



Hewlett-Packard Company

TPC Benchmark™ C
Full Disclosure Report
for
HP ProLiant ML370-G4/16GB/3.6GHz
using
Microsoft SQL Server 2000 Enterprise Edition SP3
and
Windows Server 2003, Enterprise Edition

First Edition
February 2005

First Edition – February 2005

Hewlett-Packard Company (HP) believes that the information in this document is accurate as of the publication date. The information in this document is subject to change without notice. HP assumes no responsibility for any errors that may appear in this document. The pricing information in this document is believed to accurately reflect the current prices as of the publication date. However, HP provides no warranty of the pricing information in this document.

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

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

Copyright 2005 Hewlett-Packard Company.

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

Printed in U.S.A., 2005

HP, NonStop, ProLiant ML370-G4, and ProLiant are registered trademarks of Hewlett-Packard Company.

Microsoft, Windows 2000, Windows Server 2003 and SQL Server 2000 are registered trademarks of Microsoft Corporation.

Xeon is a registered trademark of Intel.

TPC Benchmark is a trademark of the Transaction Processing Performance Council.

Other product names mentioned in this document may be trademarks and/or registered trademarks of their respective companies.

Table of Contents

TABLE OF CONTENTS	III
PREFACE	V
TPC BENCHMARK C OVERVIEW.....	V
ABSTRACT	VI
OVERVIEW.....	VI
TPC BENCHMARK C METRICS.....	VI
STANDARD AND EXECUTIVE SUMMARY STATEMENTS	VI
AUDITOR	VI
GENERAL ITEMS	10
TEST SPONSOR.....	10
APPLICATION CODE AND DEFINITION STATEMENTS	10
PARAMETER SETTINGS	10
CONFIGURATION ITEMS	10
CLAUSE 1 RELATED ITEMS	12
TABLE DEFINITIONS	12
PHYSICAL ORGANIZATION OF DATABASE	12
<i>Benchmarked Configuration:</i>	12
PRICED CONFIGURATION VS. MEASURED CONFIGURATION:.....	13
INSERT AND DELETE OPERATIONS.....	13
PARTITIONING	13
REPLICATION, DUPLICATION OR ADDITIONS	13
CLAUSE 2 RELATED ITEMS	14
RANDOM NUMBER GENERATION.....	14
INPUT/OUTPUT SCREEN LAYOUT.....	14
PRICED TERMINAL FEATURE VERIFICATION.....	14
PRESENTATION MANAGER OR INTELLIGENT TERMINAL.....	14
TRANSACTION STATISTICS	14
QUEUEING MECHANISM	15
CLAUSE 3 RELATED ITEMS	16
TRANSACTION SYSTEM PROPERTIES (ACID)	16
ATOMICITY	16
<i>Completed Transactions</i>	16
<i>Aborted Transactions</i>	16
CONSISTENCY.....	16
ISOLATION.....	16
DURABILITY	17
<i>Durable Media Failure</i>	17
<i>Instantaneous Interruption and Loss of Memory</i>	17
CLAUSE 4 RELATED ITEMS	19
INITIAL CARDINALITY OF TABLES	19
DATABASE LAYOUT	19
TYPE OF DATABASE.....	20
DATABASE MAPPING.....	20
60 DAY SPACE.....	20

Preface

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

TPC Benchmark C Overview

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

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.

Abstract

Overview

This report documents the methodology and results of the TPC Benchmark C test conducted on the HP ProLiant DL580G4. The operating system used for the benchmark was Windows Server 2003, Enterprise Edition. The DBMS used was Microsoft SQL Server 2000 Enterprise Edition SP3.

TPC Benchmark C Metrics

The standard TPC Benchmark C metrics, tpmC (transactions per minute), price per tpmC (three year capital cost per measured tpmC), and the availability date are reported as:

74,298 tpmC
USD \$2.40 per tpmC

The availability date is February 14, 2005.

Standard and Executive Summary Statements

The following pages contain executive summary of results for this benchmark.

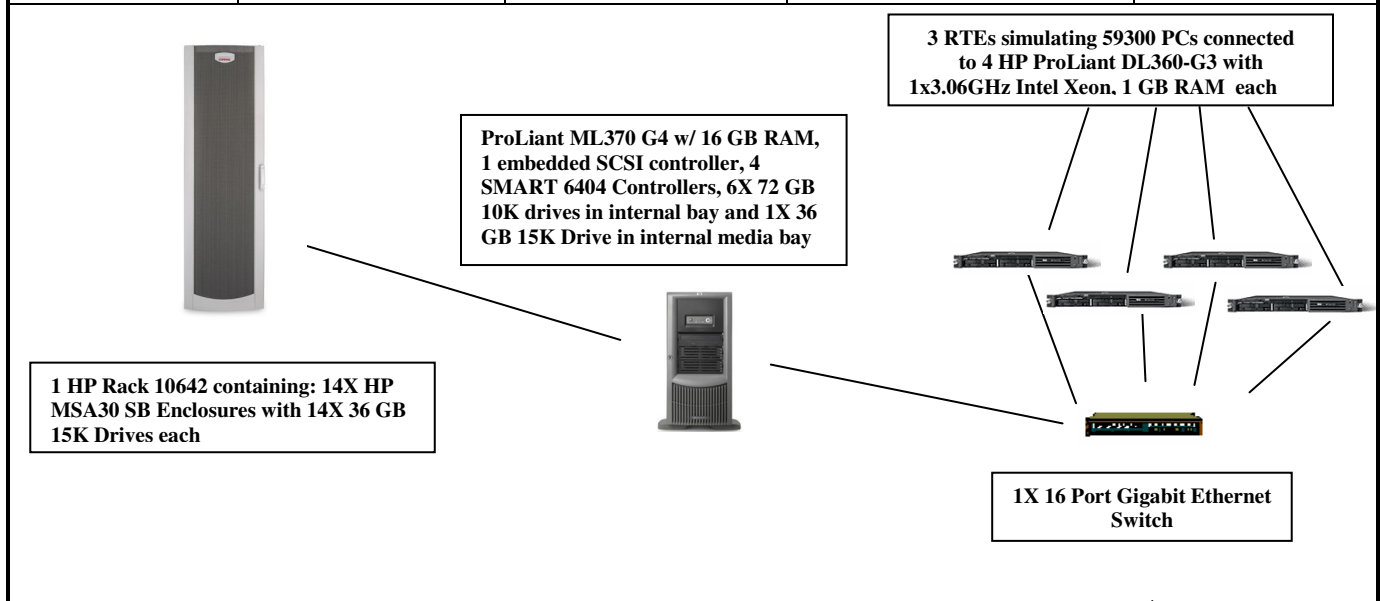
Auditor

The benchmark configuration, environment and methodology were audited by Tom Sawyer of Performance Metrics, Inc. to verify compliance with the relevant TPC specifications.

Hewlett-Packard Company	HP ProLiant ML370-G4 16GB/3.6GHz/2P	TPC-C Rev. 5.3
	C/S with 4 HP ProLiant DL360R	Report Date: Feb. 11, 2005

Total System Cost	TPC-C Throughput	Price/Performance	Availability Date
\$178,291 USD	74,298	\$2.40 USD	Feb. 14, 2005

Processors	Database Manager	Operating System	Other Software	Number of Users
2 Intel Xeon 3.6 GHz (2MB) – Server 4 Intel Xeon 3.06 GHz – Clients	Microsoft SQL Server 2000 Enterprise Edition SP3	Windows Server 2003, Enterprise Edition	Microsoft Visual C++ Microsoft COM+	59300



	Server		Each Client	
System Components	Quantity	Description	Quantity	Description
Processor	2	3.6 GHz Intel Xeon w/ 2MB Cache	1	3.06 GHz Intel Xeon w/ 512K cache
Memory	8	2 GB DDR	2	512MB
Disk Controllers	1	Integrated SCSI Controller	1	Integrated SMART 5i Array Controller
	4	HP SMART 6404 Array Controllers		
Disk Drives	6	72.8 GB SCSI Drive	1	36.4 GB SCSI Drive
	197	36.4 GB SCSI Drive		
Total Storage		7607.6 GB		36.4 GB

Hewlett-Packard		ProLiant ML370-G4-2M/3.6GHz 2P			TPC-C Rev. 5.3		
Company		Client/Server			Report Date:		11-Feb-05
Description	Part Number	Third Party	Unit Price	Qty	Extended Price	3 yr. Maint. Price	
		Brand	Pricing				
Server Hardware							
ML370T04 X3.6/800-2M US	379912-001		1	3,079	1	3,079	
Intel X3.6GHz 2MB 370/380 G4 Processor	378751-B21		1	1,399	1	1,399	
4GB PC3200 DDR SDRAM (2x2GB)	343057-B21		1	5,799	4	23,196	
HP s7540 17in. CRT Monitor	PF997AA#ABA		1	149	1	149	
HP Storageworks MSA 30 SB Storage	302989-B21		1	2,978	14	41,692	
HP 5642 Pallet Unassembled Rack	358254-B21		1	889	1	889	
HP Smart Array 6404/256MB Controller	273914-B21		1	1,899	4	7,596	
36GB 15Krpm U320 UNI HDD	286776-B22		1	299	196	58,604	
HP 36GB 10K U320 Non-Hot Plug Hard Drive (OS)	271832-B21		1	259	1	259	
36GB 15Krpm U320 UNI HDD (10% spares)	286776-B22		1	299	20		5,980
HP 72GB 10K U320 Pluggable Hard Drive	286714-B22		1	389	6	2,334	
HP T500 Uninterruptible Power System	361475-001		1	99	1	99	
CarePaaS Service - 300 Series Servers 3Yr,7x24,4hr	162657-002		1	949	1		949
FM-4E724-36 3YR 24x7/4HR EMPTY DISK ENCL	171242-002		1	157	14		2,198
Subtotal						139,096	9,127
Server Software							
Microsoft SQL Server 2000 Enterprise Edition(per processor)	810-00845	Microsoft	2	17,279	2	34,558	
Visual C++ .Net Standard	254-00170	Microsoft	2	109	1	109	Incl below
Microsoft Windows 2003, Enterprise Edition	P72-00264	Microsoft	2	2,399	1	2,399	Incl below
Microsoft Problem Resolution Services (1 incident)		Microsoft	2	245	1		245
Subtotal						37,066	245
Client Hardware							
HP ProLiant DL360G3 1P 3.06GHz/533 (512KB L2, 1MB L3) - 1024 MB memory, embedded SMART 6i array controller - embedded dual channel Gigabit NIC	322471-001		1	2,599	4	10,396	
36GB 15Krpm U320 UNI HDD	286776-B22		1	299	4	1,196	
HP s7540 17in. CRT Monitor	PF997AA#ABA		1	149	4	596	
HP PS/2 Scroll Mouse carbonite	DG169AV		1	5	4	20	
HP Enhanced Keyboard	DG170AV#ABA		1	10	4	40	
HP CP 3Y 4H 24x7 HW Support DL360 4-Hour 24 x 7 Coverage 3 Yrs	U4497E		1	550	4		2,200
Subtotal						12,248	2,200
Client Software							
Microsoft Windows 2000 Server	C11-00821	Microsoft	2	738	4	2,952	Incl. Above
Subtotal						2,952	0
User Connectivity							
Netgear 16-port 10/100/1000BTX Gigabit Switch	44508	Netgear	3	361	1	361	
Netgear 16-port 10/100/1000BTX Gigabit Switch (10% spares)	44508	Netgear	3	361	2		723
3 year extended warranty from PC Universe		PCUniverse	3	100	3		300
Subtotal						361	1,023
Large Purchase and Net 30 discount (See Note 1)	16.0%		1			(\$24,215)	(\$1,812)
Total						\$167,508	\$10,782
Prices used in TPC benchmarks reflect the actual prices a customer would pay for a one-time purchase of the stated components. Individually negotiated discounts are not permitted. Special prices based on assumptions about past or future purchases are not permitted. All discounts reflect standard pricing policies for the listed components. For complete details, see the pricing sections of the TPC benchmark pricing specifications. If you find that the stated prices are not available according to these terms, please inform the TPC at pricing@tpc.org . Thank you.					Three-Year Cost of Ownership: \$178,291 USD		
Pricing: 1=HP 2=Microsoft 3=PCUniverse.com					tpmC Rating: 74,298		
Note 1 = Discount based on HP Direct guidance with large purchase and Net 30 discount.					\$ / tpmC: \$2.40 USD		
Note: The benchmark results and test methodology were audited by Tom Sawyer of Performance Metrics, Inc.							

Numerical Quantities Summary

MQTH, Computed Maximum Qualified Throughput

74,298 tpmC

Response Times (in seconds)	Average	90 %	Maximum
New-Order	0.31	0.47	10.44
Payment	0.24	0.39	4.75
Order-Status	0.25	0.40	10.63
Delivery (interactive portion)	0.10	0.11	0.47
Delivery (deferred portion)	0.21	0.35	1.11
Stock-Level	1.14	1.46	5.38
Menu	0.10	0.11	0.53

Transaction Mix, in percent of total transaction

New-Order	44.88%
Payment	43.03%
Order-Status	4.03%
Delivery	4.03%
Stock-Level	4.03%

Emulation Delay (in seconds)

	Resp.Time	Menu
New-Order	0.10	0.10
Payment	0.10	0.10
Order-Status	0.10	0.10
Delivery (interactive)	0.10	0.10
Stock-Level	0.10	0.10

Keying/Think Times (in seconds)

	Min.	Average	Max.
New-Order	18.00/0.00	18.02/12.10	18.53/121.36
Payment	3.00/0.00	3.02/12.11	3.53/121.12
Order-Status	2.00/0.00	2.02/10.11	2.53/101.01
Delivery (interactive)	2.00/0.00	2.02/5.07	2.51/50.71
Stock-Level	2.00/0.00	2.02/5.07	2.45/50.70

Test Duration

Ramp-up time	71 minutes
Measurement interval	120 minutes
Transactions (all types) completed during measurement interval	20,575,405
Ramp down time	15 minutes

Checkpointing

Number of checkpoints	4
Checkpoint interval	30 minutes

General Items

Test Sponsor

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

This benchmark was sponsored by Hewlett-Packard Company. The benchmark was developed and engineered by Hewlett-Packard Company. Testing took place at HP benchmarking laboratories in Houston, Texas.

Application Code and Definition Statements

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

Appendix A contains all source code implemented in this benchmark.

Parameter Settings

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

- *Database options*
- *Recover/commit options*
- *Consistency locking options*
- *Operating system and application configuration parameters*

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

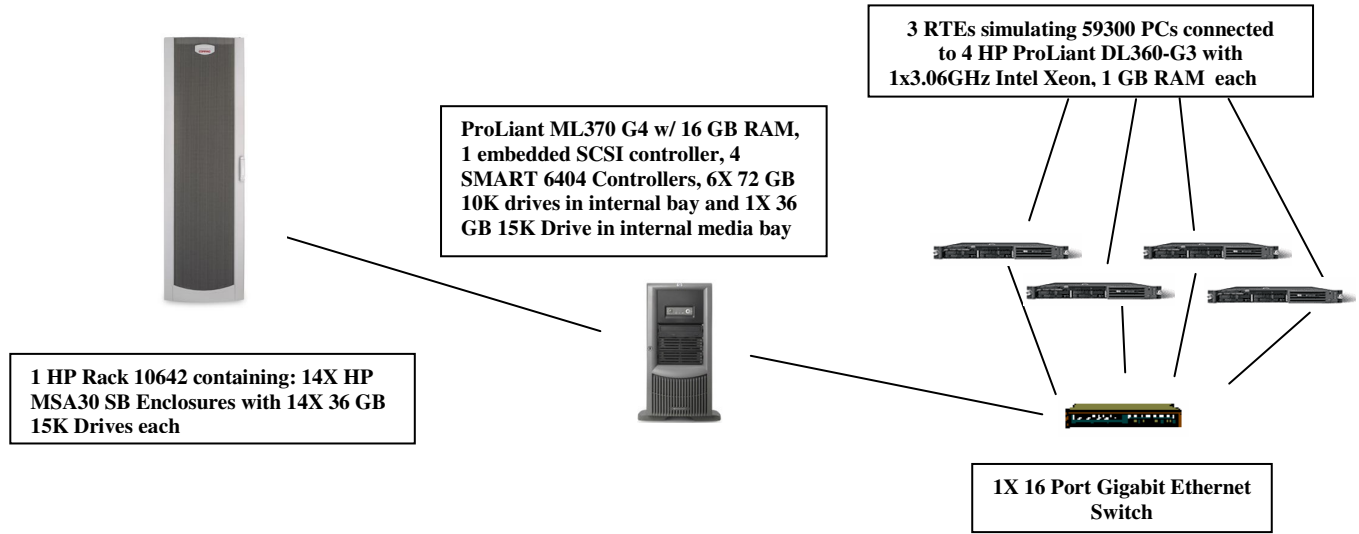
Appendix C contains the tunable parameters to for the database, the operating system, and the transaction monitor.

Configuration Items

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

The configuration diagram for both the tested and priced systems are the same and included on the following page.

Figure 1. Benchmarked and Priced Configuration



Clause 1 Related Items

Table Definitions

Listing must be provided for all table definition statements and all other statements used to set up the database.

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

Physical Organization of Database

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

The tested configuration consisted of: 196 drives at 36GB connected to 4 SMART 6404 controllers for database data, 1 36GB drive for the operating system connected to the integrated SCSI controller, and 6 drives at 72GB in the internal drive bay connected to an internal port of one of the SMART 6404 controllers for database log.

Benchmarked Configuration:

Integrated SMART 5i Controller, Array A

LOGICAL DRIVE C: Total Capacity = 16.94 GB

Microsoft Windows Server 2003, Enterprise Edition

SMART-6404 Controller, Slot 1, Array A

LOGICAL DRIVE F: Total Capacity = 58.26 GB RAID 0

MSSQL_cs1

LOGICAL DRIVE M: Total Capacity = 445.66 GB RAID 0+1

Tpcbackup1b

SMART-6404 Controller Expansion Module, Slot 1, Array A

LOGICAL DRIVE G: Total Capacity = 58.26 GB RAID 0

MSSQL_cs2

LOGICAL DRIVE N: Total Capacity = 445.66 GB RAID 0+1

Tpcbackup2b

SMART-6404 Controller, Slot 2, Array A

LOGICAL DRIVE H: Total Capacity = 58.26 GB RAID 0

MSSQL_cs3

LOGICAL DRIVE O: Total Capacity = 445.66 GB RAID 0+1

Tpcbackup3b

SMART-6404 Controller Expansion Module, Slot 2, Array A

LOGICAL DRIVE L: Total Capacity = 169.03 GB RAID 0

MSSQL_misc1

LOGICAL DRIVE P: Total Capacity = 390.27 GB RAID 0+1

Tpcbackup4b

SMART-6404 Controller, Slot 3, Array A

LOGICAL DRIVE I: Total Capacity = 58.26 GB RAID 0

MSSQL_cs4

LOGICAL DRIVE Q: Total Capacity = 445.66 GB RAID 0+1

Tpcbackup5b

SMART-6404 Controller Expansion Module, Slot 3, Array A

<u>LOGICAL DRIVE J:</u> MSSQL_cs5	<u>Total Capacity = 58.26 GB</u>	<u>RAID 0</u>
<u>LOGICAL DRIVE R:</u> Tpccbackup6b	<u>Total Capacity = 445.66 GB</u>	<u>RAID 0+1</u>

SMART-6404 Controller, Slot 4, Array A

<u>LOGICAL DRIVE E:</u> MSSQL_tpcc_log	<u>Total Capacity = 181.63 GB</u>	<u>RAID 0+1</u>
---	-----------------------------------	-----------------

SMART-6404 Controller Expansion Module, Slot 4, Array A

<u>LOGICAL DRIVE K:</u> MSSQL_cs6	<u>Total Capacity = 58.26 GB</u>	<u>RAID 0</u>
<u>LOGICAL DRIVE S:</u> Tpccbackup7b	<u>Total Capacity = 445.66 GB</u>	<u>RAID 0+1</u>

Priced Configuration vs. Measured Configuration:

The measured and priced configuration are the same.

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 restrictions in the SUT database implementation that precludes inserts beyond the limits defined in Clause 1.4.11 must be disclosed. This includes the maximum number of rows that can be inserted and the minimum key value for these new rows.

All insert and delete functions were fully operational during the entire benchmark.

Partitioning

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

No partitioning was used in this benchmark.

Replication, Duplication or Additions

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

No replications, duplications or additional attributes were used in this benchmark.

Clause 2 Related Items

Random Number Generation

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

In the Benchcraft RTE from Microsoft, each driver engine uses an independent random number sequence. All of the users within a given driver draw from the same sequence.

The Benchcraft RTE computes random integers as described in "Random Numbers Generators: Good Ones Are Hard to Find." Communications of the ACM - October 1988 Volume 31 Number 10.

The seeds for each user were captured and verified by the auditor to be unique. In addition, the contents of the database were systematically searched, and randomly sampled by the auditor for patterns that would indicate the random number generator had affected any kind of a discernible pattern; none were found.

Input/Output Screen Layout

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

All screen layouts followed the specifications exactly.

Priced Terminal Feature Verification

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

The terminal attributes were verified by the auditor. The auditor manually exercised each specification on a representative HP ProLiant web server.

Presentation Manager or Intelligent Terminal

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

Application code running on the client machines implemented the TPC-C user interface. No presentation manager software or intelligent terminal features were used. The source code for the forms applications is listed in Appendix A.

Transaction Statistics

Table 2.1 lists the numerical quantities that Clauses 8.1.3.5 to 8.1.3.11 require.

Table 2.1 Transaction Statistics

Statistic		Value
New Order	Home warehouse order lines	99.00%
	Remote warehouse order lines	1.00%
	Rolled back transactions	1.00%
	Average items per order	10.00
Payment	Home warehouse payments	85.00%
	Remote warehouse payments	15.00%
	Accessed by last name	60.01%
Order Status	Accessed by last name	60.10%
Transaction Mix	New Order	44.88%
	Payment	43.03%
	Order status	4.03%
	Delivery	4.03%
	Stock level	4.03%

Queuing Mechanism

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

Microsoft COM+ on each client machine served as the queuing mechanism to the database. Each delivery request was submitted to Microsoft COM+ asynchronously with control being returned to the client process immediately and the deferred delivery part completing asynchronously.

The source code is listed in Appendix A.

Clause 3 Related Items

Transaction System Properties (ACID)

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.

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 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 two hours and included a checkpoint.

The 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 nine 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 A was followed.

Durability

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

Durable Media Failure

Loss of Data and Log

This test was executed on a fully scaled database of 5930 warehouses under a full load of 6400 users, which used only the first 640 warehouses. To demonstrate recovery from a permanent failure of durable medium containing DBMS logs and TPC-C tables, the following steps were executed:

- The total number of New Orders was determined by the sum of D_NEXT_O_ID of all rows in the DISTRICT table giving the beginning count.
- The RTEs were started with 6400 users.
- The test was allowed to run for a minimum of 5 minutes.
- One log disk was removed from the drive cabinet.
- Since the disk was mirrored, processing was not interrupted. This was verified by checking the users status on the RTE.
- One of the data disks was removed from the drive cabinet.
- When Microsoft SQL Server recorded errors about not being able to access the database, the RTE was shut down.
- A dump of the transaction log was taken and the Microsoft SQL Server was shutdown.
- A new log disk was inserted into the log drive cabinet. A new data disk was inserted into the data drive cabinet. After the RAID recovery process finished, the system was rebooted and Microsoft SQL Server was started.
- The database was restored from backup and the transaction log dump was applied.
- Consistency condition #3 was executed and verified.
- Step 2 was repeated and the difference between the first and second counts was noted.
- An RTE report was generated for the entire run time giving the number of NEW-ORDERS successfully returned to the RTE.
- The counts in step 13 and 14 were compared and the results verified that all committed transactions had been successfully recovered.
- 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

Because loss of power erases the contents of memory, the instantaneous interruption and the loss of memory tests were combined into a single test. This test was executed on a fully scaled database of 5930 warehouses under a full load of 59,300 users. The following steps were executed:

- The total number of New Orders was determined by the sum of D_NEXT_O_ID of all rows in the DISTRICT table giving the beginning count.
- The RTE was started with 59300 users.
- The test was allowed to run for a minimum of 5 minutes.
- A checkpoint was performed.
- System crash and loss of memory were induced by switching the power off. The power cords were then physically removed from the SUT. No battery backup or Uninterruptible Power Supply (UPS) were used to preserve the contents of memory.
- The RTE was shutdown.
- Power was restored and the system restarted.
- Microsoft SQL Server was restarted and performed an automatic recovery.
- Consistency condition #3 was executed and verified.
- Step 1 was repeated and the difference between the first and second counts was noted.

- An RTE report was generated for the entire run time giving the number of NEW-ORDERS successfully returned to the RTE.
- The counts in step 10 and 11 were compared and the results verified that all committed transactions had been successfully recovered.
- Samples were taken from the RTE files and used to query the database to demonstrate successful transactions had corresponding rows in the ORDER table.

Clause 4 Related Items

Initial Cardinality of Tables

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

Table 4.1 Number of Rows for Server

Table	Cardinality as built
Warehouse	5,930
District	59,300
Customer	177,900,000
History	177,900,000
Orders	177,900,000
New Order	53,370,000
Order Line	1,778,996,002
Stock	593,000,000
Item	100,000

Database Layout

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

The benchmarked configuration used 4 SMART 6404 Array controllers with 4 SCSI channels each connected to 14 MSA30 single-bus disk enclosures and 1 embedded SCSI controller connected to 1 36 GB disk in the internal media bay. Each SMART 6404 Array controller is capable of accessing up to 14 disk drives per channel and supports RAID 0, RAID 0+1, and RAID 5 per each logical volume configured with a limit of 28 drives per volume. The data tables were stored on 7 RAID arrays of (28) 36GB 15K drives each. Each array was configured with 1 logical drive (RAID 0) for database data and a RAID 0+1 volume used for backup of the database. One of the SA6404 controllers had one array consisting of (6) 72GB 10K drives and housed a RAID 0+1 logical volume for the database log. The operating system was housed internally on the integrated SCSI controller on a single 36GB 15K drive. The Array Accelerators on the data controllers were configured as 100% write cache and were enabled for all logical drives except for the logical drive for the log, which did not have the Array Accelerator enabled. All RAID volumes used hardware RAID.

Section 1.2 of this report details the distribution of database tables across all disks. The code that creates the filegroups and tables is included in Appendix B.

Type of Database

A statement must be provided that describes:

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

Microsoft SQL Server 2000 Enterprise Edition is a relational DBMS.

The interface used was Microsoft SQL Server stored procedures accessed with Remote Procedure Calls embedded in C code.

Database Mapping

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

The database was not replicated.

60 Day Space

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

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

- The free space on the log file was queried using *dbcc sqlperf(logspace)*.
- Transactions were run against the database with a full load of users.
- The free space was again queried using *dbcc sqlperf(logspace)*.
- The space used was calculated as the difference between the first and second query.
- The number of NEW-ORDERS was verified from the difference in the sum(d_next_o_id) taken from before and after the run.
- The space used was divided by the number of NEW-ORDERS giving a space used per NEW-ORDER transaction.
- The space used per transaction was multiplied by the measured tpmC rate times 480 minutes.

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

The details of both the 8-hour transaction log space requirement and the 60-day space requirement is shown in Appendix D.

Clause 5 Related Items

Throughput

Measured tpmC must be reported

Measured tpmC 74,298 tpmC
Price per tpmC USD \$2.40 per tpmC

Response Times

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

Table 5.2: Response Times

Type	Average	90 th %	Maximum
New-Order	0.31	0.47	10.44
Payment	0.24	0.39	4.75
Order-Status	0.25	0.40	10.63
Interactive Delivery	0.10	0.11	0.47
Deferred Delivery	0.21	0.35	1.11
Stock-Level	1.14	1.46	5.38
Menu	0.10	0.11	0.53

Keying and Think Times

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

Table 5.3: Keying Times

Type	Minimum	Average	Maximum
New-Order	18.00	18.02	18.53
Payment	3.00	3.02	3.53
Order-Status	2.00	2.02	2.53
Interactive Delivery	2.00	2.02	2.51
Stock-Level	2.00	2.02	2.45

Table 5.4: Think Times

Type	Minimum	Average	Maximum
New-Order	0.00	12.10	121.36
Payment	0.00	12.11	121.12
Order-Status	0.00	10.11	101.01
Interactive Delivery	0.00	5.07	50.71
Stock-Level	0.00	5.07	50.70

Response Time Frequency Distribution Curves and Other Graphs

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

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

Think Time frequency distribution curves (see Clause 5.6.3) must be reported for each transaction type.

Keying Time frequency distribution curves (see Clause 5.6.4) must be reported for each transaction type.

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

Figure 2. New Order Response Time Distribution

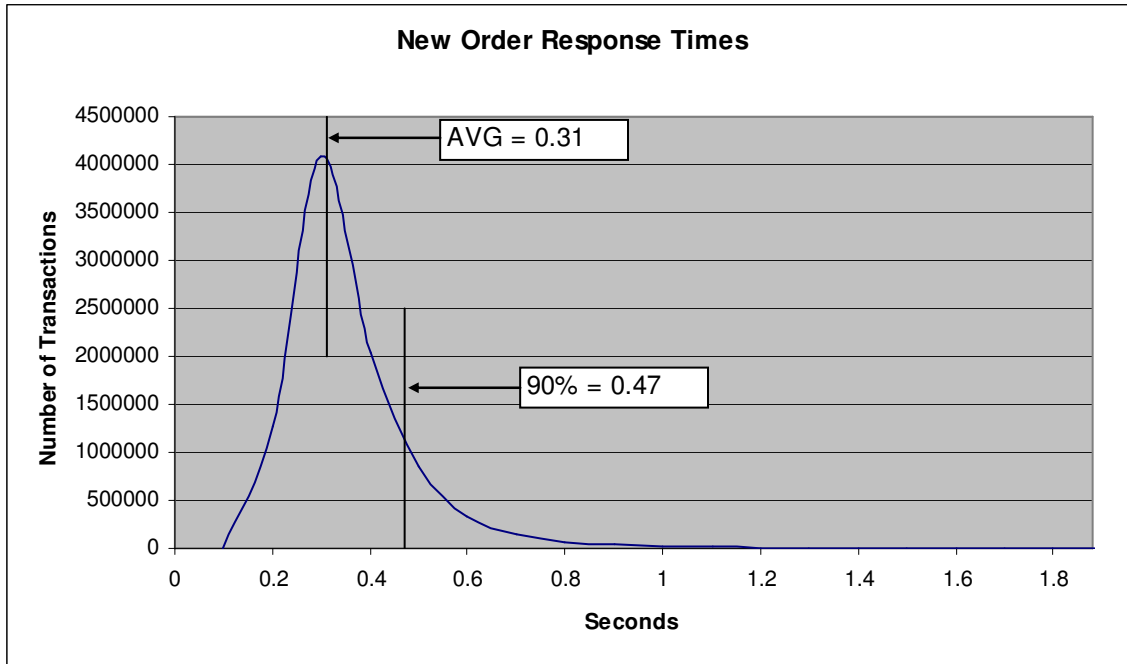


Figure 3. Payment Response Time Distribution

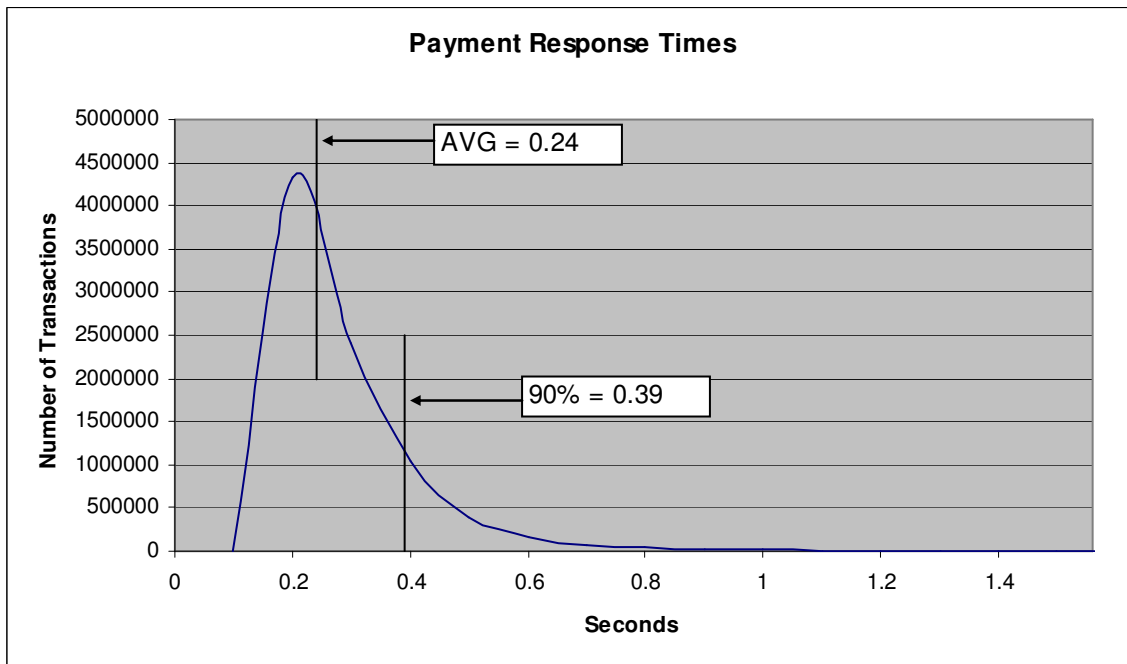


Figure 4. Order Status Response Time Distribution

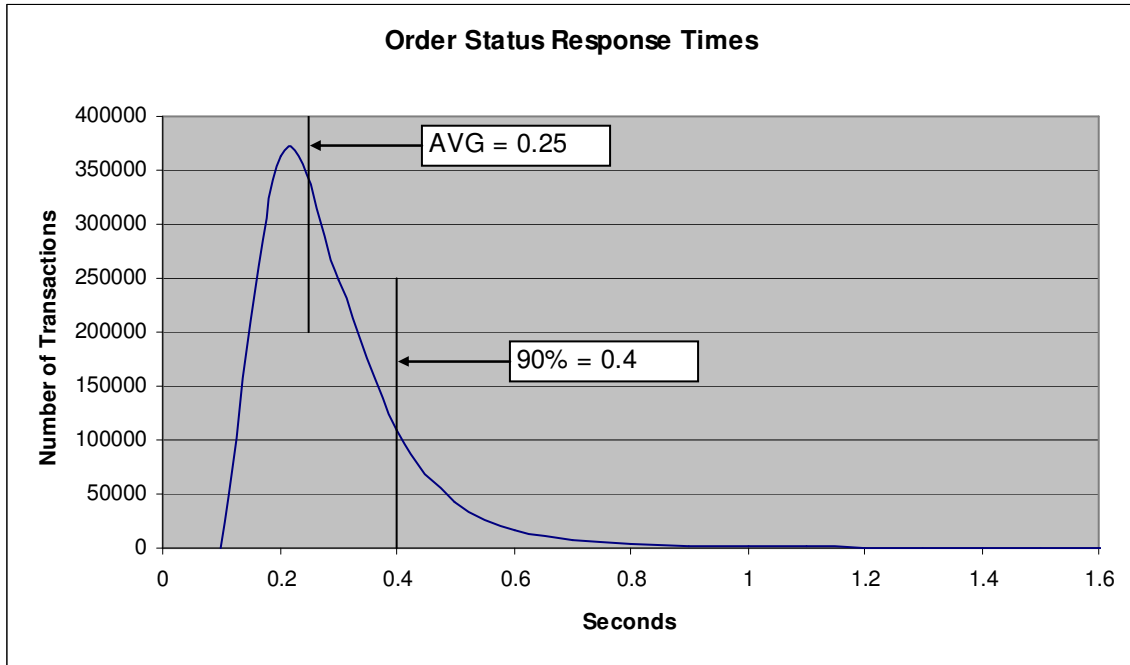


Figure 5. Delivery Response Time Distribution

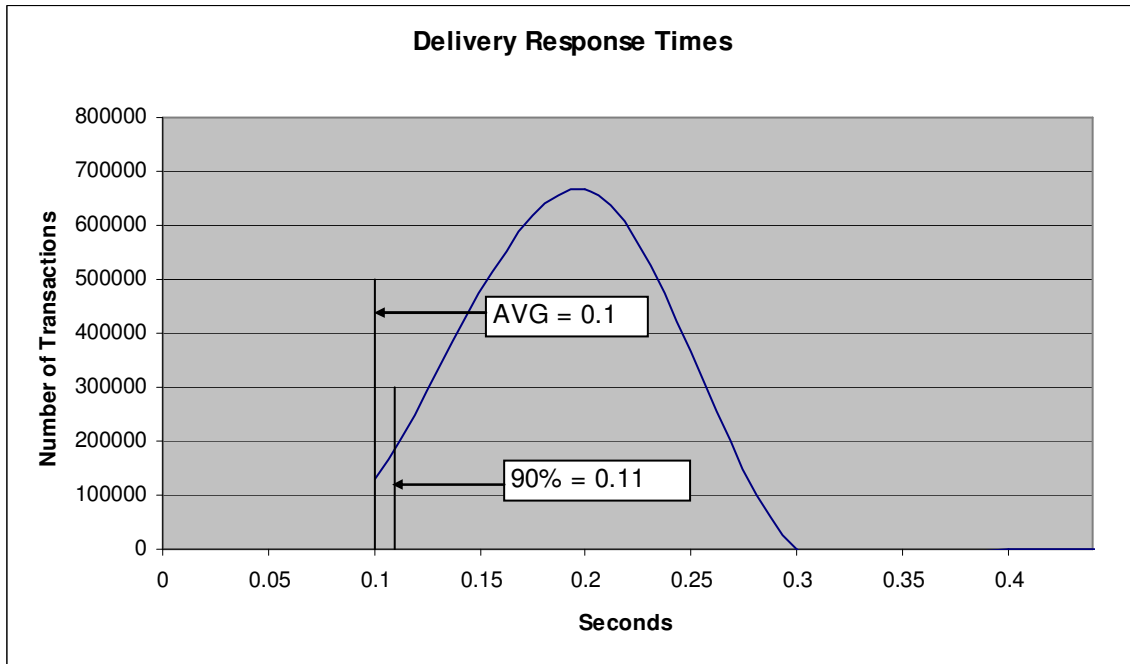


Figure 6. Stock Level Response Time Distribution

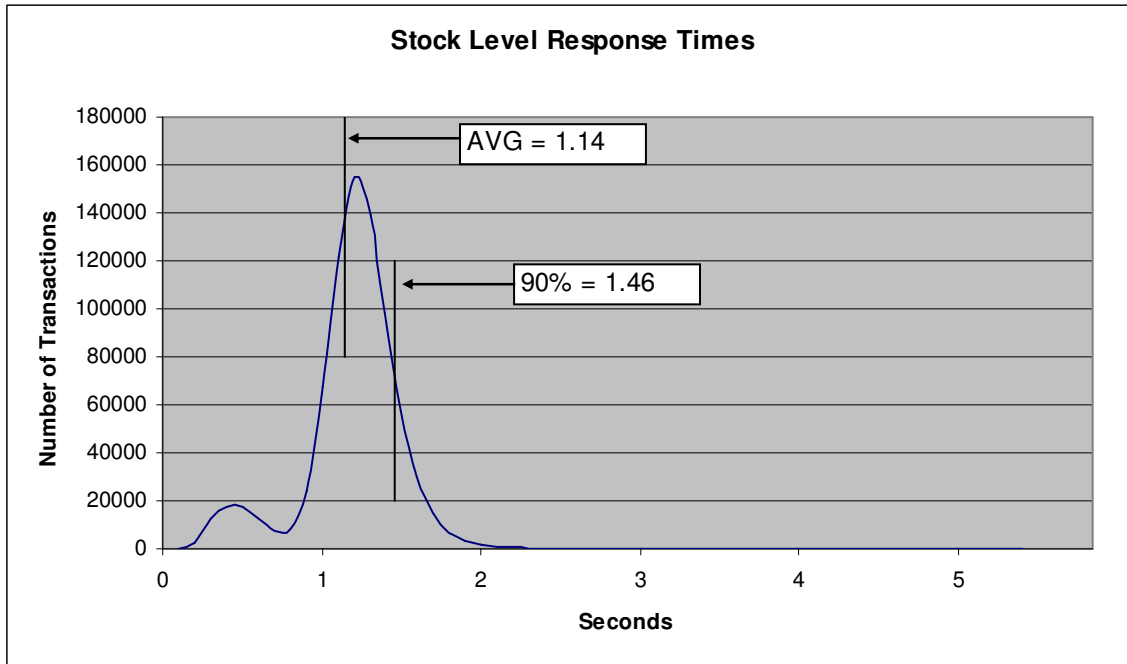


Figure 7. Response Time vs. Throughput

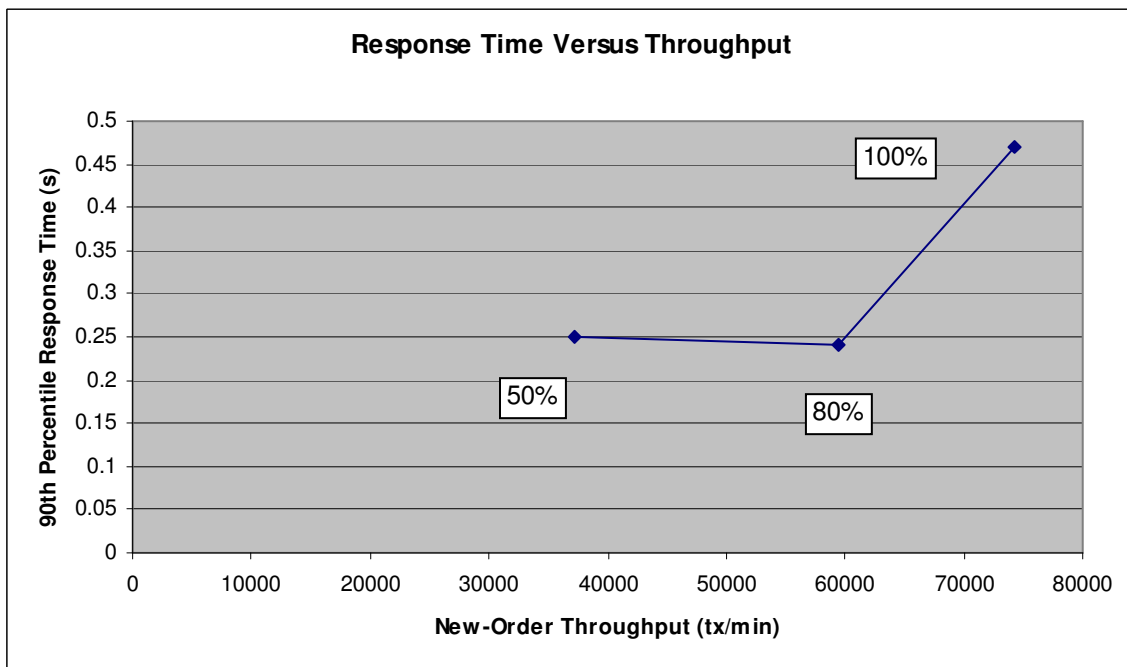


Figure 8. New Order Think Time Distribution

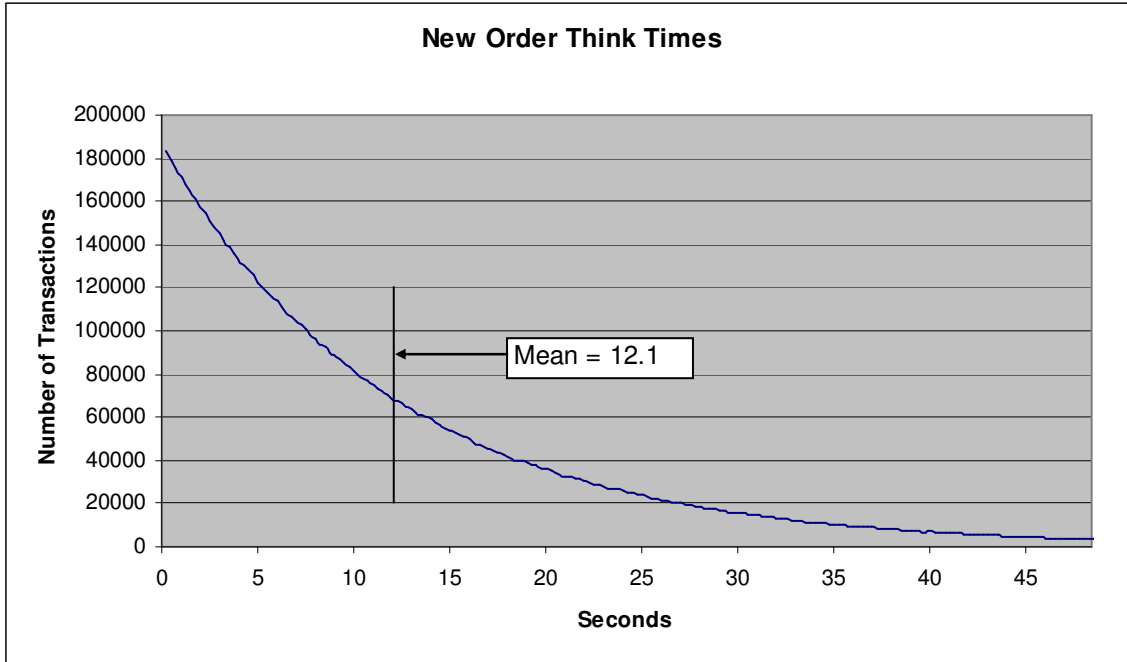
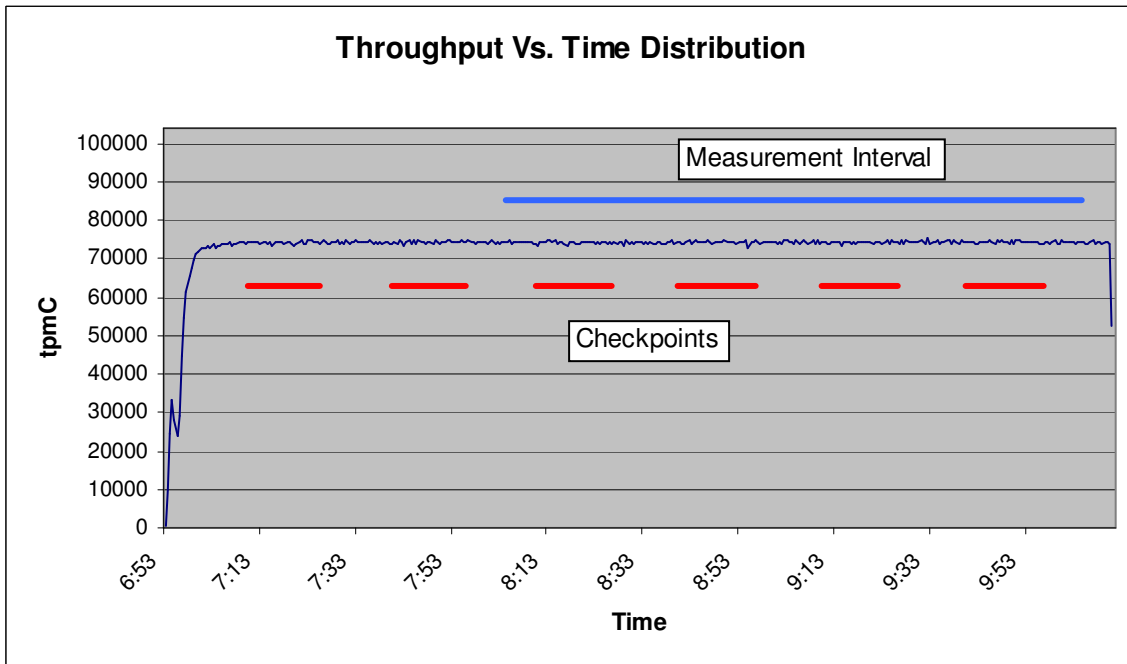


Figure 9. Throughput vs. Time Distribution



Steady State Determination

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

Steady state was determined using real time monitor utilities from 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.

The RTE generated the required input data to choose a transaction from the menu. This data was timestamped. The input screen for the requested transaction was returned and timestamped. The difference between these two timestamps was the menu response time. The RTE writes to the log file once per transaction on selective fields such as order id. There is one log file per driver engine.

The RTE generated the required input data for the chosen transaction. It waited to complete the minimum required key time before transmitting the input screen. The transmission was 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.

The RTE then waited the required think time interval before repeating the process starting at selecting a transaction from the menu.

The RTE transmissions were sent to application processes running on the client machines through Ethernet LANs. These client application processes handled all screen I/O as well as all requests to the database on the server. The applications communicated with the database server over gigabit Ethernet LANs using ODBC and RPC calls.

To perform checkpoints at specific intervals, the SQL Server *recovery interval* was set to 116 and a script was written to schedule multiple checkpoints at specific intervals. The script included a wait time between each checkpoint equal to 30 minutes so that the checkpoint interval was an integral multiple of the measurement interval, which was 120 minutes. The checkpoint script was started manually after the RTE had all users logged in and the database had achieved steady state.

At each checkpoint, Microsoft SQL Server wrote to disk all memory pages that had been updated but not yet physically written to disk. The positioning of the measurement interval is depicted on the graph in Figure 10.

Measurement Period Duration

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

The reported measured interval was exactly 120 minutes long.

Regulation of Transaction Mix

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

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

Transaction Statistics

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

Table 5.5: Transaction Statistics

Statistic		Value
New Order	Home warehouse order lines	99.00%
	Remote warehouse order lines	1.00%
	Rolled back transactions	1.00%
	Average items per order	10.00
Payment	Home warehouse payments	85.00%
	Remote warehouse payments	15.00%
	Accessed by last name	60.01%
Delivery	Skipped transactions (interactive)	0
	Skipped transactions (deferred)	0
Order Status	Accessed by last name	60.10%
Transaction Mix	New Order	44.88%
	Payment	43.03%
	Order status	4.03%
	Delivery	4.03%
	Stock level	4.03%

Checkpoint Count and Location

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

The initial checkpoint was started 67 minutes and 53.95 seconds after the start of the ramp-up. Subsequent checkpoints occurred every 30 minutes. Each checkpoint in the measurement interval lasted approximately 16 minutes. The measurement interval contains four checkpoints.

Checkpoint Duration

The start time and duration in seconds of at least the four longest checkpoints during the Measurement Interval must be disclosed.

Checkpoint Start Time	Duration
8:10:23.95 a.m.	15 minutes, 55.8 seconds
8:40:18.89 a.m.	15 minutes, 51.33 seconds
9:10:13.97 a.m.	15 minutes, 50.75 seconds
9:40:08.90 a.m.	16 minutes, 1.28 seconds

Clause 6 Related Items

RTE Descriptions

If the RTE is commercially available, then its inputs must be specified. Otherwise, a description must be supplied of what inputs (e.g., scripts) to the RTE had been used.

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

Emulated Components

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

The driver system consisted of 3 HP ProLiant servers. These driver machines emulated the users' web browsers.

Functional 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 hardware and software functionality being performed on the Driver System and its interface to the SUT must be disclosed.

The driver system performed the data generation and input functions of the priced display device. It also captured the input and output data and timestamps for post-processing of the reported metrics. No other functionality was included on the driver system.

Section 1.4 of this report contains detailed diagrams of both the benchmark configuration and the priced configuration.

Networks

The network configuration of both the tested services and proposed (target) services that 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.

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

In the tested configuration, 3 driver (RTE) machines were connected through a gigabit Ethernet switch to the client machines at 1Gbps, thus providing the path from the RTEs to the clients. The server (SUT) was connected to the clients through a gigabit Ethernet switch on a separate LAN.

The priced configuration was connected in the same manner as the tested configuration.

Operator Intervention

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

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

Clause 7 Related Items

System Pricing

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

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

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, Throughput, and Price Performance

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

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

- **Maximum Qualified Throughput** **74,298 tpmC**
- **Price per tpmC** **USD \$2.40 per tpmC**
- **Availability** **February 14, 2005**

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

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

Usage Pricing

For any usage pricing, the sponsor must disclose:

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

The component pricing based on usage is shown below:

- 4 Microsoft Windows 2000 Server
- 1 Microsoft Windows Server 2003, Enterprise Edition
- 2 Microsoft SQL Server 2000 Enterprise Edition SP3 (per processor licensing)
- 1 Microsoft Visual C++
- HP Servers include 3 years of support.

Clause 9 Related Items

Auditor's Report

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

This implementation of the TPC Benchmark C was audited by Tom Sawyer of Performance Metrics, Inc.

Performance Metrics, Inc.
P.O. Box 984
Klamath, CA 95548
(phone) (707) 482-0523
e-mail: lornal@perfmtrics.com

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
Presidio of San Francisco
P.O. Box 29920
San Francisco, CA 94129-0920

Voice: 415-561-6272
Fax: 415-561-6120
Email: info@tpc.org
or

Hewlett-Packard Company
Database Performance Engineering
P.O. Box 692000
Houston, TX 77269-2000



PERFORMANCE METRICS INC.
TPC Certified Auditors

February 4, 2005

Mr. John Ellyson
Hewlett-Packard Company
Database Performance Lab
20555 SH 249
Houston, TX 77070

I have verified the TPC Benchmark™ C client/server for the following configuration:

Platform: HP ProLiant ML370G4
Database Manager: Microsoft SQL Server 2000 Enterprise Edition
Operating System: Microsoft Windows 2003 Enterprise Edition
Transaction Manager: Microsoft COM+

Server: ProLiant ML370 G4				
CPUs	Memory	Disks	90% Response	tpmC
2 Intel Xeon™ @ 3.6GHz	Main: 16 GB	196 36GB 6 72GB	0.47	74,298

Clients: 4 HP ProLiant DL360G3		
CPUs	Memory	Disks
1 Intel Xeon™ Processor @ 3.06GHz	Main: 1 GB	1 33GB

PERFORMANCE METRICS INC.
TPC Certified Auditors

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 was properly sized and populated.
- The database was properly scaled with 5,930 warehouses, all of which were used.
- The ACID properties were met. The disk-loss tests used 640 warehouses of the full database and the performance exceeded 10% of the measured tpmC.
- Input data was generated according to the specified percentages.
- Eight hours of mirrored log space was configured on the measured system.
- Eight hours of dynamic table growth space was configured on the measured system.
- The 60-day space calculation was verified; the measured system had sufficient storage.
- Measurement cycle times included a delay of 0.1 seconds.
- There were 59,300 user contexts present on the system.
- Each group of emulated users started with the same random number seed.
- The NURand constants used for database load and at run time were 123 and 25.
- The steady state portion of the test was 2 hours.
- The system pricing was checked for major components and maintenance.

Auditor Notes:

None

Sincerely,



Tom Sawyer
Auditor

Appendix A: Source Code

The client source code is listed below.

client_utils.c

```
/* client_utils.c
*/

#include <stdio.h>
#include <time.h>
#include <windows.h>
#include <winperf.h>
#include <winsock.h>
#include "client_utils.h"

#define Li2Double(x) ((double)((x).HighPart) *
4.294967296E9 + (double)((x).LowPart))

static LARGE_INTEGER pFreq;
static double sFreq;
static int print_thread_id = 1;
static int user_id = 0;
static char *user_code = "C";

/*
 * get_thread_id
 * A function that returns the thread ID of the
current thread
*/
static int get_thread_id()
{
    return(GetCurrentThreadId());
}

/*
 * get_prefix
 * Format the output prefix for printing:
 * It contains the user_id, 'C' or 'T'
depending on whether it
 * is a terminal or a client and optional a
thread identifier
 * The prefix is written in the buffer passed in
by the caller.
*/
static void get_prefix(char *buffer)
{
    if (print_thread_id) {
        int thread_id = get_thread_id();
        sprintf(buffer, "%s(%d-%s-
%d)%s",
```

```
user_id < 10 ? " " : user_id <
100 ? " " : "",
        user_id,
        user_code,
        thread_id,
        thread_id < 10 ? " " : "");
    } else {
        sprintf(buffer, "%s(%2d-%s)",
        user_id < 10 ? " " : "", user_id,
        user_code);
    }
}

/*
 * err_printf
 * A var-arg function that appends the current
time and
 * other data to the print request and sends it
to stderr
 * if it is not a web client, to a file if it is
*/
void err_printf(char *format, ...)
{
    time_t cur_time;
    char time_str[30];
    char line_prefix[50];
    va_list ap;

    va_start(ap, format);

    cur_time = time(&cur_time);
    strftime(time_str, 29, "%X",
    localtime(&cur_time));

    get_prefix(line_prefix);

    fprintf(ERROROUT, "%s %s - ", line_prefix,
time_str);
    vfprintf(ERROROUT, format, ap);
    fflush(ERROROUT);

    va_end(ap);
}

/*
 * encina_error_message
 *
 * Report an encina error message by interpreting it
and writing
 * it to both the logfile (if any) and to standard
error
*/
void encina_error_message(char *msg, unsigned long n)
{
    char errorMsg[ENCINA_MAX_STATUS_STRING_SIZE];
    encina_StatusToString(n,
ENCINA_MAX_STATUS_STRING_SIZE, errorMsg);
    err_printf("ERROR: %s. Error code = %s (%d 0x%x)
\n", msg, errorMsg, n, n);
}

int get_time_init()
```

```
{
    QueryPerformanceFrequency(&pFreq);
    sFreq=Li2Double(pFreq);
    return 0;
}

int get_local_time(time_type *timeP)
{
    double cur_t;
    LARGE_INTEGER counter;

    QueryPerformanceCounter(&counter);
    cur_t = Li2Double(counter) / sFreq;
    timeP->sec = (long)cur_t;
    /* timeP->usec = ((long)cur_t - timeP->sec) *
1000000;*/
    timeP->usec = (long)((cur_t - timeP->sec) *
1000000);
    return 0;
}

/*
 * time_diff_ms
 * Return the difference in milliseconds between
two times
*/
int time_diff_ms(struct timeval *t2, struct timeval
*t1)
{
    int t_diff;

    t_diff = (t2->tv_usec + 1000000 - t1->tv_usec +
500) / 1000 +
        (t2->tv_sec - t1->tv_sec - 1) * 1000;

    return(t_diff);
}

/*
 * perfClntDataInit:
 * Initialization for the shared file mapping.
 *
 * return: pointer to the shared memory space
 *
 * This routine creates a named mapped memory section
that is used
 * to communicate the TPCC performance data to the
extensible
 * counter DLL for NT perfmon.
*/
total_tran_count_t *perfClntDataInit()
{
    HANDLE hMappedObject;
    total_tran_count_t *pClntInfo = NULL;
    TCHAR szMappedObjectName[] =
TEXT("TPCC_CLNT_COUNTER_BLOCK");

    /* create named section for the performance
data */
    hMappedObject =
CreateFileMapping((HANDLE)0xFFFFFFFF,
NULL,
PAGE_READWRITE,
```

```

        0,
        sizeof(total_tran_count_t),
        szMappedObjectName);
    if (hMappedObject == NULL) {
        err_printf("perfClntDataInit:
CreateFileMapping failed %x\n",
        GetLastError());
        pClntInfo = NULL;
    } else {
        /* map the section and assign the counter
block pointer
* to this section of memory
*/
        pClntInfo = (total_tran_count_t *)
MapViewOfFile(hMappedObject,
        FILE_MAP_ALL_ACCESS,
        0,
        0,
        0);
        if (pClntInfo == NULL) {
            err_printf("perfClntDataInit:
MapViewOfFile failed %x\n",
            GetLastError());
        } else {
            err_printf("perfClntDataInit:
MapViewOfFile success \n");
        }
    }
    return(pClntInfo);
}

```

client_utils.h

```

#ifndef TPCC_CLIENT_UTILS_H
#define TPCC_CLIENT_UTILS_H

#include <stdio.h>
#include <time.h>
#include <dce/rpc.h>
#include <dce/dce_error.h>
#include <encina/encina.h>
#include <stdlib.h>
#include <utils/trace.h>
#include <winsock.h>
#include "mon_client.h"
#include "../include/tpcc_type.h"

extern FILE * errtpcc;
extern FILE * logtpcc;
extern int debug;
extern char log_file_name[];
extern void logprintf( char *format, ...);
extern void err_printf( char *format, ...);
extern void encina_error_message(char *msg, unsigned
long n);
extern int time_diff_ms(struct timeval *t2, struct
timeval *t1);

```

```

typedef struct {
    int num;
    int errs;
    double RTtotal[2]; // 1 for server RT and 0 for
client RT
    int RTcount;
} tran_info_t;

/*
* total_tran_count_t
*
* structure that holds the total count of
transaction of each type
* as well as the reposne times.
*/
typedef struct {
    tran_info_t tran[MAX_TRAN_TYPE + 1];
    int errors;
    double time;
} total_tran_count_t;

/* enc_status_t
* structure that holds error information
*/
typedef struct {
    int status;
    int line;
    char file[268];
    unsigned long encinaError;
    char errorMsg[ENCINA_MAX_STATUS_STRING_SIZE];
} enc_status_t;

#define FALSE 0
#define TRUE 1

#define DPRINT(args) if (0) err_printf args

#define CHECK_ENVIRON(str,var) if (str == NULL) {
fprintf(ERROROUT, \
        "%s environment variable is
not defined.\n",var); }

#define CHK_STATUS(st, val, _errMsg)
\
    if(st) {
\
        enc_status.status=val;
\
        strcpy(enc_status.file, __FILE__);
\
        enc_status.line= __LINE__;
\
        enc_status.encinaError = st;
\
        if(_errMsg)strcpy(enc_status.errorMsg,
_errMsg);
\
        if(st!=1) return;
\
    }

#define UTIL_IDENT(a) a

```

```

#if ENCINA_C_ANSI_STRING_TOKEN_SUPPORT
#define UTIL_STRING(a) # a
#define UTIL_CONCAT(a, b) a ## b
#else /* ENCINA_C_ANSI_STRING_TOKEN_SUPPORT */
#define UTIL_STRING(a) "a"
#define UTIL_CONCAT(a, b) UTIL_IDENT(a)b
#endif /* ENCINA_C_ANSI_STRING_TOKEN_SUPPORT */

/* ENCINA_CALL: Make fail-fast calls on the various
services. */
#define ENCINA_CALL(proc_name,call) \
{
    unsigned long _status; \
    ENCINA_CALL_RC(proc_name,call,_status); \
    if (_status) exit_program(_status); \
}

#define ENCINA_CALL_RC(proc_name,call,rc)
\
{
\
    char _errorMsg[ENCINA_MAX_STATUS_STRING_SIZE];
\
    DPRINT(("ENCINA_CALL_RC: before call %s\n",
proc_name)); \
    rc = (call);
\
    DPRINT(("ENCINA_CALL_RC: after call %s\n",
proc_name)); \
    if (rc) {
\
        encina_StatusToString(rc,
ENCINA_MAX_STATUS_STRING_SIZE,
        _errorMsg);
\
        err_printf( "%x \n", rc);
\
        err_printf( "%s \n", _errorMsg);
\
        err_printf( "%s \n", proc_name);
\
    }
\
}

void err_printf(char *format, ...);
void encina_error_message(char *msg, unsigned long
n);
int get_time_init();
int get_local_time(time_type *timeP);
int time_diff_ms(struct timeval *t2, struct timeval
*t1);

#endif /* TPCC_CLIENT_UTILS_H */

databuf.h


---


/*

```

```

*   databuf.h
*
* $Revision: 1.1 $
* $Date: 1998/11/06 21:10:11 $
* $Log: databuf.h,v $
* Revision 4.2 95/05/16 10:55:31 10:55:31 tpcc
(TPCC Benchmark)
* Added necessary RCS ident strings
*
* Revision 4.1 95/05/09 15:21:02 15:21:02 strue
(SCott Truesdale)
* New code from Transarc - initial version
*
* Revision 3.2 95/04/03 17:43:09 17:43:09 strue
(SCott Truesdale)
* Changes from Transarc - added sql error handling
in client; cleaned up debug handling with macros;
added check on db paramters via call to server.
*
* Revision 3.1 95/04/03 15:10:30 15:10:30 strue
(SCott Truesdale)
* Base of rev 3 - shipped to transarc
*
*
* $TALog: databuf.h,v $
* Revision 1.1 1998/11/06 21:10:11 dongfeng
* - Move all files common to client and server to
tpcc/common
* directory
* [added by delta dongfeng-23677-TPCC-new-directory-
structures, r1.1]
*
* Revision 1.3 1998/10/22 15:33:04 wenjian
* Make changes to Encina server code to connect with
SQL server and add
* callsql.c and sql directory.
*
* Add ERR_BAD_ITEM_ID, which is returned by SLQnew
and same as INVALID_NEWO
* [from r1.2 by delta wenjian-23529-TPCC-integrate-
with-SQL-server, r1.1]
*
* Revision 1.2 1998/01/23 15:07:47 oz
* - Updated the SP TPCC directory to the latest
files used
* during the SP tpcc audit.
* [from r1.1 by delta oz-20774-TPCC-update-to-
latest-SP-version-11-27, r1.1]
*
* Revision 1.1 1997/04/20 11:57:57 oz
* - This is the code base modified at IBM
Poughkeepsie
* by Ofer Zajicek and Radha Sivaramakrishnan for
the
* SP scaling test for TPCC.
* [added by delta oz-19782-TPCC-add-ibm-sp-code,
r1.1]
*
* Revision 1.31 1995/10/30 19:10:54 oz
* [merge of changes from 1.29 to 1.30 into 1.27]
*

```

```

* Revision 1.30 1995/10/27 15:41:30 oz
* - Modified the tpc-c code to work with the new
informix
* sql code that is in ex_trans.ec
* [from r1.29 by delta oz-16761-TPCC-modify-code-to-
work-with-oracle, r1.1]
*
* Revision 1.27 1995/10/20 18:44:30 ctipper
* [merge of changes from 1.17 to 1.25 into 1.22]
*
* Revision 1.25 1995/10/20 18:15:34 ctipper
* Incorporate changes per code review.
*
* - add DISTRIBUTED_TRAN_FAILED,
TPCC_DB_INFO_PARTIAL, and
* TPCC_DB_INFO_FAILED error codes to tpcc_rc_t
* - got rid of MAX_NUM_SERVERS variables
* [from r1.23 by delta ctipper-16547-TPCC-more-
distributed-trans, r1.2]
*
* Revision 1.23 1995/10/13 17:00:26 ctipper
* This delta encompasses all changes necessary to do
distributed, XA
* transactions with the TPCC benchmark. This
includes the changes
* necessary to build with Informix version 6.
*
* Each client still talks to only one server,
however, if a distributed
* transaction is necessary, the client sends the
request to a different
* interface of that server which then forwards all
or part of the
* request on to the appropriate remote server.
*
* - added new error codes to the tpcc_rc_t
enumeration.
* - defined MAX_NUM_SERVERS to be 10
* [from r1.19 by delta ctipper-16547-TPCC-more-
distributed-trans, r1.1]
*
* Revision 1.19 1995/09/20 21:02:39 oz
* -Corrected code for the payment transaction
* - The distributed case now no longer uses
* stored procedures
* [from r1.18 by delta oz-16547-TPCC-add-
distributed-transactions, r1.2]
*
* Revision 1.18 1995/09/20 17:51:10 oz
* - Added distributed transactions for the new order
and
* payment transaction
*
* - Added new error codes
* [from r1.17 by delta oz-16547-TPCC-add-
distributed-transactions, r1.1]
*
* Revision 1.22 1995/10/02 20:31:07 oz
* - Corrected definition of ERROR()
* [from r1.21 by delta oz-16638-tpcc-modify-
terminal-for-RTE, r1.3]
*
* Revision 1.21 1995/10/02 18:51:45 oz

```

```

* - Added definitions needed for utils.c and
liberty.c
* [from r1.20 by delta oz-16638-tpcc-modify-
terminal-for-RTE, r1.2]
*
* Revision 1.20 1995/10/02 15:52:35 oz
* - Modified the TPC-C benchmark to be compatible
with the RTE.
* - There are now 3 terminal processes:
* emulator: the old terminal process with a
built in
* simple emulator
* curses: An interactive terminal process using
curses
* liberty: An interactive terminal process to be
used with
* the RTE compatible with the liberty
freedom terminal.
*
* - Define TRUE and FALSE only if they are not
already defined.
* (curses.h defines TRUE)
* - Removed READ_TO_DATE and YEAR_TO_SECOND
* - Added term_type_t
* - Added
* GOOD_INPUT (0)
* WRONG_INPUT (10)
* [from r1.17 by delta oz-16638-tpcc-modify-
terminal-for-RTE, r1.1]
*
* Revision 1.17 1995/07/28 15:28:23 oz
* - Added a -null and -no_marshallng option to TPCC
*
* - Added INVALID_TRAN_TYPE return code
* [from r1.16 by delta oz-16070-TPCC-add-null-and-
marshalling-test, r1.1]
*
* Revision 1.16 1995/07/18 17:02:38 oz
* - Added a DCE_ERROR error code
* [from r1.15 by delta oz-15938-TPCC-add-dce-only-
client, r1.1]
*
* Revision 1.15 1995/05/22 19:50:48 shl
* [merge of changes from 1.12 to 1.13 into 1.14]
*
* Revision 1.13 1995/05/18 15:11:27 oz
* [from r1.12 by delta oz-15290-TPCC-incorporate-hp-
drop-of-05-16-95, r1.1]
*
* Revision 1.14 1995/05/22 17:26:35 ctipper
* [merge of changes from 1.5 to 1.9 into 1.11]
*
* [*** log entries omitted ***]
*
*/

#ifndef __TPCC_DATABUF_H__
#define __TPCC_DATABUF_H__

#define I_NAME_LEN 24
#define I_DATA 50
#define W_NAME_LEN 10
#define ADDR_LEN 20

```

```

#define STATE_LEN      2
#define ZIP_LEN        9
#define DIST_INFO_LEN  24
#define S_DATA_LEN     50
#define D_NAME_LEN     10
#define H_DATA_LEN     24
#define CARRIER_LEN   2
#define C_LAST_LEN     17
#define C_MID_LEN      2
#define PHONE_LEN      16
#define CREDIT_LEN     2
#define C_DATA_LEN     500
#define BC_DATA_LEN    23

#define YEAR_TO_DATE   1
#define YEAR_TO_SECOND 2

#define ERROR(x) fprintf(stderr, "Error:
%s\n", #x), exit(11)

#define MAX_STR_LEN    255
#define MAX_OL        15

#ifndef TRUE
#define TRUE          1
#endif
#ifndef FALSE
#define FALSE         0
#endif

#define CANCEL        -1

#define DATETIME_LEN  19

#define D_PER_W        10

#define COLLECTOR      1          /* ctipper
5/3/95 */

#define ERR_BAD_ITEM_ID 1 /* copied from sql/tpcc.h
*/
#define RPC_ERROR      -2
#define SUCCESS_CODE    0

#define CHAR_NULL      '\0'      /* strue
1/23/95 */

typedef enum {
    liberty_term,
    curses_term,
    emulator_term
} term_type_t;

typedef enum {
    GOOD_INPUT = 0,

    SQL_ERROR = 2,
    DCE_ERROR = 4,
    NO_SUCH_LAST_NAME = 5,
    INVALID_TRAN_TYPE = 6,
    INVALID_HANDLE = 7,

    WRONG_INPUT = 10,

```

```

DISTRIBUTED_TRAN_FAILED = 15,

TPCC_DB_INFO_PARTIAL = 20,
TPCC_DB_INFO_FAILED,

TPCC_ERROR_BEGIN_NEWO = 110,

TPCC_ERROR_DECL_NEWO_SEL_ITEM,
TPCC_ERROR_OPEN_NEWO_SEL_ITEM,
TPCC_ERROR_OPEN_DIST_NEWO_SEL_ITEM,
TPCC_ERROR_FETCH_NEWO_SEL_ITEM,
TPCC_ERROR_FETCH_DIST_NEWO_SEL_ITEM,
TPCC_ERROR_PREP_NEWO_SEL_STCK,
TPCC_ERROR_DECL_NEWO_SEL_STCK,
TPCC_ERROR_OPEN_NEWO_SEL_STCK,
TPCC_ERROR_OPEN_DIST_NEWO_SEL_STCK,
TPCC_ERROR_FETCH_NEWO_SEL_STCK,
TPCC_ERROR_FETCH_DIST_NEWO_SEL_STCK,
TPCC_ERROR_NEWO_SELECT,
TPCC_ERROR_NEWO_UPD_STCK,
TPCC_ERROR_DIST_NEWO_UPD_STCK,
TPCC_ERROR_NEWO_SELECT_2,
TPCC_ERROR_DECL_NEWO_SEL_CUST,
TPCC_ERROR_OPEN_NEWO_SEL_CUST,
TPCC_ERROR_OPEN_DIST_NEWO_SEL_CUST,
TPCC_ERROR_FETCH_NEWO_SEL_CUST,
TPCC_ERROR_FETCH_DIST_NEWO_SEL_CUST,
TPCC_ERROR_DECL_NEWO_SEL_DIST,
TPCC_ERROR_OPEN_NEWO_SEL_DIST,
TPCC_ERROR_OPEN_DIST_NEWO_SEL_DIST,
TPCC_ERROR_FETCH_NEWO_SEL_DIST,
TPCC_ERROR_FETCH_DIST_NEWO_SEL_DIST,
TPCC_ERROR_PREP_NEWO_INS_OL,
TPCC_ERROR_DECL_NEWO_INS_OL,
TPCC_ERROR_OPEN_NEWO_INS_OL,
TPCC_ERROR_OPEN_DIST_NEWO_INS_OL,
TPCC_ERROR_PUT_NEWO_INS_OL,
TPCC_ERROR_PUT_DIST_NEWO_INS_OL,
TPCC_ERROR_DECL_NEWO_SEL_WARE,
TPCC_ERROR_OPEN_NEWO_SEL_WARE,
TPCC_ERROR_OPEN_DIST_NEWO_SEL_WARE,
TPCC_ERROR_FETCH_NEWO_SEL_WARE,
TPCC_ERROR_FETCH_DIST_NEWO_SEL_WARE,
TPCC_ERROR_EXECUTE_NEWO_UPD_INS,
TPCC_ERROR_UPDATE_NEWO_NEXT_OID,
TPCC_ERROR_PREP_NEWO_INS,
TPCC_ERROR_EXECUTE_DIST_NEWO_INS,
TPCC_ERROR_EXECUTE_NEWO_COMMIT,
TPCC_ERROR_ROLLBACK_NEWO,
TPCC_ERROR_REMOTE_OL_SELECT,
TPCC_ERROR_REMOTE_OL_UPDATE,

TPCC_ERROR_OPEN_ORDS_CNT_CID = 200,
TPCC_ERROR_FETCH_ORDS_CNT_CID,
TPCC_ERROR_OPEN_ORDS_SEL_CLAST,
TPCC_ERROR_FETCH_ORDS_SEL_CLAST,
TPCC_ERROR_OPEN_ORDS_SEL_CID,
TPCC_ERROR_FETCH_ORDS_SEL_CID,
TPCC_ERROR_OPEN_ORDS_SEL_OLDORD,
TPCC_ERROR_FETCH_ORDS_OLDORD,
TPCC_ERROR_OPEN_ORDS_SEL_OL,
TPCC_ERROR_FETCH_ORDS_SEL_OL,

```

```

TPCC_ERROR_EXECUTE_ORDS_COMMIT,

TPCC_ERROR_OPEN_DELIVERY_OLDEST_OID = 300,
TPCC_ERROR_FETCH_DELIVERY_OLDEST_OID,
TPCC_ERROR_EXECUTE_DELIVERY_COMMIT,
TPCC_ERROR_OPEN_DELIVERY_SEL_ORD,
TPCC_ERROR_FETCH_DELIVERY_SEL_ORD,
TPCC_ERROR_OPEN_DELIVERY_SEL_SUM_OL,
TPCC_ERROR_FETCH_DELIVERY_SEL_SUM_OL,
TPCC_ERROR_EXECUTE_DELIVERY_EXEC_DVRY,
TPCC_ERROR_SELECT_DELIVERY_ORDER_ID,
TPCC_ERROR_SELECT_DELIVERY_CARRIER_ID,
TPCC_ERROR_SELECT_DELIVERY_BALANCE,

TPCC_ERROR_OPEN_STOCKLEVEL_SEL_OID = 400,
TPCC_ERROR_FETCH_STOCKLEVEL_SEL_OID,
TPCC_ERROR_OPEN_STOCKLEVEL_CNT_SID,
TPCC_ERROR_FETCH_STOCKLEVEL_CNT_SID,
TPCC_ERROR_OPEN_STOCKLEVEL_FIND,
TPCC_ERROR_FETCH_STOCKLEVEL_FIND,
TPCC_ERROR_EXECUTE_STOCKLEVEL_COMMIT,

TPCC_ERROR_OPEN_PAYMENT_CNT_CID = 500,
TPCC_ERROR_FETCH_PAYMENT_CNT_CID,
TPCC_ERROR_OPEN_PAYMENT_SEL_CLAST,
TPCC_ERROR_FETCH_PAYMENT_SEL_CLAST,
TPCC_ERROR_OPEN_PAYMENT_SEL_CID,
TPCC_ERROR_FETCH_PAYMENT_SEL_CID,
TPCC_ERROR_DECL_PAYMENT_SEL_DIST,
TPCC_ERROR_OPEN_PAYMENT_SEL_DIST,
TPCC_ERROR_OPEN_DIST_PAYMENT_SEL_DIST,
TPCC_ERROR_FETCH_PAYMENT_SEL_DIST,
TPCC_ERROR_FETCH_DIST_PAYMENT_SEL_DIST,
TPCC_ERROR_DECL_PAYMENT_SEL_WARE,
TPCC_ERROR_OPEN_PAYMENT_SEL_WARE,
TPCC_ERROR_OPEN_DIST_PAYMENT_SEL_WARE,
TPCC_ERROR_FETCH_PAYMENT_SEL_WARE,
TPCC_ERROR_FETCH_DIST_PAYMENT_SEL_WARE,
TPCC_ERROR_EXECUTE_PAYMENT_UPD_CUST_LAST,
TPCC_ERROR_EXECUTE_PAYMENT_UPD_CUST_ID,
TPCC_ERROR_COMMIT_PAYMENT_UPD_CUST,
TPCC_ERROR_SELECT_PAYMENT_W_YTD,
TPCC_ERROR_SELECT_PAYMENT_D_YTD,
TPCC_ERROR_BEGIN_PAYMENT,
TPCC_ERROR_EXECUTE_PAYMENT_COMMIT,
TPCC_ERROR_PAYMENT_UPD_CUST_BY_NAME,
TPCC_ERROR_PAYMENT_UPD_CUST_BY_ID,
TPCC_ERROR_PAYMENT_UPDATE_DIST,
TPCC_ERROR_PAYMENT_UPDATE_WH,
TPCC_ERROR_PAYMENT_INSERT_HISTORY,
TPCC_ERROR_EXECUTE_PAYMENT_WH_DIST

} tpcc_rc_t;

typedef enum {
    TPCC_DEADLOCK_MSG = 10,
    TPCC_RETRY_MSG
} tpcc_msg_t;

#endif /* __TPCC_DATABUF_H__ */

```

databuf.h.new

```
/*
 * databuf.h
 */

#ifndef __TPCC_DATABUF_H__
#define __TPCC_DATABUF_H__

#define I_NAME_LEN 24
#define I_DATA 50
#define W_NAME_LEN 10
#define ADDR_LEN 20
#define STATE_LEN 2
#define ZIP_LEN 9
#define DIST_INFO_LEN 24
#define S_DATA_LEN 50
#define D_NAME_LEN 10
#define H_DATA_LEN 24
#define CARRIER_LEN 2
#define C_LAST_LEN 17
#define C_MID_LEN 2
#define PHONE_LEN 16
#define CREDIT_LEN 2
/* #define C_DATA_LEN 500 */
#define BC_DTA_LEN 23

#define YEAR_TO_DATE 1
#define YEAR_TO_SECOND 2

#define MAX_STR_LEN 255
#define MAX_OL 15

#ifndef TRUE
#define TRUE 1
#endif
#ifndef FALSE
#define FALSE 0
#endif

#define CANCEL -1
/* #define DATETIME_LEN 19 */

#define D_PER_W 10

#define COLLECTOR 1 /* ctipper
5/3/95 */

#define ERR_BAD_ITEM_ID 1 /* copied from sql/tpcc.h
*/
#define RPC_ERROR -2
#define SUCCESS_CODE 0

#define CHAR_NULL '\0' /* strue
1/23/95 */

typedef enum {
liberty_term,
curses_term,
emulator_term
}
```

```
} term_type_t;

typedef enum {
TPCC_SUCCESS = 0,
GOOD_INPUT = 0,

INVALID_NEWO = 100,
SQL_ERROR = 2,
TRPC_ERROR = 3,
DCE_ERROR = 4,
NO_SUCH_LAST_NAME = 5,
INVALID_TRAN_TYPE = 6,
INVALID_HANDLE = 7,

WRONG_INPUT = 10,

DISTRIBUTED_TRAN_FAILED = 15,

TPCC_DB_INFO_PARTIAL = 20,
TPCC_DB_INFO_FAILED,

TPCC_ERROR_BEGIN_NEWO = 110,

TPCC_ERROR_DECL_NEWO_SEL_ITEM,
TPCC_ERROR_OPEN_NEWO_SEL_ITEM,
TPCC_ERROR_OPEN_DIST_NEWO_SEL_ITEM,
TPCC_ERROR_FETCH_NEWO_SEL_ITEM,
TPCC_ERROR_FETCH_DIST_NEWO_SEL_ITEM,
TPCC_ERROR_PREP_NEWO_SEL_STCK,
TPCC_ERROR_DECL_NEWO_SEL_STCK,
TPCC_ERROR_OPEN_NEWO_SEL_STCK,
TPCC_ERROR_OPEN_DIST_NEWO_SEL_STCK,
TPCC_ERROR_FETCH_NEWO_SEL_STCK,
TPCC_ERROR_FETCH_DIST_NEWO_SEL_STCK,
TPCC_ERROR_NEWO_SELECT,
TPCC_ERROR_NEWO_UPD_STCK,
TPCC_ERROR_DIST_NEWO_UPD_STCK,
TPCC_ERROR_NEWO_SELECT_2,
TPCC_ERROR_DECL_NEWO_SEL_CUST,
TPCC_ERROR_OPEN_NEWO_SEL_CUST,
TPCC_ERROR_OPEN_DIST_NEWO_SEL_CUST,
TPCC_ERROR_FETCH_NEWO_SEL_CUST,
TPCC_ERROR_FETCH_DIST_NEWO_SEL_CUST,
TPCC_ERROR_FETCH_DIST_NEWO_SEL_CUST,
TPCC_ERROR_DECL_NEWO_SEL_DIST,
TPCC_ERROR_OPEN_NEWO_SEL_DIST,
TPCC_ERROR_OPEN_DIST_NEWO_SEL_DIST,
TPCC_ERROR_FETCH_NEWO_SEL_DIST,
TPCC_ERROR_FETCH_DIST_NEWO_SEL_DIST,
TPCC_ERROR_FETCH_DIST_NEWO_SEL_DIST,
TPCC_ERROR_PREP_NEWO_INS_OL,
TPCC_ERROR_DECL_NEWO_INS_OL,
TPCC_ERROR_OPEN_NEWO_INS_OL,
TPCC_ERROR_OPEN_DIST_NEWO_INS_OL,
TPCC_ERROR_PUT_NEWO_INS_OL,
TPCC_ERROR_PUT_DIST_NEWO_INS_OL,
TPCC_ERROR_DECL_NEWO_SEL_WARE,
TPCC_ERROR_OPEN_NEWO_SEL_WARE,
TPCC_ERROR_OPEN_DIST_NEWO_SEL_WARE,
TPCC_ERROR_FETCH_NEWO_SEL_WARE,
TPCC_ERROR_FETCH_DIST_NEWO_SEL_WARE,
TPCC_ERROR_EXECUTE_NEWO_UPD_INS,
TPCC_ERROR_UPDATE_NEWO_NEXT_OID,
TPCC_ERROR_PREP_NEWO_INS,
TPCC_ERROR_EXECUTE_DIST_NEWO_INS,
}
```

```
TPCC_ERROR_EXECUTE_NEWO_COMMIT,
TPCC_ERROR_ROLLBACK_NEWO,
TPCC_ERROR_REMOTE_OL_SELECT,
TPCC_ERROR_REMOTE_OL_UPDATE,

TPCC_ERROR_OPEN_ORDS_CNT_CID = 200,
TPCC_ERROR_FETCH_ORDS_CNT_CID,
TPCC_ERROR_OPEN_ORDS_SEL_CLAST,
TPCC_ERROR_FETCH_ORDS_SEL_CLAST,
TPCC_ERROR_OPEN_ORDS_SEL_CID,
TPCC_ERROR_FETCH_ORDS_SEL_CID,
TPCC_ERROR_OPEN_ORDS_SEL_OLDORD,
TPCC_ERROR_FETCH_ORDS_OLDORD,
TPCC_ERROR_OPEN_ORDS_SEL_OL,
TPCC_ERROR_FETCH_ORDS_SEL_OL,
TPCC_ERROR_EXECUTE_ORDS_COMMIT,

TPCC_ERROR_OPEN_DELIVERY_OLDEST_OID = 300,
TPCC_ERROR_FETCH_DELIVERY_OLDEST_OID,
TPCC_ERROR_EXECUTE_DELIVERY_COMMIT,
TPCC_ERROR_OPEN_DELIVERY_SEL_ORD,
TPCC_ERROR_FETCH_DELIVERY_SEL_ORD,
TPCC_ERROR_OPEN_DELIVERY_SEL_SUM_OL,
TPCC_ERROR_FETCH_DELIVERY_SEL_SUM_OL,
TPCC_ERROR_EXECUTE_DELIVERY_EXEC_DVRY,
TPCC_ERROR_SELECT_DELIVERY_ORDER_ID,
TPCC_ERROR_SELECT_DELIVERY_CARRIER_ID,
TPCC_ERROR_SELECT_DELIVERY_BALANCE,

TPCC_ERROR_OPEN_STOCKLEVEL_SEL_OID = 400,
TPCC_ERROR_FETCH_STOCKLEVEL_SEL_OID,
TPCC_ERROR_OPEN_STOCKLEVEL_CNT_SID,
TPCC_ERROR_FETCH_STOCKLEVEL_CNT_SID,
TPCC_ERROR_OPEN_STOCKLEVEL_FIND,
TPCC_ERROR_FETCH_STOCKLEVEL_FIND,
TPCC_ERROR_EXECUTE_STOCKLEVEL_COMMIT,

TPCC_ERROR_OPEN_PAYMENT_CNT_CID = 500,
TPCC_ERROR_FETCH_PAYMENT_CNT_CID,
TPCC_ERROR_OPEN_PAYMENT_SEL_CLAST,
TPCC_ERROR_FETCH_PAYMENT_SEL_CLAST,
TPCC_ERROR_OPEN_PAYMENT_SEL_CID,
TPCC_ERROR_FETCH_PAYMENT_SEL_CID,
TPCC_ERROR_DECL_PAYMENT_SEL_DIST,
TPCC_ERROR_OPEN_PAYMENT_SEL_DIST,
TPCC_ERROR_OPEN_DIST_PAYMENT_SEL_DIST,
TPCC_ERROR_FETCH_PAYMENT_SEL_DIST,
TPCC_ERROR_FETCH_DIST_PAYMENT_SEL_DIST,
TPCC_ERROR_DECL_PAYMENT_SEL_WARE,
TPCC_ERROR_OPEN_PAYMENT_SEL_WARE,
TPCC_ERROR_OPEN_DIST_PAYMENT_SEL_WARE,
TPCC_ERROR_FETCH_PAYMENT_SEL_WARE,
TPCC_ERROR_FETCH_DIST_PAYMENT_SEL_WARE,
TPCC_ERROR_EXECUTE_PAYMENT_UPD_CUST_LAST,
TPCC_ERROR_EXECUTE_PAYMENT_UPD_CUST_ID,
TPCC_ERROR_COMMIT_PAYMENT_UPD_CUST,
TPCC_ERROR_SELECT_PAYMENT_W_YTD,
TPCC_ERROR_SELECT_PAYMENT_D_YTD,
TPCC_ERROR_BEGIN_PAYMENT,
TPCC_ERROR_EXECUTE_PAYMENT_COMMIT,
TPCC_ERROR_PAYMENT_UPD_CUST_BY_NAME,
TPCC_ERROR_PAYMENT_UPD_CUST_BY_ID,
TPCC_ERROR_PAYMENT_UPDATE_DIST,
```

```

TPCC_ERROR_PAYMENT_UPDATE_WH,
TPCC_ERROR_PAYMENT_INSERT_HISTORY,
TPCC_ERROR_EXECUTE_PAYMENT_WH_DIST

} tpcc_rc_t;

typedef enum {
    TPCC_DEADLOCK_MSG = 10,
    TPCC_RETRY_MSG
} tpcc_msg_t;

#endif /* __TPCC_DATABUF_H__ */

```

db_dblib_dll.dsp

```

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

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

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

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

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0

```

```

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

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "Debug"
# PROP BASE Intermediate_Dir "Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MTd /W3 /Gm /GX /Zi /Od /D
"WIN32" /D "_DEBUG" /D "_WINDOWS" /YX /FD /c
# ADD CPP /nologo /MDd /W3 /Gm /GX /ZI /Od /D "WIN32"
/D "_DEBUG" /D "_WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D "_DEBUG" /mktyplib203 /o
"NUL" /win32
# ADD MTL /nologo /D "_DEBUG" /mktyplib203 /o "NUL"
/win32
# ADD BASE RSC /l 0x409 /d "_DEBUG"
# ADD RSC /l 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib

```

```

ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbc32.lib /nologo /subsystem:windows /dll /debug
/machine:I386 /pdbtype:sept
# ADD LINK32 ntdbllib.lib kernel32.lib user32.lib
gdi32.lib winspool.lib comdlg32.lib advapi32.lib
shell32.lib ole32.lib oleaut32.lib uuid.lib /nologo
/subsystem:windows /dll /debug /machine:I386
/out:".bin\tpcc_dblib.dll" /pdbtype:sept

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "db_dblib"
# PROP BASE Intermediate_Dir "db_dblib"
# PROP BASE Ignore_Export_Lib 0
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MDd /W3 /Gm /GX /Zi /Od /D
"WIN32" /D "_DEBUG" /D "_WINDOWS" /YX /FD /Gh /c
# ADD CPP /nologo /MD /W3 /Gm /GX /Zi /O2 /D "WIN32"
/D "NDEBUG" /D "_WINDOWS" /D "ICECAP" /YX /FD /Gh /c
# ADD BASE MTL /nologo /D "_DEBUG" /mktyplib203 /o
"NUL" /win32
# ADD MTL /nologo /D "_DEBUG" /mktyplib203 /o "NUL"
/win32
# ADD BASE RSC /l 0x409 /d "_DEBUG"
# ADD RSC /l 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 ntdbllib.lib kernel32.lib
user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib
uuid.lib /nologo /subsystem:windows /dll /debug
/machine:I386 /out:".bin\tpcc_dblib.dll"
/pdbtype:sept
# ADD LINK32 icap.lib ntdbllib.lib kernel32.lib
user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib
uuid.lib /nologo /subsystem:windows /dll /debug
/machine:I386 /out:".bin\tpcc_dblib.dll"
/pdbtype:sept

!ENDIF

# Begin Target

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

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

SOURCE=.\src\tpcc_dblib.cpp

