB (885,760 bytes)
	3/5/2008 3:37 PM Microsoft Corporation	c:\windows\system32\clbcatq.dll
comres	2001.12.4720.1830 (srv03_sp1_rtm.050324-1447)	779.50 KB (798,208 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\comres.dll
xpsp2res	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	2.77 MB (2,899,456 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\xpsp2res.dll
cscui	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	441.00 KB (451,584 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\cscui.dll
ntmarta	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	222.50 KB (227,840 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\ntmarta.dll
wbemprox	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	38.00 KB (38,912 bytes)
	3/5/2008 3:37 PM Microsoft Corporation	c:\windows\system32\wbem\wbemprox.dll
wbemcomn	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	524.00 KB (536,576 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\wbem\wbemcomn.dll
wbemsvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	58.00 KB (59,392 bytes)
	3/5/2008 3:37 PM Microsoft Corporation	c:\windows\system32\wbem\wbemsvc.dll
fastprox	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	866.50 KB (887,296 bytes)
	3/5/2008 3:37 PM Microsoft Corporation	c:\windows\system32\wbem\fastprox.dll
msvcpc60	7.0.3790.1830 (srv03_sp1_rtm.050324-1447)	919.50 KB (941,568 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\msvcpc60.dll
ntdsapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	127.50 KB (130,560 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\ntdsapi.dll
dnsapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	297.50 KB (304,640 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\dnsapi.dll
scredir	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	38.50 KB (39,424 bytes)3/25/2005 6:00 AM
	Microsoft Corporation	c:\windows\system32\scredir.dll
rdpsnd	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	25.00 KB (25,600 bytes)3/25/2005 6:00 AM
	Microsoft Corporation	c:\windows\system32\rdpsnd.dll
drprov	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	24.00 KB (24,576 bytes)3/25/2005 6:00 AM
	Microsoft Corporation	c:\windows\system32\drprov.dll
ntlanman	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	71.50 KB (73,216 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\ntlanman.dll
netui0	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	130.00 KB (133,120 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\netui0.dll

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## APPENDIX C - TUNABLE PARAMETERS

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netui1	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	338.50 KB (346,624 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\netui1.dll
davclnt	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	38.00 KB (38,912 bytes)
AM	Microsoft Corporation	c:\windows\system32\davclnt.dll
services	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	216.50 KB (221,696 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\services.exe
ncobjapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	80.00 KB (81,920 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\ncobjapi.dll
scesrv	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	594.50 KB (608,768 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\scesrv.dll
authz	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	167.00 KB (171,008 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\authz.dll
umpnpgmgr	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	205.00 KB (209,920 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\umpnpgmgr.dll
eventlog	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	127.00 KB (130,048 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\eventlog.dll
lsass	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	14.00 KB (14,336 bytes)
AM	Microsoft Corporation	c:\windows\system32\lsass.exe
lsasrv	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.50 MB (1,568,256 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\lsasrv.dll
samsrv	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.01 MB (1,059,328 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\samsrv.dll
cryptdll	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	47.00 KB (48,128 bytes)
AM	Microsoft Corporation	c:\windows\system32\cryptdll.dll
msprivs	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	47.50 KB (48,640 bytes)
AM	Microsoft Corporation	c:\windows\system32\msprivs.dll
kerberos	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	698.00 KB (714,752 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\kerberos.dll
msv1_0	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	253.00 KB (259,072 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\msv1_0.dll
iphlpapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	177.00 KB (181,248 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\iphlpapi.dll
netlogon	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	666.00 KB (681,984 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\netlogon.dll
w32time	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	400.50 KB (410,112 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\w32time.dll
schannel	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	248.00 KB (253,952 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\schannel.dll
wdigest	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	130.50 KB (133,632 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\wdigest.dll
rassfm	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	36.00 KB (36,864 bytes)
AM	Microsoft Corporation	c:\windows\system32\rassfm.dll
kdcsvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	409.00 KB (418,816 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\kdcsvc.dll
ntdsa	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	2.81 MB (2,948,096 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\ntdsa.dll
esent	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	2.26 MB (2,366,976 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\esent.dll
ntdsatq	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	51.00 KB (52,224 bytes)
AM	Microsoft Corporation	c:\windows\system32\ntdsatq.dll
mswsock	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	478.00 KB (489,472 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\mswsock.dll
scecli	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	308.00 KB (315,392 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\scecli.dll

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ws03res	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	794.00 KB (813,056 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\ws03res.dll
hnetcfg	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	561.00 KB (574,464 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\hnetcfg.dll
wshtcpip	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	29.00 KB (29,696 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\wshtcpip.dll
ipsecsvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	358.50 KB (367,104 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\ipsecsvc.dll
oakley	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	372.50 KB (381,440 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\oakley.dll
winiipsec	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	52.50 KB (53,760 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\winiipsec.dll
pstorsvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	36.00 KB (36,864 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\pstorsvc.dll
psbase	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	124.00 KB (126,976 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\psbase.dll
dssenh	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	226.96 KB (232,408 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\dssenh.dll
wlbsctrl	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	137.50 KB (140,800 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\wlbsctrl.dll
w3ssl	6.0.3790.1830 (srv03_sp1_rtm.050324-1447)	21.00 KB (21,504 bytes)	3/25/2005 6:00
AM	Microsoft Corporation	c:\windows\system32\w3ssl.dll	
strmfilt	6.0.3790.1830 (srv03_sp1_rtm.050324-1447)	131.50 KB (134,656 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\strmfilt.dll
httpapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	36.50 KB (37,376 bytes)	3/25/2005 6:00
AM	Microsoft Corporation	c:\windows\system32\httpapi.dll	
svchost	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	24.50 KB (25,088 bytes)	3/25/2005 6:00
AM	Microsoft Corporation	c:\windows\system32\svchost.exe	
rpcss	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	672.00 KB (688,128 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\rpcss.dll
wzcsvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	492.00 KB (503,808 bytes)	
	3/24/2005 11:35 AM	Microsoft Corporation	c:\windows\system32\wzcsvc.dll
rtutils	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	66.00 KB (67,584 bytes)	3/25/2005 6:00
AM	Microsoft Corporation	c:\windows\system32\rtutils.dll	
wmi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	5.50 KB (5,632 bytes)	3/25/2005 6:00
AM	Microsoft Corporation	c:\windows\system32\wmi.dll	
dhcpcsvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	219.00 KB (224,256 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\dhcpcsvc.dll
atl	3.05.2284	96.50 KB (98,816 bytes)	3/25/2005 6:00 AM
		Microsoft Corporation	c:\windows\system32\atl.dll
rastls	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	236.50 KB (242,176 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\rastls.dll
cryptui	5.131.3790.1830 (srv03_sp1_rtm.050324-1447)	705.50 KB (722,432 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\cryptui.dll
mprapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	154.50 KB (158,208 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\mprapi.dll
activeds	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	348.50 KB (356,864 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\activeds.dll
adslidpc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	240.50 KB (246,272 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\adslidpc.dll
credui	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	202.00 KB (206,848 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\credui.dll
rasapi32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	410.00 KB (419,840 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\rasapi32.dll