```



```

# End Source File
# End Group
# Begin Group "Header"

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

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

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

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

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

```

db_odbc_dll.dsp

```

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

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

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

```

```

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

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "Release"
# PROP BASE Intermediate_Dir "Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MT /W3 /GX /O2 /D "WIN32" /D
"NDEBUG" /D "_WINDOWS" /YX /FD /c
# ADD CPP /nologo /MD /W3 /GX /O2 /D "WIN32" /D
"NDEBUG" /D "_WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D "NDEBUG" /mktyplib203 /o
/win32 "NUL"
# ADD MTL /nologo /D "NDEBUG" /mktyplib203 /o /win32
"NUL"
# ADD BASE RSC /1 0x409 /d "NDEBUG"
# ADD RSC /1 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbccp32.lib /nologo /subsystem:windows /dll
/machine:I386
# ADD LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbccp32.lib /nologo /subsystem:windows /dll
/machine:I386 /out:".bin\tpcc_odbc.dll"

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "Debug"
# PROP BASE Intermediate_Dir "Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MTd /W3 /Gm /GX /Zi /Od /d
"WIN32" /D "_DEBUG" /D "_WINDOWS" /YX /FD /c
# ADD CPP /nologo /MDd /W3 /GX /ZI /Od /D "WIN32" /D
"_DEBUG" /D "_WINDOWS" /YX /FD /c

```

```

# ADD BASE MTL /nologo /D "_DEBUG" /mktyplib203 /o
/win32 "NUL"
# ADD MTL /nologo /D "_DEBUG" /mktyplib203 /o /win32
"NUL"
# ADD BASE RSC /1 0x409 /d "_DEBUG"
# ADD RSC /1 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbccp32.lib /nologo /subsystem:windows /dll /debug
/machine:I386 /pdptype:sept
# ADD LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbccp32.lib /nologo /subsystem:windows /dll /debug
/machine:I386 /out:".bin\tpcc_odbc.dll"
/pdptype:sept

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "db_odbc_"
# PROP BASE Intermediate_Dir "db_odbc_"
# PROP BASE Ignore_Export_Lib 0
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MD /W3 /Gm /GX /Zi /Od /D
"WIN32" /D "_DEBUG" /D "_WINDOWS" /YX /FD /Gh /c
# ADD CPP /nologo /MD /W3 /Gm /GX /Zi /O2 /D "WIN32"
/D "NDEBUG" /D "_WINDOWS" /D "ICECAP" /YX /FD /Gh /c
# ADD BASE MTL /nologo /D "_DEBUG" /mktyplib203 /o
/win32 "NUL"
# ADD MTL /nologo /D "_DEBUG" /mktyplib203 /o /win32
"NUL"
# ADD BASE RSC /1 0x409 /d "_DEBUG"
# ADD RSC /1 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbccp32.lib /nologo /subsystem:windows /dll /debug
/machine:I386 /out:".bin\tpcc_odbc.dll"
/pdptype:sept
# ADD LINK32 icap.lib kernel32.lib user32.lib
gdi32.lib winspool.lib comdlg32.lib advapi32.lib
shell32.lib ole32.lib oleaut32.lib uuid.lib
odbc32.lib odbccp32.lib /nologo /subsystem:windows
/dll /debug /machine:I386 /out:".bin\tpcc_odbc.dll"
/pdptype:sept

```

```

!ENDIF

# Begin Target

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

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

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

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

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

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

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

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

```

delivery.h

```

#ifndef TRANSARC_delivery_h
#define TRANSARC_delivery_h

#include <trpc/trpc.h>
#include "_delivery.h"

#include <encina/c_prologue.h>

#if defined(BUILDDL)
#define DLLEXPORT __declspec( dllexport )
#else
#define DLLEXPORT extern
#endif

#ifndef ENCINA_STUB_CALLING
#define ENCINA_STUB_CALLING ENCINA_RPC_CALLING
#endif

#define delivery_v1_0_c_ifspec
    _delivery_v1_0_c_ifspec

```

```

#define delivery_v1_0_s_ifspec
    _delivery_v1_0_s_ifspec

typedef struct delivery_v1_0_epv {
void (ENCINA_STUB_CALLING *impTPCCDelivery) (
#ifdef IDL_PROTOTYPES

        idl_long_int length,
        idl_char *dataP,
        data_header *headerP,
        trpc_status_t *trpcStatus

#endif

);

} delivery_v1_0_epv_t;

DLLEXPORT void ENCINA_STUB_CALLING impTPCCDelivery (
#ifdef IDL_PROTOTYPES

        idl_long_int length,
        idl_char *dataP,
        data_header *headerP,
        trpc_status_t *trpcStatus

#endif

);

trpc_handle_t          ENCINA_CALLING
mon_handle_t_tranBind(
#ifdef IDL_PROTOTYPES
        mon_handle_t          handle,
        trpc_tranInfo_t      *tranInfoP,
        trpc_ifSpec_t        *ifSpecP
#endif

);

void          ENCINA_CALLING mon_handle_t_tranUnBind(
#ifdef IDL_PROTOTYPES
        mon_handle_t          handle,
        trpc_handle_t        trpcHandle,
        trpc_tranInfo_t      *tranInfoP,
        trpc_ifSpec_t        *ifSpecP
#endif

);

trpc_handle_t          ENCINA_CALLING
mon_handle_t_tranBind(
#ifdef IDL_PROTOTYPES
        mon_handle_t          handle,
        trpc_tranInfo_t      *tranInfoP,
        trpc_ifSpec_t        *ifSpecP
#endif

);

void          ENCINA_CALLING mon_handle_t_tranUnBind(
#ifdef IDL_PROTOTYPES
        mon_handle_t          handle,
        trpc_handle_t        trpcHandle,
        trpc_tranInfo_t      *tranInfoP,
        trpc_ifSpec_t        *ifSpecP
#endif

);

```

```

extern delivery_v1_0_epv_t
    delivery_v1_0_client_epv;
extern _delivery_v1_0_epv_t
    delivery_v1_0_manager_epv;
extern rpc_mgr_epv_t
    delivery_v1_0_mgr_epv;

#include <encina/c_epilogue.h>
#endif /* TRANSARC_delivery_h */

```

dlldata.c

```

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

DO NOT ALTER THIS FILE

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

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

****/

#include <rpcproxy.h>

#ifdef __cplusplus
extern "C" {
#endif

EXTERN_PROXY_FILE( tpcc_com_ps )

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

DLLDATA_ROUTINES( aProxyFileList, GET_DLL_CLSID )

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

/* end of generated dlldata file */

```

error.h

```

/* FILE: ERROR.H

```

```

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

#pragma once

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

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

//error message structure used in ErrorText routines
typedef struct _SERRORMSG
{
    int iError;
    char szMsg[256];
    //message to sent to browser
} SERRORMSG;

typedef enum _ErrorLevel
{
    ERR_FATAL_LEVEL = 1,
    ERR_WARNING_LEVEL = 2,
    ERR_INFORMATION_LEVEL = 3
} ErrorLevel;

#define ERR_TYPE_LOGIC -1
//logic error in program; internal error
#define ERR_SUCCESS 0
//success (a non-error error)
#define ERR_BAD_ITEM_ID 1
//expected abort record in txnRecord
#define ERR_TYPE_DELIVERY_POST 2
//expected delivery post failed
#define ERR_TYPE_WEBDLL 3
//tpcc web generated error

```

```

#define ERR_TYPE_SQL 4
//sql server generated error
#define ERR_TYPE_DBLIB 5
//dblib generated error
#define ERR_TYPE_ODBC 6
//odbc generated error
#define ERR_TYPE_SOCKET 7
//error on communication socket client rte
only
#define ERR_TYPE_DEADLOCK 8
//dblib and odbc only deadlock condition
#define ERR_TYPE_COM 9
//error from COM call
#define ERR_TYPE_TUXEDO 10
//tuxedo error
#define ERR_TYPE_OS 11
//operating system error
#define ERR_TYPE_MEMORY 12
//memory allocation error
#define ERR_TYPE_TPCC_ODBC 13
//error from tpcc odbc txn module
#define ERR_TYPE_TPCC_DBLIB 14
//error from tpcc dblib txn module
#define ERR_TYPE_DELISRV 15
//delivery server error
#define ERR_TYPE_TXNLOG 16
//txn log error
#define ERR_TYPE_BCCONN 17
//Benchcraft connection class
#define ERR_TYPE_TPCC_CONN 18
//Benchcraft connection class
#define ERR_TYPE_ENCINA 19
//Encina error
#define ERR_TYPE_COMPONENT 20
//error from COM component
#define ERR_TYPE_RTE 21
//Benchcraft rte
#define ERR_TYPE_AUTOMATION 22
//Benchcraft automation errors
#define ERR_TYPE_DRIVER 23
//Driver engine errors

```

```

#define ERR_TYPE_RTE_BASE 24
//Framework errors
#define ERR_BUF_OVERFLOW 25
//Buffer overflow during receive
// TPC-W error types
#define ERR_TYPE_TPCW_CONN 50
//Benchcraft connection class
#define ERR_TYPE_TPCW_HTML 51
//error from TpcwHtml dll
#define ERR_TYPE_TPCW_USER 52
//error from TPC-W user class
#define ERR_TYPE_TPCW_ENG_BASE 53
#define ERR_TYPE_TPCW_ENG_OS 54
#define ERR_TYPE_HTML_RESP 55
#define ERR_TYPE_TPCC_ODBC 56
#define ERR_TYPE_SCHANNEL 57

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

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

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

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

```

```

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

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

    m_szApp = new
char[m_szApp_size];

    GetModuleFileName(GetModuleHandle(NULL),
m_szApp, m_szApp_size);
}

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

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

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

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

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

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

```

```

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

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

//short m_errType;
};

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

    CSocketErr(Action eAction, LPCTSTR
szLocation = NULL);

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

    Action m_eAction;
    char *m_szErrorText;

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

class CSystemErr : public CBaseErr
{
public:
    enum Action

```

```

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

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

    Action m_eAction;

private:
    char m_szMsg[ERR_MSG_BUF_SIZE];
};

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

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

```

```

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

    int ErrorType() {return ERR_BUF_OVERFLOW;}

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

```

install.c

```

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

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

#include "resource.h"

#define WM_INITTEXT WM_USER+100

HICON hIcon;
HINSTANCE hInst;

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

// TPC-C registry settings
TPCCREGISTRYDATA Reg;

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

```

```

static int iAcceptExOutstanding;

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

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

BOOL install_com(char *szDllPath);

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

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

    hInst = hInstance;

    InitCommonControls();

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

    iRc = DialogBox(hInstance,
MAKEINTRESOURCE(IDD_DIALOG4), GetDesktopWindow(),
LicenseDlgProc);
    if ( iRc )
    {
        iRc = DialogBox(hInstance,
MAKEINTRESOURCE(IDD_DIALOG1), GetDesktopWindow(),
MainDlgProc);
        if ( iRc )

```

```

{
    DialogBoxParam(hInstance,
MAKEINTRESOURCE(IDD_DIALOG2), GetDesktopWindow(),
UpdatedDlgProc, (LPARAM)iRc);
}

DestroyIcon(hIcon);
return 0;
}

BOOL CALLBACK LicenseDlgProc(HWND hwnd, UINT uMsg,
WPARAM wParam, LPARAM lParam)
{
    HGLOBAL hRes;
    HRSRC hResInfo;
    BYTE *pSrc, *pDst;
    DWORD dwSize;
    static HFONT hFont;

    switch(uMsg)
    {
        case WM_INITDIALOG:
            hFont = CreateFont(-12,
0, 0, 0, 400, 0, 0, 0, 0, 0, 0, 0, "Arial");
            SendMessage(
GetDlgItem(hwnd, IDR_LICENSE1), WM_SETFONT,
(WPARAM)hFont, MAKELPARAM(0, 0) );
            PostMessage(hwnd,
WM_INITTEXT, (WPARAM)0, (LPARAM)0);
            return TRUE;
        case WM_INITTEXT:
            hResInfo =
FindResource(hInst, MAKEINTRESOURCE(IDR_LICENSE1),
"LICENSE");
            dwSize =
SizeofResource(hInst, hResInfo);
            hRes =
LoadResource(hInst, hResInfo );
            pSrc = (BYTE
*)LockResource(hRes);
            pDst = (unsigned char
*)malloc(dwSize+1);
            if ( pDst )
            {
                memcpy(pDst,
pSrc, dwSize);
                pDst[dwSize]
= 0;

                SetDlgItemText(hwnd, IDC_LICENSE, (const
char *)pDst);
                free(pDst);
            }
            else
                SetDlgItemText(hwnd, IDC_LICENSE, (const
char *)pSrc);
            return TRUE;
        case WM_DESTROY:
            DeleteObject(hFont);
            return TRUE;
    }
}

```

```

        case WM_COMMAND:
            if ( wParam == IDOK )
                EndDialog(hwnd, TRUE);
            if ( wParam == IDCANCEL )
                EndDialog(hwnd, FALSE);
            default:
                break;
        }
        return FALSE;
    }

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

BOOL CALLBACK MainDlgProc(HWND hwnd, UINT uMsg,
WPARAM wParam, LPARAM lParam)
{
    PAINTSTRUCT ps;
    MEMORYSTATUS memoryStatus;
    OSVERSIONINFO VI;
    char szTmp[256];
    static char
    szDllPath[256];
    static char
    szExePath[256];

    switch(uMsg)
    {
        case WM_INITDIALOG:
            GlobalMemoryStatus(&memoryStatus);
            iMaxPhysicalMemory =
(memoryStatus.dwTotalPhys/ 1048576);

```

```

        if (
GetInstallPath(szDllPath) )
        {
            MessageBox(hwnd, "Error internet service
inetsrv is not installed.", NULL, MB_ICONSTOP |
MB_OK);
            EndDialog(hwnd, FALSE);
            return TRUE;
        }
        // set default values
        ZeroMemory( &Reg,
sizeof(Reg) );
        Reg.dwNumberOfDeliveryThreads = 4;
        Reg.dwMaxConnections =
100;
        Reg.dwMaxPendingDeliveries = 100;
        Reg.eDB_Protocol =
DBLIB;
        Reg.eTxnMon = None;
        strcpy(Reg.szDbServer,
"");
        strcpy(Reg.szDbName,
"tpcc");
        strcpy(Reg.szDbUser,
"sa");
        strcpy(Reg.szDbPassword,
"");
        iPoolThreadLimit =
iMaxPhysicalMemory * 2;
        iThreadTimeout = 86400;
        iListenBackLog = 15;
        iAcceptExOutstanding =
40;

        ReadTPCCRegistrySettings( &Reg );
        ReadRegistrySettings();

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

        GetVersionInfo(szDllPath, szExePath);
        sprintf(szTmp,
"Version %d.%2d.%3d", versionExeMS, versionExeMM,
versionExeLS);
        SetDlgItemText(hwnd,
IDC_VERSION, szTmp);

        SetDlgItemText(hwnd,
IDC_PATH, szDllPath);

        SetDlgItemText(hwnd,
ED_DB_SERVER, Reg.szDbServer);
        SetDlgItemText(hwnd,
ED_DB_USER_ID, Reg.szDbUser);

```

```

        SetDlgItemText(hwnd,
ED_DB_PASSWORD, Reg.szDbPassword);
        SetDlgItemText(hwnd,
ED_DB_NAME, Reg.szDbName);

        SetDlgItemInt(hwnd,
ED_THREADS, Reg.dwNumberOfDeliveryThreads, FALSE);
        SetDlgItemInt(hwnd,
ED_MAXCONNECTION, Reg.dwMaxConnections, FALSE);
        SetDlgItemInt(hwnd,
ED_MAXDELIVERIES, Reg.dwMaxPendingDeliveries, FALSE);
        SetDlgItemInt(hwnd,
ED_IIS_MAX_THREAD_POOL_LIMIT, iPoolThreadLimit,
FALSE);
        SetDlgItemInt(hwnd,
ED_IIS_THREAD_TIMEOUT, iThreadTimeout, FALSE);
        SetDlgItemInt(hwnd,
ED_IIS_LISTEN_BACKLOG, iListenBackLog, FALSE);
        SetDlgItemInt(hwnd,
ED_WEB_SERVICE_BACKLOG_QUEUE_SIZE,
iAcceptExOutstanding, FALSE);

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

        // check OS version
        level for COM. Must be at least Windows 2000
        VI.dwOSVersionInfoSize
= sizeof(VI);
        GetVersionEx( &VI );
        if (VI.dwMajorVersion <
5)
        {
            HWND hDlg =
GetDlgItem( hwnd, IDC_TM_MTS );
            EnableWindow(
hDlg, 0 );
            // disable COM option
            if
(Reg.eTxnMon == COM)
                Reg.eTxnMon = None;
        }

        CheckDlgButton(hwnd,
IDC_TM_NONE, 0);
        CheckDlgButton(hwnd,
IDC_TM_TUXEDO, 0);
        CheckDlgButton(hwnd,
IDC_TM_MTS, 0);
        CheckDlgButton(hwnd,
IDC_TM_ENCINA, 0);
        switch (Reg.eTxnMon)
        {
            case None:

```

```

CheckDlgButton(hwnd, IDC_TM_NONE, 1);
    break;
    case TUXEDO:
        break;
CheckDlgButton(hwnd, IDC_TM_TUXEDO, 1);
    break;
    case ENCINA:
        break;
CheckDlgButton(hwnd, IDC_TM_ENCINA, 1);
    break;
    case COM:
        break;
CheckDlgButton(hwnd, IDC_TM_MTS, 1);
    break;
    }
    return TRUE;
    case WM_PAINT:
        if ( IsIconic(hwnd) )
        {
            BeginPaint(hwnd, &ps);
            DrawIcon(ps.hdc, 0, 0, hIcon);
            EndPaint(hwnd, &ps);
        }
        return TRUE;
        break;
    case WM_COMMAND:
        if ( HIWORD(wParam) ==
BN_CLICKED )
        {
            LOWORD(wParam) )
            switch(
            {
                case IDC_DBLIB:
                    return TRUE;
                case IDC_ODBC:
                    return TRUE;
                case IDOK:
                    ProcessOK(hwnd, szDllPath);
                    return TRUE;
                case IDCANCEL:
                    EndDialog(hwnd, FALSE);
                    return TRUE;
                default:
                    return FALSE;
            }
        }
    }
}

```

```

        break;
        default:
            break;
    }
    return FALSE;
}
static void ProcessOK(HWND hwnd, char *szDllPath)
{
    int            d;
    HWND          hDlg;
    int            rc;
    char           szFullName[256];
    char           szErrTxt[128];
    // read settings from dialog
    Reg.dwNumberOfDeliveryThreads =
GetDlgItemInt(hwnd, ED_THREADS, &d, FALSE);
    Reg.dwMaxConnections = GetDlgItemInt(hwnd,
ED_MAXCONNECTION, &d, FALSE);
    Reg.dwMaxPendingDeliveries =
GetDlgItemInt(hwnd, ED_MAXDELIVERIES, &d, FALSE);
    GetDlgItemText(hwnd, ED_DB_SERVER,
Reg.szDbServer, sizeof(Reg.szDbServer));
    GetDlgItemText(hwnd, ED_DB_USER_ID,
Reg.szDbUser, sizeof(Reg.szDbUser));
    GetDlgItemText(hwnd, ED_DB_PASSWORD,
Reg.szDbPassword, sizeof(Reg.szDbPassword));
    GetDlgItemText(hwnd, ED_DB_NAME,
Reg.szDbName, sizeof(Reg.szDbName));
    if ( IsDlgButtonChecked(hwnd, IDC_DBLIB) )
    {
        Reg.eDB_Protocol = DBLIB;
        rc = 1;
    }
    else if ( IsDlgButtonChecked(hwnd,
IDC_ODBC) )
    {
        Reg.eDB_Protocol = ODBC;
        rc = 2;
    }
    if ( IsDlgButtonChecked(hwnd, IDC_TM_NONE)
)
        Reg.eTxnMon = None;
    else if ( IsDlgButtonChecked(hwnd,
IDC_TM_TUXEDO) )
        Reg.eTxnMon = TUXEDO;
    else if ( IsDlgButtonChecked(hwnd,
IDC_TM_MTS) )
        Reg.eTxnMon = COM;
    else if ( IsDlgButtonChecked(hwnd,
IDC_TM_ENCINA) )
        Reg.eTxnMon = ENCINA;
    iPoolThreadLimit = GetDlgItemInt(hwnd,
ED_IIS_MAX_THREAD_POOL_LIMIT, &d, FALSE);
    iThreadTimeout = GetDlgItemInt(hwnd,
ED_IIS_THREAD_TIMEOUT, &d, FALSE);
}

```

```

    iListenBackLog = GetDlgItemInt(hwnd,
ED_IIS_LISTEN_BACKLOG, &d, FALSE);
    iAcceptExOutstanding = GetDlgItemInt(hwnd,
ED_WEB_SERVICE_BACKLOG_QUEUE_SIZE, &d, FALSE);
    ShowWindow(hwnd, SW_HIDE);
    hDlg = CreateDialog(hInst,
MAKEINTRESOURCE(IDD_DIALOG3), hwnd, CopyDlgProc);
    ShowWindow(hDlg, SW_SHOWNA);
    UpdateDialog(hDlg);
    // write binaries to inetpub\wwwroot
    rc = CopyFiles(hDlg, szDllPath);
    if ( !rc )
    {
        ShowWindow(hwnd, SW_SHOWNA);
        DestroyWindow(hDlg);
        strcpy( szErrTxt, "Error(s)
occured when creating " );
        strcat( szErrTxt, szLastFileName
);
        MessageBox(hwnd, szErrTxt, NULL,
MB_ICONSTOP | MB_OK);
        EndDialog(hwnd, 0);
        return;
    }
    // update registry
    SetDlgItemText(hDlg, IDC_STATUS, "Updating
Registry.");
    SendDlgItemMessage(hDlg, IDC_PROGRESS1,
PBM_STEPIT, 0, 0);
    UpdateDialog(hDlg);
    WriteRegistrySettings(szDllPath);
    // register com proxy stub
    strcpy(szFullName, szDllPath);
    strcat(szFullName, "tpcc_com.ps.dll");
    if (!RegisterDLL(szFullName))
    {
        ShowWindow(hwnd, SW_SHOWNA);
        DestroyWindow(hDlg);
        strcpy( szErrTxt, "Error occured
when registering " );
        strcat( szErrTxt, szFullName );
        MessageBox(hwnd, szErrTxt, NULL,
MB_ICONSTOP | MB_OK);
        EndDialog(hwnd, 0);
        return;
    }
    // if using COM
    if (Reg.eTxnMon == COM)
    {
        SetDlgItemText(hDlg, IDC_STATUS,
"Configuring COM.");
        SendDlgItemMessage(hDlg,
IDC_PROGRESS1, PBM_STEPIT, 0, 0);
        UpdateDialog(hDlg);
        if (install_com(szDllPath))

```

```

        {
            ShowWindow(hwnd,
            SW_SHOWNA);
            DestroyWindow(hDlg);
            strcpy( szErrTxt,
            "Error occured when configuring COM settings." );
            MessageBox(hwnd,
            szErrTxt, NULL, MB_ICONSTOP | MB_OK);
            EndDialog(hwnd, 0);
            return;
        }
    }
    Sleep(100);
    ShowWindow(hwnd, SW_SHOWNA);
    DestroyWindow(hDlg);
    EndDialog(hwnd, rc);
    return;
}

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

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

                iPoolThreadLimit = iMaxPhysicalMemory * 2;

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

                iThreadTimeout = 86400;

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

                iListenBackLog = 15;

        RegCloseKey(hKey);
    }

    if ( RegOpenKeyEx(HKEY_LOCAL_MACHINE,
    "SYSTEM\\CurrentControlSet\\Services\\W3SVC\\Paramete
    rs", 0, KEY_READ, &hKey) == ERROR_SUCCESS )

```

```

        {
            size =
            sizeof(iAcceptExOutstanding);
            if ( RegQueryValueEx(hKey,
            "AcceptExOutstanding", 0, &type, (char
            *)&iAcceptExOutstanding, &size) == ERROR_SUCCESS )
                if (
                !iAcceptExOutstanding )

                    iAcceptExOutstanding = 40;

            RegCloseKey(hKey);
        }
    }

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

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

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

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

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

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

```

```

            RegSetValueEx(hKey, "DbPassword",
            0, REG_SZ, Reg.szDbPassword,
            strlen(Reg.szDbPassword)+1);

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

            RegFlushKey(hKey);
            RegCloseKey(hKey);
        }
    }

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

        RegFlushKey(hKey);
        RegCloseKey(hKey);
    }

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

        RegFlushKey(hKey);
        RegCloseKey(hKey);
    }

    return;
}

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

```



```

        return FALSE;
    }

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

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

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

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

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

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

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

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

        CloseHandle(hFile);

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

```

```

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

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

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

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

    // install TPCC.DLL
    strcpy( szLastFileName, "tpcc.dll" );
    if (!FileFromResource( "TPCCDLL",
    IDR_TPCCDLL, szDllPath, szLastFileName ))
        return 0;
    SendDlgItemMessage(hDlg, IDC_PROGRESS1,
    PBM_STEPIT, 0, 0);
    UpdateDialog(hDlg);

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

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

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

    // install tpcc_tuxedo.dll

```

```

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

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

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

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

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

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

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

```

```

        return 1;
    }

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

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

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

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

```

```

    versionDllMS = 0;
    versionDllLS = 0;
    if ( _access(szDLLPath, 00) == 0 )
    {
        dwSize =
GetFileVersionInfoSize(szDLLPath, &d);
        if ( dwSize )
        {
            ptr = (char
*)malloc(dwSize);
            GetFileVersionInfo(szDLLPath, 0, dwSize,
ptr);
            VerQueryValue(ptr,
"\\",&vs, &dwBytes);
            versionDllMS = vs-
>dwProductVersionMS;
            versionDllLS = vs-
>dwProductVersionLS;
            free(ptr);
        }
        versionExeMS = 0x7FFF;
        versionExeLS = 0x7FFF;
        dwSize = GetFileVersionInfoSize(szExePath,
&d);
        if ( dwSize )
        {
            ptr = (char *)malloc(dwSize);
            GetFileVersionInfo(szExePath, 0,
dwSize, ptr);
            VerQueryValue(ptr, "\\",&vs,
&dwBytes);
            versionExeMS = vs-
>dwProductVersionMS;
            versionExeLS = LOWORD(vs-
>dwProductVersionLS);
            versionExeMM = HIWORD(vs-
>dwProductVersionLS);
            free(ptr);
        }
        return;
    }
static BOOL CheckWWWWebService(void)
{
    SC_HANDLE schSCManager;
    SC_HANDLE schService;
    SERVICE_STATUS ssStatus;

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

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

```

```

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

        CloseServiceHandle(schService);
        return TRUE;
    }
    ServiceNotRunning:
        CloseServiceHandle(schService);
        return FALSE;
}

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

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

    if (! StartService(schService, 0, NULL) )
        goto StartWWWWebErr;
    //start Service pending, Check the status
until the service is running.
    if (! QueryServiceStatus(schService,
&ssStatus) )
        goto StartWWWWebErr;
    while( ssStatus.dwCurrentState !=
SERVICE_RUNNING)
    {
        dwOldCheckPoint =
ssStatus.dwCheckPoint;
        //Save the current checkpoint.
        Sleep(ssStatus.dwWaitHint);

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

    if (ssStatus.dwCurrentState ==
SERVICE_RUNNING)

```

```

        goto StartWWWebErr;

    CloseServiceHandle(schService);
    return TRUE;

StartWWWebErr:
    CloseServiceHandle(schService);
    return FALSE;
}

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

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

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

    if ( !ControlService(schService,
    SERVICE_CONTROL_STOP, &ssStatus) )
        goto StopWWWebErr;

    //start Service pending, Check the status
    until the service is running.
    if (! QueryServiceStatus(schService,
    &ssStatus) )
        goto StopWWWebErr;
    while( ssStatus.dwCurrentState ==
    SERVICE_RUNNING)
    {
        dwOldCheckPoint =
    ssStatus.dwCheckPoint;
        //Save the current checkpoint.
        Sleep(ssStatus.dwWaitHint);

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

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

    CloseServiceHandle(schService);
    return TRUE;
}

```

```

StopWWWebErr:
    CloseServiceHandle(schService);
    return FALSE;
}

static void UpdateDialog(HWND hDlg)
{
    MSG msg;

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

```

install.dsp

```

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

# TARGETTYPE "Win32 (x86) Application" 0x0101

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

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

```

```

RSC=rc.exe

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir ".\Release"
# PROP BASE Intermediate_Dir ".\Release"
# PROP BASE Target_Dir "."
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir "."
# ADD BASE CPP /nologo /W3 /GX /O2 /D "WIN32" /D
"NDEBUG" /D "_WINDOWS" /YX /c
# ADD CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG"
/D "_WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D "NDEBUG" /win32
# ADD MTL /nologo /D "NDEBUG" /mktyplib203 /win32
# ADD BASE RSC /1 0x409 /d "NDEBUG"
# ADD RSC /1 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbc32.lib /nologo /subsystem:windows /machine:I386
# ADD LINK32 version.lib comctl32.lib kernel32.lib
user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib
uuid.lib odbcc32.lib odbccp32.lib /nologo
/subsystem:windows /machine:I386
/out:"..\bin\install.exe"

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir ".\Debug"
# PROP BASE Intermediate_Dir ".\Debug"
# PROP BASE Target_Dir "."
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir "."
# ADD BASE CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32"
/D "_DEBUG" /D "_WINDOWS" /YX /c
# ADD CPP /nologo /W3 /Gm /GX /ZI /Od /D "WIN32" /D
"_DEBUG" /D "_WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D "_DEBUG" /win32
# ADD MTL /nologo /D "_DEBUG" /mktyplib203 /win32
# ADD BASE RSC /1 0x409 /d "DEBUG"
# ADD RSC /1 0x409 /d "DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe

```

```

# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbc32.lib /nologo /subsystem:windows /debug
/machine:I386
# ADD LINK32 version.lib comctl32.lib kernel32.lib
user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib
uuid.lib odbc32.lib odbc32.lib /nologo
/subsystem:windows /debug /machine:I386
/out:".bin\install.exe"

!ENDIF

# Begin Target

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

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

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

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

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

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

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

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

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

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

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

```

```

# Begin Source File

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

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

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

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

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

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

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

```

install.h

```

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

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

#define BN_LOG 1001
#define ED_KEEP 1002
#define ED_THREADS 1003
#define ED_THREADS2 1004
#define IDC_PATH 1007
#define IDC_VERSION 1009
#define IDC_RESULTS 1010

```

```

#define IDC_PROGRESS1 1011
#define IDC_STATUS 1012
#define IDC_BUTTON1 1013
#define ED_MAXCONNECTION 1014
#define ED_IIS_MAX_THREAD_POOL_LIMIT 1015
#define ED_WEB_SERVICE_BACKLOG_QUEUE_SIZE 1017
#define ED_IIS_THREAD_TIMEOUT 1018
#define ED_IIS_LISTEN_BACKLOG 1019
#define IDC_DBLIB 1021
#define IDC_ODBC 1022
#define IDC_CONNECT_POOL 1023
#define ED_USER_CONNECT_DELAY_TIME 1024

// Next default values for new objects
//

```

install.rc

```

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

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

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

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

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

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

```

```

//
// Dialog
//
IDD_DIALOG1 DIALOGEX 0, 0, 219, 351
STYLE DS_MODALFRAME | DS_CENTER | WS_MINIMIZEBOX |
WS_POPUP | WS_CAPTION |
WS_SYSMENU
CAPTION "TPC-C Web Client Installation Utility"
FONT 8, "MS Sans Serif"
BEGIN
    EDITTEXT        ED_THREADS,164,45,34,12,ES_RIGHT
    | ES_NUMBER,
    WS_EX_RTLDREADING
    EDITTEXT
ED_MAXDELIVERIES,164,59,34,12,ES_RIGHT | ES_NUMBER,
WS_EX_RTLDREADING
    EDITTEXT
ED_MAXCONNECTION,164,73,34,12,ES_RIGHT | ES_NUMBER,
WS_EX_RTLDREADING
    CONTROL
"None", IDC_TM_NONE, "Button", BS_AUTORADIOBUTTON |
WS_TABSTOP, 43, 100, 33, 10
    CONTROL
"COM", IDC_TM_MTS, "Button", BS_AUTORADIOBUTTON |
WS_TABSTOP, 43, 113, 32, 10
    CONTROL
"TUXEDO", IDC_TM_TUXEDO, "Button", BS_AUTORADIOBUTTON |
WS_TABSTOP, 106, 100, 46, 10
    CONTROL
"ENCINA", IDC_TM_ENCINA, "Button", BS_AUTORADIOBUTTON |
WS_DISABLED |
WS_TABSTOP, 106, 113, 43, 10
    EDITTEXT
ED_DB_SERVER, 131, 152, 67, 12, ES_AUTOHSCROLL
    EDITTEXT
ED_DB_USER_ID, 131, 165, 67, 12, ES_AUTOHSCROLL
    EDITTEXT
ED_DB_PASSWORD, 131, 178, 67, 12, ES_AUTOHSCROLL
    EDITTEXT
ED_DB_NAME, 131, 191, 67, 12, ES_AUTOHSCROLL
    CONTROL
"DBLIB", IDC_DBLIB, "Button", BS_AUTORADIOBUTTON |
WS_GROUP |
WS_TABSTOP, 45, 219, 39, 12
    CONTROL
"ODBC", IDC_ODBC, "Button", BS_AUTORADIOBUTTON |
WS_TABSTOP,
91, 219, 39, 12
    EDITTEXT
ED_IIS_MAX_THREAD_POOL_LIMIT, 164, 263, 34, 12, ES_RIGHT |
ES_NUMBER, WS_EX_RTLDREADING
    EDITTEXT
ED_WEB_SERVICE_BACKLOG_QUEUE_SIZE, 164, 277, 34, 12, ES_RI
GHT |
ES_NUMBER, WS_EX_RTLDREADING
    EDITTEXT
ED_IIS_THREAD_TIMEOUT, 164, 291, 34, 12, ES_RIGHT |
ES_NUMBER,
WS_EX_RTLDREADING

```

```

EDITTEXT
ED_IIS_LISTEN_BACKLOG, 164, 305, 34, 12, ES_RIGHT |
ES_NUMBER,
WS_EX_RTLDREADING
DEFPUSHBUTTON "OK", IDOK, 53, 331, 50, 14
PUSHBUTTON "Cancel", IDCANCEL, 119, 331, 50, 14
EDITTEXT
IDC_PATH, 106, 26, 91, 13, ES_AUTOHSCROLL | ES_READONLY
LTEXT "Number of Delivery
Threads:", IDC_STATIC, 35, 45, 115, 12
LTEXT "Max Number of
Connections:", IDC_STATIC, 35, 73, 115, 12
RTEXT "Version
4.11", IDC_VERSION, 120, 4, 89, 9
LTEXT "IIS Max Thread Pool
Limit:", IDC_STATIC, 36, 263, 115, 12
LTEXT "Web Service Backlog Queue
Size:", IDC_STATIC, 36, 277, 115,
12
LTEXT "IIS Thread Timeout
(seconds):", IDC_STATIC, 36, 291, 115, 12
LTEXT "IIS Listen
Backlog:", IDC_STATIC, 36, 307, 115, 10
GROUPBOX "Database
Interface", IDC_STATIC, 35, 208, 163, 27, WS_GROUP
LTEXT "Installation
directory:", IDC_STATIC, 35, 29, 71, 10
GROUPBOX "Transaction
Monitor", IDC_STATIC, 33, 90, 165, 37
LTEXT "Server
Name:", IDC_STATIC, 35, 155, 56, 8
LTEXT "User ID:", IDC_STATIC, 35, 168, 60, 8
LTEXT "User
Password:", IDC_STATIC, 35, 181, 83, 8
LTEXT "Database
Name:", IDC_STATIC, 35, 194, 54, 8
GROUPBOX "SQL Server Connection
Properties", IDC_STATIC, 22, 139, 187,
102
GROUPBOX "Web Client
Properties", IDC_STATIC, 22, 15, 187, 118
GROUPBOX "IIS
Settings", IDC_STATIC, 22, 247, 187, 79
LTEXT "Max Pending
Deliveries:", IDC_STATIC, 35, 59, 115, 12
END
IDD_DIALOG2 DIALOGEX 0, 0, 117, 62
STYLE DS_SETFOREGROUND | DS_3DLOOK | DS_CENTER |
WS_POPUP | WS_BORDER
EXSTYLE WS_EX_STATICEDGE
FONT 12, "MS Sans Serif", 0, 0, 0x1
BEGIN
    DEFPUSHBUTTON "OK", IDOK, 33, 45, 50, 9
    CTEXT "HTML TPC-C Installation
Successful", IDC_RESULTS, 7, 22,
102, 18, 0, WS_EX_CLIENTEDGE
    ICON
IDI_ICON2, IDC_STATIC, 50, 7, 18, 20, SS_REALSIZEIMAGE,
WS_EX_TRANSPARENT
END
IDD_DIALOG3 DIALOG DISCARDABLE 0, 0, 91, 40

```

```

STYLE DS_SYSDIALOG | DS_MODALFRAME | DS_3DLOOK |
DS_CENTER | WS_CAPTION
CAPTION "Installing TPC-C Web Client"
FONT 12, "Arial Black"
BEGIN
    CONTROL
"Progress1", IDC_PROGRESS1, "msctls_progress32", WS_BORD
ER,
7, 20, 77, 13
    CTEXT
"Static", IDC_STATUS, 7, 7, 77, 12, SS_SUNKEN
END
IDD_DIALOG4 DIALOG DISCARDABLE 0, 0, 291, 202
STYLE DS_MODALFRAME | DS_CENTER | WS_POPUP |
WS_CAPTION | WS_SYSMENU
CAPTION "Client End User License"
FONT 8, "MS Sans Serif"
BEGIN
    EDITTEXT
IDC_LICENSE, 7, 7, 271, 167, ES_MULTILINE | ES_AUTOVSCROLL
|
ES_AUTOHSCROLL | ES_READONLY |
WS_VSCROLL | WS_HSCROLL
DEFPUSHBUTTON "I &Agree", IDOK, 87, 181, 50, 14
PUSHBUTTON "&Cancel", IDCANCEL, 153, 181, 50, 14
END
////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////
//
// DESIGNINFO
//
#ifdef APSTUDIO_INVOKED
GUIDELINES DESIGNINFO DISCARDABLE
BEGIN
    IDD_DIALOG1, DIALOG
    BEGIN
        LEFTMARGIN, 22
        RIGHTMARGIN, 209
        VERTGUIDE, 35
        VERTGUIDE, 198
        TOPMARGIN, 4
        BOTTOMMARGIN, 345
    END
    IDD_DIALOG2, DIALOG
    BEGIN
        LEFTMARGIN, 7
        RIGHTMARGIN, 109
        TOPMARGIN, 7
        BOTTOMMARGIN, 54
    END
    IDD_DIALOG3, DIALOG
    BEGIN
        LEFTMARGIN, 7
        RIGHTMARGIN, 84
        TOPMARGIN, 7
        BOTTOMMARGIN, 33
    END
END

```

```

IDDI_DIALOG4, DIALOG
BEGIN
    LEFTMARGIN, 7
    RIGHTMARGIN, 278
    TOPMARGIN, 7
    BOTTOMMARGIN, 195
END
#endif // APSTUDIO_INVOKED

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

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

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

#endif // APSTUDIO_INVOKED

////////////////////////////////////
////////////////////////////////////
//
// Icon
//
// Icon with lowest ID value placed first to ensure
// application icon
// remains consistent on all systems.
IDI_ICON1          ICON    DISCARDABLE
"icon1.ico"
IDI_ICON2          ICON    DISCARDABLE
"icon2.ico"

////////////////////////////////////
////////////////////////////////////
//
// TPCCDLL
//
IDR_TPCCDLL        TPCCDLL DISCARDABLE
"..\\..\\isapi_dll\\bin\\tpcc.dll"

#endifdef _MAC

```

```

////////////////////////////////////
////////////////////////////////////
//
// Version
//
VS_VERSION_INFO VERSIONINFO
FILEVERSION 0,4,20,0
PRODUCTVERSION 0,4,20,0
FILEFLAGSMASK 0x3fL
#ifdef _DEBUG
    FILEFLAGS 0x1L
#else
    FILEFLAGS 0x0L
#endif
FILEOS 0x40004L
FILETYPE 0x1L
FILESUBTYPE 0x0L
BEGIN
    BLOCK "StringFileInfo"
    BEGIN
        BLOCK "040904b0"
        BEGIN
            VALUE "Comments", "TPC-C Web Client
Installer\0"
            VALUE "CompanyName", "Microsoft\0"
            VALUE "FileDescription", "install\0"
            VALUE "FileVersion", "0, 4, 20, 0\0"
            VALUE "InternalName", "install\0"
            VALUE "LegalCopyright", "Copyright ©
1999\0"
            VALUE "OriginalFilename", "install.exe\0"
            VALUE "ProductName", "Microsoft
install\0"
            VALUE "ProductVersion", "0, 4, 20, 0\0"
        END
        BLOCK "VarFileInfo"
        BEGIN
            VALUE "Translation", 0x409, 1200
        END
    END
END

#endif // !_MAC

////////////////////////////////////
////////////////////////////////////
//
// LICENSE
//
IDR_LICENSE1      LICENSE DISCARDABLE
"license.txt"

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

```

```

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

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

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

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

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

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

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

```



```

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

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

pCatalogObjectApp->Release();
pCatalogObjectApp = NULL;

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

hr = pCOMAdminCat-
>InstallComponent(bstrTemp,

bstrTemp2,

bstrTemp3,

bstrTemp4);
if (!SUCCEEDED(hr)) goto Error;

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

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

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

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

    // used for debugging (view the
name)

```

```

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

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

bstrTemp = "ConstructorString";
bstrTemp2 = "dummy string (do not
remove)";

vTmp = bstrTemp2;
hr = pCatalogObjectCo-
>put_Value(bstrTemp, vTmp);
if (!SUCCEEDED(hr)) goto Error;

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

bstrTemp = "MaxPoolSize";
vTmp.Clear(); // clear
variant so it isn't stored as a bool (_variant_t
feature)

vTmp = (long)30;
hr = pCatalogObjectCo-
>put_Value(bstrTemp, vTmp);
if (!SUCCEEDED(hr)) goto Error;

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

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

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

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

```

```

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

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

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

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

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

    hr =
pCatalogCollectionMethod->get_Count(&lCountMethod);
if (!SUCCEEDED(hr))
goto Error;

    // iterate through
methods of interface
while (lCountMethod >
0)
{
    hr =
pCatalogCollectionMethod->get_Item(lCountMethod - 1,
(IDispatch**) &pCatalogObjectMethod);
if
(!SUCCEEDED(hr)) goto Error;

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

    pCatalogObjectMethod->Release();

    pCatalogObjectMethod = NULL;

```



```

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

    pCatalogObjectItf-
>Release();
    pCatalogObjectItf =
NULL;

    lCountItf--;
}

    pCatalogObjectCo->Release();
    pCatalogObjectCo = NULL;

    lCountCo--;
}

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

    pCatalogCollectionApp->Release();
    pCatalogCollectionApp = NULL;

    pCatalogCollectionCo->Release();
    pCatalogCollectionCo = NULL;

    pCatalogCollectionItf->Release();
    pCatalogCollectionItf = NULL;

    pCatalogCollectionMethod->Release();
    pCatalogCollectionMethod = NULL;

Error:
    CoUninitialize();

    if (!SUCCEEDED(hr))
    {
        LPTSTR lpBuf;
        DWORD dwRes =
FormatMessage(FORMAT_MESSAGE_ALLOCATE_BUFFER |
FORMAT_MESSAGE_FROM_SYSTEM,
                NULL,
                hr,
                MAKELANGID(LANG_NEUTRAL, SUBLANG_DEFAULT),

```

```

        (LPTSTR)
        &lpBuf,
        0,
        NULL);
//
components. HRESULT: 0x%x\n%s"), hr, lpBuf);
        return TRUE;
    }
    else
        return FALSE;
}

```

isapi_dll.dsp

```

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

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

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

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

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

```

```

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "Release"
# PROP BASE Intermediate_Dir "Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MT /W3 /GX /O2 /D "WIN32" /D
"NDEBUG" /D "_WINDOWS" /YX /FD /c
# ADD CPP /nologo /MD /W3 /GX /O2 /D "NDEBUG" /D
"WIN32" /D "_WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D "NDEBUG" /mktyplib203 /o
"NUL" /win32
# ADD MTL /nologo /D "NDEBUG" /mktyplib203 /o "NUL"
/win32
# ADD BASE RSC /l 0x409 /d "NDEBUG"
# ADD RSC /l 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbc32.lib /nologo /subsystem:windows /dll
/machine:I386
# ADD LINK32 ..\common\txnlog\lib\release\rtetime.lib
..\common\txnlog\lib\release\spinlock.lib
..\common\txnlog\lib\release\error.lib
..\common\txnlog\lib\release\txnlog.lib wsock32.lib
kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib
oleaut32.lib uuid.lib odbc32.lib odbc32.lib /nologo
/subsystem:windows /dll /machine:I386
/nodfaultlib:"LIBCMT" /out:.\bin\tpcc.dll"
# SUBTRACT LINK32 /nodefaultlib

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

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

```

```

# ADD RSC /1 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbc32.lib /nologo /subsystem:windows /dll /debug
/machine:I386 /pdbtype:sept
# ADD LINK32 ..\common\txnlog\lib\debug\rtetime.lib
..\common\txnlog\lib\debug\spinlock.lib
..\common\txnlog\lib\debug\error.lib
..\common\txnlog\lib\debug\txnlog.lib wsock32.lib
kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib
oleaut32.lib uuid.lib odbc32.lib odbc32.lib /nologo
/subsystem:windows /dll /debug /machine:I386
/nodfaultlib:"LIBCMD" /out:".bin\tpcc.dll"
/pdbtype:sept
# SUBTRACT LINK32 /profile /pdb:none /nodfaultlib

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "isapi_dll"
# PROP BASE Intermediate_Dir "isapi_dll"
# PROP BASE Ignore_Export_Lib 0
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MDd /W3 /GX /Zi /Od /D
"_DEBUG" /D "WIN32" /D "WINDOWS" /FR /YX /FD /Gh /c
# ADD CPP /nologo /MD /W3 /GX /Zi /O2 /D "NDEBUG" /D
"ICECAP" /D "WIN32" /D "WINDOWS" /FR /YX /FD /Gh /c
# ADD BASE MTL /nologo /D "_DEBUG" /mktypelib203 /o
"NUL" /win32
# ADD MTL /nologo /D "_DEBUG" /mktypelib203 /o "NUL"
/win32
# ADD BASE RSC /1 0x409 /d "_DEBUG"
# ADD RSC /1 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbc32.lib /nologo /subsystem:windows /dll /debug
/machine:I386 /out:".bin\tpcc.dll" /pdbtype:sept
# SUBTRACT BASE LINK32 /profile /pdb:none
# ADD LINK32 icap.lib
..\common\txnlog\lib\release\rtetime.lib
..\common\txnlog\lib\release\spinlock.lib
..\common\txnlog\lib\release\error.lib
..\common\txnlog\lib\release\txnlog.lib wsock32.lib
kernel32.lib user32.lib gdi32.lib winspool.lib
comdlg32.lib advapi32.lib shell32.lib ole32.lib

```

```

oleaut32.lib uuid.lib odbc32.lib odbc32.lib /nologo
/subsystem:windows /dll /debug /machine:I386
/out:".bin\tpcc.dll" /pdbtype:sept
# SUBTRACT LINK32 /profile /pdb:none /map

!ENDIF

# Begin Target

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

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

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

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

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

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

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

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

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

SOURCE=.\db\dlib_dll\src\tpcc_dlib.h
# End Source File
# Begin Source File

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

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

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

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

```

```

# End Group
# End Target
# End Project

```

license.txt

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

IMPORTANT READ CAREFULLY: This Microsoft End-User License Agreement (EULA) is a legal agreement between you (either an individual or a single entity) and Microsoft Corporation for the Microsoft software product identified above, which includes computer software and may include associated media, printed materials, and online or electronic documentation (SOFTWARE PRODUCT). By installing, copying, or otherwise using the SOFTWARE PRODUCT, you agree to be bound by the terms of this EULA.

If you do not agree to the terms of this Agreement, you are not authorized to use the SOFTWARE PRODUCT.

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

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

2. RESTRICTIONS.
--You must maintain all copyright notices on all copies of the SOFTWARE PRODUCT.
--You may not distribute copies of the SOFTWARE PRODUCT to third parties.
--You may not rent, lease or lend the SOFTWARE PRODUCT.
--You may not use the SOFTWARE PRODUCT or any derivative works thereof to internally test database management system software other than Microsoft SQL Server and/or operating system software other than Microsoft Windows NT.

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

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

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

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

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

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

7. EXPORT RESTRICTIONS.

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

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

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

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

11. MISCELLANEOUS This EULA is governed by the laws of the State of Washington, U.S.A. Should you have any questions concerning this EULA, or if

you desire to contact Microsoft for any reason, please contact the Microsoft subsidiary serving your country, or write: Microsoft Sales Information Center/One Microsoft Way/Redmond, WA 98052-6399.

Si vous avez acquis votre produit Microsoft au CANADA, la garantie limitée suivante vous concerne:

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

RESPONSABILITÉ LIMITÉE. La seule obligation de Microsoft et votre recours exclusif concernant ce contrat n'excéderont pas cinq dollars (US\$5.00).

ABSENCE DE RESPONSABILITÉ POUR LES DOMMAGES INDIRECTS. Microsoft ou ses fournisseurs ne pourront être tenus responsables en aucune circonstance de tout dommage quel qu'il soit (y compris mais non de façon limitative les dommages directs ou indirects causés par la perte de bénéfices commerciaux, l'interruption des affaires, la perte d'information commerciale ou toute autre perte pécuniaire) résultant de l'utilisation ou de l'impossibilité d'utilisation de ce produit, et ce, même si la société, Microsoft a, à l'avance, avisé de l'éventualité de tels dommages. Certains États/jurisdictions ne permettent pas l'exclusion ou la limitation de responsabilité relative aux dommages indirects ou consécutifs, et la limitation ci-dessus peut ne pas s'appliquer ... votre regard. La présente Convention est régie par les lois de la province d'Ontario, Canada. Chacune des parties ... la présente reconnaît irrévocablement la compétence des tribunaux de la province d'Ontario et consent ... instituer tout litige qui pourrait découler de la présente

auprès des tribunaux situés dans le district judiciaire de York, province d'Ontario. Au cas où vous auriez des questions concernant cette licence ou que vous désiriez vous mettre en rapport avec Microsoft pour quelque raison que ce soit, veuillez contacter la succursale Microsoft desservant votre pays, dont l'adresse est fournie dans ce produit, ou écrire à : Microsoft Customer Sales and Service, One Microsoft Way, Redmond, Washington 98052 6399.

Methods.h

```

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

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

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

    CCOMPONENT_ERR(COMPONENT_ERROR
Err, char *szTextDetail, DWORD dwSystemErr)
    {
        m_Error = Err;

```

```

        m_szTextDetail = new
char[strlen(szTextDetail)+1];
        strcpy( m_szTextDetail,
szTextDetail );
        m_SystemErr =
        m_szErrorText = NULL;
    };

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

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

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

static void WriteMessageToEventLog(LPTSTR lpszMsg);

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

    CTPCC_Common();
    ~CTPCC_Common();

// ITPCC
public:
    HRESULT __stdcall NewOrder(
    VARIANT txn_in, VARIANT* txn_out);

```

```

    HRESULT __stdcall Payment(
    VARIANT txn_in, VARIANT* txn_out);
    HRESULT __stdcall Delivery(
    VARIANT txn_in, VARIANT* txn_out) {return
E_NOTIMPL;};
    HRESULT __stdcall StockLevel( VARIANT
txn_in, VARIANT* txn_out);
    HRESULT __stdcall OrderStatus(
    VARIANT txn_in, VARIANT* txn_out);
    HRESULT __stdcall CallSetComplete();

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

// IObjectConstruct
    STDMETHODCALLTYPE Construct(IDispatch * pUnk);

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

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

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

    BEGIN_COM_MAP(CTPCC)
        COM_INTERFACE_ENTRY2(IUnknown,
CComObjectRootEx)

```

```

        COM_INTERFACE_ENTRY_CHAIN(CTPCC_Common)
END_COM_MAP ()
};

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

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

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

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

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

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

```

```

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

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

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

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

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

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

// ITPCC
public:

```

```

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

```

mon_client.c

```

/*
 *      mon_client.c
 *
 */

#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <stdarg.h>
#include <time.h>
#include <pthread.h>
#include <tpm/mon/mon.h>
#include <utils/trace.h>
#include "../include/delivery.h"
#include "../include/neworder.h"
#include "../include/payment.h"
#include "../include/stocklevel.h"
#include "../include/orderstatus.h"
#include "../include/tpcc_type.h"
#include "mon_client.h"
#include "client_utils.h"

extern total_tran_count_t *perfClntDataInit();
static void read_mon_environment(void);

static char *cellName;
static int envRetrieval = 0;
static int useSecurity = FALSE;
static CRITICAL_SECTION  init_lock;
static total_tran_count_t *pClientInfo=NULL; /*
keep stats for the client process */
static num_active_threads = 0;
static int iStatsFrequency = 1;
FILE *errtpcc;
char *errFile = "C:/temp/tpcc_encina.out";
enc_status_t enc_status;

#define NewOrder_code      NEWO_TRANS
#define Payment_code      PAYMENT_TRANS
#define OrderStatus_code  ORDER_STAT_TRANS
#define Delivery_code     DELIVERY_TRANS
#define StockLevel_code   STOCK_TRANS

#define INT_ENV_VALUE(var, default) \

```

```

(var = getenv(#var) ? atoi(getenv(#var)) : default)
#define PRE_RPC_WORK(headerP, tran, sub_tran) \
    if (iStatsFrequency > 0) \
        pre_rpc(headerP, tran, sub_tran);
\
    else
        \
            (headerP->stats = 0;
#define POST_RPC_WORK(headerP, tran) \
    if (iStatsFrequency > 0) \
        post_rpc(headerP, tran)

/* CALTPCC
 * Macro to sends 1 RPC and then handles any errors.
 *
 * The macro takes the name of the RPC (e.g.,
NewOrder)
 * and makes the RPC by calling the appropriate
function
 * (e.g., impTPCCNewOrder).
 */
#define
CALLTPCC(name, length, dataP, header, trpcStatusP)
\
{
\
UTIL_CONCAT(impTPCC, name) (length, dataP, &header, trpcStat
atusP);
\
    if (*(trpcStatusP)) {
\
        char msg[100];
\
        sprintf(msg, "TRPC error during impTPCC%s",
UTIL_STRING(name));
\
        header.returncode = TRPC_ERROR;
\
        encina_error_message(msg, *(trpcStatusP));
\
    } else if ((header.returncode != TPCC_SUCCESS) &&
\
        (header.returncode != INVALID_NEWO)) {
\
        char msg[100];
\
        sprintf(msg, "App error during impTPCC%s: ",
UTIL_STRING(name));
\
        encina_error_message(msg, header.returncode);
\
    }
\
}
\
/*
 * pre_rpc -- For debug purposes
 *
 * Called before an RPC is made.
 * Set the state of the thread and keep track of the
time the RPC is sent.
 * This is used by the Background thread to report
the state of the client.
 */

```

```

static void pre_rpc(data_header *headerP,
                    int tran_type,
                    int sub_tran_type)
{
    if (iStatsFrequency < 1) {
        headerP->stats = 0;
    } else {
        int num;
        num = ++ (pClientInfo->tran[tran_type].num);
        headerP->stats = (num % iStatsFrequency==0) ?
1 : 0;
        if (headerP->stats)
            { /* measure the time for RT */
                get_local_time(&headerP->clnt_start);
                headerP->srv_start.sec = 0; /*
initialize the server time */
                headerP->srv_start.usec = 0;
                headerP->srv_end.sec = 0;
                headerP->srv_end.usec = 0;
            }
    }
}
/*
 * post_rpc
 *
 * Called when the RPC returns from the server
 *
 * Keeps track of the client response time and the
server response time
 * as well as the state of the thread. This is used
by the background
 * debug thread to report the state of the client
 */
static void post_rpc(data_header *headerP,
                    int tran_type)
{
    double time_diff;
    int tran_failed;
    struct timeval start_time, end_time;

    if (headerP->stats)
        get_local_time(&headerP-
>clnt_end);
    else
        return;

    /* Store the info for each client.
 * Note: Since we don't use mutex for performance
reason, pClientInfo
 * may not be accurate if more than one
thread work on the same
 * data at a same time. But this should
give us reasonable info.
 */
    if ((headerP->returncode == TPCC_SUCCESS) ||
        (headerP->returncode == INVALID_NEWO)) {
        tran_failed = 0;
    } else {
        pClientInfo->tran[tran_type].errs ++;
        pClientInfo->errors ++;
        tran_failed = 1;
    }
}

```

```

    }
    if (headerP->stats && tran_type <= MAX_TRAN_TYPE
&& tran_type > 0
        && !tran_failed) {
        /* update total server round trip response
time */
        start_time.tv_sec = headerP-
>srv_start.sec;
        start_time.tv_usec = headerP-
>srv_start.usec;
        end_time.tv_sec = headerP->srv_end.sec;
        end_time.tv_usec = headerP->srv_end.usec;
        time_diff = time_diff_ms(&end_time,
&start_time);
        pClientInfo->tran[tran_type].RTtotal[1] +=
time_diff;
        DPRINT(("srv start_time %d.%d, end_time
%d.%d, time_diff %f\n",
start_time.tv_usec,
start_time.tv_sec,
end_time.tv_usec,
end_time.tv_sec,
time_diff));
        /* update total client round trip response
time */
        start_time.tv_sec = headerP-
>clnt_start.sec;
        start_time.tv_usec = headerP-
>clnt_start.usec;
        end_time.tv_sec = headerP->clnt_end.sec;
        end_time.tv_usec = headerP-
>clnt_end.usec;
        time_diff = time_diff_ms(&end_time,
&start_time);
        pClientInfo->tran[tran_type].RTtotal[0] +=
time_diff;
        DPRINT(("clnt start_time %d.%d, end_time
%d.%d, time_diff %f\n",
start_time.tv_usec,
start_time.tv_sec,
end_time.tv_usec,
end_time.tv_sec,
time_diff));
        /* update num for the number of trans
which have RT measured */
        pClientInfo->tran[tran_type].RTcount ++;
    }
}
/*
 * The following send*** functions are called from
CIPCC_ENCINA class.
 *
 */
/*
 * send_new_order
 * Send a new order request to the server
 */
int send_new_order(long length, unsigned char *dataP)

```

```

{
    trpc_status_t trpcStatus;
    data_header header;

    PRE_RPC_WORK(&header, NEWO_TRANS, 0);

CALLTPCC(NewOrder,length,dataP,header,&trpcStatus)
    POST_RPC_WORK(&header, NEWO_TRANS);
    if (header.returncode == INVALID_NEWO)
        return TPCC_SUCCESS;
    else
        return header.returncode;
}

/*
 * send_payment
 * Send a payment request to the server
 */
int send_payment(long length, unsigned char *dataP)
{
    trpc_status_t trpcStatus;
    data_header header;

    PRE_RPC_WORK(&header, PAYMENT_TRANS, 0);

CALLTPCC(Payment,length,dataP,header,&trpcStatus);
    POST_RPC_WORK(&header, PAYMENT_TRANS);
    return header.returncode;
}

/*
 * send_order_status
 * Send a order status request to the server
 */
int send_order_status(long length, unsigned char *dataP)
{
    trpc_status_t trpcStatus;
    data_header header;

    PRE_RPC_WORK(&header, ORDER_STAT_TRANS, 0);

CALLTPCC(OrderStatus,length,dataP,header,&trpcStatus)
;
    POST_RPC_WORK(&header, ORDER_STAT_TRANS);
    return header.returncode;
}

/*
 * send_delivery
 * Send a delivery request to the server
 */
int send_delivery(long length, unsigned char *dataP)
{
    trpc_status_t trpcStatus;
    data_header header;

    PRE_RPC_WORK(&header, DELIVERY_TRANS, 0);

CALLTPCC(Delivery,length,dataP,header,&trpcStatus);
    POST_RPC_WORK(&header, DELIVERY_TRANS);
    return header.returncode;
}

```

```

/*
 * send_stock_level
 * Send a stock level request to the server
 */
int send_stock_level(long length, unsigned char *dataP)
{
    trpc_status_t trpcStatus;
    data_header header;

    PRE_RPC_WORK(&header, STOCK_TRANS, 0);

CALLTPCC(StockLevel,length,dataP,header,&trpcStatus);
    POST_RPC_WORK(&header, STOCK_TRANS);
    return header.returncode;
}

/*
 * Enroll the client:
 * get the necessary handles.
 * This function should be called only once. Use
static var client_enrolled to control it.
 */
void enroll_client()
{
    static char *clientName="tpcc_client";
    unsigned long status ;
    static int client_enrolled = 0;
    unsigned32 client_authnLevel;
    unsigned32 client_authzSvc;
    time_type a_time;
    char err_msg[100];

    MUTEX_INIT(&init_lock);
    get_local_time(&a_time);
    srand(a_time.sec ^ a_time.usec);

    MUTEX_LOCK(&init_lock);
    if (client_enrolled) {
        MUTEX_UNLOCK(&init_lock);
        return;
    }

    /* open output file for tracing */
    errtpcc = fopen(errFile, "w");
    if(!errtpcc)
    {
        sprintf(err_msg, "Cannot open
file %s", errFile);
        CHK_STATUS(1,
ERRROUT_FILE_NOT_FOUND,err_msg);
    }

    get_time_init();
    // initialize the space for perfmon
    pClientInfo = perfClntDataInit();
    if (pClientInfo == NULL) // in case something
wrong
        pClientInfo =
        malloc(sizeof(total_tran_count_t));

```

```

memset(pClientInfo, 0,
sizeof(total_tran_count_t));

read_mon_environment();

if(!cellName)
    CHK_STATUS(30, CELL_NAME_UNAVAILABLE,
"ENCINA_TPM_CELL is not set!");

if (useSecurity) {
    client_authnLevel =
rpc_c_protect_level_connect;
    client_authzSvc =
rpc_c_authz_dce;
} else {
    client_authnLevel =
rpc_c_protect_level_none;
    client_authzSvc =
rpc_c_authz_none;
}

if (envRetrieval == 0) {
ENCINA_CALL_RC("mon_RetrieveEnable",mon_RetrieveEnabl
e(FALSE),status);
    CHK_STATUS(status, MON_RETRIEVEENABLE_FAILED,
"mon_RetrieveEnable failed");
}

err_printf("enroll_client: calling mon_InitClient
\n");

ENCINA_CALL_RC("mon_InitClient",mon_InitClient(client
Name,cellName),status);
    CHK_STATUS(status, MON_INITCLIENT_FAILED,
"mon_InitClient failed");

DPRINT(("mon_SecuritySetDefaults-> authn %d,
authz %d\n",
client_authnLevel, client_authzSvc));
ENCINA_CALL_RC("mon_SecuritySetDefaults",
mon_SecuritySetDefaults(client_authnLevel,c
lient_authzSvc),
status);
    CHK_STATUS(status, MON_SECURITYSET_FAILED,
"mon_SecuritySetDefaults failed");

ENCINA_CALL_RC("mon_SetHandleCacheRefreshInterval",
mon_SetHandleCacheRefreshInterval(300),
status);
    CHK_STATUS(status, MON_SETREFRESHINTERVAL_FAILED,
"mon_SetHandleCacheRefreshInterval
failed");

{
    dbInfo_data_t data;
    trpc_status_t trpcStatus;
    /* Get DB Info -- currently id does not do
anything

```

```

        but it will tell us if there is a server
out there.
Better to know instead of when all the
terminals
are up and ready
*/
impTPCCNOInfo(&data, &trpcStatus);
if (trpcStatus) {
    char msg[100];
    sprintf(msg, "TRPC error during db info
at init.");
    encina_error_message(msg, trpcStatus);
    CHK_STATUS(33, NOINFO_TRPC_ERROR,
                "TRPC error during db info at
init");
}
}
}

client_enrolled = 1;
MUTEX_UNLOCK(&init_lock);
err_printf("end of enroll_client\n");
}

/*-----*/
/* Read environment paramaters and registry
entries */
/*-----*/
static void read_mon_environment()
{
    char *env_str;
    char *registryKey =
"SOFTWARE\\TransarcCorporation\\TxTpcpc";
    HKEY hKey;
    DWORD size;
    DWORD type;
    char szTmp[256];

    cellName = getenv("ENCINA_TPM_CELL");
    CHECK_ENVIRON(cellName, "ENCINA_TPM_CELL");

    if (env_str = getenv("TPCC_ENV_RETRIEVE")) {
        envRetrieval = atoi(env_str);
    }

    if ( RegOpenKeyEx(HKEY_LOCAL_MACHINE,
registryKey, 0, KEY_READ, &hKey) != ERROR_SUCCESS )
        return;

    size = sizeof(szTmp);
    if ( RegQueryValueEx(hKey, "StatsFrequency", 0,
&type, szTmp, &size) == ERROR_SUCCESS)
        iStatsFrequency = atoi(szTmp);

    RegCloseKey(hKey);
}

```

mon_client.h

```

/*
 * mon_client.h
 */

#ifndef MON_CLIENT_H
#define MON_CLIENT_H

#define MUTEX_T CRITICAL_SECTION
#define MUTEX_LOCK(a) EnterCriticalSection(a)
#define MUTEX_UNLOCK(a) LeaveCriticalSection(a)
#define MUTEX_INIT(mut)
InitializeCriticalSection(mut)
#define MUTEX_DESTROY(mut) DeleteCriticalSection(mut)
#define ERRROUT errtpcc

/*initialization status */
#define INIT_SUCCESS 0
#define INIT_FAILED 1
#define CELL_NAME_UNAVAILABLE 2
#define MON_RETRIEVEENABLE_FAILED 3
#define MON_INITCLIENT_FAILED 4
#define MON_SECURITYSET_FAILED 5
#define MON_SETREFRESHINTERVAL_FAILED 6
#define NOINFO_TRPC_ERROR 7
#define ENROLL_CLIENT_EXCEPTION 8
#define ERRROUT_FILE_NOT_FOUND 9
#define LOG_FILE_NOT_FOUND 10
#define TPCC_KEY_NOT_FOUND 11
#define TERM_ALLOC_FAILED 12

/*
 * Routines and declarations that are common to all
clients
 */
#ifdef __cplusplus
extern "C" {
#endif
int send_new_order(long, unsigned char *);
int send_payment(long, unsigned char *);
int send_order_status(long, unsigned char *);
int send_delivery(long, unsigned char *);
int send_stock_level(long, unsigned char *);
void enroll_client();
#ifdef __cplusplus
}
#endif

#endif /* MON_CLIENT_H */

```

neworder.h

```

#ifndef TRANSARC_neworder_h
#define TRANSARC_neworder_h

#include <trpc/trpc.h>

```

```

#include "_neworder.h"

#include <encina/c_prologue.h>

#ifdef BUILDDLL
#define DLLEXPORT __declspec( dlllexport )
#else
#define DLLEXPORT extern
#endif

#ifdef ENCINA_STUB_CALLING
#define ENCINA_STUB_CALLING ENCINA_RPC_CALLING
#endif

#define neworder_v1_0_c_ifspec
    _neworder_v1_0_c_ifspec
#define neworder_v1_0_s_ifspec
    _neworder_v1_0_s_ifspec

typedef struct neworder_v1_0_epv {
void (ENCINA_STUB_CALLING *impTPCCNewOrder) (
#ifdef IDL_PROTOTYPES

        idl_long_int length,
        idl_char *dataP,
        data_header *headerP,
        trpc_status_t *trpcStatus

#endif
);

void (ENCINA_STUB_CALLING *impTPCCNOInfo) (
#ifdef IDL_PROTOTYPES

        dbInfo_data_t *dataP,
        trpc_status_t *trpcStatus

#endif
);

} neworder_v1_0_epv_t;

DLLEXPORT void ENCINA_STUB_CALLING impTPCCNewOrder (
#ifdef IDL_PROTOTYPES

        idl_long_int length,
        idl_char *dataP,
        data_header *headerP,
        trpc_status_t *trpcStatus

#endif
);

DLLEXPORT void ENCINA_STUB_CALLING impTPCCNOInfo (
#ifdef IDL_PROTOTYPES

        dbInfo_data_t *dataP,
        trpc_status_t *trpcStatus

#endif
);

trpc_handle_t ENCINA_CALLING
mon_handle_t_tranBind(
#ifdef IDL_PROTOTYPES

        mon_handle_t handle,
        trpc_tranInfo_t *tranInfoP,

```



```

        trpc_ifSpec_t *ifSpecP
#endif
    );
};

void ENCINA_CALLING mon_handle_t_tranUnBind(
#ifdef IDL_PROTOTYPES
    mon_handle_t handle,
    trpc_handle_t trpcHandle,
    trpc_tranInfo_t *tranInfoP,
    trpc_ifSpec_t *ifSpecP
#endif
);

trpc_handle_t ENCINA_CALLING
mon_handle_t_tranBind(
#ifdef IDL_PROTOTYPES
    mon_handle_t handle,
    trpc_tranInfo_t *tranInfoP,
    trpc_ifSpec_t *ifSpecP
#endif
);

void ENCINA_CALLING mon_handle_t_tranUnBind(
#ifdef IDL_PROTOTYPES
    mon_handle_t handle,
    trpc_handle_t trpcHandle,
    trpc_tranInfo_t *tranInfoP,
    trpc_ifSpec_t *ifSpecP
#endif
);

extern neworder_v1_0_epv_t
neworder_v1_0_client_epv;
extern _neworder_v1_0_epv_t
neworder_v1_0_manager_epv;
extern rpc_mgr_epv_t
neworder_v1_0_mgr_epv;

#include <encina/c_epilogue.h>
#endif /* TRANSARC_neworder_h */

```

orderstatus.h

```

#ifdef TRANSARC_orderstatus_h
#define TRANSARC_orderstatus_h

#include <trpc/trpc.h>
#include "_orderstatus.h"

#include <encina/c_prologue.h>

#if defined(BUILDDLL)
#define DLLEXPORT __declspec( dllexport )
#else
#define DLLEXPORT extern
#endif

#ifdef ENCINA_STUB_CALLING
#define ENCINA_STUB_CALLING ENCINA_RPC_CALLING
#endif

```

```

#define orderstatus_v1_0_c_ifspec
_orderstatus_v1_0_c_ifspec
#define orderstatus_v1_0_s_ifspec
_orderstatus_v1_0_s_ifspec

typedef struct orderstatus_v1_0_epv {
void (ENCINA_STUB_CALLING *impTPCCOrderStatus) (

        idl_long_int length,
        idl_char *dataP,
        data_header *headerP,
        trpc_status_t *trpcStatus
#endif
);

} orderstatus_v1_0_epv_t;

DLLEXPORT void ENCINA_STUB_CALLING impTPCCOrderStatus (
#ifdef IDL_PROTOTYPES

        idl_long_int length,
        idl_char *dataP,
        data_header *headerP,
        trpc_status_t *trpcStatus
#endif
);

trpc_handle_t ENCINA_CALLING
mon_handle_t_tranBind(
#ifdef IDL_PROTOTYPES
    mon_handle_t handle,
    trpc_tranInfo_t *tranInfoP,
    trpc_ifSpec_t *ifSpecP
#endif
);

void ENCINA_CALLING mon_handle_t_tranUnBind(
#ifdef IDL_PROTOTYPES
    mon_handle_t handle,
    trpc_handle_t trpcHandle,
    trpc_tranInfo_t *tranInfoP,
    trpc_ifSpec_t *ifSpecP
#endif
);

trpc_handle_t ENCINA_CALLING
mon_handle_t_tranBind(
#ifdef IDL_PROTOTYPES
    mon_handle_t handle,
    trpc_tranInfo_t *tranInfoP,
    trpc_ifSpec_t *ifSpecP
#endif
);

void ENCINA_CALLING mon_handle_t_tranUnBind(
#ifdef IDL_PROTOTYPES
    mon_handle_t handle,
    trpc_handle_t trpcHandle,
    trpc_tranInfo_t *tranInfoP,
    trpc_ifSpec_t *ifSpecP

```

```

#endif
);

extern orderstatus_v1_0_epv_t
orderstatus_v1_0_client_epv;
extern _orderstatus_v1_0_epv_t
orderstatus_v1_0_manager_epv;
extern rpc_mgr_epv_t
orderstatus_v1_0_mgr_epv;

#include <encina/c_epilogue.h>
#endif /* TRANSARC_orderstatus_h */

```

payment.h

```

#ifdef TRANSARC_payment_h
#define TRANSARC_payment_h

#include <trpc/trpc.h>
#include "_payment.h"

#include <encina/c_prologue.h>

#if defined(BUILDDLL)
#define DLLEXPORT __declspec( dllexport )
#else
#define DLLEXPORT extern
#endif

#ifdef ENCINA_STUB_CALLING
#define ENCINA_STUB_CALLING ENCINA_RPC_CALLING
#endif

#define payment_v1_0_c_ifspec _payment_v1_0_c_ifspec
#define payment_v1_0_s_ifspec _payment_v1_0_s_ifspec

typedef struct payment_v1_0_epv {
void (ENCINA_STUB_CALLING *impTPCCPayment) (
#ifdef IDL_PROTOTYPES

        idl_long_int length,
        idl_char *dataP,
        data_header *headerP,
        trpc_status_t *trpcStatus
#endif
);

} payment_v1_0_epv_t;

DLLEXPORT void ENCINA_STUB_CALLING impTPCCPayment (
#ifdef IDL_PROTOTYPES

        idl_long_int length,
        idl_char *dataP,
        data_header *headerP,
        trpc_status_t *trpcStatus
#endif
);

```

```

trpc_handle_t      ENCINA_CALLING
mon_handle_t_tranBind(
#ifdef IDL_PROTOTYPES
    mon_handle_t      handle,
    trpc_tranInfo_t   *tranInfoP,
    trpc_ifSpec_t     *ifSpecP
#endif
);

void      ENCINA_CALLING mon_handle_t_tranUnBind(
#ifdef IDL_PROTOTYPES
    mon_handle_t      handle,
    trpc_handle_t     trpcHandle,
    trpc_tranInfo_t   *tranInfoP,
    trpc_ifSpec_t     *ifSpecP
#endif
);

trpc_handle_t      ENCINA_CALLING
mon_handle_t_tranBind(
#ifdef IDL_PROTOTYPES
    mon_handle_t      handle,
    trpc_tranInfo_t   *tranInfoP,
    trpc_ifSpec_t     *ifSpecP
#endif
);

void      ENCINA_CALLING mon_handle_t_tranUnBind(
#ifdef IDL_PROTOTYPES
    mon_handle_t      handle,
    trpc_handle_t     trpcHandle,
    trpc_tranInfo_t   *tranInfoP,
    trpc_ifSpec_t     *ifSpecP
#endif
);

extern payment_v1_0_epv_t
    payment_v1_0_client_epv;
extern _payment_v1_0_epv_t
    payment_v1_0_manager_epv;
extern rpc_mgr_epv_t
    payment_v1_0_mgr_epv;

#include <encina/c_epilogue.h>
#endif /* TRANSARC_payment_h */

```

ReadRegistry.cpp

```

/* FILE:          READREGISTRY.CPP
 *               Microsoft
TPC-C Kit Ver. 4.20.000
 *               Copyright
Microsoft, 1999
 *               All Rights Reserved
 *
 *               not yet
audited
 *
 * PURPOSE:      Implementation for TPC-C Tuxedo
class.

```

```

* Contact: Charles Levine
(clevine@microsoft.com)
 *
 * Change history:
 *               4.20.000 - first version
 */

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

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

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

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

```

```

    else if ( !strcmp(szTmp,
szTxnMonNames[COM]) )
        pReg->eTxnMon = COM;
    }

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

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

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

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

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

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

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

    size = sizeof( pReg->szDbUser );

```

```

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

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

        RegCloseKey(hKey);

        return FALSE;
}

```

ReadRegistry.h

```

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

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

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

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

BOOL ReadTPCCRegistrySettings( TPCCREGISTRYDATA *pReg
);

```

RESOURCE.H

```

//((NO_DEPENDENCIES))
// Microsoft Developer Studio generated include file.
// Used by install.rc
//
#define IDD_DIALOG1          101
#define IDI_ICON1           102
#define IDR_TPCCDLL         103
#define IDD_DIALOG2         105
#define IDI_ICON2           106
#define IDR_DELIVERY        107
#define IDD_DIALOG3         108
#define IDR_LICENSE1        112
#define IDD_DIALOG4         113
#define IDR_TPCCOBJ1        117
#define IDR_TPCCSTUB1       118
#define IDR_DBLIB_DLL       122
#define IDR_ODBC_DLL        123
#define IDR_TUXEDO_APP      124
#define IDR_TUXEDO_DLL      125
#define IDR_COM_DLL         126
#define IDR_COMPS_DLL       127
#define IDR_COMALL_DLL      128
#define IDR_COMTYPLIB_DLL   129
#define BN_LOG              1001
#define ED_KEEP             1002
#define ED_THREADS          1003
#define ED_THREADS2         1004
#define IDC_PATH            1007
#define IDC_VERSION         1009
#define IDC_RESULTS         1010
#define IDC_PROGRESS1       1011
#define IDC_STATUS          1012
#define IDC_BUTTON1         1013
#define ED_MAXCONNECTION   1014
#define ED_IIS_MAX_THREAD_POOL_LIMIT 1015
#define ED_MAXDELIVERIES   1016
#define ED_WEB_SERVICE_BACKLOG_QUEUE_SIZE 1017
#define ED_IIS_THREAD_TIMEOUT 1018
#define ED_IIS_LISTEN_BACKLOG 1019
#define IDC_DBLIB          1021
#define IDC_LICENSE         1022
#define IDC_ODBC            1022
#define IDC_CONNECT_POOL   1023
#define ED_DB_SERVER        1023
#define ED_USER_CONNECT_DELAY_TIME 1024
#define ED_DB_USER_ID       1024
#define IDC_MTS              1025
#define IDC_TM_MTS          1025
#define IDC_TM_TUXEDO       1026
#define IDC_TM_NONE         1027
#define ED_DB_PASSWORD      1028
#define ED_DB_NAME          1029
#define IDC_TM_ENCINA       1030

// Next default values for new objects
//
#ifdef APSTUDIO_INVOKED
#ifdef APSTUDIO_READONLY_SYMBOLS
#define _APS_NEXT_RESOURCE_VALUE          130

```

```

#define _APS_NEXT_COMMAND_VALUE          40001
#define _APS_NEXT_CONTROL_VALUE          1031
#define _APS_NEXT_SYMED_VALUE           101
#endif
#endif

```

rtetime.h

```

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

//FILE: RTETIME.H

#define MAX_JULIAN_TIME
0x7FFFFFFFFFFFFFFF
#define JULIAN_TIME __int64
#define TC_TIME      DWORD
extern "C"
{
    BOOL          InitJulianTime(LPSYSTEMTIME
lpInitTime);
    JULIAN_TIME  GetJulianTime(void);
    DWORD        MyTickCount(void);
    void         GetJulianAndTC(JULIAN_TIME
*pJulian, DWORD *pTC);
    JULIAN_TIME  ConvertTo64BitTime(int iYear, int
iMonth, int iDay, int iHour, int iMinute, int
iSecond);
    JULIAN_TIME  Get64BitTime(LPSYSTEMTIME
lpInitTime);
    int          JulianDay( int yr, int
mm, int dd );
    void         JulianToTime(JULIAN_TIME
julianTS, int* yr, int* mm, int* dd, int *hh, int
*mi, int *ss );
    void         JulianToCalendar( int day, int*
yr, int* mm, int* dd );
}

```

spinlock.h

```

/*      FILE:  SPINLOCK.H
*

```

```

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

#ifndef _INC_Spinlock

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

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

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

#ifdef _DEBUG
// Counters for
debugging builds.
volatile LONG
TotalLocks;

```

```

volatile LONG
TotalSleeps;
volatile LONG
TotalSpins;
volatile LONG
TotalWaits;
#endif
public:
// Public functions.
Spinlock( void );
inline BOOL ClaimLock(
ReleaseLock( void );
inline void
~Spinlock( void );
// Disabled operations.
Spinlock( const
Spinlock & Copy );
void operator=( const
Spinlock & Copy );
private:
// Private functions.
inline BOOL
ClaimSpinlock( volatile LONG *sl );
void WaitForLock( void
void );
};

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

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

/*****
*
* Claim the Spinlock.

```

```

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

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

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

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

#define _INC_Spinlock

#endif

```

stocklevel.h

```

#ifndef TRANSARC_stocklevel_h
#define TRANSARC_stocklevel_h

#include <trpc/trpc.h>
#include "_stocklevel.h"

#include <encina/c_prologue.h>

#if defined(BUILD DLL)
#define DLLEXPORT __declspec( dllimport )
#else
#define DLLEXPORT extern
#endif

```

```

#ifndef ENCINA_STUB_CALLING
#define ENCINA_STUB_CALLING ENCINA_RPC_CALLING
#endif

#define stocklevel_v1_0_c_ifspec
      _stocklevel_v1_0_c_ifspec
#define stocklevel_v1_0_s_ifspec
      _stocklevel_v1_0_s_ifspec

typedef struct stocklevel_v1_0_epv {
void (ENCINA_STUB_CALLING *impTPCCStockLevel) (
#ifdef IDL_PROTOTYPES

      idl_long_int length,
      idl_char *dataP,
      data_header *headerP,
      trpc_status_t *trpcStatus

#endif
);

} stocklevel_v1_0_epv_t;

DLLEXPORT void ENCINA_STUB_CALLING impTPCCStockLevel
(
#ifdef IDL_PROTOTYPES

      idl_long_int length,
      idl_char *dataP,
      data_header *headerP,
      trpc_status_t *trpcStatus

#endif
);

trpc_handle_t      ENCINA_CALLING
mon_handle_t_tranBind(
#ifdef IDL_PROTOTYPES
      mon_handle_t      handle,
      trpc_tranInfo_t   *tranInfoP,
      trpc_ifSpec_t     *ifSpecP
#endif
);

void      ENCINA_CALLING mon_handle_t_tranUnBind(
#ifdef IDL_PROTOTYPES
      mon_handle_t      handle,
      trpc_handle_t     trpcHandle,
      trpc_tranInfo_t   *tranInfoP,
      trpc_ifSpec_t     *ifSpecP
#endif
);

trpc_handle_t      ENCINA_CALLING
mon_handle_t_tranBind(
#ifdef IDL_PROTOTYPES
      mon_handle_t      handle,
      trpc_tranInfo_t   *tranInfoP,
      trpc_ifSpec_t     *ifSpecP
#endif
);

void      ENCINA_CALLING mon_handle_t_tranUnBind(
#ifdef IDL_PROTOTYPES
      mon_handle_t      handle,

```

```

      trpc_handle_t     trpcHandle,
      trpc_tranInfo_t   *tranInfoP,
      trpc_ifSpec_t     *ifSpecP
#endif
);

extern stocklevel_v1_0_epv_t
      stocklevel_v1_0_client_epv;
extern _stocklevel_v1_0_epv_t
      stocklevel_v1_0_manager_epv;
extern rpc_mgr_epv_t
      stocklevel_v1_0_mgr_epv;

#include <encina/c_epilogue.h>
#endif /* TRANSARC_stocklevel_h */

tm_com_dll.dsp

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

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

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

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

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

# PROP BASE Use_MFC 0

```

```

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

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "Debug"
# PROP BASE Intermediate_Dir "Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MTd /W3 /Gm /GX /Zi /Od /D
"WIN32" /D "_DEBUG" /D "_WINDOWS" /YX /FD /c
# ADD CPP /nologo /MDd /W3 /Gm /GX /ZI /Od /D "WIN32"
/D "_DEBUG" /D "_WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D "_DEBUG" /mktyplib203 /o
"NUL" /win32
# ADD MTL /nologo /D "_DEBUG" /mktyplib203 /o "NUL"
/win32
# ADD BASE RSC /l 0x409 /d "_DEBUG"
# ADD RSC /l 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe

```

```

# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbccp32.lib /nologo /subsystem:windows /dll /debug
/machine:I386 /pdbtype:sept
# ADD LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbccp32.lib /nologo /subsystem:windows /dll /debug
/machine:I386 /out:".bin/tpcc_com.dll" /pdbtype:sept

!ENDIF

# Begin Target

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

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

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

```

tm_encina_dll.dsp

```

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

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

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

```

```

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

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "Release"
# PROP BASE Intermediate_Dir "Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MT /W3 /GX /O2 /D "WIN32" /D
"NDEBUG" /D "_WINDOWS" /YX /FD /c
# ADD CPP /nologo /MD /W3 /GX /O2 /D "WIN32" /D
"NDEBUG" /D "_WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D "NDEBUG" /mktyplib203 /o
"NUL" /win32
# ADD MTL /nologo /D "NDEBUG" /mktyplib203 /o "NUL"
/win32
# ADD BASE RSC /1 0x409 /d "NDEBUG"
# ADD RSC /1 0x409 /d "NDEBUG"
BSC32=bscmake.exe
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbccp32.lib /nologo /subsystem:windows /dll
/machine:I386
# ADD LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbccp32.lib /nologo /subsystem:windows /dll
/machine:I386 /out:".bin/tpcc_encina.dll"

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

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

```

```

# ADD CPP /nologo /MDd /W3 /Gm /GX /ZI /Od /D "WIN32"
/D "_DEBUG" /D "_WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D "DEBUG" /mktyplib203 /o
"NUL" /win32
# ADD MTL /nologo /D "DEBUG" /mktyplib203 /o "NUL"
/win32
# ADD BASE RSC /1 0x409 /d "DEBUG"
# ADD RSC /1 0x409 /d "DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbccp32.lib /nologo /subsystem:windows /dll /debug
/machine:I386 /pdbtype:sept
# ADD LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbccp32.lib /nologo /subsystem:windows /dll /debug
/machine:I386 /out:".bin/tpcc_encina.dll"
/pdbtype:sept

!ENDIF

# Begin Target

# Name "tm_encina_dll - Win32 Release"
# Name "tm_encina_dll - Win32 Debug"
# Begin Group "Source"

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

SOURCE=.\src\client_utils.c
# End Source File
# Begin Source File

SOURCE=.\src\mon_client.c
# End Source File
# Begin Source File

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

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

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

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

SOURCE=.\src\tpcc_enc.h
# End Source File
# End Group
# End Target

```

```
# End Project
```

tm_tuxedo_dll.dsp

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

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

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

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

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "Release"
# PROP BASE Intermediate_Dir "Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MT /W3 /GX /O2 /D "WIN32" /D
"NDEBUG" /D "_WINDOWS" /YX /FD /c

```

```
# ADD CPP /nologo /MD /W3 /GX /O2 /D "WIN32" /D
"NDEBUG" /D "_WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D "NDEBUG" /mktyplib203 /o
"NUL" /win32
# ADD MTL /nologo /D "NDEBUG" /mktyplib203 /o "NUL"
/win32
# ADD BASE RSC /1 0x409 /d "NDEBUG"
# ADD RSC /1 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbc32.lib /nologo /subsystem:windows /dll
/machine:I386
# ADD LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbc32.lib libtux.lib libbuft.lib libtux2.lib
libfml.lib libfml32.lib libgp.lib /nologo
/subsystem:windows /dll /machine:I386
/out:".bin\tpcc_tuxedo.dll"

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "Debug"
# PROP BASE Intermediate_Dir "Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MTd /W3 /Gm /GX /ZI /Od /D
"WIN32" /D "_DEBUG" /D "_WINDOWS" /YX /FD /c
# ADD CPP /nologo /MDd /W3 /Gm /GX /ZI /Od /D "WIN32"
/D "_DEBUG" /D "_WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D "DEBUG" /mktyplib203 /o
"NUL" /win32
# ADD MTL /nologo /D "_DEBUG" /mktyplib203 /o "NUL"
/win32
# ADD BASE RSC /1 0x409 /d "_DEBUG"
# ADD RSC /1 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbc32.lib /nologo /subsystem:windows /dll /debug
/machine:I386 /pdbtype:sept
# ADD LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbc32.lib libtux.lib libbuft.lib libtux2.lib
libfml.lib libfml32.lib libgp.lib /nologo

```

```
/subsystem:windows /dll /debug /machine:I386
/out:".bin\tpcc_tuxedo.dll" /pdbtype:sept

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "tm_tuxed"
# PROP BASE Intermediate_Dir "tm_tuxed"
# PROP BASE Ignore_Export_Lib 0
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MDd /W3 /Gm /GX /ZI /Od /D
"WIN32" /D "_DEBUG" /D "_WINDOWS" /YX /FD /c
# ADD CPP /nologo /MD /W3 /Gm /GX /ZI /O2 /D "WIN32"
/D "NDEBUG" /D "_WINDOWS" /D "ICECAP" /YX /FD /Gh /c
# ADD BASE MTL /nologo /D "DEBUG" /mktyplib203 /o
"NUL" /win32
# ADD MTL /nologo /D "_DEBUG" /mktyplib203 /o "NUL"
/win32
# ADD BASE RSC /1 0x409 /d "_DEBUG"
# ADD RSC /1 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbc32.lib libtux.lib libbuft.lib libtux2.lib
libfml.lib libfml32.lib libgp.lib /nologo
/subsystem:windows /dll /debug /machine:I386
/out:".bin\tpcc_tuxedo.dll" /pdbtype:sept
# ADD LINK32 icap.lib kernel32.lib user32.lib
gdi32.lib winspool.lib comdlg32.lib advapi32.lib
shell32.lib ole32.lib oleaut32.lib uuid.lib
odbc32.lib odbc32.lib libtux.lib libbuft.lib
libtux2.lib libfml.lib libfml32.lib libgp.lib /nologo
/subsystem:windows /dll /debug /machine:I386
/out:".bin\tpcc_tuxedo.dll" /pdbtype:sept

!ENDIF

# Begin Target

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

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

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

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

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

tpcc.cpp

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

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

#include <sqltypes.h>

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

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

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

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

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

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

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

#define LEN_ERR_STRING 256

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

char
    szMyComputerName [MAX_COMPUTERNAME_LENGTH+1]
;

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

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

static CRITICAL_SECTION
    TermCriticalSection;

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

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

// For deferred Delivery txns:
```

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

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

// configuration settings from registry
TPCCREGISTRYDATA Reg;

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

DWORD dwDelBuffSize = 100;
// size of circular buffer for delivery

txns
DWORD dwDelBuffFreeCount;
// number of buffers free

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

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

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



```

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

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

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

                DisableThreadLibraryCalls((HMODULE)hModule);

                InitializeCriticalSection(&TermCriticalSection);

                ReadTPCCRegistrySettings( &Reg )

                if (
                    throw new CWBCLNT_ERR(
ERR_MISSING_REGISTRY_ENTRIES );

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

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

                    TermInit();

                    // load DLL

                    for txn monitor

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

                        strcat( szDllName, "tpcc_tuxedo.dll");

                        hLibInstanceTm = LoadLibrary( szDllName );

                        if
(hLibInstanceTm == NULL)

```

```

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

                //
                get function pointer to wrapper for class constructor

                pCTPCC_TUXEDO_new = (TYPE_CTPCC_TUXEDO*)
GetProcAddress(hLibInstanceTm, "CTPCC_TUXEDO_new");

                if
(pCTPCC_TUXEDO_new == NULL)

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

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

                    strcat( szDllName, "tpcc_encina.dll");

                    hLibInstanceTm = LoadLibrary( szDllName );

                    if
(hLibInstanceTm == NULL)

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

                    //
                    get function pointer to wrapper for class constructor

                    pCTPCC_ENCINA_new = (TYPE_CTPCC_ENCINA*)
GetProcAddress(hLibInstanceTm, "CTPCC_ENCINA_new");

                    pCTPCC_ENCINA_post_init =
(TYPE_CTPCC_ENCINA*)
GetProcAddress(hLibInstanceTm, "CTPCC_ENCINA_post_init
");

                    if
(pCTPCC_ENCINA_new == NULL)

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

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

                        strcat( szDllName, "tpcc_com.dll");

                        hLibInstanceTm = LoadLibrary( szDllName );

                        if
(hLibInstanceTm == NULL)

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

                        //
                        get function pointer to wrapper for class constructor

```

```

                pCTPCC_COM_new = (TYPE_CTPCC_COM*)
GetProcAddress(hLibInstanceTm, "CTPCC_COM_new");

                if
(pCTPCC_COM_new == NULL)

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

                // load DLL

                for database connection

                if
((Reg.eTxnMon == None) || (dwNumDeliveryThreads > 0))
                {
                    if
(Reg.eDB_Protocol == DBLIB)
                    {
                        strcpy( szDllName, Reg.szPath );

                        strcat( szDllName, "tpcc_dblib.dll");

                        hLibInstanceDb = LoadLibrary( szDllName );

                        if (hLibInstanceDb == NULL)

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

                        // get function pointer to wrapper for
class constructor

                        pCTPCC_DBLIB_new = (TYPE_CTPCC_DBLIB*)
GetProcAddress(hLibInstanceDb, "CTPCC_DBLIB_new");

                        if (pCTPCC_DBLIB_new == NULL)

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

                        else if (Reg.eDB_Protocol == ODBC)
                        {
                            strcpy( szDllName, Reg.szPath );

                            strcat( szDllName, "tpcc_odbc.dll");

                            hLibInstanceDb = LoadLibrary( szDllName );

                            if (hLibInstanceDb == NULL)

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

                            // get function pointer to wrapper for
class constructor

                            pCTPCC_ODBC_new = (TYPE_CTPCC_ODBC*)
GetProcAddress(hLibInstanceDb, "CTPCC_ODBC_new");

```

```

        if (pCIPCC_ODBC_new == NULL)
            throw new CWEBCLNT_ERR(
                ERR_GETPROCADDR_FAILED, szDllName, GetLastError() );
    }
}

(dwNumDeliveryThreads)
{
    //
    for deferred delivery txns:

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

        InitializeCriticalSection(&DelBuffCriticalS
            ection);

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

        dwDelBuffFreeCount = dwDelBuffSize;

        InitJulianTime(NULL);

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

        SYSTEMTIME Time;

        GetLocalTime( &Time );

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

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

        txnDelilog = new CTxnLog(szLogFile,
            TXN_LOG_WRITE);

        //write event into txn log for START

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

        //
        allocate structures for delivery buffers and thread
        mgmt

        pDeliHandles = new
            HANDLE[dwNumDeliveryThreads];

        pDelBuff = new
            DELIVERY_TRANSACTION[dwDelBuffSize];

```

```

//
launch DeliveryWorkerThread to perform actual
delivery txns

        for(i=0; i<dwNumDeliveryThreads; i++)
        {
            pDeliHandles[i] = (HANDLE) _beginthread(
                DeliveryWorkerThread, 0, NULL );

            if (pDeliHandles[i] ==
                INVALID_HANDLE_VALUE)

                throw new CWEBCLNT_ERR(
                    ERR_DELIVERY_THREAD_FAILED );
        }

        break;

        case
        DLL_PROCESS_DETACH:

            if
            (dwNumDeliveryThreads)

            {
                if
                (txnDelilog != NULL)

                {
                    //write event into txn log for STOP

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

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

                    CTxnLog *txnDelilogLocal = txnDelilog;

                    txnDelilog= NULL;

                    delete txnDelilogLocal;
                }

                delete [] pDeliHandles;

                delete [] pDelBuff;

                CloseHandle( hWorkerSemaphore );

                CloseHandle( hDoneEvent );

                DeleteCriticalSection(&DelBuffCriticalSecti
                    on);

                DeleteCriticalSection(&TermCriticalSection)
;

```

```

            if
            (hLibInstanceTm != NULL)

                FreeLibrary( hLibInstanceTm );

                hLibInstanceTm = NULL;

            if
            (hLibInstanceDb != NULL)

                FreeLibrary( hLibInstanceDb );

                hLibInstanceDb = NULL;

                Sleep(500);
                break;

            default:
                /* nothing
                */;
        }
    }
    catch (CBaseErr *e)
    {
        WriteMessageToEventLog( e-
            >ErrorText() );

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

    return TRUE;

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

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

```

```

        lstrcpy(pVer->lpszExtensionDesc, "TPC-C
Server.", HSE_MAX_EXT_DLL_NAME_LEN);

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

        return TRUE;
    }

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

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

    TermDeleteAll();
    return TRUE;
}

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

```

```

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

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

#ifdef ICECAP
    StartCAP();
#endif

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

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

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

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

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

```

```

        break;
        case 1:
            switch( FormId )
            {
                case
WELCOME_FORM:
                case
MAIN_MENU_FORM:
                    break;
                case
NEW_ORDER_FORM:
                    ProcessNewOrderForm(pECB, TermId,
szBuffer);
                    break;
                case
PAYMENT_FORM:
                    ProcessPaymentForm(pECB, TermId, szBuffer);
                    break;
                case
DELIVERY_FORM:
                    ProcessDeliveryForm(pECB, TermId,
szBuffer);
                    break;
                case
ORDER_STATUS_FORM:
                    ProcessOrderStatusForm(pECB, TermId,
szBuffer);
                    break;
                case
STOCK_LEVEL_FORM:
                    ProcessStockLevelForm(pECB, TermId,
szBuffer);
                    break;
            }
            break;
        case 2:
            // new-order selected
            from menu; display new-order input form
            MakeNewOrderForm(TermId, NULL, INPUT_FORM,
szBuffer);
            break;
        case 3:
            // payment selected
            from menu; display payment input form
            MakePaymentForm(TermId,
NULL, INPUT_FORM, szBuffer);
            break;
        case 4:
            // delivery selected
            from menu; display delivery input form
    }
}

```

```

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

```

```

#ifdef ICECAP
StopCAP();
#endif

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

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

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

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

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

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

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

        (VOID) DeregisterEventSource(hEventSource);
    }
}

```

```

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

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

    DELIVERY_TRANSACTION
delivery;
PDELIVERY_DATA
pDeliveryData;
TXN_RECORD_TPCC_DELIV_DEF txnDeliRec;

    DWORD
index;
HANDLE
handles[2];

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

    assert(txnDeliRec != NULL);

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

```

```

e-
>ErrorText(), Reg.szDbServer, Reg.szDbUser,
Reg.szDbPassword, Reg.szDbName );
    WriteMessageToEventLog( szTmp );
    delete e;
    goto ErrorExit;
}
catch (...)
{
    WriteMessageToEventLog(TEXT("Unhandled
exception caught in DeliveryWorkerThread.));
    goto ErrorExit;
}
while (TRUE)
{
    try
    {
        //while delivery thread
        running, i.e. user has not requested termination
        while (TRUE)
        {
            // need to
            wait for multiple objects: program exit or worker
            semaphore;
            hDoneEvent;
            handles[0] =
            hWorkerSemaphore;
            handles[1] =
            index =
            WaitForMultipleObjects( 2, &handles[0], FALSE,
            INFINITE );
            if (index ==
            WAIT_OBJECT_0)
            goto ErrorExit;

            ZeroMemory(&txnDeliRec,
            sizeof(txnDeliRec));

            txnDeliRec.TxnType =
            TXN_REC_TYPE_TPCC_DELIV_DEF;

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

            EnterCriticalSection(&DelBuffCriticalSection);
            delivery =
            * (pDelBuff+dwDelBuffBusyIndex);
            dwDelBuffFreeCount++;
            dwDelBuffBusyIndex++;

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

            dwDelBuffBusyIndex = 0;

```

```

        LeaveCriticalSection(&DelBuffCriticalSection);
    }
    pDeliveryData->w_id = delivery.w_id;
    pDeliveryData->o_carrier_id =
    delivery.o_carrier_id;

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

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

    GetLocalTime(
    &trans_start );
    pTxn-
    >Delivery();
    GetLocalTime(
    &trans_end );
    //log txn
    txnDeliRec.TxnStatus = ERR_SUCCESS;
    for (int i=0;
    i<10; i++)
    txnDeliRec.o_id[i] = pDeliveryData-
    >o_id[i];

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

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

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

    // log the error txn
    txnDeliRec.TxnStatus =
    e->ErrorType();

    if (txnDeliLog != NULL)
    txnDeliLog-
    >WriteToLog(&txnDeliRec);

```

```

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

        WriteMessageToEventLog(TEXT("Unhandled
exception caught in DeliveryWorkerThread.));
    }
}
ErrorExit:
    delete pTxn;
    _endthread();
}

/* FUNCTION: PostDeliveryInfo
* PURPOSE: This function enters the delivery
txn into the deferred delivery buffer.
* RETURNS: BOOL FALSE
delivery information posted successfully
TRUE error cannot post delivery info
*/
BOOL PostDeliveryInfo(short w_id, short o_carrier_id)
{
    BOOL bError;

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

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

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

```

```

n);
    LeaveCriticalSection(&DelBuffCriticalSection);
    if (!bError)
        // increment worker semaphore to
wake up a worker thread
        ReleaseSemaphore(
hWorkerSemaphore, 1, NULL );
    return bError;
}
/* FUNCTION: ProcessQueryString
 *
 * PURPOSE:      This function extracts the
relevent information out of the http command passed
in from
 *
 *               the browser.
 *
 * COMMENTS:    If this is the initial connection
i.e. client is at welcome screen then
 *
 *               there will
not be a terminal id or current form id. If this is
the case
 *
 *               then the
pTermid and pFormid return values are undefined.
 */
void ProcessQueryString(EXTENSION_CONTROL_BLOCK
*pECB, int *pCmd, int *pFormId, int *pTermId, int
*pSyncId)
{
    char *ptr = pECB->lpszQueryString;
    char szBuffer[25];
    int i;
    //allowable client command strings i.e.
CMD=command
    static char *szCmds[] =
    {
        "Process", ".NewOrder..",
        "..Payment..", ".Delivery..", ".Order-Status..",
        "..Stock-Level..", ".Exit..", "Submit", "Menu",
        "Clear", "Stats", ""
    };
    *pCmd = 0; // default is
the login screen
    *pTermId = 0;
    // if no params (i.e., empty query string),
then return login screen
    if (strlen(pECB->lpszQueryString) == 0)
        return;
    // parse FORMID, TERMID, and SYNCID
    *pFormId = GetIntKeyValue(&ptr, "FORMID",
NO_ERR, NO_ERR);
    *pTermId = GetIntKeyValue(&ptr, "TERMID",
NO_ERR, NO_ERR);
    *pSyncId = GetIntKeyValue(&ptr, "SYNCID",
NO_ERR, NO_ERR);

```

```

// parse CMD
GetKeyValue(&ptr, "CMD", szBuffer,
sizeof(szBuffer), ERR_COMMAND_UNDEFINED);
// see which command it matches
for(i=0; ; i++)
{
    if (szCmds[i][0] == 0)
        // no more; no match;
return error
        throw new CWEBCLNT_ERR(
ERR_COMMAND_UNDEFINED );
    if ( !strcmp(szCmds[i], szBuffer)
)
    {
        *pCmd = i+1;
        break;
    }
}
/* FUNCTION: void WelcomeForm
 *
 */
void WelcomeForm(EXTENSION_CONTROL_BLOCK *pECB, char
*szBuffer)
{
    char szTmp[1024];
    //welcome to tpc-c html form buffer, this
is first form client sees.
    strcpy( szBuffer,
"<HTML><HEAD><TITLE>TPC-C Web
Client</TITLE></HEAD><BODY>"
        "<B><BIG>Microsoft TPC-C Web Client (ver
4.20)</BIG></B> <BR> <BR>"
        "<font face=\"Courier New\"><PRE>"
        "Compiled: \"__DATE__\", \"__TIME__\" <BR>"
        "Source: \"__FILE__\" (\"__TIMESTAMP__")
        <BR>"
        "</PRE></font>"
        "<FORM ACTION=\"tpcc.dll\" METHOD=\"GET\""
        "<INPUT TYPE=\"hidden\" NAME=\"STATUSID\"
VALUE=\"0\""
        "<INPUT TYPE=\"hidden\" NAME=\"ERROR\"
VALUE=\"0\""
        "<INPUT TYPE=\"hidden\" NAME=\"FORMID\"
VALUE=\"1\""
        "<INPUT TYPE=\"hidden\" NAME=\"TERMID\"
VALUE=\"0\""

```

```

        "<INPUT TYPE=\"hidden\" NAME=\"SYNCID\"
VALUE=\"0\""
        "<INPUT TYPE=\"hidden\" NAME=\"VERSION\"
VALUE=\"\" WEBCLIENT_VERSION \"\""
    );
    sprintf( szTmp,
"Configuration
Settings: <BR><font face=\"Courier New\"
color=\"blue\"><PRE>"
        "Txn Monitor           = <B>%s</B><BR>"
        "Database protocol       = <B>%s</B><BR>"
        "Max Connections         = <B>%d</B><BR>"
        "Max Pending Deliveries = <B>%d</B><BR>"
        "Max Pending Deliveries = <B>%d</B><BR>"
        "
szTxnMonNames[Reg.eTxnMon],
szDBNames[Reg.eDB_Protocol],
        Reg.dwMaxConnections,
dwNumDeliveryThreads, dwDelBuffSize );
    strcat( szBuffer, szTmp);
    if (Reg.eTxnMon == COM)
    {
        sprintf( szTmp,
"COM Single
Pool           = <B>%s</B><BR>",
        Reg.bCOM_SinglePool ?
"YES" : "NO" );
        strcat( szBuffer, szTmp);
    }
    strcat( szBuffer, "</PRE></font>");
    if (Reg.eTxnMon == None)
        // connection options may be
specified when not using a txn monitor
        sprintf( szTmp,
"Please enter
your database options for this connection:<BR>"
        "<font face=\"Courier New\"
color=\"blue\"><PRE>"
        "DB Server           = <INPUT NAME=\"db_server\"
SIZE=20 VALUE=\"%s\"><BR>"
        "DB User ID         = <INPUT NAME=\"db_user\"
SIZE=20 VALUE=\"%s\"><BR>"
        "DB Password       = <INPUT NAME=\"db_passwd\"
SIZE=20 VALUE=\"%s\"><BR>"
        "DB Name           = <INPUT NAME=\"db_name\"
SIZE=20 VALUE=\"%s\"><BR>"
        "</PRE></font>"
        Reg.szDbServer, Reg.szDbUser, Reg.szDbPassword,
Reg.szDbName );

```

```

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

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

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

"</PRE></font>"

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

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

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

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

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

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

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

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

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

    char szVersion[32] = { 0 };
    char szServer[32] = { 0 };

```

```

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

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

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

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

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

    iNewTerm = TermAdd();

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

    try
    {
        if (Reg.eTxnMon == TUXEDO)

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

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

```

```

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

            Term.pClientData[iNewTerm].pTxn =
pCTPCC_ODBC_new( szServer, szUser, szPassword,
szMyComputerName, szDatabase );
        else if (Reg.eDB_Protocol ==
DBLIB)

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

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

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

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

    EnterCriticalSection(&TermCriticalSection);

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

            iTTotal++;
    }

    LeaveCriticalSection(&TermCriticalSection);

    wsprintf( szBuffer,

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

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

```

```

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

```

```

          "Required registry entries are missing.
Rerun INSTALL to correct."
        },
        { ERR_NEWORDER_CUSTOMER_INVALID,
          "New Order customer id invalid
data type, range = 1 to 3000."
        },
        { ERR_NEWORDER_CUSTOMER_KEY,
          "New Order missing Customer key
\"CID*\"."
        },
        { ERR_NEWORDER_DISTRICT_INVALID,
          "New Order District ID Invalid
range 1 - 10."
        },
        { ERR_NEWORDER_FORM_MISSING_DID,
          "New Order missing District key
\"DID*\"."
        },
        { ERR_NEWORDER_ITEMID_INVALID,
          "New Order Item Id is wrong data type, must
be numeric."
        },
        { ERR_NEWORDER_ITEMID_RANGE,
          "New Order Item Id is out of
range. Range = 1 to 999999."
        },
        { ERR_NEWORDER_ITEMID_WITHOUT_SUPPW,
          "New Order Item_Id field entered without a
corresponding Supp_W."
        },
        { ERR_NEWORDER_MISSING_IID_KEY,
          "New Order missing Item Id key \"IID*\"."
        },
        { ERR_NEWORDER_MISSING_QTY_KEY,
          "New Order Missing Qty key \"Qty##*\"."
        },
        { ERR_NEWORDER_MISSING_SUPPW_KEY,
          "New Order missing Supp_W key
\"SP##*\"."
        },
        { ERR_NEWORDER_NOITEMS_ENTERED,
          "New Order No order lines entered."
        },
        { ERR_NEWORDER_QTY_INVALID,
          "New Order Qty invalid must be
numeric range 1 - 99."
        },
        { ERR_NEWORDER_QTY_RANGE,
          "New Order Qty is out of range. Range = 1
to 99."

```

```

        { ERR_NEWORDER_QTY_WITHOUT_SUPPW,
          "New Order Qty field entered
without a corresponding Supp_W."
        },
        { ERR_NEWORDER_SUPPW_INVALID,
          "New Order Supp_W invalid data
type must be numeric."
        },
        { ERR_NO_SERVER_SPECIFIED,
          "No Server name specified."
        },
        { ERR_ORDERSTATUS_CID_AND_CLT,
          "Order Status Only Customer ID or Last Name
may be entered, not both."
        },
        { ERR_ORDERSTATUS_CID_INVALID,
          "Order Status Customer ID invalid, range
must be numeric 1 - 3000."
        },
        { ERR_ORDERSTATUS_CLT_RANGE,
          "Order Status Customer last name
longer than 16 characters."
        },
        { ERR_ORDERSTATUS_DID_INVALID,
          "Order Status District invalid, value must
be numeric 1 - 10."
        },
        { ERR_ORDERSTATUS_MISSING_CID_CLT,
          "Order Status Either Customer ID or Last
Name must be entered."
        },
        { ERR_ORDERSTATUS_MISSING_CID_KEY,
          "Order Status missing Customer key
\"CID*\"."
        },
        { ERR_ORDERSTATUS_MISSING_CLT_KEY,
          "Order Status missing Customer Last Name
key \"CLT*\"."
        },
        { ERR_ORDERSTATUS_MISSING_DID_KEY,
          "Order Status missing District key
\"DID*\"."
        },
        { ERR_PAYMENT_CDI_INVALID,
          "Payment Customer district
invalid must be numeric."
        },
        { ERR_PAYMENT_CID_AND_CLT,
          "Payment Only Customer ID or Last
Name may be entered, not both."
        },
        { ERR_PAYMENT_CUSTOMER_INVALID,
          "Payment Customer data type invalid, must
be numeric."
        },
        { ERR_PAYMENT_CWI_INVALID,

```



```

        "Payment Customer Warehouse
invalid, must be numeric."
    },
    {
        ERR_PAYMENT_DISTRICT_INVALID,
        "Payment District ID is invalid, must be 1
- 10."
    },
    {
        ERR_PAYMENT_HAM_INVALID,
        "Payment Amount invalid data type
must be numeric."
    },
    {
        ERR_PAYMENT_HAM_RANGE,
        "Payment Amount out of range, 0 - 9999.99."
    },
    {
        ERR_PAYMENT_LAST_NAME_TO_LONG,
        "Payment Customer last name
longer than 16 characters."
    },
    {
        ERR_PAYMENT_MISSING_CDI_KEY,
        "Payment missing Customer district key
\"CDI*\"."
    },
    {
        ERR_PAYMENT_MISSING_CID_CLT,
        "Payment Either Customer ID or Last Name
must be entered."
    },
    {
        ERR_PAYMENT_MISSING_CID_KEY,
        "Payment missing Customer Key \"CID*\"."
    },
    {
        ERR_PAYMENT_MISSING_CLT_KEY,
        "Payment missing Customer Last Name key
\"CLT*\"."
    },
    {
        ERR_PAYMENT_MISSING_CWI_KEY,
        "Payment missing Customer Warehouse key
\"CWI*\"."
    },
    {
        ERR_PAYMENT_MISSING_DID_KEY,
        "Payment missing District Key \"DID*\"."
    },
    {
        ERR_PAYMENT_MISSING_HAM_KEY,
        "Payment missing Amount key \"HAM*\"."
    },
    {
        ERR_STOCKLEVEL_MISSING_THRESHOLD_KEY,
        "Stock Level; missing Threshold key
\"TT*\"."
    },
    {
        ERR_STOCKLEVEL_THRESHOLD_INVALID,

```

```

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

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

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

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

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

```

```

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

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

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

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

    *pQueryString = ptr;
    return;

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

```

```

}
/* FUNCTION: GetIntKeyValue
 *
 * PURPOSE: This function parses a http
formatted string for a specific key value.
 *
 * ARGUMENTS: char http string from client
browser *pQueryString
 *
 * RETURNS: char key
value to look for *pKey
 *
 * ERROR: WEBERROR error value to throw if
key not found
 *
 * ERROR: WEBERROR error value to throw if
value not numeric
 *
 * RETURNS: integer
 *
 * ERROR: if (the pKey value is not found)
then
 *
 * ERROR: if
(NoKeyErr != NO_ERR)
 *
 * throw CWEBCLNT_ERR(err)
 *
 * else
 *
 * return 0
 *
 * else if (non-
numeric char found) then
 *
 * if
(NotIntErr != NO_ERR) then
 *
 * throw CWEBCLNT_ERR(err)
 *
 * else
 *
 * return 0
 *
 * COMMENTS: http keys are formatted either
KEY=value& or KEY=value\0. This DLL formats
 *
 * TPC-C input
fields in such a manner that the keys can be
extracted in the
 *
 * above manner.
 */
int GetIntKeyValue(char **pQueryString, char *pKey,
WEBERROR NoKeyErr, WEBERROR NotIntErr)
{
    char *ptr0;
    char *ptr;

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

```

```

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

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

*pQueryString = ptr;
return atoi(ptr0);

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

/* FUNCTION: TermInit
 *
 * PURPOSE: This function initializes the
client terminal structure; it is called when the
TPCC.DLL
 *
 * is first loaded by the
inet service.
 *
 */
void TermInit(void)
{
    EnterCriticalSection(&TermCriticalSection);

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

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

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

```

```

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

LeaveCriticalSection(&TermCriticalSection);
}

/* FUNCTION: TermDeleteAll
 *
 * PURPOSE: This function frees allocated
resources associated with the terminal structure.
 *
 * ARGUMENTS: none
 *
 * RETURNS: None
 *
 * COMMENTS: This function is called only when
the inet service unloads the TPCC.DLL
 *
 */
void TermDeleteAll(void)
{
    EnterCriticalSection(&TermCriticalSection);

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

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

    LeaveCriticalSection(&TermCriticalSection);
}

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

```

```

DWORD    i;
int       iNewTerm, iTickCount;

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

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

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

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

LeaveCriticalSection(&TermCriticalSection);
return iNewTerm;
}

/* FUNCTION: TermDelete
*
* PURPOSE:      This function makes a terminal
entry in the Term array available for reuse.

```

```

*
* ARGUMENTS:   int
               id
               Terminal id of client exiting
*
*/

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

        // put onto free list

        EnterCriticalSection(&TermCriticalSection);

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

        LeaveCriticalSection(&TermCriticalSection);
    }
}

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

```

```

    "<INPUT TYPE=\"submit\"
NAME=\"CMD\" VALUE=\".Exit.\">"
    "</FORM></BODY></HTML>"
    , iType, iErrorNum,
MAIN_MENU_FORM, iTermId, iSyncId, szErrorText );
}

/* FUNCTION: MakeMainMenuForm
*/

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

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

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

```

```

int c;

c = sprintf(szForm,
"HTML<HEAD><TITLE>TPC-C Stock
Level</TITLE></HEAD><FORM ACTION=\"tpcc.dll\"
METHOD=\"GET\">"
"INPUT TYPE=\"hidden\"
NAME=\"STATUSID\" VALUE=\"0\">"
"INPUT TYPE=\"hidden\"
NAME=\"ERROR\" VALUE=\"0\">"
"INPUT TYPE=\"hidden\"
NAME=\"FORMID\" VALUE=\"%d\">"
"INPUT TYPE=\"hidden\"
NAME=\"TERMINID\" VALUE=\"%d\">"
"INPUT TYPE=\"hidden\"
NAME=\"SYCID\" VALUE=\"%d\">"
"PRE><font face=\"Courier\">
Stock-Level<BR>"
"Warehouse: %4.4d District:
%2.2d<BR> <BR>";
STOCK_LEVEL_FORM, iTermId,
Term.pClientData[iTermId].iSyncId,
Term.pClientData[iTermId].w_id,
Term.pClientData[iTermId].d_id);

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

```

```

" </FORM></HTML>"
, pStockLevelData->low_stock);
}

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

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

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

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

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

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

```

```

"District: <INPUT
NAME=\"DID\" SIZE=1>
Date:<BR>"
"Customer: <INPUT
NAME=\"CID\" SIZE=4> Name:
Credit: %Disc:<BR>"
"Order Number:
Number of Lines: W_tax: D_tax:<BR>
<BR>"
" Supp_W Item_Id Item
Name Qty Stock B/G Price
Amount<BR>"
" <INPUT
NAME=\"SP0\" SIZE=4> <INPUT NAME=\"IID00\"
SIZE=6> <INPUT
NAME=\"Qty0\" SIZE=1><BR>"
" <INPUT
NAME=\"SP01\" SIZE=4> <INPUT NAME=\"IID01\"
SIZE=6> <INPUT
NAME=\"Qty01\" SIZE=1><BR>"
" <INPUT
NAME=\"SP02\" SIZE=4> <INPUT NAME=\"IID02\"
SIZE=6> <INPUT
NAME=\"Qty02\" SIZE=1><BR>"
" <INPUT
NAME=\"SP03\" SIZE=4> <INPUT NAME=\"IID03\"
SIZE=6> <INPUT
NAME=\"Qty03\" SIZE=1><BR>"
" <INPUT
NAME=\"SP04\" SIZE=4> <INPUT NAME=\"IID04\"
SIZE=6> <INPUT
NAME=\"Qty04\" SIZE=1><BR>"
" <INPUT
NAME=\"SP05\" SIZE=4> <INPUT NAME=\"IID05\"
SIZE=6> <INPUT
NAME=\"Qty05\" SIZE=1><BR>"
" <INPUT
NAME=\"SP06\" SIZE=4> <INPUT NAME=\"IID06\"
SIZE=6> <INPUT
NAME=\"Qty06\" SIZE=1><BR>"
" <INPUT
NAME=\"SP07\" SIZE=4> <INPUT NAME=\"IID07\"
SIZE=6> <INPUT
NAME=\"Qty07\" SIZE=1><BR>"
" <INPUT
NAME=\"SP08\" SIZE=4> <INPUT NAME=\"IID08\"
SIZE=6> <INPUT
NAME=\"Qty08\" SIZE=1><BR>"
" <INPUT
NAME=\"SP09\" SIZE=4> <INPUT NAME=\"IID09\"
SIZE=6> <INPUT
NAME=\"Qty09\" SIZE=1><BR>"
" <INPUT
NAME=\"SP10\" SIZE=4> <INPUT NAME=\"IID10\"
SIZE=6> <INPUT
NAME=\"Qty10\" SIZE=1><BR>"
" <INPUT
NAME=\"SP11\" SIZE=4> <INPUT NAME=\"IID11\"
SIZE=6> <INPUT
NAME=\"Qty11\" SIZE=1><BR>"
" <INPUT
NAME=\"SP12\" SIZE=4> <INPUT NAME=\"IID12\"

```

```

SIZE=6>
NAME="Qty12*" SIZE=1<BR>"
" <INPUT
NAME="SP13*" SIZE=4> <INPUT NAME="IID13*"
SIZE=6>
NAME="Qty13*" SIZE=1<BR>"
" <INPUT
NAME="SP14*" SIZE=4> <INPUT NAME="IID14*"
SIZE=6>
NAME="Qty14*" SIZE=1<BR>"
"Execution Status:
Total:<BR>"
" </font></PRE><HR>"
" <INPUT TYPE="submit\"
NAME="CMD\" VALUE="Process\">"
" <INPUT TYPE="submit\"
NAME="CMD\" VALUE="Menu\">"
" </FORM></HTML>"
);
}
else
{
c += sprintf(szForm+c,
"Warehouse: %4.4d District: %2.2d
Date: ",
pNewOrderData->w_id,
pNewOrderData->d_id);
if ( bValid )
{
c += sprintf(szForm+c,
"%2.2d-%2.2d-%4.4d %2.2d:%2.2d:%2.2d",
pNewOrderData->o_entry_d.day,
pNewOrderData->o_entry_d.month,
pNewOrderData->o_entry_d.year,
pNewOrderData->o_entry_d.hour,
pNewOrderData->o_entry_d.minute,
pNewOrderData->o_entry_d.second);
}
c += sprintf(szForm+c,
"<BR>Customer: %4.4d Name: %-16s Credit: %-2s
",
pNewOrderData->c_id,
pNewOrderData->c_last, pNewOrderData->c_credit);
if ( bValid )
{
c += sprintf(szForm+c,
"%Disc: %5.2f <BR>"
"Order Number: %8.8d Number of Lines:
%2.2d W_tax: %5.2f D_tax: %5.2f <BR> <BR>"
" Supp_W Item_Id Item Name
Qty Stock B/G Price Amount<BR>",

```

```

100.0*pNewOrderData->c_discount,
pNewOrderData->o_id,
pNewOrderData->o_ol_cnt,
pNewOrderData->w_tax,
pNewOrderData->d_tax);
for(i=0;
i<pNewOrderData->o_ol_cnt; i++)
{
c +=
sprintf(szForm+c, " %4.4d %6.6d %-24s %2.2d
%3.3d %1.1s %6.2f %7.2f <BR>",
pNewOrderData->OL[i].ol_supply_w_id,
pNewOrderData->OL[i].ol_i_id,
pNewOrderData->OL[i].ol_i_name,
pNewOrderData->OL[i].ol_quantity,
pNewOrderData->OL[i].ol_stock,
pNewOrderData->OL[i].ol_brand_generic,
pNewOrderData->OL[i].ol_i_price,
pNewOrderData->OL[i].ol_amount );
}
else
{
c += sprintf(szForm+c,
"%Disc:<BR>"
"Order
W_tax:
D_tax:<BR> <BR>"
" Supp_W
Item_Id Item Name Qty Stock B/G
Price Amount<BR>"
pNewOrderData->o_id);
i = 0;
}
strcpy( szForm+c, szBR, (15-i)*5
);
c += (15-i)*5;
if ( bValid )
c += sprintf(szForm+c,
"Execution Status: Transaction committed.
Total: %8.2f ",
pNewOrderData->total_amount);
else

```

```

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

```



```

        "<INPUT TYPE=\"hidden\"
NAME=\"STATUSID\" VALUE=\"0\">"
        "<INPUT TYPE=\"hidden\"
NAME=\"ERROR\" VALUE=\"0\">"
        "<INPUT TYPE=\"hidden\"
NAME=\"FORMID\" VALUE=\"%d\">"
        "<INPUT TYPE=\"hidden\"
NAME=\"TERMINID\" VALUE=\"%d\">"
        "<INPUT TYPE=\"hidden\"
NAME=\"SYNCID\" VALUE=\"%d\">"
        "<PRE><font face=\"Courier\">
Order-Status<BR>"
        "Warehouse: %4.4d ",
        ORDER_STATUS_FORM, iTermId,
Term.pClientData[iTermId].iSyncId,
Term.pClientData[iTermId].w_id);

        if ( bInput )
        {
            strcpy( szForm+c,
                "District: <INPUT
NAME=\"DID*\" SIZE=1><BR>"
                "Customer: <INPUT
NAME=\"CID*\" SIZE=4> Name:
<INPUT NAME=\"CLI*\" SIZE=23><BR>"
                "Cust-Balance:<BR>
<BR>"
                "Order-Number:
                Carrier-
                Supply-W Item-Id
Qty Amount Delivery-Date<BR> <BR> <BR> <BR>
<BR> <BR> <BR> <BR> <BR> <BR> </font></PRE>"
                "<HR><INPUT
TYPE=\"submit\" NAME=\"CMD\" VALUE=\"Process\"><INPUT
TYPE=\"submit\" NAME=\"CMD\" VALUE=\"Menu\">"
                "</BODY></FORM></HTML>"
            );
        }
        else
        {
            c += sprintf( szForm+c,
                "District: %2.2d<BR>"
                "Customer: %4.4d
Name: %16s %2s %16s<BR>",
                pOrderStatusData->d_id,
                pOrderStatusData->d_id,
                pOrderStatusData->c_id,
                pOrderStatusData->c_first, pOrderStatusData->c_middle,
                pOrderStatusData->c_last);
            c += sprintf( szForm+c, "Cust-
Balance: %9.2f<BR> <BR>",
                pOrderStatusData->c_balance);
            c += sprintf( szForm+c,
                "Order-Number: %8.8d
Entry-Date: %2.2d-%2.2d-%4.4d %2.2d:%2.2d:%2.2d
Carrier-Number: %2.2d<BR>"

```

```

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

```

```

}
/* FUNCTION: MakeDeliveryForm
 *
 * COMMENTS: The internal client buffer is
created when the terminal id is assigned and should
not
 * be freed
 * except when the client terminal id is no longer
needed.
 */
void MakeDeliveryForm(int iTermId, DELIVERY_DATA
*pDeliveryData, BOOL bInput, char *szForm)
{
    int c;
    c = sprintf( szForm,
        "<HTML><HEAD><TITLE>TPC-C
Delivery</TITLE></HEAD><BODY>"
        "<FORM ACTION=\"tpcc.dll\"
METHOD=\"GET\">"
        "<INPUT TYPE=\"hidden\"
NAME=\"STATUSID\" VALUE=\"%d\">"
        "<INPUT TYPE=\"hidden\"
NAME=\"ERROR\" VALUE=\"0\">"
        "<INPUT TYPE=\"hidden\"
NAME=\"FORMID\" VALUE=\"%d\">"
        "<INPUT TYPE=\"hidden\"
NAME=\"TERMINID\" VALUE=\"%d\">"
        "<INPUT TYPE=\"hidden\"
NAME=\"SYNCID\" VALUE=\"%d\">"
        "<PRE><font face=\"Courier\">
Delivery<BR>"
        "Warehouse: %4.4d<BR> <BR>",
        (!bInput && (pDeliveryData->exec_status_code != eOK)) ? ERR_TYPE_DELIVERY_POST :
        0,
        DELIVERY_FORM, iTermId,
        Term.pClientData[iTermId].iSyncId,
        Term.pClientData[iTermId].w_id);
    if ( bInput )
    {
        strcpy( szForm+c,
            "Carrier Number: <INPUT
NAME=\"OCD*\" SIZE=1><BR> <BR>"
            "Execution Status: <BR>
<BR> <BR> <BR> <BR> <BR>
" <BR> <BR> <BR> <BR>
<BR> <BR> <BR> <BR> </font></PRE><HR>"
            "<INPUT TYPE=\"submit\"
NAME=\"CMD\" VALUE=\"Process\">"
            "<INPUT TYPE=\"submit\"
NAME=\"CMD\" VALUE=\"Menu\">"
            "</BODY></FORM></HTML>"
        );
    }
    else
    {
        sprintf( szForm+c,
            "%2.2d<BR> <BR>"

```

```

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

```

```

* PURPOSE: This function gets and validates
the input data from the payment form
* filling in the required
input variables. It then calls the SQLPayment
* transaction, constructs
the output form and writes it back to client
* browser.
* ARGUMENTS: EXTENSION_CONTROL_BLOCK
*pECB passed in structure pointer from
inetsrv. int
iTermId client browser terminal id
*/
void ProcessPaymentForm(EXTENSION_CONTROL_BLOCK
*pECB, int iTermId, char *szBuffer)
{
PPAYMENT_DATA pPayment;
pPayment = Term.pClientData[iTermId].pTxn-
>BuffAddr_Payment();
ZeroMemory(pPayment, sizeof(PAYMENT_DATA));
pPayment->w_id =
Term.pClientData[iTermId].w_id;
GetPaymentData(pECB->lpszQueryString,
pPayment);
Term.pClientData[iTermId].pTxn->Payment();
pPayment = Term.pClientData[iTermId].pTxn-
>BuffAddr_Payment();
MakePaymentForm(iTermId, pPayment,
OUTPUT_FORM, szBuffer);
}
/* FUNCTION: ProcessOrderStatusForm
*
* PURPOSE: This function gets and validates
the input data from the Order Status
* form filling in the
required input variables. It then calls the
* SQLOrderStatus
transaction, constructs the output form and writes it
* back to client browser.
* ARGUMENTS: EXTENSION_CONTROL_BLOCK
*pECB passed in structure pointer from
inetsrv. int
iTermId client browser terminal id
*/
void ProcessOrderStatusForm(EXTENSION_CONTROL_BLOCK
*pECB, int iTermId, char *szBuffer)
{
PORDER_STATUS_DATA pOrderStatus;

```

```

pOrderStatus =
Term.pClientData[iTermId].pTxn-
>BuffAddr_OrderStatus();
ZeroMemory(pOrderStatus,
sizeof(ORDER_STATUS_DATA));
pOrderStatus->w_id =
Term.pClientData[iTermId].w_id;
GetOrderStatusData(pECB->lpszQueryString,
pOrderStatus);
Term.pClientData[iTermId].pTxn-
>OrderStatus();
pOrderStatus =
Term.pClientData[iTermId].pTxn-
>BuffAddr_OrderStatus();
MakeOrderStatusForm(iTermId, pOrderStatus,
OUTPUT_FORM, szBuffer);
}
/* FUNCTION: ProcessDeliveryForm
*
* PURPOSE: This function gets and validates
the input data from the delivery form
* filling in the required
input variables. It then calls the PostDeliveryInfo
* Api, The client is then
informed that the transaction has been posted.
* ARGUMENTS: EXTENSION_CONTROL_BLOCK
*pECB passed in structure pointer from
inetsrv. int
iTermId client browser terminal id
*/
void ProcessDeliveryForm(EXTENSION_CONTROL_BLOCK
*pECB, int iTermId, char *szBuffer)
{
char *ptr = pECB->lpszQueryString;
PDELIVERY_DATA pDelivery;
pDelivery = Term.pClientData[iTermId].pTxn-
>BuffAddr_Delivery();
ZeroMemory(pDelivery,
sizeof(DELIVERY_DATA));
pDelivery->w_id =
Term.pClientData[iTermId].w_id;
pDelivery->o_carrier_id =
GetIntKeyValue(&ptr, "OCD*",
ERR_DELIVERY_MISSING_OCD_KEY,
ERR_DELIVERY_CARRIER_INVALID);
if ( pDelivery->o_carrier_id > 10 ||
pDelivery->o_carrier_id < 1 )
throw new CWBCLNT_ERR(
ERR_DELIVERY_CARRIER_ID_RANGE );
if (dwNumDeliveryThreads)
{

```



```

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

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

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

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

    PSTOCK_LEVEL_DATA pStockLevel;

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

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

    pStockLevel->threshold =
GetIntKeyValue(&ptr, "TI",
ERR_STOCKLEVEL_MISSING_THRESHOLD_KEY,
ERR_STOCKLEVEL_THRESHOLD_INVALID);

```

```

        if ( pStockLevel->threshold >= 100 ||
pStockLevel->threshold < 0 )
            throw new CWBCLNT_ERR(
ERR_STOCKLEVEL_THRESHOLD_RANGE );

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

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

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

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

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

```

```

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

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

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

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

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

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

```

```

    }
    if ( items == 0 )
        throw new CWBCLNT_ERR(
ERR_NEWORDER_NOITEMS_ENTERED );
    pNewOrderData->o_ol_cnt = items;
}

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

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

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

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

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

    if ( bCustIdBlank )
    {
        // customer id is blank, so last
name must be entered
        GetKeyValue(&ptr, "CLT*", szTmp,
sizeof(szTmp), ERR_PAYMENT_MISSING_CLT_KEY);

```

```

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

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

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

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

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

```

```

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

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

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

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

/* FUNCTION: BOOL IsDecimal(char *ptr)
 *
 * PURPOSE:      This function determines if a
string is a non-negative decimal value.
 *
 * It fails if any characters other than a
series of numbers followed by
 *
                a decimal point,
another series of numbers, and a null terminator are
present.
 *

```

```

* ARGUMENTS:      char
                  *ptr      pointer to string to check.
*
* RETURNS:        BOOL      FALSE   if
string is not a valid non-negative decimal value
*
                  TRUE       if string is OK
*/

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

    if ( *ptr == 0 )
        return FALSE;

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

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

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

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

```

tpcc.def

```

LIBRARY TPCC.DLL

EXPORTS

    GetExtensionVersion @1
    HttpExtensionProc   @2
    TerminateExtension  @3

```

tpcc.h

```

/*      FILE:          TPCC.H

```

```

*
*      Microsoft
TPC-C Kit Ver. 4.20.000
*
*      Copyright
Microsoft, 1999
*
*      All Rights Reserved
*
*
*      Version
4.10.000 audited by Richard Gimarc, Performance
Metrics, 3/17/99
*
*      PURPOSE: Header file for ISAPI TPCC.DLL,
defines structures and functions used in the isapi
tpcc.dll.
*/

//VERSION RESOURCE DEFINES
#define _APS_NEXT_RESOURCE_VALUE        101
#define _APS_NEXT_COMMAND_VALUE        40001
#define _APS_NEXT_CONTROL_VALUE        1000
#define _APS_NEXT_SYMED_VALUE          101

#define TP_MAX_RETRIES                  50

//note that the welcome form must be processed first
as terminal ids assigned here, once the
//terminal id is assigned then the forms can be
processed in any order.
#define WELCOME_FORM                    1
//beginning form no term id assigned, form
id
#define MAIN_MENU_FORM                  2
//term id assigned main menu form id
#define NEW_ORDER_FORM                  3
//new order form id
#define PAYMENT_FORM                    4
//payment form id
#define DELIVERY_FORM                   5
//delivery form id
#define ORDER_STATUS_FORM               6
//order
status id
#define STOCK_LEVEL_FORM                7
//stock level
form id

//This macro is used to prevent the compiler error
unused formal parameter
#define UNUSEDPARAM(x) (x = x)

```

```

//This structure defines the data necessary to keep
distinct for each terminal or client connection.
typedef struct _CLIENTDATA
{
    int                iNextFree;
//index of
next free element or -1 if this entry in use.
    int                w_id;
//warehouse
id assigned at welcome form
    int                d_id;
//district id
assigned at welcome form
    int                iSyncId;
//synchronization id
    int                iTickCount;
//time of
last access;
    CTPCC_BASE         *pTxn;
} CLIENTDATA, *PCLIENTDATA;

//This structure is used to define the operational
interface for terminal id support
typedef struct _TERM
{
    int                iNumEntries;
//total allocated terminal array entries
    int                iFreeList;
//next available terminal array element or
-1 if none
    int                iMasterSyncId;
//synchronization id
    CLIENTDATA         *pClientData;
//pointer to
allocated client data
} TERM;

typedef TERM *PTERM;
//pointer to
terminal structure type

enum WEBERROR
{
    NO_ERR,
    ERR_COMMAND_UNDEFINED,
    ERR_D_ID_INVALID,
    ERR_DELIVERY_CARRIER_ID_RANGE,
    ERR_DELIVERY_CARRIER_INVALID,
    ERR_DELIVERY_MISSING_OCD_KEY,
    ERR_DELIVERY_THREAD_FAILED,
    ERR_GETPROCADDR_FAILED,
    ERR_HTML_ILL_FORMED,
    ERR_INVALID_SYNC_CONNECTION,
    ERR_INVALID_TERMID,
    ERR_LOADDLL_FAILED,
}

```

```

ERR_MAX_CONNECTIONS_EXCEEDED,
ERR_MEM_ALLOC_FAILED,
ERR_MISSING_REGISTRY_ENTRIES,
ERR_NEWORDER_CUSTOMER_INVALID,
ERR_NEWORDER_CUSTOMER_KEY,
ERR_NEWORDER_DISTRICT_INVALID,
ERR_NEWORDER_FORM_MISSING_DID,
ERR_NEWORDER_ITEMID_INVALID,
ERR_NEWORDER_ITEMID_RANGE,

ERR_NEWORDER_ITEMID_WITHOUT_SUPPW,
ERR_NEWORDER_MISSING_IID_KEY,
ERR_NEWORDER_MISSING_QTY_KEY,
ERR_NEWORDER_MISSING_SUPPW_KEY,
ERR_NEWORDER_NOITEMS_ENTERED,
ERR_NEWORDER_QTY_INVALID,
ERR_NEWORDER_QTY_RANGE,
ERR_NEWORDER_QTY_WITHOUT_SUPPW,
ERR_NEWORDER_SUPPW_INVALID,
ERR_NO_SERVER_SPECIFIED,
ERR_ORDERSTATUS_CID_AND_CLT,
ERR_ORDERSTATUS_CID_INVALID,
ERR_ORDERSTATUS_CLT_RANGE,
ERR_ORDERSTATUS_DID_INVALID,
ERR_ORDERSTATUS_MISSING_CID_CLT,
ERR_ORDERSTATUS_MISSING_CID_KEY,
ERR_ORDERSTATUS_MISSING_CLT_KEY,
ERR_ORDERSTATUS_MISSING_DID_KEY,
ERR_PAYMENT_CDI_INVALID,
ERR_PAYMENT_CID_AND_CLT,
ERR_PAYMENT_CUSTOMER_INVALID,
ERR_PAYMENT_CWI_INVALID,
ERR_PAYMENT_DISTRICT_INVALID,
ERR_PAYMENT_HAM_INVALID,
ERR_PAYMENT_HAM_RANGE,
ERR_PAYMENT_LAST_NAME_TO_LONG,
ERR_PAYMENT_MISSING_CDI_KEY,
ERR_PAYMENT_MISSING_CID_CLT,
ERR_PAYMENT_MISSING_CID_KEY,
ERR_PAYMENT_MISSING_CLT,
ERR_PAYMENT_MISSING_CLT_KEY,
ERR_PAYMENT_MISSING_CWI_KEY,
ERR_PAYMENT_MISSING_DID_KEY,
ERR_PAYMENT_MISSING_HAM_KEY,

ERR_STOCKLEVEL_MISSING_THRESHOLD_KEY,
ERR_STOCKLEVEL_THRESHOLD_INVALID,
ERR_STOCKLEVEL_THRESHOLD_RANGE,
ERR_VERSION_MISMATCH,
ERR_W_ID_INVALID

};

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

```

```

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

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

    WEBERROR m_Error;
    char
    *m_szTextDetail; //
    char
    *m_szErrorText;
    DWORD m_SystemErr;

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

//These constants have already been defined in
engstut.h, but since we do
//not want to include it in the delisrv executable
#define TXN_EVENT_START 2
#define TXN_EVENT_STOP 4
#define TXN_EVENT_WARNING 6
//used to record a warning into the log

//function prototypes

BOOL APIENTRY DllMain(HANDLE hModule, DWORD
ul_reason_for_call, LPVOID lpReserved);
void WriteMessageToEventLog(LPTSTR lpszMsg);
void ProcessQueryString(EXTENSION_CONTROL_BLOCK
*pECB, int *pCmd, int *pFormId, int *pTermId, int
*pSyncId);
void WelcomeForm(EXTENSION_CONTROL_BLOCK *pECB, char
*szBuffer);
void SubmitCmd(EXTENSION_CONTROL_BLOCK *pECB, char
*szBuffer);
void BeginCmd(EXTENSION_CONTROL_BLOCK *pECB, int
iFormId, int iTermId);

```

```

void ProcessCmd(EXTENSION_CONTROL_BLOCK *pECB, int
iFormId, int iTermId);
void StatsCmd(EXTENSION_CONTROL_BLOCK *pECB, char
*szBuffer);
void ErrorMessage(EXTENSION_CONTROL_BLOCK *pECB, int
iError, int iErrorType, char *szMsg, int iTermId);
void GetKeyValue(char **pQueryString, char *pKey,
char *pValue, int iMax, WEBERROR err);
int GetIntKeyValue(char **pQueryString, char *pKey,
WEBERROR NoKeyErr, WEBERROR NotIntErr);
void TermInit(void);
void TermDeleteAll(void);
int TermAdd(void);
void TermDelete(int id);
void ErrorForm(EXTENSION_CONTROL_BLOCK *pECB, int
iType, int iErrorNum, int iTermId, int iSyncId, char
*szErrorText, char *szBuffer);
void MakeMainMenuForm(int iTermId, int iSyncId, char
*szForm);
void MakeStockLevelForm(int iTermId, STOCK_LEVEL_DATA
*pStockLevelData, BOOL bInput, char *szForm);
void MakeNewOrderForm(int iTermId, NEW_ORDER_DATA
*pNewOrderData, BOOL bInput, char *szForm);
void MakePaymentForm(int iTermId, PAYMENT_DATA
*pPaymentData, BOOL bInput, char *szForm);
void MakeOrderStatusForm(int iTermId,
ORDER_STATUS_DATA *pOrderStatusData, BOOL bInput,
char *szForm);
void MakeDeliveryForm(int iTermId, DELIVERY_DATA
*pDeliveryData, BOOL bInput, char *szForm);
void ProcessNewOrderForm(EXTENSION_CONTROL_BLOCK
*pECB, int iTermId, char *szBuffer);
void ProcessPaymentForm(EXTENSION_CONTROL_BLOCK
*pECB, int iTermId, char *szBuffer);
void ProcessOrderStatusForm(EXTENSION_CONTROL_BLOCK
*pECB, int iTermId, char *szBuffer);
void ProcessDeliveryForm(EXTENSION_CONTROL_BLOCK
*pECB, int iTermId, char *szBuffer);
void ProcessStockLevelForm(EXTENSION_CONTROL_BLOCK
*pECB, int iTermId, char *szBuffer);
void GetNewOrderData(LPSTR lpszQueryString,
NEW_ORDER_DATA *pNewOrderData);
void GetPaymentData(LPSTR lpszQueryString,
PAYMENT_DATA *pPaymentData);
void GetOrderStatusData(LPSTR lpszQueryString,
ORDER_STATUS_DATA *pOrderStatusData);
BOOL PostDeliveryInfo(short w_id, short
o_carrier_id);
BOOL IsNumeric(char *ptr);
BOOL IsDecimal(char *ptr);
void DeliveryWorkerThread(void *ptr);

```

tpcc.rc

```

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

#define APSTUDIO_READONLY_SYMBOLS

```

```

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

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

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

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

#ifdef _MAC
////////////////////////////////////
////////////////////////////////////
//
// Version
//
VS_VERSION_INFO VERSIONINFO
FILEVERSION 0,4,0,0
PRODUCTVERSION 0,4,0,0
FILEFLAGSMASK 0x3fL
#ifdef _DEBUG
FILEFLAGS 0x1L
#else
FILEFLAGS 0x0L
#endif
FILEOS 0x40004L
FILETYPE 0x2L
FILESUBTYPE 0x0L
BEGIN
    BLOCK "StringFileInfo"
    BEGIN
        BLOCK "040904b0"
        BEGIN
            VALUE "Comments", "TPC-C HTML DLL Server
(DBLIB)\0"
            VALUE "CompanyName", "Microsoft\0"
            VALUE "FileDescription", "TPC-C HTML DLL
Server (DBLIB)\0"
            VALUE "FileVersion", "0, 4, 0, 0\0"
            VALUE "InternalName", "tpcc\0"
            VALUE "LegalCopyright", "Copyright ©
1997\0"
            VALUE "OriginalFilename", "tpcc.dll\0"
            VALUE "ProductName", "Microsoft tpcc\0"
            VALUE "ProductVersion", "0, 4, 0, 0\0"
        END
    END
    BLOCK "VarFileInfo"
    BEGIN
        VALUE "Translation", 0x409, 1200

```

```

END
END
#endif // !_MAC

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

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

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

#endif // APSTUDIO_INVOKED

////////////////////////////////////
////////////////////////////////////
//
// Dialog
//
IDD_DIALOG1 DIALOG DISCARDABLE 0, 0, 186, 95
STYLE DS_MODALFRAME | WS_POPUP | WS_CAPTION |
WS_SYSMENU
CAPTION "Dialog"
FONT 8, "MS Sans Serif"
BEGIN
    DEFPUSHBUTTON "OK", IDOK, 129, 7, 50, 14
    PUSHBUTTON "Cancel", IDCANCEL, 129, 24, 50, 14
END

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

#ifdef APSTUDIO_INVOKED
GUIDELINES DESIGNINFO DISCARDABLE
BEGIN
    IDD_DIALOG1, DIALOG
    BEGIN
        LEFTMARGIN, 7
        RIGHTMARGIN, 179

```

```

TOPMARGIN, 7
BOTTOMMARGIN, 88
END
#endif // APSTUDIO_INVOKED

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

#endif

#ifdef APSTUDIO_INVOKED
////////////////////////////////////
////////////////////////////////////
//
// Generated from the TEXTINCLUDE 3 resource.
//

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

```

Tpcc.ubb

```

*RESOURCES
IPCKEY 133133

MAXACCESSERS 500
MAXSERVERS 100
MAXSERVICES 100
MODEL SHM
MASTER Master
LDBAL Y
SCANUNIT 15
BLOCKTIME 60
BBLQUERY 60

*MACHINES
DEFAULT:
IIS_NODE LMID= Master
TUXDIR="C:\tuxedo"
APPDIR="C:\InetPub\wwwroot"
TUXCONFIG="C:\InetPub\wwwroot\tuxconfig"
ULOGFX="C:\InetPub\wwwroot\ULOG"
TYPE="WinNT"
UID= 0
GID= 0

*GROUPS
GROUPNO
LMID=Master GRPNO=1 OPENINFO=NONE

GROUPPAY
LMID=Master GRPNO=2 OPENINFO=NONE

GROUPOS

```

```

        LMID=Master GRPNO=3 OPENINFO=NONE
GROUPSL      LMID=Master GRPNO=4 OPENINFO=NONE
GROUPDEL     LMID=Master GRPNO=5 OPENINFO=NONE

*SERVERS
DEFAULT:
tuxapp  SRVGRP=GROUPNO
        SRVID=100
        MIN=2 MAX=10
        CLOPT="-s NEWORDER -- -Sdbserver"
        RQADDR=newq REPLYQ=Y
tuxapp  SRVGRP=GROUPPAY
        SRVID=200
        MIN=2 MAX=10
        CLOPT="-s PAYMENT -- -Sdbserver"
        RQADDR=payq REPLYQ=Y
tuxapp  SRVGRP=GROUPOS
        SRVID=300
        MIN=1 MAX=2
        CLOPT="-s ORDERSTATUS -- -Sdbserver"
        RQADDR=ordq REPLYQ=Y
tuxapp  SRVGRP=GROUPSL
        SRVID=400
        MIN=2 MAX=5
        CLOPT="-s STOCKLEVEL -- -Sdbserver"
        RQADDR=stkq REPLYQ=Y
tuxapp  SRVGRP=GROUPDEL
        SRVID=500
        MIN=1 MAX=5
        CLOPT="-s DELIVERY -- -Sdbserver"
        RQADDR=delq REPLYQ=N

*SERVICES

```

tpcc_com.cpp

```

/* FILE: TPCC_COM.CPP
 * Microsoft
TPC-C Kit Ver. 4.20.000
 * Copyright
Microsoft, 1999
 * All Rights Reserved
 *
 * not yet
audited
 *
 * PURPOSE: Source file for TPC-C COM+ class
implementation.
 * Contact: Charles Levine
(clevine@microsoft.com)

```

```

 *
 * Change history:
 * 4.20.000 - first version
 */

// needed for CoInitializeEx
#define _WIN32_WINNT 0x0400

#include <windows.h>

// need to declare functions for export
#define DllDecl __declspec( dllexport )

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

#include "..\..\tpcc_com_ps\src\tpcc_com_ps_i.c"
#include "..\..\tpcc_com_all\src\tpcc_com_all_i.c"

// wrapper routine for class constructor
__declspec(dllexport) CTPCC_COM* CTPCC_COM_new(BOOL
bSinglePool)
{
    return new CTPCC_COM(bSinglePool);
}

CTPCC_COM::CTPCC_COM(BOOL bSinglePool)
{
    HRESULT hr = NULL;
    long lRet = 0;
    ULONG ulTmpSize = 0;

    m_pTxn = NULL;
    m_pNewOrder = NULL;
    m_pPayment = NULL;
    m_pStockLevel = NULL;
    m_pOrderStatus = NULL;

    m_bSinglePool = bSinglePool;

    ulTmpSize = (ULONG) sizeof(COM_DATA);
    VariantInit(&m_vTxn);
    m_vTxn.vt = VT_SAFEARRAY;

    m_vTxn.parray =
SafeArrayCreateVector(VT_UI1, ulTmpSize, ulTmpSize);
    if (!m_vTxn.parray)
        throw new CCOMERR( E_FAIL );

    memset((void*)m_vTxn.parray-
>pvData,0,ulTmpSize);
    m_pTxn = (COM_DATA*)m_vTxn.parray->pvData;

    hr = CoInitializeEx(NULL,
COINIT_MULTITHREADED);
    if (FAILED(hr))
    {
        throw new CCOMERR( hr );
    }
}

```

```

// create components
if (m_bSinglePool)
{
    hr = CoCreateInstance(CLSID_TPCC,
NULL, CLSCTX_SERVER, IID_ITPCC, (void
**)&m_pNewOrder);
    if (FAILED(hr))
        throw new CCOMERR(hr);

    // all txns will use same
component
    m_pPayment = m_pNewOrder;
    m_pStockLevel = m_pNewOrder;
    m_pOrderStatus = m_pNewOrder;
}
else
{
    // use different components for
each txn
    hr =
CoCreateInstance(CLSID_NewOrder, NULL, CLSCTX_SERVER,
IID_ITPCC, (void **)&m_pNewOrder);
    if (FAILED(hr))
        throw new CCOMERR(hr);

    hr =
CoCreateInstance(CLSID_Payment, NULL, CLSCTX_SERVER,
IID_ITPCC, (void **)&m_pPayment);
    if (FAILED(hr))
        throw new CCOMERR(hr);

    hr =
CoCreateInstance(CLSID_StockLevel, NULL,
CLSCTX_SERVER, IID_ITPCC, (void **)&m_pStockLevel);
    if (FAILED(hr))
        throw new CCOMERR(hr);

    hr =
CoCreateInstance(CLSID_OrderStatus, NULL,
CLSCTX_SERVER, IID_ITPCC, (void **)&m_pOrderStatus);
    if (FAILED(hr))
        throw new CCOMERR(hr);
}

// call setcomplete to release each
component back into pool
hr = m_pNewOrder->CallSetComplete();
if (FAILED(hr))
    throw new CCOMERR(hr);

if (!m_bSinglePool)
{
    hr = m_pPayment-
>CallSetComplete();
    if (FAILED(hr))
        throw new CCOMERR(hr);

    hr = m_pStockLevel-
>CallSetComplete();
    if (FAILED(hr))
        throw new CCOMERR(hr);
}

```

```

        hr = m_pOrderStatus-
>CallSetComplete();
        if (FAILED(hr))
            throw new CCOMERR(hr);
    }
}

CTPCC_COM::~CTPCC_COM()
{
    if (m_pTxn)
        SafeArrayDestroy(m_vTxn.parray);

    ReleaseInterface(m_pNewOrder);
    if (!m_bSinglePool)
    {
        ReleaseInterface(m_pPayment);
        ReleaseInterface(m_pStockLevel);
        ReleaseInterface(m_pOrderStatus);
    }
    CoUninitialize();
}

void CTPCC_COM::NewOrder()
{
    VARIANT    vTxn_out;

    HRESULT hr = m_pNewOrder->NewOrder(m_vTxn,
&vTxn_out);
    if (FAILED(hr))
        throw new CCOMERR( hr );
    memcpy(m_pTxn, (void *)vTxn_out.parray-
>pvData, vTxn_out.parray->rgsabound[0].cElements);
    SafeArrayDestroy(vTxn_out.parray);

    if ( m_pTxn->ErrorType != ERR_SUCCESS )
        throw new CCOMERR( m_pTxn-
>ErrorType, m_pTxn->error );
}

void CTPCC_COM::Payment()
{
    VARIANT    vTxn_out;

    HRESULT hr = m_pPayment->Payment(m_vTxn,
&vTxn_out);
    if (FAILED(hr))
        throw new CCOMERR( hr );
    memcpy(m_pTxn, (void *)vTxn_out.parray-
>pvData, vTxn_out.parray->rgsabound[0].cElements);
    SafeArrayDestroy(vTxn_out.parray);

    if ( m_pTxn->ErrorType != ERR_SUCCESS )
        throw new CCOMERR( m_pTxn-
>ErrorType, m_pTxn->error );
}

void CTPCC_COM::StockLevel()
{
    VARIANT    vTxn_out;

    HRESULT hr = m_pStockLevel-
>StockLevel(m_vTxn, &vTxn_out);

```

```

        if (FAILED(hr))
            throw new CCOMERR( hr );
    memcpy(m_pTxn, (void *)vTxn_out.parray-
>pvData, vTxn_out.parray->rgsabound[0].cElements);
    SafeArrayDestroy(vTxn_out.parray);

    if ( m_pTxn->ErrorType != ERR_SUCCESS )
        throw new CCOMERR( m_pTxn-
>ErrorType, m_pTxn->error );
}

void CTPCC_COM::OrderStatus()
{
    VARIANT    vTxn_out;

    HRESULT hr = m_pOrderStatus-
>OrderStatus(m_vTxn, &vTxn_out);
    if (FAILED(hr))
        throw new CCOMERR( hr );
    memcpy(m_pTxn, (void *)vTxn_out.parray-
>pvData, vTxn_out.parray->rgsabound[0].cElements);
    SafeArrayDestroy(vTxn_out.parray);

    if ( m_pTxn->ErrorType != ERR_SUCCESS )
        throw new CCOMERR( m_pTxn-
>ErrorType, m_pTxn->error );
}

```

tpcc_com.h

```

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

#pragma once

#include <stdio.h>
#include "..\..\tpcc_com_ps\src\tpcc_com_ps.h"

// need to declare functions for import, unless
// define has already been created
// by the DLL's .cpp module for export.
#ifdef DllDecl
#define DllDecl __declspec( dllimport )
#endif

class CCOMERR : public CBaseErr

```

```

{
private:
    char m_szErrorText[64];

public:
    // use this interface for genuine
    COM errors
    CCOMERR( HRESULT hr )
    {
        m_hr = hr;
        m_iErrorType = 0;
        m_iError = 0;
    }

    // use this interface to
    impersonate a non-COM error type
    CCOMERR( int iErrorType, int
iError )
    {
        m_iErrorType =
        m_iError = iError;
        m_hr = S_OK;
    }

    int        m_hr;
    int        m_iErrorType;
    int        m_iError;

    // A CCOMERR class can
    impersonate another
    class, which happens if the error
    // was not actually a COM
    Services error, but was simply transmitted back via
    COM.
    int ErrorType()
    {
        if (m_iErrorType == 0)
            return
ERR_TYPE_COM;
        else
            return
m_iErrorType;
    }

    int ErrorNum() {return m_hr;}

    char *ErrorText()
    {
        if (m_hr == S_OK)
            sprintf(
m_szErrorText, "Error: Class %d, error # %d",
m_iErrorType, m_iError );
        else
            sprintf(
m_szErrorText, "Error: COM HRESULT %x", m_hr );
        return m_szErrorText;
    }
};

class DllDecl CTPCC_COM : public CTPCC_BASE
{
private:
    BOOL m_bSinglePool;

```

```

        // COM Interface pointers
        ITPCC*
        m_pNewOrder;
        ITPCC*
        m_pPayment;
        ITPCC*
        m_pStockLevel;
        ITPCC*
        m_pOrderStatus;

        struct COM_DATA
        {
                int ErrorType;
                int error;
                union
                {
                        NEW_ORDER_DATA      NewOrder;
                        PAYMENT_DATA        Payment;
                        DELIVERY_DATA       Delivery;
                        STOCK_LEVEL_DATA    StockLevel;
                        ORDER_STATUS_DATA   OrderStatus;
                } *m_pTxn;

                VARIANTI m_vTxn;
        public:
                CTPCC_COM(BOOL bSinglePool);
                ~CTPCC_COM(void);

                inline PNEW_ORDER_DATA
                BuffAddr_NewOrder() { return
                &m_pTxn->u.NewOrder; };
                inline PPAYMENT_DATA
                BuffAddr_Payment() { return
                &m_pTxn->u.Payment; };
                inline PDELIVERY_DATA
                BuffAddr_Delivery() { return
                &m_pTxn->u.Delivery; };
                inline PSTOCK_LEVEL_DATA
                BuffAddr_StockLevel() { return
                &m_pTxn->u.StockLevel; };
                inline PORDER_STATUS_DATA
                BuffAddr_OrderStatus() { return
                &m_pTxn->u.OrderStatus; };

                void NewOrder      ();
                void Payment      ();
                void StockLevel    ();
                void OrderStatus   ();
                void Delivery      ()
        { throw new CCOMERR(E_NOTIMPL); } // not supported
        };

        inline void ReleaseInterface(IUnknown *pUnk)
        {
                if (pUnk)

```

```

        {
                pUnk->Release();
                pUnk = NULL;
        }
}

// wrapper routine for class constructor
extern "C" __declspec(dllexport) CTPCC_COM*
CTPCC_COM_new(BOOL);

typedef CTPCC_COM* (TYPE_CTPCC_COM) (BOOL);

tpcc_com_all.cpp

/*      FILE:          TPCC_COM_ALL.CPP
 *      Microsoft
 *      TPC-C Kit Ver. 4.20.000
 *      Copyright
 *      Microsoft, 1999
 *      All Rights Reserved
 *      Version
 *      4.10.000 audited by Richard Gimarc, Performance
 *      Metrics, 3/17/99
 *
 *      PURPOSE:  Implementation for TPC-C Tuxedo
 *      class.
 *      Contact:  Charles Levine
 *      (clevine@microsoft.com)
 *
 *      Change history:
 *      4.20.000 - updated rev number to
 *      match kit
 */

#define STRICT
#define _WIN32_WINNT 0x0400
#define _ATL_APARTMENT_THREADED

#include <stdio.h>
#include <atlbase.h>
//You may derive a class from CComModule and use it
if you want to override
//something, but do not change the name of _Module
extern CComModule _Module;

#include <atlcom.h>
#include <initguid.h>
#include <transact.h>
#include <atlimpl.cpp>
#include <comsvcs.h>

#include <sqltypes.h>
#include <sql.h>
#include <sqlext.h>

#include "tpcc_com_ps.h"
#include "..\..\common\src\trans.h"
//tpckit transaction

```

```

header contains definitions of structures specific to
TPC-C
#include "..\..\common\src\txn_base.h"
#include "..\..\common\src\error.h"
#include "..\..\common\src\ReadRegistry.h"
#include "..\..\db_dblib_dll\src\tpcc_dblib.h"
// DBLIB implementation of TPC-C txns
#include "..\..\db_odbc_dll\src\tpcc_odbc.h"
// ODBC implementation of TPC-C txns

#include "resource.h"
#include "tpcc_com_all.h"
#include "tpcc_com_all_i.c"
#include "Methods.h"
#include "..\..\tpcc_com_ps\src\tpcc_com_ps_i.c"
#include "..\..\common\src\ReadRegistry.cpp"

CComModule _Module;

BEGIN_OBJECT_MAP(ObjectMap)
OBJECT_ENTRY(CLSID_TPCC, CTPCC)
OBJECT_ENTRY(CLSID_NewOrder, CNewOrder)
OBJECT_ENTRY(CLSID_OrderStatus,
COrderStatus)
OBJECT_ENTRY(CLSID_Payment, CPayment)
OBJECT_ENTRY(CLSID_StockLevel, CStockLevel)
END_OBJECT_MAP()

// configuration settings from registry
TPCCREGISTRYDATA Reg;
char
        szMyComputerName[MAX_COMPUTERNAME_LENGTH+1];
;

static HINSTANCE hLibInstanceDb = NULL;

TYPE_CTPCC_DBLIB *pCTPCC_DBLIB_new;
TYPE_CTPCC_ODBC *pCTPCC_ODBC_new;

////////////////////////////////////
// DLL Entry Point

extern "C"
BOOL WINAPI DllMain(HINSTANCE hInstance, DWORD
dwReason, LPVOID /*lpReserved*/)
{
        char szDllName[128];

        try
        {
                if (dwReason ==
DLL_PROCESS_ATTACH)
                {
                        _Module.Init(ObjectMap,
hInstance);

DisableThreadLibraryCalls(hInstance);

```



```

        DWORD dwSize =
MAX_COMPUTERNAME_LENGTH+1;
        GetComputerName(szMyComputerName, &dwSize);
        szMyComputerName[dwSize] = 0;

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

        if (Reg.eDB_Protocol ==
DBLIB)
        {
            strcpy(
szDllName, Reg.szPath );
            strcat(
szDllName, "tpcc_dblib.dll");

            hLibInstanceDb = LoadLibrary( szDllName );
            if
(hLibInstanceDb == NULL)
                throw new CCOMPONENT_ERR(
ERR_LOADDLL_FAILED, szDllName, GetLastError() );

            // get
function pointer to wrapper for class constructor
            pCTPCC_DBLIB_new = (TYPE_CTPCC_DBLIB*)
GetProcAddress(hLibInstanceDb, "CTPCC_DBLIB_new");
            if
(pCTPCC_DBLIB_new == NULL)
                throw new CCOMPONENT_ERR(
ERR_GETPROCADDR_FAILED, szDllName, GetLastError() );
            else if
(Reg.eDB_Protocol == ODBC)
            {
                strcpy(
szDllName, Reg.szPath );
                strcat(
szDllName, "tpcc_odbc.dll");

                hLibInstanceDb = LoadLibrary( szDllName );
                if
(hLibInstanceDb == NULL)
                    throw new CCOMPONENT_ERR(
ERR_LOADDLL_FAILED, szDllName, GetLastError() );

                // get
function pointer to wrapper for class constructor
                pCTPCC_ODBC_new = (TYPE_CTPCC_ODBC*)
GetProcAddress(hLibInstanceDb, "CTPCC_ODBC_new");
                if
(pCTPCC_ODBC_new == NULL)
                    throw new CCOMPONENT_ERR(
ERR_GETPROCADDR_FAILED, szDllName, GetLastError() );

```

```

        }
        else
            throw new
CCOMPONENT_ERR( ERR_UNKNOWN_DB_PROTOCOL );
        }
        else if (dwReason ==
DLL_PROCESS_DETACH)
            _Module.Term();

        }
        catch (CBaseErr *e)
        {
            WriteMessageToEventLog(e-
>ErrorText());
            delete e;
            return FALSE;
        }
        catch (...)
        {
            WriteMessageToEventLog(TEXT("Unhandled
exception in object DllMain"));
            return FALSE;
        }

        return TRUE;    // OK
    }

    //////////////////////////////////////
    // Used to determine whether the DLL can be unloaded
    by OLE
    STDMETHOD DllCanUnloadNow(void)
    {
        return (_Module.GetLockCount()==0) ? S_OK :
S_FALSE;
    }

    //////////////////////////////////////
    // Returns a class factory to create an object of the
    requested type
    STDMETHOD DllGetClassObject(REFCLSID rclsid, REFIID
riid, LPVOID* ppv)
    {
        return _Module.GetClassObject(rclsid, riid,
ppv);
    }

    //////////////////////////////////////
    // DllRegisterServer - Adds entries to the system
    registry
    STDMETHOD DllRegisterServer(void)
    {
        // registers object, typelib and all
        interfaces in typelib
        return _Module.RegisterServer(TRUE);
    }

```

```

    //////////////////////////////////////
    // DllUnregisterServer - Removes entries from the
    system registry
    STDMETHOD DllUnregisterServer(void)
    {
        _Module.UnregisterServer();
        return S_OK;
    }

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

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

        _stprintf(szMsg, TEXT("Error in COM+ TPC-C
Component: "));
        lpszStrings[0] = szMsg;
        lpszStrings[1] = lpszMsg;

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

            (VOID) DeregisterEventSource(hEventSource);
        }
    }

    inline void ReleaseInterface(IUnknown *pUnk)
    {
        if (pUnk)
        {
            pUnk->Release();
            pUnk = NULL;
        }
    }

    /* FUNCTION: CCOMPONENT_ERR::ErrorText
    *
    */
    char* CCOMPONENT_ERR::ErrorText(void)

```

```

{
    static SERRORMSG errorMsgs[] =
    {
        { ERR_MISSING_REGISTRY_ENTRIES,
        "Required entries missing from registry."
        },
        { ERR_LOADDLL_FAILED,
        "Load of DLL failed. DLL="
        },
        { ERR_GETPROCADDR_FAILED,
        "Could not map proc in DLL. GetProcAddress. DLL="
        },
        { ERR_UNKNOWN_DB_PROTOCOL,
        "Unknown database protocol specified in registry."
        },
        { 0, ""
        }
    };

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

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

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

CTPCC_Common::CTPCC_Common()
{
    m_pTxn = NULL;
    m_bCanBePooled = TRUE;
}

CTPCC_Common::~~CTPCC_Common()
{

```

```

    if (m_pTxn)
        delete m_pTxn;
}

HRESULT CTPCC_Common::CallSetComplete()
{
    IObjectContext* pObjectContext = NULL;

    // get our object context
    HRESULT hr = CoGetObjectContext(
IID_IObjectContext, (void **)&pObjectContext );
    pObjectContext->SetComplete();
    ReleaseInterface(pObjectContext);
    return hr;
}

//
// called by the ctor activator
//
STDMETHODIMP CTPCC_Common::Construct(IDispatch *
pUnk)
{
    // Code to access construction string, if
needed later...
    // if (!pUnk)
    // return E_UNEXPECTED;
    // IObjectConstructString * pString
= NULL;
    // HRESULT hr = pUnk-
>QueryInterface(IID_IObjectConstructString, (void
**)&pString);
    // pString->Release();

    try
    {
        if (Reg.eDB_Protocol == ODBC)
            m_pTxn =
pCTPCC_ODBC_new( Reg.szDbServer, Reg.szDbUser,
Reg.szDbPassword, szMyComputerName, Reg.szDbName );
        else if (Reg.eDB_Protocol ==
DBLIB)
            m_pTxn =
pCTPCC_DBLIB_new( Reg.szDbServer, Reg.szDbUser,
Reg.szDbPassword, szMyComputerName, Reg.szDbName );
    }
    catch (CBaseErr *e)
    {
        WriteMessageToEventLog(e-
>ErrorText());
        delete e;
        return E_FAIL;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("Unhandled
exception in object ::Construct"));
        return E_FAIL;
    }

    return S_OK;
}

```

```

HRESULT CTPCC_Common::NewOrder(VARIANT txn_in,
VARIANT* txn_out)
{
    PNEW_ORDER_DATA pNewOrder;
    COM_DATA *pData;
    try
    {
        pData = (COM_DATA*)txn_in.parray-
>pvData;
        pNewOrder = m_pTxn-
>BuffAddr_NewOrder();

        memcpy(pNewOrder, &pData-
>u.NewOrder, sizeof(NEW_ORDER_DATA));

        m_pTxn->NewOrder(); //
do the actual txn

        VariantInit(txn_out);
        txn_out->vt = VT_SAFEARRAY;
        txn_out->parray =
SafeArrayCreateVector(VT_UI1,
txn_in.parray->rgsabound-
>cElements,
txn_in.parray->rgsabound-
>cElements);
        pData = (COM_DATA*) txn_out-
>parray->pvData;

        memcpy( &pData->u.NewOrder,
pNewOrder, sizeof(NEW_ORDER_DATA));

        pData->retval = ERR_SUCCESS;
        pData->error = 0;
        return S_OK;
    }
    catch (CBaseErr *e)
    {
        // check for lost database
connection; if yes, component is toast
        if ( (e->ErrorType() ==
ERR_TYPE_DBLIB) && (e->ErrorNum() == 10005) ||
(e->ErrorType() ==
ERR_TYPE_ODBC) && (e->ErrorNum() == 10054) )
            m_bCanBePooled = FALSE;

        pData->retval = e->ErrorType();
        pData->error = e->ErrorNum();
        delete e;
        return E_FAIL;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("Unhandled
exception."));

        pData->retval = ERR_TYPE_LOGIC;
        pData->error = 0;
        m_bCanBePooled = FALSE;
        return E_FAIL;
    }
}

```

```

}
HRESULT CTPCC_Common::Payment(VARIANT txn_in,
VARIANT* txn_out)
{
    PPAYMENT_DATA    pPayment;
    COM_DATA          *pData;
    try
    {
        pData = (COM_DATA*)txn_in.parray-
>pvData;
        pPayment = m_pTxn-
>BuffAddr_Payment();
        memcpy(pPayment, &pData-
>u.Payment, sizeof(PAYMENT_DATA));
        m_pTxn->Payment();        //
do the actual txn
        VariantInit(txn_out);
        txn_out->vt = VT_SAFEARRAY;
        txn_out->parray =
SafeArrayCreateVector( VT_UI1,
>cElements,
        txn_in.parray->rsgsabound-
>cElements);
        pData = (COM_DATA*) txn_out-
>parray->pvData;
        memcpy( &pData->u.Payment,
pPayment, sizeof(PAYMENT_DATA));
        pData->retval = ERR_SUCCESS;
        pData->error = 0;
        return S_OK;
    }
    catch (CBaseErr *e)
    {
        // check for lost database
connection; if yes, component is toast
        if ( ((e->ErrorType() ==
ERR_TYPE_DBLIB) && (e->ErrorNum() == 10005)) ||
            ((e->ErrorType() ==
ERR_TYPE_ODBC) && (e->ErrorNum() == 10054)) )
            m_bCanBePooled = FALSE;
        pData->retval = e->ErrorType();
        pData->error = e->ErrorNum();
        delete e;
        return E_FAIL;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("Unhandled
exception."));
        pData->retval = ERR_TYPE_LOGIC;
        pData->error = 0;
        m_bCanBePooled = FALSE;
    }
}

```

```

        return E_FAIL;
    }
}
HRESULT CTPCC_Common::StockLevel(VARIANT txn_in,
VARIANT* txn_out)
{
    PSTOCK_LEVEL_DATA pStockLevel;
    COM_DATA          *pData;
    try
    {
        pData = (COM_DATA*)txn_in.parray-
>pvData;
        pStockLevel = m_pTxn-
>BuffAddr_StockLevel();
        memcpy(pStockLevel, &pData-
>u.StockLevel, sizeof(STOCK_LEVEL_DATA));
        m_pTxn->StockLevel();
        VariantInit(txn_out);
        txn_out->vt = VT_SAFEARRAY;
        txn_out->parray =
SafeArrayCreateVector( VT_UI1,
>cElements,
        txn_in.parray->rsgsabound-
>cElements);
        pData = (COM_DATA*)txn_out-
>parray->pvData;
        memcpy( &pData->u.StockLevel,
pStockLevel, sizeof(STOCK_LEVEL_DATA));
        pData->retval = ERR_SUCCESS;
        pData->error = 0;
        return S_OK;
    }
    catch (CBaseErr *e)
    {
        // check for lost database
connection; if yes, component is toast
        if ( ((e->ErrorType() ==
ERR_TYPE_DBLIB) && (e->ErrorNum() == 10005)) ||
            ((e->ErrorType() ==
ERR_TYPE_ODBC) && (e->ErrorNum() == 10054)) )
            m_bCanBePooled = FALSE;
        pData->retval = e->ErrorType();
        pData->error = e->ErrorNum();
        delete e;
        return E_FAIL;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("Unhandled
exception."));
        pData->retval = ERR_TYPE_LOGIC;
    }
}

```

```

        pData->error = 0;
        m_bCanBePooled = FALSE;
        return E_FAIL;
    }
}
HRESULT CTPCC_Common::OrderStatus(VARIANT txn_in,
VARIANT* txn_out)
{
    PORDER_STATUS_DATA pOrderStatus;
    COM_DATA          *pData;
    try
    {
        pData = (COM_DATA*)txn_in.parray-
>pvData;
        pOrderStatus = m_pTxn-
>BuffAddr_OrderStatus();
        memcpy(pOrderStatus, &pData-
>u.OrderStatus, sizeof(ORDER_STATUS_DATA));
        m_pTxn->OrderStatus();
        VariantInit(txn_out);
        txn_out->vt = VT_SAFEARRAY;
        txn_out->parray =
SafeArrayCreateVector( VT_UI1,
>cElements,
        txn_in.parray->rsgsabound-
>cElements);
        pData = (COM_DATA*)txn_out-
>parray->pvData;
        memcpy( &pData->u.OrderStatus,
pOrderStatus, sizeof(ORDER_STATUS_DATA));
        pData->retval = ERR_SUCCESS;
        pData->error = 0;
        return S_OK;
    }
    catch (CBaseErr *e)
    {
        // check for lost database
connection; if yes, component is toast
        if ( ((e->ErrorType() ==
ERR_TYPE_DBLIB) && (e->ErrorNum() == 10005)) ||
            ((e->ErrorType() ==
ERR_TYPE_ODBC) && (e->ErrorNum() == 10054)) )
            m_bCanBePooled = FALSE;
        pData->retval = e->ErrorType();
        pData->error = e->ErrorNum();
        delete e;
        return E_FAIL;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("Unhandled
exception."));
    }
}

```

```

pData->retval = ERR_TYPE_LOGIC;
pData->error = 0;
m_bCanBePooled = FALSE;
return E_FAIL;
}
}

```

tpcc_com_all.def

```
; tpcc_com_all.def : Declares the module parameters.
```

```

LIBRARY      "tpcc_com_all.dll"

EXPORTS
    DllCanUnloadNow      @1 PRIVATE
    DllGetClassObject    @2 PRIVATE
    DllRegisterServer    @3 PRIVATE
    DllUnregisterServer  @4 PRIVATE

```

tpcc_com_all.dsp

```

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

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

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

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

```

```

RSC=rc.exe

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "Release"
# PROP BASE Intermediate_Dir "Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MT /W3 /GX /O2 /D "WIN32" /D
"NDEBUG" /D "_WINDOWS" /YX /FD /c
# ADD CPP /nologo /MT /W3 /GX /O2 /D "WIN32" /D
"NDEBUG" /D "_WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D "NDEBUG" /mktyplib203 /o
"NUL" /win32
# ADD MTL /nologo /D "NDEBUG" /mktyplib203 /o "NUL"
/win32
# ADD BASE RSC /l 0x409 /d "NDEBUG"
# ADD RSC /l 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbccp32.lib /nologo /subsystem:windows /dll /debug
/machine:I386
# ADD LINK32 ..\db_dblib_dll\bin\tpcc_dblib.lib
..\db_odbc_dll\bin\tpcc_odbc.lib kernel32.lib
user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib
uuid.lib odbc32.lib odbccp32.lib /nologo
/subsystem:windows /dll /machine:I386

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

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

```

```

# ADD RSC /l 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbccp32.lib /nologo /subsystem:windows /dll /debug
/machine:I386 /pdbtype:sept
# ADD LINK32 ..\db_dblib_dll\bin\tpcc_dblib.lib
..\db_odbc_dll\bin\tpcc_odbc.lib kernel32.lib
user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib
uuid.lib odbc32.lib odbccp32.lib /nologo
/subsystem:windows /dll /debug /machine:I386
/pdbtype:sept

!ENDIF

# Begin Target

# Name "tpcc_com_all - Win32 Release"
# Name "tpcc_com_all - Win32 Debug"
# Begin Group "Source"

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

SOURCE=.\src\tpcc_com_all.cpp
# SUBTRACT CPP /YX
# End Source File
# Begin Source File

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

SOURCE=.\src\tpcc_com_all.idl

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

# PROP Ignore_Default_Tool 1
# Begin Custom Build - Performing MIDL step
InputPath=.\src\tpcc_com_all.idl

BuildCmds= \
midl /Oic /h "tpcc_com_all.h" /iid
"tpcc_com_all_i.c" ".\src\tpcc_com_all.idl"
/out ".\src"

".\src\tpcc_com_all.tlb" : $(SOURCE) "$(INTDIR)"
"$(OUTDIR)"
$(BuildCmds)

".\src\tpcc_com_all.h" : $(SOURCE) "$(INTDIR)"
"$(OUTDIR)"
$(BuildCmds)

".\src\tpcc_com_all_i.c" : $(SOURCE) "$(INTDIR)"
"$(OUTDIR)"
$(BuildCmds)
# End Custom Build

```

```

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

# PROP Ignore_Default_Tool 1
# Begin Custom Build - Performing MIDL step
InputPath=.\src\tpcc_com_all.idl

BuildCmds= \
    midl /Oicf /h "tpcc_com_all.h" /iid
"tpcc_com_all_i.c"      ".\src\tpcc_com_all.idl"
/out ".\src"

".\src\tpcc_com_all.tlb" : $(SOURCE) "$(INTDIR)"
"$$(OUTDIR)"
    $(BuildCmds)

".\src\tpcc_com_all.h" : $(SOURCE) "$(INTDIR)"
"$$(OUTDIR)"
    $(BuildCmds)

".\src\tpcc_com_all_i.c" : $(SOURCE) "$(INTDIR)"
"$$(OUTDIR)"
    $(BuildCmds)
# End Custom Build

!ENDIF

# End Source File
# End Group
# Begin Group "Header"

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

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

SOURCE=.\src\resource.h
# End Source File
# End Group
# Begin Source File

SOURCE=.\src\tpcc_com_all.rc
# End Source File
# End Target
# End Project

```

tpcc_com_all.h

```

#pragma warning( disable: 4049 ) /* more than 64k
source lines */

/* this ALWAYS GENERATED file contains the
definitions for the interfaces */

/* File created by MIDL compiler version 5.03.0280
*/

```

```

/* at Thu Dec 13 23:13:14 2001
*/
/* Compiler settings for .\src\tpcc_com_all.idl:
Oicf (OptLev=i2), Wl, Zp8, env=Win32 (32b run),
ms_ext, c_ext
error checks: allocation ref bounds_check enum
stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany),
__declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@MIDL_FILE_HEADING( )

/* verify that the <rpcndr.h> version is high enough
to compile this file*/
#ifndef __REQUIRED_RPCNDR_H_VERSION__
#define __REQUIRED_RPCNDR_H_VERSION__ 440
#endif

#include "rpc.h"
#include "rpcndr.h"

#ifndef __tpcc_com_all_h__
#define __tpcc_com_all_h__

/* Forward Declarations */

#ifndef __TPCC_FWD_DEFINED__
#define __TPCC_FWD_DEFINED__

#ifdef __cplusplus
typedef class TPCC TPCC;
#else
typedef struct TPCC TPCC;
#endif /* __cplusplus */

#endif /* __TPCC_FWD_DEFINED__ */

#ifndef __NewOrder_FWD_DEFINED__
#define __NewOrder_FWD_DEFINED__

#ifdef __cplusplus
typedef class NewOrder NewOrder;
#else
typedef struct NewOrder NewOrder;
#endif /* __cplusplus */

#endif /* __NewOrder_FWD_DEFINED__ */

#ifndef __OrderStatus_FWD_DEFINED__
#define __OrderStatus_FWD_DEFINED__

#ifdef __cplusplus
typedef class OrderStatus OrderStatus;
#else
typedef struct OrderStatus OrderStatus;
#endif /* __cplusplus */

#endif /* __OrderStatus_FWD_DEFINED__ */

```

```

#ifndef __Payment_FWD_DEFINED__
#define __Payment_FWD_DEFINED__

#ifdef __cplusplus
typedef class Payment Payment;
#else
typedef struct Payment Payment;
#endif /* __cplusplus */

#endif /* __Payment_FWD_DEFINED__ */

#ifndef __StockLevel_FWD_DEFINED__
#define __StockLevel_FWD_DEFINED__

#ifdef __cplusplus
typedef class StockLevel StockLevel;
#else
typedef struct StockLevel StockLevel;
#endif /* __cplusplus */

#endif /* __StockLevel_FWD_DEFINED__ */

/* header files for imported files */
#include "oaidl.h"
#include "ocidl.h"
#include "tpcc_com_ps.h"

#ifdef __cplusplus
extern "C"{
#endif

void __RPC_FAR * __RPC_USER
MIDL_user_allocate(size_t);
void __RPC_USER MIDL_user_free( void __RPC_FAR * );

/* interface __MIDL_itf_tpcc_com_all_0000 */
/* [local] */

extern RPC_IF_HANDLE
__MIDL_itf_tpcc_com_all_0000_v0_0_c_ifspec;
extern RPC_IF_HANDLE
__MIDL_itf_tpcc_com_all_0000_v0_0_s_ifspec;

#ifndef __TPCCLib_LIBRARY_DEFINED__
#define __TPCCLib_LIBRARY_DEFINED__

/* library TPCCLib */
/* [helpstring][version][uuid] */

EXTERN_C const IID LIBID_TPCCLib;

```

```

EXTERN_C const CLSID CLSID_TPCC;

#ifdef __cplusplus
class DECLSPEC_UUID("122A3128-2520-11D3-BA71-00C04FBFE08B")
TPCC;
#endif