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rasman	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	95.50 KB (97,792 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\rasman.dll
tapi32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	332.50 KB (340,480 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\tapi32.dll
raschap	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	141.00 KB (144,384 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\raschap.dll
schedsvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	308.50 KB (315,904 bytes)	3/5/2008 3:39 PM	Microsoft Corporation	c:\windows\system32\schedsvc.dll
msidle	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	9.00 KB (9,216 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\msidle.dll
audiosrv	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	77.00 KB (78,848 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\audiosrv.dll
wiarpc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	57.00 KB (58,368 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\wiarpc.dll
wkssvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	221.00 KB (226,304 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\wkssvc.dll
aelupsvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	31.50 KB (32,256 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\aelupsvc.dll
apphelp	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	241.00 KB (246,784 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\apphelp.dll
cryptsvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	114.00 KB (116,736 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\cryptsvc.dll
certcli	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	372.00 KB (380,928 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\certcli.dll
vssapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.26 MB (1,320,960 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\vssapi.dll
dmserver	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	36.50 KB (37,376 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\dmserver.dll
es	2001.12.4720.1830 (srv03_sp1_rtm.050324-1447)	357.00 KB (365,568 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\es.dll
pchsvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	76.00 KB (77,824 bytes)	3/5/2008 3:40 PM	Microsoft Corporation	c:\windows\pchealth\helpctr\binaries\pchsvc.dll
hidserv	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	24.00 KB (24,576 bytes)	3/5/2008 7:23 AM	Microsoft Corporation	c:\windows\system32\hidserv.dll
hid	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	33.00 KB (33,792 bytes)	3/24/2005 11:18 AM	Microsoft Corporation	c:\windows\system32\hid.dll
srvsvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	156.50 KB (160,256 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\srvsvc.dll
seclogon	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	27.50 KB (28,160 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\seclogon.dll
sens	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	63.50 KB (65,024 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\sens.dll
comsvcs	2001.12.4720.1830 (srv03_sp1_rtm.050324-1447)	2.06 MB (2,156,544 bytes)	3/5/2008 3:37 PM	Microsoft Corporation	c:\windows\system32\comsvcs.dll
trkwks	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	177.50 KB (181,760 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\trkwks.dll
wmisvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	227.00 KB (232,448 bytes)	3/5/2008 3:37 PM	Microsoft Corporation	c:\windows\system32\wbem\wmisvc.dll
wuauerv	5.7.3790.1830 (srv03_sp1_rtm.050324-1447)	12.00 KB (12,288 bytes)	3/5/2008 3:40 PM	Microsoft Corporation	c:\windows\system32\wuauerv.dll
wuaueng	5.7.3790.1830 (srv03_sp1_rtm.050324-1447)	2.17 MB (2,270,720 bytes)	3/5/2008 3:40 PM	Microsoft Corporation	c:\windows\system32\wuaueng.dll
advpack	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	146.00 KB (149,504 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\advpack.dll

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cabinet	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	138.50 KB (141,824 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\cabinet.dll
mspatcha	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	48.00 KB (49,152 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\mspachta.dll
shfolder	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	34.00 KB (34,816 bytes)
AM	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\shfolder.dll
winhttp	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	508.50 KB (520,704 bytes)
	3/5/2008 7:19 AM Microsoft Corporation	c:\windows\winsxs\amd64_microsoft.windows.winhttp_6595b64144ccf1df_5.1.3790.1830_x-ww_a61ef4db\winhttp.dll
browser	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	125.50 KB (128,512 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\browser.dll
winrnr	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	30.00 KB (30,720 bytes)
AM	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\winrnr.dll
rasadhlp	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	12.00 KB (12,288 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\rasadhlp.dll
wbemcore	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.24 MB (1,299,968 bytes)
	3/5/2008 3:37 PM Microsoft Corporation	c:\windows\system32\wbem\wbemcore.dll
esscli	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	626.50 KB (641,536 bytes)
	3/5/2008 3:37 PM Microsoft Corporation	c:\windows\system32\wbem\esscli.dll
wmiutils	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	171.00 KB (175,104 bytes)
	3/5/2008 3:37 PM Microsoft Corporation	c:\windows\system32\wbem\wmiutils.dll
repdrvfs	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	353.50 KB (361,984 bytes)
	3/5/2008 3:37 PM Microsoft Corporation	c:\windows\system32\wbem\repdrvfs.dll
wmiprvsd	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	743.00 KB (760,832 bytes)
	3/5/2008 3:37 PM Microsoft Corporation	c:\windows\system32\wbem\wmiprvsd.dll
wbemess	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	532.50 KB (545,280 bytes)
	3/5/2008 3:37 PM Microsoft Corporation	c:\windows\system32\wbem\wbemess.dll
ncprov	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	73.00 KB (74,752 bytes)
PM	3/5/2008 3:37 PM Microsoft Corporation	c:\windows\system32\wbem\ncprov.dll
xactsrv	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	134.50 KB (137,728 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\xactsrv.dll
netrap	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	26.00 KB (26,624 bytes)
AM	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\netrap.dll
ntlsapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	11.00 KB (11,264 bytes)
AM	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\ntlsapi.dll
netman	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	457.00 KB (467,968 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\netman.dll
netshell	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	2.32 MB (2,437,120 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\netshell.dll
clusapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	127.00 KB (130,048 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\clusapi.dll
wininet	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	1.13 MB (1,186,304 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\wininet.dll
wzcsapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	49.00 KB (50,176 bytes)
	3/24/2005 11:35 AM Microsoft Corporation	c:\windows\system32\wzcsapi.dll
netcfgx	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.29 MB (1,354,240 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\netcfgx.dll
rasmans	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	279.50 KB (286,208 bytes)
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\rasmans.dll
rastapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	83.50 KB (85,504 bytes)
AM	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\rastapi.dll

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rasppp	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	297.00 KB (304,128 bytes)	
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\rasppp.dll	
ipbootp	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	47.50 KB (48,640 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation	c:\windows\system32\ipbootp.dll	
rasdlg	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	859.50 KB (880,128 bytes)	
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\rasdlg.dll	
ersvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	31.00 KB (31,744 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation	c:\windows\system32\ersvc.dll	
termsrv	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	354.50 KB (363,008 bytes)	
	3/5/2008 3:37 PM Microsoft Corporation	c:\windows\system32\termsrv.dll	
icaapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	27.50 KB (28,160 bytes)	3/5/2008 3:37 PM
	Microsoft Corporation	c:\windows\system32\icaapi.dll	
mstlsapi	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	187.00 KB (191,488 bytes)	
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\mstlsapi.dll	
rdpwsx	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	170.13 KB (174,216 bytes)	
	3/5/2008 3:37 PM Microsoft Corporation	c:\windows\system32\rdpwsx.dll	
msacm32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	31.00 KB (31,744 bytes)	
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\msacm32.dr	
msacm32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	112.00 KB (114,688 bytes)	
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\msacm32.dll	
imaadp32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	24.00 KB (24,576 bytes)	
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\imaadp32.acm	
msadp32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	23.50 KB (24,064 bytes)	
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\msadp32.acm	
msg7115	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	13.50 KB (13,824 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation	c:\windows\system32\msg711.acm	
msgsm32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	34.50 KB (35,328 bytes)	
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\msgsm32.acm	
tssoft32	1.01	13.50 KB (13,824 bytes)	3/25/2005 6:00 AM DSP GROUP, INC.
		c:\windows\system32\tssoft32.acm	
tsd32	1.03	24.50 KB (25,088 bytes)	3/25/2005 6:00 AM DSP GROUP, INC.
		c:\windows\system32\tsd32.dll	
rdpclip	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	99.00 KB (101,376 bytes)	
	3/5/2008 3:37 PM Microsoft Corporation	c:\windows\system32\rdpclip.exe	
wsock32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	24.50 KB (25,088 bytes)	
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\wsock32.dll	
urlmon	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	1.02 MB (1,074,176 bytes)	
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\urlmon.dll	
explorer	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	1.30 MB (1,364,480 bytes)	
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\explorer.exe	
browseui	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	1.53 MB (1,601,536 bytes)	
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\browseui.dll	
shdocvw	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	2.30 MB (2,416,128 bytes)	
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\shdocvw.dll	
themeui6	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	530.50 KB (543,232 bytes)	
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\themeui.dll	
msimg32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	6.50 KB (6,656 bytes)	
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\msimg32.dll	
actxprxy	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	220.50 KB (225,792 bytes)	
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\actxprxy.dll	
linkinfo	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	30.00 KB (30,720 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation	c:\windows\system32\linkinfo.dll	
ntshru	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	184.00 KB (188,416 bytes)	
	3/25/2005 6:00 AM Microsoft Corporation	c:\windows\system32\ntshru.dll	

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msi	3.1.4000.1830	4.27 MB (4,476,416 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\msi.dll
browselc	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	63.00 KB (64,512 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\browselc.dll
shdoclc	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	589.50 KB (603,648 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\shdoclc.dll
webcheck	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	439.00 KB (449,536 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\webcheck.dll
stobject	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	142.50 KB (145,920 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\stobject.dll
batmeter	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	41.50 KB (42,496 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\batmeter.dll
powrprof	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	32.50 KB (33,280 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\powrprof.dll
mlang	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	686.00 KB (702,464 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\mlang.dll
mstask	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	411.00 KB (420,864 bytes)	3/5/2008 3:39 PM	Microsoft Corporation	c:\windows\system32\mstask.dll
comdlg32	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	446.50 KB (457,216 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\comdlg32.dll
bacstray	8, 3, 11, 0	105.00 KB (107,520 bytes)	4/5/2006 12:42 AM	Broadcom Corporation	c:\program files\broadcom\bacs\bacstray.exe
mfc42	6.50.9146.0	1.40 MB (1,470,464 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\mfc42.dll
tapisrv	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	394.50 KB (403,968 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\tapisrv.dll
unimdm	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	302.50 KB (309,760 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\unimdm.tsp
uniplat	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	18.50 KB (18,944 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\uniplat.dll
kmddsp	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	56.50 KB (57,856 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\kmddsp.tsp
ndptsp	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	76.00 KB (77,824 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\ndptsp.tsp
ipconf	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	22.50 KB (23,040 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\ipconf.tsp
h323	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	424.00 KB (434,176 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\h323.tsp
hidphone	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	48.00 KB (49,152 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\hidphone.tsp
mmc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.83 MB (1,920,512 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\mmc.exe
mfc42u	6.50.9146.0	1.39 MB (1,462,272 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\mfc42u.dll
mmcbase	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	106.50 KB (109,056 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\mmcbase.dll
oleacc	4.2.5406.0 (srv03_sp1_rtm.050324-1447)	374.50 KB (383,488 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\oleacc.dll
mmcndmgr	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	2.23 MB (2,336,256 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\mmcndmgr.dll
msxml3	8.70.1104.0	2.04 MB (2,141,184 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\msxml3.dll
filegmt	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	610.00 KB (624,640 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\filegmt.dll

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cfgmgr32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	18.00 KB (18,432 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\cfgmgr32.dll
snmpsnap	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	312.50 KB (320,000 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\snmpsnap.dll
servdeps	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	84.00 KB (86,016 bytes)	
	3/5/2008 3:37 PM	Microsoft Corporation	c:\windows\system32\servdeps.dll
mmfutil	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	19.50 KB (19,968 bytes)	3/5/2008 3:37 PM
	Microsoft Corporation		c:\windows\system32\mmfutil.dll
mshtml	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	5.65 MB (5,928,448 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\mshtml.dll
msls31	3.10.349.0	357.00 KB (365,568 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation		c:\windows\system32\msls31.dll
msimtf	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	380.50 KB (389,632 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\msimtf.dll
msctf	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	617.50 KB (632,320 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\msctf.dll
jscrip	5.6.0.8827	974.50 KB (997,888 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation		c:\windows\system32\jscrip.dll
imm32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	208.00 KB (212,992 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\imm32.dll
mshtml	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	905.50 KB (927,232 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\mshtml.dll
zipfldr	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	449.50 KB (460,288 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\zipfldr.dll
sendmail	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	64.00 KB (65,536 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\sendmail.dll
mydocs	6.00.3790.1830 (srv03_sp1_rtm.050324-1447)	101.00 KB (103,424 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\mydocs.dll
cmd	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	538.50 KB (551,424 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\cmd.exe
bash	Not Available	459.50 KB (470,528 bytes)	3/6/2008 3:51 PM
			Not Available
			c:\cygwin\bin\bash.exe
wow64	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	245.00 KB (250,880 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32-wow64\wow64.dll
wow64win	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	280.00 KB (286,720 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32-wow64\wow64win.dll
wow64cpu	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	18.50 KB (18,944 bytes)	
	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32-wow64\wow64cpu.dll
tsadmin	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	423.00 KB (433,152 bytes)	
	3/5/2008 3:37 PM	Microsoft Corporation	c:\windows\system32\tsadmin.exe
utildll	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	37.00 KB (37,888 bytes)	3/25/2005 6:00 AM
	Microsoft Corporation		c:\windows\system32\utildll.dll
rdpccgex	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	7.00 KB (7,168 bytes)	
	3/5/2008 3:37 PM	Microsoft Corporation	c:\windows\system32\rdpccgex.dll
inetinfo	6.0.3790.1830 (srv03_sp1_rtm.050324-1447)	17.50 KB (17,920 bytes)	3/6/2008 4:24 PM
	Microsoft Corporation		c:\windows\system32\inetinfo.exe
iisutil	6.0.3790.1830 (srv03_sp1_rtm.050324-1447)	316.50 KB (324,096 bytes)	
	3/6/2008 4:24 PM	Microsoft Corporation	c:\windows\system32\inetinfo\iisutil.dll
rpcref	6.0.3790.1830 (srv03_sp1_rtm.050324-1447)	4.50 KB (4,608 bytes)	3/6/2008 4:24 PM
	Microsoft Corporation		c:\windows\system32\inetinfo\rpcref.dll
iisrtl	6.0.3790.1830 (srv03_sp1_rtm.050324-1447)	225.00 KB (230,400 bytes)	
	3/6/2008 4:24 PM	Microsoft Corporation	c:\windows\system32\iisrtl.dll
iisadmin	6.0.3790.1830 (srv03_sp1_rtm.050324-1447)	30.00 KB (30,720 bytes)	
	3/6/2008 4:24 PM	Microsoft Corporation	c:\windows\system32\inetinfo\iisadmin.dll