EXTERN_C const CLSID CLSID_NewOrder;

#ifdef __cplusplus
class DECLSPEC_UUID("975BAABF-84A7-11D2-BA47-00C04FBFE08B")
NewOrder;
#endif

EXTERN_C const CLSID CLSID_OrderStatus;

#ifdef __cplusplus
class DECLSPEC_UUID("266836AD-A50D-11D2-BA4E-00C04FBFE08B")
OrderStatus;
#endif

EXTERN_C const CLSID CLSID_Payment;

#ifdef __cplusplus
class DECLSPEC_UUID("CD02F7EF-A4FA-11D2-BA4E-00C04FBFE08B")
Payment;
#endif

EXTERN_C const CLSID CLSID_StockLevel;

#ifdef __cplusplus
class DECLSPEC_UUID("2668369E-A50D-11D2-BA4E-00C04FBFE08B")
StockLevel;
#endif
#endif /* __TPCCLib_LIBRARY_DEFINED__ */

/* Additional Prototypes for ALL interfaces */

/* end of Additional Prototypes */

#ifdef __cplusplus
}
#endif

#endif

```

tpcc_com_all.idl

```

/* FILE: TPCC.IDL Microsoft
 * TPC-C Kit Ver. 4.20.000 Copyright
 * Microsoft, 1999 All Rights Reserved
 * not yet audited
 * PURPOSE: IDL source for TPCC.dll. This
 * file is processed by the MIDL tool to
 * produce the type library (TPCC.tlb) and marshalling code.
 * Change history: 4.20.000 - first version
 */

interface TPCC;
interface NewOrder;
interface OrderStatus;
interface Payment;
interface StockLevel;

import "oaidl.idl";
import "ocidl.idl";
import "..\tpcc_com_ps\src\tpcc_com_ps.idl";

[
    uuid(122A3117-2520-11D3-BA71-00C04FBFE08B),
    version(1.0),
    helpstring("TPC-C 1.0 Type Library")
]
library TPCCLib
{
    importlib("stdole32.tlb");
    importlib("stdole2.tlb");

    [
        uuid(122A3128-2520-11D3-BA71-00C04FBFE08B),
        helpstring("All Txns Class")
    ]
    coclass TPCC
    {
        [default] interface ITPCC;
    };

    [
        uuid(975BAABF-84A7-11D2-BA47-00C04FBFE08B),
        helpstring("NewOrder Class")
    ]
    coclass NewOrder
    {
        [default] interface ITPCC;
    };
};

```

```

];

[
    uuid(266836AD-A50D-11D2-BA4E-00C04FBFE08B),
    helpstring("OrderStatus Class")
]
coclass OrderStatus
{
    [default] interface ITPCC;
};

[
    uuid(CD02F7EF-A4FA-11D2-BA4E-00C04FBFE08B),
    helpstring("Payment Class")
]
coclass Payment
{
    [default] interface ITPCC;
};

[
    uuid(2668369E-A50D-11D2-BA4E-00C04FBFE08B),
    helpstring("StockLevel Class")
]
coclass StockLevel
{
    [default] interface ITPCC;
};
};

```

tpcc_com_all.rc

```

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

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

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

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

```

```

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

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

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

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

3 TEXTINCLUDE DISCARDABLE
BEGIN
    "1 TYPELIB \"tpcc_com_all.tlb\"\r\n"
    "\0"
END

#endif // APSTUDIO_INVOKED

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

VS_VERSION_INFO VERSIONINFO
FILEVERSION 1,0,0,1
PRODUCTVERSION 1,0,0,1
FILEFLAGSMASK 0x3fL
#ifdef _DEBUG
FILEFLAGS 0x1L
#else
FILEFLAGS 0x0L
#endif
FILEOS 0x4L
FILETYPE 0x2L
FILESUBTYPE 0x0L
BEGIN
    BLOCK "StringFileInfo"
    BEGIN
        BLOCK "040904B0"
        BEGIN
            VALUE "CompanyName", "\0"
            VALUE "FileDescription", "tpcc_com_all
Module\0"
            VALUE "FileVersion", "1, 0, 0, 1\0"
            VALUE "InternalName", "TPCCNEWORDER\0"

```

```

        VALUE "LegalCopyright", "Copyright
1997\0"
        VALUE "OriginalFilename",
"tpcc_com_all.DLL\0"
        VALUE "ProductName", "tpcc_com_all
Module\0"
        VALUE "ProductVersion", "1, 0, 0, 1\0"
        VALUE "OLESelfRegister", "\0"
    END
END
BLOCK "VarFileInfo"
BEGIN
    VALUE "Translation", 0x409, 1200
END
END
#endif // !_MAC

////////////////////////////////////
////////////////////////////////////
//
// REGISTRY
//

IDR_TPCC                REGISTRY DISCARDABLE
"tpcc_com_all.rgs"
IDR_NEWORDER            REGISTRY DISCARDABLE
"tpcc_com_no.rgs"
IDR_ORDERSTATUS        REGISTRY DISCARDABLE
"tpcc_com_os.rgs"
IDR_PAYMENT             REGISTRY DISCARDABLE
"tpcc_com_pay.rgs"
IDR_STOCKLEVEL         REGISTRY DISCARDABLE
"tpcc_com_sl.rgs"

////////////////////////////////////
////////////////////////////////////
//
// String Table
//

STRINGTABLE DISCARDABLE
BEGIN
    IDS_PROJNAME        "tpcc_com_all"
END

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

#ifdef APSTUDIO_INVOKED
////////////////////////////////////
////////////////////////////////////
//
// Generated from the TEXTINCLUDE 3 resource.
//
1 TYPELIB "tpcc_com_all.tlb"

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

```

```

#endif // not APSTUDIO_INVOKED



---


tpcc_com_all.rgs


---


HKCR
{
    TPCC.AllTxns.1 = s 'All Txns Class'
    {
        CLSID = s '{122A3128-2520-11D3-
BA71-00C04FBFE08B}'
    }
    TPCC.AllTxns = s 'TPCC Class'
    {
        CurVer = s 'TPCC.AllTxns.1'
    }
    NoRemove CLSID
    {
        ForceRemove {122A3128-2520-11D3-
BA71-00C04FBFE08B} = s 'TPCC Class'
        {
            ProgID = s
'TPCC.AllTxns.1'
            VersionIndependentProgID = s 'TPCC.AllTxns'
            InprocServer32 = s
'%MODULE%'
            {
                val
ThreadingModel = s 'Both'
            }
        }
    }
}



---


tpcc_com_all_i.c


---


#pragma warning( disable: 4049 ) /* more than 64k
source lines */

/* this ALWAYS GENERATED file contains the IIDs and
CLSIDs */

/* link this file in with the server and any clients
*/

/* File created by MIDL compiler version 5.03.0280
*/
/* at Thu Dec 13 23:13:14 2001
*/
/* Compiler settings for .\src\tpcc_com_all.idl:
Oicf (OptLev=i2), Wl, Zp8, env=Win32 (32b run),
ms_ext, c_ext
error checks: allocation ref bounds_check enum
stub_data
VC __declspec() decoration level:

```

```

    __declspec(uuid()), __declspec(selectany),
    __declspec(novtable)
    DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@MIDL_FILE_HEADERING( )

#if !defined(_M_IA64) && !defined(_M_AXP64)

#ifdef __cplusplus
extern "C"{
#endif

#include <rpc.h>
#include <rpcndr.h>

#ifdef _MIDL_USE_GUIDDEF_

#ifndef INITGUID
#define INITGUID
#include <guiddef.h>
#undef INITGUID
#else
#include <guiddef.h>
#endif

#define
MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,
b7,b8) \

DEFINE_GUID(name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8)

#else // !_MIDL_USE_GUIDDEF_

#ifdef __IID_DEFINED__
#define __IID_DEFINED__

typedef struct _IID
{
    unsigned long x;
    unsigned short s1;
    unsigned short s2;
    unsigned char c[8];
} IID;

#endif // __IID_DEFINED__

#ifndef CLSID_DEFINED
#define CLSID_DEFINED
typedef IID CLSID;
#endif // CLSID_DEFINED

#define
MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,
b7,b8) \
    const type name =
{1,w1,w2,{b1,b2,b3,b4,b5,b6,b7,b8}}

#endif !_MIDL_USE_GUIDDEF_

MIDL_DEFINE_GUID(IID,
LIBID_TPCCLib,0x122A3117,0x2520,0x11D3,0xBA,0x71,0x00,
0xC0,0x4F,0xBF,0xE0,0x8B);

```

```

MIDL_DEFINE_GUID(CLSID,
CLSID_TPCC,0x122A3128,0x2520,0x11D3,0xBA,0x71,0x00,0x
C0,0x4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_NewOrder,0x975BAABF,0x84A7,0x11D2,0xBA,0x47,0x0
0,0xC0,0x4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_OrderStatus,0x266836AD,0xA50D,0x11D2,0xBA,0x4E,
0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_Payment,0xCD02F7EF,0xA4FA,0x11D2,0xBA,0x4E,0x00
,0xC0,0x4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_StockLevel,0x2668369E,0xA50D,0x11D2,0xBA,0x4E,0
x00,0xC0,0x4F,0xBF,0xE0,0x8B);

#undef MIDL_DEFINE_GUID

#ifdef __cplusplus
}
#endif

#endif /* !defined(_M_IA64) && !defined(_M_AXP64) */

#pragma warning( disable: 4049 ) /* more than 64k
source lines */

/* this ALWAYS GENERATED file contains the IIDs and
CLSIDs */

/* link this file in with the server and any clients
*/

/* File created by MIDL compiler version 5.03.0280
*/
/* at Thu Dec 13 23:13:14 2001
*/
/* Compiler settings for .\src\tpcc_com_all.idl:
Oicf (OptLev=i2), Wl, Zp8, env=Win64 (32b
run,appending), ms_ext, c_ext, robust
error checks: allocation ref bounds_check enum
stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany),
__declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@MIDL_FILE_HEADERING( )

```

```

#if defined(_M_IA64) || defined(_M_AXP64)

#ifdef __cplusplus
extern "C"{
#endif

#include <rpc.h>
#include <rpcndr.h>

#ifdef _MIDL_USE_GUIDDEF_

#ifndef INITGUID
#define INITGUID
#include <guiddef.h>
#undef INITGUID
#else
#include <guiddef.h>
#endif

#define
MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,
b7,b8) \

DEFINE_GUID(name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8)

#else // !_MIDL_USE_GUIDDEF_

#ifdef __IID_DEFINED__
#define __IID_DEFINED__

typedef struct _IID
{
    unsigned long x;
    unsigned short s1;
    unsigned short s2;
    unsigned char c[8];
} IID;

#endif // __IID_DEFINED__

#ifndef CLSID_DEFINED
#define CLSID_DEFINED
typedef IID CLSID;
#endif // CLSID_DEFINED

#define
MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,
b7,b8) \
    const type name =
{1,w1,w2,{b1,b2,b3,b4,b5,b6,b7,b8}}

#endif !_MIDL_USE_GUIDDEF_

MIDL_DEFINE_GUID(IID,
LIBID_TPCCLib,0x122A3117,0x2520,0x11D3,0xBA,0x71,0x00,
0xC0,0x4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_TPCC,0x122A3128,0x2520,0x11D3,0xBA,0x71,0x00,0x
C0,0x4F,0xBF,0xE0,0x8B);

```



```

!MESSAGE "tpcc_com_ps - Win32 Debug" (based on "Win32
(x86) Application")
!MESSAGE

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

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "Release"
# PROP BASE Intermediate_Dir "Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /GX /O2 /D "WIN32" /D
"NDEBUG" /D "_WINDOWS" /YX /FD /c
# ADD CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG"
/D "_WIN32_WINNT=0x0400" /D "REGISTER_PROXY_DLL" /FD /c
# SUBTRACT CPP /YX
# ADD BASE MTL /nologo /D "NDEBUG" /mktyplib203 /o
"NUL" /win32
# ADD MTL /nologo /D "NDEBUG" /mktyplib203 /o "NUL"
/win32
# ADD BASE RSC /l 0x409 /d "NDEBUG"
# ADD RSC /l 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbccp32.lib /nologo /subsystem:windows /machine:I386
# ADD LINK32 kernel32.lib rpcndr.lib rpcns4.lib
rpcrt4.lib oleaut32.lib uuid.lib /nologo
/entry:"DllMain" /subsystem:windows /dll /pdb:none
/machine:I386 /def:".src\tpcc_com_ps.def"
# Begin Custom Build - Copying tpcc_com_ps.h
InputPath=.\bin\tpcc_com_ps.dll
SOURCE="$(InputPath)"

"..\tpcc_com_all\src\tpcc_com_ps.h" : $(SOURCE)
"$(INTDIR) \ "$(OUTDIR) \
copy ..\src\tpcc_com_ps.h
..\tpcc_com_all\src\

# End Custom Build

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1

```

```

# PROP BASE Output_Dir "Debug"
# PROP BASE Intermediate_Dir "Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32"
/D "_DEBUG" /D "_WINDOWS" /YX /FD /c
# ADD CPP /nologo /ZI /Od /D "WIN32" /D "_DEBUG" /D
_WIN32_WINNT=0x0400 /D "REGISTER_PROXY_DLL" /FD /c
# ADD BASE MTL /nologo /D "_DEBUG" /mktyplib203 /o
"NUL" /win32
# ADD MTL /nologo /D "_DEBUG" /mktyplib203 /o "NUL"
/win32
# ADD BASE RSC /l 0x409 /d "_DEBUG"
# ADD RSC /l 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbccp32.lib /nologo /subsystem:windows /debug
/machine:I386 /pdbtype:sept
# ADD LINK32 kernel32.lib rpcndr.lib rpcns4.lib
rpcrt4.lib oleaut32.lib uuid.lib /nologo
/entry:"DllMain" /dll /debug /machine:IX86
/def:".src\tpcc_com_ps.def" /pdbtype:sept
# SUBTRACT LINK32 /pdb:none
# Begin Custom Build - Copying tpcc_com_ps.h
InputPath=.\bin\tpcc_com_ps.dll
SOURCE="$(InputPath)"

"..\tpcc_com_all\src\tpcc_com_ps.h" : $(SOURCE)
"$(INTDIR) \ "$(OUTDIR) \
copy ..\src\tpcc_com_ps.h
..\tpcc_com_all\src\

# End Custom Build

!ENDIF

# Begin Target

# Name "tpcc_com_ps - Win32 Release"
# Name "tpcc_com_ps - Win32 Debug"
# Begin Group "Source"

# PROP Default_Filter ""
# Begin Source File

SOURCE=.\src\dlldata.c
# End Source File
# Begin Source File

SOURCE=.\src\tpcc_com_ps.def
# PROP Exclude_From_Build 1
# End Source File
# Begin Source File

```

```

SOURCE=.\src\tpcc_com_ps.idl

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

# PROP Ignore_Default_Tool 1
# Begin Custom Build
InputPath=.\src\tpcc_com_ps.idl

BuildCmds= \
midl /Oicf /h "tpcc_com_ps.h" /iid
"tpcc_com_ps_i.c" ".\src\tpcc_com_ps.idl" /out
".\src"

".\src\tpcc_com_ps.h" : $(SOURCE) "$(INTDIR) "
"$(OUTDIR) "
$(BuildCmds)

".\src\tpcc_com_ps_i.c" : $(SOURCE) "$(INTDIR) "
"$(OUTDIR) "
$(BuildCmds)

".\src\dlldata.c" : $(SOURCE) "$(INTDIR) " "$(OUTDIR) "
$(BuildCmds)

".\src\tpcc_com_ps_p.c" : $(SOURCE) "$(INTDIR) "
"$(OUTDIR) "
$(BuildCmds)
# End Custom Build

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

# PROP Ignore_Default_Tool 1
# Begin Custom Build
InputPath=.\src\tpcc_com_ps.idl

BuildCmds= \
midl /Oicf /h "tpcc_com_ps.h" /iid
"tpcc_com_ps_i.c" ".\src\tpcc_com_ps.idl" /out
".\src"

".\src\tpcc_com_ps.h" : $(SOURCE) "$(INTDIR) "
"$(OUTDIR) "
$(BuildCmds)

".\src\tpcc_com_ps_i.c" : $(SOURCE) "$(INTDIR) "
"$(OUTDIR) "
$(BuildCmds)

".\src\dlldata.c" : $(SOURCE) "$(INTDIR) " "$(OUTDIR) "
$(BuildCmds)

".\src\tpcc_com_ps_p.c" : $(SOURCE) "$(INTDIR) "
"$(OUTDIR) "
$(BuildCmds)
# End Custom Build

!ENDIF

# End Source File
# Begin Source File

SOURCE=.\src\tpcc_com_ps_i.c

```

```

# End Source File
# Begin Source File

SOURCE=. \src\tpcc_com_ps_p.c
# End Source File
# End Group
# End Target
# End Project

```

tpcc_com_ps.h

```

#pragma warning( disable: 4049 ) /* more than 64k
source lines */

```

```

/* this ALWAYS GENERATED file contains the
definitions for the interfaces */

```

```

/* File created by MIDL compiler version 5.03.0280
*/
/* at Thu Dec 13 23:13:08 2001
*/
/* Compiler settings for .\src\tpcc_com_ps.idl:
Oicf (OptLev=i2), Wl, Zp8, env=Win32 (32b run),
ms_ext, c_ext
error checks: allocation ref bounds_check enum
stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany),
__declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@MIDL_FILE_HEADER( )

```

```

/* verify that the <rpcndr.h> version is high enough
to compile this file*/

```

```

#ifndef __REQUIRED_RPCNDR_H_VERSION__
#define __REQUIRED_RPCNDR_H_VERSION__ 440
#endif

```

```

#include "rpc.h"
#include "rpcndr.h"

```

```

#ifndef __RPCNDR_H_VERSION__
#error this stub requires an updated version of
<rpcndr.h>
#endif // __RPCNDR_H_VERSION__

```

```

#ifndef COM_NO_WINDOWS_H
#include "windows.h"
#include "ole2.h"
#endif /*COM_NO_WINDOWS_H*/

```

```

#ifndef __tpcc_com_ps_h__
#define __tpcc_com_ps_h__

```

```

/* Forward Declarations */

```

```

#ifndef __ITPCC_FWD_DEFINED__
#define __ITPCC_FWD_DEFINED__
typedef interface ITPCC ITPCC;
#endif /* __ITPCC_FWD_DEFINED__ */

```

```

/* header files for imported files */
#include "oidl.h"
#include "ocidl.h"

```

```

#ifdef __cplusplus
extern "C"{
#endif

```

```

void __RPC_FAR * __RPC_USER
MIDL_user_allocate(size_t);
void __RPC_USER MIDL_user_free( void __RPC_FAR * );

```

```

/* interface __MIDL_itf_tpcc_com_ps_0000 */
/* [local] */

```

```

extern RPC_IF_HANDLE
__MIDL_itf_tpcc_com_ps_0000_v0_0_c_ifspec;
extern RPC_IF_HANDLE
__MIDL_itf_tpcc_com_ps_0000_v0_0_s_ifspec;

```

```

#ifdef __ITPCC_INTERFACE_DEFINED__
#define __ITPCC_INTERFACE_DEFINED__

```

```

/* interface ITPCC */
/* [unique][helpstring][uuid][oleautomation][object]
*/

```

```

EXTERN_C const IID IID_ITPCC;

```

```

#if defined(__cplusplus) && !defined(CINTERFACE)

```

```

MIDL_INTERFACE("FEE6AA2-84B1-11d2-BA47-
00C04FBFE08B")

```

```

ITPCC : public IUnknown
{
public:
virtual HRESULT STDMETHODCALLTYPE NewOrder(
/* [in] */ VARIANT txn_in,
/* [out] */ VARIANT __RPC_FAR *txn_out) =
0;

virtual HRESULT STDMETHODCALLTYPE Payment(
/* [in] */ VARIANT txn_in,
/* [out] */ VARIANT __RPC_FAR *txn_out) =
0;

virtual HRESULT STDMETHODCALLTYPE Delivery(
/* [in] */ VARIANT txn_in,
/* [out] */ VARIANT __RPC_FAR *txn_out) =
0;

virtual HRESULT STDMETHODCALLTYPE StockLevel(
/* [in] */ VARIANT txn_in,

```

```

/* [out] */ VARIANT __RPC_FAR *txn_out) =
0;

virtual HRESULT STDMETHODCALLTYPE OrderStatus(
/* [in] */ VARIANT txn_in,
/* [out] */ VARIANT __RPC_FAR *txn_out) =
0;

virtual HRESULT STDMETHODCALLTYPE CallSetComplete(
void) = 0;
};

#else /* C style interface */

typedef struct ITPCCVtbl
{
BEGIN_INTERFACE

HRESULT ( STDMETHODCALLTYPE __RPC_FAR
*QueryInterface )(
ITPCC __RPC_FAR * This,
/* [in] */ REFIID riid,
/* [iid_is][out] */ void __RPC_FAR
__RPC_FAR *ppvObject);

ULONG ( STDMETHODCALLTYPE __RPC_FAR *AddRef
)(
ITPCC __RPC_FAR * This);

ULONG ( STDMETHODCALLTYPE __RPC_FAR *Release
)(
ITPCC __RPC_FAR * This);

HRESULT ( STDMETHODCALLTYPE __RPC_FAR *NewOrder )(
ITPCC __RPC_FAR * This,
/* [in] */ VARIANT txn_in,
/* [out] */ VARIANT __RPC_FAR *txn_out);

HRESULT ( STDMETHODCALLTYPE __RPC_FAR *Payment )(
ITPCC __RPC_FAR * This,
/* [in] */ VARIANT txn_in,
/* [out] */ VARIANT __RPC_FAR *txn_out);

HRESULT ( STDMETHODCALLTYPE __RPC_FAR *Delivery )(
ITPCC __RPC_FAR * This,
/* [in] */ VARIANT txn_in,
/* [out] */ VARIANT __RPC_FAR *txn_out);

HRESULT ( STDMETHODCALLTYPE __RPC_FAR *StockLevel )(
ITPCC __RPC_FAR * This,
/* [in] */ VARIANT txn_in,
/* [out] */ VARIANT __RPC_FAR *txn_out);

HRESULT ( STDMETHODCALLTYPE __RPC_FAR *OrderStatus )(
ITPCC __RPC_FAR * This,
/* [in] */ VARIANT txn_in,
/* [out] */ VARIANT __RPC_FAR *txn_out);

HRESULT ( STDMETHODCALLTYPE __RPC_FAR
*CallSetComplete )(
ITPCC __RPC_FAR * This);

```

```

        END_INTERFACE
    } ITPCCVtbl;

    interface ITPCC
    {
        CONST_VTBL struct ITPCCVtbl __RPC_FAR
        *lpVtbl;
    };

#ifdef COBJMACROS

#define ITPCC_QueryInterface(This,riid,ppvObject) \
    QueryInterface(This,riid,ppvObject)

#define ITPCC_AddRef(This) \
    (This)->lpVtbl -> AddRef(This)

#define ITPCC_Release(This) \
    (This)->lpVtbl -> Release(This)

#define ITPCC_NewOrder(This,txn_in,txn_out) \
    (This)->lpVtbl -> NewOrder(This,txn_in,txn_out)

#define ITPCC_Payment(This,txn_in,txn_out) \
    (This)->lpVtbl -> Payment(This,txn_in,txn_out)

#define ITPCC_Delivery(This,txn_in,txn_out) \
    (This)->lpVtbl -> Delivery(This,txn_in,txn_out)

#define ITPCC_StockLevel(This,txn_in,txn_out) \
    (This)->lpVtbl -> StockLevel(This,txn_in,txn_out)

#define ITPCC_OrderStatus(This,txn_in,txn_out) \
    (This)->lpVtbl -> OrderStatus(This,txn_in,txn_out)

#define ITPCC_CallSetComplete(This) \
    (This)->lpVtbl -> CallSetComplete(This)

#endif /* COBJMACROS */

#endif /* C style interface */

HRESULT STDMETHODCALLTYPE ITPCC_NewOrder_Proxy(
    ITPCC __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);

void __RPC_STUB ITPCC_NewOrder_Stub(
    IrpcStubBuffer *This,
    IrpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE _pRpcMessage,
    DWORD *_pdwStubPhase);

```

```

HRESULT STDMETHODCALLTYPE ITPCC_Payment_Proxy(
    ITPCC __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);

void __RPC_STUB ITPCC_Payment_Stub(
    IrpcStubBuffer *This,
    IrpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE _pRpcMessage,
    DWORD *_pdwStubPhase);

HRESULT STDMETHODCALLTYPE ITPCC_Delivery_Proxy(
    ITPCC __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);

void __RPC_STUB ITPCC_Delivery_Stub(
    IrpcStubBuffer *This,
    IrpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE _pRpcMessage,
    DWORD *_pdwStubPhase);

HRESULT STDMETHODCALLTYPE ITPCC_StockLevel_Proxy(
    ITPCC __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);

void __RPC_STUB ITPCC_StockLevel_Stub(
    IrpcStubBuffer *This,
    IrpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE _pRpcMessage,
    DWORD *_pdwStubPhase);

HRESULT STDMETHODCALLTYPE ITPCC_OrderStatus_Proxy(
    ITPCC __RPC_FAR * This,
    /* [in] */ VARIANT txn_in,
    /* [out] */ VARIANT __RPC_FAR *txn_out);

void __RPC_STUB ITPCC_OrderStatus_Stub(
    IrpcStubBuffer *This,
    IrpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE _pRpcMessage,
    DWORD *_pdwStubPhase);

HRESULT STDMETHODCALLTYPE ITPCC_CallSetComplete_Proxy(
    ITPCC __RPC_FAR * This);

void __RPC_STUB ITPCC_CallSetComplete_Stub(
    IrpcStubBuffer *This,
    IrpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE _pRpcMessage,
    DWORD *_pdwStubPhase);

```

```

#endif /* __ITPCC_INTERFACE_DEFINED__ */

/* Additional Prototypes for ALL interfaces */

unsigned long             __RPC_USER
VARIANT_UserSize(        unsigned long __RPC_FAR *,
    unsigned long         , VARIANT __RPC_FAR * );
unsigned char             __RPC_USER
VARIANT_UserMarshal(    unsigned long __RPC_FAR *,
    unsigned char __RPC_FAR *, VARIANT __RPC_FAR * );
unsigned char             __RPC_USER
VARIANT_UserUnmarshal(unsigned long __RPC_FAR *,
    unsigned char __RPC_FAR *, VARIANT __RPC_FAR * );
void                     __RPC_USER
VARIANT_UserFree(       unsigned long __RPC_FAR *,
    VARIANT __RPC_FAR * );

/* end of Additional Prototypes */

#ifdef __cplusplus
}
#endif

#endif

```

tpcc_com_ps.idl

```

/* FILE: ITPCC.IDL
 * Microsoft
 * TPC-C Kit Ver. 4.20.000
 * Copyright
 * Microsoft, 1999
 * All Rights Reserved
 * not yet
 * audited
 *
 * PURPOSE: Defines the interface used by
 * TPCC. This interface can be implemented by C++
 * components.
 *
 * Change history:
 * 4.20.000 - first version
 */

// Forward declare all types defined
interface ITPCC;
import "oidl.idl";
import "ocidl.idl";

[
    object,
    oleautomation,
    uuid(FEEE6AA2-84B1-11d2-BA47-
00C04FBFE08B),

```

```

        helpstring("ITPCC Interface"),
        pointer_default(unique)
    }
    interface ITPCC : IUnknown
    {
HRESULT _stdcall NewOrder

    (
        [in] VARIANT txn_in,
        [out] VARIANT *txn_out
    );
HRESULT _stdcall Payment

    (
        [in] VARIANT txn_in,
        [out] VARIANT *txn_out
    );
HRESULT _stdcall Delivery

    (
        [in] VARIANT txn_in,
        [out] VARIANT *txn_out
    );
HRESULT _stdcall StockLevel

    (
        [in] VARIANT txn_in,
        [out] VARIANT *txn_out
    );
HRESULT _stdcall OrderStatus

    (
        [in] VARIANT txn_in,
        [out] VARIANT *txn_out
    );
HRESULT _stdcall CallSetComplete

    (
    );
}; // interface ITPCC

```

tpcc_com_ps_i.c

```

#pragma warning( disable: 4049 ) /* more than 64k
source lines */

/* this ALWAYS GENERATED file contains the IIDs and
CLSIDs */

/* link this file in with the server and any clients
*/

/* File created by MIDL compiler version 5.03.0280
*/
/* at Thu Dec 13 23:13:08 2001
*/
/* Compiler settings for .\src\tpcc_com_ps.idl:
Oicf (OptLev=i2), Wl, Zp8, env=Win32 (32b run),
ms_ext, c_ext
error checks: allocation ref bounds_check enum
stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany),
__declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@MIDL_FILE_HEADING( )

#if !defined(_M_IA64) && !defined(_M_AXP64)

#ifdef __cplusplus
extern "C"{
#endif

#include <rpc.h>
#include <rpcndr.h>

#ifdef _MIDL_USE_GUIDDEF_

#ifndef INITGUID
#define INITGUID
#include <guiddef.h>
#undef INITGUID
#else
#include <guiddef.h>
#endif

#define
MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,
b7,b8) \

DEFINE_GUID(name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8)

#else // !_MIDL_USE_GUIDDEF_

```

```

#ifndef __IID_DEFINED__
#define __IID_DEFINED__

typedef struct _IID
{
    unsigned long x;
    unsigned short s1;
    unsigned short s2;
    unsigned char c[8];
} IID;

#endif // __IID_DEFINED__

#ifndef CLSID_DEFINED
#define CLSID_DEFINED
typedef IID CLSID;
#endif // CLSID_DEFINED

#define
MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,
b7,b8) \
    const type name =
{1,w1,w2,{b1,b2,b3,b4,b5,b6,b7,b8}}

#endif !_MIDL_USE_GUIDDEF_

MIDL_DEFINE_GUID(IID,
IID_ITPCC,0xFEEE6AA2,0x84B1,0x11d2,0xBA,0x47,0x00,0x00,
0,0x4F,0xBF,0xE0,0x8B);

#undef MIDL_DEFINE_GUID

#ifdef __cplusplus
}
#endif

#endif /* !defined(_M_IA64) && !defined(_M_AXP64) */

#pragma warning( disable: 4049 ) /* more than 64k
source lines */

/* this ALWAYS GENERATED file contains the IIDs and
CLSIDs */

/* link this file in with the server and any clients
*/

/* File created by MIDL compiler version 5.03.0280
*/
/* at Thu Dec 13 23:13:08 2001
*/
/* Compiler settings for .\src\tpcc_com_ps.idl:
Oicf (OptLev=i2), Wl, Zp8, env=Win64 (32b
run,appending), ms_ext, c_ext, robust
error checks: allocation ref bounds_check enum
stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany),
__declspec(novtable)

```

```

DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@MIDL_FILE_HEADING( )

#ifdef defined(_M_IA64) || defined(_M_AXP64)

#ifdef __cplusplus
extern "C"{
#endif

#include <rpc.h>
#include <rpcndr.h>

#ifdef _MIDL_USE_GUIDDEF_

#ifndef INITGUID
#define INITGUID
#include <guiddef.h>
#undef INITGUID
#else
#include <guiddef.h>
#endif

#define
MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,
b7,b8) \

DEFINE_GUID(name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8)

#else // !_MIDL_USE_GUIDDEF_

#ifndef __IID_DEFINED__
#define __IID_DEFINED__

typedef struct _IID
{
    unsigned long x;
    unsigned short s1;
    unsigned short s2;
    unsigned char c[8];
} IID;

#endif // __IID_DEFINED__

#ifndef CLSID_DEFINED
#define CLSID_DEFINED
typedef IID CLSID;
#endif // CLSID_DEFINED

#define
MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,
b7,b8) \
    const type name =
    {l,w1,w2,{b1,b2,b3,b4,b5,b6,b7,b8}}

#endif !_MIDL_USE_GUIDDEF_

MIDL_DEFINE_GUID(IID,
IID_ITPCC,0xFEEE6AA2,0x84B1,0x11d2,0xBA,0x47,0x00,0x0,
0,0x4F,0xBF,0xE0,0x8B);

#undef MIDL_DEFINE_GUID

```

```

#ifdef __cplusplus
}
#endif

#endif /* defined(_M_IA64) || defined(_M_AXP64) */

```

tpcc_com_ps_p.c

```

#pragma warning( disable: 4049 ) /* more than 64k
source lines */

/* this ALWAYS GENERATED file contains the proxy stub
code */

/* File created by MIDL compiler version 5.03.0280
*/
/* at Thu Dec 13 23:13:08 2001
*/
/* Compiler settings for .\src\tpcc_com_ps.idl:
Oicf (OptLev=i2), Wl, Zp8, env=Win32 (32b run),
ms_ext, c_ext
error checks: allocation ref bounds_check enum
stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany),
__declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@MIDL_FILE_HEADING( )

#ifdef defined(_M_IA64) && !defined(_M_AXP64)
#define USE_STUBLESS_PROXY

/* verify that the <rpcproxy.h> version is high
enough to compile this file*/
#ifdef __REDQ_RPCPROXY_H_VERSION__
#define __REQUIRED_RPCPROXY_H_VERSION__ 440
#endif

#include "rpcproxy.h"
#ifdef __RPCPROXY_H_VERSION__
#error this stub requires an updated version of
<rpcproxy.h>
#endif // __RPCPROXY_H_VERSION__

#include "tpcc_com_ps.h"

#define TYPE_FORMAT_STRING_SIZE 997
#define PROC_FORMAT_STRING_SIZE 193
#define TRANSMIT_AS_TABLE_SIZE 0
#define WIRE_MARSHAL_TABLE_SIZE 1

```

```

typedef struct _MIDL_TYPE_FORMAT_STRING
{
    short Pad;
    unsigned char Format[ TYPE_FORMAT_STRING_SIZE ];
} MIDL_TYPE_FORMAT_STRING;

typedef struct _MIDL_PROC_FORMAT_STRING
{
    short Pad;
    unsigned char Format[ PROC_FORMAT_STRING_SIZE ];
} MIDL_PROC_FORMAT_STRING;

extern const MIDL_TYPE_FORMAT_STRING
__MIDL_TypeFormatString;
extern const MIDL_PROC_FORMAT_STRING
__MIDL_ProcFormatString;

/* Standard interface: __MIDL_itf_tpcc_com_ps_0000,
ver. 0.0,

GUID={0x00000000,0x0000,0x0000,{0x00,0x00,0x00,0x00,0
x00,0x00,0x00,0x00}} */

/* Object interface: IUnknown, ver. 0.0,

GUID={0x00000000,0x0000,0x0000,{0xC0,0x00,0x00,0x00,0
x00,0x00,0x00,0x46}} */

/* Object interface: ITPCC, ver. 0.0,

GUID={0xFEEE6AA2,0x84B1,0x11d2,{0xBA,0x47,0x00,0xC0,0
x4F,0xBF,0xE0,0x8B}} */

extern const MIDL_STUB_DESC Object_StubDesc;

extern const MIDL_SERVER_INFO ITPCC_ServerInfo;

#pragma code_seg(".orpc")
static const unsigned short
ITPCC_FormatStringOffsetTable[] =
{
    0,
    34,
    68,
    102,
    136,
    170
};

static const MIDL_SERVER_INFO ITPCC_ServerInfo =
{
    &Object_StubDesc,
    0,
    __MIDL_ProcFormatString.Format,
    &ITPCC_FormatStringOffsetTable[-3],
    0,

```

```

0,
0,
0
};

static const MIDL_STUBLESS_PROXY_INFO ITPCC_ProxyInfo
=
{
  &Object_StubDesc,
  __MIDL_ProcFormatString.Format,
  &ITPCC_FormatStringOffsetTable[-3],
  0,
  0,
  0;
};

CINTERFACE_PROXY_VTABLE(9) _ITPCCProxyVtbl =
{
  &ITPCC_ProxyInfo,
  &IID_ITPCC,
  IUnknown_QueryInterface_Proxy,
  IUnknown_AddRef_Proxy,
  IUnknown_Release_Proxy ,
  (void *)-1 /* ITPCC::NewOrder */ ,
  (void *)-1 /* ITPCC::Payment */ ,
  (void *)-1 /* ITPCC::Delivery */ ,
  (void *)-1 /* ITPCC::StockLevel */ ,
  (void *)-1 /* ITPCC::OrderStatus */ ,
  (void *)-1 /* ITPCC::CallSetComplete */
};

const CInterfaceStubVtbl _ITPCCStubVtbl =
{
  &IID_ITPCC,
  &ITPCC_ServerInfo,
  9,
  0, /* pure interpreted */
  CStdStubBuffer_METHODS
};

extern const USER_MARSHAL_ROUTINE_QUADRUPLE
UserMarshalRoutines[ WIRE_MARSHAL_TABLE_SIZE ];

static const MIDL_STUB_DESC Object_StubDesc =
{
  0,
  NdrOleAllocate,
  NdrOleFree,
  0,
  0,
  0,
  0,
  0,
  __MIDL_TypeFormatString.Format,
  1, /* -error bounds_check flag */
  0x20000, /* Ndr library version */
  0,
  0x5030118, /* MIDL Version 5.3.280 */
  0,
  UserMarshalRoutines,
  0, /* notify & notify_flag routine table */
  0x1, /* MIDL flag */
  0, /* Reserved3 */
};

```

```

0, /* Reserved4 */
0 /* Reserved5 */
};

#pragma data_seg(".rdata")

static const USER_MARSHAL_ROUTINE_QUADRUPLE
UserMarshalRoutines[ WIRE_MARSHAL_TABLE_SIZE ] =
{
  {
    VARIANT_UserSize
    ,VARIANT_UserMarshal
    ,VARIANT_UserUnmarshal
    ,VARIANT_UserFree
  }
};

#if !defined(__RPC_WIN32__)
#error Invalid build platform for this stub.
#endif

#if !(TARGET_IS_NT40_OR_LATER)
#error You need a Windows NT 4.0 or later to run this
stub because it uses these features:
#error -Oif or -Oicf, [wire_marshall] or
[user_marshall] attribute.
#error However, your C/C++ compilation flags indicate
you intend to run this app on earlier systems.
#error This app will die there with the
RPC_X_WRONG_STUB_VERSION error.
#endif

static const MIDL_PROC_FORMAT_STRING
__MIDL_ProcFormatString =
{
  0,
  {
    /* Procedure NewOrder */
    FC_AUTO_HANDLE /* 0x33, */
    Old Flags: object, Oi2 /*
    /* 2 */ NdrFcLong( 0x0 ), /* 0 */
    /* 6 */ NdrFcShort( 0x3 ), /* 3 */
    #ifndef _ALPHA_
    #ifndef _PPC_
    #if !defined(_MIPS_)
    /* 8 */ NdrFcShort( 0x1c ), /* x86 Stack
    size/offset = 28 */
    #else
    NdrFcShort( 0x20 ), /*
    MIPS Stack size/offset = 32 */
    #endif
    #else
    NdrFcShort( 0x20 ), /*
    PPC Stack size/offset = 32 */
    #endif
  }
};

```

```

#else
NdrFcShort( 0x28 ), /*
Alpha Stack size/offset = 40 */
#endif
/* 10 */ NdrFcShort( 0x0 ), /* 0 */
/* 12 */ NdrFcShort( 0x8 ), /* 8 */
/* 14 */ 0x7, /* Oi2 Flags: srv must
size, clt must size, has return, */
0x3, /*
3 */

/* Parameter txn_in */

/* 16 */ NdrFcShort( 0x8b ), /* Flags: must size,
must free, in, by val, */
#ifndef _ALPHA_
#ifndef _PPC_
#if !defined(_MIPS_)
/* 18 */ NdrFcShort( 0x4 ), /* x86 Stack
size/offset = 4 */
#else
NdrFcShort( 0x8 ), /*
MIPS Stack size/offset = 8 */
#endif
#else
NdrFcShort( 0x8 ), /*
PPC Stack size/offset = 8 */
#endif
#else
NdrFcShort( 0x8 ), /*
Alpha Stack size/offset = 8 */
#endif
/* 20 */ NdrFcShort( 0x3c8 ), /* Type
Offset=968 */

/* Parameter txn_out */

/* 22 */ NdrFcShort( 0x4113 ), /* Flags:
must size, must free, out, simple ref, srv alloc
size=16 */
#ifndef _ALPHA_
#ifndef _PPC_
#if !defined(_MIPS_)
/* 24 */ NdrFcShort( 0x14 ), /* x86 Stack
size/offset = 20 */
#else
NdrFcShort( 0x18 ), /*
MIPS Stack size/offset = 24 */
#endif
#else
NdrFcShort( 0x18 ), /*
PPC Stack size/offset = 24 */
#endif
#else
NdrFcShort( 0x18 ), /*
Alpha Stack size/offset = 24 */
#endif
/* 26 */ NdrFcShort( 0x3da ), /* Type
Offset=986 */

/* Return value */

```

```

/* 28 */ NdrFcShort( 0x70 ), /* Flags: out, return,
base type, */
#ifdef _ALPHA_
#ifdef _PPC_
#if !defined(_MIPS_)
/* 30 */ NdrFcShort( 0x18 ), /* x86 Stack
size/offset = 24 */
#else
NdrFcShort( 0x1c ), /*
MIPS Stack size/offset = 28 */
#endif
#else
NdrFcShort( 0x1c ), /*
PPC Stack size/offset = 28 */
#endif
#else
NdrFcShort( 0x20 ), /*
Alpha Stack size/offset = 32 */
#endif
/* 32 */ 0x8, /* FC_LONG */
0x0, /*
0 */

/* Procedure Payment */

/* 34 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /*
Old Flags: object, Oi2 */
/* 36 */ NdrFcLong( 0x0 ), /* 0 */
/* 40 */ NdrFcShort( 0x4 ), /* 4 */
#ifdef _ALPHA_
#ifdef _PPC_
#if !defined(_MIPS_)
/* 42 */ NdrFcShort( 0x1c ), /* x86 Stack
size/offset = 28 */
#else
NdrFcShort( 0x20 ), /*
MIPS Stack size/offset = 32 */
#endif
#else
NdrFcShort( 0x20 ), /*
PPC Stack size/offset = 32 */
#endif
#else
NdrFcShort( 0x28 ), /*
Alpha Stack size/offset = 40 */
#endif
/* 44 */ NdrFcShort( 0x0 ), /* 0 */
/* 46 */ NdrFcShort( 0x8 ), /* 8 */
/* 48 */ 0x7, /* Oi2 Flags: srv must
size, clt must size, has return, */
0x3, /*
3 */

/* Parameter txn_in */

/* 50 */ NdrFcShort( 0x8b ), /* Flags: must size,
must free, in, by val, */
#ifdef _ALPHA_
#ifdef _PPC_
#if !defined(_MIPS_)
/* 52 */ NdrFcShort( 0x4 ), /* x86 Stack
size/offset = 4 */

```

```

#else
NdrFcShort( 0x8 ), /*
MIPS Stack size/offset = 8 */
#endif
#else
NdrFcShort( 0x8 ), /*
PPC Stack size/offset = 8 */
#endif
#else
NdrFcShort( 0x8 ), /*
Alpha Stack size/offset = 8 */
#endif
/* 54 */ NdrFcShort( 0x3c8 ), /* Type
Offset=968 */

/* Parameter txn_out */

/* 56 */ NdrFcShort( 0x4113 ), /* Flags:
must size, must free, out, simple ref, srv alloc
size=16 */
#ifdef _ALPHA_
#ifdef _PPC_
#if !defined(_MIPS_)
/* 58 */ NdrFcShort( 0x14 ), /* x86 Stack
size/offset = 20 */
#else
NdrFcShort( 0x18 ), /*
MIPS Stack size/offset = 24 */
#endif
#else
NdrFcShort( 0x18 ), /*
PPC Stack size/offset = 24 */
#endif
#else
NdrFcShort( 0x18 ), /*
Alpha Stack size/offset = 24 */
#endif
/* 60 */ NdrFcShort( 0x3da ), /* Type
Offset=986 */

/* Return value */

/* 62 */ NdrFcShort( 0x70 ), /* Flags: out, return,
base type, */
#ifdef _ALPHA_
#ifdef _PPC_
#if !defined(_MIPS_)
/* 64 */ NdrFcShort( 0x18 ), /* x86 Stack
size/offset = 24 */
#else
NdrFcShort( 0x1c ), /*
MIPS Stack size/offset = 28 */
#endif
#else
NdrFcShort( 0x1c ), /*
PPC Stack size/offset = 28 */
#endif
#else
NdrFcShort( 0x20 ), /*
Alpha Stack size/offset = 32 */
#endif
/* 66 */ 0x8, /* FC_LONG */

```

```

0x0, /*
0 */

/* Procedure Delivery */

/* 68 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /*
Old Flags: object, Oi2 */
/* 70 */ NdrFcLong( 0x0 ), /* 0 */
/* 74 */ NdrFcShort( 0x5 ), /* 5 */
#ifdef _ALPHA_
#ifdef _PPC_
#if !defined(_MIPS_)
/* 76 */ NdrFcShort( 0x1c ), /* x86 Stack
size/offset = 28 */
#else
NdrFcShort( 0x20 ), /*
MIPS Stack size/offset = 32 */
#endif
#else
NdrFcShort( 0x20 ), /*
PPC Stack size/offset = 32 */
#endif
#else
NdrFcShort( 0x28 ), /*
Alpha Stack size/offset = 40 */
#endif
/* 78 */ NdrFcShort( 0x0 ), /* 0 */
/* 80 */ NdrFcShort( 0x8 ), /* 8 */
/* 82 */ 0x7, /* Oi2 Flags: srv must
size, clt must size, has return, */
0x3, /*
3 */

/* Parameter txn_in */

/* 84 */ NdrFcShort( 0x8b ), /* Flags: must size,
must free, in, by val, */
#ifdef _ALPHA_
#ifdef _PPC_
#if !defined(_MIPS_)
/* 86 */ NdrFcShort( 0x4 ), /* x86 Stack
size/offset = 4 */
#else
NdrFcShort( 0x8 ), /*
MIPS Stack size/offset = 8 */
#endif
#else
NdrFcShort( 0x8 ), /*
PPC Stack size/offset = 8 */
#endif
#else
NdrFcShort( 0x8 ), /*
Alpha Stack size/offset = 8 */
#endif
/* 88 */ NdrFcShort( 0x3c8 ), /* Type
Offset=968 */

/* Parameter txn_out */

/* 90 */ NdrFcShort( 0x4113 ), /* Flags:
must size, must free, out, simple ref, srv alloc
size=16 */

```



```

#ifdef _ALPHA_
#ifdef _PPC_
#if !defined(_MIPS_)
/* 92 */ NdrFcShort( 0x14 ), /* x86 Stack
size/offset = 20 */
#else
NdrFcShort( 0x18 ), /*
MIPS Stack size/offset = 24 */
#endif
#else
NdrFcShort( 0x18 ), /*
PPC Stack size/offset = 24 */
#endif
#else
NdrFcShort( 0x18 ), /*
Alpha Stack size/offset = 24 */
#endif
/* 94 */ NdrFcShort( 0x3da ), /* Type
Offset=986 */

/* Return value */

/* 96 */ NdrFcShort( 0x70 ), /* Flags: out, return,
base type, */
#ifdef _ALPHA_
#ifdef _PPC_
#if !defined(_MIPS_)
/* 98 */ NdrFcShort( 0x18 ), /* x86 Stack
size/offset = 24 */
#else
NdrFcShort( 0x1c ), /*
MIPS Stack size/offset = 28 */
#endif
#else
NdrFcShort( 0x1c ), /*
PPC Stack size/offset = 28 */
#endif
#else
NdrFcShort( 0x20 ), /*
Alpha Stack size/offset = 32 */
#endif
/* 100 */ 0x8, /* FC_LONG */
0x0, /*
0 */

/* Procedure StockLevel */

/* 102 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /*
Old Flags: object, Oi2 */
/* 104 */ NdrFcLong( 0x0 ), /* 0 */
/* 108 */ NdrFcShort( 0x6 ), /* 6 */
#ifdef _ALPHA_
#ifdef _PPC_
#if !defined(_MIPS_)
/* 110 */ NdrFcShort( 0x1c ), /* x86 Stack
size/offset = 28 */
#else
NdrFcShort( 0x20 ), /*
MIPS Stack size/offset = 32 */
#endif
#else

```

```

NdrFcShort( 0x20 ), /*
PPC Stack size/offset = 32 */
#endif
#else
Alpha Stack size/offset = 40 */
#endif
/* 112 */ NdrFcShort( 0x0 ), /* 0 */
/* 114 */ NdrFcShort( 0x8 ), /* 8 */
/* 116 */ 0x7, /* Oi2 Flags: srv must
size, clt must size, has return, */
0x3, /*
3 */

/* Parameter txn_in */

/* 118 */ NdrFcShort( 0x8b ), /* Flags: must size,
must free, in, by val, */
#ifdef _ALPHA_
#ifdef _PPC_
#if !defined(_MIPS_)
/* 120 */ NdrFcShort( 0x4 ), /* x86 Stack
size/offset = 4 */
#else
NdrFcShort( 0x8 ), /*
MIPS Stack size/offset = 8 */
#endif
#else
NdrFcShort( 0x8 ), /*
PPC Stack size/offset = 8 */
#endif
#else
NdrFcShort( 0x8 ), /*
Alpha Stack size/offset = 8 */
#endif
/* 122 */ NdrFcShort( 0x3c8 ), /* Type
Offset=968 */

/* Parameter txn_out */

/* 124 */ NdrFcShort( 0x4113 ), /* Flags:
must size, must free, out, simple ref, srv alloc
size=16 */
#ifdef _ALPHA_
#ifdef _PPC_
#if !defined(_MIPS_)
/* 126 */ NdrFcShort( 0x14 ), /* x86 Stack
size/offset = 20 */
#else
NdrFcShort( 0x18 ), /*
MIPS Stack size/offset = 24 */
#endif
#else
NdrFcShort( 0x18 ), /*
PPC Stack size/offset = 24 */
#endif
#else
NdrFcShort( 0x18 ), /*
Alpha Stack size/offset = 24 */
#endif
/* 128 */ NdrFcShort( 0x3da ), /* Type
Offset=986 */

```

```

/* Return value */

/* 130 */ NdrFcShort( 0x70 ), /* Flags: out, return,
base type, */
#ifdef _ALPHA_
#ifdef _PPC_
#if !defined(_MIPS_)
/* 132 */ NdrFcShort( 0x18 ), /* x86 Stack
size/offset = 24 */
#else
NdrFcShort( 0x1c ), /*
MIPS Stack size/offset = 28 */
#endif
#else
NdrFcShort( 0x1c ), /*
PPC Stack size/offset = 28 */
#endif
#else
NdrFcShort( 0x20 ), /*
Alpha Stack size/offset = 32 */
#endif
/* 134 */ 0x8, /* FC_LONG */
0x0, /*
0 */

/* Procedure OrderStatus */

/* 136 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /*
Old Flags: object, Oi2 */
/* 138 */ NdrFcLong( 0x0 ), /* 0 */
/* 142 */ NdrFcShort( 0x7 ), /* 7 */
#ifdef _ALPHA_
#ifdef _PPC_
#if !defined(_MIPS_)
/* 144 */ NdrFcShort( 0x1c ), /* x86 Stack
size/offset = 28 */
#else
NdrFcShort( 0x20 ), /*
MIPS Stack size/offset = 32 */
#endif
#else
NdrFcShort( 0x20 ), /*
PPC Stack size/offset = 32 */
#endif
#else
NdrFcShort( 0x28 ), /*
Alpha Stack size/offset = 40 */
#endif
/* 146 */ NdrFcShort( 0x0 ), /* 0 */
/* 148 */ NdrFcShort( 0x8 ), /* 8 */
/* 150 */ 0x7, /* Oi2 Flags: srv must
size, clt must size, has return, */
0x3, /*
3 */

/* Parameter txn_in */

/* 152 */ NdrFcShort( 0x8b ), /* Flags: must size,
must free, in, by val, */
#ifdef _ALPHA_
#ifdef _PPC_
#if !defined(_MIPS_)

```

```

/* 154 */ NdrFcShort( 0x4 ), /* x86 Stack
size/offset = 4 */
#else
NdrFcShort( 0x8 ), /*
MIPS Stack size/offset = 8 */
#endif
#else
NdrFcShort( 0x8 ), /*
PPC Stack size/offset = 8 */
#endif
#else
NdrFcShort( 0x8 ), /*
Alpha Stack size/offset = 8 */
#endif
/* 156 */ NdrFcShort( 0x3c8 ), /* Type
Offset=968 */

/* Parameter txn_out */

/* 158 */ NdrFcShort( 0x4113 ), /* Flags:
must size, must free, out, simple ref, srv alloc
size=16 */
#ifndef _ALPHA_
#ifndef _PPC_
#if !defined(_MIPS_)
/* 160 */ NdrFcShort( 0x14 ), /* x86 Stack
size/offset = 20 */
#else
NdrFcShort( 0x18 ), /*
MIPS Stack size/offset = 24 */
#endif
#else
NdrFcShort( 0x18 ), /*
PPC Stack size/offset = 24 */
#endif
#else
NdrFcShort( 0x18 ), /*
Alpha Stack size/offset = 24 */
#endif
/* 162 */ NdrFcShort( 0x3da ), /* Type
Offset=986 */

/* Return value */

/* 164 */ NdrFcShort( 0x70 ), /* Flags: out, return,
base type, */
#ifndef _ALPHA_
#ifndef _PPC_
#if !defined(_MIPS_)
/* 166 */ NdrFcShort( 0x18 ), /* x86 Stack
size/offset = 24 */
#else
NdrFcShort( 0x1c ), /*
MIPS Stack size/offset = 28 */
#endif
#else
NdrFcShort( 0x1c ), /*
PPC Stack size/offset = 28 */
#endif
#else
NdrFcShort( 0x20 ), /*
Alpha Stack size/offset = 32 */
#endif

```

```

/* 168 */ 0x8, /* FC_LONG */
0x0, /*
0 */

/* Procedure CallSetComplete */

/* 170 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /*
Old Flags: object, Oi2 */
/* 172 */ NdrFcLong( 0x0 ), /* 0 */
/* 176 */ NdrFcShort( 0x8 ), /* 8 */
#ifndef _ALPHA_
/* 178 */ NdrFcShort( 0x8 ), /* x86, MIPS, PPC Stack
size/offset = 8 */
#else
NdrFcShort( 0x10 ), /*
Alpha Stack size/offset = 16 */
#endif
/* 180 */ NdrFcShort( 0x0 ), /* 0 */
/* 182 */ NdrFcShort( 0x8 ), /* 8 */
/* 184 */ 0x4, /* Oi2 Flags: has
return, */
0x1, /*
1 */

/* Return value */

/* 186 */ NdrFcShort( 0x70 ), /* Flags: out, return,
base type, */
#ifndef _ALPHA_
/* 188 */ NdrFcShort( 0x4 ), /* x86, MIPS, PPC Stack
size/offset = 4 */
#else
NdrFcShort( 0x8 ), /*
Alpha Stack size/offset = 8 */
#endif
/* 190 */ 0x8, /* FC_LONG */
0x0, /*
0 */

0x0

}
};

static const MIDL_TYPE_FORMAT_STRING
__MIDL_TypeFormatString =
{
0,
{
0 */
/* 2 */
FC_UP */
/* 4 */ NdrFcShort( 0x3b0 ), /* Offset=
944 (948) */
/* 6 */
0x2b, /*
FC_NON_ENCAPSULATED_UNION */
0x9, /*
FC_ULONG */
/* 8 */ 0x7, /* Corr desc: FC_USHORT
*/

```

```

0x0, /*
*/
/* 10 */ NdrFcShort( 0xffff8 ), /* -8 */
/* 12 */ NdrFcShort( 0x2 ), /* Offset= 2 (14) */
/* 14 */ NdrFcShort( 0x10 ), /* 16 */
/* 16 */ NdrFcShort( 0x2b ), /* 43 */
/* 18 */ NdrFcLong( 0x3 ), /* 3 */
/* 22 */ NdrFcShort( 0x8008 ), /* Simple arm
type: FC_LONG */
/* 24 */ NdrFcLong( 0x11 ), /* 17 */
/* 28 */ NdrFcShort( 0x8001 ), /* Simple arm
type: FC_BYTE */
/* 30 */ NdrFcLong( 0x2 ), /* 2 */
/* 34 */ NdrFcShort( 0x8006 ), /* Simple arm
type: FC_SHORT */
/* 36 */ NdrFcLong( 0x4 ), /* 4 */
/* 40 */ NdrFcShort( 0x800a ), /* Simple arm
type: FC_FLOAT */
/* 42 */ NdrFcLong( 0x5 ), /* 5 */
/* 46 */ NdrFcShort( 0x800c ), /* Simple arm
type: FC_DOUBLE */
/* 48 */ NdrFcLong( 0xb ), /* 11 */
/* 52 */ NdrFcShort( 0x8006 ), /* Simple arm
type: FC_SHORT */
/* 54 */ NdrFcLong( 0xa ), /* 10 */
/* 58 */ NdrFcShort( 0x8008 ), /* Simple arm
type: FC_LONG */
/* 60 */ NdrFcLong( 0x6 ), /* 6 */
/* 64 */ NdrFcShort( 0xd6 ), /* Offset= 214 (278) */
/* 66 */ NdrFcLong( 0x7 ), /* 7 */
/* 70 */ NdrFcShort( 0x800c ), /* Simple arm
type: FC_DOUBLE */
/* 72 */ NdrFcLong( 0x8 ), /* 8 */
/* 76 */ NdrFcShort( 0xd0 ), /* Offset= 208 (284) */
/* 78 */ NdrFcLong( 0xd ), /* 13 */
/* 82 */ NdrFcShort( 0xe2 ), /* Offset= 226 (308) */
/* 84 */ NdrFcLong( 0x9 ), /* 9 */
/* 88 */ NdrFcShort( 0xee ), /* Offset= 238 (326) */
/* 90 */ NdrFcLong( 0x2000 ), /* 8192 */
/* 94 */ NdrFcShort( 0xfa ), /* Offset= 250 (344) */
/* 96 */ NdrFcLong( 0x24 ), /* 36 */
/* 100 */ NdrFcShort( 0x308 ), /* Offset=
776 (876) */
/* 102 */ NdrFcLong( 0x4024 ), /* 16420 */
/* 106 */ NdrFcShort( 0x302 ), /* Offset=
770 (876) */
/* 108 */ NdrFcLong( 0x4011 ), /* 16401 */
/* 112 */ NdrFcShort( 0x300 ), /* Offset=
768 (880) */
/* 114 */ NdrFcLong( 0x4002 ), /* 16386 */
/* 118 */ NdrFcShort( 0x2fe ), /* Offset=
766 (884) */
/* 120 */ NdrFcLong( 0x4003 ), /* 16387 */
/* 124 */ NdrFcShort( 0x2fc ), /* Offset=
764 (888) */
/* 126 */ NdrFcLong( 0x4004 ), /* 16388 */
/* 130 */ NdrFcShort( 0x2fa ), /* Offset=
762 (892) */
/* 132 */ NdrFcLong( 0x4005 ), /* 16389 */
/* 136 */ NdrFcShort( 0x2f8 ), /* Offset=
760 (896) */
/* 138 */ NdrFcLong( 0x400b ), /* 16395 */

```

```

/* 142 */ NdrFcShort( 0x2e6 ), /* Offset=
742 (884) */
/* 144 */ NdrFcLong( 0x400a ), /* 16394 */
/* 148 */ NdrFcShort( 0x2e4 ), /* Offset=
740 (888) */
/* 150 */ NdrFcLong( 0x4006 ), /* 16390 */
/* 154 */ NdrFcShort( 0x2ea ), /* Offset=
746 (900) */
/* 156 */ NdrFcLong( 0x4007 ), /* 16391 */
/* 160 */ NdrFcShort( 0x2e0 ), /* Offset=
736 (896) */
/* 162 */ NdrFcLong( 0x4008 ), /* 16392 */
/* 166 */ NdrFcShort( 0x2e2 ), /* Offset=
738 (904) */
/* 168 */ NdrFcLong( 0x400d ), /* 16397 */
/* 172 */ NdrFcShort( 0x2e0 ), /* Offset=
736 (908) */
/* 174 */ NdrFcLong( 0x4009 ), /* 16393 */
/* 178 */ NdrFcShort( 0x2de ), /* Offset=
734 (912) */
/* 180 */ NdrFcLong( 0x6000 ), /* 24576 */
/* 184 */ NdrFcShort( 0x2dc ), /* Offset=
732 (916) */
/* 186 */ NdrFcLong( 0x400c ), /* 16396 */
/* 190 */ NdrFcShort( 0x2da ), /* Offset=
730 (920) */
/* 192 */ NdrFcLong( 0x10 ), /* 16 */
/* 196 */ NdrFcShort( 0x8002 ), /* Simple arm
type: FC_CHAR */
/* 198 */ NdrFcLong( 0x12 ), /* 18 */
/* 202 */ NdrFcShort( 0x8006 ), /* Simple arm
type: FC_SHORT */
/* 204 */ NdrFcLong( 0x13 ), /* 19 */
/* 208 */ NdrFcShort( 0x8008 ), /* Simple arm
type: FC_LONG */
/* 210 */ NdrFcLong( 0x16 ), /* 22 */
/* 214 */ NdrFcShort( 0x8008 ), /* Simple arm
type: FC_LONG */
/* 216 */ NdrFcLong( 0x17 ), /* 23 */
/* 220 */ NdrFcShort( 0x8008 ), /* Simple arm
type: FC_LONG */
/* 222 */ NdrFcLong( 0xe ), /* 14 */
/* 226 */ NdrFcShort( 0x2be ), /* Offset=
702 (928) */
/* 228 */ NdrFcLong( 0x400e ), /* 16398 */
/* 232 */ NdrFcShort( 0x2c4 ), /* Offset=
708 (940) */
/* 234 */ NdrFcLong( 0x4010 ), /* 16400 */
/* 238 */ NdrFcShort( 0x2c2 ), /* Offset=
706 (944) */
/* 240 */ NdrFcLong( 0x4012 ), /* 16402 */
/* 244 */ NdrFcShort( 0x280 ), /* Offset=
640 (884) */
/* 246 */ NdrFcLong( 0x4013 ), /* 16403 */
/* 250 */ NdrFcShort( 0x27e ), /* Offset=
638 (888) */
/* 252 */ NdrFcLong( 0x4016 ), /* 16406 */
/* 256 */ NdrFcShort( 0x278 ), /* Offset=
632 (888) */
/* 258 */ NdrFcLong( 0x4017 ), /* 16407 */
/* 262 */ NdrFcShort( 0x272 ), /* Offset=
626 (888) */
/* 264 */ NdrFcLong( 0x0 ), /* 0 */

```

```

/* 268 */ NdrFcShort( 0x0 ), /* Offset= 0 (268) */
/* 270 */ NdrFcLong( 0x1 ), /* 1 */
/* 274 */ NdrFcShort( 0x0 ), /* Offset= 0 (274) */
/* 276 */ NdrFcShort( 0xffffffff ), /* Offset= -1
(275) */
/* 278 */
FC_STRUCT */
0x15, /*
0x7, /*
7 */
/* 280 */ NdrFcShort( 0x8 ), /* 8 */
/* 282 */ 0xb, /* FC_HYPER */
0x5b, /*
FC_END */
/* 284 */
0x12, 0x0, /*
FC_UP */
/* 286 */ NdrFcShort( 0xc ), /* Offset= 12 (298) */
/* 288 */
0x1b, /*
FC_CARRAY */
0x1, /*
1 */
/* 290 */ NdrFcShort( 0x2 ), /* 2 */
/* 292 */ 0x9, /* Corr desc: FC_ULONG
*/
0x0, /*
*/
/* 294 */ NdrFcShort( 0xffff ), /* -4 */
/* 296 */ 0x6, /* FC_SHORT */
0x5b, /*
FC_END */
/* 298 */
0x17, /*
FC_CSTRUCT */
0x3, /*
3 */
/* 300 */ NdrFcShort( 0x8 ), /* 8 */
/* 302 */ NdrFcShort( 0xffffffff2 ), /* Offset= -
14 (288) */
/* 304 */ 0x8, /* FC_LONG */
0x8, /*
FC_LONG */
/* 306 */ 0x5c, /* FC_PAD */
0x5b, /*
FC_END */
/* 308 */
0x2f, /*
FC_IP */
0x5a, /*
FC_CONSTANT_IID */
/* 310 */ NdrFcLong( 0x0 ), /* 0 */
/* 314 */ NdrFcShort( 0x0 ), /* 0 */
/* 316 */ NdrFcShort( 0x0 ), /* 0 */
/* 318 */ 0xc0, /* 192 */
0x0, /*
0 */
/* 320 */ 0x0, /* 0 */
0x0, /*
0 */
/* 322 */ 0x0, /* 0 */
0x0, /*
0 */
0 */

```

```

/* 324 */ 0x0, /* 0 */
0x46, /*
70 */
/* 326 */
0x2f, /*
FC_IP */
0x5a, /*
FC_CONSTANT_IID */
/* 328 */ NdrFcLong( 0x20400 ), /* 132096 */
/* 332 */ NdrFcShort( 0x0 ), /* 0 */
/* 334 */ NdrFcShort( 0x0 ), /* 0 */
/* 336 */ 0xc0, /* 192 */
0x0, /*
0 */
/* 338 */ 0x0, /* 0 */
0x0, /*
0 */
/* 340 */ 0x0, /* 0 */
0x0, /*
0 */
/* 342 */ 0x0, /* 0 */
0x46, /*
70 */
/* 344 */
0x12, 0x10, /*
FC_UP [pointer_deref] */
/* 346 */ NdrFcShort( 0x2 ), /* Offset= 2 (348) */
/* 348 */
0x12, 0x0, /*
FC_UP */
/* 350 */ NdrFcShort( 0x1fc ), /* Offset=
508 (858) */
/* 352 */
0x2a, /*
FC_ENCAPSULATED_UNION */
0x49, /*
73 */
/* 354 */ NdrFcShort( 0x18 ), /* 24 */
/* 356 */ NdrFcShort( 0xa ), /* 10 */
/* 358 */ NdrFcLong( 0x8 ), /* 8 */
/* 362 */ NdrFcShort( 0x58 ), /* Offset= 88 (450) */
/* 364 */ NdrFcLong( 0xd ), /* 13 */
/* 368 */ NdrFcShort( 0x78 ), /* Offset= 120 (488) */
/* 370 */ NdrFcLong( 0x9 ), /* 9 */
/* 374 */ NdrFcShort( 0x94 ), /* Offset= 148 (522) */
/* 376 */ NdrFcLong( 0xc ), /* 12 */
/* 380 */ NdrFcShort( 0xbc ), /* Offset= 188 (568) */
/* 382 */ NdrFcLong( 0x24 ), /* 36 */
/* 386 */ NdrFcShort( 0x114 ), /* Offset=
276 (662) */
/* 388 */ NdrFcLong( 0x800d ), /* 32781 */
/* 392 */ NdrFcShort( 0x130 ), /* Offset=
304 (696) */
/* 394 */ NdrFcLong( 0x10 ), /* 16 */
/* 398 */ NdrFcShort( 0x148 ), /* Offset=
328 (726) */
/* 400 */ NdrFcLong( 0x2 ), /* 2 */
/* 404 */ NdrFcShort( 0x160 ), /* Offset=
352 (756) */
/* 406 */ NdrFcLong( 0x3 ), /* 3 */
/* 410 */ NdrFcShort( 0x178 ), /* Offset=
376 (786) */
/* 412 */ NdrFcLong( 0x14 ), /* 20 */

```

```

/* 416 */ NdrFcShort( 0x190 ), /* Offset=
400 (816) */
/* 418 */ NdrFcShort( 0xffffffff ), /* Offset= -1
(417) */
/* 420 */
0x1b, /*
FC_CARRAY */
0x3, /*
3 */
/* 422 */ NdrFcShort( 0x4 ), /* 4 */
/* 424 */ 0x19, /* Corr desc: field
pointer, FC_ULONG */
0x0, /*
*/
/* 426 */ NdrFcShort( 0x0 ), /* 0 */
/* 428 */
0x4b, /*
FC_PP */
0x5c, /*
FC_PAD */
/* 430 */
0x48, /*
FC_VARIABLE_REPEAT */
0x49, /*
FC_FIXED_OFFSET */
/* 432 */ NdrFcShort( 0x4 ), /* 4 */
/* 434 */ NdrFcShort( 0x0 ), /* 0 */
/* 436 */ NdrFcShort( 0x1 ), /* 1 */
/* 438 */ NdrFcShort( 0x0 ), /* 0 */
/* 440 */ NdrFcShort( 0x0 ), /* 0 */
/* 442 */ 0x12, 0x0, /* FC_UP */
/* 444 */ NdrFcShort( 0xffffffff6e ), /* Offset= -
146 (298) */
/* 446 */
0x5b, /*
FC_END */
0x8, /*
FC_LONG */
/* 448 */ 0x5c, /* FC_PAD */
0x5b, /*
FC_END */
/* 450 */
0x16, /*
FC_PSTRUCT */
0x3, /*
3 */
/* 452 */ NdrFcShort( 0x8 ), /* 8 */
/* 454 */
0x4b, /*
FC_PP */
0x5c, /*
FC_PAD */
/* 456 */
0x46, /*
FC_NO_REPEAT */
0x5c, /*
FC_PAD */
/* 458 */ NdrFcShort( 0x4 ), /* 4 */
/* 460 */ NdrFcShort( 0x4 ), /* 4 */
/* 462 */ 0x11, 0x0, /* FC_RP */
/* 464 */ NdrFcShort( 0xffffffffd4 ), /* Offset= -
44 (420) */

```

```

/* 466 */
FC_END */
0x5b, /*
FC_LONG */
/* 468 */ 0x8, /* FC_LONG */
0x5b, /*
FC_END */
/* 470 */
0x21, /*
FC_BOGUS_ARRAY */
0x3, /*
3 */
/* 472 */ NdrFcShort( 0x0 ), /* 0 */
/* 474 */ 0x19, /* Corr desc: field
pointer, FC_ULONG */
0x0, /*
*/
/* 476 */ NdrFcShort( 0x0 ), /* 0 */
/* 478 */ NdrFcLong( 0xffffffff ), /* -1 */
/* 482 */ 0x4c, /* FC_EMBEDDED_COMPLEX
*/
0x0, /*
0 */
/* 484 */ NdrFcShort( 0xffffffff50 ), /* Offset= -
176 (308) */
/* 486 */ 0x5c, /* FC_PAD */
0x5b, /*
FC_END */
/* 488 */
0x1a, /*
FC_BOGUS_STRUCT */
0x3, /*
3 */
/* 490 */ NdrFcShort( 0x8 ), /* 8 */
/* 492 */ NdrFcShort( 0x0 ), /* 0 */
/* 494 */ NdrFcShort( 0x6 ), /* Offset= 6 (500) */
/* 496 */ 0x8, /* FC_LONG */
0x36, /*
FC_POINTER */
/* 498 */ 0x5c, /* FC_PAD */
0x5b, /*
FC_END */
/* 500 */
0x11, 0x0, /*
FC_RP */
/* 502 */ NdrFcShort( 0xffffffffe0 ), /* Offset= -
32 (470) */
/* 504 */
0x21, /*
FC_BOGUS_ARRAY */
0x3, /*
3 */
/* 506 */ NdrFcShort( 0x0 ), /* 0 */
/* 508 */ 0x19, /* Corr desc: field
pointer, FC_ULONG */
0x0, /*
*/
/* 510 */ NdrFcShort( 0x0 ), /* 0 */
/* 512 */ NdrFcLong( 0xffffffff ), /* -1 */
/* 516 */ 0x4c, /* FC_EMBEDDED_COMPLEX
*/

```

```

0x0, /*
0 */
/* 518 */ NdrFcShort( 0xffffffff40 ), /* Offset= -
192 (326) */
/* 520 */ 0x5c, /* FC_PAD */
0x5b, /*
FC_END */
/* 522 */
0x1a, /*
FC_BOGUS_STRUCT */
0x3, /*
3 */
/* 524 */ NdrFcShort( 0x8 ), /* 8 */
/* 526 */ NdrFcShort( 0x0 ), /* 0 */
/* 528 */ NdrFcShort( 0x6 ), /* Offset= 6 (534) */
/* 530 */ 0x8, /* FC_LONG */
0x36, /*
FC_POINTER */
/* 532 */ 0x5c, /* FC_PAD */
0x5b, /*
FC_END */
/* 534 */
0x11, 0x0, /*
FC_RP */
/* 536 */ NdrFcShort( 0xfffffffff0 ), /* Offset= -
32 (504) */
/* 538 */
0x1b, /*
FC_CARRAY */
0x3, /*
3 */
/* 540 */ NdrFcShort( 0x4 ), /* 4 */
/* 542 */ 0x19, /* Corr desc: field
pointer, FC_ULONG */
0x0, /*
*/
/* 544 */ NdrFcShort( 0x0 ), /* 0 */
/* 546 */
0x4b, /*
FC_PP */
0x5c, /*
FC_PAD */
/* 548 */
0x48, /*
FC_VARIABLE_REPEAT */
0x49, /*
FC_FIXED_OFFSET */
/* 550 */ NdrFcShort( 0x4 ), /* 4 */
/* 552 */ NdrFcShort( 0x0 ), /* 0 */
/* 554 */ NdrFcShort( 0x1 ), /* 1 */
/* 556 */ NdrFcShort( 0x0 ), /* 0 */
/* 558 */ NdrFcShort( 0x0 ), /* 0 */
/* 560 */ 0x12, 0x0, /* FC_UP */
/* 562 */ NdrFcShort( 0x182 ), /* Offset=
386 (948) */
/* 564 */
0x5b, /*
FC_END */
0x8, /*
FC_LONG */
/* 566 */ 0x5c, /* FC_PAD */

```

FC_END */	0x5b,	/*	/* 620 */ 0x8,	/* FC_LONG */	/* 670 */ 0x8,	/* FC_LONG */
/* 568 */				0x8,		0x36,
FC_BOGUS_STRUCT */	0x1a,	/*	FC_LONG */	/* FC_EMBEDDED_COMPLEX	FC_POINTER */	/* FC_PAD */
	0x3,	/*	/* 622 */ 0x4c,	*/	/* 672 */ 0x5c,	0x5b,
3 */				0x0,		/*
/* 570 */ NdrFcShort(0x8),	/* 8 */		0 */		FC_END */	
/* 572 */ NdrFcShort(0x0),	/* 0 */		/* 624 */ NdrFcShort(0xffffffd8),	/* Offset= -	/* 674 */	0x11, 0x0,
/* 574 */ NdrFcShort(0x6),	/* Offset= 6 (580) */		40 (584) */		FC_RP */	
/* 576 */ 0x8,	/* FC_LONG */		/* 626 */ 0x36,	/* FC_POINTER */	/* 676 */ NdrFcShort(0xfffffd4),	/* Offset= -
	0x36,	/*		0x5b,	44 (632) */	/* 678 */
FC_POINTER */	/* FC_PAD */		FC_END */			0x1d,
/* 578 */ 0x5c,	0x5b,	/*	/* 628 */		FC_SMFARRAY */	/*
				0x12, 0x0,		0x0,
FC_END */			FC_UP */		0 */	
/* 580 */			/* 630 */ NdrFcShort(0xfffffe4),	/* Offset= -	/* 680 */ NdrFcShort(0x8),	/* 8 */
	0x11, 0x0,	/*	28 (602) */		/* 682 */ 0x1,	/* FC_BYTE */
FC_RP */			/* 632 */			0x5b,
/* 582 */ NdrFcShort(0xfffffd4),	/* Offset= -		FC_CARRAY */		FC_END */	/*
44 (538) */				0x1b,	/* 684 */	
/* 584 */			3 */	0x3,		0x15,
	0x2f,	/*	/* 634 */ NdrFcShort(0x4),	/* 4 */	FC_STRUCT */	/*
FC_IP */	0x5a,	/*	/* 636 */ 0x19,	/* Corr desc: field		0x3,
			pointer, FC_ULONG */			
FC_CONSTANT_IID */				0x0,		3 */
/* 586 */ NdrFcLong(0x2f),	/* 47 */		*/		/* 686 */ NdrFcShort(0x10),	/* 16 */
/* 590 */ NdrFcShort(0x0),	/* 0 */		/* 638 */ NdrFcShort(0x0),	/* 0 */	/* 688 */ 0x8,	/* FC_LONG */
/* 592 */ NdrFcShort(0x0),	/* 0 */		/* 640 */			0x6,
/* 594 */ 0xc0,	/* 192 */		FC_PP */		FC_SHORT */	/* FC_SHORT */
	0x0,	/*		0x4b,	/* 690 */ 0x6,	0x4c,
0 */				0x5c,	FC_EMBEDDED_COMPLEX */	/*
/* 596 */ 0x0,	/* 0 */		FC_PAD */		/* 692 */ 0x0,	/* 0 */
	0x0,	/*	/* 642 */			NdrFcShort(0xfffff1
0 */			FC_VARIABLE_REPEAT */),
/* 598 */ 0x0,	/* 0 */			0x48,	/* Offset= -15 (678) */	0x5b,
	0x0,	/*		0x49,		/*
0 */			FC_FIXED_OFFSET */		FC_END */	
/* 600 */ 0x0,	/* 0 */		/* 644 */ NdrFcShort(0x4),	/* 4 */	/* 696 */	0x1a,
	0x46,	/*	/* 646 */ NdrFcShort(0x0),	/* 0 */		/*
70 */			/* 648 */ NdrFcShort(0x1),	/* 1 */	FC_BOGUS_STRUCT */	0x3,
/* 602 */			/* 650 */ NdrFcShort(0x0),	/* 0 */		/*
	0x1b,	/*	/* 652 */ NdrFcShort(0x0),	/* 0 */	3 */	
FC_CARRAY */	0x0,	/*	/* 654 */ 0x12, 0x0,	/* FC_UP */	/* 698 */ NdrFcShort(0x18),	/* 24 */
			/* 656 */ NdrFcShort(0xfffffd4),	/* Offset= -	/* 700 */ NdrFcShort(0x0),	/* 0 */
0 */			44 (612) */		/* 702 */ NdrFcShort(0xa),	/* Offset= 10 (712) */
/* 604 */ NdrFcShort(0x1),	/* 1 */		/* 658 */		/* 704 */ 0x8,	/* FC_LONG */
/* 606 */ 0x19,	/* Corr desc: field		FC_END */			0x36,
pointer, FC_ULONG */				0x5b,	FC_POINTER */	/*
	0x0,	/*		0x8,	/* 706 */ 0x4c,	/* FC_EMBEDDED_COMPLEX
*/			FC_LONG */			0x0,
/* 608 */ NdrFcShort(0x4),	/* 4 */		/* 660 */ 0x5c,	/* FC_PAD */	0 */	
/* 610 */ 0x1,	/* FC_BYTE */		0x5b,	0x5b,	/* 708 */ NdrFcShort(0xfffffe8),	/* Offset= -
	0x5b,	/*	FC_END */		24 (684) */	/*
FC_END */			/* 662 */		/* 710 */ 0x5c,	/* FC_PAD */
/* 612 */	0x1a,	/*	FC_BOGUS_STRUCT */			0x5b,
	0x3,	/*			FC_END */	/*
3 */			3 */		/* 712 */	
/* 614 */ NdrFcShort(0x10),	/* 16 */		/* 664 */ NdrFcShort(0x8),	/* 8 */		0x11, 0x0,
/* 616 */ NdrFcShort(0x0),	/* 0 */		/* 666 */ NdrFcShort(0x0),	/* 0 */	FC_RP */	/*
/* 618 */ NdrFcShort(0xa),	/* Offset= 10 (628) */		/* 668 */ NdrFcShort(0x6),	/* Offset= 6 (674) */	/* 714 */ NdrFcShort(0xfffff0c),	/* Offset= -
					244 (470) */	/*
					/* 716 */	

```

0x1b, /*
FC_CARRAY */
0x0, /*
0 */
/* 718 */ NdrFcShort( 0x1 ), /* 1 */
/* 720 */ 0x19, /* Corr desc: field
pointer, FC_ULONG */
0x0, /*
*/
/* 722 */ NdrFcShort( 0x0 ), /* 0 */
/* 724 */ 0x1, /* FC_BYTE */
0x5b, /*
FC_END */
/* 726 */
0x16, /*
FC_PSTRUCT */
0x3, /*
3 */
/* 728 */ NdrFcShort( 0x8 ), /* 8 */
/* 730 */
0x4b, /*
FC_PP */
0x5c, /*
FC_PAD */
/* 732 */
0x46, /*
FC_NO_REPEAT */
0x5c, /*
FC_PAD */
/* 734 */ NdrFcShort( 0x4 ), /* 4 */
/* 736 */ NdrFcShort( 0x4 ), /* 4 */
/* 738 */ 0x12, 0x0, /* FC_UP */
/* 740 */ NdrFcShort( 0xfffffe8 ), /* Offset= -
24 (716) */
/* 742 */
0x5b, /*
FC_END */
0x8, /*
FC_LONG */
/* 744 */ 0x8, /* FC_LONG */
0x5b, /*
FC_END */
/* 746 */
0x1b, /*
FC_CARRAY */
0x1, /*
1 */
/* 748 */ NdrFcShort( 0x2 ), /* 2 */
/* 750 */ 0x19, /* Corr desc: field
pointer, FC_ULONG */
0x0, /*
*/
/* 752 */ NdrFcShort( 0x0 ), /* 0 */
/* 754 */ 0x6, /* FC_SHORT */
0x5b, /*
FC_END */
/* 756 */
0x16, /*
FC_PSTRUCT */
0x3, /*
3 */
/* 758 */ NdrFcShort( 0x8 ), /* 8 */

```

```

/* 760 */
FC_PP */
0x4b, /*
FC_PAD */
/* 762 */
0x46, /*
FC_NO_REPEAT */
0x5c, /*
FC_PAD */
/* 764 */ NdrFcShort( 0x4 ), /* 4 */
/* 766 */ NdrFcShort( 0x4 ), /* 4 */
/* 768 */ 0x12, 0x0, /* FC_UP */
/* 770 */ NdrFcShort( 0xfffffe8 ), /* Offset= -
24 (746) */
/* 772 */
0x5b, /*
FC_END */
0x8, /*
FC_LONG */
/* 774 */ 0x8, /* FC_LONG */
0x5b, /*
FC_END */
/* 776 */
0x1b, /*
FC_CARRAY */
0x3, /*
3 */
/* 778 */ NdrFcShort( 0x4 ), /* 4 */
/* 780 */ 0x19, /* Corr desc: field
pointer, FC_ULONG */
0x0, /*
*/
/* 782 */ NdrFcShort( 0x0 ), /* 0 */
/* 784 */ 0x8, /* FC_LONG */
0x5b, /*
FC_END */
/* 786 */
0x16, /*
FC_PSTRUCT */
0x3, /*
3 */
/* 788 */ NdrFcShort( 0x8 ), /* 8 */
/* 790 */
0x4b, /*
FC_PP */
0x5c, /*
FC_PAD */
/* 792 */
0x46, /*
FC_NO_REPEAT */
0x5c, /*
FC_PAD */
/* 794 */ NdrFcShort( 0x4 ), /* 4 */
/* 796 */ NdrFcShort( 0x4 ), /* 4 */
/* 798 */ 0x12, 0x0, /* FC_UP */
/* 800 */ NdrFcShort( 0xfffffe8 ), /* Offset= -
24 (776) */
/* 802 */
0x5b, /*
FC_END */

```

```

0x8, /*
FC_LONG */
/* 804 */ 0x8, /* FC_LONG */
0x5b, /*
FC_END */
/* 806 */
0x1b, /*
FC_CARRAY */
0x7, /*
7 */
/* 808 */ NdrFcShort( 0x8 ), /* 8 */
/* 810 */ 0x19, /* Corr desc: field
pointer, FC_ULONG */
0x0, /*
*/
/* 812 */ NdrFcShort( 0x0 ), /* 0 */
/* 814 */ 0xb, /* FC_HYPER */
0x5b, /*
FC_END */
/* 816 */
0x16, /*
FC_PSTRUCT */
0x3, /*
3 */
/* 818 */ NdrFcShort( 0x8 ), /* 8 */
/* 820 */
0x4b, /*
FC_PP */
0x5c, /*
FC_PAD */
/* 822 */
0x46, /*
FC_NO_REPEAT */
0x5c, /*
FC_PAD */
/* 824 */ NdrFcShort( 0x4 ), /* 4 */
/* 826 */ NdrFcShort( 0x4 ), /* 4 */
/* 828 */ 0x12, 0x0, /* FC_UP */
/* 830 */ NdrFcShort( 0xfffffe8 ), /* Offset= -
24 (806) */
/* 832 */
0x5b, /*
FC_END */
0x8, /*
FC_LONG */
/* 834 */ 0x8, /* FC_LONG */
0x5b, /*
FC_END */
/* 836 */
0x15, /*
FC_STRUCT */
0x3, /*
3 */
/* 838 */ NdrFcShort( 0x8 ), /* 8 */
/* 840 */ 0x8, /* FC_LONG */
0x8, /*
FC_LONG */
/* 842 */ 0x5c, /* FC_PAD */
0x5b, /*
FC_END */
/* 844 */

```

```

                                0x1b,          /*
FC_CARRAY */
                                0x3,           /*
3 */
/* 846 */ NdrFcShort( 0x8 ), /* 8 */
/* 848 */ 0x7, /* Corr desc: FC_USHORT
*/
                                0x0,          /*
*/
/* 850 */ NdrFcShort( 0xffd8 ), /* -40 */
/* 852 */ 0x4c, /* FC_EMBEDDED_COMPLEX
*/
                                0x0,          /*
0 */
/* 854 */ NdrFcShort( 0xfffffee ), /* Offset= -
18 (836) */
/* 856 */ 0x5c, /* FC_PAD */
                                0x5b,          /*
FC_END */
/* 858 */
                                0x1a,          /*
FC_BOGUS_STRUCT */
                                0x3,           /*
3 */
/* 860 */ NdrFcShort( 0x28 ), /* 40 */
/* 862 */ NdrFcShort( 0xfffffee ), /* Offset= -
18 (844) */
/* 864 */ NdrFcShort( 0x0 ), /* Offset= 0 (864) */
/* 866 */ 0x6, /* FC_SHORT */
                                0x6,          /*
FC_SHORT */
/* 868 */ 0x38, /* FC_ALIGNM4 */
                                0x8,           /*
FC_LONG */
/* 870 */ 0x8, /* FC_LONG */
                                0x4c,          /*
FC_EMBEDDED_COMPLEX */
/* 872 */ 0x0, /* 0 */
                                NdrFcShort( 0xffffdf7
), /* Offset= -521 (352) */
                                0x5b,          /*
FC_END */
/* 876 */
                                0x12, 0x0,      /*
FC_UP */
/* 878 */ NdrFcShort( 0xffffef6 ), /* Offset= -
266 (612) */
/* 880 */
                                0x12, 0x8,      /*
FC_UP [simple_pointer] */
/* 882 */ 0x1, /* FC_BYTE */
                                0x5c,          /*
FC_PAD */
/* 884 */
                                0x12, 0x8,      /*
FC_UP [simple_pointer] */
/* 886 */ 0x6, /* FC_SHORT */
                                0x5c,          /*
FC_PAD */
/* 888 */
                                0x12, 0x8,      /*
FC_UP [simple_pointer] */
/* 890 */ 0x8, /* FC_LONG */

```

```

                                0x5c,          /*
FC_PAD */
/* 892 */
                                0x12, 0x8,      /*
FC_UP [simple_pointer] */
/* 894 */ 0xa, /* FC_FLOAT */
                                0x5c,          /*
FC_PAD */
/* 896 */
                                0x12, 0x8,      /*
FC_UP [simple_pointer] */
/* 898 */ 0xc, /* FC_DOUBLE */
                                0x5c,          /*
FC_PAD */
/* 900 */
                                0x12, 0x0,      /*
FC_UP */
/* 902 */ NdrFcShort( 0xffffd90 ), /* Offset= -
624 (278) */
/* 904 */
                                0x12, 0x10,     /*
FC_UP [pointer_deref] */
/* 906 */ NdrFcShort( 0xffffd92 ), /* Offset= -
622 (284) */
/* 908 */
                                0x12, 0x10,     /*
FC_UP [pointer_deref] */
/* 910 */ NdrFcShort( 0xffffda6 ), /* Offset= -
602 (308) */
/* 912 */
                                0x12, 0x10,     /*
FC_UP [pointer_deref] */
/* 914 */ NdrFcShort( 0xffffdb4 ), /* Offset= -
588 (326) */
/* 916 */
                                0x12, 0x10,     /*
FC_UP [pointer_deref] */
/* 918 */ NdrFcShort( 0xffffdc2 ), /* Offset= -
574 (344) */
/* 920 */
                                0x12, 0x10,     /*
FC_UP [pointer_deref] */
/* 922 */ NdrFcShort( 0x2 ), /* Offset= 2 (924) */
/* 924 */
                                0x12, 0x0,      /*
FC_UP */
/* 926 */ NdrFcShort( 0x16 ), /* Offset= 22 (948) */
/* 928 */
                                0x15,          /*
FC_STRUCT */
                                0x7,           /*
7 */
/* 930 */ NdrFcShort( 0x10 ), /* 16 */
/* 932 */ 0x6, /* FC_SHORT */
                                0x1,           /*
FC_BYTE */
/* 934 */ 0x1, /* FC_BYTE */
                                0x38,          /*
FC_ALIGNM4 */
/* 936 */ 0x8, /* FC_LONG */
                                0x39,          /*
FC_ALIGNM8 */
/* 938 */ 0xb, /* FC_HYPER */

```

```

                                0x5b,          /*
FC_END */
/* 940 */
                                0x12, 0x0,      /*
FC_UP */
/* 942 */ NdrFcShort( 0xffffffff2 ), /* Offset= -
14 (928) */
/* 944 */
                                0x12, 0x8,      /*
FC_UP [simple_pointer] */
/* 946 */ 0x2, /* FC_CHAR */
                                0x5c,          /*
FC_PAD */
/* 948 */
                                0x1a,          /*
FC_BOGUS_STRUCT */
                                0x7,           /*
7 */
/* 950 */ NdrFcShort( 0x20 ), /* 32 */
/* 952 */ NdrFcShort( 0x0 ), /* 0 */
/* 954 */ NdrFcShort( 0x0 ), /* Offset= 0 (954) */
/* 956 */ 0x8, /* FC_LONG */
                                0x8,          /*
FC_LONG */
/* 958 */ 0x6, /* FC_SHORT */
                                0x6,          /*
FC_SHORT */
/* 960 */ 0x6, /* FC_SHORT */
                                0x6,          /*
FC_SHORT */
/* 962 */ 0x4c, /* FC_EMBEDDED_COMPLEX
*/
                                0x0,           /*
0 */
/* 964 */ NdrFcShort( 0xffffc42 ), /* Offset= -
958 (6) */
/* 966 */ 0x5c, /* FC_PAD */
                                0x5b,          /*
FC_END */
/* 968 */ 0xb4, /* FC_USER_MARSHAL */
                                0x83,          /*
131 */
/* 970 */ NdrFcShort( 0x0 ), /* 0 */
/* 972 */ NdrFcShort( 0x10 ), /* 16 */
/* 974 */ NdrFcShort( 0x0 ), /* 0 */
/* 976 */ NdrFcShort( 0xffffc32 ), /* Offset= -
974 (2) */
/* 978 */
                                0x11, 0x4,      /*
FC_RP [allocated_on_stack] */
/* 980 */ NdrFcShort( 0x6 ), /* Offset= 6 (986) */
/* 982 */
                                0x13, 0x0,      /*
FC_OP */
/* 984 */ NdrFcShort( 0xfffffdc ), /* Offset= -
36 (948) */
/* 986 */ 0xb4, /* FC_USER_MARSHAL */
                                0x83,          /*
131 */
/* 988 */ NdrFcShort( 0x0 ), /* 0 */
/* 990 */ NdrFcShort( 0x10 ), /* 16 */
/* 992 */ NdrFcShort( 0x0 ), /* 0 */

```