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coadmin	6.0.3790.1830 (srv03_sp1_rtm.050324-1447)	100.50 KB (102,912 bytes)	3/6/2008 4:24 PM	Microsoft Corporation	c:\windows\system32\inetsrv\coadmin.dll
admwprox	6.0.3790.1830 (srv03_sp1_rtm.050324-1447)	66.00 KB (67,584 bytes)	3/6/2008 4:24 PM	Microsoft Corporation	c:\windows\system32\admwprox.dll
iiscfg	6.0.3790.1830 (srv03_sp1_rtm.050324-1447)	1.24 MB (1,298,432 bytes)	3/6/2008 4:24 PM	Microsoft Corporation	c:\windows\system32\inetsrv\iiscfg.dll
metadata	6.0.3790.1830 (srv03_sp1_rtm.050324-1447)	342.00 KB (350,208 bytes)	3/6/2008 4:24 PM	Microsoft Corporation	c:\windows\system32\inetsrv\metadata.dll
svcxext	6.0.3790.1830 (srv03_sp1_rtm.050324-1447)	60.50 KB (61,952 bytes)	3/6/2008 4:24 PM	Microsoft Corporation	c:\windows\system32\inetsrv\svcxext.dll
security	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	6.00 KB (6,144 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\security.dll
iismap	6.0.3790.1830 (srv03_sp1_rtm.050324-1447)	97.00 KB (99,328 bytes)	3/6/2008 4:24 PM	Microsoft Corporation	c:\windows\system32\iismap.dll
wamreg	6.0.3790.1830 (srv03_sp1_rtm.050324-1447)	78.50 KB (80,384 bytes)	3/6/2008 4:24 PM	Microsoft Corporation	c:\windows\system32\inetsrv\wamreg.dll
iisw3adm	6.0.3790.1830 (srv03_sp1_rtm.050324-1447)	305.00 KB (312,320 bytes)	3/6/2008 4:24 PM	Microsoft Corporation	c:\windows\system32\inetsrv\iisw3adm.dll
w3cache	6.0.3790.1830 (srv03_sp1_rtm.050324-1447)	27.50 KB (28,160 bytes)	3/6/2008 4:24 PM	Microsoft Corporation	c:\windows\system32\inetsrv\w3cache.dll
w3tp	6.0.3790.1830 (srv03_sp1_rtm.050324-1447)	16.00 KB (16,384 bytes)	3/6/2008 4:24 PM	Microsoft Corporation	c:\windows\system32\inetsrv\w3tp.dll
lonsint	6.0.3790.1830 (srv03_sp1_rtm.050324-1447)	17.50 KB (17,920 bytes)	3/6/2008 4:24 PM	Microsoft Corporation	c:\windows\system32\inetsrv\lonsint.dll
scrnsave	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	11.00 KB (11,264 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\scrnsave.scr
helpctr	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.30 MB (1,363,456 bytes)	3/5/2008 3:40 PM	Microsoft Corporation	c:\windows\pchealth\helpctr\binaries\helpctr.exe
hcappres	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	7.50 KB (7,680 bytes)	3/5/2008 3:40 PM	Microsoft Corporation	c:\windows\pchealth\helpctr\binaries\hcappres.dll
itss	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	208.00 KB (212,992 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\itss.dll
pchshell	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	155.00 KB (158,720 bytes)	3/5/2008 3:40 PM	Microsoft Corporation	c:\windows\pchealth\helpctr\binaries\pchshell.dll
vbscript	5.6.0.8827	646.50 KB (662,016 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\vbscript.dll
msinfo	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	636.00 KB (651,264 bytes)	3/5/2008 3:40 PM	Microsoft Corporation	c:\windows\pchealth\helpctr\binaries\msinfo.dll
riched32	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	7.00 KB (7,168 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\riched32.dll
riched20	5.31.23.1224	1.10 MB (1,157,120 bytes)	3/25/2005 6:00 AM	Microsoft Corporation	c:\windows\system32\riched20.dll
helpsvc	5.2.3790.1830 (srv03_sp1_rtm.050324-1447)	1.52 MB (1,591,296 bytes)	3/5/2008 3:40 PM	Microsoft Corporation	c:\windows\pchealth\helpctr\binaries\helpsvc.exe

[Services]

APPENDIX C - TUNABLE PARAMETERS

Display Name	Name	State	Start Mode	Service Type	Path	Error Control	Start
Name	Tag ID						
Application Experience Lookup Service	AeLookupSvc	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0
Alerter	Alerter	Stopped	Disabled	Share Process	c:\windows\system32\svchost.exe -k localservice	Normal NT	
AUTHORITY\LocalService		0					
Application Layer Gateway Service	ALG	Stopped	Manual	Own Process	c:\windows\system32\alg.exe	Normal NT AUTHORITY\LocalService	0
Application Management	AppMgmt	Stopped	Manual	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0
ASP.NET State Service	aspnet_state	Stopped	Manual	Own Process	c:\windows\microsoft.net\framework64\v2.0.50727\aspnet_state.exe	Normal NT	
AUTHORITY\NetworkService		0					
Windows Audio	AudioSrv	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0
Background Intelligent Transfer Service	BITS	Stopped	Manual	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0
Computer Browser	Browser	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0
Indexing Service	CiSvc	Stopped	Disabled	Share Process	c:\windows\system32\cisvc.exe	Normal LocalSystem	0
ClipBook	ClipSrv	Stopped	Disabled	Own Process	c:\windows\system32\clipsrv.exe	Normal LocalSystem	0
.NET Runtime Optimization Service 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
.NET Runtime Optimization Service v2.0.50727_x64	clr_optimization_v2.0.50727_64	Stopped	Manual	Own Process	c:\windows\microsoft.net\framework64\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
Cryptographic Services	CryptSvc	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0
DCOM Server Process Launcher	DcomLaunch	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k dcomlaunch	Normal LocalSystem	0
Distributed File System	Dfs	Stopped	Manual	Own Process	c:\windows\system32\dfssvc.exe	Normal LocalSystem	0
DHCP Client	Dhcp	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k networkservice	Normal NT	
AUTHORITY\NetworkService		0					
Logical Disk Manager Administrative Service	dmadmin	Stopped	Manual	Share	c:\windows\system32\dmadmin.exe /com	Normal LocalSystem	0
Logical Disk Manager	dmserver	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0
DNS Client	Dnscache	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k networkservice	Normal NT	
AUTHORITY\NetworkService		0					
Error Reporting Service	ERSvc	Running	Auto	Share Process	c:\windows\system32\svchost.exe -k winerr	Ignore LocalSystem	0

APPENDIX C - TUNABLE PARAMETERS

Event Log	Eventlog	Running	Auto	Share Process		
	c:\windows\system32\services.exe		Normal	LocalSystem	0	
COM+ Event System	EventSystem	Running		Auto	Share Process	
	c:\windows\system32\svchost.exe -k netsvcs			Normal	LocalSystem	0
Windows Presentation Foundation Font Cache 3.0.0.0	FontCache3.0.0.0	Stopped		Manual	Own Process	
	c:\windows\microsoft.net\framework64\v3.0\wpf\presentationfontcache.exe			Normal	LocalSystem	0
Help and Support	helpsvc	Running	Auto	Share Process		
	c:\windows\system32\svchost.exe -k netsvcs			Normal	LocalSystem	0
HID Input Service	HidServ	Running	Auto	Share Process		
	c:\windows\system32\svchost.exe -k netsvcs			Normal	LocalSystem	0
HTTP SSL	HTTPFilter	Running		Manual	Share Process	
	c:\windows\system32\lsass.exe			Normal	LocalSystem	0
IAS Jet Database Access	IASJet	Stopped		Manual	Share Process	
	c:\windows\syswow64\svchost.exe -k iasjet			Normal	LocalSystem	0
Windows CardSpace	idsvc	Stopped		Manual	Share Process	
	"c:\windows\microsoft.net\framework64\v3.0\windows communication foundation\infocard.exe"			Normal	LocalSystem	0
IIS Admin Service	IISADMIN	Running		Auto	Share Process	
	c:\windows\system32\inetsrv\inetinfo.exe			Normal	LocalSystem	0
IMAPI CD-Burning COM Service	ImapiService	Stopped		Disabled	Own Process	
	c:\windows\system32\imapi.exe			Normal	LocalSystem	0
Intersite Messaging	IsmServ	Stopped		Disabled	Own Process	
	c:\windows\system32\ismserv.exe			Normal	LocalSystem	0
Kerberos Key Distribution Center	kdc	Stopped		Disabled	Share Process	
	c:\windows\system32\lsass.exe			Normal	LocalSystem	0
Server lanmanserver	Running	Auto	Share Process			
	c:\windows\system32\svchost.exe -k netsvcs			Normal	LocalSystem	0
Workstation	lanmanworkstation	Running		Auto	Share Process	
	c:\windows\system32\svchost.exe -k netsvcs			Normal	LocalSystem	0
License Logging	LicenseService	Stopped		Disabled	Own Process	
	c:\windows\system32\llssrv.exe			Normal	NT AUTHORITY\NetworkService	0
TCP/IP NetBIOS Helper	LmHosts	Running		Auto	Share Process	
	c:\windows\system32\svchost.exe -k localservice			Normal	NT AUTHORITY\LocalService	0
Messenger	Messenger	Stopped	Disabled	Share Process		
	c:\windows\system32\svchost.exe -k netsvcs			Normal	LocalSystem	0
NetMeeting Remote Desktop Sharing	mnmsrvc	Stopped		Disabled	Own Process	
	c:\windows\system32\mnmsrvc.exe			Normal	LocalSystem	0
Distributed Transaction Coordinator	MSDTC	Running		Auto	Own Process	
	c:\windows\system32\msdtc.exe			Normal	NT AUTHORITY\NetworkService	0
Windows Installer	MSIServer	Stopped		Manual	Share Process	
	c:\windows\system32\msiexec.exe /v			Normal	LocalSystem	0
Visual Studio 2008 Remote Debugger	msvsmon90	Stopped		Disabled	Own Process	
	"c:\program files\microsoft visual studio 9.0\common7\ide\remote debugger\x64\msvsmon.exe" /service msvsmon90			Ignore	LocalSystem	0
Network DDE	NetDDE	Stopped		Disabled	Share Process	
	c:\windows\system32\netdde.exe			Normal	LocalSystem	0
Network DDE DSDM	NetDDEdsdm	Stopped		Disabled	Share Process	
	c:\windows\system32\netdde.exe			Normal	LocalSystem	0
Net Logon	Netlogon	Stopped		Manual	Share Process	
	c:\windows\system32\lsass.exe			Normal	LocalSystem	0
Network Connections	Netman	Running		Manual	Share Process	
	c:\windows\system32\svchost.exe -k netsvcs			Normal	LocalSystem	0

APPENDIX C - TUNABLE PARAMETERS

Net.Tcp Port Sharing Service	NetTcpPortSharing	Stopped	Disabled	Share Process
"c:\windows\microsoft.net\framework64\v3.0\windows foundation\smshost.exe"	Normal NT AUTHORITY\LocalService	0		
Network Location Awareness (NLA)	Nla	Running	Manual	Share Process
c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0		
File Replication NtFrs	Stopped	Manual Own Process		c:\windows\system32\ntfrs.exe
Ignore	LocalSystem	0		
NT LM Security Support Provider	NtLmSsp	Stopped	Manual	Share Process
c:\windows\system32\lsass.exe	Normal LocalSystem	0		
Removable Storage	NtmsSvc	Stopped	Manual	Share Process
c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0		
Office Source Engine	ose	Stopped	Manual Own Process	"c:\program files (x86)\common files\microsoft shared\source engine\ose.exe"
Plug and Play	PlugPlay	Running	Auto	Share Process
c:\windows\system32\services.exe	Normal LocalSystem	0		
IPSEC ServicesPolicyAgent	Running	Auto	Share Process	
c:\windows\system32\lsass.exe	Normal LocalSystem	0		
Protected Storage	ProtectedStorage	Running	Auto	Share Process
c:\windows\system32\lsass.exe	Normal LocalSystem	0		
Remote Access Auto Connection Manager	RasAuto	Stopped	Manual	Share Process
c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0		
Remote Access Connection Manager	RasMan	Running	Manual	Share Process
c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0		
Remote Desktop Help Session Manager	RDSessMgr	Stopped	Manual	Own Process
c:\windows\system32\sessmgr.exe	Normal LocalSystem	0		
Routing and Remote Access	RemoteAccess	Stopped	Disabled	Share Process
c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0		
Remote Registry	RemoteRegistry	Running	Auto	Share Process
c:\windows\system32\svchost.exe -k regsvc	Normal NT AUTHORITY\LocalService	0		
Remote Procedure Call (RPC) Locator	RpcLocator	Stopped	Manual	Own Process
c:\windows\system32\locator.exe	Normal NT AUTHORITY\NetworkService	0		
Remote Procedure Call (RPC)	RpcSs	Running	Auto	Share Process
c:\windows\system32\svchost.exe -k rpcss	Normal NT AUTHORITY\NetworkService	0		
Resultant Set of Policy Provider	RSOPProv	Stopped	Manual	Share Process
c:\windows\system32\rsopprov.exe	Normal LocalSystem	0		
Special Administration Console Helper	sacsvr	Stopped	Manual	Share Process
c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0		
Security Accounts Manager	SamSs	Running	Auto	Share Process
c:\windows\system32\lsass.exe	Normal LocalSystem	0		
Smart Card	SCardSvr	Stopped	Manual	Share Process
c:\windows\system32\scardsvr.exe	Ignore NT AUTHORITY\LocalService	0		
Task Scheduler	Schedule	Running	Auto	Share Process
c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0		
Secondary Logon	seclogon	Running	Auto	Share Process
c:\windows\system32\svchost.exe -k netsvcs	Ignore LocalSystem	0		
System Event Notification	SENS	Running	Auto	Share Process
c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0		
Windows Firewall/Internet Connection Sharing (ICS)	SharedAccess	Stopped		
Disabled	Share Process	c:\windows\system32\svchost.exe -k netsvcs	Normal	
LocalSystem	0			
Shell Hardware Detection	ShellHWDetection	Running	Auto	Share Process
c:\windows\system32\svchost.exe -k netsvcs	Ignore LocalSystem	0		