```

/* 994 */ NdrFcShort( 0xfffffff4 ), /* Offset= -
12 (982) */

                                0x0
    }
};

const CInterfaceProxyVtbl *
_tpsc_com_ps_ProxyVtblList[] =
{
    ( CInterfaceProxyVtbl * ) &ITPCCProxyVtbl,
    0
};

const CInterfaceStubVtbl *
_tpsc_com_ps_StubVtblList[] =
{
    ( CInterfaceStubVtbl * ) &ITPCCStubVtbl,
    0
};

PCInterfaceName const
_tpsc_com_ps_InterfaceNamesList[] =
{
    "ITPCC",
    0
};

#define _tpcc_com_ps_CHECK_IID(n)
IID_GENERIC_CHECK_IID( _tpcc_com_ps, pIID,
n)

int __stdcall _tpcc_com_ps_IID_Lookup( const IID *
pIID, int * pIndex )
{
    if(!_tpcc_com_ps_CHECK_IID(0))
    {
        *pIndex = 0;
        return 1;
    }

    return 0;
}

const ExtendedProxyFileInfo tpcc_com_ps_ProxyFileInfo
=
{
    (PCInterfaceProxyVtblList *) &
_tpsc_com_ps_ProxyVtblList,
    (PCInterfaceStubVtblList *) &
_tpsc_com_ps_StubVtblList,
    (const PCInterfaceName *) &
_tpsc_com_ps_InterfaceNamesList,
    0, // no delegation
    &_tpcc_com_ps_IID_Lookup,
    1,
    2,
    0, /* table of [async_uuid] interfaces */
    0, /* Filler1 */
    0, /* Filler2 */
    0 /* Filler3 */
}

```

```

};

#endif /* !defined(_M_IA64) && !defined(_M_AXP64)*/

#pragma warning( disable: 4049 ) /* more than 64k
source lines */

/* this ALWAYS GENERATED file contains the proxy stub
code */

/* File created by MIDL compiler version 5.03.0280
*/
/* at Thu Dec 13 23:13:08 2001
*/
/* Compiler settings for .\src\tpcc_com_ps.idl:
Oicf (OptLev=i2), Wl, Zp8, env=Win64 (32b
run,appending), ms_ext, c_ext, robust
error checks: allocation ref bounds_check enum
stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany),
__declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@MIDL_FILE_HEADERING ( )

#if defined(_M_IA64) || defined(_M_AXP64)
#define USE_STUBLESS_PROXY

/* verify that the <rpcproxy.h> version is high
enough to compile this file*/
#ifndef __REDQ_RPCPROXY_H_VERSION__
#define __REQUIRED_RPCPROXY_H_VERSION__ 475
#endif

#include "rpcproxy.h"
#ifndef __RPCPROXY_H_VERSION__
#error this stub requires an updated version of
<rpcproxy.h>
#endif // __RPCPROXY_H_VERSION__

#include "tpcc_com_ps.h"

#define TYPE_FORMAT_STRING_SIZE 979
#define PROC_FORMAT_STRING_SIZE 253
#define TRANSMIT_AS_TABLE_SIZE 0
#define WIRE_MARSHAL_TABLE_SIZE 1

typedef struct _MIDL_TYPE_FORMAT_STRING
{
    short Pad;
    unsigned char Format[ TYPE_FORMAT_STRING_SIZE ];
} MIDL_TYPE_FORMAT_STRING;

typedef struct _MIDL_PROC_FORMAT_STRING
{
    short Pad;

```

```

    unsigned char Format[ PROC_FORMAT_STRING_SIZE ];
} MIDL_PROC_FORMAT_STRING;

extern const MIDL_TYPE_FORMAT_STRING
__MIDL_TypeFormatString;
extern const MIDL_PROC_FORMAT_STRING
__MIDL_ProcFormatString;

/* Standard interface: __MIDL_itf_tpcc_com_ps_0000,
ver. 0.0,
GUID={0x00000000,0x0000,0x0000,{0x00,0x00,0x00,0x00,0
x00,0x00,0x00,0x00}} */

/* Object interface: IUnknown, ver. 0.0,
GUID={0x00000000,0x0000,0x0000,{0xC0,0x00,0x00,0x00,0
x00,0x00,0x00,0x46}} */

/* Object interface: ITPCC, ver. 0.0,
GUID={0xFEE6AA2,0x84B1,0x11d2,{0xBA,0x47,0x00,0xC0,0
x4F,0xBF,0xE0,0x8B}} */

extern const MIDL_STUB_DESC Object_StubDesc;

extern const MIDL_SERVER_INFO ITPCC_ServerInfo;

#pragma code_seg(".orpc")
static const unsigned short
ITPCC_FormatStringOffsetTable[] =
{
    0,
    44,
    88,
    132,
    176,
    220
};

static const MIDL_SERVER_INFO ITPCC_ServerInfo =
{
    &Object_StubDesc,
    0,
    __MIDL_ProcFormatString.Format,
    &ITPCC_FormatStringOffsetTable[-3],
    0,
    0,
    0,
    0,
    0
};

static const MIDL_STUBLESS_PROXY_INFO ITPCC_ProxyInfo
=
{
    &Object_StubDesc,
    __MIDL_ProcFormatString.Format,

```



```

/* 70 */ NdrFcShort( 0x8b ), /* Flags: must size,
must free, in, by val, */
#ifdef _ALPHA_
/* 72 */ NdrFcShort( 0x10 ), /* ia64 Stack
size/offset = 16 */
#else
NdrFcShort( 0x8 ), /*
axp64 Stack size/offset = 8 */
#endif
/* 74 */ NdrFcShort( 0x3b6 ), /* Type
Offset=950 */

/* Parameter txn_out */

/* 76 */ NdrFcShort( 0x6113 ), /* Flags:
must size, must free, out, simple ref, srv alloc
size=24 */
#ifdef _ALPHA_
/* 78 */ NdrFcShort( 0x28 ), /* ia64 Stack
size/offset = 40 */
#else
NdrFcShort( 0x20 ), /*
axp64 Stack size/offset = 32 */
#endif
/* 80 */ NdrFcShort( 0x3c8 ), /* Type
Offset=968 */

/* Return value */

/* 82 */ NdrFcShort( 0x70 ), /* Flags: out, return,
base type, */
#ifdef _ALPHA_
/* 84 */ NdrFcShort( 0x30 ), /* ia64 Stack
size/offset = 48 */
#else
NdrFcShort( 0x28 ), /*
axp64 Stack size/offset = 40 */
#endif
/* 86 */ 0x8, /* FC_LONG */
0 */

/* Procedure Delivery */

/* 88 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /*
Old Flags: object, Oi2 */
/* 90 */ NdrFcLong( 0x0 ), /* 0 */
/* 94 */ NdrFcShort( 0x5 ), /* 5 */
#ifdef _ALPHA_
/* 96 */ NdrFcShort( 0x38 ), /* ia64 Stack
size/offset = 56 */
#else
NdrFcShort( 0x30 ), /*
axp64 Stack size/offset = 48 */
#endif
/* 98 */ NdrFcShort( 0x0 ), /* 0 */
/* 100 */ NdrFcShort( 0x8 ), /* 8 */
/* 102 */ 0x47, /* Oi2 Flags: srv must
size, clt must size, has return, has ext, */
0x3, /*
3 */
/* 104 */ 0xa, /* 10 */

```

```

0x7, /*
Ext Flags: new corr desc, clt corr check, srv corr
check, */
/* 106 */ NdrFcShort( 0x20 ), /* 32 */
/* 108 */ NdrFcShort( 0x20 ), /* 32 */
/* 110 */ NdrFcShort( 0x0 ), /* 0 */
/* 112 */ NdrFcShort( 0x0 ), /* 0 */

/* Parameter txn_in */

/* 114 */ NdrFcShort( 0x8b ), /* Flags: must size,
must free, in, by val, */
#ifdef _ALPHA_
/* 116 */ NdrFcShort( 0x10 ), /* ia64 Stack
size/offset = 16 */
#else
NdrFcShort( 0x8 ), /*
axp64 Stack size/offset = 8 */
#endif
/* 118 */ NdrFcShort( 0x3b6 ), /* Type
Offset=950 */

/* Parameter txn_out */

/* 120 */ NdrFcShort( 0x6113 ), /* Flags:
must size, must free, out, simple ref, srv alloc
size=24 */
#ifdef _ALPHA_
/* 122 */ NdrFcShort( 0x28 ), /* ia64 Stack
size/offset = 40 */
#else
NdrFcShort( 0x20 ), /*
axp64 Stack size/offset = 32 */
#endif
/* 124 */ NdrFcShort( 0x3c8 ), /* Type
Offset=968 */

/* Return value */

/* 126 */ NdrFcShort( 0x70 ), /* Flags: out, return,
base type, */
#ifdef _ALPHA_
/* 128 */ NdrFcShort( 0x30 ), /* ia64 Stack
size/offset = 48 */
#else
NdrFcShort( 0x28 ), /*
axp64 Stack size/offset = 40 */
#endif
/* 130 */ 0x8, /* FC_LONG */
0x0, /*
0 */

/* Procedure StockLevel */

/* 132 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /*
Old Flags: object, Oi2 */
/* 134 */ NdrFcLong( 0x0 ), /* 0 */
/* 138 */ NdrFcShort( 0x6 ), /* 6 */
#ifdef _ALPHA_
/* 140 */ NdrFcShort( 0x38 ), /* ia64 Stack
size/offset = 56 */
#else

```

```

NdrFcShort( 0x30 ), /*
axp64 Stack size/offset = 48 */
#endif
/* 142 */ NdrFcShort( 0x0 ), /* 0 */
/* 144 */ NdrFcShort( 0x8 ), /* 8 */
/* 146 */ 0x47, /* Oi2 Flags: srv must
size, clt must size, has return, has ext, */
0x3, /*
3 */
/* 148 */ 0xa, /* 10 */
0x7, /*
Ext Flags: new corr desc, clt corr check, srv corr
check, */
/* 150 */ NdrFcShort( 0x20 ), /* 32 */
/* 152 */ NdrFcShort( 0x20 ), /* 32 */
/* 154 */ NdrFcShort( 0x0 ), /* 0 */
/* 156 */ NdrFcShort( 0x0 ), /* 0 */

/* Parameter txn_in */

/* 158 */ NdrFcShort( 0x8b ), /* Flags: must size,
must free, in, by val, */
#ifdef _ALPHA_
/* 160 */ NdrFcShort( 0x10 ), /* ia64 Stack
size/offset = 16 */
#else
NdrFcShort( 0x8 ), /*
axp64 Stack size/offset = 8 */
#endif
/* 162 */ NdrFcShort( 0x3b6 ), /* Type
Offset=950 */

/* Parameter txn_out */

/* 164 */ NdrFcShort( 0x6113 ), /* Flags:
must size, must free, out, simple ref, srv alloc
size=24 */
#ifdef _ALPHA_
/* 166 */ NdrFcShort( 0x28 ), /* ia64 Stack
size/offset = 40 */
#else
NdrFcShort( 0x20 ), /*
axp64 Stack size/offset = 32 */
#endif
/* 168 */ NdrFcShort( 0x3c8 ), /* Type
Offset=968 */

/* Return value */

/* 170 */ NdrFcShort( 0x70 ), /* Flags: out, return,
base type, */
#ifdef _ALPHA_
/* 172 */ NdrFcShort( 0x30 ), /* ia64 Stack
size/offset = 48 */
#else
NdrFcShort( 0x28 ), /*
axp64 Stack size/offset = 40 */
#endif
/* 174 */ 0x8, /* FC_LONG */
0x0, /*
0 */

/* Procedure OrderStatus */

```

```

/* 176 */ 0x33, /* FC_AUTO_HANDLE */
/* 0x6c, */
Old Flags: object, Oi2 */
/* 178 */ NdrFcLong( 0x0 ), /* 0 */
/* 182 */ NdrFcShort( 0x7 ), /* 7 */
#ifdef _ALPHA_
/* 184 */ NdrFcShort( 0x38 ), /* ia64 Stack
size/offset = 56 */
#else
NdrFcShort( 0x30 ), /*
axp64 Stack size/offset = 48 */
#endif
/* 186 */ NdrFcShort( 0x0 ), /* 0 */
/* 188 */ NdrFcShort( 0x8 ), /* 8 */
/* 190 */ 0x47, /* Oi2 Flags: srv must
size, clt must size, has return, has ext, */
/* 0x3, */
3 */
/* 192 */ 0xa, /* 10 */
/* 0x7, */
Ext Flags: new corr desc, clt corr check, srv corr
check, */
/* 194 */ NdrFcShort( 0x20 ), /* 32 */
/* 196 */ NdrFcShort( 0x20 ), /* 32 */
/* 198 */ NdrFcShort( 0x0 ), /* 0 */
/* 200 */ NdrFcShort( 0x0 ), /* 0 */

/* Parameter txn_in */

/* 202 */ NdrFcShort( 0x8b ), /* Flags: must size,
must free, in, by val, */
#ifdef _ALPHA_
/* 204 */ NdrFcShort( 0x10 ), /* ia64 Stack
size/offset = 16 */
#else
NdrFcShort( 0x8 ), /*
axp64 Stack size/offset = 8 */
#endif
/* 206 */ NdrFcShort( 0x3b6 ), /* Type
Offset=950 */

/* Parameter txn_out */

/* 208 */ NdrFcShort( 0x6113 ), /* Flags:
must size, must free, out, simple ref, srv alloc
size=24 */
#ifdef _ALPHA_
/* 210 */ NdrFcShort( 0x28 ), /* ia64 Stack
size/offset = 40 */
#else
NdrFcShort( 0x20 ), /*
axp64 Stack size/offset = 32 */
#endif
/* 212 */ NdrFcShort( 0x3c8 ), /* Type
Offset=968 */

/* Return value */

/* 214 */ NdrFcShort( 0x70 ), /* Flags: out, return,
base type, */
#ifdef _ALPHA_

```

```

/* 216 */ NdrFcShort( 0x30 ), /* ia64 Stack
size/offset = 48 */
#else
NdrFcShort( 0x28 ), /*
axp64 Stack size/offset = 40 */
#endif
/* 218 */ 0x8, /* FC_LONG */
/* 0x0, */
/* 0 */

/* Procedure CallSetComplete */

/* 220 */ 0x33, /* FC_AUTO_HANDLE */
/* 0x6c, */
Old Flags: object, Oi2 */
/* 222 */ NdrFcLong( 0x0 ), /* 0 */
/* 226 */ NdrFcShort( 0x8 ), /* 8 */
/* 228 */ NdrFcShort( 0x10 ), /* ia64, axp64 Stack
size/offset = 16 */
/* 230 */ NdrFcShort( 0x0 ), /* 0 */
/* 232 */ NdrFcShort( 0x8 ), /* 8 */
/* 234 */ 0x44, /* Oi2 Flags: has
return, has ext, */
/* 0x1, */
1 */
/* 236 */ 0xa, /* 10 */
/* 0x1, */
Ext Flags: new corr desc, */
/* 238 */ NdrFcShort( 0x0 ), /* 0 */
/* 240 */ NdrFcShort( 0x0 ), /* 0 */
/* 242 */ NdrFcShort( 0x0 ), /* 0 */
/* 244 */ NdrFcShort( 0x0 ), /* 0 */

/* Return value */

/* 246 */ NdrFcShort( 0x70 ), /* Flags: out, return,
base type, */
/* 248 */ NdrFcShort( 0x8 ), /* ia64, axp64 Stack
size/offset = 8 */
/* 250 */ 0x8, /* FC_LONG */
/* 0x0, */
0 */
/* 0x0

}
};

static const MIDL_TYPE_FORMAT_STRING
__MIDL_TypeFormatString =
{
0,
{
0 */
/* 2 */
0x12, 0x0, /*
FC_UP */
/* 4 */ NdrFcShort( 0x39e ), /* Offset=
926 (930) */
/* 6 */
0x2b, /*
FC_NON_ENCAPSULATED_UNION */

```

```

0x9, /*
FC_ULONG */
/* 8 */ 0x7, /* Corr desc: FC_USHORT
*/
/* 0x0, */
/* 10 */ NdrFcShort( 0xffff8 ), /* -8 */
/* 12 */ NdrFcShort( 0x1 ), /* Corr flags: early,
*/
/* 14 */ NdrFcShort( 0x2 ), /* Offset= 2 (16) */
/* 16 */ NdrFcShort( 0x10 ), /* 16 */
/* 18 */ NdrFcShort( 0x2b ), /* 43 */
/* 20 */ NdrFcLong( 0x3 ), /* 3 */
/* 24 */ NdrFcShort( 0x8008 ), /* Simple arm
type: FC_LONG */
/* 26 */ NdrFcLong( 0x11 ), /* 17 */
/* 30 */ NdrFcShort( 0x8001 ), /* Simple arm
type: FC_BYTE */
/* 32 */ NdrFcLong( 0x2 ), /* 2 */
/* 36 */ NdrFcShort( 0x8006 ), /* Simple arm
type: FC_SHORT */
/* 38 */ NdrFcLong( 0x4 ), /* 4 */
/* 42 */ NdrFcShort( 0x800a ), /* Simple arm
type: FC_FLOAT */
/* 44 */ NdrFcLong( 0x5 ), /* 5 */
/* 48 */ NdrFcShort( 0x800c ), /* Simple arm
type: FC_DOUBLE */
/* 50 */ NdrFcLong( 0xb ), /* 11 */
/* 54 */ NdrFcShort( 0x8006 ), /* Simple arm
type: FC_SHORT */
/* 56 */ NdrFcLong( 0xa ), /* 10 */
/* 60 */ NdrFcShort( 0x8008 ), /* Simple arm
type: FC_LONG */
/* 62 */ NdrFcLong( 0x6 ), /* 6 */
/* 66 */ NdrFcShort( 0xd6 ), /* Offset= 214 (280) */
/* 68 */ NdrFcLong( 0x7 ), /* 7 */
/* 72 */ NdrFcShort( 0x800c ), /* Simple arm
type: FC_DOUBLE */
/* 74 */ NdrFcLong( 0x8 ), /* 8 */
/* 78 */ NdrFcShort( 0xd0 ), /* Offset= 208 (286) */
/* 80 */ NdrFcLong( 0xd ), /* 13 */
/* 84 */ NdrFcShort( 0xe4 ), /* Offset= 228 (312) */
/* 86 */ NdrFcLong( 0x9 ), /* 9 */
/* 90 */ NdrFcShort( 0xf0 ), /* Offset= 240 (330) */
/* 92 */ NdrFcLong( 0x2000 ), /* 8192 */
/* 96 */ NdrFcShort( 0xfc ), /* Offset= 252 (348) */
/* 98 */ NdrFcLong( 0x24 ), /* 36 */
/* 102 */ NdrFcShort( 0x2f4 ), /* Offset=
756 (858) */
/* 104 */ NdrFcLong( 0x4024 ), /* 16420 */
/* 108 */ NdrFcShort( 0x2ee ), /* Offset=
750 (858) */
/* 110 */ NdrFcLong( 0x4011 ), /* 16401 */
/* 114 */ NdrFcShort( 0x2ec ), /* Offset=
748 (862) */
/* 116 */ NdrFcLong( 0x4002 ), /* 16386 */
/* 120 */ NdrFcShort( 0x2ea ), /* Offset=
746 (866) */
/* 122 */ NdrFcLong( 0x4003 ), /* 16387 */
/* 126 */ NdrFcShort( 0x2e8 ), /* Offset=
744 (870) */
/* 128 */ NdrFcLong( 0x4004 ), /* 16388 */

```

```

/* 132 */ NdrFcShort( 0x2e6 ), /* Offset=
742 (874) */
/* 134 */ NdrFcLong( 0x4005 ), /* 16389 */
/* 138 */ NdrFcShort( 0x2e4 ), /* Offset=
740 (878) */
/* 140 */ NdrFcLong( 0x400b ), /* 16395 */
/* 144 */ NdrFcShort( 0x2d2 ), /* Offset=
722 (866) */
/* 146 */ NdrFcLong( 0x400a ), /* 16394 */
/* 150 */ NdrFcShort( 0x2d0 ), /* Offset=
720 (870) */
/* 152 */ NdrFcLong( 0x4006 ), /* 16390 */
/* 156 */ NdrFcShort( 0x2d6 ), /* Offset=
726 (882) */
/* 158 */ NdrFcLong( 0x4007 ), /* 16391 */
/* 162 */ NdrFcShort( 0x2cc ), /* Offset=
716 (878) */
/* 164 */ NdrFcLong( 0x4008 ), /* 16392 */
/* 168 */ NdrFcShort( 0x2ce ), /* Offset=
718 (886) */
/* 170 */ NdrFcLong( 0x400d ), /* 16397 */
/* 174 */ NdrFcShort( 0x2c8 ), /* Offset=
716 (890) */
/* 176 */ NdrFcLong( 0x4009 ), /* 16393 */
/* 180 */ NdrFcShort( 0x2ca ), /* Offset=
714 (894) */
/* 182 */ NdrFcLong( 0x6000 ), /* 24576 */
/* 186 */ NdrFcShort( 0x2c8 ), /* Offset=
712 (898) */
/* 188 */ NdrFcLong( 0x400c ), /* 16396 */
/* 192 */ NdrFcShort( 0x2c6 ), /* Offset=
710 (902) */
/* 194 */ NdrFcLong( 0x10 ), /* 16 */
/* 198 */ NdrFcShort( 0x8002 ), /* Simple arm
type: FC_CHAR */
/* 200 */ NdrFcLong( 0x12 ), /* 18 */
/* 204 */ NdrFcShort( 0x8006 ), /* Simple arm
type: FC_SHORT */
/* 206 */ NdrFcLong( 0x13 ), /* 19 */
/* 210 */ NdrFcShort( 0x8008 ), /* Simple arm
type: FC_LONG */
/* 212 */ NdrFcLong( 0x16 ), /* 22 */
/* 216 */ NdrFcShort( 0x8008 ), /* Simple arm
type: FC_LONG */
/* 218 */ NdrFcLong( 0x17 ), /* 23 */
/* 222 */ NdrFcShort( 0x8008 ), /* Simple arm
type: FC_LONG */
/* 224 */ NdrFcLong( 0xe ), /* 14 */
/* 228 */ NdrFcShort( 0x2aa ), /* Offset=
682 (910) */
/* 230 */ NdrFcLong( 0x400e ), /* 16398 */
/* 234 */ NdrFcShort( 0x2b0 ), /* Offset=
688 (922) */
/* 236 */ NdrFcLong( 0x4010 ), /* 16400 */
/* 240 */ NdrFcShort( 0x2ae ), /* Offset=
686 (926) */
/* 242 */ NdrFcLong( 0x4012 ), /* 16402 */
/* 246 */ NdrFcShort( 0x26c ), /* Offset=
620 (866) */
/* 248 */ NdrFcLong( 0x4013 ), /* 16403 */
/* 252 */ NdrFcShort( 0x26a ), /* Offset=
618 (870) */
/* 254 */ NdrFcLong( 0x4016 ), /* 16406 */

```

```

/* 258 */ NdrFcShort( 0x264 ), /* Offset=
612 (870) */
/* 260 */ NdrFcLong( 0x4017 ), /* 16407 */
/* 264 */ NdrFcShort( 0x25e ), /* Offset=
606 (870) */
/* 266 */ NdrFcLong( 0x0 ), /* 0 */
/* 270 */ NdrFcShort( 0x0 ), /* Offset= 0 (270) */
/* 272 */ NdrFcLong( 0x1 ), /* 1 */
/* 276 */ NdrFcShort( 0x0 ), /* Offset= 0 (276) */
/* 278 */ NdrFcShort( 0xffffffff ), /* Offset= -1
(277) */
/* 280 */
0x15, /*
FC_STRUCT */
0x7, /*
7 */
/* 282 */ NdrFcShort( 0x8 ), /* 8 */
/* 284 */ 0xb, /* FC_HYPER */
0x5b, /*
FC_END */
/* 286 */
0x12, 0x0, /*
FC_UP */
/* 288 */ NdrFcShort( 0xe ), /* Offset= 14 (302) */
/* 290 */
0x1b, /*
FC_CARRAY */
0x1, /*
1 */
/* 292 */ NdrFcShort( 0x2 ), /* 2 */
/* 294 */ 0x9, /* Corr desc: FC_ULONG */
/*
0x0, /*
*/
/* 296 */ NdrFcShort( 0xfffc ), /* -4 */
/* 298 */ NdrFcShort( 0x1 ), /* Corr flags: early,
*/
/* 300 */ 0x6, /* FC_SHORT */
0x5b, /*
FC_END */
/* 302 */
0x17, /*
FC_CSTRUCT */
0x3, /*
3 */
/* 304 */ NdrFcShort( 0x8 ), /* 8 */
/* 306 */ NdrFcShort( 0xffffffff0 ), /* Offset= -
16 (290) */
/* 308 */ 0x8, /* FC_LONG */
0x8, /*
FC_LONG */
/* 310 */ 0x5c, /* FC_PAD */
0x5b, /*
FC_END */
/* 312 */
0x2f, /*
FC_IP */
0x5a, /*
FC_CONSTANT_IID */
/* 314 */ NdrFcLong( 0x0 ), /* 0 */
/* 318 */ NdrFcShort( 0x0 ), /* 0 */
/* 320 */ NdrFcShort( 0x0 ), /* 0 */
/* 322 */ 0xc0, /* 192 */

```

```

0x0, /*
0 */
/* 324 */ 0x0, /* 0 */
0x0, /*
0 */
/* 326 */ 0x0, /* 0 */
0x0, /*
0 */
/* 328 */ 0x0, /* 0 */
0x46, /*
70 */
/* 330 */
0x2f, /*
FC_IP */
0x5a, /*
FC_CONSTANT_IID */
/* 332 */ NdrFcLong( 0x20400 ), /* 132096 */
/* 336 */ NdrFcShort( 0x0 ), /* 0 */
/* 338 */ NdrFcShort( 0x0 ), /* 0 */
/* 340 */ 0xc0, /* 192 */
0x0, /*
0 */
/* 342 */ 0x0, /* 0 */
0x0, /*
0 */
/* 344 */ 0x0, /* 0 */
0x0, /*
0 */
/* 346 */ 0x0, /* 0 */
0x46, /*
70 */
/* 348 */
0x12, 0x10, /*
FC_UP [pointer_deref] */
/* 350 */ NdrFcShort( 0x2 ), /* Offset= 2 (352) */
/* 352 */
0x12, 0x0, /*
FC_UP */
/* 354 */ NdrFcShort( 0x1e6 ), /* Offset=
486 (840) */
/* 356 */
0x2a, /*
FC_ENCAPSULATED_UNION */
0x89, /*
137 */
/* 358 */ NdrFcShort( 0x20 ), /* 32 */
/* 360 */ NdrFcShort( 0xa ), /* 10 */
/* 362 */ NdrFcLong( 0x8 ), /* 8 */
/* 366 */ NdrFcShort( 0x50 ), /* Offset= 80 (446) */
/* 368 */ NdrFcLong( 0xd ), /* 13 */
/* 372 */ NdrFcShort( 0x70 ), /* Offset= 112 (484) */
/* 374 */ NdrFcLong( 0x9 ), /* 9 */
/* 378 */ NdrFcShort( 0x90 ), /* Offset= 144 (522) */
/* 380 */ NdrFcLong( 0xc ), /* 12 */
/* 384 */ NdrFcShort( 0xb0 ), /* Offset= 176 (560) */
/* 386 */ NdrFcLong( 0x24 ), /* 36 */
/* 390 */ NdrFcShort( 0x104 ), /* Offset=
260 (650) */
/* 392 */ NdrFcLong( 0x800d ), /* 32781 */
/* 396 */ NdrFcShort( 0x120 ), /* Offset=
288 (684) */
/* 398 */ NdrFcLong( 0x10 ), /* 16 */

```

```

/* 402 */ NdrFcShort( 0x13a ), /* Offset=
314 (716) */
/* 404 */ NdrFcLong( 0x2 ), /* 2 */
/* 408 */ NdrFcShort( 0x150 ), /* Offset=
336 (744) */
/* 410 */ NdrFcLong( 0x3 ), /* 3 */
/* 414 */ NdrFcShort( 0x166 ), /* Offset=
358 (772) */
/* 416 */ NdrFcLong( 0x14 ), /* 20 */
/* 420 */ NdrFcShort( 0x17c ), /* Offset=
380 (800) */
/* 422 */ NdrFcShort( 0xffffffff ), /* Offset=-1
(421) */
/* 424 */
0x21, /*
FC_BOGUS_ARRAY */
0x3, /*
3 */
/* 426 */ NdrFcShort( 0x0 ), /* 0 */
/* 428 */ 0x19, /* Corr desc: field
pointer, FC_ULONG */
0x0, /*
*/
/* 430 */ NdrFcShort( 0x0 ), /* 0 */
/* 432 */ NdrFcShort( 0x1 ), /* Corr flags: early,
*/
/* 434 */ NdrFcLong( 0xffffffff ), /* -1 */
/* 438 */ NdrFcShort( 0x0 ), /* Corr flags: */
/* 440 */
0x12, 0x0, /*
FC_UP */
/* 442 */ NdrFcShort( 0xfffff74 ), /* Offset=-
140 (302) */
/* 444 */ 0x5c, /* FC_PAD */
0x5b, /*
FC_END */
/* 446 */
0x1a, /*
FC_BOGUS_STRUCT */
0x3, /*
3 */
/* 448 */ NdrFcShort( 0x10 ), /* 16 */
/* 450 */ NdrFcShort( 0x0 ), /* 0 */
/* 452 */ NdrFcShort( 0x6 ), /* Offset= 6 (458) */
/* 454 */ 0x8, /* FC_LONG */
0x39, /*
FC_ALIGNM8 */
/* 456 */ 0x36, /* FC_POINTER */
0x5b, /*
FC_END */
/* 458 */
0x11, 0x0, /*
FC_RP */
/* 460 */ NdrFcShort( 0xfffff5dc ), /* Offset=-
36 (424) */
/* 462 */
0x21, /*
FC_BOGUS_ARRAY */
0x3, /*
3 */
/* 464 */ NdrFcShort( 0x0 ), /* 0 */
/* 466 */ 0x19, /* Corr desc: field
pointer, FC_ULONG */

```

```

0x0, /*
*/
/* 468 */ NdrFcShort( 0x0 ), /* 0 */
/* 470 */ NdrFcShort( 0x1 ), /* Corr flags: early,
*/
/* 472 */ NdrFcLong( 0xffffffff ), /* -1 */
/* 476 */ NdrFcShort( 0x0 ), /* Corr flags: */
/* 478 */ 0x4c, /* FC_EMBEDDED_COMPLEX
*/
0x0, /*
0 */
/* 480 */ NdrFcShort( 0xfffff58 ), /* Offset=-
168 (312) */
/* 482 */ 0x5c, /* FC_PAD */
0x5b, /*
FC_END */
/* 484 */
0x1a, /*
FC_BOGUS_STRUCT */
0x3, /*
3 */
/* 486 */ NdrFcShort( 0x10 ), /* 16 */
/* 488 */ NdrFcShort( 0x0 ), /* 0 */
/* 490 */ NdrFcShort( 0x6 ), /* Offset= 6 (496) */
/* 492 */ 0x8, /* FC_LONG */
0x39, /*
FC_ALIGNM8 */
/* 494 */ 0x36, /* FC_POINTER */
0x5b, /*
FC_END */
/* 496 */
0x11, 0x0, /*
FC_RP */
/* 498 */ NdrFcShort( 0xfffff5dc ), /* Offset=-
36 (462) */
/* 500 */
0x21, /*
FC_BOGUS_ARRAY */
0x3, /*
3 */
/* 502 */ NdrFcShort( 0x0 ), /* 0 */
/* 504 */ 0x19, /* Corr desc: field
pointer, FC_ULONG */
0x0, /*
*/
/* 506 */ NdrFcShort( 0x0 ), /* 0 */
/* 508 */ NdrFcShort( 0x1 ), /* Corr flags: early,
*/
/* 510 */ NdrFcLong( 0xffffffff ), /* -1 */
/* 514 */ NdrFcShort( 0x0 ), /* Corr flags: */
/* 516 */ 0x4c, /* FC_EMBEDDED_COMPLEX
*/
0x0, /*
0 */
/* 518 */ NdrFcShort( 0xfffff44 ), /* Offset=-
188 (330) */
/* 520 */ 0x5c, /* FC_PAD */
0x5b, /*
FC_END */
/* 522 */
0x1a, /*
FC_BOGUS_STRUCT */

```

```

0x3, /*
3 */
/* 524 */ NdrFcShort( 0x10 ), /* 16 */
/* 526 */ NdrFcShort( 0x0 ), /* 0 */
/* 528 */ NdrFcShort( 0x6 ), /* Offset= 6 (534) */
/* 530 */ 0x8, /* FC_LONG */
0x39, /*
FC_ALIGNM8 */
/* 532 */ 0x36, /* FC_POINTER */
0x5b, /*
FC_END */
/* 534 */
0x11, 0x0, /*
FC_RP */
/* 536 */ NdrFcShort( 0xfffff5dc ), /* Offset=-
36 (500) */
/* 538 */
0x21, /*
FC_BOGUS_ARRAY */
0x3, /*
3 */
/* 540 */ NdrFcShort( 0x0 ), /* 0 */
/* 542 */ 0x19, /* Corr desc: field
pointer, FC_ULONG */
0x0, /*
*/
/* 544 */ NdrFcShort( 0x0 ), /* 0 */
/* 546 */ NdrFcShort( 0x1 ), /* Corr flags: early,
*/
/* 548 */ NdrFcLong( 0xffffffff ), /* -1 */
/* 552 */ NdrFcShort( 0x0 ), /* Corr flags: */
/* 554 */
0x12, 0x0, /*
FC_UP */
/* 556 */ NdrFcShort( 0x176 ), /* Offset=
374 (930) */
/* 558 */ 0x5c, /* FC_PAD */
0x5b, /*
FC_END */
/* 560 */
0x1a, /*
FC_BOGUS_STRUCT */
0x3, /*
3 */
/* 562 */ NdrFcShort( 0x10 ), /* 16 */
/* 564 */ NdrFcShort( 0x0 ), /* 0 */
/* 566 */ NdrFcShort( 0x6 ), /* Offset= 6 (572) */
/* 568 */ 0x8, /* FC_LONG */
0x39, /*
FC_ALIGNM8 */
/* 570 */ 0x36, /* FC_POINTER */
0x5b, /*
FC_END */
/* 572 */
0x11, 0x0, /*
FC_RP */
/* 574 */ NdrFcShort( 0xfffff5dc ), /* Offset=-
36 (538) */
/* 576 */
0x2f, /*
FC_IP */
0x5a, /*
FC_CONSTANT_IID */

```

```

/* 578 */ NdrFcLong( 0x2f ), /* 47 */
/* 582 */ NdrFcShort( 0x0 ), /* 0 */
/* 584 */ NdrFcShort( 0x0 ), /* 0 */
/* 586 */ 0xc0, /* 192 */
0 /*
/* 588 */ 0x0, /* 0 */
0 /*
/* 590 */ 0x0, /* 0 */
0 /*
/* 592 */ 0x0, /* 0 */
70 /*
/* 594 */
FC_CARRAY */
0 /*
/* 596 */ NdrFcShort( 0x1 ), /* 1 */
/* 598 */ 0x19, /* Corr desc: field
pointer, FC_ULONG */
*/
/* 600 */ NdrFcShort( 0x4 ), /* 4 */
/* 602 */ NdrFcShort( 0x1 ), /* Corr flags: early,
*/
/* 604 */ 0x1, /* FC_BYTE */
FC_END */
/* 606 */
FC_BOGUS_STRUCT */
0x1a, /*
3 */
/* 608 */ NdrFcShort( 0x18 ), /* 24 */
/* 610 */ NdrFcShort( 0x0 ), /* 0 */
/* 612 */ NdrFcShort( 0xc ), /* Offset= 12 (624) */
/* 614 */ 0x8, /* FC_LONG */
FC_LONG */
/* 616 */ 0x4c, /* FC_EMBEDDED_COMPLEX
*/
0x0, /*
0 */
/* 618 */ NdrFcShort( 0xfffffd6 ), /* Offset= -
42 (576) */
/* 620 */ 0x39, /* FC_ALIGNM8 */
FC_POINTER */
/* 622 */ 0x5c, /* FC_PAD */
FC_END */
/* 624 */
0x12, 0x0, /*
FC_UP */
/* 626 */ NdrFcShort( 0xfffffe0 ), /* Offset= -
32 (594) */
/* 628 */
0x21, /*
FC_BOGUS_ARRAY */

```

```

0x3, /*
3 */
/* 630 */ NdrFcShort( 0x0 ), /* 0 */
/* 632 */ 0x19, /* Corr desc: field
pointer, FC_ULONG */
0x0, /*
*/
/* 634 */ NdrFcShort( 0x0 ), /* 0 */
/* 636 */ NdrFcShort( 0x1 ), /* Corr flags: early,
*/
/* 638 */ NdrFcLong( 0xffffffff ), /* -1 */
/* 642 */ NdrFcShort( 0x0 ), /* Corr flags: */
/* 644 */
0x12, 0x0, /*
FC_UP */
/* 646 */ NdrFcShort( 0xfffffd8 ), /* Offset= -
40 (606) */
/* 648 */ 0x5c, /* FC_PAD */
FC_END */
/* 650 */
0x1a, /*
FC_BOGUS_STRUCT */
0x3, /*
3 */
/* 652 */ NdrFcShort( 0x10 ), /* 16 */
/* 654 */ NdrFcShort( 0x0 ), /* 0 */
/* 656 */ NdrFcShort( 0x6 ), /* Offset= 6 (662) */
/* 658 */ 0x8, /* FC_LONG */
FC_ALIGNM8 */
/* 660 */ 0x36, /* FC_POINTER */
FC_END */
/* 662 */
0x11, 0x0, /*
FC_RP */
/* 664 */ NdrFcShort( 0xfffffddc ), /* Offset= -
36 (628) */
/* 666 */
0x1d, /*
FC_SMFARRAY */
0x0, /*
0 */
/* 668 */ NdrFcShort( 0x8 ), /* 8 */
/* 670 */ 0x1, /* FC_BYTE */
FC_END */
/* 672 */
0x15, /*
FC_STRUCT */
0x3, /*
3 */
/* 674 */ NdrFcShort( 0x10 ), /* 16 */
/* 676 */ 0x8, /* FC_LONG */
0x6, /*
FC_SHORT */
/* 678 */ 0x6, /* FC_SHORT */
0x4c, /*
FC_EMBEDDED_COMPLEX */
/* 680 */ 0x0, /* 0 */
NdrFcShort( 0xfffffff1
), /* Offset= -15 (666) */

```

```

0x5b, /*
FC_END */
/* 684 */
0x1a, /*
FC_BOGUS_STRUCT */
0x3, /*
3 */
/* 686 */ NdrFcShort( 0x20 ), /* 32 */
/* 688 */ NdrFcShort( 0x0 ), /* 0 */
/* 690 */ NdrFcShort( 0xa ), /* Offset= 10 (700) */
/* 692 */ 0x8, /* FC_LONG */
FC_ALIGNM8 */
/* 694 */ 0x36, /* FC_POINTER */
0x4c, /*
FC_EMBEDDED_COMPLEX */
/* 696 */ 0x0, /* 0 */
NdrFcShort( 0xffffffe7
), /* Offset= -25 (672) */
FC_END */
/* 700 */
0x11, 0x0, /*
FC_RP */
/* 702 */ NdrFcShort( 0xfffffff10 ), /* Offset= -
240 (462) */
/* 704 */
0x1b, /*
FC_CARRAY */
0x0, /*
0 */
/* 706 */ NdrFcShort( 0x1 ), /* 1 */
/* 708 */ 0x19, /* Corr desc: field
pointer, FC_ULONG */
0x0, /*
*/
/* 710 */ NdrFcShort( 0x0 ), /* 0 */
/* 712 */ NdrFcShort( 0x1 ), /* Corr flags: early,
*/
/* 714 */ 0x1, /* FC_BYTE */
FC_END */
/* 716 */
0x1a, /*
FC_BOGUS_STRUCT */
0x3, /*
3 */
/* 718 */ NdrFcShort( 0x10 ), /* 16 */
/* 720 */ NdrFcShort( 0x0 ), /* 0 */
/* 722 */ NdrFcShort( 0x6 ), /* Offset= 6 (728) */
/* 724 */ 0x8, /* FC_LONG */
0x39, /*
FC_ALIGNM8 */
/* 726 */ 0x36, /* FC_POINTER */
FC_END */
/* 728 */
0x12, 0x0, /*
FC_UP */
/* 730 */ NdrFcShort( 0xffffffe6 ), /* Offset= -
26 (704) */
/* 732 */

```

```

FC_CARRAY */          0x1b,          /*
1 */
/* 734 */ NdrFcShort( 0x2 ), /* 2 */
/* 736 */ 0x19,          /* Corr desc: field
pointer, FC_ULONG */
0x0,          /*
*/
/* 738 */ NdrFcShort( 0x0 ), /* 0 */
/* 740 */ NdrFcShort( 0x1 ), /* Corr flags: early,
*/
/* 742 */ 0x6,          /* FC_SHORT */
FC_END */          0x5b,          /*
/* 744 */
FC_BOGUS_STRUCT */  0x1a,          /*
0x3,          /*
3 */
/* 746 */ NdrFcShort( 0x10 ), /* 16 */
/* 748 */ NdrFcShort( 0x0 ), /* 0 */
/* 750 */ NdrFcShort( 0x6 ), /* Offset= 6 (756) */
/* 752 */ 0x8,          /* FC_LONG */
0x39,          /*
FC_ALIGNM8 */
/* 754 */ 0x36,          /* FC_POINTER */
FC_END */          0x5b,          /*
/* 756 */
0x12, 0x0,          /*
FC_UP */
/* 758 */ NdrFcShort( 0xfffffe6 ), /* Offset= -
26 (732) */
/* 760 */
0x1b,          /*
FC_CARRAY */          0x3,          /*
3 */
/* 762 */ NdrFcShort( 0x4 ), /* 4 */
/* 764 */ 0x19,          /* Corr desc: field
pointer, FC_ULONG */
0x0,          /*
*/
/* 766 */ NdrFcShort( 0x0 ), /* 0 */
/* 768 */ NdrFcShort( 0x1 ), /* Corr flags: early,
*/
/* 770 */ 0x8,          /* FC_LONG */
FC_END */          0x5b,          /*
/* 772 */
0x1a,          /*
FC_BOGUS_STRUCT */  0x3,          /*
3 */
/* 774 */ NdrFcShort( 0x10 ), /* 16 */
/* 776 */ NdrFcShort( 0x0 ), /* 0 */
/* 778 */ NdrFcShort( 0x6 ), /* Offset= 6 (784) */
/* 780 */ 0x8,          /* FC_LONG */
0x39,          /*
FC_ALIGNM8 */
/* 782 */ 0x36,          /* FC_POINTER */

```

```

FC_END */          0x5b,          /*
/* 784 */
0x12, 0x0,          /*
FC_UP */
/* 786 */ NdrFcShort( 0xfffffe6 ), /* Offset= -
26 (760) */
/* 788 */
FC_CARRAY */          0x1b,          /*
0x7,          /*
7 */
/* 790 */ NdrFcShort( 0x8 ), /* 8 */
/* 792 */ 0x19,          /* Corr desc: field
pointer, FC_ULONG */
0x0,          /*
*/
/* 794 */ NdrFcShort( 0x0 ), /* 0 */
/* 796 */ NdrFcShort( 0x1 ), /* Corr flags: early,
*/
/* 798 */ 0xb,          /* FC_HYPER */
FC_END */          0x5b,          /*
/* 800 */
FC_BOGUS_STRUCT */  0x1a,          /*
0x3,          /*
3 */
/* 802 */ NdrFcShort( 0x10 ), /* 16 */
/* 804 */ NdrFcShort( 0x0 ), /* 0 */
/* 806 */ NdrFcShort( 0x6 ), /* Offset= 6 (812) */
/* 808 */ 0x8,          /* FC_LONG */
0x39,          /*
FC_ALIGNM8 */
/* 810 */ 0x36,          /* FC_POINTER */
FC_END */          0x5b,          /*
/* 812 */
0x12, 0x0,          /*
FC_UP */
/* 814 */ NdrFcShort( 0xfffffe6 ), /* Offset= -
26 (788) */
/* 816 */
FC_STRUCT */          0x15,          /*
0x3,          /*
3 */
/* 818 */ NdrFcShort( 0x8 ), /* 8 */
/* 820 */ 0x8,          /* FC_LONG */
0x8,          /*
FC_LONG */
/* 822 */ 0x5c,          /* FC_PAD */
FC_END */          0x5b,          /*
/* 824 */
0x1b,          /*
FC_CARRAY */          0x3,          /*
3 */
/* 826 */ NdrFcShort( 0x8 ), /* 8 */
/* 828 */ 0x7,          /* Corr desc: FC_USHORT
*/

```

```

0x0,          /*
*/
/* 830 */ NdrFcShort( 0xffc8 ), /* -56 */
/* 832 */ NdrFcShort( 0x1 ), /* Corr flags: early,
*/
/* 834 */ 0x4c,          /* FC_EMBEDDED_COMPLEX
*/
0x0,          /*
0 */
/* 836 */ NdrFcShort( 0xfffffec ), /* Offset= -
20 (816) */
/* 838 */ 0x5c,          /* FC_PAD */
0x5b,          /*
FC_END */
/* 840 */
FC_BOGUS_STRUCT */  0x1a,          /*
0x3,          /*
3 */
/* 842 */ NdrFcShort( 0x38 ), /* 56 */
/* 844 */ NdrFcShort( 0xfffffec ), /* Offset= -
20 (824) */
/* 846 */ NdrFcShort( 0x0 ), /* Offset= 0 (846) */
/* 848 */ 0x6,          /* FC_SHORT */
0x6,          /*
FC_SHORT */
/* 850 */ 0x38,          /* FC_ALIGNM4 */
0x8,          /*
FC_LONG */
/* 852 */ 0x8,          /* FC_LONG */
0x4c,          /*
FC_EMBEDDED_COMPLEX */
/* 854 */ 0x4,          /* 4 */
NdrFcShort( 0xfffffe0d
), /* Offset= -499 (356) */
0x5b,          /*
FC_END */
/* 858 */
0x12, 0x0,          /*
FC_UP */
/* 860 */ NdrFcShort( 0xfffff02 ), /* Offset= -
254 (606) */
/* 862 */
0x12, 0x8,          /*
FC_UP [simple_pointer] */
/* 864 */ 0x1,          /* FC_BYTE */
0x5c,          /*
FC_PAD */
/* 866 */
0x12, 0x8,          /*
FC_UP [simple_pointer] */
/* 868 */ 0x6,          /* FC_SHORT */
0x5c,          /*
FC_PAD */
/* 870 */
0x12, 0x8,          /*
FC_UP [simple_pointer] */
/* 872 */ 0x8,          /* FC_LONG */
0x5c,          /*
FC_PAD */
/* 874 */
0x12, 0x8,          /*
FC_UP [simple_pointer] */

```

```

/* 876 */ 0xa,          /* FC_FLOAT */
FC_PAD /* 878 */
/* 880 */ 0xc,          /* FC_DOUBLE */
FC_PAD /* 882 */
/* 884 */ NdrFcShort( 0xfffffda4 ), /* Offset= -
604 (280) */
FC_UP /* 886 */
/* 888 */ NdrFcShort( 0xfffffda6 ), /* Offset= -
602 (286) */
FC_UP /* 890 */
/* 892 */ NdrFcShort( 0xfffffdbc ), /* Offset= -
580 (312) */
FC_UP /* 894 */
/* 896 */ NdrFcShort( 0xfffffdca ), /* Offset= -
566 (330) */
FC_UP /* 898 */
/* 900 */ NdrFcShort( 0xfffffdd8 ), /* Offset= -
552 (348) */
FC_UP /* 902 */
/* 904 */ NdrFcShort( 0x2 ), /* Offset= 2 (906) */
FC_UP /* 906 */
/* 908 */ NdrFcShort( 0x16 ), /* Offset= 22 (930) */
FC_UP /* 910 */
FC_STRUCT /*
7 */
/* 912 */ NdrFcShort( 0x10 ), /* 16 */
/* 914 */ 0x6,          /* FC_SHORT */
FC_BYTE /*
/* 916 */ 0x1,          /* FC_BYTE */
FC_ALIGNM4 /*
/* 918 */ 0x8,          /* FC_LONG */
FC_ALIGNM8 /*
/* 920 */ 0xb,          /* FC_HYPER */
FC_END /*
/* 922 */
FC_UP /*

```

```

/* 924 */ NdrFcShort( 0xfffffff2 ), /* Offset= -
14 (910) */
/* 926 */
FC_UP /* 928 */ 0x2,          /* FC_CHAR */
FC_PAD /* 930 */
FC_BOGUS_STRUCT /*
7 */
/* 932 */ NdrFcShort( 0x20 ), /* 32 */
/* 934 */ NdrFcShort( 0x0 ), /* 0 */
/* 936 */ NdrFcShort( 0x0 ), /* Offset= 0 (936) */
/* 938 */ 0x8,          /* FC_LONG */
FC_LONG /*
/* 940 */ 0x6,          /* FC_SHORT */
FC_SHORT /*
/* 942 */ 0x6,          /* FC_SHORT */
FC_SHORT /*
/* 944 */ 0x4c,          /* FC_EMBEDDED_COMPLEX */
0 */
/* 946 */ NdrFcShort( 0xfffffc54 ), /* Offset= -
940 (6) */
/* 948 */ 0x5c,          /* FC_PAD */
FC_END /*
/* 950 */ 0xb4,          /* FC_USER_MARSHAL */
131 */
/* 952 */ NdrFcShort( 0x0 ), /* 0 */
/* 954 */ NdrFcShort( 0x18 ), /* 24 */
/* 956 */ NdrFcShort( 0x0 ), /* 0 */
/* 958 */ NdrFcShort( 0xfffffc44 ), /* Offset= -
956 (2) */
/* 960 */
FC_RP /* 962 */ 0x11, 0x4,          /*
/* 962 */ NdrFcShort( 0x6 ), /* Offset= 6 (968) */
/* 964 */
FC_OP /*
/* 966 */ NdrFcShort( 0xfffffddc ), /* Offset= -
36 (930) */
/* 968 */ 0xb4,          /* FC_USER_MARSHAL */
131 */
/* 970 */ NdrFcShort( 0x0 ), /* 0 */
/* 972 */ NdrFcShort( 0x18 ), /* 24 */
/* 974 */ NdrFcShort( 0x0 ), /* 0 */
/* 976 */ NdrFcShort( 0xfffffff4 ), /* Offset= -
12 (964) */
0x0
};

```

```

const CInterfaceProxyVtbl *
_tpcc_com_ps_ProxyVtblList[] =
{
    ( CInterfaceProxyVtbl *) &_ITPCCProxyVtbl,
    0
};

const CInterfaceStubVtbl *
_tpcc_com_ps_StubVtblList[] =
{
    ( CInterfaceStubVtbl *) &_ITPCCStubVtbl,
    0
};

PCInterfaceName const
_tpcc_com_ps_InterfaceNamesList[] =
{
    "ITPCC",
    0
};

#define _tpcc_com_ps_CHECK_IID(n)
IID_GENERIC_CHECK_IID( _tpcc_com_ps, pIID,
n)

int __stdcall _tpcc_com_ps_IID_Lookup( const IID *
pIID, int * pIndex )
{
    if(!_tpcc_com_ps_CHECK_IID(0))
    {
        *pIndex = 0;
        return 1;
    }

    return 0;
}

const ExtendedProxyFileInfo tpcc_com_ps_ProxyFileInfo
=
{
    (PCInterfaceProxyVtblList *) &
_tpcc_com_ps_ProxyVtblList,
    (PCInterfaceStubVtblList *) &
_tpcc_com_ps_StubVtblList,
    (const PCInterfaceName *) &
_tpcc_com_ps_InterfaceNamesList,
    0, // no delegation
    & _tpcc_com_ps_IID_Lookup,
    1,
    2,
    0, /* table of [async_uuid] interfaces */
    0, /* Filler1 */
    0, /* Filler2 */
    0, /* Filler3 */
};

#endif /* defined(_M_IA64) || defined(_M_AXP64) */

```


tpcc_com_sl.rgs

```
HKCR
{
    TPCC.StockLevel.1 = s 'StockLevel Class'
    {
        CLSID = s '{2668369E-A50D-11D2-BA4E-00C04FBFE08B}'
    }
    TPCC.StockLevel = s 'StockLevel Class'
    {
        CurVer = s 'TPCC.StockLevel.1'
    }
    NoRemove CLSID
    {
        ForceRemove {2668369E-A50D-11D2-BA4E-00C04FBFE08B} = s 'StockLevel Class'
        {
            ProgID = s
                'TPCC.StockLevel.1'
            VersionIndependentProgID = s
                'TPCC.StockLevel'
            InprocServer32 = s
                '%MODULE%'
            {
                val
                ThreadingModel = s 'Both'
            }
        }
    }
}
```

tpcc_dblib.cpp

```
/* FILE: TPCC_DBLIB.CPP
 * Microsoft
 * TPC-C Kit Ver. 4.20.000
 * Copyright
 * Microsoft, 1999
 * All Rights Reserved
 *
 * Version
 * 4.10.000 audited by Richard Gimarc, Performance
 * Metrics, 3/17/99
 *
 * PURPOSE: Implements dblib calls for TPC-C
 * txns.
 * Contact: Charles Levine
 * (clevine@microsoft.com)
 *
 * Change history:
 * 4.20.000 - updated rev number to
 * match kit
 * 4.10.001 - not deleting error
 * class in catch handler on deadlock retry;
 * not a
 * functional bug, but a memory leak
```

```
* - had to
* tweak some declarations to compile with latest SDK;
* no functional change
*/

#include <windows.h>
#include <stdio.h>
#include <assert.h>

#define DBNTWIN32
#include <sqlfront.h>
#include <sqldb.h>

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

// need to declare functions for export
#define DllDecl __declspec( dllexport )

#include "..\..\common\src\error.h"
#include "..\..\common\src\trans.h"
#include "..\..\common\src\txn_base.h"
#include "tpcc_dblib.h"

#define DEFCLPACKSIZE
4096

// version string; must match return value from
tpcc_version stored proc
const char sVersion[] = "4.10.000";

const iMaxRetries = 10;
// how many retries on deadlock
static long iConnectionCount = 0; // number
of current dblib connections

const int iErrOleDbProvider = 7312;
const char sErrTimeoutExpired[] = "Timeout expired";

BOOL APIENTRY DllMain(HMODULE hModule, DWORD
ul_reason_for_call, LPVOID lpReserved)
{
    switch( ul_reason_for_call )
    {
        case DLL_PROCESS_ATTACH:
            DisableThreadLibraryCalls(hModule);
            dbinit(); //
            initialize dblib
            break;

        case DLL_PROCESS_DETACH:
            dbexit(); //
            close all dblib structures/connections
            break;

        default:
            /* nothing */;
    }
    return TRUE;
}
```

```
int err_handler(DBPROCESS *dbproc, int severity, int
dberr, int oserr, LPCSTR dberrstr, LPCSTR oserrstr)
{
    CTPCC_DBLIB
    *pConn;

    assert(dbproc != NULL);
    pConn =
    (CTPCC_DBLIB*)dbgetuserdata(dbproc);

    if (pConn != NULL)
    {
        pConn->SetDbLibError( severity,
        dberr, oserr, dberrstr, oserrstr );
    }
    return INT_CANCEL;
}

/* FUNCTION: int msg_handler(DBPROCESS *dbproc, DBINT
msgno, int msgstate, int severity, char *msgtext)
 *
 * PURPOSE: This function handles DB-Library
 * SQL Server error messages
 *
 * ARGUMENTS: DBPROCESS *dbproc
 * DBPROCESS id pointer
 * DBINT
 *
 * message number
 *
 * message state
 *
 * message severity
 *
 * severity
 *
 * char
 * printable
 *
 * message description
 *
 * RETURNS: int
 * INT_CONTINUE continue if
 * error is SQLETIME else INT_CANCEL action
 *
 * INT_CANCEL
 *
 * cancel operation
 *
 * COMMENTS: This function also sets the dead
 * lock dbproc variable if necessary.
 *
 */

// typedef INT (SQLAPI *DBMSGHANDLE_PROC) (PDBPROCESS,
DBINT, INT, INT, LPCSTR, LPCSTR, LPCSTR,
DBUSMALLINT);

int msg_handler(DBPROCESS *dbproc, DBINT msgno, int
msgstate, int severity,
LPCSTR
msgtext, LPCSTR srvname, LPCSTR procname, DBUSMALLINT
line)
{
}
```

```

CTPCC_DBLIB
*pConn;

assert(dbproc != NULL);
pConn =
(CTPCC_DBLIB*)dbgetuserdata(dbproc);

if (pConn != NULL)
{
    pConn->SetSqlError( msgno,
msgstate, severity, msgtext );
}

return 0;
}

/* FUNCTION: void UtilStrCpy(char * pDest, char *
pSrc, int n)
*
* PURPOSE:      This function copies n characters
from string pSrc to pDst and places a
*              null character at the
end of the destination string.
*
* ARGUMENTS:   char
               *pDest  destination string pointer
               char
               *pSrc   source string pointer
               int
               n
               number of characters to copy
*
* RETURNS:     None
*
* COMMENTS:    Unlike strncpy this function
ensures that the result string is
               always null
terminated.
*
*/

inline static void UtilStrCpy(char * pDest, const
BYTE * pSrc, int n)
{
    strncpy(pDest, (char *)pSrc, n);
    pDest[n] = '\0';

    return;
}

/* FUNCTION: CTPCC_DBLIB_ERR::ErrorText
*
*/

char* CTPCC_DBLIB_ERR::ErrorText(void)
{
    int i;

    static SERRORMSG errorMsgs[] =
    {
        { ERR_WRONG_SP_VERSION,
"Wrong version of stored procs on database
server"
},

```

```

        { ERR_INVALID_CUST,
"Invalid Customer id,name."
},
        { ERR_NO_SUCH_ORDER,
"No orders found for customer."
},
        { ERR_RETRIED_TRANS,
"Retries before transaction succeeded."
},
        { 0,
""
}
    };

    static char szNotFound[] = "Unknown error
number.";

    for(i=0; errorMsgs[i].szMsg[0]; i++)
    {
        if ( m_errno ==
errorMsgs[i].iError )
            break;
    }
    if ( !errorMsgs[i].szMsg[0] )
        return szNotFound;
    else
        return errorMsgs[i].szMsg;
}

// wrapper routine for class constructor
__declspec(dllexport) CTPCC_DBLIB_new(
LPCSTR szServer, // name of
SQL server
LPCSTR szUser, //
user name for login
LPCSTR szPassword, // password
for login
LPCSTR szHost, //
workstation name; shows up in sp_who; max 30 chars,
only first 10 kept by SQL Server
LPCSTR szDatabase ) // name of
database to use
{
    return new CTPCC_DBLIB( szServer, szUser,
szPassword, szHost, szDatabase );
}

CTPCC_DBLIB::CTPCC_DBLIB (
LPCSTR szServer, // name of
SQL server
LPCSTR szUser, //
user name for login
LPCSTR szPassword, // password
for login
LPCSTR szHost, //
workstation name; shows up in sp_who; max 30 chars,
only first 10 kept by SQL Server
LPCSTR szDatabase ) // name of
database to use
{

```

```

LOGINREC *login;
const BYTE *pData;

// initialization
m_dbproc = NULL;
m_DbLibErr = (CDBLIBERR*)NULL;
m_SqlErr = (CSQLERR*)NULL;

m_MaxRetries = 10; // how many
retries on deadlock

// increase max number of connections if
getting close
if ( dbgetmaxprocs() < (iConnectionCount+5)
)
{
    if (
dbsetmaxprocs(iConnectionCount+10) == FAIL )
        ThrowError(CDBLIBERR::eDbSetMaxProcs);
}

// allocate a login structure
login = dblogin();
if (login == NULL)
    ThrowError(CDBLIBERR::eLogin);
InterlockedIncrement( &iConnectionCount );

// register error and message handler
functions
if (dbprocerrhandle(login, err_handler) ==
NULL)
    ThrowError(CDBLIBERR::eDbProcHandler);

if (dbprocmsghandle(login, msg_handler) ==
NULL)
    ThrowError(CDBLIBERR::eDbProcHandler);

DBSETLUSER(login, szUser);
DBSETLPWD(login, szPassword);
DBSETLHOST(login, szHost);
DBSETLPACKET(login, (unsigned
short)DEFCLPCKSIZE);
DBSETLVERSION(login, DBVER60);
// use dblink ver 6.0 client behavior

// set time to wait for login
if (dbsetlogintime(60) == FAIL)
    ThrowError(CDBLIBERR::eDbSet);

// set time to wait for statement execution
if (dbsettime(180) == FAIL)
    ThrowError(CDBLIBERR::eDbSet);

m_dbproc = dbopen(login, szServer);

// deallocate login structure before
checking for success
dbfreelogin( login );

```

```

    if (m_dbproc == NULL)
        ThrowError(CDBLIBERR::eDbOpen);

    // save address of class instance so that
    the message and error handler
    // can get to data.
    dbsetuserdata(m_dbproc, (LPVOID)this);

    // Use the the right database
    if (dbuse(m_dbproc, szDatabase) == FAIL)
        ThrowError(CDBLIBERR::eDbUse);

    dbcmd(m_dbproc, "set nocount on ");
    // do not return row counts
    dbcmd(m_dbproc, "set XACT_ABORT ON");
    // rollback transaction on abort

    if (dbsqlexec(m_dbproc) == FAIL)
        ThrowError(CDBLIBERR::eDbSqlExec);

    DiscardNextResults(2);

    // verify that version of stored procs on
    server is correct
    dbrpcinit(m_dbproc, "tpcc_version", 0);

    if (dbrpcexec(m_dbproc) == FAIL)
        ThrowError(CDBLIBERR::eDbRpcExec);

    if (dbresults(m_dbproc) != SUCCEED)
        ThrowError(CDBLIBERR::eDbResults);

    if (dbnextrow(m_dbproc) != REG_ROW)
        ThrowError(CDBLIBERR::eDbNextRow);

    char szSrvVersion[16];
    pData=dbdata(m_dbproc, 1);
    if (pData)
        UtilStrCpy(szSrvVersion, pData,
        dbdatalen(m_dbproc, 1));
    else
        szSrvVersion[0]=0;
    if (strcmp(szSrvVersion,sVersion))
        throw new CTPCC_DBLIB_ERR(
        CTPCC_DBLIB_ERR::ERR_WRONG_SP_VERSION );

    DiscardNextRows(0);
    DiscardNextResults(0);
}

CTPCC_DBLIB::~CTPCC_DBLIB( void )
{
    // close db connection and deallocate
    resources
    dbclose(m_dbproc);
    InterlockedDecrement( &iConnectionCount );
    if (m_DbLibErr != NULL)

```

```

        delete m_DbLibErr;
    if (m_SqlErr != NULL)
        delete m_SqlErr;
}

void CTPCC_DBLIB::SetDbLibError(int severity, int
dberr, int oserr, LPCSTR dberrstr, LPCSTR oserrstr)
{
    delete m_DbLibErr;
    m_DbLibErr = new
CDBLIBERR(CDBLIBERR::eUnknown, severity, dberr,
oserr);

    if (dberrstr != NULL)
    {
        m_DbLibErr->m_dberrstr = new
char[ strlen(dberrstr)+1 ];
        strcpy( m_DbLibErr->m_dberrstr,
dberrstr );
    }

    if (oserrstr != NULL)
    {
        m_DbLibErr->m_oserrstr = new
char[ strlen(oserrstr)+1 ];
        strcpy( m_DbLibErr->m_oserrstr,
oserrstr );
    }
}

void CTPCC_DBLIB::SetSqlError( int /*DBINT*/ msgno,
int msgstate, int severity, LPCSTR msgtext )
{
    if (m_SqlErr == NULL)
        m_SqlErr = new CSQLERR();

    m_SqlErr->m_msgno = msgno;
    m_SqlErr->m_msgstate = msgstate;
    m_SqlErr->m_severity = severity;

    delete [] m_SqlErr->m_msgtext;
    if (msgtext != NULL)
    {
        m_SqlErr->m_msgtext = new char[
strlen(msgtext)+1 ];
        strcpy( m_SqlErr->m_msgtext,
msgtext );
    }
}

void CTPCC_DBLIB::ThrowError( CDBLIBERR::ACTION
eAction )
{
    // discard anything still in return buffer
    DiscardNextRows(-1);
    DiscardNextResults(-1);

    // check for SQL Server error first; if
    yes, throw it and ignore any DBLib error.
    if (m_SqlErr != NULL)
    {
        CSQLERR *pSqlErr;

```

```

        pSqlErr = m_SqlErr;
        m_SqlErr = NULL; // clear our
        pointer to instance; catch handler will delete
        throw pSqlErr;
    }

    CDBLIBERR *pDbLibErr;
    if (m_DbLibErr == NULL)
        // this case isn't expected to
        happen, since it means that an error was returned
        // but the error handlers were
        not called.
        pDbLibErr = new
CDBLIBERR(eAction);
    else
    {
        pDbLibErr = m_DbLibErr;
        pDbLibErr->m_eAction = eAction;
        m_DbLibErr = NULL; //
        clear our pointer to instance; catch handler will
        delete
    }

    throw pDbLibErr;
}

// Read and discard rows until no more. Throw an
exception if number of rows read doesn't
// match number of rows expected. The row count will
be ignored if the expected count value
// passed in is negative. A typical use of this
routine is to verify that there are no more
// rows to be read.
void CTPCC_DBLIB::DiscardNextRows(int iExpectedCount)
{
    int          iRowsRead = 0;
    RETCODE      rc;

    while (TRUE)
    {
        rc = dbnextrow(m_dbproc);
        if (rc == NO_MORE_ROWS)
            break;
        if (rc == FAIL)
        {
            if (iExpectedCount >=
0)
                ThrowError(CDBLIBERR::eDbNextRow);
            else
                break;
        }
        iRowsRead++;
    }

    if ((iExpectedCount >= 0) &&
(iExpectedCount != iRowsRead))
        ThrowError(CDBLIBERR::eWrongRowCount);
}

// Read and discard results until no more. Throw an
exception if number of result sets read doesn't

```

```

// match number expected. The result set count will
// be ignored if the expected count value
// passed in is negative. A typical use of this
// routine is to verify that there are no more
// result sets to be read.
void CTPCC_DBLIB::DiscardNextResults(int
iExpectedCount)
{
    int          iResultsRead = 0;
    RETCODE     rc;
    while (TRUE)
    {
        rc = dbresults(m_dbproc);
        if (rc == NO_MORE_RESULTS)
            break;
        if (rc == FAIL)
        {
            if (iExpectedCount >=
0)
                ThrowError(CDBLIBERR::eDbResults);
            else
                break;
        }
        DiscardNextRows(-1);
        iResultsRead++;
    }
    if ((iExpectedCount >= 0) &&
(iExpectedCount != iResultsRead))
        ThrowError(CDBLIBERR::eWrongRowCount);
}

void CTPCC_DBLIB::StockLevel()
{
    int          iTryCount =
0;
    const BYTE   *pData;
    ResetError();
    while (TRUE)
    {
        try
        {
            dbrpcinit(m_dbproc,
"tpcc_stocklevel", 0);
            dbrpcparam(m_dbproc,
NULL, 0, SQLINT2, -1, -1, (BYTE *)
&m_txn.StockLevel.w_id);
            smallint @w_id
            dbrpcparam(m_dbproc,
NULL, 0, SQLINT1, -1, -1, (BYTE *)
&m_txn.StockLevel.d_id);
            // @d_id
            tinyint
            dbrpcparam(m_dbproc,
NULL, 0, SQLINT2, -1, -1, (BYTE *)
&m_txn.StockLevel.threshold);
            // @threshold
            smallint

```

```

        if (dbrpcexec(m_dbproc)
== FAIL)
            ThrowError(CDBLIBERR::eDbRpcExec);
        if (dbresults(m_dbproc)
!= SUCCEEDED)
            ThrowError(CDBLIBERR::eDbResults);
        if (dbnextrow(m_dbproc)
!= REG_ROW)
            ThrowError(CDBLIBERR::eDbNextRow);
        if
(pData=dbdata(m_dbproc, 1))
            m_txn.StockLevel.low_stock = *((long *)
pData);
        DiscardNextRows(0);
        DiscardNextResults(0);
        m_txn.StockLevel.exec_status_code = eOK;
        return;
    }
    catch (CSQLERR *e)
    {
        if ((e->m_msgno == 1205
||
== iErrOleDbProvider &&
(e->m_msgno
>m_msgtext, sErrTimeoutExpired) != NULL)) &&
(++iTryCount
<= iMaxRetries))
        {
            // hit
            deadlock; backoff for increasingly longer period
            delete e;
            Sleep(10 *
iTryCount);
        }
        else
            throw;
    }
} // while (TRUE)
//if (iTryCount)
// throw new
CTPCC_DBLIB_ERR(CTPCC_DBLIB_ERR::ERR_RETRIED_TRANS,
iTryCount);
}

void CTPCC_DBLIB::NewOrder()
{
    int          i;
    DBINT       commit_flag;
    DBDATETIME  datetime;

```

```

    DBDATEREC  daterec;
    int          iTryCount =
0;
    const BYTE   *pData;
    ResetError();
    while (TRUE)
    {
        try
        {
            dbrpcinit(m_dbproc,
"tpcc_neworder", 0);
            dbrpcparam(m_dbproc,
NULL, 0, SQLINT2, -1, -1, (BYTE *)
&m_txn.NewOrder.w_id);
            dbrpcparam(m_dbproc,
NULL, 0, SQLINT1, -1, -1, (BYTE *)
&m_txn.NewOrder.d_id);
            dbrpcparam(m_dbproc,
NULL, 0, SQLINT4, -1, -1, (BYTE *)
&m_txn.NewOrder.c_id);
            dbrpcparam(m_dbproc,
NULL, 0, SQLINT1, -1, -1, (BYTE *)
&m_txn.NewOrder.o_ol_cnt);
            // check whether any
            order lines are for a remote warehouse
            m_txn.NewOrder.o_all_local = 1;
            for (i = 0; i <
m_txn.NewOrder.o_ol_cnt; i++)
            {
                if
(m_txn.NewOrder.OL[i].ol_supply_w_id !=
m_txn.NewOrder.w_id)
                {
                    m_txn.NewOrder.o_all_local = 0; // at
                    least one remote warehouse
                    break;
                }
            }
            dbrpcparam(m_dbproc,
NULL, 0, SQLINT1, -1, -1, (BYTE *)
&m_txn.NewOrder.o_all_local);
            for (i = 0; i <
m_txn.NewOrder.o_ol_cnt; i++)
            {
                dbrpcparam(m_dbproc, NULL, 0, SQLINT4, -1,
-1, (BYTE *) &m_txn.NewOrder.OL[i].ol_i_id);
                dbrpcparam(m_dbproc, NULL, 0, SQLINT2, -1,
-1, (BYTE *) &m_txn.NewOrder.OL[i].ol_supply_w_id);
                dbrpcparam(m_dbproc, NULL, 0, SQLINT2, -1,
-1, (BYTE *) &m_txn.NewOrder.OL[i].ol_quantity);
            }

```

```

        if (dbrpcexec(m_dbproc)
== FAIL)
        ThrowError(CDBLIBERR::eDbRpcExec);

        // Get order line
results
        m_txn.NewOrder.total_amount = 0;
        for (i = 0;
i<m_txn.NewOrder.o_ol_cnt; i++)
        {
            if
(dbresults(m_dbproc) != SUCCEED)
            ThrowError(CDBLIBERR::eDbResults);

            if
(dbnumcols(m_dbproc) != 5)
            ThrowError(CDBLIBERR::eWrongNumCols);

            if
(dbnxtrow(m_dbproc) != REG_ROW)
            ThrowError(CDBLIBERR::eDbNextRow);

            if(pData=dbdata(m_dbproc, 1))
            UtilStrCpy(m_txn.NewOrder.OL[i].ol_i_name,
pData, dbdatlen(m_dbproc, 1));

            if(pData=dbdata(m_dbproc, 2))
            m_txn.NewOrder.OL[i].ol_stock =
(*DBSMALLINT *) pData);

            if(pData=dbdata(m_dbproc, 3))
            UtilStrCpy(m_txn.NewOrder.OL[i].ol_brand_ge
neric, pData, dbdatlen(m_dbproc, 3));

            if(pData=dbdata(m_dbproc, 4))
            dbconvert(m_dbproc, SQLNUMERIC,
(LPCBYTE)pData, dbdatlen(m_dbproc, 4),
SQLFLT8, (BYTE
*)&m_txn.NewOrder.OL[i].ol_i_price, 8);

            if(pData=dbdata(m_dbproc, 5))

            dbconvert(m_dbproc, SQLNUMERIC,
(LPCBYTE)pData, dbdatlen(m_dbproc, 5),
SQLFLT8, (BYTE
*)&m_txn.NewOrder.OL[i].ol_amount, 8);

```

```

        m_txn.NewOrder.total_amount =
m_txn.NewOrder.total_amount +
m_txn.NewOrder.OL[i].ol_amount;

        DiscardNextRows(0);
    }

        // get remaining values
for w_tax, d_tax, o_id, c_last, c_discount, c_credit,
o_entry_d, commit_flag
        if (dbresults(m_dbproc)
!= SUCCEED)
            ThrowError(CDBLIBERR::eDbResults);

        if (dbnextrow(m_dbproc)
!= REG_ROW)
            ThrowError(CDBLIBERR::eDbNextRow);

        if (dbnumcols(m_dbproc)
!= 8)
            ThrowError(CDBLIBERR::eWrongNumCols);

        if
(pData=dbdata(m_dbproc, 1))
            dbconvert(m_dbproc, SQLNUMERIC,
(LPCBYTE)pData, dbdatlen(m_dbproc, 1), SQLFLT8, (BYTE
*)&m_txn.NewOrder.w_tax, 8);

        if
(pData=dbdata(m_dbproc, 2))
            dbconvert(m_dbproc, SQLNUMERIC,
(LPCBYTE)pData, dbdatlen(m_dbproc, 2), SQLFLT8, (BYTE
*)&m_txn.NewOrder.d_tax, 8);

        if
(pData=dbdata(m_dbproc, 3))
            m_txn.NewOrder.o_id = (*DBINT *) pData);

        if
(pData=dbdata(m_dbproc, 4))
            UtilStrCpy(m_txn.NewOrder.c_last, pData,
dbdatlen(m_dbproc, 4));

        if
(pData=dbdata(m_dbproc, 5))
            dbconvert(m_dbproc, SQLNUMERIC,
(LPCBYTE)pData, dbdatlen(m_dbproc, 5), SQLFLT8, (BYTE
*)&m_txn.NewOrder.c_discount, 8);

        if
(pData=dbdata(m_dbproc, 6))

```

```

        UtilStrCpy(m_txn.NewOrder.c_credit, pData,
dbdatlen(m_dbproc, 6));
        if
(pData=dbdata(m_dbproc, 7))
        {
            datetime =
*(DBDATETIME *) pData);

            dbdatecrack(m_dbproc, &daterec, &datetime);

            m_txn.NewOrder.o_entry_d.year =
daterec.year;

            m_txn.NewOrder.o_entry_d.month =
daterec.month;

            m_txn.NewOrder.o_entry_d.day =
daterec.day;

            m_txn.NewOrder.o_entry_d.hour =
daterec.hour;

            m_txn.NewOrder.o_entry_d.minute =
daterec.minute;

            m_txn.NewOrder.o_entry_d.second =
daterec.second;
        }
        if
(pData=dbdata(m_dbproc, 8))
            commit_flag =
(*DBTINYINT *) pData);

            DiscardNextRows(0);
            DiscardNextResults(0);

            if (commit_flag == 1)
            {
                m_txn.NewOrder.total_amount *= ((1 +
m_txn.NewOrder.w_tax + m_txn.NewOrder.d_tax) * (1 -
m_txn.NewOrder.c_discount));

                m_txn.NewOrder.exec_status_code = eOK;
            }
            else
                m_txn.NewOrder.exec_status_code =
eInvalidItem;

            return;
        }
        catch (CSQLERR *e)
        {
            if ((e->m_msgno == 1205
||
(e->m_msgno
== iErrOleDbProvider &&
strstr(e-
>m_msgtext, sErrTimeoutExpired) != NULL)) &&

```

```

                (++iTryCount
<= iMaxRetries))
                {
                // hit
deadlock; backoff for increasingly longer period
                delete e;
                Sleep(10 *
iTryCount);
                }
                else
                throw;
                }
                // while (TRUE)
                }
//
// if (iTryCount)
// throw new
CTPCC_DBLIB_ERR(CTPCC_DBLIB_ERR::ERR_RETRIED_TRANS,
iTryCount);
}

void CTPCC_DBLIB::Payment ()
{
    DBDATETIME    datetime;
    DBDATETIME    daterec;

    int            iTryCount =
0;
    const BYTE    *pData;

    ResetError();

    while (TRUE)
    {
        try
        {
            dbrpcinit(m_dbproc,
"tpcc_payment", 0);

            dbrpcparam(m_dbproc,
NULL, 0, SQLINT2, -1, -1, (BYTE *)
&m_txn.Payment.w_id);
            dbrpcparam(m_dbproc,
NULL, 0, SQLINT2, -1, -1, (BYTE *)
&m_txn.Payment.c_w_id);
            dbrpcparam(m_dbproc,
NULL, 0, SQLFLT8, -1, -1, (BYTE *)
&m_txn.Payment.h_amount);
            dbrpcparam(m_dbproc,
NULL, 0, SQLINT1, -1, -1, (BYTE *)
&m_txn.Payment.d_id);
            dbrpcparam(m_dbproc,
NULL, 0, SQLINT1, -1, -1, (BYTE *)
&m_txn.Payment.c_d_id);
            dbrpcparam(m_dbproc,
NULL, 0, SQLINT4, -1, -1, (BYTE *)
&m_txn.Payment.c_id);

            // if customer id is
            // zero, then payment is by name
            if (m_txn.Payment.c_id
== 0)

```

```

            dbrpcparam(m_dbproc, NULL, 0, SQLCHAR, -1,
strlen(m_txn.Payment.c_last), (unsigned char
*)m_txn.Payment.c_last);

            if (dbrpcexec(m_dbproc)
== FAIL)
                ThrowError(CDBLIBERR::eDbRpcExec);

            if (dbresults(m_dbproc)
!= SUCCEED)
                ThrowError(CDBLIBERR::eDbResults);

            if (dbnextrow(m_dbproc)
!= REG_ROW)
                ThrowError(CDBLIBERR::eDbNextRow);

            if (dbnumcols(m_dbproc)
!= 27)
                ThrowError(CDBLIBERR::eWrongNumCols);

            if
(pData=dbdata(m_dbproc, 1))
                m_txn.Payment.c_id = *((DBINT *) pData);
            if
(pData=dbdata(m_dbproc, 2))
                UtilStrCpy(m_txn.Payment.c_last, pData,
dbdatlen(m_dbproc, 2));
            if
(pData=dbdata(m_dbproc, 3))
                {
                    datetime =
*((DBDATETIME *) pData);
                    dbdatecrack(m_dbproc, &daterec, &datetime);
                    m_txn.Payment.h_date.year = daterec.year;
                    m_txn.Payment.h_date.month =
daterec.month;
                    m_txn.Payment.h_date.day = daterec.day;
                    m_txn.Payment.h_date.hour = daterec.hour;
                    m_txn.Payment.h_date.minute =
daterec.minute;
                    m_txn.Payment.h_date.second =
daterec.second;
                }
            if
(pData=dbdata(m_dbproc, 4))
                UtilStrCpy(m_txn.Payment.w_street_1, pData,
dbdatlen(m_dbproc, 4));

```

```

                if
(pData=dbdata(m_dbproc, 5))
                    UtilStrCpy(m_txn.Payment.w_street_2, pData,
dbdatlen(m_dbproc, 5));
                if
(pData=dbdata(m_dbproc, 6))
                    UtilStrCpy(m_txn.Payment.w_city, pData,
dbdatlen(m_dbproc, 6));
                if
(pData=dbdata(m_dbproc, 7))
                    UtilStrCpy(m_txn.Payment.w_state, pData,
dbdatlen(m_dbproc, 7));
                if
(pData=dbdata(m_dbproc, 8))
                    UtilStrCpy(m_txn.Payment.w_zip, pData,
dbdatlen(m_dbproc, 8));
                if
(pData=dbdata(m_dbproc, 9))
                    UtilStrCpy(m_txn.Payment.d_street_1, pData,
dbdatlen(m_dbproc, 9));
                if
(pData=dbdata(m_dbproc, 10))
                    UtilStrCpy(m_txn.Payment.d_street_2, pData,
dbdatlen(m_dbproc, 10));
                if
(pData=dbdata(m_dbproc, 11))
                    UtilStrCpy(m_txn.Payment.d_city, pData,
dbdatlen(m_dbproc, 11));
                if
(pData=dbdata(m_dbproc, 12))
                    UtilStrCpy(m_txn.Payment.d_state, pData,
dbdatlen(m_dbproc, 12));
                if
(pData=dbdata(m_dbproc, 13))
                    UtilStrCpy(m_txn.Payment.d_zip, pData,
dbdatlen(m_dbproc, 13));
                if
(pData=dbdata(m_dbproc, 14))
                    UtilStrCpy(m_txn.Payment.c_first, pData,
dbdatlen(m_dbproc, 14));
                if
(pData=dbdata(m_dbproc, 15))
                    UtilStrCpy(m_txn.Payment.c_middle, pData,
dbdatlen(m_dbproc, 15));
                if
(pData=dbdata(m_dbproc, 16))
                    UtilStrCpy(m_txn.Payment.c_street_1, pData,
dbdatlen(m_dbproc, 16));
                if
(pData=dbdata(m_dbproc, 17))

```



```

rc =
dbnextrow(m_dbproc);
NO_MORE_ROWS)
break;
REG_ROW)
if (rc !=
ThrowError(CDBLIBERR::eDbNextRow);
if(pData=dbdata(m_dbproc, 1))
m_txn.OrderStatus.OL[i].ol_supply_w_id =
(* (DBSMALLINT *) pData);
if(pData=dbdata(m_dbproc, 2))
m_txn.OrderStatus.OL[i].ol_i_id = (* (DBINT
*) pData);
if(pData=dbdata(m_dbproc, 3))
m_txn.OrderStatus.OL[i].ol_quantity =
(* (DBSMALLINT *) pData);
if(pData=dbdata(m_dbproc, 4))
dbconvert(m_dbproc, SQLNUMERIC,
(LPCBYTE)pData, dbdatlen(m_dbproc,4),
SQLFLT8, (BYTE
*)&m_txn.OrderStatus.OL[i].ol_amount, 8);
if(pData=dbdata(m_dbproc, 5))
{
datetime = *((DBDATETIME *) pData);
dbdatecrack(m_dbproc, &daterec, &datetime);
m_txn.OrderStatus.OL[i].ol_delivery_d.year
= daterec.year;
m_txn.OrderStatus.OL[i].ol_delivery_d.month
= daterec.month;
m_txn.OrderStatus.OL[i].ol_delivery_d.day
= daterec.day;
m_txn.OrderStatus.OL[i].ol_delivery_d.hour
= daterec.hour;
m_txn.OrderStatus.OL[i].ol_delivery_d.minut
e = daterec.minute;
m_txn.OrderStatus.OL[i].ol_delivery_d.secon
d = daterec.second;
}
i++;
}

```

```

m_txn.OrderStatus.o_ol_cnt = i;
if (dbresults(m_dbproc)
!= SUCCEEDED)
ThrowError(CDBLIBERR::eDbResults);
if (dbnextrow(m_dbproc)
!= REG_ROW)
ThrowError(CDBLIBERR::eDbNextRow);
if (dbnumcols(m_dbproc)
!= 8)
ThrowError(CDBLIBERR::eWrongNumCols);
if(pData=dbdata(m_dbproc, 1))
m_txn.OrderStatus.c_id = (* (DBINT *)
pData);
if(pData=dbdata(m_dbproc, 2))
UtilStrCpy(m_txn.OrderStatus.c_last, pData,
dbdatlen(m_dbproc,2));
if(pData=dbdata(m_dbproc, 3))
UtilStrCpy(m_txn.OrderStatus.c_first,
pData, dbdatlen(m_dbproc,3));
if(pData=dbdata(m_dbproc, 4))
UtilStrCpy(m_txn.OrderStatus.c_middle,
pData, dbdatlen(m_dbproc, 4));
if(pData=dbdata(m_dbproc, 5))
{
datetime =
*((DBDATETIME *) pData);
dbdatecrack(m_dbproc, &daterec, &datetime);
m_txn.OrderStatus.o_entry_d.year =
daterec.year;
m_txn.OrderStatus.o_entry_d.month =
daterec.month;
m_txn.OrderStatus.o_entry_d.day =
daterec.day;
m_txn.OrderStatus.o_entry_d.hour =
daterec.hour;
m_txn.OrderStatus.o_entry_d.minute =
daterec.minute;
}

```

```

m_txn.OrderStatus.o_entry_d.second =
daterec.second;
}
if(pData=dbdata(m_dbproc, 6))
m_txn.OrderStatus.o_carrier_id =
(* (DBSMALLINT *) pData);
if(pData=dbdata(m_dbproc, 7))
dbconvert(m_dbproc, SQLNUMERIC,
(LPCBYTE)pData, dbdatlen(m_dbproc, 7),
SQLFLT8, (BYTE
*)&m_txn.OrderStatus.c_balance, 8);
if(pData=dbdata(m_dbproc, 8))
m_txn.OrderStatus.o_id = (* (DBINT *)
pData);
DiscardNextRows(0);
DiscardNextResults(0);
if
(m_txn.OrderStatus.o_ol_cnt == 0)
throw new
CTPCC_DBLIB_ERR( CTPCC_DBLIB_ERR::ERR_NO_SUCH_ORDER
);
else if
(m_txn.OrderStatus.c_id == 0 &&
m_txn.OrderStatus.c_last[0] == 0)
throw new
CTPCC_DBLIB_ERR( CTPCC_DBLIB_ERR::ERR_INVALID_CUST );
else
m_txn.OrderStatus.exec_status_code = eOK;
return;
}
catch (CSQLERR *e)
{
if ((e->m_msgno == 1205
(e->m_msgno
== iErrOleDbProvider &&
strstr(e-
>m_msgtext, sErrTimeoutExpired) != NULL)) &&
(++iTryCount
<= iMaxRetries))
{
// hit
deadlock; backoff for increasingly longer period
delete e;
Sleep(10 *
iTryCount);
}
else
throw;
}
}

```



```

    } // while (TRUE)

// if (iTryCount)
// throw new
CTPCC_DBLIB_ERR(CTPCC_DBLIB_ERR::ERR_RETRIED_TRANS,
iTryCount);
}

void CTPCC_DBLIB::Delivery()
{
    int i;
    int iTryCount =
0;
    const BYTE *pData;

    ResetError();

    while (TRUE)
    {
        try
        {
            dbrpcinit(m_dbproc,
"tpcc_delivery", 0);

            dbrpcparam(m_dbproc,
NULL, 0, SQLINT2, -1, -1, (BYTE *)
&m_txn.Delivery.w_id);

            dbrpcparam(m_dbproc,
NULL, 0, SQLINT1, -1, -1, (BYTE *)
&m_txn.Delivery.o_carrier_id);

            if (dbrpcexec(m_dbproc)
== FAIL)

                ThrowError(CDBLIBERR::eDbRpcExec);

            if (dbresults(m_dbproc)
!= SUCCEEDED)

                ThrowError(CDBLIBERR::eDbResults);

            if (dbnextrow(m_dbproc)
!= REG_ROW)

                ThrowError(CDBLIBERR::eDbNextRow);

            if (dbnumcols(m_dbproc)
!= 10)

                ThrowError(CDBLIBERR::eWrongNumCols);

            for (i=0; i<10; i++)
            {
                if (pData =
dbdata(m_dbproc, i+1))

                    m_txn.Delivery.o_id[i] = *((DBINT *)pData);

                DiscardNextRows(0);
                DiscardNextResults(0);
            }
        }
    }
}

```

```

        m_txn.Delivery.exec_status_code = eOK;
        return;
    }
    catch (CSQLERR *e)
    {
        if ((e->m_msgno == 1205

||

(e->m_msgno
== iErrOleDbProvider &&
>m_msgtext, sErrTimeoutExpired) != NULL)) &&
(++iTryCount
<= iMaxRetries))
        {
            // hit
            deadlock; backoff for increasingly longer period
            delete e;
            Sleep(10 *
iTryCount);
        }
        else
            throw;
    }
} // while (TRUE)

// if (iTryCount)
// throw new
CTPCC_DBLIB_ERR(CTPCC_DBLIB_ERR::ERR_RETRIED_TRANS,
iTryCount);
}

void CTPCC_DBLIB::ResetError()
{
    if (m_DbLibErr != NULL)
    {
        delete m_DbLibErr;
        m_DbLibErr = (CDBLIBERR*)NULL;
    }

    if (m_SqlErr != NULL)
    {
        delete m_SqlErr;
        m_SqlErr = (CSQLERR*)NULL;
    }

    return;
}

```

tpcc_dblib.h

```

/* FILE: TPC_C_DBLIB.H
 * Microsoft
 * TPC-C Kit Ver. 4.20.000
 * Copyright
 * Microsoft, 1999
 * All Rights Reserved
 * Version
 * 4.10.000 audited by Richard Gimarc, Performance
 * Metrics, 3/17/99
 */

```

```

 *
 * PURPOSE: Header file for TPC-C txn class
 * implementation.
 *
 * Change history:
 * 4.20.000 - updated rev number to
 * match kit
 */
#pragma once

#ifndef PDBPROCESS
#define DBPROCESS void // dbprocess structure type
typedef DBPROCESS * PDBPROCESS;
#endif

// need to declare functions for import, unless
// define has already been created
// by the DLL's .cpp module for export.
#ifndef DllDecl
#define DllDecl __declspec( dllimport )
#endif

class CSQLERR : public CBaseErr
{
public:
    CSQLERR(void)
    {
        m_msgno = 0;
        m_msgstate = 0;
        m_severity = 0;
        m_msgtext = NULL;
    };

    ~CSQLERR()
    {
        delete [] m_msgtext;
    };

    int m_msgno;
    int m_msgstate;
    int m_severity;
    char *m_msgtext;

    int ErrorType() {return
ERR_TYPE_SQL;};

    int ErrorNum() {return m_msgno;};
    char *ErrorText() {return
m_msgtext;};

};

class CDBLIBERR : public CBaseErr
{
public:
    enum ACTION
    {
        eNone,
        eUnknown,
        eLogin,
        // error from dblogin
        eDbOpen,
        // error from dbopen
    };
};

```

```

        eDbUse,
// error from dbuse
        eDbSqlExec,
// error from dbsqlexec
        eDbSet,
// error from one of the dbset*
routines
        eDbNextRow,
// error from dbnextrow
        eWrongRowCount,
// more or less rows returned than expected
        eWrongNumCols,
// more or less columns returned than
expected
        eDbResults,
// error from dbresults
        eDbRpcExec,
// error from dbrpcexec
        eDbSetMaxProcs,
// error from dbsetmaxprocs
        eDbProcHandler
// error from either dbprocerrhandle or
dbprocmsghandle
    };

    CDBLIBERR(ACTION eAction, int
severity = 0, int dberror = 0, int oserr = 0)
    {
        m_eAction = eAction;
        m_severity = severity;
        m_dberror = dberror;
        m_oserr = oserr;

        m_dberrstr = NULL;
        m_oserrstr = NULL;
    };

~CDBLIBERR()
{
    delete [] m_dberrstr;
    delete [] m_oserrstr;
};

ACTION    m_eAction;
int       m_severity;
int       m_dberror;
int       m_oserr;
char     *m_dberrstr;
char     *m_oserrstr;

int ErrorType() {return
ERR_TYPE_DBLIB;};
int ErrorNum() {return
m_dberror;};
char *ErrorText() {return
m_dberrstr;};
};

class CTPCC_DBLIB_ERR : public CBaseErr
{
public:
    enum CTPCC_DBLIB_ERRS

```

```

    {
        ERR_WRONG_SP_VERSION =
1, // "Wrong version of stored procs on
database server"
        ERR_INVALID_CUST,
// "Invalid Customer id,name."
        ERR_NO_SUCH_ORDER,
// "No orders found for
customer."
        ERR_RETRIED_TRANS,
// "Retries before transaction
succeeded."
    };

    CTPCC_DBLIB_ERR( int iErr ) {
m_errno = iErr; m_iTryCount = 0; };

    CTPCC_DBLIB_ERR( int iErr, int
iTryCount ) { m_errno = iErr; m_iTryCount =
iTryCount; };

    int m_errno;
    int m_iTryCount;

    int ErrorType() {return
ERR_TYPE_TPCC_DBLIB;};
    int ErrorNum() {return m_errno;};

    char *ErrorText();
};

class DllDecl CTPCC_DBLIB : public CTPCC_BASE
{
private:
// declare variables and private
functions here...
    PDBPROCESS m_dbproc;
    CDBLIBERR *m_DbLibErr;
    CSQLERR *m_SqlErr;
// not allocated until
needed (maybe never)
    int m_MaxRetries; // retry
count on deadlock

    void DiscardNextRows(int
iExpectedCount);
    void DiscardNextResults(int
iExpectedCount);
    void ThrowError(
CDBLIBERR::ACTION eAction );
    void ResetError();

    union
    {
        NEW_ORDER_DATA
        PAYMENT_DATA
        DELIVERY_DATA
        Delivery;
    }
};

```

```

        STOCK_LEVEL_DATA
        StockLevel;
        ORDER_STATUS_DATA
        OrderStatus;
    };
    m_txn;
public:
    CTPCC_DBLIB(LPCSTR szServer,
LPCSTR szUser, LPCSTR szPassword, LPCSTR szHost,
LPCSTR szDatabase );
    ~CTPCC_DBLIB(void);

    inline PNEW_ORDER_DATA
    BuffAddr_NewOrder() { return
&m_txn.NewOrder; };
    inline PPAYMENT_DATA
    BuffAddr_Payment() { return
&m_txn.Payment; };
    inline PDELIVERY_DATA
    BuffAddr_Delivery() { return
&m_txn.Delivery; };
    inline PSTOCK_LEVEL_DATA
    BuffAddr_StockLevel() { return
&m_txn.StockLevel; };
    inline PORDER_STATUS_DATA
    BuffAddr_OrderStatus() { return
&m_txn.OrderStatus; };

    void NewOrder ();
    void Payment ();
    void Delivery ();
    void StockLevel ();
    void OrderStatus ();

// these are public because they
must be called from the dllib err_handler and
msg_hangler
// outside of the class
    void SetDbLibError(int severity,
int dberr, int oserr, LPCSTR dberrstr, LPCSTR
oserrstr);
    void SetSqlError( int msgno, int
msgstate, int severity, LPCSTR msgtext );
};

extern "C" DllDecl CTPCC_DBLIB* CTPCC_DBLIB_new
( LPCSTR szServer, LPCSTR szUser, LPCSTR
szPassword, LPCSTR szHost, LPCSTR szDatabase );

typedef CTPCC_DBLIB* (TYPE_CTPCC_DBLIB)(LPCSTR,
LPCSTR, LPCSTR, LPCSTR, LPCSTR);

tpcc_enc.cpp
// tpcc_enc.cpp: implementation of the CTPCC_ENCINA
class.
//

```

```

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

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

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

// need to declare functions for export
#define DllDecl __declspec( dllexport )

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

static CRITICAL_SECTION TpCriticalSection;
extern "C" char *errFile;

BOOL WINAPI DllMain(HANDLE hModule, DWORD
ul_reason_for_call, LPVOID lpReserved)
{
    switch( ul_reason_for_call )
    {
        case DLL_PROCESS_ATTACH:

DisableThreadLibraryCalls(hModule);

InitializeCriticalSection(&TpCriticalSection);
        break;

        case DLL_PROCESS_DETACH:

DeleteCriticalSection(&TpCriticalSection);
        break;

        default:
            /* nothing */;
    }
    return TRUE;
}

// wrapper routine for class constructor
__declspec( dllexport ) CTPCC_ENCINA*
CTPCC_ENCINA_new()
{

```

```

        return new CTPCC_ENCINA();
    }

// wrapper routine for enroll_client
__declspec( dllexport ) CTPCC_ENCINA*
CTPCC_ENCINA_post_init()
{
    enroll_client();
    return NULL;
}

// constructor and destructor
CTPCC_ENCINA::CTPCC_ENCINA()
{
    // Add initialization of ENCINA
    Structures if any
        m_txn = (ENC_DATA
*)malloc(sizeof(ENC_DATA));
        if (m_txn == NULL)
            throw new
CENCERR(ERR_TYPE_MEMORY, ERR_FATAL_LEVEL);
}

CTPCC_ENCINA::~CTPCC_ENCINA()
{
    // free the data structure allocated with
tpalloc
        free((char *)m_txn);
}

void CTPCC_ENCINA::NewOrder()
{
    // question: if we need to prepare the
data?
    if (send_new_order(sizeof(ENC_DATA), (unsigned
char *)m_txn) == TRPC_ERROR)
        throw new CENCERR(TRPC_ERROR);

    if ( m_txn->ErrorType != ERR_SUCCESS )
        throw new CENCERR( m_txn-
>ErrorType, m_txn->error );
}

void CTPCC_ENCINA::Payment()
{
    if (send_payment(sizeof(ENC_DATA), (unsigned char
*)m_txn) == TRPC_ERROR)
        throw new CENCERR(TRPC_ERROR);

    if ( m_txn->ErrorType != ERR_SUCCESS )
        throw new CENCERR( m_txn-
>ErrorType, m_txn->error );
}

void CTPCC_ENCINA::Delivery()
{
    // Note: Delivery txn code in the tuxedo
server does not implement logging of the delivery
// txn results, so cannot be used as
is to run an auditable TPC-C result. For that

```

```

        // reason, delivery txns should not
be done via Tuxedo.
        // The code is included for
completeness.
        //m_txn->u.Delivery.exec_status_code =
eDeliveryFailed;
        //return;

        // Note: If we use the delivery thread in
tpcc.dll, it is not possible to get to this
point for delivery txns. But if we
use Encina delivery server, the code is
// needed. It is suggested using the
delivery thread in tpcc.dll since it is
// convenient and provides best
performance.
        GetLocalTime(&m_txn-
>u.Delivery.queue_time);

        if (send_delivery(sizeof(ENC_DATA), (unsigned
char *)m_txn) == TRPC_ERROR)
            m_txn-
>u.Delivery.exec_status_code = eDeliveryFailed;
        else
            m_txn-
>u.Delivery.exec_status_code = eOK;
}

void CTPCC_ENCINA::StockLevel()
{
    if (send_stock_level(sizeof(ENC_DATA), (unsigned
char *)m_txn) == TRPC_ERROR)
        throw new CENCERR(TRPC_ERROR);

    if ( m_txn->ErrorType != ERR_SUCCESS )
        throw new CENCERR( m_txn-
>ErrorType, m_txn->error );
}

void CTPCC_ENCINA::OrderStatus()
{
    if (send_order_status(sizeof(ENC_DATA), (unsigned
char *)m_txn) == TRPC_ERROR)
        throw new CENCERR(TRPC_ERROR);

    if ( m_txn->ErrorType != ERR_SUCCESS )
        throw new CENCERR( m_txn-
>ErrorType, m_txn->error );
}

char *CENCERR::ErrorText()
{
    if (m_iErrorType == TRPC_ERROR)
    {
        sprintf( m_szErrorText, "Error:
ENCINA TRPC error (see log file %s for details)",
errFile);
    }
    else
        sprintf( m_szErrorText, "Error:
Class %d, error # %d", m_iErrorType, m_iError );
}

```

```

        return m_szErrorText;
};

```

tpcc_enc.h

```

/*      FILE:          TPCC_ENCINA.H
 *      Microsoft
TPC-C Kit Ver. 4.10.000
 *      not yet
audited
 *
 *      PURPOSE:  Header file for TPC-C Encina
class implementation.
 *      Copyright
Microsoft, 1999
 *      All Rights Reserved
 */

#if !defined(_TPCC_ENCINA_H_)
#define _TPCC_ENCINA_H_

#pragma once

// need to declare functions for import, unless
define has already been created
// by the DLL's .cpp module for export.
#ifndef DllDecl
#define DllDecl __declspec( dllimport )
#endif

class CTPCC_ENCINA : public CTPCC_BASE
{
private:
    struct ENC_DATA
    {
        int
        ErrorType;
        int
        error;
        union
        {
            NEW_ORDER_DATA      NewOrder;
            PAYMENT_DATA        Payment;
            DELIVERY_DATA       Delivery;
            STOCK_LEVEL_DATA    StockLevel;
            ORDER_STATUS_DATA   OrderStatus;
        } *m_txn;
    };
public:
    CTPCC_ENCINA();

```

```

    virtual ~CTPCC_ENCINA();

    inline PNEW_ORDER_DATA
    BuffAddr_NewOrder() { return
&m_txn->u.NewOrder; };
    inline PPAYMENT_DATA
    BuffAddr_Payment() { return
&m_txn->u.Payment; };
    inline PDELIVERY_DATA
    BuffAddr_Delivery() { return
&m_txn->u.Delivery; };
    inline PSTOCK_LEVEL_DATA
    BuffAddr_StockLevel() { return
&m_txn->u.StockLevel; };
    inline PORDER_STATUS_DATA
    BuffAddr_OrderStatus() { return
&m_txn->u.OrderStatus; };

    void NewOrder          ();
    void Payment           ();
    void Delivery          ();
    void StockLevel        ();
    void OrderStatus      ();
};

class CENCERR : public CBaseErr
{
private:
    char    m_szErrorText[64];
public:
    int     m_errno;
    int     m_iErrorType;
// match ErrorType in CTPCC_ENCINA
    int     m_iError;
// machine error in CTPCC_ENCINA

    // use this interface for genuine
Encina errors
    CENCERR( int iErr )
    {
        m_errno = iErr; //
        m_iErrorType =
ERR_TYPE_ENCINA;
        m_iError = 0; //
        only meaningful if m_errno == TPEOS
    };

    // use this interface to
impersonate a non-Encina error type
    CENCERR( int iErrorType, int
iError )
    {
        m_iErrorType =
iErrorType;
        m_iError = iError;
        m_errno = iError; //
    };
};

```

```

// A CENCERR class can
impersonate another
class, which happens if the error
// was not actually a Tuxedo
error, but was simply transmitted back via Tuxedo.
    int ErrorType()
    {
        return m_iErrorType;
    }

    int ErrorNum() {return m_errno;};
    char *ErrorText();
};

// wrapper routine for class constructor:
extern "C" __declspec(dlllexport) CTPCC_ENCINA*
CTPCC_ENCINA_new();
extern "C" __declspec(dlllexport) CTPCC_ENCINA*
CTPCC_ENCINA_post_init();

typedef CTPCC_ENCINA* (TYPE_CTPCC_ENCINA)();
#endif // !defined(_TPCC_ENCINA_H_)

```

tpcc_odbc.cpp

```

/*      FILE:          TPCC_ODBC.CPP
 *      Microsoft
TPC-C Kit Ver. 4.20.000
 *      Copyright
Microsoft, 1999
 *      All Rights Reserved
 *      Version
4.10.000 audited by Richard Gimarc, Performance
Metrics, 3/17/99
 *
 *      PURPOSE:  Implements ODBC calls for TPC-C
txns.
 *      Contact:  Charles Levine
(clevine@microsoft.com)
 *
 *      Change history:
 *      4.20.000 - updated rev number to
match kit
 *      4.10.001 - not deleting error
class in catch handler on deadlock retry;
 *      not a
functional bug, but a memory leak
 */

#include <windows.h>
#include <stdio.h>
#include <assert.h>

#define DBNWIN32
#include <sqltypes.h>
#include <sql.h>
#include <sqlext.h>
#include <odbcss.h>

```

```

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

// need to declare functions for export
#define DllDecl __declspec( dllexport )

#include "..\..\common\src\error.h"
#include "..\..\common\src\trans.h"
#include "..\..\common\src\txn_base.h"
#include "tpcc_odbc.h"

// version string; must match return value from
tpcc_version stored proc
const char sVersion[] = "4.10.000";

const iMaxRetries = 10; // how many
retries on deadlock

const int iErrOleDbProvider = 7312;
const char sErrTimeoutExpired[] = "Timeout expired";

static SQLHENV henv = SQL_NULL_HENV;
// ODBC environment handle

BOOL APIENTRY DllMain(HMODULE hModule, DWORD
ul_reason_for_call, LPVOID lpReserved)
{
    switch( ul_reason_for_call )
    {
        case DLL_PROCESS_ATTACH:

            DisableThreadLibraryCalls(hModule);
            if (
SQLAllocHandleStd(SQL_HANDLE_ENV, SQL_NULL_HANDLE,
&henv) != SQL_SUCCESS )
                break;

            case DLL_PROCESS_DETACH:
                if (henv != NULL)
                    SQLFreeEnv(henv);
                break;

            default:
                /* nothing */;
    }
    return TRUE;
}

/* FUNCTION: CTPCC_ODBC_ERR::ErrorText
 *
 */
char* CTPCC_ODBC_ERR::ErrorText(void)
{
    int i;

    static SERRORMSG errorMsgs[] =
    {

```

```

        { ERR_WRONG_SP_VERSION,
"Wrong version of stored procs on database
server" },
        { ERR_INVALID_CUST,
"Invalid Customer id,name." },
        { ERR_NO_SUCH_ORDER,
"No orders found for customer." },
        { ERR_RETRIED_TRANS,
"Retries before transaction succeeded." },
        { 0, "" }
    };

    static char szNotFound[] = "Unknown error
number.";

    for(i=0; errorMsgs[i].szMsg[0]; i++)
    {
        if ( m_errno ==
errorMsgs[i].iError )
            break;
    }
    if ( !errorMsgs[i].szMsg[0] )
        return szNotFound;
    else
        return errorMsgs[i].szMsg;
}

// wrapper routine for class constructor
__declspec(dllexport) CTPCC_ODBC* CTPCC_ODBC_new(
LPCSTR szServer, // name of
SQL server
LPCSTR szUser, //
user name for login
LPCSTR szPassword, // password
for login
LPCSTR szHost, //
not used
LPCSTR szDatabase ) // name of
database to use
{
    return new CTPCC_ODBC( szServer, szUser,
szPassword, szHost, szDatabase );
}

CTPCC_ODBC::CTPCC_ODBC (
LPCSTR szServer,
// name of SQL server
LPCSTR szUser,
// user name for login
LPCSTR szPassword,
// password for login
LPCSTR szHost,
// not used
LPCSTR szDatabase
// name of database to use

```

```

)
{
    RETCODE rc;

    // initialization
    m_hdbc = SQL_NULL_HDBC;
    m_hstmt = SQL_NULL_HSTMT;

    m_hstmtNewOrder = SQL_NULL_HSTMT;
    m_hstmtPayment = SQL_NULL_HSTMT;
    m_hstmtDelivery = SQL_NULL_HSTMT;
    m_hstmtOrderStatus = SQL_NULL_HSTMT;
    m_hstmtStockLevel = SQL_NULL_HSTMT;

    m_descNewOrderCols1 = SQL_NULL_HDESC;
    m_descNewOrderCols2 = SQL_NULL_HDESC;
    m_descOrderStatusCols1 = SQL_NULL_HDESC;
    m_descOrderStatusCols2 = SQL_NULL_HDESC;

    if ( SQLAllocHandle(SQL_HANDLE_DBC, henv,
&m_hdbc) != SQL_SUCCESS )
        ThrowError(CODBCERR::eAllocHandle);

    if ( SQLSetConnectOption(m_hdbc,
SQL_PACKET_SIZE, 4096) != SQL_SUCCESS )
        ThrowError(CODBCERR::eConnOption);

    {
        char
szConnectStr[256];
        char
szOutStr[1024];
        SQLSMALLINT
iOutStrLen;

        sprintf( szConnectStr,
"DRIVER=SQL
Server;SERVER=%s;UID=%s;PWD=%s;DATABASE=%s",
szServer, szUser,
szPassword, szDatabase );

        rc = SQLDriverConnect(m_hdbc,
NULL, (SQLCHAR*)szConnectStr, sizeof(szConnectStr),
(SQLCHAR*)szOutStr,
sizeof(szOutStr), &iOutStrLen, SQL_DRIVER_NOPROMPT );

        if (rc != SQL_SUCCESS && rc !=
SQL_SUCCESS_WITH_INFO)
            ThrowError(CODBCERR::eConnect);
    }

    if (SQLAllocHandle(SQL_HANDLE_STMT, m_hdbc,
&m_hstmt) != SQL_SUCCESS)
        ThrowError(CODBCERR::eAllocHandle);

    {
        char
buffer[128];

```

```

        // set some options affecting
connection behavior
strcpy(buffer, "set nocount on
set XACT_ABORT ON"); rc = SQLExecDirect(m_hstmt,
(unsigned char *)buffer, SQL_NTS);
if (rc != SQL_SUCCESS && rc !=
SQL_SUCCESS_WITH_INFO)

    ThrowError(CODBCERR::eExecDirect);

    // verify that version of stored
procs on server is correct
char db_sp_version[10];
strcpy(buffer, "(call
tpcc_version)");
rc = SQLExecDirect(m_hstmt,
(unsigned char *)buffer, SQL_NTS);
if (rc != SQL_SUCCESS && rc !=
SQL_SUCCESS_WITH_INFO)

    ThrowError(CODBCERR::eExecDirect);
if ( SQLBindCol(m_hstmt, 1,
SQL_C_CHAR, &db_sp_version, sizeof(db_sp_version),
NULL) != SQL_SUCCESS )

    ThrowError(CODBCERR::eBindCol);
if ( SQLFetch(m_hstmt) ==
SQL_ERROR )

    ThrowError(CODBCERR::eFetch);
if
( strcmp(db_sp_version,sVersion)
throw new
CTPCC_ODBC_ERR( CTPCC_ODBC_ERR::ERR_WRONG_SP_VERSION
);

    SQLFreeHandle(SQL_HANDLE_STMT,
m_hstmt);
}

// Bind parameters for each of the
transactions
InitNewOrderParams();
InitPaymentParams();
InitOrderStatusParams();
InitDeliveryParams();
InitStockLevelParams();
}

CTPCC_ODBC::~CTPCC_ODBC( void )
{
    // note: descriptors are automatically
released when the connection is dropped
SQLFreeHandle(SQL_HANDLE_STMT,
m_hstmtNewOrder);
SQLFreeHandle(SQL_HANDLE_STMT,
m_hstmtPayment);
SQLFreeHandle(SQL_HANDLE_STMT,
m_hstmtDelivery);
SQLFreeHandle(SQL_HANDLE_STMT,
m_hstmtOrderStatus);

```

```

    SQLFreeHandle(SQL_HANDLE_STMT,
m_hstmtStockLevel);

    SQLDisconnect(m_hdbc);
SQLFreeHandle(SQL_HANDLE_DBC, m_hdbc);
}

void CTPCC_ODBC::ThrowError( CODBCERR::ACTION eAction
)
{
    RETCODE rc;
    SDWORD lNativeError;
    char szState[6];
    char
szMsg[SQL_MAX_MESSAGE_LENGTH];
char
szTmp[6*SQL_MAX_MESSAGE_LENGTH];
CODBCERR *pODBCErr;
// not allocated until needed (maybe never)
pODBCErr = new CODBCERR();

    pODBCErr->m_NativeError = 0;
pODBCErr->m_eAction = eAction;
pODBCErr->m_bDeadLock = FALSE;

    szTmp[0] = 0;
while (TRUE)
{
    rc = SQLError(henv, m_hdbc,
m_hstmt, (BYTE *)&szState, &lNativeError,
(BYTE *)&szMsg, sizeof(szMsg), NULL);
if (rc == SQL_NO_DATA)
break;

    // check for deadlock
if (lNativeError == 1205 ||
(lNativeError == iErrOleDbProvider &&
strstr(szMsg,
sErrTimeoutExpired) != NULL))
pODBCErr->m_bDeadLock =
TRUE;

    // capture the (first) database
error
if (pODBCErr->m_NativeError == 0
&& lNativeError != 0)
pODBCErr->m_NativeError
= lNativeError;

    // quit if there isn't enough
room to concatenate error text
if ( ( strlen(szMsg) + 2 ) >
(sizeof(szTmp) - strlen(szTmp)) )
break;

    // include line break after first
error msg
if (szTmp[0] != 0)
strcat( szTmp, "\n");
strcat( szTmp, szMsg );
}

```

```

if (pODBCErr->m_odbcerrstr != NULL)
{
    delete [] pODBCErr->m_odbcerrstr;
pODBCErr->m_odbcerrstr = NULL;
}

if (strlen(szTmp) > 0)
{
    pODBCErr->m_odbcerrstr = new
char[ strlen(szTmp)+1 ];
strcpy( pODBCErr->m_odbcerrstr,
szTmp );
}

SQLFreeStmt(m_hstmt, SQL_CLOSE);
throw pODBCErr;
}

void CTPCC_ODBC::InitStockLevelParams()
{
    if ( SQLAllocHandle(SQL_HANDLE_STMT,
m_hdbc, &m_hstmtStockLevel) != SQL_SUCCESS )

        ThrowError(CODBCERR::eAllocHandle);

    m_hstmt = m_hstmtStockLevel;

    int i = 0;
if ( SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SSHORT, SQL_SMALLINT, 0, 0,
&m_txn.StockLevel.w_id, 0, NULL) != SQL_SUCCESS
|| SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT, SQL_TINYINT, 0, 0,
&m_txn.StockLevel.d_id, 0, NULL) != SQL_SUCCESS
|| SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SSHORT, SQL_SMALLINT, 0, 0,
&m_txn.StockLevel.threshold, 0, NULL) != SQL_SUCCESS
)
    ThrowError(CODBCERR::eBindParam);

    if ( SQLBindCol(m_hstmt, 1, SQL_C_SLONG,
&m_txn.StockLevel.low_stock, 0, NULL) != SQL_SUCCESS
)
        ThrowError(CODBCERR::eBindCol);
}

void CTPCC_ODBC::StockLevel()
{
    RETCODE rc;
    int iTryCount =
0;

    m_hstmt = m_hstmtStockLevel;

    while (TRUE)
    {
        try
        {
            rc =
SQLExecDirectW(m_hstmt, (SQLWCHAR*)L"(call
tpcc_stocklevel(?,?,?))", SQL_NTS);

```

```

        if (rc != SQL_SUCCESS
&& rc != SQL_SUCCESS_WITH_INFO)
            ThrowError(CODBCERR::eExecDirect);

        if ( SQLFetch(m_hstmt)
== SQL_ERROR )
            ThrowError(CODBCERR::eFetch);

        SQLFreeStmt(m_hstmt,
SQL_CLOSE);

        m_txn.StockLevel.exec_status_code = eOK;
        break;
    }
    catch (CODBCERR *e)
    {
        if (!(e->m_bDeadLock)
|| (++iTryCount > iMaxRetries))
            throw;

        // hit deadlock;
        backoff for increasingly longer period
        delete e;
        Sleep(10 * iTryCount);
    }
}

// if (iTryCount)
// throw new
CTPCC_ODBC_ERR(CTPCC_ODBC_ERR::ERR_RETRIED_TRANS,
iTryCount);
}

void CTPCC_ODBC::InitNewOrderParams()
{
    if ( SQLAllocHandle(SQL_HANDLE_STMT,
m_hdbc, &m_hstmtNewOrder) != SQL_SUCCESS
||
SQLAllocHandle(SQL_HANDLE_DESC, m_hdbc,
&m_descNewOrderCols1) != SQL_SUCCESS
||
SQLAllocHandle(SQL_HANDLE_DESC, m_hdbc,
&m_descNewOrderCols2) != SQL_SUCCESS
)
        ThrowError(CODBCERR::eAllocHandle);

    m_hstmt = m_hstmtNewOrder;

    if ( SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_APP_ROW_DESC, m_descNewOrderCols1,
SQL_IS_POINTER ) != SQL_SUCCESS )
        ThrowError(CODBCERR::eSetStmtAttr);

    int i = 0;
    if ( SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SSHORT, SQL_SMALLINT, 0, 0,
&m_txn.NewOrder.w_id, 0, NULL) != SQL_SUCCESS

```

```

        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT, SQL_TINYINT, 0, 0,
&m_txn.NewOrder.d_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SLONG, SQL_INTEGER, 0, 0,
&m_txn.NewOrder.c_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT, SQL_TINYINT, 0, 0,
&m_txn.NewOrder.o_ol_cnt, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT, SQL_TINYINT, 0, 0,
&m_txn.NewOrder.o_all_local, 0, NULL) != SQL_SUCCESS
        )
            ThrowError(CODBCERR::eBindParam);

    for (int j=0; j<MAX_OL_NEW_ORDER_ITEMS;
j++)
    {
        if ( SQLBindParameter(m_hstmt,
++i, SQL_PARAM_INPUT, SQL_C_SLONG, SQL_INTEGER, 0, 0,
&m_txn.NewOrder.OL[j].ol_i_id, 0, NULL) !=
SQL_SUCCESS
        ||
SQLBindParameter(m_hstmt, ++i, SQL_PARAM_INPUT,
SQL_C_SSHORT, SQL_SMALLINT, 0, 0,
&m_txn.NewOrder.OL[j].ol_supply_w_id, 0, NULL) !=
SQL_SUCCESS
        ||
SQLBindParameter(m_hstmt, ++i, SQL_PARAM_INPUT,
SQL_C_SSHORT, SQL_SMALLINT, 0, 0,
&m_txn.NewOrder.OL[j].ol_quantity, 0, NULL) !=
SQL_SUCCESS
        )
            ThrowError(CODBCERR::eBindParam);
    }

    // set the bind offset pointer
    if ( SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_ROW_BIND_OFFSET_PTR, &m_BindOffset,
SQL_IS_POINTER ) != SQL_SUCCESS )
        ThrowError(CODBCERR::eSetStmtAttr);

    i = 0;
    if ( SQLBindCol(m_hstmt, ++i, SQL_C_CHAR,
&m_txn.NewOrder.OL[0].ol_i_name,
sizeof(m_txn.NewOrder.OL[0].ol_i_name), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_SSHORT, &m_txn.NewOrder.OL[0].ol_stock, 0,
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_CHAR, &m_txn.NewOrder.OL[0].ol_brand_generic,
sizeof(m_txn.NewOrder.OL[0].ol_brand_generic), NULL)
!= SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_DOUBLE, &m_txn.NewOrder.OL[0].ol_i_price, 0,
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_DOUBLE, &m_txn.NewOrder.OL[0].ol_amount, 0,
NULL) != SQL_SUCCESS
        )

```

```

        ThrowError(CODBCERR::eBindCol);

        // associate the column bindings for the
        second result set
        if ( SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_APP_ROW_DESC, m_descNewOrderCols2,
SQL_IS_POINTER ) != SQL_SUCCESS )
            ThrowError(CODBCERR::eSetStmtAttr);

        i = 0;
        if ( SQLBindCol(m_hstmt, ++i,
SQL_C_DOUBLE, &m_txn.NewOrder.w_tax, 0, NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_DOUBLE, &m_txn.NewOrder.d_tax, 0, NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_SLONG, &m_txn.NewOrder.o_id, 0, NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_CHAR, &m_txn.NewOrder.c_last,
sizeof(m_txn.NewOrder.c_last), NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_DOUBLE, &m_txn.NewOrder.c_discount, 0, NULL)
!= SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_CHAR, &m_txn.NewOrder.c_credit,
sizeof(m_txn.NewOrder.c_credit), NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_TYPE_TIMESTAMP, &m_txn.NewOrder.o_entry_d, 0,
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_SLONG, &m_no_commit_flag, 0, NULL) !=
SQL_SUCCESS
        )
            ThrowError(CODBCERR::eBindCol);

    }

    void CTPCC_ODBC::NewOrder()
    {
        int
        i;
        RETCODE
        int
        iTryCount = 0;

        //
        0 1 2
        //
        012345678901234567890123456789
        wchar_t
        szSqlTemplate[] = L"{call
tpcc_neworder(?, ?, ?, ?, ?, ?,"

        L"?, ?, ?, ?, ?, ?, ?, ?, ?, ?, ?,"

        L"?, ?, ?, ?, ?, ?, ?, ?, ?, ?, ?,"
    }

```



```

        sizeof(m_txn.Payment.w_city), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_CHAR, &m_txn.Payment.w_state,
sizeof(m_txn.Payment.w_state), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_CHAR, &m_txn.Payment.w_zip,
sizeof(m_txn.Payment.w_zip), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_CHAR, &m_txn.Payment.d_street_1,
sizeof(m_txn.Payment.d_street_1), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_CHAR, &m_txn.Payment.d_street_2,
sizeof(m_txn.Payment.d_street_2), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_CHAR, &m_txn.Payment.d_city,
sizeof(m_txn.Payment.d_city), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_CHAR, &m_txn.Payment.d_state,
sizeof(m_txn.Payment.d_state), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_CHAR, &m_txn.Payment.d_zip,
sizeof(m_txn.Payment.d_zip), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_CHAR, &m_txn.Payment.c_first,
sizeof(m_txn.Payment.c_first), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_CHAR, &m_txn.Payment.c_middle,
sizeof(m_txn.Payment.c_middle), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_CHAR, &m_txn.Payment.c_street_1,
sizeof(m_txn.Payment.c_street_1), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_CHAR, &m_txn.Payment.c_street_2,
sizeof(m_txn.Payment.c_street_2), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_CHAR, &m_txn.Payment.c_city,
sizeof(m_txn.Payment.c_city), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_CHAR, &m_txn.Payment.c_state,
sizeof(m_txn.Payment.c_state), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_CHAR, &m_txn.Payment.c_zip,
sizeof(m_txn.Payment.c_zip), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_CHAR, &m_txn.Payment.c_phone,
sizeof(m_txn.Payment.c_phone), NULL) !=
SQL_SUCCESS

```

```

        || SQLBindCol(m_hstmt, ++i,
SQL_C_TYPE_TIMESTAMP, &m_txn.Payment.c_since,
0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_CHAR, &m_txn.Payment.c_credit,
sizeof(m_txn.Payment.c_credit), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_DOUBLE, &m_txn.Payment.c_credit_lim, 0, NULL)
!= SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_DOUBLE, &m_txn.Payment.c_discount, 0,
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_DOUBLE, &m_txn.Payment.c_balance, 0,
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_CHAR, &m_txn.Payment.c_data,
sizeof(m_txn.Payment.c_data), NULL) !=
SQL_SUCCESS
        )
        ThrowError(CODBCERR::eBindCol);
}

void CTPCC_ODBC::Payment()
{
    RETCODE rc;
    int iTryCount =
0;

    m_hstmt = m_hstmtPayment;

    if (m_txn.Payment.c_id != 0)
        m_txn.Payment.c_last[0] = 0;

    while (TRUE)
    {
        try
        {
            rc =
SQLExecDirectW(m_hstmt, (SQLWCHAR*)"call
tpcc_payment(?,?,?,?,?,?)", SQL_NTS);
            if (rc != SQL_SUCCESS
&& rc != SQL_SUCCESS_WITH_INFO)
                ThrowError(CODBCERR::eExecDirect);

            if ( SQLFetch(m_hstmt)
== SQL_ERROR)
                ThrowError(CODBCERR::eFetch);

            SQLFreeStmt(m_hstmt,
SQL_CLOSE);

            if (m_txn.Payment.c_id
== 0)
                throw new
CTPCC_ODBC_ERR( CTPCC_ODBC_ERR::ERR_INVALID_CUST );
            else
                m_txn.Payment.exec_status_code = eOK;

```

```

        break;
    }
    catch (COBDCERR *e)
    {
        if (!(e->m_bDeadLock)
|| (++iTryCount > iMaxRetries))
            throw;

        // hit deadlock;
        backoff for increasingly longer period
        delete e;
        Sleep(10 * iTryCount);
    }
}

// if (iTryCount)
// throw new
CTPCC_ODBC_ERR(CTPCC_ODBC_ERR::ERR_RETRIED_TRANS,
iTryCount);
}

void CTPCC_ODBC::InitOrderStatusParams()
{
    if ( SQLAllocHandle(SQL_HANDLE_STMT,
m_hdbc, &m_hstmtOrderStatus) != SQL_SUCCESS
        ||
SQLAllocHandle(SQL_HANDLE_DESC, m_hdbc,
&m_descOrderStatusCols1) != SQL_SUCCESS
        ||
SQLAllocHandle(SQL_HANDLE_DESC, m_hdbc,
&m_descOrderStatusCols2) != SQL_SUCCESS
        )
        ThrowError(CODBCERR::eAllocHandle);

    m_hstmt = m_hstmtOrderStatus;

    if ( SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_APP_ROW_DESC, m_descOrderStatusCols1,
SQL_IS_POINTER ) != SQL_SUCCESS )
        ThrowError(CODBCERR::eSetStmtAttr);

    int i = 0;
    if ( SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SSHORT, SQL_SMALLINT, 0, 0,
&m_txn.OrderStatus.w_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_UTINYINT, SQL_TINYINT, 0, 0,
&m_txn.OrderStatus.d_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SLONG, SQL_INTEGER, 0, 0,
&m_txn.OrderStatus.c_id, 0, NULL) != SQL_SUCCESS
        || SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_CHAR, SQL_CHAR,
sizeof(m_txn.OrderStatus.c_last), 0,
&m_txn.OrderStatus.c_last,
sizeof(m_txn.OrderStatus.c_last), NULL) !=
SQL_SUCCESS
        )
        ThrowError(CODBCERR::eBindParam);

    // configure block cursor

```

```

        if ( SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_ROW_BIND_TYPE,
(SQLPOINTER) sizeof(m_txn.OrderStatus.OL[0]), 0) !=
SQL_SUCCESS
        || SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_ROWS_FETCHED_PTR, &m_RowsFetched, 0) !=
SQL_SUCCESS
        )
        ThrowError(CODBCERR::eSetStmtAttr);

        i = 0;
        if ( SQLBindCol(m_hstmt, ++i,
SQL_C_SSHORT,
&m_txn.OrderStatus.OL[0].ol_supply_w_id, 0, NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_SLONG, &m_txn.OrderStatus.OL[0].ol_i_id, 0,
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_SSHORT, &m_txn.OrderStatus.OL[0].ol_quantity,
0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_DOUBLE, &m_txn.OrderStatus.OL[0].ol_amount, 0,
NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_TYPE_TIMESTAMP,
&m_txn.OrderStatus.OL[0].ol_delivery_d, 0, NULL) !=
SQL_SUCCESS
        )
        ThrowError(CODBCERR::eBindCol);

        if ( SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_APP_ROW_DESC, m_descOrderStatusCols2,
SQL_IS_POINTER ) != SQL_SUCCESS )
        ThrowError(CODBCERR::eSetStmtAttr);

        i = 0;
        if ( SQLBindCol(m_hstmt, ++i,
SQL_C_SLONG, &m_txn.OrderStatus.c_id, 0, NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_CHAR, &m_txn.OrderStatus.c_last,
sizeof(m_txn.OrderStatus.c_last), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_CHAR, &m_txn.OrderStatus.c_first,
sizeof(m_txn.OrderStatus.c_first), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_CHAR, &m_txn.OrderStatus.c_middle,
sizeof(m_txn.OrderStatus.c_middle), NULL) !=
SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_TYPE_TIMESTAMP, &m_txn.OrderStatus.o_entry_d,
0, NULL) != SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_SSHORT, &m_txn.OrderStatus.o_carrier_id, 0,
NULL) != SQL_SUCCESS

```

```

        || SQLBindCol(m_hstmt, ++i,
SQL_C_DOUBLE, &m_txn.OrderStatus.c_balance, 0, NULL)
!= SQL_SUCCESS
        || SQLBindCol(m_hstmt, ++i,
SQL_C_SLONG, &m_txn.OrderStatus.o_id, 0, NULL) !=
SQL_SUCCESS
        )
        ThrowError(CODBCERR::eBindCol);
}

void CTPCC_ODBC::OrderStatus()
{
    int        iTryCount = 0;
    RETCODE    rc;

    m_hstmt = m_hstmtOrderStatus;

    if ( SQLSetStmtAttrW(m_hstmt,
SQL_ATTR_APP_ROW_DESC, m_descOrderStatusCols1,
SQL_IS_POINTER ) != SQL_SUCCESS )
        ThrowError(CODBCERR::eSetStmtAttr);

    if (m_txn.OrderStatus.c_id != 0)
        m_txn.OrderStatus.c_last[0] = 0;

    while (TRUE)
    {
        try
        {
            // configure block
            cursor
            if (
SQLSetStmtAttrW(m_hstmt, SQL_ATTR_ROW_ARRAY_SIZE,
(SQLPOINTER)1, 0) != SQL_SUCCESS )
                ThrowError(CODBCERR::eSetStmtAttr);

            rc =
SQLExecDirectW(m_hstmt, (SQLWCHAR*)L"(call
tpcc_orderstatus(?,?,?,?))", SQL_NTS);
            if ( ((rc ==
SQL_SUCCESS_WITH_INFO) && (m_RowsFetched != 0)) ||
(rc == SQL_ERROR) )
                ThrowError(CODBCERR::eExecDirect);

            // configure block
            cursor
            if (
SQLSetStmtAttrW(m_hstmt, SQL_ATTR_ROW_ARRAY_SIZE,
(SQLPOINTER)MAX_OL_ORDER_STATUS_ITEMS, 0) !=
SQL_SUCCESS )
                ThrowError(CODBCERR::eSetStmtAttr);

            rc = SQLFetchScroll(
m_hstmt, SQL_FETCH_NEXT, 0 );
            if ( ((rc ==
SQL_SUCCESS_WITH_INFO) && (m_RowsFetched != 0)) ||
(rc == SQL_ERROR) )

```

```

                ThrowError(CODBCERR::eFetchScroll);

                m_txn.OrderStatus.o_ol_cnt =
(short)m_RowsFetched;

                if
(m_txn.OrderStatus.o_ol_cnt != 0)
                {
                    if (
SQLSetStmtAttrW(m_hstmt, SQL_ATTR_APP_ROW_DESC,
m_descOrderStatusCols2, SQL_IS_POINTER ) !=
SQL_SUCCESS )
                        ThrowError(CODBCERR::eSetStmtAttr);

                    if (
SQLMoreResults(m_hstmt) == SQL_ERROR )
                        ThrowError(CODBCERR::eMoreResults);

                    if ( (rc =
SQLFetch(m_hstmt)) == SQL_ERROR)
                        ThrowError(CODBCERR::eFetch);
                }

                SQLFreeStmt(m_hstmt,
SQL_CLOSE);

                if
(m_txn.OrderStatus.o_ol_cnt == 0)
                    throw new
CTPCC_ODBC_ERR( CTPCC_ODBC_ERR::ERR_NO_SUCH_ORDER );
                else if
(m_txn.OrderStatus.c_id == 0 &&
m_txn.OrderStatus.c_last[0] == 0)
                    throw new
CTPCC_ODBC_ERR( CTPCC_ODBC_ERR::ERR_INVALID_CUST );
                else
                    m_txn.OrderStatus.exec_status_code = eOK;

                break;
            }
            catch (CODBCERR *e)
            {
                if (!(e->m_bDeadLock))
                || (++iTryCount > iMaxRetries))
                    throw;

                // hit deadlock;
                // backoff for increasingly longer period
                delete e;
                Sleep(10 * iTryCount);
            }
        }
    }

    if (iTryCount)
        throw new
CTPCC_ODBC_ERR(CTPCC_ODBC_ERR::ERR_RETRIED_TRANS,
iTryCount);

```

```

}

void CTPCC_ODBC::InitDeliveryParams()
{
    if ( SQLAllocHandle(SQL_HANDLE_STMT,
m_hdbc, &m_hstmtDelivery) != SQL_SUCCESS )

        ThrowError(CODBCERR::eAllocHandle);

    m_hstmt = m_hstmtDelivery;

    int i = 0;
    if ( SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SSHORT, SQL_SMALLINT, 0, 0,
&m_txn.Delivery.w_id, 0, NULL) != SQL_SUCCESS
|| SQLBindParameter(m_hstmt, ++i,
SQL_PARAM_INPUT, SQL_C_SSHORT, SQL_SMALLINT, 0, 0,
&m_txn.Delivery.o_carrier_id, 0, NULL) != SQL_SUCCESS
)
        ThrowError(CODBCERR::eBindParam);

    for (i=0;i<10;i++)
    {
        if ( SQLBindCol(m_hstmt,
(UWORD)(i+1), SQL_C_SLONG, &m_txn.Delivery.o_id[i],
0, NULL) != SQL_SUCCESS )

            ThrowError(CODBCERR::eBindCol);
    }
}

void CTPCC_ODBC::Delivery()
{
    RETCODE          rc;
    int              iTryCount =
0;

    m_hstmt = m_hstmtDelivery;

    while (TRUE)
    {
        try
        {
            rc =
SQLExecDirectW(m_hstmt, (SQLWCHAR*)L"call
tpcc_delivery(?,?)", SQL_NTS);
            if (rc != SQL_SUCCESS
&& rc != SQL_SUCCESS_WITH_INFO)

                ThrowError(CODBCERR::eExecDirect);

            if ( SQLFetch(m_hstmt)
== SQL_ERROR )

                ThrowError(CODBCERR::eFetch);

            SQLFreeStmt(m_hstmt,
SQL_CLOSE);

            m_txn.Delivery.exec_status_code = eOK;
            break;
        }
        catch (CODBCERR *e)

```

```

{
    if (!(e->m_bDeadLock)
|| (++iTryCount > iMaxRetries))
        throw;

        // hit deadlock;
        backoff for increasingly longer period
        delete e;
        Sleep(10 * iTryCount);
    }
}

// if (iTryCount)
// throw new
CTPCC_ODBC_ERR(CTPCC_ODBC_ERR::ERR_RETRIED_TRANS,
iTryCount);
}

```

tpcc_odbc.h

```

/* FILE: TPCC_ODBC.H
* Microsoft
TPC-C Kit Ver. 4.20.000
* Copyright
Microsoft, 1999
* All Rights Reserved
*
* Version
4.10.000 audited by Richard Gimarc, Performance
Metrics, 3/17/99
*
* PURPOSE: Header file for TPC-C txn class
implementation.
*
* Change history:
* 4.20.000 - updated rev number to
match kit
*/
#pragma once

// need to declare functions for import, unless
define has already been created
// by the DLL's .cpp module for export.
#ifdef DllDecl
#define DllDecl __declspec( dllimport )
#endif

class CODBCERR : public CBaseErr
{
public:
    enum ACTION
    {
        eNone,
        eUnknown,
        eAllocConn,
        // error from SQLAllocConnect
        eAllocHandle,
        // error from SQLAllocHandle
        eConnOption,
        // error from SQLSetConnectOption

```

```

eConnect,
// error from SQLConnect
eAllocStmt,
// error from SQLAllocStmt
eExecDirect,
// error from SQLExecDirect
eBindParam,
// error from SQLBindParameter
eBindCol,
// error from SQLBindCol
eFetch,
// error from SQLFetch
eFetchScroll,
// error from SQLFetchScroll
eMoreResults,
// error from SQLMoreResults
ePrepare,
// error from SQLPrepare
eExecute,
// error from SQLExecute
eSetEnvAttr,
// error from SQLSetEnvAttr
eSetStmtAttr,
// error from SQLSetStmtAttr
};

CODBCERR(void)
{
    m_eAction = eNone;
    m_NativeError = 0;
    m_bDeadLock = FALSE;
    m_odbcerrstr = NULL;
};

~CODBCERR()
{
    if (m_odbcerrstr !=
NULL)
        delete []
m_odbcerrstr;
};

ACTION m_eAction;
int m_NativeError;
BOOL m_bDeadLock;
char *m_odbcerrstr;

int ErrorType() {return
ERR_TYPE_ODBC;};
int ErrorNum() {return
m_NativeError;};
char *ErrorText() {return
m_odbcerrstr;};
};

class CTPCC_ODBC_ERR : public CBaseErr
{
public:
    enum TPCC_ODBC_ERRS

```

```

        ERR_WRONG_SP_VERSION =
1, // "Wrong version of stored procs on
database server"
        ERR_INVALID_CUST,
// "Invalid Customer id,name."
        ERR_NO_SUCH_ORDER,
// "No orders found for
customer."
        ERR_RETRIED_TRANS,
// "Retries before transaction
succeeded."
);
CTPCC_ODBC_ERR( int iErr ) {
m_errno = iErr; m_iTryCount = 0; };

CTPCC_ODBC_ERR( int iErr, int
iTryCount ) { m_errno = iErr; m_iTryCount =
iTryCount; };

int m_errno;
int m_iTryCount;

int ErrorType() {return
ERR_TYPE_TPCC_ODBC;};
int ErrorNum() {return m_errno;};

char *ErrorText();
};

class DllDecl CTPCC_ODBC : public CTPCC_BASE
{
private: // declare variables and private
functions here...
        BOOL m_bDeadlock;
// transaction was selected as
deadlock victim
        int m_MaxRetries; // retry
count on deadlock

        SQLHENV m_henv;
// ODBC environment
handle
        SQLHDBC m_hdbc;
        SQLHSTMT m_hstmt;
// the current hstmt

        SQLHSTMT m_hstmtNewOrder;
        SQLHSTMT m_hstmtPayment;
        SQLHSTMT m_hstmtDelivery;
        SQLHSTMT m_hstmtOrderStatus;
        SQLHSTMT m_hstmtStockLevel;

        SQLHDESC m_descNewOrderCols1;
        SQLHDESC m_descNewOrderCols2;
        SQLHDESC m_descOrderStatusCols1;
        SQLHDESC m_descOrderStatusCols2;

// new-order specific fields
        SQLUINTEGER m_BindOffset;

```

```

        SQLUINTEGER
m_RowsFetched;
int
m_no_commit_flag;

void ThrowError( CODBCERR::ACTION
eAction );

void InitNewOrderParams();
void InitPaymentParams();
void InitDeliveryParams();
void InitStockLevelParams();
void InitOrderStatusParams();

union
{
        NEW_ORDER_DATA
NewOrder;
        PAYMENT_DATA
Payment;
        DELIVERY_DATA
Delivery;
        STOCK_LEVEL_DATA
StockLevel;
        ORDER_STATUS_DATA
OrderStatus;
}
m_txn;

public:
        CTPCC_ODBC(LPCSTR szServer,
LPCSTR szUser, LPCSTR szPassword, LPCSTR szHost,
LPCSTR szDatabase);
        ~CTPCC_ODBC(void);

        inline PNEW_ORDER_DATA
BuffAddr_NewOrder() { return
&m_txn.NewOrder; };
        inline PPAYMENT_DATA
BuffAddr_Payment() { return
&m_txn.Payment; };
        inline PDELIVERY_DATA
BuffAddr_Delivery() { return
&m_txn.Delivery; };
        inline PSTOCK_LEVEL_DATA
BuffAddr_StockLevel() { return
&m_txn.StockLevel; };
        inline PORDER_STATUS_DATA
BuffAddr_OrderStatus() { return
&m_txn.OrderStatus; };

        void NewOrder ();
        void Payment ();
        void Delivery ();
        void StockLevel ();
        void OrderStatus ();
};

// wrapper routine for class constructor
extern "C" DllDecl CTPCC_ODBC* CTPCC_ODBC_new

```

```

(LPCSTR szServer, LPCSTR szUser, LPCSTR
szPassword, LPCSTR szHost, LPCSTR szDatabase );
typedef CTPCC_ODBC* (TYPE_CTPCC_ODBC) (LPCSTR, LPCSTR,
LPCSTR, LPCSTR, LPCSTR);

```

tpcc_tux.cpp

```

/* FILE: TPCC_TUX.CPP
* Microsoft
TPC-C Kit Ver. 4.20.000
* Copyright
Microsoft, 1999
* All Rights Reserved
* Version
4.10.000 audited by Richard Gimarc, Performance
Metrics, 3/17/99
* PURPOSE: Implementation for TPC-C Tuxedo
class.
* Contact: Charles Levine
(clevine@microsoft.com)
* Change history:
* 4.20.000 - updated rev number to
match kit
*/

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

#include <tmenv.h>
#include <xa.h>
#include <atmi.h>

#ifdef ICECAP
// for IceCAP profiling
#include <icapexp.h>
#endif

// need to declare functions for export
#define DllDecl __declspec( dllexport )

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

```

```

static TPINIT
    *tpinf;
static DWORD
    TLSIsTpInitedKey;
static CRITICAL_SECTION
    TpCriticalSection;

BOOL APIENTRY DllMain(HMODULE hModule, DWORD
ul_reason_for_call, LPVOID lpReserved)
{
    switch( ul_reason_for_call )
    {
        case DLL_PROCESS_ATTACH:

            DisableThreadLibraryCalls(hModule);

            // create thread local
            // storage to determine Tuxedo initialization per
            // thread.
            // it really should be
            // possible to do this in the DLL_THREAD_ATTACH call,
            // but
            // Ed says he could not
            // get it to work.
            // assumption: value
            // init'd to 0
            TLSIsTpInitedKey =
            TlsAlloc();

            if ((tpinf = (TPINIT
            *)tpalloc("TPINIT", NULL, sizeof(TPINIT))) == NULL)
            {
                // int TpRc =
                tperrno;

                return FALSE;
            }
            tpinf->flags |=
            TFMULTICONTEXTS;

            InitializeCriticalSection(&TpCriticalSection);
            break;

            case DLL_PROCESS_DETACH:

                TlsFree(TLSIsTpInitedKey);

                DeleteCriticalSection(&TpCriticalSection);
                break;

            default:
                /* nothing */;
    }
    return TRUE;
}

static void ThrTpInit()
{
    static int num_tpinit=0;
    int iRc, TpRc;

```

```

        // has this thread been initialized? check
        // thread local storage
        if(!TlsGetValue(TLSIsTpInitedKey))
        {
            EnterCriticalSection(&TpCriticalSection);
            itoa(++num_tpinit, tpinf-
            >cltname, 10);

            iRc = tpinit(tpinf);
            TpRc = tperrno;

            LeaveCriticalSection(&TpCriticalSection);

            if (iRc < 0)
                throw new CTUXERR(
                tperrno );

            int value = 1;

            TlsSetValue(TLSIsTpInitedKey, &value);
        }
    }

    // wrapper routine for class constructor
    __declspec(dllexport) CTPCC_TUXEDO*
    CTPCC_TUXEDO_new()
    {
        return new CTPCC_TUXEDO();
    }

    CTPCC_TUXEDO::~CTPCC_TUXEDO()
    {
        // Add initialization of Tuxedo
        Structures
        m_txn = (TUX_DATA *)tpalloc("CARRAY", NULL,
        sizeof(TUX_DATA));
        if (m_txn == NULL)
            throw new CTUXERR( tperrno );
    }

    CTPCC_TUXEDO::~~CTPCC_TUXEDO()
    {
        // free the data structure allocated with
        tpalloc
        tpfree((char *)m_txn);
    }

    void CTPCC_TUXEDO::NewOrder()
    {
        long ilen, *olen;

        ThrTpInit();

        ilen = sizeof(TUX_DATA);
        olen = &ilen;

        if (tpcall("NEWORDER", (char *)m_txn, ilen,
        (char **)&m_txn, (long *)olen, TPSIGRSTRT) == -1)
            throw new CTUXERR( tperrno );

        if ( m_txn->ErrorType != ERR_SUCCESS )

```

```

            throw new CTUXERR( m_txn-
            >ErrorType, m_txn->error );
        }
    }

    void CTPCC_TUXEDO::Payment()
    {
        long ilen, *olen;

        ThrTpInit();

        ilen = sizeof(TUX_DATA);
        olen = &ilen;

        if (tpcall("PAYMENT", (char *)m_txn, ilen,
        (char **)&m_txn, (long *)olen, TPSIGRSTRT) == -1)
            throw new CTUXERR( tperrno );

        if ( m_txn->ErrorType != ERR_SUCCESS )
            throw new CTUXERR( m_txn-
            >ErrorType, m_txn->error );
    }

    void CTPCC_TUXEDO::Delivery()
    {
        int iRc;
        long ilen, *olen;

        // Note: Delivery txn code in the tuxedo
        // server does not implement logging of the delivery
        // txn results, so cannot be used as
        // is to run an auditable TPC-C result. For that
        // reason, delivery txns should not
        // be done via tuxedo.
        // The code is included for
        // completeness.
        m_txn->u.Delivery.exec_status_code =
        eDeliveryFailed;
        return;

        // normal path...

        ThrTpInit();

        GetLocalTime(&m_txn-
        >u.Delivery.queue_time);

        ilen = sizeof(TUX_DATA);
        olen = &ilen;

        if ((iRc = tpcall("DELIVERY", (char
        *)m_txn, ilen, TPNOREPLY)) == -1)
        {
            int TpRc = tperrno;
            m_txn-
            >u.Delivery.exec_status_code = eDeliveryFailed;
        }
        else
            m_txn-
            >u.Delivery.exec_status_code = eOK;
    }

    void CTPCC_TUXEDO::StockLevel()

```

```

{
    long    ilen, *olen;

    ThrTpInit();

    ilen = sizeof(TUX_DATA);
    olen = &ilen;

    if (tpcall("STOCKLEVEL", (char *)m_txn,
    ilen, (char **)&m_txn, (long *)olen, TPSIGRSTRT) == -
    1)
        throw new CTUXERR( tperno );

    if ( m_txn->ErrorType != ERR_SUCCESS )
        throw new CTUXERR( m_txn-
>ErrorType, m_txn->error );
}

void CTPCC_TUXEDO::OrderStatus()
{
    long    ilen, *olen;

    ThrTpInit();

    ilen = sizeof(TUX_DATA);
    olen = &ilen;

    if (tpcall("ORDERSTATUS", (char *)m_txn,
    ilen, (char **)&m_txn, (long *)olen, TPSIGRSTRT) == -
    1)
        throw new CTUXERR( tperno );

    if ( m_txn->ErrorType != ERR_SUCCESS )
        throw new CTUXERR( m_txn-
>ErrorType, m_txn->error );
}

char *CTUXERR::ErrorText()
{
    if (m_iErrorType == 0)
    {
        if (m_errno == TPEOS)
            sprintf( m_szErrorText,
"Error: TUXEDO error # %d, OS error # %d", m_errno,
m_iError );
        else
            sprintf( m_szErrorText,
"Error: TUXEDO error # %d", m_errno );
    }
    else
        sprintf( m_szErrorText, "Error:
Class %d, error # %d", m_iErrorType, m_iError );
    return m_szErrorText;
};

```

tpcc_tux.h

```

/* FILE: TPCC_TUX.H Microsoft
 *
TPC-C Kit Ver. 4.20.000

```

```

* Copyright
Microsoft, 1999
* All Rights Reserved
*
* Version
4.10.000 audited by Richard Gimarc, Performance
Metrics, 3/17/99
*
* PURPOSE: Header file for TPC-C Tuxedo
class implementation.
*
* Change history:
* 4.20.000 - updated rev number to
match kit
*/

#pragma once

// need to declare functions for import, unless
define has already been created
// by the DLL's .cpp module for export.
#ifdef DllDecl
#define DllDecl __declspec( dllimport )
#endif

class DllDecl CTPCC_TUXEDO : public CTPCC_BASE
{
private:
    struct TUX_DATA
    {
        int
        ErrorType;
        int
        error;

        union
        {
            NEW_ORDER_DATA      NewOrder;
                                PAYMENT_DATA
                                Delivery;

            STOCK_LEVEL_DATA    StockLevel;

            ORDER_STATUS_DATA    OrderStatus;
        } u;
    } *m_txn;

public:
    CTPCC_TUXEDO();
    ~CTPCC_TUXEDO(void);

    inline PNEW_ORDER_DATA
    BuffAddr_NewOrder() { return
&m_txn->u.NewOrder;
    };
    inline PPAYMENT_DATA
    BuffAddr_Payment() { return
&m_txn->u.Payment;
    };
    inline PDELIVERY_DATA
    BuffAddr_Delivery() { return
&m_txn->u.Delivery;
    };

```

```

    inline PSTOCK_LEVEL_DATA
    BuffAddr_StockLevel() { return
&m_txn->u.StockLevel;
    };
    inline PORDER_STATUS_DATA
    BuffAddr_OrderStatus() { return
&m_txn->u.OrderStatus;
    };

    void NewOrder          ();
    void Payment           ();
    void Delivery          ();
    void StockLevel       ();
    void OrderStatus      ();
};

class CTUXERR : public CBaseErr
{
private:
    // TODO: should use the sz_Msg
    field of the base class instead
    char m_szErrorText[64];

public:
    // use this interface for genuine
    Tuxedo errors
    CTUXERR( int iErr )
    {
        m_errno = iErr;
        m_iErrorType = 0;
        m_iError =
    };

    GetLastError(); // only meaningful if m_errno ==
    TPEOS

    // use this interface to
    impersonate a non-Tuxedo error type
    CTUXERR( int iErrorType, int
    iError )
    {
        m_iErrorType =
        m_iError = iError;
        m_errno = 0;
    }

    int m_errno;
    int m_iErrorType;
    int m_iError;

    // A CTUXERR class can
    impersonate another
    class, which happens if the error
    // was not actually a Tuxedo
    error, but was simply transmitted back via Tuxedo.
    int ErrorType()
    {
        if (m_iErrorType == 0)
            return
    };

    ERR_TYPE_TUXEDO;

    else
        return
    };

    m_iErrorType;
};

```

```

        int ErrorNum() {return m_errno;};
        char *ErrorText();
};

// wrapper routine for class constructor
extern "C" __declspec(dllexport) CTPCC_TUXEDO*
CTPCC_TUXEDO_new();

typedef CTPCC_TUXEDO* (TYPE_CTPCC_TUXEDO)();

```

tpcc_type.h

```

/* Generated by IDL compiler version DEC DCE V2.0.0-6
*/
#ifndef tpcc_types_v1_0_included
#define tpcc_types_v1_0_included
#include IDLBASE_H
#include <dce\idlbase.h>
#endif

#ifdef __cplusplus
extern "C" {
#endif

#ifndef nbase_v0_0_included
#include "dce\nbase.h"
#endif
#define NAME_LENGTH (32)
#define NEWO_INTERFACE (1)
#define PAYMENT_INTERFACE (2)
#define ORDER_STAT_INTERFACE (4)
#define DELIVERY_INTERFACE (8)
#define STOCK_INTERFACE (16)
#define ONLINE_INTERFACES (23)
#define ALL_INTERFACE (65535)
#define NEWO_TRANS (1)
#define PAYMENT_TRANS (2)
#define ORDER_STAT_TRANS (3)
#define DELIVERY_TRANS (4)
#define STOCK_TRANS (5)
#define MAX_TRAN_TYPE (5)
#define TPCC_SUCCESS (0)
#define TRPC_ERROR (1)
#define INVALID_NEWO (100)
typedef struct {
    idl_long_int sec;
    idl_long_int usec;
} time_type;
typedef struct {
    idl_short_int returncode;
    idl_short_int stats;
    time_type srv_start;
    time_type srv_end;
    time_type clnt_start;
    time_type clnt_end;
} data_header;
typedef struct {
    idl_long_int first_wh;
    idl_long_int last_wh;

```

```

    idl_long_int server_id;
} dbInfo_data_t;

#ifdef __cplusplus
}
#endif
#endif

```

trans.h

```

/* FILE: TRANS.H
*
* TPC-C Kit Ver. 4.20.000
*
* Microsoft
*
* Copyright
*
* Microsoft, 1999
*
* All Rights Reserved
*
*
* Version
*
* 4.10.000 audited by Richard Gimarc, Performance
* Metrics, 3/17/99
*
* PURPOSE: Header file for TPC-C structure
* templates.
*
* Change history:
*
* 4.20.000 - updated rev number to
* match kit
*/
#pragma once

// String length constants
#define SERVER_NAME_LEN 20
#define DATABASE_NAME_LEN 20
#define USER_NAME_LEN 20
#define PASSWORD_LEN 20
#define TABLE_NAME_LEN 20
#define I_DATA_LEN 50
#define I_NAME_LEN 24
#define BRAND_LEN 1
#define LAST_NAME_LEN 16
#define W_NAME_LEN 10
#define ADDRESS_LEN 20
#define STATE_LEN 2
#define ZIP_LEN 9
#define S_DIST_LEN 24
#define S_DATA_LEN 50
#define D_NAME_LEN 10
#define FIRST_NAME_LEN 16
#define MIDDLE_NAME_LEN 2
#define PHONE_LEN 16
#define DATETIME_LEN 30
#define CREDIT_LEN 2
#define C_DATA_LEN 250
#define H_DATA_LEN 24
#define DIST_INFO_LEN 24
#define MAX_OL_NEW_ORDER_ITEMS 15
#define MAX_OL_ORDER_STATUS_ITEMS 15
#define STATUS_LEN 25
#define OL_DIST_INFO_LEN

```

```

// TIMESTAMP_STRUCT is provided by the ODBC header
// file sqltypes.h, but is not available
// when compiling with dblib, so redefined here.
// Note: we are using the symbol "__SQLTYPES"
// (declared in sqltypes.h) as a way to determine if
// TIMESTAMP_STRUCT has been declared.
#ifdef __SQLTYPES
typedef struct
{
    /* SQLSMALLINT */ short
    /* SQLSMALLINT */ unsigned short /*
    /* SQLSMALLINT */ month; unsigned short /*
    /* SQLSMALLINT */ day; unsigned short /*
    /* SQLSMALLINT */ hour; unsigned short /*
    /* SQLSMALLINT */ minute; unsigned short /*
    /* SQLSMALLINT */ second; unsigned long /*
    /* SQLINTEGER */ fraction; unsigned long /*
} TIMESTAMP_STRUCT;
#endif

// possible values for exec_status_code after
// transaction completes
enum EXEC_STATUS
{
    eOK, // 0
    "Transaction committed."
    eInvalidItem, // 1 "Item number
    is not valid."
    eDeliveryFailed // 2 "Delivery
    Post Failed."
};

// transaction structures
typedef struct
{
    // input params
    short
    ol_supply_w_id;
    long
    ol_i_id;
    short
    ol_quantity;

    // output params
    char
    ol_i_name[I_NAME_LEN+1];
    char
    ol_brand_generic[BRAND_LEN+1];
    double
    ol_i_price;
    double
    ol_amount;
    short
    ol_stock;
} OL_NEW_ORDER_DATA;

```

```

typedef struct
{
    // input params
    short      w_id;
    short      d_id;
    long       c_id;
    short      o_ol_cnt;

    // output params
    EXEC_STATUS
    exec_status_code;
    char
    c_last[LAST_NAME_LEN+1];
    char
    c_credit[CREDIT_LEN+1];
    double
    c_discount;
    double
    w_tax;
    double
    d_tax;
    long
    o_id;
    short
    o_commit_flag;
    TIMESTAMP_STRUCT
    o_entry_d;
    short
    o_all_local;
    double
    total_amount;
    OL_NEW_ORDER_DATA
    OL[MAX_OL_NEW_ORDER_ITEMS];
} NEW_ORDER_DATA, *PNEW_ORDER_DATA;

typedef struct
{
    // input params
    short
    w_id;
    short
    d_id;
    long
    c_id;
    short
    c_d_id;
    short
    c_w_id;
    double
    h_amount;
    char
    c_last[LAST_NAME_LEN+1];

    // output params
    EXEC_STATUS
    exec_status_code;
    TIMESTAMP_STRUCT
    h_date;
    char
    w_street_1[ADDRESS_LEN+1];
    char
    w_street_2[ADDRESS_LEN+1];
    char
    w_city[ADDRESS_LEN+1];
    char
    w_state[STATE_LEN+1];
    char
    w_zip[ZIP_LEN+1];
    char
    d_street_1[ADDRESS_LEN+1];
    char
    d_street_2[ADDRESS_LEN+1];

```

```

    char
    d_city[ADDRESS_LEN+1];
    char
    d_state[STATE_LEN+1];
    char
    d_zip[ZIP_LEN+1];
    char
    c_first[FIRST_NAME_LEN+1];
    char
    c_middle[MIDDLE_NAME_LEN + 1];
    char
    c_street_1[ADDRESS_LEN+1];
    char
    c_street_2[ADDRESS_LEN+1];
    char
    c_city[ADDRESS_LEN+1];
    char
    c_state[STATE_LEN+1];
    char
    c_zip[ZIP_LEN+1];
    char
    c_phone[PHONE_LEN+1];
    TIMESTAMP_STRUCT
    c_since;
    char
    c_credit[CREDIT_LEN+1];
    double
    c_credit_lim;
    double
    c_discount;
    double
    c_balance;
    char
    c_data[200+1];
} PAYMENT_DATA, *PPAYMENT_DATA;

typedef struct
{
    long
    ol_i_id;
    short
    ol_supply_w_id;
    short
    ol_quantity;
    double
    ol_amount;
    TIMESTAMP_STRUCT
    ol_delivery_d;
} OL_ORDER_STATUS_DATA;

typedef struct
{
    // input params
    short
    w_id;
    short
    d_id;
    long
    c_id;
    char
    c_last[LAST_NAME_LEN+1];

    // output params
    EXEC_STATUS
    exec_status_code;
    char
    c_first[FIRST_NAME_LEN+1];
    char
    c_middle[MIDDLE_NAME_LEN+1];

```

```

    double
    c_balance;
    long
    o_id;
    TIMESTAMP_STRUCT
    o_entry_d;
    short
    o_carrier_id;
    OL_ORDER_STATUS_DATA
    OL[MAX_OL_ORDER_STATUS_ITEMS];
    short
    o_ol_cnt;
} ORDER_STATUS_DATA, *PORDER_STATUS_DATA;

typedef struct
{
    // input params
    short
    w_id;
    short
    o_carrier_id;

    // output params
    EXEC_STATUS
    exec_status_code;
    SYSTEMTIME
    queue_time;
    long
    o_id[10]; // id's of delivered
orders for districts 1 to 10
} DELIVERY_DATA, *PDELIVERY_DATA;

//This structure is used for posting delivery
transactions and for writing them to the delivery
server.
typedef struct _DELIVERY_TRANSACTION
{
    SYSTEMTIME
    queue;
    //time delivery transaction queued
    short
    w_id;
    //delivery warehouse
    short
    o_carrier_id;
} DELIVERY_TRANSACTION;

typedef struct
{
    // input params
    short
    w_id;
    short
    d_id;
    short
    threshold;

    // output params
    EXEC_STATUS
    exec_status_code;
    long
    low_stock;
} STOCK_LEVEL_DATA, *PSTOCK_LEVEL_DATA;

```

tuxapp.cpp

```

/* FILE: TUXAPP.CPP
 * Microsoft
 * TPC-C Kit Ver. 4.20.000
 * Copyright
 * Microsoft, 1999

```



```

*           All Rights Reserved
*
*           Version
4.10.000 audited by Richard Gimarc, Performance
Metrics, 3/17/99
*
*   PURPOSE: Implementation for TPC-C Tuxedo
server.
*   Contact: Charles Levine
(clevine@microsoft.com)
*
*   Change history:
*           4.20.000 - updated rev number to
match kit
*/

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

#include <sqltypes.h>
#include <sql.h>
#include <sqlx.h>

#include <tmenv.h>
#include <xa.h>
#include <atmi.h>

#include "..\..\common\src\trans.h"
//tpckit transaction header contains
definitions of structures specific to TPC-C
#include "..\..\common\src\error.h"
#include "..\..\common\src\txn_base.h"
#include "..\..\common\src\ReadRegistry.h"
#include "..\..\db_dblib_dll\src\tpcc_dblib.h"
// DBLIB implementation of TPC-C txns
#include "..\..\db_odbc_dll\src\tpcc_odbc.h"
// ODBC implementation of TPC-C txns
#include "tuxapp.h"

char
    szMyComputerName[MAX_COMPUTERNAME_LENGTH+1]
;

// configuration settings from registry
TPCCREGISTRYDATA    Reg;

CTPCC_BASE          *pTxn = NULL;

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

/* FUNCTION: tpsvrinit ( int argc, char *argv[] )

```

```

*
* PURPOSE:      Initialize the Server to Database
connection.
*
* RETURNS:      int      0
                Success
                int      -1
                Failure
*/

int tpsvrinit ( int argc, char *argv[] )
{
    try
    {
        DWORD dwSize =
MAX_COMPUTERNAME_LENGTH+1;
        GetComputerName(szMyComputerName,
&dwSize);
        szMyComputerName[dwSize] = 0;

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

        GetParameters(argc, argv);

        switch (Reg.eDB_Protocol)
        {
            case ODBC:
                pTxn = new CTPCC_ODBC(
Reg.szDbServer, Reg.szDbUser, Reg.szDbPassword,
szMyComputerName, Reg.szDbName );
                break;
            case DBLIB:
                pTxn = new CTPCC_DBLIB(
Reg.szDbServer, Reg.szDbUser, Reg.szDbPassword,
szMyComputerName, Reg.szDbName );
                break;
        }
    }
    catch (CBaseErr *e)
    {
        WriteMessageToEventLog(e-
>ErrorText());
        delete e;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("Unhandled
exception."));
    }

    return 0;
}

/* FUNCTION: tpsvrdone ( void )
*
*/

void tpsvrdone ( void )
{

```

```

        delete pTxn;
        pTxn = NULL;
}

/* FUNCTION: BOOL GetParameters(int argc, char
*argv[] )
*
* PURPOSE:      This function parses the command
line passed in to the delivery executable,
initializing
                and filling in global
variable parameters.
*
* ARGUMENTS:    int      argc
                number of command line arguments passed to
delivery
*               char
*               *argv[] array of command line argument
pointers
*
*/

static void GetParameters(int argc, char *argv[] )
{
    // advance through args until "--" is found
for(int j=0; j<argc; j++)
    {
        if (strcmp(argv[j],"--") == 0)
            break;
    }

for(int i=j+1; i<argc; i++)
    {
        if ( argv[i][0] == '-' ||
argv[i][0] == '/' )
            {
                switch(argv[i][1])
                {
                    case 'S':
                        strcpy(Reg.szDbServer, argv[i+2]);
                        break;
                    case 'D':
                        strcpy(Reg.szDbName, argv[i+2]);
                        break;
                    case 'P':
                        strcpy(Reg.szDbPassword, argv[i+2]);
                        break;
                    case 'U':
                        strcpy(Reg.szDbUser, argv[i+2]);
                        break;
                    default:
                        cout << "Microsoft TPC-C Kit" << endl;
                        cout << "Tuxedo Server" << endl << endl;

```

```

        cout << "Usage:" << endl;

        cout << "    tuxapp [<tuxedo-args>] -- -
S<sql-server> [-D<database>] [-U<user>] [-
P<password>]" << endl << endl;

        cout << "All parameters default to values
in registry." << endl;

        throw new CTUXAPP_ERR( ERR_BAD_SYNTAX );
    }
}

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

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

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

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

        (VOID) DeregisterEventSource(hEventSource);
    }
}

void NEWORDER( TPSVCINFO *rqst )
{
    PNEW_ORDER_DATA    pNewOrder;
    TUX_DATA            *pData;
    const int          iSize = sizeof(pData-
>u.NewOrder);

    try
    {
        pData = (TUX_DATA*)rqst->data;
        pData->retval = ERR_SUCCESS;

```

```

        pData->error = 0;

        pNewOrder = pTxn-
>BuffAddr_NewOrder();
        assert( rqst->len ==
sizeof(TUX_DATA) );
        memcpy(pNewOrder, &pData-
>u.NewOrder, iSize );

        pTxn->NewOrder();
        memcpy( &pData->u.NewOrder,
pNewOrder, iSize );
        tpreturn( TPSUCCESS, 0, rqst-
>data, sizeof(TUX_DATA), 0);
    }
    catch (CBaseErr *e)
    {
        pData->retval = e->ErrorType();
        pData->error = e->ErrorNum();
        memcpy( &pData->u.NewOrder,
pNewOrder, iSize );
        tpreturn( TPSUCCESS, 0, rqst-
>data, sizeof(TUX_DATA), 0);
        delete e;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("Unhandled
exception."));
        pData->retval = ERR_TYPE_LOGIC;
        pData->error = 0;
        memcpy( &pData->u.NewOrder,
pNewOrder, iSize );
        tpreturn( TPSUCCESS, 0, rqst-
>data, sizeof(TUX_DATA), 0);
    }
}

void PAYMENT( TPSVCINFO *rqst )
{
    PPAYMENT_DATA    pPayment;
    TUX_DATA          *pData;
    const int          iSize = sizeof(pData-
>u.Payment);

    try
    {
        pData = (TUX_DATA*)rqst->data;
        pData->retval = ERR_SUCCESS;
        pData->error = 0;

        pPayment = pTxn-
>BuffAddr_Payment();
        assert( rqst->len ==
sizeof(TUX_DATA) );
        memcpy(pPayment, &pData-
>u.Payment, iSize );

        pTxn->Payment();
        memcpy( &pData->u.Payment,
pPayment, iSize );

```

```

        tpreturn( TPSUCCESS, 0, rqst-
>data, sizeof(TUX_DATA), 0);
    }
    catch (CBaseErr *e)
    {
        pData->retval = e->ErrorType();
        pData->error = e->ErrorNum();
        memcpy( &pData->u.Payment,
pPayment, iSize );
        tpreturn( TPSUCCESS, 0, rqst-
>data, sizeof(TUX_DATA), 0);
        delete e;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("Unhandled
exception."));
        pData->retval = ERR_TYPE_LOGIC;
        pData->error = 0;
        memcpy( &pData->u.Payment,
pPayment, iSize );
        tpreturn( TPSUCCESS, 0, rqst-
>data, sizeof(TUX_DATA), 0);
    }
}

// Note: Delivery txn code below does not implement
logging of the delivery
// txn results, so cannot be used as is to run
an auditable TPC-C result.
// The code is included for completeness.
void DELIVERY( TPSVCINFO *rqst )
{
    PDELIVERY_DATA    pDelivery;
    TUX_DATA          *pData;
    const int          iSize = sizeof(pData-
>u.Delivery);

    try
    {
        pData = (TUX_DATA*)rqst->data;
        pData->retval = ERR_SUCCESS;
        pData->error = 0;

        pDelivery = pTxn-
>BuffAddr_Delivery();
        assert( rqst->len ==
sizeof(TUX_DATA) );
        memcpy(pDelivery, &pData-
>u.Delivery, iSize );

        pTxn->Delivery();

        memcpy( &pData->u.Delivery,
pDelivery, iSize );
        tpreturn( TPSUCCESS, 0, rqst-
>data, sizeof(TUX_DATA), 0);
    }
    catch (CBaseErr *e)
    {
        pData->retval = e->ErrorType();
        pData->error = e->ErrorNum();

```

```

        memcpy( &pData->u.Delivery,
pDelivery, iSize );
        tpreturn( TPSUCCESS, 0, rqst-
>data, sizeof(TUX_DATA), 0);
        delete e;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("Unhandled
exception.));
        pData->retval = ERR_TYPE_LOGIC;
        pData->error = 0;
        memcpy( &pData->u.Delivery,
pDelivery, iSize );
        tpreturn( TPSUCCESS, 0, rqst-
>data, sizeof(TUX_DATA), 0);
    }
}

void STOCKLEVEL( TPSVCINFO *rqst )
{
    PSTOCK_LEVEL_DATA  pStockLevel;
    TUX_DATA           *pData;
    const int          iSize =
sizeof(pData->u.StockLevel);

    try
    {
        pData = (TUX_DATA*)rqst->data;
        pData->retval = ERR_SUCCESS;
        pData->error = 0;

        pStockLevel = pTxn-
>BuffAddr_StockLevel();
        assert( rqst->len ==
sizeof(TUX_DATA) );
        memcpy(pStockLevel, &pData-
>u.StockLevel, iSize );

        pTxn->StockLevel();
        memcpy( &pData->u.StockLevel,
pStockLevel, iSize );
        tpreturn( TPSUCCESS, 0, rqst-
>data, sizeof(TUX_DATA), 0);
    }
    catch (CBaseErr *e)
    {
        pData->retval = e->ErrorType();
        pData->error = e->ErrorNum();
        memcpy( &pData->u.StockLevel,
pStockLevel, iSize );
        tpreturn( TPSUCCESS, 0, rqst-
>data, sizeof(TUX_DATA), 0);
        delete e;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("Unhandled
exception.));
        pData->retval = ERR_TYPE_LOGIC;
        pData->error = 0;
    }
}

```

```

        memcpy( &pData->u.StockLevel,
pStockLevel, iSize );
        tpreturn( TPSUCCESS, 0, rqst-
>data, sizeof(TUX_DATA), 0);
    }
}

void ORDERSTATUS( TPSVCINFO *rqst )
{
    PORDER_STATUS_DATA  pOrderStatus;
    TUX_DATA           *pData;
    const int          iSize = sizeof(pData-
>u.OrderStatus);

    try
    {
        pData = (TUX_DATA*)rqst->data;
        pData->retval = ERR_SUCCESS;
        pData->error = 0;

        pOrderStatus = pTxn-
>BuffAddr_OrderStatus();
        assert( rqst->len ==
sizeof(TUX_DATA) );
        memcpy(pOrderStatus, &pData-
>u.OrderStatus, iSize );

        pTxn->OrderStatus();
        memcpy( &pData->u.OrderStatus,
pOrderStatus, iSize );
        tpreturn( TPSUCCESS, 0, rqst-
>data, sizeof(TUX_DATA), 0);
    }
    catch (CBaseErr *e)
    {
        pData->retval = e->ErrorType();
        pData->error = e->ErrorNum();
        memcpy( &pData->u.OrderStatus,
pOrderStatus, iSize );
        tpreturn( TPSUCCESS, 0, rqst-
>data, sizeof(TUX_DATA), 0);
        delete e;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("Unhandled
exception.));
        pData->retval = ERR_TYPE_LOGIC;
        pData->error = 0;
        memcpy( &pData->u.OrderStatus,
pOrderStatus, iSize );
        tpreturn( TPSUCCESS, 0, rqst-
>data, sizeof(TUX_DATA), 0);
    }
}

/* FUNCTION: CTUXAPP_ERR::ErrorText
*
*/
char* CTUXAPP_ERR::ErrorText(void)
{

```

```

    int i;

    static SERRORMSG errorMsgs[] =
    {
        { ERR_MISSING_REGISTRY_ENTRIES,
"Required entries missing from registry."
},
        { ERR_BAD_SYNTAX,
"Syntax error in input
parameters."
},
        { ERR_UNKNOWN_DB_PROTOCOL,
"Unknown database protocol specified in
registry."
},
        { 0, ""
}
};

    static char szNotFound[] = "Unknown error
number.";

    for(i=0; errorMsgs[i].szMsg[0]; i++)
    {
        if ( m_Error ==
errorMsgs[i].iError )
            break;
    }
    if ( !errorMsgs[i].szMsg[0] )
        return szNotFound;
    else
        return errorMsgs[i].szMsg;
}

```

tuxapp.dsp

```

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

# TARGETTYPE "Win32 (x86) Console Application" 0x0103

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

```

```

!MESSAGE NMAKE /f "tuxapp.mak" CFG="tuxapp - Win32
Debug"
!MESSAGE
!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "tuxapp - Win32 Release" (based on "Win32
(x86) Console Application")
!MESSAGE "tuxapp - Win32 Debug" (based on "Win32
(x86) Console Application")
!MESSAGE

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

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "Release"
# PROP BASE Intermediate_Dir "Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /GX /O2 /D "WIN32" /D
"NDEBUG" /D "_CONSOLE" /D "_MBCS" /YX /FD /c
# ADD CPP /nologo /MD /W3 /GX /O2 /D "WIN32" /D
"NDEBUG" /D "_CONSOLE" /D "_MBCS" /YX /FD /c
# ADD BASE RSC /1 0x409 /d "NDEBUG"
# ADD RSC /1 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbccp32.lib /nologo /subsystem:console /machine:I386
# ADD LINK32 ..\db_dblib_dll\bin\tpcc_dblib.lib
..\db_odbc_dll\bin\tpcc_odbc.lib libtux.lib
libbuft.lib libtux2.lib libfml.lib libfml32.lib
libgp.lib kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbccp32.lib /nologo /subsystem:console /machine:I386

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

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

```

```

# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32"
/D "_DEBUG" /D "_CONSOLE" /D "_MBCS" /YX /FD /c
# ADD CPP /nologo /MDd /W3 /Gm /GX /ZI /Od /D "WIN32"
/D "_DEBUG" /D "_CONSOLE" /D "_MBCS" /YX /FD /c
# ADD BASE RSC /1 0x409 /d "_DEBUG"
# ADD RSC /1 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbccp32.lib /nologo /subsystem:console /debug
/machine:I386 /pdbtype:sept
# ADD LINK32 ..\db_dblib_dll\bin\tpcc_dblib.lib
..\db_odbc_dll\bin\tpcc_odbc.lib libtux.lib
libbuft.lib libtux2.lib libfml.lib libfml32.lib
libgp.lib kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbcc32.lib
odbccp32.lib /nologo /subsystem:console /debug
/machine:I386 /pdbtype:sept

!ENDIF

# Begin Target

# Name "tuxapp - Win32 Release"
# Name "tuxapp - Win32 Debug"
# Begin Group "Source"

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

SOURCE=.\src\tuxapp.cpp

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

# ADD CPP /MD

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

# ADD CPP /MDd

!ENDIF

# End Source File
# Begin Source File

SOURCE=.\src\tuxmain.c

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

# ADD CPP /MD

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

# ADD CPP /MDd

```

```

!ENDIF

# End Source File
# End Group
# Begin Group "Header"

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

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

```

tuxapp.h

```

/* FILE: TUXAPP.H
*
* Microsoft
* TPC-C Kit Ver. 4.20.000
* Copyright
* Microsoft, 1999
* All Rights Reserved
*
* Version
* 4.10.000 audited by Richard Gimarc, Performance
Metrics, 3/17/99
*
* PURPOSE: Header file for TPC-C Tuxedo
server.
*
* Change history:
* 4.20.000 - updated rev number to
match kit
*/

enum TUXERROR
{
    ERR_MISSING_REGISTRY_ENTRIES = 1,
    ERR_BAD_SYNTAX,
    ERR_UNKNOWN_DB_PROTOCOL
};

class CTUXAPP_ERR : public CBaseErr
{
public:
    TUXERROR m_Error;

    CTUXAPP_ERR(TUXERROR Err) {
        m_Error = Err; };
    ~CTUXAPP_ERR() {};

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

struct TUX_DATA
{

```

```

int
retval;
int
error;

union
{
    NEW_ORDER_DATA
NewOrder;
    PAYMENT_DATA
Payment;
    DELIVERY_DATA
Delivery;
    STOCK_LEVEL_DATA    StockLevel;
    ORDER_STATUS_DATA   OrderStatus;
} u;
};

static void GetParameters(int argc, char *argv[]);
static void WriteMessageToEventLog(LPTSTR lpszMsg);

#if defined(__cplusplus)
extern "C" {
#endif

void NEWORDER( TPSVCINFO *rqst );
void PAYMENT( TPSVCINFO *rqst );
void DELIVERY( TPSVCINFO *rqst );
void STOCKLEVEL( TPSVCINFO *rqst );
void ORDERSTATUS( TPSVCINFO *rqst );

#if defined(__cplusplus)
}
#endif
#endif

```

tuxmain.c

```

/*      FILE:          TUXMAIN.C
 *
 *      TPC-C Kit Ver. 4.20.000
 *
 *      Microsoft
 *      Copyright
 *      Microsoft, 1999
 *
 *      All Rights Reserved
 *
 *      Version
 *      4.10.000 audited by Richard Gimarc, Performance
 *      Metrics, 3/17/99
 *
 *      PURPOSE:  Implementation for TPC-C Tuxedo
 *      server.
 *
 *      Contact:  Charles Levine
 *      (clevine@microsoft.com)
 *
 *      Change history:
 *
 *      4.20.000 - updated rev number to
 *      match kit
 */

```

```

#include <stdio.h>
#include <xa.h>
#include <atmi.h>

#if defined(__cplusplus)
extern "C" {
#endif
extern int _tmrunserver _((int));
extern void DELIVERY _((TPSVCINFO *));
extern void NEWORDER _((TPSVCINFO *));
extern void ORDERSTATUS _((TPSVCINFO *));
extern void PAYMENT _((TPSVCINFO *));
extern void STOCKLEVEL _((TPSVCINFO *));
#if defined(__cplusplus)
}
#endif

static struct tmdsptchtbl_t tmdsptchtbl[] = {
    { "DELIVERY", "DELIVERY", (void (*)
_((TPSVCINFO *)) DELIVERY, 0, 0 },
    { "NEWORDER", "NEWORDER", (void (*)
_((TPSVCINFO *)) NEWORDER, 1, 0 },
    { "ORDERSTATUS", "ORDERSTATUS", (void (*)
_((TPSVCINFO *)) ORDERSTATUS, 2, 0 },
    { "PAYMENT", "PAYMENT", (void (*)
_((TPSVCINFO *)) PAYMENT, 3, 0 },
    { "STOCKLEVEL", "STOCKLEVEL", (void (*)
_((TPSVCINFO *)) STOCKLEVEL, 4, 0 },
    { NULL, NULL, NULL, 0, 0 }
};

#ifdef _TMDLLIMPORT
#define _TMDLLIMPORT
#endif

_TMDLLIMPORT extern struct xa_switch_t tmnull_switch;

struct tmsvargs_t tmsvargs = {
    NULL,
    &tmdsptchtbl[0],
    0,
    tpsvrinit,
    tpsvrdone,
    _tmrunserver, /* PRIVATE */
    NULL, /* RESERVED */
    NULL, /* RESERVED */
    NULL, /* RESERVED */
    NULL /* RESERVED */
};

struct tmsvargs_t *
#ifdef _TMPTOTYPES
_tmgetsvargs(void)
#else
_tmgetsvargs()
#endif
{
    tmsvargs.xa_switch = &tmnull_switch;
    return(&tmsvargs);
}

```

```

}

int
#ifdef _TMPTOTYPES
main(int argc, char **argv)
#else
main(argc,argv)
int argc;
char **argv;
#endif
{
#ifdef TMMAINEXIT
#include "mainexit.h"
#endif

    return( _tmstartserver( argc, argv,
_tmgetsvargs()));
}

```

txnlog.h

```

/*      FILE:          TXNLOG.H
 *
 *      TPC-C Kit Ver. 4.10.000
 *
 *      Microsoft
 *      not yet
 *      audited
 *
 *      PURPOSE:  Header file for txn log class
 *      Copyright
 *      Microsoft, 1999
 *
 *      All Rights Reserved
 *
 */

#pragma once

typedef struct _TXN_NEWORDER
{
    BYTE    OL_Count; /*range 0 to
31
    BYTE    OL_Remote_Count; /*range 0 to
31
    WORD    c_id;
    int     o_id;
} TXN_NEWORDER;

typedef struct _TXN_PAYMENT
{
    BYTE    CustByName;
    BYTE    IsRemote;
} TXN_PAYMENT;

typedef struct _TXN_ORDERSTATUS
{
    BYTE    CustByName;
} TXN_ORDERSTATUS;

typedef union _TXN_DETAILS
{

```

```

TXN_NEWORDER      NewOrder;
TXN_PAYMENT
Payment;
TXN_ORDERSTATUS  OrderStatus;
} TXN_DETAILS;

// Common header for all records in txn
log. The TxnType field is
// a switch which identifies the particular
variant.
#define TXN_REC_TYPE_CONTROL      1
//
#define TXN_REC_TYPE_TPCC         2
// replaces TRANSACTION_TYPE_TPCC
#define TXN_REC_TYPE_TPCC_DELIV_DEF 3

typedef struct _TXN_RECORD_HEADER
{
    JULIAN_TIME      TxnStartT0;
    // start of txn
    BYTE             TxnType;
    // one of TXN_REC_TYPE_*
    BYTE             TxnSubType;
    // depends on TxnType
} TXN_RECORD_HEADER, *PTXN_RECORD_HEADER;

typedef struct _TXN_RECORD_CONTROL
{
    // common header; must exactly
    match TXN_RECORD_HEADER
    JULIAN_TIME      TxnStartT0;
    // start of txn
    BYTE             TxnType;
    // = TXN_REC_TYPE_CONTROL
    BYTE             TxnSubType;
    // depends on TxnType
    // end of common header