APPENDIX C - TUNABLE PARAMETERS

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Print Spooler	Spooler Stopped	Manual Own Process			
	c:\windows\system32\spoolsv.exe	Normal LocalSystem	0		
Windows Image Acquisition (WIA)	stisvc Stopped	Disabled	Share Process		
	c:\windows\system32\svchost.exe -k imgsvc	Normal NT AUTHORITY\LocalService	0		
Microsoft Software Shadow Copy Provider	swprv Stopped	Manual Own Process			
	c:\windows\system32\svchost.exe -k swprv	Normal LocalSystem	0		
Performance Logs and Alerts SysmonLog	Stopped	Auto	Own Process		
	c:\windows\system32\smlogsvc.exe	Normal NT Authority\NetworkService	0		
Telephony TapiSrv	Running	Manual Share Process			
	c:\windows\system32\svchost.exe -k tapisrv	Normal LocalSystem	0		
Terminal Services TermService	Running	Manual Share Process			
	c:\windows\system32\svchost.exe -k termsvcs	Normal LocalSystem	0		
Themes Themes	Stopped	Disabled	Share Process		
	c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0		
Telnet TlntSvr	Stopped	Disabled	Own Process	c:\windows\system32\tlntsvr.exe	
		Normal NT AUTHORITY\LocalService	0		
Distributed Link Tracking Server TrkSvr	Stopped	Disabled	Share Process		
	c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0		
Distributed Link Tracking Client TrkWks	Running	Auto	Share Process		
	c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0		
Terminal Services Session Directory Tssdis	Stopped	Disabled	Own Process		
	c:\windows\system32\tssdis.exe	Normal LocalSystem	0		
Windows User Mode Driver Framework UMWdf	Stopped	Manual Own Process			
	c:\windows\system32\wdfmgr.exe	Normal NT AUTHORITY\LocalService	0		
Uninterruptible Power Supply UPS	Stopped	Manual Own Process			
	c:\windows\system32\ups.exe	Normal NT AUTHORITY\LocalService	0		
Virtual Disk Service vds	Stopped	Manual Own Process			
	c:\windows\system32\vds.exe	Normal LocalSystem	0		
Volume Shadow Copy VSS	Stopped	Manual Own Process			
	c:\windows\system32\vssvc.exe	Normal LocalSystem	0		
Windows Time W32Time	Stopped	Manual Share Process			
	c:\windows\system32\svchost.exe -k localservice	Normal NT			
AUTHORITY\LocalService			0		
World Wide Web Publishing Service W3SVC	Running	Auto	Share Process		
	c:\windows\system32\svchost.exe -k iissvcs	Normal LocalSystem	0		
WebClient WebClient	Stopped	Disabled	Share Process		
	c:\windows\system32\svchost.exe -k localservice	Normal NT			
AUTHORITY\LocalService			0		
WinHTTP Web Proxy Auto-Discovery Service WinHttpAutoProxySvc	Stopped	Manual			
	Share Process c:\windows\system32\svchost.exe -k localservice	Normal NT			
AUTHORITY\LocalService			0		
Windows Management Instrumentation winmgmt	Running	Auto	Share Process		
	c:\windows\system32\svchost.exe -k netsvcs	Ignore LocalSystem	0		
Portable Media Serial Number Service WmdmPmSN	Stopped	Manual Share Process			
	c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0		
Windows Management Instrumentation Driver Extensions Wmi	Stopped	Manual			
	Share Process c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0		
WMI Performance Adapter WmiApSrv	Stopped	Manual Own Process			
	c:\windows\system32\wbem\wmiapsrv.exe	Normal LocalSystem	0		
Automatic Updates wuauserv	Running	Auto	Share Process		
	c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0		
Wireless Configuration WZCSVC	Running	Auto	Share Process		
	c:\windows\system32\svchost.exe -k netsvcs	Normal LocalSystem	0		

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APPENDIX C - TUNABLE PARAMETERS

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Network Provisioning Service	xmlprovStopped	Manual Share Process
c:\windows\system32\svchost.exe -k netsvcs		Normal LocalSystem 0

[Program Groups]

Group Name	Name	User Name
Accessories	Default User:Accessories	Default User
Accessories\Accessibility	Default User:Accessories\Accessibility	Default User
Accessories\Entertainment	Default User:Accessories\Entertainment	Default User
Startup	Default User:Startup	Default User
Accessories	All Users:Accessories	All Users
Accessories\Accessibility	All Users:Accessories\Accessibility	All Users
Accessories\Communications	All Users:Accessories\Communications	All Users
Accessories\Entertainment	All Users:Accessories\Entertainment	All Users
Accessories\System Tools	All Users:Accessories\System Tools	All Users
Administrative Tools	All Users:Administrative Tools	All Users
Broadcom	All Users:Broadcom	All Users
Cygwin	All Users:Cygwin	All Users
Microsoft Visual Studio 2008	All Users:Microsoft Visual Studio 2008	All Users
Microsoft Visual Studio 2008\Visual Studio Remote Tools	All Users:Microsoft Visual Studio 2008\Visual Studio Remote Tools	All Users
Microsoft Visual Studio 2008\Visual Studio Tools	All Users:Microsoft Visual Studio 2008\Visual Studio Tools	All Users
Microsoft Windows SDK v6.0A	All Users:Microsoft Windows SDK v6.0A	All Users
Microsoft Windows SDK v6.0A\Tools	All Users:Microsoft Windows SDK v6.0A\Tools	All Users
Oracle - OraClient11g_home1	All Users:Oracle - OraClient11g_home1	All Users
Oracle - OraClient11g_home1\Application Development	All Users:Oracle - OraClient11g_home1\Application Development	All Users
Oracle - OraClient11g_home1\Configuration and Migration Tools	All Users:Oracle - OraClient11g_home1\Configuration and Migration Tools	All Users
Oracle - OraClient11g_home1\Integrated Management Tools	All Users:Oracle - OraClient11g_home1\Integrated Management Tools	All Users
Oracle - OraClient11g_home1\Oracle Installation Products	All Users:Oracle - OraClient11g_home1\Oracle Installation Products	All Users
Startup	All Users:Startup	All Users
Accessories	NT AUTHORITY\SYSTEM:Accessories	NT AUTHORITY\SYSTEM
Accessories\Accessibility	NT AUTHORITY\SYSTEM:Accessories\Accessibility	NT AUTHORITY\SYSTEM
Accessories\Entertainment	NT AUTHORITY\SYSTEM:Accessories\Entertainment	NT AUTHORITY\SYSTEM
Startup	NT AUTHORITY\SYSTEM:Startup	NT AUTHORITY\SYSTEM
Accessories	PE1430\Administrator:Accessories	PE1430\Administrator
Accessories\Accessibility	PE1430\Administrator:Accessories\Accessibility	PE1430\Administrator
Accessories\Entertainment	PE1430\Administrator:Accessories\Entertainment	PE1430\Administrator
Startup	PE1430\Administrator:Startup	PE1430\Administrator

[Startup Programs]

Program	Command	User Name	Location
desktopdesktop.ini		NT AUTHORITY\SYSTEM	Startup
desktopdesktop.ini		PE1430\Administrator	Startup
desktopdesktop.ini	.DEFAULT		Startup

## APPENDIX C - TUNABLE PARAMETERS

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desktop\desktop.ini All Users Common Startup  
bacstray c:\program files\broadcom\bacs\bacstray.exe All Users  
HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Run

### [OLE Registration]

Object Local Server  
Sound (OLE2) sndrec32.exe  
Media Clip mplay32.exe  
Video Clip mplay32.exe /avi  
MIDI Sequence mplay32.exe /mid  
Microsoft Equation 3.0 c:\progra~2\common~1\microso~1\equation\eqnedt32.exe  
Sound Not Available  
Media Clip Not Available

### [Windows Error Reporting]

Time Type Details  
4/10/2008 6:33 PM Application Hang Hanging application devenv.exe, version  
9.0.21022.8, hang module hungapp, version 0.0.0.0, hang address  
0x00000000.&#x000d;&#x000a;

### [Internet Settings]

### [Internet Explorer]

[ Following are sub-categories of this main category ]  
[Summary]

Item Value  
Version 6.0.3790.1830  
Build 63790.1830  
Application Path C:\Program Files\Internet Explorer  
Language English (United States)  
Active Printer Not Available

Cipher Strength 128-bit  
Content Advisor Disabled  
IEAK Install No

### [File Versions]

File	Version	Size	Date	Path	Company
actxprxy.dll	6.0.3790.1830	221 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
advpack.dll	6.0.3790.1830	146 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
asctrls.ocx	6.0.3790.1830	147 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
browselc.dll	6.0.3790.1830	63 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation
browseui.dll	6.0.3790.1830	1,564 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32	Microsoft Corporation

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APPENDIX C - TUNABLE PARAMETERS

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cdfview.dll	6.0.3790.1830	216 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32		
	Microsoft Corporation					
comctl32.dll	5.82.3790.1830	935 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32		
	Microsoft Corporation					
dxttrans.dll	6.3.3790.1830	320 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32		
	Microsoft Corporation					
dxtmsft.dll	6.3.3790.1830	549 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32		
	Microsoft Corporation					
iecont.dll	<File Missing>	Not Available	Not Available	Not Available	Not Available	
iecontlc.dll	<File Missing>	Not Available	Not Available	Not Available	Not Available	
iedkcs32.dll	16.0.3790.1830	417 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32		
	Microsoft Corporation					
iepeers.dll	6.0.3790.1830	361 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32		
	Microsoft Corporation					
iesetup.dll	6.0.3790.1830	71 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32		
	Microsoft Corporation					
ieuinit.inf	Not Available	24 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32		
	Not Available					
ieexplore.exe	6.0.3790.1830	94 KB	3/25/2005 7:00:00 AM	C:\Program Files\Internet Explorer		
	Microsoft Corporation					
imgutil.dll	6.0.3790.1830	61 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32		
	Microsoft Corporation					
inetctl.cpl	6.0.3790.1830	428 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32		
	Microsoft Corporation					
inetctl.dll	6.0.3790.1830	110 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32		
	Microsoft Corporation					
inseng.dll	6.0.3790.1830	147 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32		
	Microsoft Corporation					
mlang.dll	6.0.3790.1830	686 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32		
	Microsoft Corporation					
msencode.dll	<File Missing>	Not Available	Not Available	Not Available	Not Available	
mshta.exe	6.0.3790.1830	38 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32		
	Microsoft Corporation					
mshtml.dll	6.0.3790.1830	5,790 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32		
	Microsoft Corporation					
mshtml.tlb	6.0.3790.1830	1,320 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32		
	Microsoft Corporation					
mshtmlmled.dll	6.0.3790.1830	906 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32		
	Microsoft Corporation					
mshtmlmer.dll	6.0.3790.1830	56 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32		
	Microsoft Corporation					
msident.dll	6.0.3790.1830	69 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32		
	Microsoft Corporation					
msidentld.dll	6.0.3790.1830	16 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32		
	Microsoft Corporation					
msieftpl.dll	6.0.3790.1830	369 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32		
	Microsoft Corporation					
msrating.dll	6.0.3790.1830	240 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32		
	Microsoft Corporation					
mstime.dll	6.0.3790.1830	878 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32		
	Microsoft Corporation					
occache.dll	6.0.3790.1830	126 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32		
	Microsoft Corporation					
proctexe.ocx	<File Missing>	Not Available	Not Available	Not Available	Not Available	

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## APPENDIX C - TUNABLE PARAMETERS

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sendmail.dll	6.0.3790.1830	64 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32
Microsoft Corporation				
shdoclc.dll	6.0.3790.1830	590 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32
Microsoft Corporation				
shdocvw.dll	6.0.3790.1830	2,360 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32
Microsoft Corporation				
shfolder.dll	6.0.3790.1830	34 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32
Microsoft Corporation				
shlwapi.dll	6.0.3790.1830	607 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32
Microsoft Corporation				
tdc.ocx	1.3.0.3130	91 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32
Microsoft Corporation				
url.dll	6.0.3790.1830	40 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32
Microsoft Corporation				
urlmon.dll	6.0.3790.1830	1,049 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32
Microsoft Corporation				
webcheck.dll	6.0.3790.1830	439 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32
Microsoft Corporation				
wininet.dll	6.0.3790.1830	1,159 KB	3/25/2005 7:00:00 AM	C:\WINDOWS\system32
Microsoft Corporation				