    DWORD           Len;
    // number of bytes after this
    field
} TXN_RECORD_CONTROL, *PTXN_RECORD_CONTROL;

// TPC-C Txn Record Layout:
//
// 'TxnStartT0' is a Julian timestamp
corresponding to the moment the
// txn is sent to the SUT, i.e., beginning of
response time. Deltas
// are in milliseconds. Note that if RTDelay > 0,
then the txn was
// delayed by this amount. The delay occurs at
the beginning of the
// response time. So if RTDelay > 0, then the txn
was actually sent
// at TxnStartT0 + RTDelay.
//
// Graphically:
//

```

```

// time -->
//
// |--- Menu ---|--- Keying ---|--- Response ---
|--- Think ---|
// <- DeltaT1 -> <- DeltaT2 -> <- DeltaT4 ->
<- DeltaT3 ->
//
// ^ TxnStartT0
//
// RTDelay is the amount of response time delay
included in DeltaT4.
// RTDelay is recorded per txn because this value
can be changed on
// the fly, and so may vary from txn to txn.
//
// TxnStatus is the txn completion code. It is
used to indicate errors.
// For example, in the New Order txn, 1% of txns
abort. TxnStatus will
// reflect this.

typedef struct _TXN_RECORD_TPCC
{
    // common header; must exactly
    match TXN_RECORD_HEADER
    JULIAN_TIME      TxnStartT0;
    // start of txn
    BYTE             TxnType;
    // = TXN_REC_TYPE_TPCC
    BYTE             TxnSubType;
    // depends on TxnType
    // end of common header

    int              DeltaT1;
    // menu time (ms)
    int              DeltaT2;
    // keying time (ms)
    int              DeltaT3;
    // think time (ms)
    int              DeltaT4;
    // response time (ms)
    int              RTDelay;
    // response time delay (ms)
    int              TxnError;
    // error code providing more detail for
    TxnStatus
    int              w_id;
    // warehouse ID
    BYTE             d_id;
    // assigned district ID for this thread
    BYTE             d_id_ThisTxn;
    // district ID chosen for this particular
    BYTE             TxnStatus;
    // completion status for txn to indicate
    errors
    BYTE             reserved;
    // for word alignment
    TXN_DETAILS      TxnDetails;
    //
} TXN_RECORD_TPCC, *PTXN_RECORD_TPCC;

// TPC-C Deferred Delivery Txn Record
Layout:

```

```

//
// Incorporating delivery transaction information
into the above
// structure would increase the size of
TXN_DETAILS from 8 to 42 bytes.
// Hence, we store delivery transaction details in
a separate structure.
//
typedef struct _TXN_RECORD_TPCC_DELIV_DEF
{
    // common header; must exactly
    match TXN_RECORD_HEADER
    JULIAN_TIME      TxnStartT0;
    // start of txn
    BYTE             TxnType;
    // = TXN_REC_TYPE_TPCC_DELIV_DEF
    BYTE             TxnSubType;
    // = 0
    // end of common header

    int              DeltaT4;
    // response time (ms)
    int              DeltaTxnExec;
    // execution time (ms)
    int              w_id;
    // warehouse ID
    BYTE             TxnStatus;
    // completion status for txn to indicate
    errors
    BYTE             reserved;
    // for word alignment
    short            o_carrier_id;
    // carrier id
    long             o_id[10];
    // returned delivery transaction ids
} TXN_RECORD_TPCC_DELIV_DEF,
*PTXN_RECORD_TPCC_DELIV_DEF;

#define TXN_LOG_VERSION      2
#define TXN_DATA_START      4096
// offset in log file where log
records start
#define TXN_LOG_EYE_CATCHER "BC"
// signature bytes at the start of log file

//
//
//
//
// The transaction log has a header as the
first 4K block.
//
typedef struct _TXN_LOG_HEADER
{
    char
    EyeCatcher[2];
    // signature bytes;
    should always be "BC"
    int
    LogVersion;
    // set to
    TXN_LOG_VERSION
}

```

```

        JULIAN_TIME
        BeginTxnTS;          // timestamp
of first (lowest) txn start
        JULIAN_TIME
        EndTxnTS;          // timestamp of last
(highest) txn completion time
        int
records in log file        // number of
        iRecCount;
        BOOL
        bLogSorted;
        int
        iFileSize;        // file size
in bytes

        // the record map provides a fast
way to get close to a particular timestamp in a
sorted log file.
//
//      struct
//      {
//          JULIAN_TIME
//          TS;          // timestamp
of record
//          int
//          iPos;        // byte
position in file
//      }
// #define RecMap[RecMapSize];
// #define RecMapSize
//      200
//      } TXN_LOG_HEADER, *PTXN_LOG_HEADER;

/* Header of the sorted pointers blocks in
Temp file (in merging). */
typedef struct BLOCK_HEADER {
    long    BlockPos;
    __int64 CurPos;
    DWORD   BytesRead;
    int     nRecords;
    BYTE    *offset; /* offset of
pointers to records in the log file */
} BLOCK_HEADER, *PBLOCK_HEADER;

#define READ_BUFFER_SIZE        64*1024
#define WRITE_BUFFER_SIZE      8*1024

#define NUM_READ_BUFFERS        1
#define NUM_WRITE_BUFFERS      2
#define MAX_NUM_BUFFERS        2

// flags passed in to the constructor
#define TXN_LOG_WRITE            0x01
#define TXN_LOG_READ            0x02
#define TXN_LOG_SORTED          0x04
#define TXN_LOG_CRASHOPEN        0x08 //
if set, invalid headers will be tolerated; used for
recovery

#define TXN_LOG_OS_ERROR        1
#define TXN_LOG_NOT_SORTED      2

```

```

#define SKIP_CTRL_RECS        1

class CTxnLog
{
private:
    DWORD        iBufferSize;
//buffer allocated size
    DWORD        iBytesFreeInBuffer;
//total bytes
available for use in buffer
    int
    iNumBuffers;
//buffers in use
    int
    iActiveBuffer;
//indicates which buffer is active: 0 or 1
    int
    iIoBuffer;
//buffer for any pending IO operation
//
    int
    iFilePointer;
//position in file.
    LARGE_INTEGER iFilePointer;
//position in file.
    int
    iNextRec;
//when reading, ordinal value of next
record

    // A "save point" is remembered
each time GetNextRecord is called with a start time
specified.
    // The next time it is called, if
start time is after the save point, we start scanning
from the
    // save point. This is
particularly useful in FindBestInterval, where the
log is scanned repeatedly.
    JULIAN_TIME
    SavePtTime;
    int
    iSavePtFilePointer;
    LARGE_INTEGER
    lSavePtFilePointer;
    int
    iSavePtNextRec;

    JULIAN_TIME        lastTS;
//when
writing sorted output, used to verify records are
sorted
    BOOL                bWrite;
//writing log
file
    BOOL                bCrashOpen;
// tolerate
bad headers and consistency checks
    BOOL
    bLogSorted;
//
is log file sorted? applies to both input and output

```

```

        JULIAN_TIME
        BeginTxnTS;          //
timestamp of first (lowest) txn start
        JULIAN_TIME
        EndTxnTS;          // timestamp
of last (highest) txn completion time
        int
        iRecCount;          //
number of records in log file
        BYTE
        *pCurrent;
//ptr to
current buffer
        BYTE
        *pBuffer[MAX_NUM_BUFFERS];
        PTXN_RECORD_HEADER *TxnArray;
//transaction record pointer
array for sort
        DWORD                dwError;
        HANDLE                hTxnFile;
//handle to log file
        HANDLE                hMapFile;
//map file used when
sorting the log
        HANDLE                hIoComplete;
//event to signify that
there are no pending IOs
        HANDLE                hLogFileIo;
//event to
signal the IO thread to write the inactive buffer
        Spinlock    Spin;
//spin lock to protect
the txn log file buffers
        FILE
        *tmpFile;
//temp file for merging
sorted pieces
        PBLOCK_HEADER
        tmpHeaders;
//sorted
pointers block header
        BYTE
        **recPointers;
//record pointer
buffers for each sorted block
        PTXN_RECORD_HEADER *recBuffers;
//record buffers for each sorted block
        int
        *PointersRead;
//# of pointers processed in each block
        BOOL                *BlockAvailable;
//whether to check a particular
block for jmin
        int                nBlocks;
        int                jmin;

//index (block-wise) of the lowest
timestamp record
        int
        iAvgRecordLen;
//average record length

```

```

        int
        iSortedReturnedCount;
        //keeps track of the # of sorted records
        returned through GetSortedRecord()

        int Write(BYTE *ptr, DWORD Size);
        static void LogFileIO(CTxnLog *);

        void LoadBuffers(int j);
        //used in sort/merge to load
        record buffers

        public:
                CTxnLog::CTxnLog(LPCTSTR
                szFileName, DWORD dwOpts);
                ~CTxnLog(void);

                int WriteToLog(PTXN_RECORD_TPCC
                pTxnRcrd);
                int
                WriteToLog(PTXN_RECORD_TPCC_DELIV_DEF pTxnRcrd);
                int
                WriteToLog(PTXN_RECORD_CONTROL pCtrlRec);
                int WriteToLog(PTXN_RECORD_HEADER
                pCtrlRec);

                int WriteCtrlRecToLog(BYTE
                SubType, LPCTSTR lpStr, DWORD dwLen);

                void
                CloseTransactionLogFile(void);

                PTXN_RECORD_HEADER
                GetNextRecord(BOOL bSkipCtrlRecs = FALSE);
                PTXN_RECORD_HEADER
                GetNextRecord(JULIAN_TIME SeekTimeT0, BOOL
                bSkipCtrlRecs = FALSE);

                int Sort(void);
                PTXN_RECORD_HEADER
                GetSortedRecord();

                inline BOOL IsSorted(void) {
                return bLogSorted; };
                inline JULIAN_TIME BeginTS(void)
                { return BeginTxnTS; };
                inline JULIAN_TIME EndTS(void) {
                return EndTxnTS; };
                inline int RecordCount(void) {
                return iRecCount; };
                };

class CTXNLOG_ERR : public CBaseErr
{
        public:
                enum CTXNLOG_ERRS
                {
                        ERR_BAD_FILE_FORMAT,
                        // "File format is invalid."

```

```

                ERR_UNKNOWN_LOG_VERSION, // "Log file
                version is unknown."
                ERR_BROKEN_LOG_FILE,
                // "Log file is broken."
                ERR_LOG_NOT_SORTED,
                // "Log file is not sorted"
                ERR_INVALID_TIME_SEQ,
                // "Internal Error: Record Time
                Sequence invalid."
                };

                CTXNLOG_ERR(int iErr) :
                CBaseErr(iErr) {};

                int ErrorType() {return
                ERR_TYPE_TXNLOG;};

                char *ErrorText()
                {
                        static char *szMsgs[] =
                {
                        "File format
                is invalid.",
                        "Log file
                version is unknown.",
                        "Log file is
                broken.",
                        "Log file is
                not sorted",
                        "Internal
                Error: Record Time Sequence invalid.",
                        ""
                };

                        for(int i = 0;
                szMsgs[i][0]; i++)
                {
                        if ( m_idMsg
                == i )
                                break;
                }

                        return(szMsgs[i][0] ?
                szMsgs[i] : ERR_UNKNOWN);
                };

```

txn_base.h

```

/*      FILE:      TXN_BASE.H
 *      Microsoft
 *      TPC-C Kit Ver. 4.20.000
 *      Copyright
 *      Microsoft, 1999
 *      All Rights Reserved
 *

```

```

 *      Version
 *      4.10.000 audited by Richard Gimarc, Performance
 *      Metrics, 3/17/99
 *
 *      PURPOSE:  Header file for TPC-C txn class
 *      implementation.
 *
 *      Change history:
 *
 *      4.20.000 - updated rev number to
 *      match kit
 *      */

#pragma once

// need to declare functions for import, unless
// define has already been created
// by the DLL's .cpp module for export.
#ifdef DllDecl
#define DllDecl __declspec( dllimport )
#endif

class DllDecl CTPCC_BASE
{
        public:
                CTPCC_BASE(void) {};
                virtual ~CTPCC_BASE(void) {};

                virtual PNEW_ORDER_DATA
                BuffAddr_NewOrder() = 0;
                virtual PPAYMENT_DATA
                BuffAddr_Payment() = 0;
                virtual PDELIVERY_DATA
                BuffAddr_Delivery() = 0;
                virtual PSTOCK_LEVEL_DATA
                BuffAddr_StockLevel() = 0;
                virtual PORDER_STATUS_DATA
                BuffAddr_OrderStatus() = 0;

                virtual void NewOrder
                () = 0;
                virtual void Payment
                () = 0;
                virtual void Delivery
                () = 0;
                virtual void StockLevel
                () = 0;
                virtual void OrderStatus
                () = 0;
};

```

WEBCLNT.DSP

```

# Microsoft Developer Studio Project File -
Name="webclnt" - Package Owner=<4>
# Microsoft Developer Studio Generated Build File,
Format Version 5.00
# ** DO NOT EDIT **

# TARGETTYPE "Win32 (x86) Application" 0x0101

```



```

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

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

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir ".\Release"
# PROP BASE Intermediate_Dir ".\Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir ".\Release"
# PROP Intermediate_Dir ".\Release"
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /GX /O2 /D "WIN32" /D
"NDEBUG" /D "_WINDOWS" /YX /c
# ADD CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG"
/D "_WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D "NDEBUG" /win32
# ADD MTL /nologo /D "NDEBUG" /mktypelib203 /win32
# ADD BASE RSC /l 0x409 /d "NDEBUG"
# ADD RSC /l 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbc32.lib /nologo /subsystem:windows /machine:I386
# ADD LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbc32.lib /nologo /subsystem:windows /machine:I386

```

```

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir ".\Debug"
# PROP BASE Intermediate_Dir ".\Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir ".\Debug"
# PROP Intermediate_Dir ".\Debug"
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32"
/D "_DEBUG" /D "_WINDOWS" /YX /c
# ADD CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32" /D
"_DEBUG" /D "_WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D "_DEBUG" /win32
# ADD MTL /nologo /D "_DEBUG" /mktypelib203 /win32
# ADD BASE RSC /l 0x409 /d "_DEBUG"
# ADD RSC /l 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbc32.lib /nologo /subsystem:windows /debug
/machine:I386
# ADD LINK32 kernel32.lib user32.lib gdi32.lib
winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbc32.lib /nologo /subsystem:windows /debug
/machine:I386

!ENDIF

# Begin Target

# Name "webclnt - Win32 Release"
# Name "webclnt - Win32 Debug"
# End Target
# End Project

```

Webclnt.dsw

```

Microsoft Developer Studio Workspace File, Format
Version 6.00
# WARNING: DO NOT EDIT OR DELETE THIS WORKSPACE FILE!

#####

Project:
"db_dblib_dll"=. \db_dblib_dll\db_dblib_dll.dsp -
Package Owner=<4>

Package=<5>
{{{
}}}
```

```

Package=<4>
{{{
}}}

#####

Project: "db_odbc_dll"=. \db_odbc_dll\db_odbc_dll.dsp
- Package Owner=<4>

Package=<5>
{{{
}}}

Package=<4>
{{{
}}}

#####

Project: "install"=. \install\install.dsp - Package
Owner=<4>

Package=<5>
{{{
}}}

Package=<4>
{{{
    Begin Project Dependency
    Project_Dep_Name isapi_dll
    End Project Dependency
    Begin Project Dependency
    Project_Dep_Name tuxapp
    End Project Dependency
    Begin Project Dependency
    Project_Dep_Name db_dblib_dll
    End Project Dependency
    Begin Project Dependency
    Project_Dep_Name db_odbc_dll
    End Project Dependency
    Begin Project Dependency
    Project_Dep_Name tm_com_dll
    End Project Dependency
    Begin Project Dependency
    Project_Dep_Name tm_tuxedo_dll
    End Project Dependency
    Begin Project Dependency
    Project_Dep_Name tpcc_com_all
    End Project Dependency
    Begin Project Dependency
    Project_Dep_Name tpcc_com_ps
    End Project Dependency
}}}

#####

Project: "isapi_dll"=. \isapi_dll\isapi_dll.dsp -
Package Owner=<4>

```

```

Package=<5>
{{{
}}}

Package=<4>
{{{
  Begin Project Dependency
  Project_Dep_Name db_dblib_dll
  End Project Dependency
  Begin Project Dependency
  Project_Dep_Name db_odbc_dll
  End Project Dependency
  Begin Project Dependency
  Project_Dep_Name tm_tuxedo_dll
  End Project Dependency
  Begin Project Dependency
  Project_Dep_Name tm_com_dll
  End Project Dependency
  Begin Project Dependency
  Project_Dep_Name tm_encina_dll
  End Project Dependency
}}}

#####
#####

Project: "tm_com_dll"=. \tm_com_dll\tm_com_dll.dsp -
Package Owner=<4>

Package=<5>
{{{
}}}

Package=<4>
{{{
  Begin Project Dependency
  Project_Dep_Name tpcc_com_ps
  End Project Dependency
  Begin Project Dependency
  Project_Dep_Name tpcc_com_all
  End Project Dependency
}}}

#####
#####

Project:
"tm_encina_dll"=. \tm_encina_dll\tm_encina_dll.dsp -
Package Owner=<4>

Package=<5>
{{{
}}}

Package=<4>
{{{
}}}

#####
#####

```

```

Project:
"tm_tuxedo_dll"=. \tm_tuxedo_dll\tm_tuxedo_dll.dsp -
Package Owner=<4>

Package=<5>
{{{
}}}

Package=<4>
{{{
}}}

#####
#####

Project:
"tpcc_com_all"=. \tpcc_com_all\tpcc_com_all.dsp -
Package Owner=<4>

Package=<5>
{{{
}}}

Package=<4>
{{{
  Begin Project Dependency
  Project_Dep_Name tpcc_com_ps
  End Project Dependency
}}}

#####
#####

Project: "tpcc_com_ps"=. \tpcc_com_ps\tpcc_com_ps.dsp
- Package Owner=<4>

Package=<5>
{{{
}}}

Package=<4>
{{{
}}}

#####
#####

Project: "tuxapp"=. \tuxapp\tuxapp.dsp - Package
Owner=<4>

Package=<5>
{{{
}}}

Package=<4>
{{{
  Begin Project Dependency
  Project_Dep_Name db_dblib_dll
  End Project Dependency
  Begin Project Dependency
  Project_Dep_Name db_odbc_dll
  End Project Dependency
}}}

```

```

#####
#####

Global:

Package=<5>
{{{
}}}

Package=<3>
{{{
}}}

#####
#####

```

delivery.h

```

/* Generated by IDL compiler version DEC DCE V2.0.0-6
*/
#ifndef _delivery_v1_0_included
#define _delivery_v1_0_included
#ifndef IDLBASE_H
#include <dce\idlbase.h>
#endif
#include <dce\rpc.h>
#include "trpc/trpc.h"

#ifdef __cplusplus
extern "C" {
#endif

#ifndef nbase_v0_0_included
#include "dce\nbase.h"
#endif
#ifndef trpcImports_v0_0_included
#include "trpc/trpcImports.h"
#endif
#ifndef mon_handle_v1_0_included
#include "tpm/mon\mon_handle.h"
#endif
#ifndef tpcc_types_v1_0_included
#include "tpcc_type.h"
#endif
#include <dce\rpcexc.h>
extern EXCEPTION encina_x_transaction_aborted;
extern EXCEPTION encina_x_server_shutdown;
extern EXCEPTION encina_x_permission_denied;
extern EXCEPTION encina_x_object_not_found;
extern EXCEPTION encina_x_empty_slot1;
extern EXCEPTION encina_x_empty_slot2;
extern EXCEPTION encina_x_empty_slot3;
extern EXCEPTION encina_x_empty_slot4;
extern EXCEPTION encina_x_empty_slot5;
extern EXCEPTION encina_x_undefined_exception;
extern void IDL_STD_STDCALL _delivery_GetApplId(
#ifdef IDL_PROTOTYPES
/* [in] */ handle_t handle,

```

```

/* [out] */ trpc_byteData_t applString,
/* [out] */ idl_ulong_int *applStringLength,
/* [out] */ trpc_byteData_t address,
/* [out] */ idl_ulong_int *addressLength,
/* [out] */ error_status_t *c_status,
/* [out] */ error_status_t *f_status
#endif
);
extern void IDL_STD_STDCALL _impTPCCDelivery(
#ifdef IDL_PROTOTYPES
/* [in] */ handle_t trpc_h,
/* [in] */ idl_long_int length,
/* [in, out] */ idl_char *dataP,
/* [in, out] */ data_header *headerP,
/* [in] */ trpc_byteData_t applAndAddress,
/* [in] */ idl_ulong_int applAndAddressLength,
/* [in] */ trpc_callbackData_t inCallbackData,
/* [in] */ idl_ulong_int numOfInCallbackData
#endif
);
globalref mon_handle_t handle;
#if defined(__VMS) && (defined(__DECC) ||
defined(__cplusplus))
#pragma extern_model __save
#pragma extern_model __common_block __shr
#endif
typedef struct _delivery_v1_0_epv_t {
void ( IDL_STD_STDCALL *_delivery_GetAppId)(
#ifdef IDL_PROTOTYPES
/* [in] */ handle_t handle,
/* [out] */ trpc_byteData_t applString,
/* [out] */ idl_ulong_int *applStringLength,
/* [out] */ trpc_byteData_t address,
/* [out] */ idl_ulong_int *addressLength,
/* [out] */ error_status_t *c_status,
/* [out] */ error_status_t *f_status
#endif
);
void ( IDL_STD_STDCALL *_impTPCCDelivery)(
#ifdef IDL_PROTOTYPES
/* [in] */ handle_t trpc_h,
/* [in] */ idl_long_int length,
/* [in, out] */ idl_char *dataP,
/* [in, out] */ data_header *headerP,
/* [in] */ trpc_byteData_t applAndAddress,
/* [in] */ idl_ulong_int applAndAddressLength,
/* [in] */ trpc_callbackData_t inCallbackData,
/* [in] */ idl_ulong_int numOfInCallbackData
#endif
);
} _delivery_v1_0_epv_t;
extern rpc_if_handle_t _delivery_v1_0_c_ifspec;
extern rpc_if_handle_t _delivery_v1_0_s_ifspec;
#if defined(__VMS) && (defined(__DECC) ||
defined(__cplusplus))
#pragma extern_model __restore
#endif

#ifdef __cplusplus
}
#else
#endif

```

```

#endif



---



## neworder.h



---


/* Generated by IDL compiler version DEC DCE V2.0.0-6
*/
#ifdef _neworder_v1_0_included
#define _neworder_v1_0_included
#endif
#include <dce\idlbase.h>
#endif
#include <dce\rpc.h>
#include "trpc/trpc.h"

#ifdef __cplusplus
extern "C" {
#endif

#ifdef nbase_v0_0_included
#include "dce\nbase.h"
#endif
#ifdef trpcImports_v0_0_included
#include "trpc\trpcImports.h"
#endif
#ifdef mon_handle_v1_0_included
#include "tpm\mon\mon_handle.h"
#endif
#ifdef tpcc_types_v1_0_included
#include "tpcc_type.h"
#endif
#include <dce\rpcexc.h>
extern EXCEPTION encina_x_transaction_aborted;
extern EXCEPTION encina_x_server_shutdown;
extern EXCEPTION encina_x_permission_denied;
extern EXCEPTION encina_x_object_not_found;
extern EXCEPTION encina_x_empty_slot1;
extern EXCEPTION encina_x_empty_slot2;
extern EXCEPTION encina_x_empty_slot3;
extern EXCEPTION encina_x_empty_slot4;
extern EXCEPTION encina_x_empty_slot5;
extern EXCEPTION encina_x_undefined_exception;
extern void IDL_STD_STDCALL _neworder_GetAppId(
#ifdef IDL_PROTOTYPES
/* [in] */ handle_t handle,
/* [out] */ trpc_byteData_t applString,
/* [out] */ idl_ulong_int *applStringLength,
/* [out] */ trpc_byteData_t address,
/* [out] */ idl_ulong_int *addressLength,
/* [out] */ error_status_t *c_status,
/* [out] */ error_status_t *f_status
#endif
);
extern void IDL_STD_STDCALL _impTPCCNewOrder(
#ifdef IDL_PROTOTYPES
/* [in] */ handle_t trpc_h,
/* [in] */ idl_long_int length,
/* [in, out] */ idl_char *dataP,
/* [in, out] */ data_header *headerP,
/* [in] */ trpc_byteData_t applAndAddress,
/* [in] */ idl_ulong_int applAndAddressLength,
/* [in] */ trpc_callbackData_t inCallbackData,
/* [in] */ idl_ulong_int numOfInCallbackData
#endif
);

```

```

/* [in] */ trpc_callbackData_t inCallbackData,
/* [in] */ idl_ulong_int numOfInCallbackData
#endif
);
extern void IDL_STD_STDCALL _impTPCCNOInfo(
#ifdef IDL_PROTOTYPES
/* [in] */ handle_t trpc_h,
/* [out] */ dbInfo_data_t *dataP,
/* [in] */ trpc_byteData_t applAndAddress,
/* [in] */ idl_ulong_int applAndAddressLength,
/* [in] */ trpc_callbackData_t inCallbackData,
/* [in] */ idl_ulong_int numOfInCallbackData
#endif
);
globalref mon_handle_t handle;
#if defined(__VMS) && (defined(__DECC) ||
defined(__cplusplus))
#pragma extern_model __save
#pragma extern_model __common_block __shr
#endif
typedef struct _neworder_v1_0_epv_t {
void ( IDL_STD_STDCALL *_neworder_GetAppId)(
#ifdef IDL_PROTOTYPES
/* [in] */ handle_t handle,
/* [out] */ trpc_byteData_t applString,
/* [out] */ idl_ulong_int *applStringLength,
/* [out] */ trpc_byteData_t address,
/* [out] */ idl_ulong_int *addressLength,
/* [out] */ error_status_t *c_status,
/* [out] */ error_status_t *f_status
#endif
);
void ( IDL_STD_STDCALL *_impTPCCNewOrder)(
#ifdef IDL_PROTOTYPES
/* [in] */ handle_t trpc_h,
/* [in] */ idl_long_int length,
/* [in, out] */ idl_char *dataP,
/* [in, out] */ data_header *headerP,
/* [in] */ trpc_byteData_t applAndAddress,
/* [in] */ idl_ulong_int applAndAddressLength,
/* [in] */ trpc_callbackData_t inCallbackData,
/* [in] */ idl_ulong_int numOfInCallbackData
#endif
);
void ( IDL_STD_STDCALL *_impTPCCNOInfo)(
#ifdef IDL_PROTOTYPES
/* [in] */ handle_t trpc_h,
/* [out] */ dbInfo_data_t *dataP,
/* [in] */ trpc_byteData_t applAndAddress,
/* [in] */ idl_ulong_int applAndAddressLength,
/* [in] */ trpc_callbackData_t inCallbackData,
/* [in] */ idl_ulong_int numOfInCallbackData
#endif
);
extern rpc_if_handle_t _neworder_v1_0_c_ifspec;
extern rpc_if_handle_t _neworder_v1_0_s_ifspec;
#if defined(__VMS) && (defined(__DECC) ||
defined(__cplusplus))
#pragma extern_model __restore
#endif

#ifdef __cplusplus

```

```

}
#else
#endif
#endif

```

orderstatus.h

```

/* Generated by IDL compiler version DEC DCE V2.0.0-6
*/
#ifndef _orderstatus_v1_0_included
#define _orderstatus_v1_0_included
#ifndef IDLBASE_H
#include <dce\idlbase.h>
#endif
#include <dce\rpc.h>
#include "trpc/trpc.h"

#ifdef __cplusplus
extern "C" {
#endif

#ifndef nbase_v0_0_included
#include "dce\nbase.h"
#endif
#ifndef trpcImports_v0_0_included
#include "trpc\trpcImports.h"
#endif
#ifndef mon_handle_v1_0_included
#include "tpm\mon\mon_handle.h"
#endif
#ifndef tpcc_types_v1_0_included
#include "tpcc_type.h"
#endif
#include <dce\rpcexc.h>
extern EXCEPTION encina_x_transaction_aborted;
extern EXCEPTION encina_x_server_shutdown;
extern EXCEPTION encina_x_permission_denied;
extern EXCEPTION encina_x_object_not_found;
extern EXCEPTION encina_x_empty_slot1;
extern EXCEPTION encina_x_empty_slot2;
extern EXCEPTION encina_x_empty_slot3;
extern EXCEPTION encina_x_empty_slot4;
extern EXCEPTION encina_x_empty_slot5;
extern EXCEPTION encina_x_undefined_exception;
extern void IDL_STD_STDCALL _orderstatus_GetAppId(
#ifdef IDL_PROTOTYPES
/* [in] */ handle_t handle,
/* [out] */ trpc_byteData_t applString,
/* [out] */ idl_ulong_int *applStringLength,
/* [out] */ trpc_byteData_t address,
/* [out] */ idl_ulong_int *addressLength,
/* [out] */ error_status_t *c_status,
/* [out] */ error_status_t *f_status
#endif
);
extern void IDL_STD_STDCALL _impTPCCOrderStatus(
#ifdef IDL_PROTOTYPES
/* [in] */ handle_t trpc_h,
/* [in] */ idl_long_int length,

```

```

/* [in, out] */ idl_char *dataP,
/* [in, out] */ data_header *headerP,
/* [in] */ trpc_byteData_t applAndAddress,
/* [in] */ idl_ulong_int applAndAddressLength,
/* [in] */ trpc_callbackData_t inCallbackData,
/* [in] */ idl_ulong_int numOfInCallbackData
#endif
);
globalref mon_handle_t handle;
#if defined(__VMS) && (defined(__DECC) ||
defined(__cplusplus))
#pragma extern_model __save
#pragma extern_model __common_block __shr
#endif
typedef struct _orderstatus_v1_0_epv_t {
void ( IDL_STD_STDCALL *_orderstatus_GetAppId)(
#ifdef IDL_PROTOTYPES
/* [in] */ handle_t handle,
/* [out] */ trpc_byteData_t applString,
/* [out] */ idl_ulong_int *applStringLength,
/* [out] */ trpc_byteData_t address,
/* [out] */ idl_ulong_int *addressLength,
/* [out] */ error_status_t *c_status,
/* [out] */ error_status_t *f_status
#endif
);
void ( IDL_STD_STDCALL *_impTPCCOrderStatus)(
#ifdef IDL_PROTOTYPES
/* [in] */ handle_t trpc_h,
/* [in] */ idl_long_int length,
/* [in, out] */ idl_char *dataP,
/* [in, out] */ data_header *headerP,
/* [in] */ trpc_byteData_t applAndAddress,
/* [in] */ idl_ulong_int applAndAddressLength,
/* [in] */ trpc_callbackData_t inCallbackData,
/* [in] */ idl_ulong_int numOfInCallbackData
#endif
);
} _orderstatus_v1_0_epv_t;
extern rpc_if_handle_t _orderstatus_v1_0_c_ifspec;
extern rpc_if_handle_t _orderstatus_v1_0_s_ifspec;
#if defined(__VMS) && (defined(__DECC) ||
defined(__cplusplus))
#pragma extern_model __restore
#endif

#ifdef __cplusplus
}
#endif
#else
#endif
#endif

```

payment.h

```

/* Generated by IDL compiler version DEC DCE V2.0.0-6
*/
#ifndef _payment_v1_0_included
#define _payment_v1_0_included
#ifndef IDLBASE_H

```

```

#include <dce\idlbase.h>
#endif
#include <dce\rpc.h>
#include "trpc/trpc.h"

#ifdef __cplusplus
extern "C" {
#endif

#ifndef nbase_v0_0_included
#include "dce\nbase.h"
#endif
#ifndef trpcImports_v0_0_included
#include "trpc\trpcImports.h"
#endif
#ifndef mon_handle_v1_0_included
#include "tpm\mon\mon_handle.h"
#endif
#ifndef tpcc_types_v1_0_included
#include "tpcc_type.h"
#endif
#include <dce\rpcexc.h>
extern EXCEPTION encina_x_transaction_aborted;
extern EXCEPTION encina_x_server_shutdown;
extern EXCEPTION encina_x_permission_denied;
extern EXCEPTION encina_x_object_not_found;
extern EXCEPTION encina_x_empty_slot1;
extern EXCEPTION encina_x_empty_slot2;
extern EXCEPTION encina_x_empty_slot3;
extern EXCEPTION encina_x_empty_slot4;
extern EXCEPTION encina_x_empty_slot5;
extern EXCEPTION encina_x_undefined_exception;
extern void IDL_STD_STDCALL _payment_GetAppId(
#ifdef IDL_PROTOTYPES
/* [in] */ handle_t handle,
/* [out] */ trpc_byteData_t applString,
/* [out] */ idl_ulong_int *applStringLength,
/* [out] */ trpc_byteData_t address,
/* [out] */ idl_ulong_int *addressLength,
/* [out] */ error_status_t *c_status,
/* [out] */ error_status_t *f_status
#endif
);
extern void IDL_STD_STDCALL _impTPCCPayment(
#ifdef IDL_PROTOTYPES
/* [in] */ handle_t trpc_h,
/* [in] */ idl_long_int length,
/* [in, out] */ idl_char *dataP,
/* [in, out] */ data_header *headerP,
/* [in] */ trpc_byteData_t applAndAddress,
/* [in] */ idl_ulong_int applAndAddressLength,
/* [in] */ trpc_callbackData_t inCallbackData,
/* [in] */ idl_ulong_int numOfInCallbackData
#endif
);
globalref mon_handle_t handle;
#if defined(__VMS) && (defined(__DECC) ||
defined(__cplusplus))
#pragma extern_model __save
#pragma extern_model __common_block __shr
#endif
typedef struct _payment_v1_0_epv_t {
void ( IDL_STD_STDCALL *_payment_GetAppId)(

```

```

#ifdef IDL_PROTOTYPES
    /* [in] */ handle_t handle,
    /* [out] */ trpc_byteData_t applString,
    /* [out] */ idl_ulong_int *applStringLength,
    /* [out] */ trpc_byteData_t address,
    /* [out] */ idl_ulong_int *addressLength,
    /* [out] */ error_status_t *c_status,
    /* [out] */ error_status_t *f_status
#endif
);
void ( IDL_STD_STDCALL *_impTPCCPayment)(
#ifdef IDL_PROTOTYPES
    /* [in] */ handle_t trpc_h,
    /* [in] */ idl_long_int length,
    /* [in, out] */ idl_char *dataP,
    /* [in, out] */ data_header *headerP,
    /* [in] */ trpc_byteData_t applAndAddress,
    /* [in] */ idl_ulong_int applAndAddressLength,
    /* [in] */ trpc_callbackData_t inCallbackData,
    /* [in] */ idl_ulong_int numOfInCallbackData
#endif
);
) _payment_v1_0_epv_t;
extern rpc_if_handle_t _payment_v1_0_c_ifspec;
extern rpc_if_handle_t _payment_v1_0_s_ifspec;
#if defined(__VMS) && (defined(__DECC) ||
defined(__cplusplus))
#pragma extern_model __restore
#endif

#ifdef __cplusplus
}
#else
#endif
#endif


```

stocklevel.h

```

/* Generated by IDL compiler version DEC DCE V2.0.0-6
*/
#ifdef _stocklevel_v1_0_included
#define _stocklevel_v1_0_included
#endif
#include IDLBASE_H
#include <dce\idlbase.h>
#endif
#include <dce\rpc.h>
#include "trpc/trpc.h"

#ifdef __cplusplus
extern "C" {
#endif

#ifdef nbase_v0_0_included
#include "dce\nbase.h"
#endif
#include trpcImports_v0_0_included
#include "trpc\trpcImports.h"
#endif
#include mon_handle_v1_0_included

```

```

#include "tpm/mon\mon_handle.h"
#endif
#ifdef tpcc_types_v1_0_included
#include "tpcc_type.h"
#endif
#include <dce\rpcexc.h>
extern EXCEPTION encina_x_transaction_aborted;
extern EXCEPTION encina_x_server_shutdown;
extern EXCEPTION encina_x_permission_denied;
extern EXCEPTION encina_x_object_not_found;
extern EXCEPTION encina_x_empty_slot1;
extern EXCEPTION encina_x_empty_slot2;
extern EXCEPTION encina_x_empty_slot3;
extern EXCEPTION encina_x_empty_slot4;
extern EXCEPTION encina_x_empty_slot5;
extern EXCEPTION encina_x_undefined_exception;
extern void IDL_STD_STDCALL _stocklevel_GetApplId(
#ifdef IDL_PROTOTYPES
    /* [in] */ handle_t handle,
    /* [out] */ trpc_byteData_t applString,
    /* [out] */ idl_ulong_int *applStringLength,
    /* [out] */ trpc_byteData_t address,
    /* [out] */ idl_ulong_int *addressLength,
    /* [out] */ error_status_t *c_status,
    /* [out] */ error_status_t *f_status
#endif
);
extern void IDL_STD_STDCALL _impTPCCStockLevel(
#ifdef IDL_PROTOTYPES
    /* [in] */ handle_t trpc_h,
    /* [in] */ idl_long_int length,
    /* [in, out] */ idl_char *dataP,
    /* [in, out] */ data_header *headerP,
    /* [in] */ trpc_byteData_t applAndAddress,
    /* [in] */ idl_ulong_int applAndAddressLength,
    /* [in] */ trpc_callbackData_t inCallbackData,
    /* [in] */ idl_ulong_int numOfInCallbackData
#endif
);
globalref mon_handle_t handle;
#if defined(__VMS) && (defined(__DECC) ||
defined(__cplusplus))
#pragma extern_model __save
#pragma extern_model __common_block __shr
#endif
typedef struct _stocklevel_v1_0_epv_t {
void ( IDL_STD_STDCALL *_stocklevel_GetApplId)(
#ifdef IDL_PROTOTYPES
    /* [in] */ handle_t handle,
    /* [out] */ trpc_byteData_t applString,
    /* [out] */ idl_ulong_int *applStringLength,
    /* [out] */ trpc_byteData_t address,
    /* [out] */ idl_ulong_int *addressLength,
    /* [out] */ error_status_t *c_status,
    /* [out] */ error_status_t *f_status
#endif
);
);
void ( IDL_STD_STDCALL *_impTPCCStockLevel)(
#ifdef IDL_PROTOTYPES
    /* [in] */ handle_t trpc_h,
    /* [in] */ idl_long_int length,
    /* [in, out] */ idl_char *dataP,
    /* [in, out] */ data_header *headerP,

```

```

    /* [in] */ trpc_byteData_t applAndAddress,
    /* [in] */ idl_ulong_int applAndAddressLength,
    /* [in] */ trpc_callbackData_t inCallbackData,
    /* [in] */ idl_ulong_int numOfInCallbackData
#endif
);
) _stocklevel_v1_0_epv_t;
extern rpc_if_handle_t _stocklevel_v1_0_c_ifspec;
extern rpc_if_handle_t _stocklevel_v1_0_s_ifspec;
#if defined(__VMS) && (defined(__DECC) ||
defined(__cplusplus))
#pragma extern_model __restore
#endif

#ifdef __cplusplus
}
#else
#endif
#endif

```

Appendix B: Database Design

The TPC-C database was created with the following Transact-SQL scripts:

backup.sql

```
-- File:      BACKUP.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.41
--           Copyright Microsoft, 2001
-- Purpose:   Creates backup of tpcc database
```

```
declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:",
convert (varchar(30),@startdate,9)
```

```
dump database tpcc to tpccback1b, tpccback2b,
tpccback3b, tpccback4b, tpccback5b, tpccback6b,
tpccback7b with init, stats = 1
```

```
select @enddate = getdate()
select "End date: ", convert (varchar(30),@enddate,9)
select "Elapsed time (in seconds): ",
datediff(second, @startdate, @enddate)
```

```
go
```

backupdev.sql

```
-- File:      BACKUPDEVB.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.41
--           Copyright Microsoft, 2001
-- Purpose:   Creates tpcc database Backup Devices
```

```
use master
go
```

```
-- create backup devices
```

```
exec sp_addumpdevice
'disk','tpccback1b','M:\tpccback1b.dmp'
go
```

```
exec sp_addumpdevice
'disk','tpccback2b','N:\tpccback2b.dmp'
go
exec sp_addumpdevice
'disk','tpccback3b','O:\tpccback3b.dmp'
go
exec sp_addumpdevice
'disk','tpccback4b','P:\tpccback4b.dmp'
go
exec sp_addumpdevice
'disk','tpccback5b','Q:\tpccback5b.dmp'
go
exec sp_addumpdevice
'disk','tpccback6b','R:\tpccback6b.dmp'
go
exec sp_addumpdevice
'disk','tpccback7b','S:\tpccback7b.dmp'
go
```

config.sql

```
-- File:      CONFIG.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.00
--           Copyright Microsoft, 1996
-- Purpose:   Collects SQL Server configuration
parameters
```

```
print " "
select convert (char(30), getdate(),9)
print " "
go
```

```
sp_configure "show advanced",1
go
reconfigure with override
```

```
go
exec sp_configure "affinity mask",          15
exec sp_configure "cost threshold for parallelism",
5
exec sp_configure "index create memory",    704
exec sp_configure "lightweight pooling",   1
exec sp_configure "awe enabled",          1
exec sp_configure "locks",                 0
exec sp_configure "max degree of parallelism", 1
exec sp_configure "max server memory",    15600
exec sp_configure "max worker threads",   400
exec sp_configure "min memory per query",  512
exec sp_configure "min server memory",    0
exec sp_configure "nested triggers",      1
exec sp_configure "network packet size",  2048
exec sp_configure "open objects",         0
exec sp_configure "priority boost",       1
exec sp_configure "recovery interval",    116
exec sp_configure "set working set size",  0
exec sp_configure "user connections",     0
```

```
go
```

```
reconfigure with override
go
sp_configure
go
```

createdb.sql

```
-- File:      CREATEDB.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.41
--           Copyright Microsoft, 2001
-- Purpose:   Creates tpcc database and backup files
```

```
use master
go
```

```
-- Create temporary table for timing
```

```
if exists ( select name from sysobjects where name =
'tpcc_timer' )
drop table tpcc_timer
```

```
go
create table tpcc_timer
(
start_date
char(30),
end_date
char(30)
)
```

```
insert into tpcc_timer values (0,0)
go
```

```
-- Store starting time
```

```
update tpcc_timer
set start_date = (select
convert(char(30), getdate(),9))
go
```

```
-- create main database files
```

```
CREATE DATABASE tpcc
ON PRIMARY
(
NAME = MSSQL_tpcc_root,
FILENAME = "C:\MSSQL_tpcc_root.mdf",
SIZE = 8MB,
FILEGROWTH = 0),
FILEGROUP MSSQL_cs_fg
(
NAME = MSSQL_cs1,
FILENAME = "F:",
SIZE = 59617MB,
FILEGROWTH = 0),
(
NAME = MSSQL_cs2,
FILENAME = "G:",
SIZE = 59617MB,
FILEGROWTH = 0),
```

```

(
    NAME = MSSQL_cs3,
    FILENAME = "H:",
    SIZE = 59617MB,
    FILEGROWTH = 0),
(
    NAME = MSSQL_cs4,
    FILENAME = "I:",
    SIZE = 59617MB,
    FILEGROWTH = 0),
(
    NAME = MSSQL_cs5,
    FILENAME = "J:",
    SIZE = 59617MB,
    FILEGROWTH = 0),
(
    NAME = MSSQL_cs6,
    FILENAME = "K:",
    SIZE = 59617MB,
    FILEGROWTH = 0),
FILEGROUP MSSQL_misc_fg
(
    NAME = MSSQL_misc1,
    FILENAME = "L:",
    SIZE = 173050MB,
    FILEGROWTH = 0)
LOG ON
(
    NAME = MSSQL_tpcc_log,
    FILENAME = "E:",
    SIZE = 185950MB,
    FILEGROWTH = 0)
-- COLLATE Latin1_General_BIN
-- COLLATE SQL_Latin1_General_CP437_BIN

go

-- Store ending time
update tpcc_timer
set end_date = (select convert(char(30),
getdate(),9))
go

select "Elapsed time (in seconds): ",
datediff(second,(select start_date from
tpcc_timer),(select end_date from tpcc_timer))

-- remove temporary table

if exists ( select name from sysobjects where name =
'tpcc_timer' )
drop table tpcc_timer

go

```

dbopt1.sql

```

-- File: DBOPT1.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.41
-- Copyright Microsoft, 2001
-- Purpose: Sets database options for data load

use master
go

```

```

exec sp_dboption tpcc,'select into/bulkcopy',true
exec sp_dboption tpcc,'trunc. log on chkpt.',true
exec sp_dboption tpcc,'torn page detection',false
go

```

```

use tpcc
go

checkpoint
go

```

dbopt2.sql

```

-- File: DBOPT2.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.41
-- Copyright Microsoft, 2001
-- Purpose: Resets database options after data load

```

```

exec sp_dboption tpcc,'select into/bulkcopy',false
exec sp_dboption tpcc,'trunc. log on chkpt.',false
exec sp_dboption tpcc,'torn page detection',false
GO

```

```

USE tpcc
GO

```

```

CHECKPOINT
GO

```

```

sp_configure 'allow updates',1
GO

```

```

RECONFIGURE WITH OVERRIDE
GO

```

```

DECLARE @msg varchar(50)

```

```

--
-- OPTIONS FOR SQL SERVER 2000
-- Set option values for user-defined indexes
--

```

```

SET @msg = ' '
PRINT @msg
SET @msg = 'Setting SQL Server
indexoptions'
PRINT @msg
SET @msg = ' '
PRINT @msg

```

```

EXEC sp_indexoption 'customer',
'DisAllowPageLocks', TRUE
EXEC sp_indexoption 'district',
'DisAllowPageLocks', TRUE
EXEC sp_indexoption 'warehouse',
'DisAllowPageLocks', TRUE

```

```

EXEC sp_indexoption 'stock', 'DisAllowPageLocks',
TRUE
EXEC sp_indexoption 'order_line',
'DisAllowRowLocks', TRUE
EXEC sp_indexoption 'orders', 'DisAllowRowLocks',
TRUE
EXEC sp_indexoption 'new_order',
'DisAllowRowLocks', TRUE
EXEC sp_indexoption 'item',
'DisAllowRowLocks', TRUE
EXEC sp_indexoption 'item',
'DisAllowPageLocks', TRUE
GO

```

```

Print ' '
Print '*****'
Print 'Pre-specified Locking Hierarchy:'
Print ' Lockflag = 0 ==> No pre-specified
hierarchy'
Print ' Lockflag = 1 ==> Lock at Page-level then
Table-level'
Print ' Lockflag = 2 ==> Lock at Row-level then
Table-level'
Print ' Lockflag = 3 ==> Lock at Table-level'
Print ' '

```

```

SELECT name,lockflags
FROM sysindexes
WHERE object_id('warehouse') = id OR
object_id('district') = id OR
object_id('customer') = id OR
object_id('stock') = id OR
object_id('orders') = id OR
object_id('order_line') = id OR
object_id('history') = id OR
object_id('new_order') = id OR
object_id('item') = id
ORDER BY lockflags asc
GO

```

```

sp_configure 'allow updates',0
GO

```

```

RECONFIGURE WITH OVERRIDE
GO

```

```

EXEC sp_dboption tpcc,
statistics', FALSE 'auto update
EXEC sp_dboption tpcc,
statistics', FALSE 'auto create
GO

```

```

EXEC sp_tableoption 'district',
'pintable',true
EXEC sp_tableoption 'warehouse',
'pintable',true
EXEC sp_tableoption 'new_order',
'pintable',true
EXEC sp_tableoption 'item',
'pintable',true
GO

```

delivery.sql

```
-- File:      DELIVERY.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.41
--           Copyright Microsoft, 2001
-- Purpose:   Creates delivery transaction stored
--           procedure
--           Interface Level: 4.10.000

use tpcc
go

if exists (select name from sysobjects where name =
'tpcc_delivery' )
    drop procedure tpcc_delivery
go

create proc tpcc_delivery    @w_id
smallint,

                                @o_carrier_id

smallint
as

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

select @d_id = 0

begin tran d
    while (@d_id < 10)
    begin
        select    @d_id = @d_id + 1,
                 @total = 0,
                 @o_id = 0

        select    top 1
                 @o_id    = no_o_id
        from      new_order (serializable)

        where    no_w_id = @w_id and
                 no_d_id = @d_id

        order    by no_o_id asc

        uplock)

        if (@@rowcount <> 0)
```

```
begin
-- claim the order for this district

                                delete    new_order
                                where     no_w_id =
@w_id and
                                no_d_id =
@d_id and
                                no_o_id =
@o_id

-- set carrier_id on this order (and get customer
id)

                                update    orders
                                set       o_carrier_id
= @o_carrier_id,
                                @c_id
= o_c_id
                                where     o_w_id
= @w_id and
                                o_d_id
= @d_id and
                                o_id
= @o_id

-- set date in all lineitems for this order (and sum
amounts)

                                update    order_line
                                set       ol_delivery_d
= getdate(),
                                @total
= @total + ol_amount
                                where     ol_w_id
= @w_id and
                                ol_d_id
= @d_id and
                                ol_o_id
= @o_id

-- accumulate lineitem amounts for this order into
customer

                                update    customer
                                set       c_balance =
c_balance + @total,
                                c_delivery_cnt
= c_delivery_cnt + 1
                                where     c_w_id
= @w_id and
                                c_d_id
= @d_id and
                                c_id
= @c_id

                                end

                                select @oid1 = case @d_id when 1 then
@o_id else @oid1 end,
```

```
                                @oid2 = case @d_id when 2 then @o_id
else @oid2 end,
                                @oid3 = case @d_id when 3 then @o_id
else @oid3 end,
                                @oid4 = case @d_id when 4 then @o_id
else @oid4 end,
                                @oid5 = case @d_id when 5 then @o_id
else @oid5 end,
                                @oid6 = case @d_id when 6 then @o_id
else @oid6 end,
                                @oid7 = case @d_id when 7 then @o_id
else @oid7 end,
                                @oid8 = case @d_id when 8 then @o_id
else @oid8 end,
                                @oid9 = case @d_id when 9 then @o_id
else @oid9 end,
                                @oid10 = case @d_id when 10 then @o_id
else @oid10 end

                                end

commit tran d

-- return delivery data to client

select @oid1,
        @oid2,
        @oid3,
        @oid4,
        @oid5,
        @oid6,
        @oid7,
        @oid8,
        @oid9,
        @oid10

go
```

getargs.c

```
// File:      GETARGS.C
//           Microsoft
//           TPC-C Kit Ver. 4.41
//           Copyright
//           Microsoft, 1996, 1997, 1998, 1999, 2000, 2001
// Purpose:   Source file for command line
//           processing

// Includes
#include "tpcc.h"

//=====
//
// Function name: GetArgsLoader
//
//=====
```



```

void GetArgsLoader(int argc, char **argv,
TPCCLDR_ARGS *pargs)
{
    int        i;
    char *ptr;

#ifdef DEBUG
    printf("[%ld]DBG: Entering GetArgsLoader()\n",
(int) GetCurrentThreadId());
#endif

    /* init args struct with some useful values */
    pargs->server      = SERVER;
    pargs->user        = USER;
    pargs->password    = PASSWORD;
    pargs->database    = DATABASE;
    pargs->batch       = BATCH;
    pargs->num_warehouses = UNDEF;
    pargs->tables_all  =
TRUE;
    pargs->table_item  =
FALSE;
    pargs->table_warehouse =
FALSE;
    pargs->table_customer =
FALSE;
    pargs->table_orders =
FALSE;
    pargs->loader_res_file =
LOADER_RES_FILE;
    pargs->log_path    =
LOG_PATH;
    pargs->pack_size   =
DEFLDPACKSIZE;
    pargs->starting_warehouse =
DEF_STARTING_WAREHOUSE;
    pargs->build_index =
BUILD_INDEX;
    pargs->index_order =
INDEX_ORDER;
    pargs->index_script_path =
INDEX_SCRIPT_PATH;
    pargs->scale_down =
SCALE_DOWN;

    /* check for zero command line args */
    if ( argc == 1 )
        GetArgsLoaderUsage();

    for (i = 1; i < argc; ++i)
    {
        if (argv[i][0] != '-' &&
argv[i][0] != '/')
        {
            printf("\nUnrecognized command");
            GetArgsLoaderUsage();
            exit(1);
        }

        ptr = argv[i];
        switch (ptr[1])
        {

```

```

            case '?':      /* Fall through */
                GetArgsLoaderUsage();
                break;

            case 'D':
                pargs->
>database = ptr+2;
                break;

            case 'P':
                pargs->
>password = ptr+2;
                break;

            case 'S':
                pargs->server
= ptr+2;
                break;

            case 'U':
                pargs->user =
ptr+2;
                break;

            case 'b':
                pargs->batch
= atol(ptr+2);
                break;

            case 'W':
                pargs->
>num_warehouses = atol(ptr+2);
                break;

            case 's':
                pargs->
>starting_warehouse = atol(ptr+2);
                break;

            case 't':
                {
                    pargs->tables_all = FALSE;
                    if
(strncmp(ptr+2,"item") == 0)
                        pargs->table_item = TRUE;
                    else if (strncmp(ptr+2,"warehouse") == 0)
                        pargs->table_warehouse = TRUE;
                    else if (strncmp(ptr+2,"customer") == 0)
                        pargs->table_customer = TRUE;
                    else if (strncmp(ptr+2,"orders") == 0)
                        pargs->table_orders = TRUE;
                    else
                        {

```

```

                            printf("\nUnrecognized command");
                            GetArgsLoaderUsage();
                            exit(1);
                        }
                    }
                }
                case 'f':
                    pargs->
>loader_res_file = ptr+2;
                    break;

                case 'L':
                    pargs->
>log_path = ptr+2;
                    break;

                case 'p':
                    pargs->
>pack_size = atol(ptr+2);
                    break;

                case 'i':
                    pargs->
>build_index = atol(ptr+2);
                    break;

                case 'o':
                    pargs->
>index_order = atol(ptr+2);
                    break;

                case 'c':
                    pargs->
>scale_down = atol(ptr+2);
                    break;

                case 'd':
                    pargs->
>index_script_path = ptr+2;
                    break;

                default:
                    GetArgsLoaderUsage();
                    exit(-1);
                    break;
            }
        }

        /* check for required args */
        if (pargs->num_warehouses == UNDEF )
        {
            printf("Number of Warehouses is
required\n");
            exit(-2);
        }

        return;
    }
}

```

```

}

//=====
//
// Function name: GetArgsLoaderUsage
//
//=====
void GetArgsLoaderUsage()
{
#ifdef DEBUG
    printf("[%ld]DBG: Entering
GetArgsLoaderUsage()\n", (int) GetCurrentThreadId());
#endif

    printf("TPCCldr:\n\n");
    printf("Parameter
Default\n");
    printf("-----
-----\n");
    printf("-W Number of Warehouses to Load
Required \n");
    printf("-S Server
%s\n", SERVER);
    printf("-U Username
%s\n", USER);
    printf("-P Password
%s\n", PASSWORD);
    printf("-D Database
%s\n", DATABASE);
    printf("-b Batch Size
%ld\n", (long) BATCH);
    printf("-p TDS packet size
%ld\n", (long) DEFLDPPACKSIZE);
    printf("-f Loader Results Output Filename
%s\n", LOADER_RES_FILE);
    printf("-s Starting Warehouse
%ld\n", (long) DEF_STARTING_WAREHOUSE);
    printf("-i Build Option (data = 0, data and
index = 1)
%ld\n", (long) BUILD_INDEX);
    printf("-o Cluster Index Build Order
(before = 1, after = 0)
%ld\n", (long) INDEX_ORDER);
    printf("-c Build Scaled Database (normal =
0, tiny = 1)
%ld\n", (long) SCALE_DOWN);
    printf("-d Index Script Path
%s\n", INDEX_SCRIPT_PATH);
    printf("-t Table to Load
all tables \n");
    printf(" [item|warehouse|customer|orders]\n");
    printf(" Notes: \n");
    printf(" - the '-t' parameter may be included
multiple times to \n");
    printf(" specify multiple tables to be
loaded \n");
    printf(" - 'item' loads ITEM table \n");
    printf(" - 'warehouse' loads WAREHOUSE,
DISTRICT, and STOCK tables \n");

```

```

    printf(" - 'customer' loads CUSTOMER and
HISTORY tables \n");
    printf(" - 'orders' load NEW-ORDER, ORDERS,
ORDER-LINE tables \n");

    printf("\nNote: Command line switches are
case sensitive.\n");

    exit(0);
}

```

idxcuscl.sql

```

-- File:      IDXCUSCL.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.41
--           Copyright Microsoft, 2001
-- Purpose:   Creates clustered index on customer
table

use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:",
convert (varchar(30),@startdate,9)

if exists ( select name from sysindexes where name =
'customer_c1' )
    drop index customer.customer_c1

create unique clustered index customer_c1 on
customer(c_w_id, c_d_id, c_id)
on MSSQL_cs_fg

select @enddate = getdate()
select "End date: ", convert (varchar(30),@enddate,9)
select "Elapsed time (in seconds): ",
datediff(second, @startdate, @enddate)

go

-- File:      IDXCUSNC.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.41
--           Copyright Microsoft, 2001
-- Purpose:   Creates non-clustered index on customer
table

use tpcc
go

```

```

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:",
convert (varchar(30),@startdate,9)

if exists ( select name from sysindexes where name =
'customer_nc1' )
    drop index customer.customer_nc1

create unique nonclustered index customer_nc1 on
customer(c_w_id, c_d_id, c_last, c_first, c_id)
on MSSQL_cs_fg

select @enddate = getdate()
select "End date: ", convert (varchar(30),@enddate,9)
select "Elapsed time (in seconds): ",
datediff(second, @startdate, @enddate)

go

```

idxdiscl.sql

```

-- File:      IDXDISCL.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.41
--           Copyright Microsoft, 2001
-- Purpose:   Creates clustered index on district
table

use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:",
convert (varchar(30),@startdate,9)

if exists ( select name from sysindexes where name =
'district_c1' )
    drop index district.district_c1

create unique clustered index district_c1 on
district(d_w_id, d_id)
with fillfactor=100 on MSSQL_misc_fg

select @enddate = getdate()
select "End date: ", convert (varchar(30),@enddate,9)
select "Elapsed time (in seconds): ",
datediff(second, @startdate, @enddate)

go

```

idxcusnc.sql

idxitmcl.sql

```
-- File:      IDXITMCL.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.41
--           Copyright Microsoft, 2001
-- Purpose:   Creates clustered index on item table
```

```
use tpcc
go
```

```
declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:",
convert(varchar(30),@startdate,9)
```

```
if exists ( select name from sysindexes where name =
'item_c1' )
    drop index item.item_c1
```

```
create unique clustered index item_c1 on item(i_id)
on MSSQL_misc_fg
```

```
select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ",
datediff(second, @startdate, @enddate)
```

```
go
```

idxnodcl.sql

```
-- File:      IDXNODCL.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.41
--           Copyright Microsoft, 2001
-- Purpose:   Creates clustered index on new_order
table
```

```
use tpcc
go
```

```
declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:",
convert(varchar(30),@startdate,9)
```

```
if exists ( select name from sysindexes where name =
'new_order_c1' )
    drop index new_order.new_order_c1
```

```
create unique clustered index new_order_c1 on
new_order(no_w_id, no_d_id, no_o_id)
on MSSQL_misc_fg
```

```
select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
```

```
select "Elapsed time (in seconds): ",
datediff(second, @startdate, @enddate)
```

```
go
```

idxodlcl.sql

```
-- File:      IDXODLCL.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.41
--           Copyright Microsoft, 2001
-- Purpose:   Creates clustered index on order_line
table
```

```
use tpcc
go
```

```
declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:",
convert(varchar(30),@startdate,9)
```

```
if exists ( select name from sysindexes where name =
'order_line_c1' )
    drop index order_line.order_line_c1
```

```
create unique clustered index order_line_c1 on
order_line(ol_w_id, ol_d_id, ol_o_id, ol_number)
on MSSQL_misc_fg
```

```
select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ",
datediff(second, @startdate, @enddate)
```

```
go
```

idxordcl.sql

```
-- File:      IDXORDCL.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.41
--           Copyright Microsoft, 2001
-- Purpose:   Creates clustered index on orders table
```

```
use tpcc
go
```

```
declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:",
convert(varchar(30),@startdate,9)
```

```
if exists ( select name from sysindexes where name =
'orders_c1' )
    drop index orders.orders_c1
```

```
create unique clustered index orders_c1 on
orders(o_w_id, o_d_id, o_id)
on MSSQL_misc_fg
```

```
select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ",
datediff(second, @startdate, @enddate)
```

```
go
```

idxordnc.sql

```
-- File:      IDXORDNC.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.41
--           Copyright Microsoft, 2001
-- Purpose:   Creates non-clustered index on orders
table
```

```
use tpcc
go
```

```
declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:",
convert(varchar(30),@startdate,9)
```

```
if exists ( select name from sysindexes where name =
'orders_nc1' )
    drop index orders.orders_nc1
```

```
create index orders_nc1 on orders(o_w_id, o_d_id,
o_c_id, o_id)
on MSSQL_misc_fg
```

```
select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ",
datediff(second, @startdate, @enddate)
```

```
go
```

idxstkcl.sql

```
-- File:      IDXSTKCL.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.41
--           Copyright Microsoft, 2001
-- Purpose:   Creates clustered index on stock table
```

```

use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:",
convert (varchar(30),@startdate,9)

if exists ( select name from sysindexes where name =
'stock_cl' )
drop index stock.stock_cl

create unique clustered index stock_cl on
stock(s_i_id, s_w_id)
on MSSQL_cs_fg

select @enddate = getdate()
select "End date: ", convert (varchar(30),@enddate,9)
select "Elapsed time (in seconds): ",
datediff(second, @startdate, @enddate)

go

```

idxwarcl.sql

```

-- File:      IDXWARCL.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.41
--           Copyright Microsoft, 2001
-- Purpose:   Creates clustered index on warehouse
table

use tpcc
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:",
convert (varchar(30),@startdate,9)

if exists ( select name from sysindexes where name =
'warehouse_cl' )
drop index warehouse.warehouse_cl

create unique clustered index warehouse_cl on
warehouse(w_id)
with fillfactor=100 on MSSQL_misc_fg

select @enddate = getdate()
select "End date: ", convert (varchar(30),@enddate,9)
select "Elapsed time (in seconds): ",
datediff(second, @startdate, @enddate)

go

```

neword.sql

```

-- File:      NEWORD.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.41
--           Copyright Microsoft, 2001
-- Purpose:   Creates new order transaction stored
procedure

--
--           Interface Level: 4.10.000

use tpcc
go

if exists ( select name from sysobjects where name =
'tpcc_neworder' )
drop procedure tpcc_neworder

go

create proc tpcc_neworder

    @w_id          smallint,

    @d_id          tinyint,

    @c_id          int,

    @o_ol_cnt      tinyint,

    @o_all_local   tinyint,

    @i_id1 int = 0, @s_w_id1 smallint = 0,
@ol_qty1 smallint = 0,

    @i_id2 int = 0, @s_w_id2 smallint = 0,
@ol_qty2 smallint = 0,

    @i_id3 int = 0, @s_w_id3 smallint = 0,
@ol_qty3 smallint = 0,

    @i_id4 int = 0, @s_w_id4 smallint = 0,
@ol_qty4 smallint = 0,

    @i_id5 int = 0, @s_w_id5 smallint = 0,
@ol_qty5 smallint = 0,

    @i_id6 int = 0, @s_w_id6 smallint = 0,
@ol_qty6 smallint = 0,

    @i_id7 int = 0, @s_w_id7 smallint = 0,
@ol_qty7 smallint = 0,

    @i_id8 int = 0, @s_w_id8 smallint = 0,
@ol_qty8 smallint = 0,

    @i_id9 int = 0, @s_w_id9 smallint = 0,
@ol_qty9 smallint = 0,

    @i_id10 int = 0, @s_w_id10 smallint = 0,
@ol_qty10 smallint = 0,

```

```

    @i_id11 int = 0, @s_w_id11 smallint = 0,
@ol_qty11 smallint = 0,

    @i_id12 int = 0, @s_w_id12 smallint = 0,
@ol_qty12 smallint = 0,

    @i_id13 int = 0, @s_w_id13 smallint = 0,
@ol_qty13 smallint = 0,

    @i_id14 int = 0, @s_w_id14 smallint = 0,
@ol_qty14 smallint = 0,

    @i_id15 int = 0, @s_w_id15 smallint = 0,
@ol_qty15 smallint = 0

as
declare @w_tax          numeric(4,4),
        @d_tax          numeric(4,4),
        @c_last         char(16),
        @c_credit       char(2),
        @c_discount     numeric(4,4),
        @i_price        numeric(5,2),
        @i_name         char(24),
        @i_data         char(50),
        @o_entry_d      datetime,
        @remote_flag    int,
        @s_quantity     smallint,
        @s_data         char(50),
        @s_dist         char(24),
        @li_no          int,
        @o_id           int,
        @commit_flag    tinyint,
        @li_id         int,
        @li_s_w_id      smallint,
        @li_qty         smallint,
        @ol_number      int,
        @c_id_local     int

begin

begin transaction n

-- get district tax and next available order id and
update
-- plus initialize local variables

        update      district
        set          @d_tax      = d_tax,
                    @o_id       = d_next_o_id,
                    d_next_o_id = d_next_o_id + 1,
                    @o_entry_d   = getdate(),
                    @li_no      = 0,
                    @commit_flag = 1
        where        d_w_id      = @w_id and
                    d_id        = @d_id

-- process orderlines

        while (@li_no < @o_ol_cnt)
        begin

```

```

select @li_no = @li_no + 1
-- set i_id, s_w_id, and qty for this lineitem
select  @li_id = case @li_no
@i_id1      when 1 then
@i_id2      when 2 then
@i_id3      when 3 then
@i_id4      when 4 then
@i_id5      when 5 then
@i_id6      when 6 then
@i_id7      when 7 then
@i_id8      when 8 then
@i_id9      when 9 then
@i_id10     when 10 then
@i_id11     when 11 then
@i_id12     when 12 then
@i_id13     when 13 then
@i_id14     when 14 then
@i_id15     when 15 then
end,
@li_s_w_id = case
@li_no      when 1
then @s_w_id1
then @s_w_id2
then @s_w_id3
then @s_w_id4
then @s_w_id5
then @s_w_id6
then @s_w_id7
then @s_w_id8
then @s_w_id9
then @s_w_id10
then @s_w_id11
then @s_w_id12
then @s_w_id13
then @s_w_id14
then @s_w_id15
end,
@ol_qty1    when 1 then
@ol_qty2    when 2 then
@ol_qty3    when 3 then
@ol_qty4    when 4 then
@ol_qty5    when 5 then
@ol_qty6    when 6 then
@ol_qty7    when 7 then
@ol_qty8    when 8 then
@ol_qty9    when 9 then
then @ol_qty10
then @ol_qty11
then @ol_qty12
then @ol_qty13
then @ol_qty14
then @ol_qty15
end,
@li_qty = case @li_no
when 1 then
when 2 then
when 3 then
when 4 then
when 5 then
when 6 then
when 7 then
when 8 then
when 9 then
when 10 then
when 11 then
when 12 then
when 13 then
when 14 then
when 15 then
end,
@ol_qty10   when 10
@ol_qty11   when 11
@ol_qty12   when 12
@ol_qty13   when 13
@ol_qty14   when 14
@ol_qty15   when 15
end
-- get item data (no one updates item)
select  @i_price = i_price,
@i_name  = i_name,
@i_data  = i_data
from    item (tablock
repeatable read)
where   i_id = @li_id
-- update stock values
update  stock
set     s_ytd =
s_ytd + @li_qty,
@s_quantity = s_quantity - @li_qty +
case when (s_quantity - @li_qty < 10)
then 91 else 0 end,
s_order_cnt =
s_order_cnt + 1,
s_remote_cnt =
s_remote_cnt + case when (@li_s_w_id = @w_id) then 0
else 1 end,
@s_data =
s_data,
@s_dist =
case @d_id
when 1 then s_dist_01
when 2 then s_dist_02
when 3 then s_dist_03
when 4 then s_dist_04
when 5 then s_dist_05
when 6 then s_dist_06
when 7 then s_dist_07
when 8 then s_dist_08
when 9 then s_dist_09
when 10 then s_dist_10
end
where   s_i_id =
@li_id and
s_w_id =
@li_s_w_id
-- if there actually is a stock (and item) with
these ids, go to work
if (@@rowcount > 0)
begin
-- insert order_line data (using data from item and
stock)
insert into order_line
values(@o_id,
@d_id,
@w_id,
@li_no,
@li_id,
@li_s_w_id,
'dec 31, 1899',
@li_qty,
@i_price * @li_qty,

```

```

        @s_dist)
-- send line-item data to client
        select  @i_name,
               @s_quantity,
               b_g = case
when ( (patindex('%ORIGINAL%',@i_data) > 0) and
      (patindex('%ORIGINAL%',@s_data) > 0) )
      then
'B' else 'G' end,
               @i_price,
               @i_price *
@li_qty
        end
        else
        begin
-- no item (or stock) found - triggers rollback
condition
        select  '',0, '',0,0
        select @commit_flag = 0
        end
end
-- get customer last name, discount, and credit
rating
        select  @c_last      = c_last,
               @c_discount = c_discount,
               @c_credit    = c_credit,
               @c_id_local  = c_id
        from    customer (repeatableread)
        where   c_id         = @c_id and
               c_w_id       = @w_id and
               c_d_id       = @d_id
-- insert fresh row into orders table
        insert into orders values ( @o_id,
        @d_id,
        @w_id,
        @c_id_local,
        @o_entry_d,
        0,
        @o_ol_cnt,
        @o_all_local)
-- insert corresponding row into new-order table
        insert into new_order values (
        @o_id,

```

```

        @d_id,
        @w_id)
-- select warehouse tax
        select  @w_tax      = w_tax
        from    warehouse (repeatableread)
        where   w_id       = @w_id
        if (@commit_flag = 1)
        commit transaction n
        else
-- all that work for nuthin!!!
        rollback transaction n
-- return order data to client
        select  @w_tax,
               @d_tax,
               @o_id,
               @c_last,
               @c_discount,
               @c_credit,
               @o_entry_d,
               @commit_flag
        end
        go

```

null-txns.sql

```

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

```

```

drop proc tpcc_version
drop table order_line_null
go
create proc tpcc_delivery @w_id
smallint,
        @o_carrier_id smallint
as
declare @d_id tinyint,
        @o_id int,
        @c_id int,
        @total numeric(12,2),
        @oid1 int,
        @oid2 int,
        @oid3 int,
        @oid4 int,
        @oid5 int,
        @oid6 int,
        @oid7 int,
        @oid8 int,
        @oid9 int,
        @oid10 int
declare @delaytime varchar(30)
-- uniform random delay of 0 - 1 second; avg = 0.50
select @delaytime = '00:00:0' +
cast(cast((rand()*1.00) as decimal(4,3)) as char(5))
waitfor delay @delaytime
select 3001, 3001, 3001, 3001, 3001, 3001, 3001,
3001, 3001, 3001
GO
create proc tpcc_neworder
        @w_id      smallint,
        @d_id      tinyint,
        @c_id      int,
        @o_ol_cnt  tinyint,
        @o_all_local tinyint,
        @i_id1 int = 0, @s_w_id1 smallint = 0,
@ol_qty1 smallint = 0,
        @i_id2 int = 0, @s_w_id2 smallint = 0,
@ol_qty2 smallint = 0,
        @i_id3 int = 0, @s_w_id3 smallint = 0,
@ol_qty3 smallint = 0,
        @i_id4 int = 0, @s_w_id4 smallint = 0,
@ol_qty4 smallint = 0,

```

```

        @i_id5 int = 0, @s_w_id5 smallint = 0,
@ol_qty5 smallint = 0,

        @i_id6 int = 0, @s_w_id6 smallint = 0,
@ol_qty6 smallint = 0,

        @i_id7 int = 0, @s_w_id7 smallint = 0,
@ol_qty7 smallint = 0,

        @i_id8 int = 0, @s_w_id8 smallint = 0,
@ol_qty8 smallint = 0,

        @i_id9 int = 0, @s_w_id9 smallint = 0,
@ol_qty9 smallint = 0,

        @i_id10 int = 0, @s_w_id10 smallint = 0,
@ol_qty10 smallint = 0,

        @i_id11 int = 0, @s_w_id11 smallint = 0,
@ol_qty11 smallint = 0,

        @i_id12 int = 0, @s_w_id12 smallint = 0,
@ol_qty12 smallint = 0,

        @i_id13 int = 0, @s_w_id13 smallint = 0,
@ol_qty13 smallint = 0,

        @i_id14 int = 0, @s_w_id14 smallint = 0,
@ol_qty14 smallint = 0,

        @i_id15 int = 0, @s_w_id15 smallint = 0,
@ol_qty15 smallint = 0

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

declare @delaytime varchar(30)

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

-- process orderlines
select @commit_flag = 1, @li_no = 0

```

```

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

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

if (@li_id = 999999)
begin
select '',0,',',0,0
select @commit_flag = 0
end
else
begin
select 'Item Name blah',17,'G',
@i_price, @i_price * @li_qty
end

-- return order data to client
select @w_tax = 0.1234,
        @d_tax = 0.0987,
        @o_id = 3001,
        @c_last = 'BAROUGHTABLE',
        @c_discount = 0.2198,
        @c_credit = 'GC',
        @o_entry_d = getdate()

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

```

```

end
GO

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

as

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

declare @delaytime varchar(30)

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

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

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

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

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

        @o_entry_d,

```

```

        @o_carrier_id,
        @c_balance,
        @o_id

GO

create proc tpcc_payment @w_id          smallint,

        @c_w_id          smallint,

        @h_amount        numeric(6,2),

        @d_id            tinyint,

        @c_d_id          tinyint,

        @c_id            int,

        @c_last          char(16) = ''

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

declare @delaytime varchar(30)

```

```

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

select @screen_data = ''

-- get customer info and update balances

select
        @d_street_1 = 'rqSHHakqyV',
        @d_street_2 = 'zZ98nW3BR2s',
        @d_city     = 'ArNr4GNFV9',
        @d_state    = 'aV',
        @d_zip      = '453511111'

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

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

select
        @c_id           = 123,
        @c_balance      = -10000.00,
        @c_first        = 'Kmr03Xureb',
        @c_middle       = 'OE',
        @c_last         = 'BAROUGHTBAR',
        @c_street_1     =
'QpGdOHjv8mR9vNI8V',
        @c_street_2     =
'dzKoCOBqbc3yu',
        @c_city         =
'zAKZXdC037FQxq',
        @c_state        = 'QA',
        @c_zip          = '700311111',
        @c_phone        =
'2967264064528555',
        @c_credit       = 'GC',
        @c_credit_lim   = 50000.00,
        @c_discount     = 0.3069,
        @c_since        = getdate(),
        @datetime       = getdate()

-- return data to client

select @c_id,
        @c_last,
        @datetime,
        @w_street_1,
        @w_street_2,
        @w_city,
        @w_state,
        @w_zip,
        @d_street_1,
        @d_street_2,

```

```

        @d_city,
        @d_state,
        @d_zip,
        @c_first,
        @c_middle,
        @c_street_1,
        @c_street_2,
        @c_city,
        @c_state,
        @c_zip,
        @c_phone,
        @c_since,
        @c_credit,
        @c_credit_lim,
        @c_discount,
        @c_balance,
        @screen_data

GO

create proc tpcc_stocklevel @w_id
        smallint,

        @d_id            tinyint,

        @threshold       smallint

as

declare @delaytime varchar(30)

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

select 49

GO

create proc tpcc_version
as
declare @version char(8)

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

end

GO

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

insert into order_line_null values ( 101, 1,
getdate(), 1, 123.45 )

```



```

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

```

GO

ordstat.sql

```

-- File:      ORDSTAT.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.41
--           Copyright Microsoft, 2001
-- Purpose:   Creates order status transaction stored
--           procedure
--
--           Interface Level: 4.10.000

use tpcc
go

if exists ( select name from sysobjects where name =
'tpcc_orderstatus' )
    drop procedure  tpcc_orderstatus
go

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

```

```

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

begin tran o

if (@c_id = 0)
    begin

-- get customer id and info using last name

        select @cnt =
(count(*)+1)/2
        from customer
(repeatableread)
        where c_last = @c_last and
              c_w_id = @w_id and
              c_d_id = @d_id

        set rowcount @cnt

        select @c_id =
c_id,
@c_balance =
@c_first =
c_first,
@c_last =
c_last,
@c_middle =
        from customer
(repeatableread)
        where c_last =
@c_last and
@c_w_id =
@c_d_id =
        order by c_w_id, c_d_id,
c_last, c_first

        set rowcount 0

    end
    else
        begin

-- get customer info if by id

        select @c_balance =
c_balance,
@c_first = c_first,
@c_middle = c_middle,
@c_last =
c_last

```

```

        from customer
(repeatableread)
        where c_id =
@c_id and
@c_d_id =
@d_id and
c_w_id =
@w_id

        select @cnt = @@rowcount

    end

-- if no such customer
        if (@cnt = 0)
            begin
                raiserror('Customer not
found',10,1)
                goto custnotfound
            end

-- get order info
        select @o_id = o_id,
               @o_entry_d = o_entry_d,
               @o_carrier_id =
o_carrier_id
        from orders (serializable)
        where o_c_id = @c_id and
              o_d_id = @d_id and
              o_w_id = @w_id
        order by o_id asc

-- select order lines for the current order
        select ol_supply_w_id,
               ol_i_id,
               ol_quantity,
               ol_amount,
               ol_delivery_d
        from order_line (repeatableread)
        where ol_o_id = @o_id and
              ol_d_id = @d_id and
              ol_w_id = @w_id

custnotfound:

commit tran o

-- return data to client

select @c_id,
@c_last,
@c_first,
@c_middle,
@o_entry_d,
@o_carrier_id,
@c_balance,
@o_id
go

```

payment.sql

```
-- File:      PAYMENT.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.41
--           Copyright Microsoft, 2001
-- Purpose:   Creates payment transaction stored
--           procedure
--           Interface Level: 4.10.000

use tpcc
go

if exists (select name from sysobjects where name =
'tpcc_payment' )
    drop procedure tpcc_payment
go

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

as
declare @w_street_1 char(20),
        @w_street_2 char(20),
        @w_city     char(20),
        @w_state    char(2),
        @w_zip      char(9),
        @w_name     char(10),
        @d_street_1 char(20),
        @d_street_2 char(20),
        @d_city     char(20),
        @d_state    char(2),
        @d_zip      char(9),
        @d_name     char(10),
        @c_first    char(16),
        @c_middle   char(2),
        @c_street_1 char(20),
        @c_street_2 char(20),
        @c_city     char(20),
        @c_state    char(2),
        @c_zip      char(9),
        @c_phone    char(16),
        @c_since    datetime,
        @c_credit   char(2),
        @c_credit_lim numeric(12,2),
        @c_balance  numeric(12,2),
```

```
@c_discount    numeric(4,4),
@c_data         char(500),
@c_data        char(500),
@datetime      datetime,
@w_ytd         numeric(12,2),
@d_ytd         numeric(12,2),
@cnt           smallint,
@val           smallint,
@screen_data   char(200),
@d_id_local    tinyint,
@w_id_local    smallint,
@c_id_local    int

select @screen_data = ''

begin tran p

-- get payment date
select @datetime = getdate()

if (@c_id = 0)
begin

-- get customer id and info using last name
select @cnt = count(*)
from customer
where c_last = @c_last and
c_w_id = @c_w_id and
c_d_id = @c_d_id

select @val = (@cnt + 1) / 2
set rowcount @val

select @c_id = c_id
from customer
where c_last = @c_last and
c_w_id = @c_w_id and
c_d_id = @c_d_id
order by c_last, c_first

set rowcount 0
end

-- get customer info and update balances
update customer
set @c_balance = c_balance
= c_balance - @h_amount,
c_payment_cnt =
c_payment_cnt + 1,
c_ytd_payment =
c_ytd_payment + @h_amount,
@c_first = c_first,
@c_middle = c_middle,
@c_last = c_last,
@c_street_1 = c_street_1,
@c_street_2 = c_street_2,
```

```
@c_city = c_city,
@c_state = c_state,
@c_zip = c_zip,
@c_phone = c_phone,
@c_credit = c_credit,
@c_credit_lim =

c_credit_lim,
@c_discount = c_discount,
@c_since = c_since,
@data = c_data,

where @c_id_local = c_id
c_id = @c_id and
c_w_id = @c_w_id and
c_d_id = @c_d_id

-- if customer has bad credit get some more info
if (@c_credit = 'BC')
begin

-- compute new info
select @c_data =
convert(char(5),@c_id) +
convert(char(4),@c_d_id) +
convert(char(5),@c_w_id) +
convert(char(4),@d_id) +
convert(char(5),@w_id) +
convert(char(19),@h_amount) +
substring(@data, 1, 458)

-- update customer info
update customer
set c_data = @c_data
where c_id = @c_id and
c_w_id = @c_w_id and
c_d_id = @c_d_id

select @screen_data =
substring (@c_data,1,200)
end

-- get district data and update year-to-date
update district
set d_ytd = d_ytd +
@h_amount,
@d_street_1 = d_street_1,
@d_street_2 = d_street_2,
@d_city = d_city,
@d_state = d_state,
@d_zip = d_zip,
@d_name = d_name,
@d_id_local = d_id
```

```

        where      d_w_id      = @w_id and
                  d_id        = @d_id

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

        update    warehouse
        set       w_ytd      = w_ytd +
@h_amount,
                @w_street_1  = w_street_1,
                @w_street_2  = w_street_2,
                @w_city      = w_city,
                @w_state     = w_state,
                @w_zip       = w_zip,
                @w_name      = w_name,
                @w_id_local  = w_id
        where    w_id        = @w_id

-- create history record

        insert into history values ( @c_id_local,
        @c_d_id,
        @c_w_id,
        @d_id_local,
        @w_id_local,
        @datetime,
        @h_amount,
        @w_name + ' ' + @d_name)
commit tran p

-- return data to client

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

```

```

        @c_balance,
        @screen_data

```

```
go
```

random.c

```

//      File:          RANDOM.C
//
//      Microsoft
//      TPC-C Kit Ver. 4.41
//      Copyright
//      Microsoft, 1996, 1997, 1998, 1999, 2000, 2001
//      Purpose:  Random number generation routines
//      for database loader

// Includes
#include "tpcc.h"
#include "math.h"

// Defines
#define A      16807
#define M      2147483647
#define Q      127773      /* M div A */
#define R      2836      /* M mod A */
#define Thread __declspec(thread)

// Globals
long      Thread Seed = 0;      /* thread local seed
*/

/*****
*****
*
*
* random -
*
*      Implements a GOOD pseudo random number
generator.  This generator
*      will/should? run the complete period before
repeating.
*
* Copied from:
*
*      Random Numbers Generators: Good Ones Are Hard
to Find.
*      Communications of the ACM - October 1988
Volume 31 Number 10
*
* Machine Dependencies:
*
*      long must be 2 ^ 31 - 1 or greater.
*
*
*
*****
*****/

```

```

/*****
*****
* seed - load the Seed value used in irand and drand.
Should be used before *
*      first call to irand or drand.
*
*****
*****/

void seed(long val)
{
#ifdef DEBUG
        printf("[%ld]DBG: Entering seed()...\n", (int)
GetCurrentThreadId());
        printf("Old Seed %ld New Seed %ld\n",Seed,
val);
#endif

        if ( val < 0 )
                val = abs(val);

        Seed = val;
}

/*****
*****
*
*
* irand - returns a 32 bit integer pseudo random
number with a period of
*      1 to 2 ^ 32 - 1.
*
*
* parameters:
*
*      none.
*
* returns:
*
*      32 bit integer - defined as long ( see above
).
*
* side effects:
*
*      seed get recomputed.
*****
*****/

long irand()
{
        register long      s;      /* copy of seed */
        register long      test;   /* test flag */
        register long      hi;     /* tmp value for speed
*/

```

```

    register long    lo;    /* tmp value for speed
*/

#ifdef DEBUG
    printf("[%ld]DBG: Entering irand()...\n", (int)
GetCurrentThreadId());
#endif

    s = Seed;
    hi = s / Q;
    lo = s % Q;

    test = A * lo - R * hi;
    if ( test > 0 )
        Seed = test;
    else
        Seed = test + M;

    return( Seed );
}

/*****
*****
*
* drand - returns a double pseudo random number
between 0.0 and 1.0.
* See irand.
*
*****
*****/
double drand()
{
#ifdef DEBUG
    printf("[%ld]DBG: Entering drand()...\n", (int)
GetCurrentThreadId());
#endif

    return( (double)irand() / 2147483647.0);
}

//=====
// Function : RandomNumber
//
// Description:
//=====
long RandomNumber(long lower, long upper)
{
    long rand_num;

#ifdef DEBUG
    printf("[%ld]DBG: Entering RandomNumber()...\n",
(int) GetCurrentThreadId());
#endif

    if ( upper == lower )    /* pgd 08-13-
96 perf enhancement */
        return lower;

```

```

        upper++;

        if ( upper <= lower )
            rand_num = upper;
        else
            rand_num = lower + irand() %
(upper - lower); /* pgd 08-13-96 perf enhancement */

#ifdef DEBUG
    printf("[%ld]DBG: RandomNumber between %ld & %ld
==> %ld\n",
(int)
GetCurrentThreadId(), lower, upper, rand_num);
#endif

    return rand_num;
}

#if 0
//Original code pgd 08/13/96

long RandomNumber(long lower,
                    long upper)
{
    long rand_num;

#ifdef DEBUG
    printf("[%ld]DBG: Entering RandomNumber()...\n",
(int) GetCurrentThreadId());
#endif

    upper++;

    if ((upper <= lower))
        rand_num = upper;
    else
        rand_num = lower + irand() %
((upper > lower) ? upper - lower : upper);

#ifdef DEBUG
    printf("[%ld]DBG: RandomNumber between %ld & %ld
==> %ld\n",
(int)
GetCurrentThreadId(), lower, upper, rand_num);
#endif

    return rand_num;
}
#endif

//=====
// Function : NURand
//
// Description:

```

```

//=====
//=====
long NURand(int iConst,
            long x,
            long y,
            long C)
{
    long rand_num;

#ifdef DEBUG
    printf("[%ld]DBG: Entering NURand()...\n", (int)
GetCurrentThreadId());
#endif

    rand_num = (((RandomNumber(0,iConst) |
RandomNumber(x,y) + C) % (y-x+1))+x);

#ifdef DEBUG
    printf("[%ld]DBG: NURand: num = %d\n", (int)
GetCurrentThreadId(), rand_num);
#endif

    return rand_num;
}

```

removedb.sql

```

-- File:      REMOVEDB.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.22
--           Copyright Microsoft, 2001
-- Purpose:   Removes tpcc database and backup files

```

```

use master
go

-- remove any existing database and backup files

exec sp_dbrremove tpcc, dropdev
go

exec sp_dropdevice 'tpccback46401'
exec sp_dropdevice 'tpccback46402'
go

exec sp_dropdevice 'tpccback1'
exec sp_dropdevice 'tpccback2'
exec sp_dropdevice 'tpccback3'
exec sp_dropdevice 'tpccback4'
go

```

restore.sql

```

-- File:      RESTORE.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.41
--           Copyright Microsoft, 2001

```

```
-- Purpose: Loads database backup from backup files

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:",
convert(varchar(30),@startdate,9)

load database tpcc from tpccback1b, tpccback2b,
tpccback3b, tpccback4b, tpccback5b, tpccback6b,
tpccback7b with stats = 1, replace

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ",
datediff(second, @startdate, @enddate)

go

sp_dboption 'tpcc', 'torn page', false
go
```

RunSQLCfg.sql

```
-- File:      RUNSQLCFG.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.41
--           Copyright Microsoft, 2001
-- Purpose:   This script file is used to set runtime
server configuration parameters
--

exec sp_configure "show advanced option", 1
go

reconfigure with override
go

/* change this value to approximately the number of
connected users */
exec sp_configure "max worker threads",255

/* increase priority of user threads */
exec sp_configure "priority boost",1

/* disable automatic checkpointing */
exec sp_configure "recovery interval",32767

/* change to a mask appropriate for the number of
processors on the server */
exec sp_configure "affinity mask",0xf

/* enable fibers */
exec sp_configure "lightweight pooling",1

go

reconfigure with override
go
```

sqlshutdown.sql

```
-- File:      SQLSHUTDOWN.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.41

--           Copyright Microsoft, 2001
-- Purpose:   Checkpoints tpcc database and issues a
shutdown
--

use tpcc
go
checkpoint
go
shutdown
go
```

stocklev.sql

```
-- File:      STOCKLEV.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.41
--           Copyright Microsoft, 2001
-- Purpose:   Creates stock level transaction stored
procedure
--           Interface Level: 4.10.000

use tpcc
go

if exists (select name from sysobjects where name =
'tpcc_stocklevel' )
drop procedure tpcc_stocklevel
go

create proc tpcc_stocklevel @w_id
smallint,
@d_id
tinyint,
@threshold
smallint
as

declare @o_id_low int,
@o_id_high int

select @o_id_low = (d_next_o_id - 20),
@o_id_high = (d_next_o_id - 1)
from district
where d_w_id = @w_id and
d_id = @d_id

select count(distinct(s_i_id))
from stock, order_line
where ol_w_id = @w_id and
ol_d_id = @d_id and
ol_o_id between @o_id_low
and @o_id_high and
```

```
s_w_id = ol_w_id and
s_i_id = ol_i_id and
s_quantity < @threshold

go
```

strings.c

```
// File:      STRINGS.C
//           Microsoft
TPC-C Kit Ver. 4.41
//           Copyright
Microsoft, 1996, 1997, 1998, 1999, 2000, 2001
// Purpose:  Source file for database loader
string functions

// Includes
#include "tpcc.h"
#include <string.h>
#include <ctype.h>

//=====
//
// Function name: MakeAddress
//=====

void MakeAddress(char *street_1,
char
*street_2,
char *city,
char *state,
char *zip)
{
#ifdef DEBUG
printf("[%ld]DBG: Entering MakeAddress()\n",
(int) GetCurrentThreadId());
#endif

MakeAlphaString (10, 20, ADDRESS_LEN, street_1);
MakeAlphaString (10, 20, ADDRESS_LEN, street_2);
MakeAlphaString (10, 20, ADDRESS_LEN, city);
MakeAlphaString ( 2,  2, STATE_LEN, state);
MakeZipNumberString( 9,  9, ZIP_LEN, zip);

#ifdef DEBUG
printf("[%ld]DBG: MakeAddress: street_1: %s,
street_2: %s, city: %s, state: %s, zip: %s\n",
(int)
GetCurrentThreadId(), street_1, street_2, city,
state, zip);
#endif

return;
}
```

```

}

//=====
//
// Function name: LastName
//
//=====
void LastName(int num,
             char *name)
{
    static char *n[] =
    {
        "BAR", "OUGHT", "ABLE", "PRI",
, "PRES",
        "ESE", "ANTI", "CALLY",
"ATION", "EING"
    };