### [Connectivity]

Item	Value
Connection Preference	Never dial

### LAN Settings

AutoConfigProxy	wininet.dll
AutoProxyDetectMode	Disabled
AutoConfigURL	
Proxy	Disabled
ProxyServer	
ProxyOverride	

### [Cache]

[ Following are sub-categories of this main category ]

### [Summary]

Item	Value
Page Refresh Type	Automatic
Temporary Internet Files Folder	C:\Documents and Settings\Administrator\Local Settings\Temporary Internet Files
Total Disk Space	Not Available
Available Disk Space	Not Available
Maximum Cache Size	Not Available
Available Cache Size	Not Available

### [List of Objects]

Program File	Status	CodeBase
No cached object information available		

### [Content]

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[ Following are sub-categories of this main category ]  
[Summary]

Item Value  
Content Advisor Disabled

[Personal Certificates]

Issued To Issued By Validity Signature Algorithm  
No personal certificate information available

[Other People Certificates]

Issued To Issued By Validity Signature Algorithm  
No other people certificate information available

[Publishers]

Name  
No publisher information available

[Security]

Zone Security Level  
My Computer Custom  
Local intranet Custom  
Trusted sites Custom  
Internet High  
Restricted sites Custom

## Appendix D – Disk Storage

SEGMENT	BLOCKS	BLOCK_SIZE	REQUIRED	STATIC	DYNAMIC	OVERSIZE
CUSTCLUSTER	110131200	2048	88291933	88291933	0	21839267
DB_STAT	1048576	2048	1048576	1048576	0	0
DISTCLUSTER	92160	2048	90418	90418	0	1742
HIST	12288000	2048	8698687	0	7254070	4894652
ICUST1	362240	16384	332632	332632	0	29608
ICUST2	8616960	2048	6723209	6723209	0	1893751
IDIST	25600	2048	21538	21538	0	4062
IITEM	10240	2048	5914	5914	0	4326
IORDR2	8309760	2048	4897797	4897797	0	3411963
ISTOK	1069440	16384	1016969	1016969	0	52471
ITEMCLUSTER	10240	2048	8868	8868	0	1372
IWARE	10240	2048	5914	5914	0	4326
NORDCLUSTER_QUEUE	1433600	2048	1052366	1052366	0	381234
ORDRCLUSTER_QUEUE	22016000	16384	12253882	0	12023040	9762118
STOKCLUSTER	123648000	2048	120152932	120152932	0	3495068
SYSAUX	61440	2048	61440	61440	0	0
SYSTEM	204800	2048	204800	204800	0	0
SYS_IQ0000012002\$\$	22016000	16384	47510	47510	0	21968490
SYS_IQ0000012006\$\$	1433600	2048	150338	150338	0	1283262
WARECLUSTER	10240	2048	9526	9526	0	714

	Static	Daily Growth	Daily Growth *60	60 Day Space Requirement
In KB	111,450,104	41,198,622	2,471,917,302	2,583,367,406
In MB	108,838	40,233	2,413,982	2,522,820
In GB	106	39	2,357	2,464

Disk Capacity	Quantity	Total
67.75	30	2032.5
33.38	30	1001.4
32.59	30	977.7
<b>Total</b>		<b>4011.6</b>

Log size (MB) 14500  
 Checkpoint Interval (min) 29.08

	Space Required	Space Configured
Data	2,464	4011.6
Log	233.73	234.99





## Appendix E - Price Quotations

The screenshot shows a Microsoft Internet Explorer browser window displaying a product page for a 7-foot Category 5e Crossover Enhanced 350MHz cable RJ45 Flush Injection Molded Snagless Boot short body RJ45. The browser's address bar shows the URL: <http://lanadapters.stores.yahoo.net/cblc5c7.html>. The page features a search bar, a navigation menu with categories like Barcode, Cables, Hardware, Networking, Power, Print servers, SCSI, Software, Housewares and Tools, and Printing Supplies and Cables. The product details include the item number cblc5c7, a regular price of \$9.00, and a sale price of \$1.31, 75/\$86.25, 150/\$166.50, 300/\$318.00, 600/\$630.00. The color is set to orange, and the availability is 2000. The product description is: 7 feet Cat5e Cat 5 network cable CROSSOVER Enhanced 350MHz RJ45 Molded Snagless Boot. The page also includes an 'E-COMMERCE BY YAHOO!' logo and a 'Local intranet' indicator in the bottom right corner. The Windows taskbar at the bottom shows the Start button, several open windows, and the system clock indicating 4:58 AM on Wednesday, 6/4/2008.

APPENDIX E – PRICE QUOTATIONS

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Product	Price	Quantity	Extended Price
Oracle Database 11g Standard Edition One, Per Processor, Unlimited Users, 3 years	\$2498	1*	\$2498
Oracle Premium Support for <b>3 years</b>	\$1099	3	\$3297
<b>Oracle TOTAL</b>			<b>\$5795</b>

\*When licensing Oracle programs with Standard Edition One or Standard Edition in the product name, a processors is counted equivalent to an occupied socket.

Oracle pricing contact: MaryBeth Pierantoni, [mary.beth.pierantoni@oracle.com](mailto:mary.beth.pierantoni@oracle.com), 916-315-5081

## APPENDIX E – PRICE QUOTATIONS

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Microsoft Corporation  
One Microsoft Way  
Redmond, WA 98052-6399

Tel 425 882 8080  
Fax 425 936 7329  
<http://www.microsoft.com/>

**Microsoft**

June 4, 2008

Dell  
Gene Purdy  
1 Dell Way  
Round Rock, TX 78664

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
127-00012	<b>Visual Studio Standard 2005</b> <i>Full License</i> <i>No Discount Applied</i>	\$250	1	\$250
N/A	<b>Microsoft Problem Resolution Services</b> <i>Professional Support</i> <i>(1 Incident)</i>	\$245	1	\$245

Windows Server 2008 and Windows Server 2003 are currently orderable through Microsoft's normal distribution channels. A list of Microsoft's resellers can be found at

**<http://www.microsoft.com/products/info/render.aspx?view=22&type=mpn&content=22/licensing>**

SQL Server 2008 will be orderable and available by August 30, 2008.

Defect support is included in the purchase price. Additional support is available from Microsoft PSS on an incident by incident basis at \$245 per call.

This quote is valid for the next 90 days.

If we can be of any further assistance, please contact Jamie Reding at (425) 703-0510 or [jamiere@microsoft.com](mailto:jamiere@microsoft.com).

Reference ID: PCgepu0806040000008466.

Please include this Reference ID in any correspondence regarding this price quote.