#ifdef DEBUG
    printf("[%d]DBG: Entering LastName()\n", (int)
GetCurrentThreadId());
#endif

    if ((num >= 0) && (num < 1000))
    {
        strcpy(name, n[(num/100)%10]);
        strcat(name, n[(num/10)%10]);
        strcat(name, n[(num/1)%10]);

        if (strlen(name) < LAST_NAME_LEN)
        {
            PaddString(LAST_NAME_LEN, name);
        }
    }
    else
    {
        printf("\nError in LastName()...
num <%ld> out of range (0,999)\n", num);
        exit(-1);
    }

#ifdef DEBUG
    printf("[%d]DBG: LastName: num = [%d] ==>
[%d][%d][%d]\n",
             (int)
GetCurrentThreadId(), num, num/100, (num/10)%10,
num%10);
    printf("[%d]DBG: LastName: String = %s\n",
(int) GetCurrentThreadId(), name);
#endif

    return;
}

```

```

//=====
//
// Function name: MakeAlphaString
//
//=====
//philipdu 08/13/96 Changed MakeAlphaString to use A-
Z, a-z, and 0-9 in
//accordance with spec see below:
//The spec says:
//4.3.2.2 The notation random a-string [x .. y]
//(respectively, n-string [x .. y]) represents a
string of random alphanumeric
//(respectively, numeric) characters of a random
length of minimum x, maximum y,
//and mean (y+x)/2. Alphanumerics are A..Z, a..z, and
0..9. The only other
//requirement is that the character set used "must be
able to represent a minimum
//of 128 different characters". We are using 8-bit
chars, so this is a non issue.
//It is completely unreasonable to stuff non-printing
chars into the text fields.
//--CLevine 08/13/96

int MakeAlphaString( int x, int y, int z, char
*str)
{
    int len;
    int i;

    char cc = 'a';
    static char chArray[] =
"0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ
qrstuvwxyz";
    static int chArrayMax = 61;

#ifdef DEBUG
    printf("[%d]DBG: Entering MakeAlphaString()\n",
(int) GetCurrentThreadId());
#endif

    len= RandomNumber(x, y);

    for (i=0; i<len; i++)
    {
        cc = chArray[RandomNumber(0,
chArrayMax)];
        str[i] = cc;
    }

    //if ( len < z )
    //    memset(str+len, ' ', z - len);
    strlen = 0;

    return len;
}

//=====
//
// Function name: MakeOriginalAlphaString

```

```

//
//=====
int MakeOriginalAlphaString(int x,
                          int y,
                          int z,
                          char *str,
                          int percent)
{
    int len;
    int val;
    int start;

#ifdef DEBUG
    printf("[%d]DBG: Entering
MakeOriginalAlphaString()\n", (int)
GetCurrentThreadId());
#endif

    // verify percentage is valid
    if ((percent < 0) || (percent > 100))
    {
        printf("MakeOriginalAlphaString:
Invalid percentage: %d\n", percent);
        exit(-1);
    }

    // verify string is at least 8 chars in length
    if ((x + y) <= 8)
    {
        printf("MakeOriginalAlphaString:
string length must be >= 8\n");
        exit(-1);
    }

    // Make Alpha String
    len = MakeAlphaString(x,y, z, str);

    val = RandomNumber(1,100);
    if (val <= percent)
    {
        start = RandomNumber(0, len - 8);
        strncpy(str + start, "ORIGINAL",
8);
    }

#ifdef DEBUG
    printf("[%d]DBG: MakeOriginalAlphaString: :
%s\n",
             (int)
GetCurrentThreadId(), str);
#endif

    return strlen(str);
}

```

```

//=====
//
// Function name: MakeNumberString
//
//=====
int MakeNumberString(int x, int y, int z, char
*str)
{
    char tmp[16];

    //MakeNumberString is always called
MakeZipNumberString(16, 16, 16, string)

    memset(str, '0', 16);
    itoa(RandomNumber(0, 99999999), tmp, 10);
    memcpy(str, tmp, strlen(tmp));

    itoa(RandomNumber(0, 99999999), tmp, 10);
    memcpy(str+8, tmp, strlen(tmp));

    str[16] = 0;

    return 16;
}

//=====
//
// Function name: MakeZipNumberString
//
//=====
int MakeZipNumberString(int x, int y, int z, char
*str)
{
    char tmp[16];

    //MakeZipNumberString is always called
MakeZipNumberString(9, 9, 9, string)

    strcpy(str, "000011111");

    itoa(RandomNumber(0, 9999), tmp, 10);
    memcpy(str, tmp, strlen(tmp));

    return 9;
}

//=====
//
// Function name: InitString
//
//=====
void InitString(char *str, int len)
#ifdef DEBUG

```

```

    printf("[%ld]DBG: Entering InitString()\n", (int)
GetCurrentThreadId());
#endif
    memset(str, ' ', len);
    str[len] = 0;
}

//=====
//
// Function name: InitAddress
//
// Description:
//
//=====
void InitAddress(char *street_1, char *street_2, char
*city, char *state, char *zip)
{
    memset(street_1, ' ', ADDRESS_LEN+1);
    memset(street_2, ' ', ADDRESS_LEN+1);
    memset(city, ' ', ADDRESS_LEN+1);

    street_1[ADDRESS_LEN+1] = 0;
    street_2[ADDRESS_LEN+1] = 0;
    city[ADDRESS_LEN+1] = 0;

    memset(state, ' ', STATE_LEN+1);
    state[STATE_LEN+1] = 0;

    memset(zip, ' ', ZIP_LEN+1);
    zip[ZIP_LEN+1] = 0;
}

//=====
//
// Function name: PaddString
//
//=====
void PaddString(int max, char *name)
{
    int len;

    len = strlen(name);
    if ( len < max )
        memset(name+len, ' ', max - len);
    name[max] = 0;

    return;
}

tables.sql
-- File: TABLES.SQL

```

```

-- Microsoft TPC-C Benchmark Kit Ver. 4.41
-- Copyright Microsoft, 2001
-- Purpose: Creates TPC-C tables

use tpcc
go

--
-- Remove all existing TPC-C tables
--

if exists ( select name from sysobjects where name =
'warehouse' )
    drop table warehouse
go
if exists ( select name from sysobjects where name =
'district' )
    drop table district
go
if exists ( select name from sysobjects where name =
'customer' )
    drop table customer
go
if exists ( select name from sysobjects where name =
'history' )
    drop table history
go
if exists ( select name from sysobjects where name =
'new_order' )
    drop table new_order
go
if exists ( select name from sysobjects where name =
'orders' )
    drop table orders
go
if exists ( select name from sysobjects where name =
'order_line' )
    drop table order_line
go
if exists ( select name from sysobjects where name =
'item' )
    drop table item
go
if exists ( select name from sysobjects where name =
'stock' )
    drop table stock
go

--
-- Create new tables
--

create table warehouse
(
    w_id
    smallint,
    w_name
    char(10),
    w_street_1
    char(20),
    w_street_2
    char(20),

```

```

w_city
char(20),
w_state
char(2),
w_zip
char(9),
w_tax
numeric(4,4),
w_ytd
numeric(12,2)
) on MSSQL_misc_fg
go

create table district
(
d_id
tinyint,
d_w_id
smallint,
d_name
char(10),
d_street_1
char(20),
d_street_2
char(20),
d_city
char(20),
d_state
char(2),
d_zip
char(9),
d_tax
numeric(4,4),
d_ytd
numeric(12,2),
d_next_o_id
int
) on MSSQL_misc_fg
go

create table customer
(
c_id
int,
c_d_id
tinyint,
c_w_id
smallint,
c_first
char(16),
c_middle
char(2),
c_last
char(16),
c_street_1
char(20),
c_street_2
char(20),
c_city
char(20),
c_state
char(2),
c_zip
char(9),

```

```

c_phone
char(16),
c_since
datetime,
c_credit
char(2),
c_credit_lim
numeric(12,2),
c_discount
numeric(4,4),
c_balance
numeric(12,2),
c_ytd_payment
numeric(12,2),
c_payment_cnt
smallint,
c_delivery_cnt
smallint,
c_data
char(500)
) on MSSQL_cs_fg
go

create table history
(
h_c_id
int,
h_c_d_id
tinyint,
h_c_w_id
smallint,
h_d_id
tinyint,
h_w_id
smallint,
h_date
datetime,
h_amount
numeric(6,2),
h_data
char(24)
) on MSSQL_misc_fg
go

create table new_order
(
no_o_id
int,
no_d_id
tinyint,
no_w_id
smallint
) on MSSQL_misc_fg
go

create table orders
(
o_id
int,
o_d_id
tinyint,
o_w_id
smallint,
o_c_id
int,
o_entry_d
datetime,
o_carrier_id
tinyint,
o_ol_cnt
tinyint,

```

```

o_all_local
tinyint
) on MSSQL_misc_fg
go

create table order_line
(
ol_o_id
int,
ol_d_id
tinyint,
ol_w_id
smallint,
ol_number
tinyint,
ol_i_id
int,
ol_supply_w_id
smallint,
ol_delivery_d
datetime,
ol_quantity
smallint,
ol_amount
numeric(6,2),
ol_dist_info
char(24)
) on MSSQL_misc_fg
go

create table item
(
i_id
int,
i_im_id
int,
i_name
char(24),
i_price
numeric(5,2),
i_data
char(50)
) on MSSQL_misc_fg
go

create table stock
(
s_i_id
int,
s_w_id
smallint,
s_quantity
smallint,
s_dist_01
char(24),
s_dist_02
char(24),
s_dist_03
char(24),
s_dist_04
char(24),
s_dist_05
char(24),
s_dist_06
char(24),
s_dist_07
char(24),
s_dist_08
char(24),
s_dist_09
char(24),
s_dist_10
char(24),
s_ytd
int,
s_order_cnt
tinyint,
s_remote_cnt
smallint,

```



```

        s_data
        char(50)
) on MSSQL_cs_fg
go

```

time.c

```

//      File:                TIME.C
//      Microsoft
TPC-C Kit Ver. 4.41
//      Copyright
Microsoft, 1996, 1997, 1998, 1999, 2000, 2001
//      Purpose: Source file for time functions

// Includes
#include "tpcc.h"

// Globals
static long start_sec;

//=====
//
// Function name: TimeNow
//
//=====
long TimeNow()
{
    long        time_now;
    struct _timeb el_time;

#ifdef DEBUG
    printf("[%ld]DBG: Entering TimeNow()\n", (int)
GetCurrentThreadId());
#endif

    _ftime(&el_time);

    time_now = ((el_time.time - start_sec) * 1000) +
el_time.millitm;

    return time_now;
}

```

tpcc.h

```

//      File:                TPCC.H
//      Microsoft
TPC-C Kit Ver. 4.41
//      Copyright
Microsoft, 1996, 1997, 1998, 1999, 2000, 2001

```

```

//      Purpose: Header file for TPC-C database
loader

// Build number of TPC Benchmark Kit
#define TPCKIT_VER "4.41"

// General headers
#include <windows.h>
#include <winbase.h>
#include <stdlib.h>
#include <stdio.h>
#include <process.h>
#include <stddef.h>
#include <stdarg.h>
#include <string.h>
#include <time.h>
#include <sys\timeb.h>
#include <sys\types.h>

// ODBC headers
#include <sql.h>
#include <sqlext.h>
#include <odbcss.h>

// General constants
#define MILLI                1000
#define FALSE                0
#define TRUE                 1
#define UNDEF                -1
#define MINPRINTASCII       32
#define MAXPRINTASCII       126

// Default environment constants
#define SERVER                ""
#define DATABASE              "tpcc"
#define USER                  "sa"
#define PASSWORD              ""

// Default loader arguments
#define BATCH                 10000
#define DEFLDPACKSIZE        32768
#define LOADER_RES_FILE      "C:\\MSTPCC.440\\SETUP\\logs\\load.out"
#define LOG_PATH              "C:\\MSTPCC.440\\SETUP\\LOGS\\";
#define LOADER_NURAND_C      123
#define DEF_STARTING_WAREHOUSE 1
#define BUILD_INDEX          1 // build both data and indexes
#define INDEX_ORDER          1 // build indexes before load
#define SCALE_DOWN           0 // build a normal scale database
#define INDEX_SCRIPT_PATH    "scripts"

```

```

typedef struct
{
    char        *server;
    char        *database;
    char        *user;
    char        *password;
    BOOL        tables_all; //
    set if loading all tables
    BOOL        table_item; //
    set if loading ITEM table specifically
    BOOL        table_warehouse; // set if loading
    WAREHOUSE, DISTRICT, and STOCK
    BOOL        table_customer; // set if
    loading CUSTOMER and HISTORY
    BOOL        table_orders; // set if
    loading NEW-ORDER, ORDERS, ORDER-LINE
    long        num_warehouses;
    long        batch;
    long        verbose;
    long        pack_size;
    char        *loader_res_file;
    char        *log_path;
    char        *synch_servername;
    long        case_sensitivity;
    long        starting_warehouse;
    long        build_index;
    long        index_order;
    long        scale_down;
    char        *index_script_path;
} TPCCCLR_ARGS;

// String length constants
#define SERVER_NAME_LEN      20
#define DATABASE_NAME_LEN   20
#define USER_NAME_LEN       20
#define PASSWORD_LEN        20
#define TABLE_NAME_LEN     20
#define I_DATA_LEN          50
#define I_NAME_LEN           24
#define BRAND_LEN           1
#define LAST_NAME_LEN        16

```

```

#define W_NAME_LEN          10
#define ADDRESS_LEN        20
#define STATE_LEN          2
#define ZIP_LEN            9
#define S_DIST_LEN        24
#define S_DATA_LEN         50
#define D_NAME_LEN         10
#define FIRST_NAME_LEN     16
#define MIDDLE_NAME_LEN    2
#define PHONE_LEN          16
#define CREDIT_LEN         2
#define C_DATA_LEN         500
#define H_DATA_LEN         24
#define DIST_INFO_LEN      24
#define MAX_OL_NEW_ORDER_ITEMS 15
#define MAX_OL_ORDER_STATUS_ITEMS 15
#define STATUS_LEN         25
#define OL_DIST_INFO_LEN  24

24 #define C_SINCE_LEN      23
    #define H_DATE_LEN     23
23 #define OL_DELIVERY_D_LEN
    #define O_ENTRY_D_LEN  23

// Functions in random.c
void seed();
long irand();
double drand();
void WUcreate();
short WURand();
long RandomNumber(long lower, long upper);

// Functions in getargs.c;
void GetArgsLoader();
void GetArgsLoaderUsage();

// Functions in time.c
long TimeNow();

// Functions in strings.c
void MakeAddress();
void LastName();
int MakeAlphaString();
int MakeOriginalAlphaString();
int MakeNumberString();
int MakeZipNumberString();
void InitString();
void InitAddress();
void PaddString();

```

tpccldr.c

```

// File:          TPCCCLR.C
//               Microsoft
TPC-C Kit Ver. 4.41

```

```

// Copyright
// Microsoft, 1996, 1997, 1998, 1999, 2000, 2001
// Purpose: Source file for TPC-C database
// loader

// Includes
#include "tpcc.h"
#include "search.h"

// Defines
#define MAXITEMS            100000
#define MAXITEMS_SCALE_DOWN 100
#define CUSTOMERS_PER_DISTRICT 3000
#define CUSTOMERS_SCALE_DOWN 30
#define DISTRICT_PER_WAREHOUSE 10
#define ORDERS_PER_DISTRICT 3000
#define ORDERS_SCALE_DOWN 30
#define MAX_CUSTOMER_THREADS 2
#define MAX_ORDER_THREADS 3
#define MAX_MAIN_THREADS 4

// Functions declarations
void HandleErrorDBC (SQLHDBC hdbc1);

void CheckDataBase();

long NURand();
void LoadItem();
void LoadWarehouse();

void Stock();
void District();

void LoadCustomer();
void CustomerBufInit();
void CustomerBufLoad();
void LoadCustomerTable();
void LoadHistoryTable();

void LoadOrders();
void OrdersBufInit();
void OrdersBufLoad();
void LoadOrdersTable();
void LoadNewOrderTable();
void LoadOrderLineTable();
void GetPermutation();
void CheckForCommit();
void OpenConnections();
void BuildIndex();
void FormatDate ();

// Shared memory structures

typedef struct
{
    long ol;
    long ol_i_id;
    short ol_supply_w_id;
    short ol_quantity;
    double ol_amount;

```

```

    char ol_dist_info[DIST_INFO_LEN+1];
    char ol_delivery_d[OL_DELIVERY_D_LEN+1];
} ORDER_LINE_STRUCT;

typedef struct
{
    long o_id;
    short o_d_id;
    short o_w_id;
    long o_c_id;
    short o_carrier_id;
    short o_ol_cnt;
    short o_all_local;
    ORDER_LINE_STRUCT o_ol[15];
} ORDERS_STRUCT;

typedef struct
{
    long c_id;
    short c_d_id;
    short c_w_id;
    char c_first[FIRST_NAME_LEN+1];
    char c_middle[MIDDLE_NAME_LEN+1];
    char c_last[LAST_NAME_LEN+1];
    char c_street_1[ADDRESS_LEN+1];
    char c_street_2[ADDRESS_LEN+1];
    char c_city[ADDRESS_LEN+1];
    char c_state[STATE_LEN+1];
    char c_zip[ZIP_LEN+1];
    char c_phone[PHONE_LEN+1];
    char c_credit[CREDIT_LEN+1];
    double c_credit_lim;
    double c_discount;
    // fix to avoid ODBC float to numeric conversion
    // problem.
    // double
    double c_balance;
    char c_balance[6];

    double c_ytd_payment;
    short c_payment_cnt;
    short c_delivery_cnt;
    char c_data[C_DATA_LEN+1];

```

```

        double
        h_amount;
    char
        h_data[H_DATA_LEN+1];
} CUSTOMER_STRUCT;

typedef struct
{
    char
        c_last[LAST_NAME_LEN+1];
    char
        c_first[FIRST_NAME_LEN+1];
    long
        c_id;
} CUSTOMER_SORT_STRUCT;

typedef struct
{
    long
        time_start;
} LOADER_TIME_STRUCT;

// Global variables

char
    szLastError[300];

HENV
    henv;

HDBC
    v_hdbc;
    // for SQL Server version

verification
HDBC
    i_hdbc1;
    // for ITEM table
HDBC
    w_hdbc1;
    // for WAREHOUSE, DISTRICT, STOCK
HDBC
    c_hdbc1;
    // for CUSTOMER
HDBC
    c_hdbc2;
    // for HISTORY
HDBC
    o_hdbc1;
    // for ORDERS
HDBC
    o_hdbc2;
    // for NEW-ORDER

HDBC
    o_hdbc3;
    // for ORDER-LINE

HSTMT
    v_hstmt;
    // for SQL Server version verification
HSTMT
    i_hstmt1;
HSTMT
    w_hstmt1;
HSTMT
    c_hstmt1, c_hstmt2;
HSTMT
    o_hstmt1, o_hstmt2, o_hstmt3;

ORDERS_STRUCT
    orders_buf[ORDERS_PER_DISTRICT];
CUSTOMER_STRUCT
    customer_buf[CUSTOMERS_PER_DISTRICT];
long
    orders_rows_loaded;
long
    new_order_rows_loaded;
long
    order_line_rows_loaded;
long
    history_rows_loaded;
long
    customer_rows_loaded;
long
    stock_rows_loaded;
long
    district_rows_loaded;
long
    item_rows_loaded;

```

```

long
    warehouse_rows_loaded;
long
    main_time_start;
long
    main_time_end;
long
    max_items;
long
    customers_per_district;
long
    orders_per_district;
long
    first_new_order;
long
    last_new_order;

TPCCCLDR_ARGS
    *aptr, args;

//=====
//
// Function name: main
//=====

int main(int argc, char **argv)
{
    DWORD
    dwThreadId[MAX_MAIN_THREADS];
    HANDLE
    hThread[MAX_MAIN_THREADS];
    FILE
    *fLoader;
    char
    buffer[255];
    int
    i;

    for (i=0; i<MAX_MAIN_THREADS; i++)
        hThread[i] = NULL;

    printf("\n*****\n");
    printf("\n*
    *");
    printf("\n* Microsoft SQL Server
    *");
    printf("\n*
    *");
    printf("\n* TPC-C BENCHMARK KIT: Database
    loader *");
    printf("\n* Version %s
    *", TPCKIT_VER);
    printf("\n*
    *");
    printf("\n*****\n\n");

    // process command line arguments

    aptr = &args;
    GetArgsLoader(argc, argv, aptr);

    // verify database and tables exist before
    attempting to load
    //CheckDataBase();

    printf("Build interface is ODBC.\n");

```

```

        if (aptr->build_index == 0)
            printf("Data load only - no index
            creation.\n");
        else
            printf("Data load and index
            creation.\n");

        if (aptr->index_order == 0)
            printf("Clustered indexes will be
            created after bulk load.\n");
        else
            printf("Clustered indexes will be
            created before bulk load.\n");

        // set database scale values
        if (aptr->scale_down == 1)
        {
            printf("*** Scaled Down Database
            ***\n");
            max_items = MAXITEMS_SCALE_DOWN;
            customers_per_district =
            CUSTOMERS_SCALE_DOWN;
            orders_per_district =
            ORDERS_SCALE_DOWN;
            first_new_order = 0;
            last_new_order = 30;
        }
        else
        {
            max_items = MAXITEMS;
            customers_per_district =
            CUSTOMERS_PER_DISTRICT;
            orders_per_district =
            ORDERS_PER_DISTRICT;
            first_new_order = 2100;
            last_new_order = 3000;
        }

        // open connections to SQL Server
        OpenConnections();

        // open file for loader results
        fLoader = fopen(aptr->loader_res_file,
        "w");

        if (fLoader == NULL)
        {
            printf("Error, loader result file
            open failed.");
            exit(-1);
        }

        // start loading data

        sprintf(buffer, "TPC-C load started for %ld
        warehouses.\n", aptr->num_warehouses);

        printf("%s", buffer);
        fprintf(fLoader, "%s", buffer);

```

```

main_time_start = (TimeNow() / MILLI);

// start parallel load threads

if (aptr->tables_all || aptr->table_item)
{
    fprintf(fLoader, "\nStarting
loader threads for: item\n");

    hThread[0] = CreateThread(NULL,
        0,
(LPTHREAD_START_ROUTINE) LoadItem,
        NULL,
        0,
        &dwThreadID[0]);

    if (hThread[0] == NULL)
    {
        printf("Error, failed
in creating creating thread = 0.\n");
        exit(-1);
    }

    if (aptr->tables_all || aptr-
>table_warehouse)
    {
        fprintf(fLoader, "Starting loader
threads for: warehouse\n");

        hThread[1] = CreateThread(NULL,
            0,
(LPTHREAD_START_ROUTINE) LoadWarehouse,
            NULL,
            0,
            &dwThreadID[1]);

        if (hThread[1] == NULL)
        {
            printf("Error, failed
in creating creating thread = 1.\n");
            exit(-1);
        }

        if (aptr->tables_all || aptr-
>table_customer)
        {

```

```

        fprintf(fLoader, "Starting loader
threads for: customer\n");

        hThread[2] = CreateThread(NULL,
            0,
(LPTHREAD_START_ROUTINE) LoadCustomer,
            NULL,
            0,
            &dwThreadID[2]);

        if (hThread[2] == NULL)
        {
            printf("Error, failed
in creating creating main thread = 2.\n");
            exit(-1);
        }

        if (aptr->tables_all || aptr->table_orders)
        {
            fprintf(fLoader, "Starting loader
threads for: orders\n");

            hThread[3] = CreateThread(NULL,
                0,
(LPTHREAD_START_ROUTINE) LoadOrders,
                NULL,
                0,
                &dwThreadID[3]);

            if (hThread[3] == NULL)
            {
                printf("Error, failed
in creating creating main thread = 3.\n");
                exit(-1);
            }

            // Wait for threads to finish...
            for (i=0; i<MAX_MAIN_THREADS; i++)
            {
                if (hThread[i] != NULL)
                {
                    WaitForSingleObject(
hThread[i], INFINITE);

                    CloseHandle (hThread[i]);
                    hThread[i] = NULL;
                }
            }

```

```

        main_time_end = (TimeNow() / MILLI);

        sprintf(buffer, "\nTPC-C load completed
successfully in %ld minutes.\n",
            (main_time_end -
main_time_start)/60);

        printf("%s",buffer);
        fprintf(fLoader, "%s", buffer);

        fclose(fLoader);

        SQLFreeEnv(henv);

        exit(0);

        return 0;
    }

//=====
//
// Function name: LoadItem
//
//=====
void LoadItem()
{
    long        i_id;
    long        i_im_id;
    char        i_name[I_NAME_LEN+1];
    double      i_price;
    char        i_data[I_DATA_LEN+1];
    char        name[20];
    long        time_start;
    RETCODE     rc;
    DBINT       rcint;
    char        bcpint[128];
    char        err_log_path[256];

    // Seed with unique number
    seed(1);

    printf("Loading item table...\n");

    // if build index before load
    if ((aptr->build_index == 1) && (aptr-
>index_order == 1))
        BuildIndex("idxtmcl");

    InitString(i_name, I_NAME_LEN+1);
    InitString(i_data, I_DATA_LEN+1);

    sprintf(name, "%s..%s", aptr->database,
"item");

    //rc = bcp_init(i_hdbc1, name, NULL,
"logs\\item.err", DB_IN);
    strcpy(err_log_path, aptr->log_path);
    strcat(err_log_path, "item.err");

```

```

        rc = bcp_init(i_hdbc1, name, NULL,
err_log_path, DB_IN);
        if (rc != SUCCEEDED)
            HandleErrorDBC(i_hdbc1);

        if ((aptr->build_index == 1) && (aptr-
>index_order == 1))
        {
            sprintf(bcphint, "tablock, order
(i_id), ROWS_PER_BATCH = 100000");
            rc = bcp_control(i_hdbc1,
BCPHINTS, (void*) bcphint);
            if (rc != SUCCEEDED)

                HandleErrorDBC(i_hdbc1);
        }

        rc = bcp_bind(i_hdbc1, (BYTE *) &i_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 1);
        if (rc != SUCCEEDED)
            HandleErrorDBC(i_hdbc1);

        rc = bcp_bind(i_hdbc1, (BYTE *) &i_im_id,
0, SQL_VARLEN_DATA, NULL, 0, SQLINT4, 2);
        if (rc != SUCCEEDED)
            HandleErrorDBC(i_hdbc1);

        rc = bcp_bind(i_hdbc1, (BYTE *) i_name, 0,
I_NAME_LEN, NULL, 0, 0, 3);
        if (rc != SUCCEEDED)
            HandleErrorDBC(i_hdbc1);

        rc = bcp_bind(i_hdbc1, (BYTE *) &i_price,
0, SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 4);
        if (rc != SUCCEEDED)
            HandleErrorDBC(i_hdbc1);

        rc = bcp_bind(i_hdbc1, (BYTE *) i_data, 0,
I_DATA_LEN, NULL, 0, 0, 5);
        if (rc != SUCCEEDED)
            HandleErrorDBC(i_hdbc1);

        time_start = (TimeNow() / MILLI);
        item_rows_loaded = 0;

        for (i_id = 1; i_id <= max_items; i_id++)
        {
            i_im_id = RandomNumber(1L,
10000L);

            MakeAlphaString(14, 24,
I_NAME_LEN, i_name);

            i_price = ((float)
RandomNumber(100L, 10000L))/100.0;

            MakeOriginalAlphaString(26, 50,
I_DATA_LEN, i_data);

            rc = bcp_sendrow(i_hdbc1);

            if (rc != SUCCEEDED)

```

```

            HandleErrorDBC(i_hdbc1);

            item_rows_loaded++;
            CheckForCommit(i_hdbc1, i_hstmt1,
item_rows_loaded, "item", &time_start);
        }

        rcint = bcp_done(i_hdbc1);
        if (rcint < 0)
            HandleErrorDBC(i_hdbc1);

        printf("Finished loading item table.\n");

        SQLFreeStmt(i_hstmt1, SQL_DROP);
        SQLDisconnect(i_hdbc1);
        SQLFreeConnect(i_hdbc1);

        // if build index after load
        if ((aptr->build_index == 1) && (aptr-
>index_order == 0))
            BuildIndex("idxitmt1");
    }

//=====
//
// Function   : LoadWarehouse
//
// Loads WAREHOUSE table and loads Stock and District
as Warehouses are created
//
//=====

void LoadWarehouse()
{
    short w_id;
    char w_name[W_NAME_LEN+1];
    char w_street_1[ADDRESS_LEN+1];
    char w_street_2[ADDRESS_LEN+1];
    char w_city[ADDRESS_LEN+1];
    char w_state[STATE_LEN+1];
    char w_zip[ZIP_LEN+1];
    double w_tax;
    double w_ytd;
    char name[20];
    long time_start;
    RETCODE rc;
    DBINT rcint;
    char bcphint[128];
    char err_log_path[256];

    // Seed with unique number
    seed(2);

    printf("Loading warehouse table...\n");

    // if build index before load...

```

```

        if ((aptr->build_index == 1) && (aptr-
>index_order == 1))
            BuildIndex("idxwarc1");

        InitString(w_name, W_NAME_LEN+1);
        InitAddress(w_street_1, w_street_2, w_city,
w_state, w_zip);

        sprintf(name, "%s..%s", aptr->database,
"warehouse");

        //rc = bcp_init(w_hdbc1, name, NULL,
"logs\\warehouse.err", DB_IN);
        strcpy(err_log_path, aptr->log_path);
        strcat(err_log_path, "warehouse.err");
        rc = bcp_init(w_hdbc1, name, NULL,
err_log_path, DB_IN);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

        if ((aptr->build_index == 1) && (aptr-
>index_order == 1))
        {
            sprintf(bcphint, "tablock, order
(w_id), ROWS_PER_BATCH = %d", aptr->num_warehouses);
            rc = bcp_control(w_hdbc1,
BCPHINTS, (void*) bcphint);
            if (rc != SUCCEEDED)

                HandleErrorDBC(w_hdbc1);
        }

        rc = bcp_bind(w_hdbc1, (BYTE *) &w_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 1);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) w_name, 0,
W_NAME_LEN, NULL, 0, 0, 2);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) w_street_1,
0, ADDRESS_LEN, NULL, 0, 0, 3);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) w_street_2,
0, ADDRESS_LEN, NULL, 0, 0, 4);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) w_city, 0,
ADDRESS_LEN, NULL, 0, 0, 5);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) w_state, 0,
STATE_LEN, NULL, 0, 0, 6);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

```

```

        rc = bcp_bind(w_hdbc1, (BYTE *) w_zip, 0,
ZIP_LEN, NULL, 0, 0, 7);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) &w_tax, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 8);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) &w_ytd, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 9);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        time_start = (TimeNow() / MILLI);

        warehouse_rows_loaded = 0;

        for (w_id = (short)aptr-
>starting_warehouse; w_id <= aptr->num_warehouses;
w_id++)
        {
            MakeAlphaString(6,10, W_NAME_LEN,
w_name);

            MakeAddress(w_street_1,
w_street_2, w_city, w_state, w_zip);

            w_tax = ((float)
RandomNumber(0L,2000L))/10000.00;

            w_ytd = 300000.00;

            rc = bcp_sendrow(w_hdbc1);
            if (rc != SUCCEED)

                HandleErrorDBC(w_hdbc1);

            warehouse_rows_loaded++;
            CheckForCommit(w_hdbc1, i_hstmt1,
warehouse_rows_loaded, "warehouse", &time_start);
        }

        rcint = bcp_done(w_hdbc1);
        if (rcint < 0)
            HandleErrorDBC(w_hdbc1);

        printf("Finished loading warehouse
table.\n");

        // if build index after load...
        if ((aptr->build_index == 1) && (aptr-
>index_order == 0))
            BuildIndex("idxwarc1");

        stock_rows_loaded = 0;
        district_rows_loaded = 0;

        District();
        Stock();

```

```

}

//=====
//
// Function   : District
//
//=====

void District()
{
    short d_id;
    short d_w_id;
    char  d_name[D_NAME_LEN+1];
    char  d_street_1[ADDRESS_LEN+1];
    char  d_street_2[ADDRESS_LEN+1];
    char  d_city[ADDRESS_LEN+1];
    char  d_state[STATE_LEN+1];
    char  d_zip[ZIP_LEN+1];
    double d_tax;
    double d_ytd;
    char   name[20];
    long  d_next_o_id;
    long  time_start;
    int   w_id;
    RETCODE rc;
    DBINT  rcint;
    char  bcphint[128];
    char  err_log_path[256];

    // Seed with unique number
    seed(4);

    printf("Loading district table...\n");

    // build index before load
    if ((aptr->build_index == 1) && (aptr-
>index_order == 1))
        BuildIndex("idxdisc1");

    InitString(d_name, D_NAME_LEN+1);
    InitAddress(d_street_1, d_street_2, d_city,
d_state, d_zip);
    sprintf(name, "%s..%s", aptr->database,
"district");

    //rc = bcp_init(w_hdbc1, name, NULL,
"logs\\district.err", DB_IN);
    strcpy(err_log_path, aptr->log_path);
    strcat(err_log_path, "district.err");
    rc = bcp_init(w_hdbc1, name, NULL,
err_log_path, DB_IN);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

        if ((aptr->build_index == 1) && (aptr-
>index_order == 1))
        {
            sprintf(bcphint, "tablock, order
(d_w_id, d_id), ROWS_PER_BATCH = %u", (aptr-
>num_warehouses * 10));

```

```

        rc = bcp_control(w_hdbc1,
BCPHINTS, (void*) bcphint);
        if (rc != SUCCEED)

            HandleErrorDBC(w_hdbc1);
        }

        rc = bcp_bind(w_hdbc1, (BYTE *) &d_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 1);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) &d_w_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 2);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) d_name, 0,
D_NAME_LEN, NULL, 0, 0, 3);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) d_street_1,
0, ADDRESS_LEN, NULL, 0, 0, 4);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) d_street_2,
0, ADDRESS_LEN, NULL, 0, 0, 5);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) d_city, 0,
ADDRESS_LEN, NULL, 0, 0, 6);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) d_state, 0,
STATE_LEN, NULL, 0, 0, 7);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) d_zip, 0,
ZIP_LEN, NULL, 0, 0, 8);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) &d_tax, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 9);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) &d_ytd, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 10);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *)
&d_next_o_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT4,
11);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

```

```

d_ytd = 30000.0;

d_next_o_id = orders_per_district+1;

time_start = (TimeNow() / MILLI);

for (w_id = aptr->starting_warehouse; w_id
<= aptr->num_warehouses; w_id++)
{
    d_w_id = w_id;

    for (d_id = 1; d_id <=
DISTRICT_PER_WAREHOUSE; d_id++)
    {

        MakeAlphaString(6,10,D_NAME_LEN, d_name);

        MakeAddress(d_street_1,
d_street_2, d_city, d_state, d_zip);

        d_tax = ((float)
RandomNumber(0L,2000L))/10000.00;

        rc =
bcp_sendrow(w_hdbc1);

        if (rc != SUCCEEDED)

            HandleErrorDBC(w_hdbc1);

        district_rows_loaded++;
        CheckForCommit(w_hdbc1,
w_hstmt1, district_rows_loaded, "district",
&time_start);
    }

    rcint = bcp_done(w_hdbc1);
    if (rcint < 0)
        HandleErrorDBC(w_hdbc1);

    printf("Finished loading district
table.\n");

    // if build index after load...
    if ((aptr->build_index == 1) && (aptr-
>index_order == 0))
        BuildIndex("idxdiscl");

    return;
}

//=====
//
// Function   : Stock
//
//=====

void Stock()
{

```

```

long s_i_id;
short s_w_id;
short s_quantity;
char s_dist_01[S_DIST_LEN+1];
char s_dist_02[S_DIST_LEN+1];
char s_dist_03[S_DIST_LEN+1];
char s_dist_04[S_DIST_LEN+1];
char s_dist_05[S_DIST_LEN+1];
char s_dist_06[S_DIST_LEN+1];
char s_dist_07[S_DIST_LEN+1];
char s_dist_08[S_DIST_LEN+1];
char s_dist_09[S_DIST_LEN+1];
char s_dist_10[S_DIST_LEN+1];
long s_ytd;
short s_order_cnt;
short s_remote_cnt;
char s_data[S_DATA_LEN+1];
short len;
char name[20];
long time_start;
RETCODE rc;
DBINT rcint;
char bcphint[128];
char err_log_path[256];

// Seed with unique number
seed(3);

// if build index before load...
if ((aptr->build_index == 1) && (aptr-
>index_order == 1))
    BuildIndex("idxstck1");

sprintf(name, "%s..%s", aptr->database,
"stock");

//rc = bcp_init(w_hdbc1, name, NULL,
"logs\\stock.err", DB_IN);
strcpy(err_log_path, aptr->log_path);
strcat(err_log_path, "stock.err");
rc = bcp_init(w_hdbc1, name, NULL,
err_log_path, DB_IN);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

if ((aptr->build_index == 1) && (aptr-
>index_order == 1))
{
    sprintf(bcphint, "tablock, order
(s_i_id, s_w_id), ROWS_PER_BATCH = %u", (aptr-
>num_warehouses * 100000));
    rc = bcp_control(w_hdbc1,
BCPHINTS, (void*) bcphint);
    if (rc != SUCCEEDED)

        HandleErrorDBC(w_hdbc1);
}

rc = bcp_bind(w_hdbc1, (BYTE *) &s_i_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 1);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

```

```

        bcp_bind(w_hdbc1, (BYTE *) &s_w_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 2);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *)
&s_quantity, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT2,
3);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_01,
0, S_DIST_LEN, NULL, 0, 0, 4);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_02,
0, S_DIST_LEN, NULL, 0, 0, 5);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_03,
0, S_DIST_LEN, NULL, 0, 0, 6);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_04,
0, S_DIST_LEN, NULL, 0, 0, 7);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_05,
0, S_DIST_LEN, NULL, 0, 0, 8);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_06,
0, S_DIST_LEN, NULL, 0, 0, 9);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_07,
0, S_DIST_LEN, NULL, 0, 0, 10);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_08,
0, S_DIST_LEN, NULL, 0, 0, 11);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_09,
0, S_DIST_LEN, NULL, 0, 0, 12);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_10,
0, S_DIST_LEN, NULL, 0, 0, 13);
        if (rc != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) &s_ytd, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 14);

```

```

        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *)
&s_order_cnt, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT2,
15);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *)
&s_remote_cnt, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT2,
16);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = bcp_bind(w_hdbc1, (BYTE *) s_data, 0,
S_DATA_LEN, NULL, 0, 0, 17);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        s_ytd = s_order_cnt = s_remote_cnt = 0;

        time_start = (TimeNow() / MILLI);

        printf("...Loading stock table\n");

        for (s_i_id=1; s_i_id <= max_items;
s_i_id++)
        {
            for (s_w_id = (short)aptr-
>starting_warehouse; s_w_id <= aptr->num_warehouses;
s_w_id++)
            {
                s_quantity =
(short)RandomNumber(10L,100L);
                len =
MakeAlphaString(24,24,S_DIST_LEN, s_dist_01);
                len =
MakeAlphaString(24,24,S_DIST_LEN, s_dist_02);
                len =
MakeAlphaString(24,24,S_DIST_LEN, s_dist_03);
                len =
MakeAlphaString(24,24,S_DIST_LEN, s_dist_04);
                len =
MakeAlphaString(24,24,S_DIST_LEN, s_dist_05);
                len =
MakeAlphaString(24,24,S_DIST_LEN, s_dist_06);
                len =
MakeAlphaString(24,24,S_DIST_LEN, s_dist_07);
                len =
MakeAlphaString(24,24,S_DIST_LEN, s_dist_08);
                len =
MakeAlphaString(24,24,S_DIST_LEN, s_dist_09);
                len =
MakeAlphaString(24,24,S_DIST_LEN, s_dist_10);

                len =
MakeOriginalAlphaString(26,50, S_DATA_LEN,
s_data,10);

```

```

        rc =
bcp_sendrow(w_hdbc1);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        stock_rows_loaded++;
        CheckForCommit(w_hdbc1,
w_hstmt1, stock_rows_loaded, "stock", &time_start);
    }
}

rcint = bcp_done(w_hdbc1);
if (rcint < 0)
    HandleErrorDBC(w_hdbc1);

printf("Finished loading stock table.\n");

SQLFreeStmt(w_hstmt1, SQL_DROP);
SQLDisconnect(w_hdbc1);
SQLFreeConnect(w_hdbc1);

// if build index after load...
if ((aptr->build_index == 1) && (aptr-
>index_order == 0))
    BuildIndex("idxstkcl");

return;
}

//-----
//
// Function : LoadCustomer
//
//-----

void LoadCustomer()
{
    LOADER_TIME_STRUCT
customer_time_start;
    LOADER_TIME_STRUCT
short w_id;
    short
d_id;
    DWORD
dwThreadId[MAX_CUSTOMER_THREADS];
    HANDLE
hThread[MAX_CUSTOMER_THREADS];
    char
name[20];
    RETCODE
rc;
    DBINT
rcint;
    char
bcphint[128];
    char
cmd[256];
    int
num_procs;

```

```

char
err_log_path_cust[256];
char
err_log_path_hist[256];
// SQLRETURN
rc_l;
// SQLSMALLINT
recnum, MsgLen;
// SQLCHAR
SqlState[6],
Msg[SQL_MAX_MESSAGE_LENGTH];
// SQLINTEGER
NativeError;

// Seed with unique number
seed(5);

printf("Loading customer and history
tables...\n");

// if build index before load...
if ((aptr->build_index == 1) && (aptr-
>index_order == 1))
{
    BuildIndex("idxcuscl");
    // check the number of processors
on this system
    // if 8 or more processors, then
build index on History.
    // if less than 8 processors, do
not build the index
    num_procs = atoi(getenv(
"NUMBER_OF_PROCESSORS" ));
    if ( num_procs >= 8 )
        BuildIndex("idxhiscl");
}

// Initialize bulk copy
sprintf(name, "%s..%s", aptr->database,
"customer");

//rc = bcp_init(c_hdbc1, name, NULL,
"logs\\customer.err", DB_IN);
strcpy(err_log_path_cust,aptr->log_path);
strcat(err_log_path_cust,"customer.err");
rc = bcp_init(c_hdbc1, name, NULL,
err_log_path_cust, DB_IN);
if (rc != SUCCEED)
    HandleErrorDBC(c_hdbc1);

if ((aptr->build_index == 1) && (aptr-
>index_order == 1))
{
    sprintf(bcphint, "tablock, order
(c_w_id, c_d_id, c_id), ROWS_PER_BATCH = %u", (aptr-
>num_warehouses * 30000));
    rc = bcp_control(c_hdbc1,
BCPHINTS, (void*) bcphint);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);
}

```



```

        sprintf(name, "%s..%s", aptr->database,
"history");

        rc = bcp_init(c_hdbc2, name, NULL,
"logs\\history.err", DB_IN);
        strcpy(err_log_path_hist, aptr->log_path);
        strcat(err_log_path_hist, "history.err");
        rc = bcp_init(c_hdbc2, name, NULL,
err_log_path_hist, DB_IN);
        if (rc != SUCCEEDED)
            HandleErrorDBC(c_hdbc2);

        sprintf(bcphint, "tablock");
        rc = bcp_control(c_hdbc2, BCPHINTS, (void*)
bcphint);
        if (rc != SUCCEEDED)
            HandleErrorDBC(c_hdbc2);

        customer_rows_loaded = 0;
        history_rows_loaded = 0;

        CustomerBufInit();

        customer_time_start.time_start = (TimeNow()
/ MILLI);
        history_time_start.time_start = (TimeNow()
/ MILLI);

        for (w_id = (short)aptr-
>starting_warehouse; w_id <= aptr->num_warehouses;
w_id++)
        {
            for (d_id = 1; d_id <=
DISTRICT_PER_WAREHOUSE; d_id++)
            {
                CustomerBufLoad(d_id,
w_id);

                // Start parallel
loading threads here...

                // Start customer table
thread

                printf("...Loading
customer table for: d_id = %d, w_id = %d\n", d_id,
w_id);

                hThread[0] =
CreateThread(NULL,

                    0,

(LPTHREAD_START_ROUTINE) LoadCustomerTable,

&customer_time_start,

                    0,

```

```

&dwThreadID[0]);

                if (hThread[0] == NULL)
                {
                    printf("Error, failed in creating creating
thread = 0.\n");
                    exit(-1);
                }

                // Start History table
thread

                printf("...Loading
history table for: d_id = %d, w_id = %d\n", d_id,
w_id);

                hThread[1] =
CreateThread(NULL,

                    0,

(LPTHREAD_START_ROUTINE) LoadHistoryTable,

&history_time_start,

                    0,

&dwThreadID[1]);

                if (hThread[1] == NULL)
                {
                    printf("Error, failed in creating creating
thread = 1.\n");
                    exit(-1);
                }

                WaitForSingleObject(
hThread[0], INFINITE );
                WaitForSingleObject(
hThread[1], INFINITE );

                if
(CloseHandle(hThread[0]) == FALSE)
                {
                    printf("Error, failed in closing customer
thread handle with errno: %d\n", GetLastError());
                }

                if
(CloseHandle(hThread[1]) == FALSE)
                {
                    printf("Error, failed in closing history
thread handle with errno: %d\n", GetLastError());
                }

```

```

                }

                // flush the bulk connection
rcint = bcp_done(c_hdbc1);
                if (rcint < 0)
                    HandleErrorDBC(c_hdbc1);

                rcint = bcp_done(c_hdbc2);
                if (rcint < 0)
                    HandleErrorDBC(c_hdbc2);

                printf("Finished loading customer
table.\n");

                // if build index after load...
                if ((aptr->build_index == 1) && (aptr-
>index_order == 0))
                {
                    BuildIndex("idxcuscl");
                    // check the number of processors
on this system
                    // if 8 or more processors, then
build index on History.
                    // if less than 8 processors, do
not build the index
                    num_procs = atoi(getenv(
"NUMBER_OF_PROCESSORS" ));
                    if (num_procs >= 8)
                        BuildIndex("idxhiscl");
                }

                // build non-clustered index
                if (aptr->build_index == 1)
                    BuildIndex("idxcusnc");

                // Output the NURAND used for the loader
into C_FIRST for C_ID = 1,
                // C_W_ID = 1, and C_D_ID = 1
                //sprintf(cmd, "osql -S%s -U%s -P%s -d%s -e
-Q\"update customer set c_first = 'C_LOAD = %d' where
c_id = 1 and c_w_id = 1 and c_d_id = 1\" >
logs\\nurand_load.log",
                sprintf(cmd, "osql -S%s -U%s -P%s -d%s -e -
Q\"update customer set c_first = 'C_LOAD = %d' where
c_id = 1 and c_w_id = 1 and c_d_id = 1\" >
%snurand_load.log",
                aptr->server,
                aptr->user,
                aptr-
>password,
                aptr-
>database,
                {
                    LOADER_NURAND_C,
                }
                aptr-
>log_path);

```

```

system(cmd);

SQLFreeStmt(c_hstmt1, SQL_DROP);
SQLDisconnect(c_hdbc1);
SQLFreeConnect(c_hdbc1);

SQLFreeStmt(c_hstmt2, SQL_DROP);
SQLDisconnect(c_hdbc2);
SQLFreeConnect(c_hdbc2);

return;
}

//=====
//
// Function   : CustomerBufInit
//
//=====
void CustomerBufInit()
{
    int    i;

    for (i=0;i<customers_per_district;i++)
    {
        customer_buf[i].c_id = 0;
        customer_buf[i].c_d_id = 0;
        customer_buf[i].c_w_id = 0;

        strcpy(customer_buf[i].c_first, "");
        strcpy(customer_buf[i].c_middle, "");
        strcpy(customer_buf[i].c_last, "");
        strcpy(customer_buf[i].c_street_1, "");
        strcpy(customer_buf[i].c_street_2, "");
        strcpy(customer_buf[i].c_city, "");
        strcpy(customer_buf[i].c_state, "");
        strcpy(customer_buf[i].c_zip, "");

        strcpy(customer_buf[i].c_phone, "");
        strcpy(customer_buf[i].c_credit, "");

        customer_buf[i].c_credit_lim = 0;
        customer_buf[i].c_discount =
(float) 0;

        // fix to avoid ODBC float to
numeric conversion problem.
        //
        customer_buf[i].c_balance = 0;

```

```

        strcpy(customer_buf[i].c_balance, "");
        customer_buf[i].c_ytd_payment =
0;
        customer_buf[i].c_payment_cnt =
0;
        customer_buf[i].c_delivery_cnt =
0;

        strcpy(customer_buf[i].c_data, "");

        customer_buf[i].h_amount = 0;

        strcpy(customer_buf[i].h_data, "");
    }

//=====
//
// Function   : CustomerBufLoad
//
// Fills shared buffer for HISTORY and CUSTOMER
//=====
void CustomerBufLoad(int d_id, int w_id)
{
    long                i;
    CUSTOMER_SORT_STRUCT
c(CUSTOMERS_PER_DISTRICT);

    for (i=0;i<customers_per_district;i++)
    {
        if (i < 1000)
            LastName(i,
c[i].c_last);
        else
            LastName(NURand(255,0,999,LOADER_NURAND_C),
c[i].c_last);

        MakeAlphaString(8,16,FIRST_NAME_LEN,
c[i].c_first);

        c[i].c_id = i+1;
    }

    printf("...Loading customer buffer for:
d_id = %d, w_id = %d\n",
d_id, w_id);

```

```

    for (i=0;i<customers_per_district;i++)
    {
        customer_buf[i].c_d_id = d_id;
        customer_buf[i].c_w_id = w_id;
        customer_buf[i].h_amount = 10.0;

        customer_buf[i].c_ytd_payment =
10.0;

        customer_buf[i].c_payment_cnt =
1;
        customer_buf[i].c_delivery_cnt =
0;

        // Generate CUSTOMER and HISTORY
data
        customer_buf[i].c_id = c[i].c_id;
        strcpy(customer_buf[i].c_first,
c[i].c_first);
        strcpy(customer_buf[i].c_last,
c[i].c_last);

        customer_buf[i].c_middle[0] =
'o';
        customer_buf[i].c_middle[1] =
'E';

        MakeAddress(customer_buf[i].c_street_1,
customer_buf[i].c_street_2,
customer_buf[i].c_city,
customer_buf[i].c_state,
customer_buf[i].c_zip);

        MakeNumberString(16, 16,
PHONE_LEN, customer_buf[i].c_phone);

        if (RandomNumber(1L, 100L) > 10)
            customer_buf[i].c_credit[0] = 'G';
        else
            customer_buf[i].c_credit[0] = 'B';
        customer_buf[i].c_credit[1] =
'C';

        customer_buf[i].c_credit_lim =
50000.0;
        customer_buf[i].c_discount =
((float) RandomNumber(0L, 5000L)) / 10000.0;

        // fix to avoid ODBC float to
numeric conversion problem.

```

```

        // customer_buf[i].c_balance = -
10.0;

        strcpy(customer_buf[i].c_balance, "-10.0");

        MakeAlphaString(300, 500,
C_DATA_LEN, customer_buf[i].c_data);

        // Generate HISTORY data
        MakeAlphaString(12, 24,
H_DATA_LEN, customer_buf[i].h_data);
    }
}

//=====
//
// Function   : LoadCustomerTable
//
//=====

void LoadCustomerTable(LOADER_TIME_STRUCT
*customer_time_start)
{
    int     i;
    long    c_id;
    short   c_d_id;
    short   c_w_id;
    char    c_first[FIRST_NAME_LEN+1];
    char    c_middle[MIDDLE_NAME_LEN+1];
    char    c_last[LAST_NAME_LEN+1];
    char    c_street_1[ADDRESS_LEN+1];
    char    c_street_2[ADDRESS_LEN+1];
    char    c_city[ADDRESS_LEN+1];
    char    c_state[STATE_LEN+1];
    char    c_zip[ZIP_LEN+1];
    char    c_phone[PHONE_LEN+1];
    char    c_credit[CREDIT_LEN+1];
    double  c_credit_lim;
    double  c_discount;

    // fix to avoid ODBC float to numeric
conversion problem.
    // double          c_balance;
    char              c_balance[6];

    double  c_ytd_payment;
    short   c_payment_cnt;
    short   c_delivery_cnt;
    char    c_data[C_DATA_LEN+1];
    char    c_since[C_SINCE_LEN+1];

    RETCODE    rc;

    rc = bcp_bind(c_hdbc1, (BYTE *) &c_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 1);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) &c_d_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 2);

```

```

    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) &c_w_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 3);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_first, 0,
FIRST_NAME_LEN, NULL, 0, 0, 4);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_middle, 0,
MIDDLE_NAME_LEN, NULL, 0, 0, 5);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_last, 0,
LAST_NAME_LEN, NULL, 0, 0, 6);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_street_1, 0,
ADDRESS_LEN, NULL, 0, 0, 7);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_street_2, 0,
ADDRESS_LEN, NULL, 0, 0, 8);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_city, 0,
ADDRESS_LEN, NULL, 0, 0, 9);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_state, 0,
STATE_LEN, NULL, 0, 0, 10);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_zip, 0,
ZIP_LEN, NULL, 0, 0, 11);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_phone, 0,
PHONE_LEN, NULL, 0, 0, 12);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) &c_since,
0, C_SINCE_LEN, NULL, 0, SQLCHARACTER, 13);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) c_credit, 0,
CREDIT_LEN, NULL, 0, 0, 14);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc1);

```

```

    rc = bcp_bind(c_hdbc1, (BYTE *) &c_credit_lim, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 15);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) &c_discount, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 16);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc1);

    // fix to avoid ODBC float to numeric
conversion problem.
    // rc = bcp_bind(c_hdbc1, (BYTE *) &c_balance,
0, SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 17);
    // if (rc != SUCCEEDED)
    //     HandleErrorDBC(c_hdbc1);
    rc = bcp_bind(c_hdbc1, (BYTE *) c_balance, 0, 5,
NULL, 0, SQLCHARACTER, 17);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) &c_ytd_payment,
0, SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 18);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *) &c_payment_cnt,
0, SQL_VARLEN_DATA, NULL, 0, SQLINT2, 19);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc1);

    rc = bcp_bind(c_hdbc1, (BYTE *)
&c_delivery_cnt, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT2,
20);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc1);

    for (i = 0; i < customers_per_district; i++)
    {
        c_id = customer_buf[i].c_id;
        c_d_id = customer_buf[i].c_d_id;
        c_w_id = customer_buf[i].c_w_id;

        strcpy(c_first,
customer_buf[i].c_first);
        strcpy(c_middle,
customer_buf[i].c_middle);
        strcpy(c_last,
customer_buf[i].c_last);
        strcpy(c_street_1,
customer_buf[i].c_street_1);
        strcpy(c_street_2,
customer_buf[i].c_street_2);
        strcpy(c_city,
customer_buf[i].c_city);

```

```

        strcpy(c_state,
customer_buf[i].c_state);
        strcpy(c_zip,
customer_buf[i].c_zip);
        strcpy(c_phone,
customer_buf[i].c_phone);
        strcpy(c_credit,
customer_buf[i].c_credit);

        FormatDate(&c_since);

        c_credit_lim =
customer_buf[i].c_credit_lim;
        c_discount =
customer_buf[i].c_discount;

        // fix to avoid ODBC float to
numeric conversion problem.
        // c_balance =
customer_buf[i].c_balance;
        strcpy(c_balance,
customer_buf[i].c_balance);

        c_ytd_payment =
customer_buf[i].c_ytd_payment;
        c_payment_cnt =
customer_buf[i].c_payment_cnt;
        c_delivery_cnt =
customer_buf[i].c_delivery_cnt;

        strcpy(c_data,
customer_buf[i].c_data);

        // Send data to server
rc = bcp_sendrow(c_hdbc1);
if (rc != SUCCEED)

        HandleErrorDBC(c_hdbc1);

        customer_rows_loaded++;
        CheckForCommit(c_hdbc1, c_hstmt1,
customer_rows_loaded, "customer",
&customer_time_start->time_start);
    }
}

//=====
//
// Function   : LoadHistoryTable
//
//=====

void LoadHistoryTable(LOADER_TIME_STRUCT
*history_time_start)
{
    int         i;
    long        c_id;
    short       c_d_id;

```

```

    short       c_w_id;
    double      h_amount;
    char        h_data[H_DATA_LEN+1];
    char        h_date[H_DATE_LEN+1];

    RETCODE     rc;

    rc = bcp_bind(c_hdbc2, (BYTE *) &c_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 1);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &c_d_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 2);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &c_w_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 3);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &c_d_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 4);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &c_w_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 5);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &h_date, 0,
H_DATE_LEN, NULL, 0, SQLCHARACTER, 6);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &h_amount, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 7);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) h_data, 0,
H_DATA_LEN, NULL, 0, 0, 8);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    for (i = 0; i < customers_per_district; i++)
    {
        c_id = customer_buf[i].c_id;
        c_d_id = customer_buf[i].c_d_id;
        c_w_id = customer_buf[i].c_w_id;
        h_amount =
customer_buf[i].h_amount;
        strcpy(h_data,
customer_buf[i].h_data);

        FormatDate(&h_date);

        // send to server
rc = bcp_sendrow(c_hdbc2);

```

```

        if (rc != SUCCEED)

            HandleErrorDBC(c_hdbc2);

            history_rows_loaded++;
            CheckForCommit(c_hdbc2, c_hstmt2,
history_rows_loaded, "history", &history_time_start-
>time_start);
        }
    }

//=====
//
// Function   : LoadOrders
//
//=====

void LoadOrders()
{
    LOADER_TIME_STRUCT    orders_time_start;
    LOADER_TIME_STRUCT    new_order_time_start;
    LOADER_TIME_STRUCT    order_line_time_start;
    short                  d_id;
    short                  w_id;
    short                  d_id;
    DWORD                  dwThreadId[MAX_ORDER_THREADS];
    HANDLE                  hThread[MAX_ORDER_THREADS];
    char                    name[20];
    RETCODE                rc;
    char                    bcphint[128];
    char                    err_log_path_ord[256];
    char                    err_log_path_nord[256];
    char                    err_log_path_ordl[256];

    // seed with unique number
    seed(6);

    printf("Loading orders...\n");

    // if build index before load...
    if ((aptr->build_index == 1) && (aptr-
>index_order == 1))
    {
        BuildIndex("idxordcl");
        BuildIndex("idxnordcl");
        BuildIndex("idxordcl1");
    }

    // initialize bulk copy

```

```

        sprintf(name, "%s.%s", aptr->database,
"orders");

        rc = bcp_init(o_hdbc1, name, NULL,
"logs\\orders.err", DB_IN);
        strcpy(err_log_path_ord, aptr->log_path);
        strcat(err_log_path_ord, "orders.err");
        rc = bcp_init(o_hdbc1, name, NULL,
err_log_path_ord, DB_IN);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc1);

        if ((aptr->build_index == 1) && (aptr-
>index_order == 1))
        {
            sprintf(bcphint, "tablock, order
(o_w_id, o_d_id, o_id), ROWS_PER_BATCH = %u", (aptr-
>num_warehouses * 30000));
            rc = bcp_control(o_hdbc1,
BCPHINTS, (void*) bcphint);
            if (rc != SUCCEED)

                HandleErrorDBC(o_hdbc1);
        }

        sprintf(name, "%s.%s", aptr->database,
"new_order");

        rc = bcp_init(o_hdbc2, name, NULL,
"logs\\neword.err", DB_IN);
        strcpy(err_log_path_nord, aptr->log_path);
        strcat(err_log_path_nord, "neword.err");
        rc = bcp_init(o_hdbc2, name, NULL,
err_log_path_nord, DB_IN);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc2);

        if ((aptr->build_index == 1) && (aptr-
>index_order == 1))
        {
            sprintf(bcphint, "tablock, order
(no_w_id, no_d_id, no_o_id), ROWS_PER_BATCH = %u",
(aptr->num_warehouses * 9000));
            rc = bcp_control(o_hdbc2,
BCPHINTS, (void*) bcphint);
            if (rc != SUCCEED)

                HandleErrorDBC(o_hdbc2);
        }

        sprintf(name, "%s.%s", aptr->database,
"order_line");

        rc = bcp_init(o_hdbc3, name, NULL,
"logs\\ordline.err", DB_IN);
        strcpy(err_log_path_ordl, aptr->log_path);
        strcat(err_log_path_ordl, "ordline.err");
        rc = bcp_init(o_hdbc3, name, NULL,
err_log_path_ordl, DB_IN);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc3);

```

```

        if ((aptr->build_index == 1) && (aptr-
>index_order == 1))
        {
            sprintf(bcphint, "tablock, order
(o_l_w_id, o_l_d_id, o_l_o_id, o_l_number),
ROWS_PER_BATCH = %u", (aptr->num_warehouses *
300000));
            rc = bcp_control(o_hdbc3,
BCPHINTS, (void*) bcphint);
            if (rc != SUCCEED)

                HandleErrorDBC(o_hdbc3);
        }

        orders_rows_loaded = 0;
        new_order_rows_loaded = 0;
        order_line_rows_loaded = 0;

        OrdersBufInit();

        orders_time_start.time_start = (TimeNow() /
MILLI);
        new_order_time_start.time_start =
(TimeNow() / MILLI);
        order_line_time_start.time_start =
(TimeNow() / MILLI);

        for (w_id = (short)aptr-
>starting_warehouse; w_id <= aptr->num_warehouses;
w_id++)
        {
            for (d_id = 1; d_id <=
DISTRICT_PER_WAREHOUSE; d_id++)
            {
                OrdersBufLoad(d_id,
w_id);

                loading threads here...

                thread // start parallel
// start Orders table

                printf("...Loading
Order Table for: d_id = %d, w_id = %d\n", d_id,
w_id);

                hThread[0] =
CreateThread(NULL,
0,
(LPTHREAD_START_ROUTINE) LoadOrdersTable,
&orders_time_start,
0,
&dwThreadID[0]);

```

```

                if (hThread[0] == NULL)
                {
                    printf("Error, failed in creating creating
thread = 0.\n");
                    exit(-1);
                }

                // start NewOrder table
                thread

                printf("...Loading New-
Order Table for: d_id = %d, w_id = %d\n", d_id,
w_id);

                hThread[1] =
CreateThread(NULL,
0,
(LPTHREAD_START_ROUTINE) LoadNewOrderTable,
&new_order_time_start,
0,
&dwThreadID[1]);

                if (hThread[1] == NULL)
                {
                    printf("Error, failed in creating creating
thread = 1.\n");
                    exit(-1);
                }

                // start Order-Line
                table thread

                printf("...Loading
Order-Line Table for: d_id = %d, w_id = %d\n", d_id,
w_id);

                hThread[2] =
CreateThread(NULL,
0,
(LPTHREAD_START_ROUTINE) LoadOrderLineTable,
&order_line_time_start,
0,
&dwThreadID[2]);

```

```

        if (hThread[2] == NULL)
        {
            printf("Error, failed in creating creating
thread = 2.\n");
                exit(-1);
        }
        WaitForSingleObject(
hThread[0], INFINITE );
        WaitForSingleObject(
hThread[1], INFINITE );
        WaitForSingleObject(
hThread[2], INFINITE );

        if
(CloseHandle(hThread[0]) == FALSE)
        {
            printf("Error, failed in closing Orders
thread handle with errno: %d\n", GetLastError());
        }

        if
(CloseHandle(hThread[1]) == FALSE)
        {
            printf("Error, failed in closing NewOrder
thread handle with errno: %d\n", GetLastError());
        }

        if
(CloseHandle(hThread[2]) == FALSE)
        {
            printf("Error, failed in closing OrderLine
thread handle with errno: %d\n", GetLastError());
        }
    }

    printf("Finished loading orders.\n");

    return;
}

//=====
//
// Function   : OrdersBufInit
//
// Clears shared buffer for ORDERS, NEWORDER, and
ORDERLINE
//
//=====
void OrdersBufInit()
{
    int    i;

```

```

    int    j;

    for (i=0;i<orders_per_district;i++)
    {
        orders_buf[i].o_id = 0;
        orders_buf[i].o_d_id = 0;
        orders_buf[i].o_w_id = 0;
        orders_buf[i].o_c_id = 0;
        orders_buf[i].o_carrier_id = 0;
        orders_buf[i].o_ol_cnt = 0;
        orders_buf[i].o_all_local = 0;

        for (j=0;j<=14;j++)
        {
            orders_buf[i].o_ol[j].ol = 0;

            orders_buf[i].o_ol[j].ol_i_id = 0;

            orders_buf[i].o_ol[j].ol_supply_w_id = 0;

            orders_buf[i].o_ol[j].ol_quantity = 0;

            orders_buf[i].o_ol[j].ol_amount = 0;

            strcpy(orders_buf[i].o_ol[j].ol_dist_info,"
");
        }
    }

//=====
//
// Function   : OrdersBufLoad
//
// Fills shared buffer for ORDERS, NEWORDER, and
ORDERLINE
//
//=====
void OrdersBufLoad(int d_id, int w_id)
{
    int    cust[ORDERS_PER_DISTRICT+1];
    long   o_id;
    short  ol;

    printf("...Loading Order Buffer for: d_id =
%d, w_id = %d\n",
                d_id, w_id);

    GetPermutation(cust, orders_per_district);

    for
(o_id=0;o_id<orders_per_district;o_id++)
    {

```

```

        // Generate ORDER and NEW-ORDER
data
        orders_buf[o_id].o_d_id = d_id;
        orders_buf[o_id].o_w_id = w_id;
        orders_buf[o_id].o_c_id = o_id+1;
        orders_buf[o_id].o_c_id =
cust[o_id+1];
        orders_buf[o_id].o_ol_cnt =
(short)RandomNumber(5L, 15L);

        if (o_id < first_new_order)
        {
            orders_buf[o_id].o_carrier_id =
(short)RandomNumber(1L, 10L);

            orders_buf[o_id].o_all_local = 1;
        }
        else
        {
            orders_buf[o_id].o_carrier_id = 0;

            orders_buf[o_id].o_all_local = 1;
        }

        for (ol=0;
ol<orders_buf[o_id].o_ol_cnt; ol++)
        {
            orders_buf[o_id].o_ol[ol].ol = ol+1;

            orders_buf[o_id].o_ol[ol].ol_i_id =
RandomNumber(1L, max_items);

            orders_buf[o_id].o_ol[ol].ol_supply_w_id =
w_id;

            orders_buf[o_id].o_ol[ol].ol_quantity = 5;
            MakeAlphaString(24, 24,
OL_DIST_INFO_LEN,
&orders_buf[o_id].o_ol[ol].ol_dist_info);

            // Generate ORDER-LINE
data
            if (o_id <
first_new_order)
            {
                orders_buf[o_id].o_ol[ol].ol_amount = 0;
                // Added to
insure ol_delivery_d set properly during load

                FormatDate(&orders_buf[o_id].o_ol[ol].ol_de
livery_d);
            }
            else
            {

```

```

        orders_buf[o_id].o_ol[ol].ol_amount =
RandomNumber(1,999999)/100.0;
// Added to
insure ol_delivery_d set properly during load

// odbc
datetime format

strcpy(orders_buf[o_id].o_ol[ol].ol_deliver
y_d,"1899-12-31 00:00:00.000");
}
}
}

//=====
//
// Function : LoadOrdersTable
//=====
void LoadOrdersTable(LOADER_TIME_STRUCT
*orders_time_start)
{
    int i;
    long o_id;
    short o_d_id;
    short o_w_id;
    long o_c_id;
    short o_carrier_id;
    short o_ol_cnt;
    short o_all_local;
    char
o_entry_d[O_ENTRY_D_LEN+1];
    RETCODE rc;
    DBINT rcint;

    // bind ORDER data
    rc = bcp_bind(o_hdbc1, (BYTE *) &o_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 1);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_d_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 2);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_w_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 3);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_c_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 4);
    if (rc != SUCCEED)

```

```

        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_entry_d,
0, O_ENTRY_D_LEN, NULL, 0, SQLCHARACTER, 5);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_carrier_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 6);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_ol_cnt, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 7);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_all_local, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 8);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    for (i = 0; i < orders_per_district; i++)
    {
        orders_buf[i].o_id =
orders_buf[i].o_d_id =
orders_buf[i].o_w_id =
orders_buf[i].o_c_id =
orders_buf[i].o_carrier_id =
orders_buf[i].o_ol_cnt =
orders_buf[i].o_all_local =

        FormatDate(&o_entry_d);

        // send data to server
        rc = bcp_sendrow(o_hdbc1);
        if (rc != SUCCEED)

            HandleErrorDBC(o_hdbc1);

        orders_rows_loaded++;

        CheckForCommit(o_hdbc1, o_hstmt1,
orders_rows_loaded, "orders", &orders_time_start-
>time_start);
    }

    // rcint = bcp_batch(o_hdbc1);
    // if (rcint < 0)
    //     HandleErrorDBC(o_hdbc1);

    if ((o_w_id == aptr->num_warehouses) &&
(o_d_id == 10))
    {

```

```

        rcint = bcp_done(o_hdbc1);
        if (rcint < 0)
            HandleErrorDBC(o_hdbc1);

        SQLFreeStmt(o_hstmt1, SQL_DROP);
        SQLDisconnect(o_hdbc1);
        SQLFreeConnect(o_hdbc1);

        // if build index after load...
        if ((aptr->build_index == 1) &&
(aptr->index_order == 0))
            BuildIndex("idxordc1");

        // build non-clustered index
        if (aptr->build_index == 1)
            BuildIndex("idxordnc");
    }
}

//=====
//
// Function : LoadNewOrderTable
//=====
void LoadNewOrderTable(LOADER_TIME_STRUCT
*new_order_time_start)
{
    int i;
    long o_id;
    short o_d_id;
    short o_w_id;
    RETCODE rc;
    DBINT rcint;

    // Bind NEW-ORDER data

    rc = bcp_bind(o_hdbc2, (BYTE *) &o_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 1);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc2);

    rc = bcp_bind(o_hdbc2, (BYTE *) &o_d_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 2);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc2);

    rc = bcp_bind(o_hdbc2, (BYTE *) &o_w_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 3);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc2);

    for (i = first_new_order; i <
last_new_order; i++)
    {
        o_id = orders_buf[i].o_id;
        o_d_id = orders_buf[i].o_d_id;

```

```

        o_w_id = orders_buf[i].o_w_id;

        rc = bcp_sendrow(o_hdbc2);
        if (rc != SUCCEED)

            HandleErrorDBC(o_hdbc2);

        new_order_rows_loaded++;

        CheckForCommit(o_hdbc2, o_hstmt2,
new_order_rows_loaded, "new_order",
&new_order_time_start->time_start);
    }

    // rcint = bcp_batch(o_hdbc2);
    // if (rcint < 0)
    //     HandleErrorDBC(o_hdbc2);

    if ((o_w_id == aptr->num_warehouses) &&
(o_d_id == 10))
    {
        rcint = bcp_done(o_hdbc2);

        if (rcint < 0)

            HandleErrorDBC(o_hdbc2);

        SQLFreeStmt(o_hstmt2, SQL_DROP);
        SQLDisconnect(o_hdbc2);
        SQLFreeConnect(o_hdbc2);

        // if build index after load...
        if ((aptr->build_index == 1) &&
(aptr->index_order == 0))
            BuildIndex("idxnodc1");
    }
}

//=====
//
// Function   : LoadOrderLineTable
//
//=====
void LoadOrderLineTable(LOADER_TIME_STRUCT
*order_line_time_start)
{
    int     i,j;
    long    o_id;
    short   o_d_id;
    short   o_w_id;

    long    ol;
    long    ol_i_id;
    short   ol_supply_w_id;
    short   ol_quantity;
    double  ol_amount;

```

```

    char    ol_dist_info[DIST_INFO_LEN+1];
    char    ol_delivery_d[OL_DELIVERY_D_LEN+1];
    RETCODE rc;
    DBINT   rcint;

    // bind ORDER-LINE data
    rc = bcp_bind(o_hdbc3, (BYTE *) &o_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 1);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &o_d_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 2);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &o_w_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 3);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &ol, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 4);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &ol_i_id, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT4, 5);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &ol_supply_w_id,
0, SQL_VARLEN_DATA, NULL, 0, SQLINT2, 6);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *)
&ol_delivery_d, 0, OL_DELIVERY_D_LEN, NULL, 0,
SQL_CHARACTER, 7);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &ol_quantity, 0,
SQL_VARLEN_DATA, NULL, 0, SQLINT2, 8);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &ol_amount, 0,
SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 9);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) ol_dist_info, 0,
DIST_INFO_LEN, NULL, 0, 0, 10);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

    for (i = 0; i < orders_per_district; i++)
    {
        o_id = orders_buf[i].o_id;
        o_d_id = orders_buf[i].o_d_id;
        o_w_id = orders_buf[i].o_w_id;

```

```

        for (j=0; j <
orders_buf[i].o_ol_cnt; j++)
        {
            orders_buf[i].o_ol[j].ol;
            ol_i_id =
orders_buf[i].o_ol[j].ol_i_id;
            ol_supply_w_id =
orders_buf[i].o_ol[j].ol_supply_w_id;
            ol_quantity =
orders_buf[i].o_ol[j].ol_quantity;
            ol_amount =
orders_buf[i].o_ol[j].ol_amount;

            strcpy(ol_delivery_d,orders_buf[i].o_ol[j].
ol_delivery_d);

            strcpy(ol_dist_info,orders_buf[i].o_ol[j].o
l_dist_info);

            rc =
bcp_sendrow(o_hdbc3);
            if (rc != SUCCEED)

                HandleErrorDBC(o_hdbc3);

            order_line_rows_loaded++;
            CheckForCommit(o_hdbc3,
o_hstmt3, order_line_rows_loaded, "order_line",
&order_line_time_start->time_start);
        }

        // rcint = bcp_batch(o_hdbc3);
        // if (rcint < 0)
        //     HandleErrorDBC(o_hdbc3);

        if ((o_w_id == aptr->num_warehouses) &&
(o_d_id == 10))
        {
            rcint = bcp_done(o_hdbc3);

            if (rcint < 0)

                HandleErrorDBC(o_hdbc3);

            SQLFreeStmt(o_hstmt3, SQL_DROP);
            SQLDisconnect(o_hdbc3);
            SQLFreeConnect(o_hdbc3);

            // if build index after load...
            if ((aptr->build_index == 1) &&
(aptr->index_order == 0))
                BuildIndex("idxodc1");
        }
    }
}

```



```

}

//=====
//
// Function : GetPermutation
//
//=====
void GetPermutation(int perm[], int n)
{
    int i, r, t;

    for (i=1;i<=n;i++)
        perm[i] = i;

    for (i=1;i<=n;i++)
    {
        r = RandomNumber(i,n);
        t = perm[i];
        perm[i] = perm[r];
        perm[r] = t;
    }
}

//=====
//
// Function : CheckForCommit
//
//=====
void CheckForCommit(HDBC hdbc,
                   HSTMT hstmt,
                   int rows_loaded,
                   char *table_name,
                   long *time_start)
{
    long time_end, time_diff;
    // DBINT rcint;

    if ( !(rows_loaded % aptr->batch) )
    {
        // rcint = bcp_batch(hdbc);
        // if (rcint < 0)
        //     HandleErrorDBC(hdbc);

        time_end = (TimeNow() / MILLI);
        time_diff = time_end -
*time_start;

```

```

        printf("-> Loaded %ld rows into
%s in %ld sec - Total = %d (%.2f rps)\n",
aptr->batch,
table_name,
time_diff,
rows_loaded,
(float) aptr->batch / (time_diff ? time_diff : 1L));

        *time_start = time_end;
    }
    return;
}

//=====
//
// Function : OpenConnections
//
//=====
void OpenConnections()
{
    RETCODE rc;

    char
szDriverString[300];
char
szDriverStringOut[1024];
SQLSMALLINT
cbDriverStringOut;

    SQLAllocHandle(SQL_HANDLE_ENV,
SQL_NULL_HANDLE, &henv );

    SQLSetEnvAttr(henv, SQL_ATTR_ODBC_VERSION,
(void*)SQL_OV_ODBC3, 0 );

    SQLAllocHandle(SQL_HANDLE_DBC, henv ,
&i_hdbc1);
    SQLAllocHandle(SQL_HANDLE_DBC, henv ,
&w_hdbc1);
    SQLAllocHandle(SQL_HANDLE_DBC, henv ,
&c_hdbc1);
    SQLAllocHandle(SQL_HANDLE_DBC, henv ,
&c_hdbc2);
    SQLAllocHandle(SQL_HANDLE_DBC, henv ,
&o_hdbc1);
    SQLAllocHandle(SQL_HANDLE_DBC, henv ,
&o_hdbc2);
    SQLAllocHandle(SQL_HANDLE_DBC, henv ,
&o_hdbc3);

    SQLSetConnectAttr(i_hdbc1, SQL_COPT_SS_BCP,
(void *)SQL_BCP_ON, SQL_IS_INTEGER );
    SQLSetConnectAttr(w_hdbc1, SQL_COPT_SS_BCP,
(void *)SQL_BCP_ON, SQL_IS_INTEGER );

```

```

    SQLSetConnectAttr(c_hdbc1, SQL_COPT_SS_BCP,
(void *)SQL_BCP_ON, SQL_IS_INTEGER );
    SQLSetConnectAttr(c_hdbc2, SQL_COPT_SS_BCP,
(void *)SQL_BCP_ON, SQL_IS_INTEGER );
    SQLSetConnectAttr(o_hdbc1, SQL_COPT_SS_BCP,
(void *)SQL_BCP_ON, SQL_IS_INTEGER );
    SQLSetConnectAttr(o_hdbc2, SQL_COPT_SS_BCP,
(void *)SQL_BCP_ON, SQL_IS_INTEGER );
    SQLSetConnectAttr(o_hdbc3, SQL_COPT_SS_BCP,
(void *)SQL_BCP_ON, SQL_IS_INTEGER );

    // Open connections to SQL Server
    // Connection 1

    sprintf( szDriverString, "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" ,

aptr->server,
aptr->user,
aptr->password,
aptr->database );

    rc = SQLSetConnectOption (i_hdbc1,
SQL_PACKET_SIZE, aptr->pack_size);
    if (rc != SUCCEED)
        HandleErrorDBC(i_hdbc1);

    rc = SQLDriverConnect ( i_hdbc1,
NULL,
(SQLCHAR*)&szDriverString[0] ,
SQL_NTS,
(SQLCHAR*)&szDriverStringOut[0],
sizeof(szDriverStringOut),
&cbDriverStringOut,
SQL_DRIVER_NOPROMPT );
    if (rc != SUCCEED)
        HandleErrorDBC(i_hdbc1);

    // Connection 2

    sprintf( szDriverString, "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" ,

aptr->server,
aptr->user,
aptr->password,
aptr->database );

```

```

        rc = SQLSetConnectOption (w_hdbc1,
SQL_PACKET_SIZE, aptr->pack_size);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        rc = SQLDriverConnect ( w_hdbc1,

            NULL,

            (SQLCHAR*)&szDriverString[0] ,
            SQL_NTS,

            (SQLCHAR*)&szDriverStringOut[0],
            sizeof(szDriverStringOut),
            &cbDriverStringOut,

            SQL_DRIVER_NOPROMPT );
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        // Connection 3

        sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" ,

            aptr->server,

            aptr->user,

            aptr->password,

            aptr->database );

        rc = SQLSetConnectOption (c_hdbc1,
SQL_PACKET_SIZE, aptr->pack_size);
        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc1);

        rc = SQLDriverConnect ( c_hdbc1,

            NULL,

            (SQLCHAR*)&szDriverString[0] ,
            SQL_NTS,

            (SQLCHAR*)&szDriverStringOut[0],
            sizeof(szDriverStringOut),
            &cbDriverStringOut,

            SQL_DRIVER_NOPROMPT );
        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc1);

        // Connection 4

        sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" ,

```

```

            aptr->server,

            aptr->user,

            aptr->password,

            aptr->database );

        rc = SQLSetConnectOption (c_hdbc2,
SQL_PACKET_SIZE, aptr->pack_size);
        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc2);

        rc = SQLDriverConnect ( c_hdbc2,

            NULL,

            (SQLCHAR*)&szDriverString[0] ,
            SQL_NTS,

            (SQLCHAR*)&szDriverStringOut[0],
            sizeof(szDriverStringOut),
            &cbDriverStringOut,

            SQL_DRIVER_NOPROMPT );
        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc2);

        // Connection 5

        sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" ,

            aptr->server,

            aptr->user,

            aptr->password,

            aptr->database );

        rc = SQLSetConnectOption (o_hdbc1,
SQL_PACKET_SIZE, aptr->pack_size);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc1);

        rc = SQLDriverConnect ( o_hdbc1,

            NULL,

            (SQLCHAR*)&szDriverString[0] ,
            SQL_NTS,

            (SQLCHAR*)&szDriverStringOut[0],
            sizeof(szDriverStringOut),
            &cbDriverStringOut,

```

```

            SQL_DRIVER_NOPROMPT );
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc1);

        // Connection 6

        sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" ,

            aptr->server,

            aptr->user,

            aptr->password,

            aptr->database );

        rc = SQLSetConnectOption (o_hdbc2,
SQL_PACKET_SIZE, aptr->pack_size);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc2);

        rc = SQLDriverConnect ( o_hdbc2,

            NULL,

            (SQLCHAR*)&szDriverString[0] ,
            SQL_NTS,

            (SQLCHAR*)&szDriverStringOut[0],
            sizeof(szDriverStringOut),
            &cbDriverStringOut,

            SQL_DRIVER_NOPROMPT );
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc2);

        // Connection 7

        sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" ,

            aptr->server,

            aptr->user,

            aptr->password,

            aptr->database );

        rc = SQLSetConnectOption (o_hdbc3,
SQL_PACKET_SIZE, aptr->pack_size);
        if (rc != SUCCEED)
            HandleErrorDBC(o_hdbc3);

        rc = SQLDriverConnect ( o_hdbc3,

            NULL,

```

```

        (SQLCHAR*)&szDriverString[0] ,
        SQL_NTS,
        (SQLCHAR*)&szDriverStringOut[0],
        sizeof(szDriverStringOut),
        &cbDriverStringOut,
        SQL_DRIVER_NOPROMPT );
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);
}
//=====
//
// Function name: BuildIndex
//
//=====
void BuildIndex(char          *index_script)
{
    char    cmd[256];

    printf("Starting index creation:
%s\n",index_script);

    sprintf(cmd, "osql -S%s -U%s -P%s -e -
i%s\\%s.sql > %s%s.log",
            aptr->server,
            aptr->user,
            aptr->password,
            aptr->index_script_path,
            index_script,
            aptr->log_path,
            index_script);

    system(cmd);

    printf("Finished index creation:
%s\n",index_script);
}

void HandleErrorDBC (SQLHDBC  hdbc1)
{
    SQLCHAR          SqlState[6],
    Msg[SQL_MAX_MESSAGE_LENGTH];
    SQLINTEGER  NativeError;
    SQLSMALLINT i, MsgLen;
    SQLRETURN  rc2;
    char        timebuf[128];
    char        datebuf[128];

    i = 1;
    while (( rc2 = SQLGetDiagRec(SQL_HANDLE_DBC
, hdbc1, i, SqlState , &NativeError,
    sizeof(Msg) , &MsgLen )) != SQL_NO_DATA )
    {
        sprintf( szLastError , "%s" ,
        Msg );

        _strtime(timebuf);
        _strdate(datebuf);

        printf( "[%s : %s] %s\n" ,
        datebuf, timebuf, szLastError);

        strcpy(err_log_path,aptr-
        >log_path);

        strcat(err_log_path,"tpccldr.err");
        fp1 = fopen(err_log_path,"w");
        //fp1 =
        fopen("logs\\tpccldr.err","w");
        if (fp1 == NULL)
            printf("ERROR: Unable
            to open errorlog file.\n");
        else
            fprintf(fp1, "[%s : %s]
            %s\n" , datebuf, timebuf, szLastError);
        fclose(fp1);
        i++;
    }
}

void HandleErrorSTMT (HSTMT  hstmt1)
{
    SQLCHAR          SqlState[6],
    Msg[SQL_MAX_MESSAGE_LENGTH];
    SQLINTEGER  NativeError;
    SQLSMALLINT i, MsgLen;
    SQLRETURN  rc2;
    char        timebuf[128];
    char        datebuf[128];
    char        err_log_path[256];
    FILE        *fp1;

    i = 1;
    while (( rc2 =
    SQLGetDiagRec(SQL_HANDLE_STMT , hstmt1, i, SqlState ,
    &NativeError,
    sizeof(Msg) , &MsgLen )) != SQL_NO_DATA )
    {
        sprintf( szLastError , "%s" ,
        Msg );

        _strtime(timebuf);
        _strdate(datebuf);

        printf( "[%s : %s] %s\n" ,
        datebuf, timebuf, szLastError);

        strcpy(err_log_path,aptr-
        >log_path);

        strcat(err_log_path,"tpccldr.err");
        fp1 = fopen(err_log_path,"w");
        //fp1 =
        fopen("logs\\tpccldr.err","w");
        if (fp1 == NULL)
            printf("ERROR: Unable
            to open errorlog file.\n");
        else
            fprintf(fp1, "[%s : %s]
            %s\n" , datebuf, timebuf, szLastError);
        fclose(fp1);
        i++;
    }
}

void FormatDate ( char* szTimeCOutput )
{
    struct tm when;
    time_t now;

    time( &now );
    when = *localtime( &now );

    mktime( &when );

    // odbc datetime format
    strftime( szTimeCOutput , 30 , "%Y-%m-%d
%H:%M:%S.000" , &when );

    return;
}

//=====
//
// Function : CheckDataBase
//
//=====
void CheckDataBase()
{
    RETCODE    rc;

```

```

        char        err_log_path[256];
        FILE        *fp1;

        i = 1;
        while (( rc2 = SQLGetDiagRec(SQL_HANDLE_DBC
, hdbc1, i, SqlState , &NativeError,
        sizeof(Msg) , &MsgLen )) != SQL_NO_DATA )
        {
            sprintf( szLastError , "%s" ,
            Msg );

            _strtime(timebuf);
            _strdate(datebuf);

            printf( "[%s : %s] %s\n" ,
            datebuf, timebuf, szLastError);

            strcpy(err_log_path,aptr-
            >log_path);

            strcat(err_log_path,"tpccldr.err");
            fp1 = fopen(err_log_path,"w");
            //fp1 =
            fopen("logs\\tpccldr.err","w");
            if (fp1 == NULL)
                printf("ERROR: Unable
                to open errorlog file.\n");
            else
                fprintf(fp1, "[%s : %s]
                %s\n" , datebuf, timebuf, szLastError);
            fclose(fp1);
            i++;
        }
    }

    void HandleErrorSTMT (HSTMT  hstmt1)
    {
        SQLCHAR          SqlState[6],
        Msg[SQL_MAX_MESSAGE_LENGTH];
        SQLINTEGER  NativeError;
        SQLSMALLINT i, MsgLen;
        SQLRETURN  rc2;
        char        timebuf[128];
        char        datebuf[128];
        char        err_log_path[256];
        FILE        *fp1;

        i = 1;
        while (( rc2 =
        SQLGetDiagRec(SQL_HANDLE_STMT , hstmt1, i, SqlState ,
        &NativeError,
        sizeof(Msg) , &MsgLen )) != SQL_NO_DATA )
        {
            sprintf( szLastError , "%s" ,
            Msg );

            _strtime(timebuf);
            _strdate(datebuf);

            printf( "[%s : %s] %s\n" ,
            datebuf, timebuf, szLastError);

            strcpy(err_log_path,aptr-
            >log_path);

            strcat(err_log_path,"tpccldr.err");
            fp1 = fopen(err_log_path,"w");
            //fp1 =
            fopen("logs\\tpccldr.err","w");
            if (fp1 == NULL)
                printf("ERROR: Unable
                to open errorlog file.\n");
            else
                fprintf(fp1, "[%s : %s]
                %s\n" , datebuf, timebuf, szLastError);
            fclose(fp1);
            i++;
        }
    }

    void FormatDate ( char* szTimeCOutput )
    {
        struct tm when;
        time_t now;

        time( &now );
        when = *localtime( &now );

        mktime( &when );

        // odbc datetime format
        strftime( szTimeCOutput , 30 , "%Y-%m-%d
        %H:%M:%S.000" , &when );

        return;
    }

    //=====
    //
    // Function : CheckDataBase
    //
    //=====
    void CheckDataBase()
    {
        RETCODE    rc;

```

```

        sprintf( szLastError , "%s" ,
        Msg );

        _strtime(timebuf);
        _strdate(datebuf);

        printf( "[%s : %s] %s\n" ,
        datebuf, timebuf, szLastError);

        strcpy(err_log_path,aptr-
        >log_path);

        strcat(err_log_path,"tpccldr.err");
        fp1 = fopen(err_log_path,"w");
        //fp1 =
        fopen("logs\\tpccldr.err","w");
        if (fp1 == NULL)
            printf("ERROR: Unable
            to open errorlog file.\n");
        else
            fprintf(fp1, "[%s : %s]
            %s\n" , datebuf, timebuf, szLastError);
        fclose(fp1);
        i++;
    }
}

void FormatDate ( char* szTimeCOutput )
{
    struct tm when;
    time_t now;

    time( &now );
    when = *localtime( &now );

    mktime( &when );

    // odbc datetime format
    strftime( szTimeCOutput , 30 , "%Y-%m-%d
    %H:%M:%S.000" , &when );

    return;
}

//=====
//
// Function : CheckDataBase
//
//=====
void CheckDataBase()
{
    RETCODE    rc;

```

```

char
szDriverString[300];
char
szDriverStringOut[1024];
char
TablesBitMap[9] = {"000000000"};
int
ExitFlag;

SQLSMALLINT
cbDriverStringOut;
SQLCHAR
SQLINTEGER
TabName[10];
TabNameInd,
TabCount,
TabCountInd;

ExitFlag = 0;

SQLAllocHandle(SQL_HANDLE_ENV,
SQL_NULL_HANDLE, &henv );
SQLSetEnvAttr(henv, SQL_ATTR_ODBC_VERSION,
(void*)SQL_OV_ODBC3, 0 );

SQLAllocHandle(SQL_HANDLE_DBC, henv ,
&v_hdbc);

SQLSetConnectAttr(v_hdbc, SQL_COPT_SS_BCP,
(void *)SQL_BCP_ON, SQL_IS_INTEGER );

// Open connection to SQL Server

sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" ,

aptr->server,

aptr->user,

aptr->password,

aptr->database );

rc = SQLSetConnectAttr( v_hdbc,
SQL_ATTR_PACKET_SIZE, (SQLPOINTER)aptr->pack_size,
SQL_IS_UIINTEGER );
if (rc != SQL_SUCCESS)
HandleErrorDBC(v_hdbc);

rc = SQLDriverConnect ( v_hdbc,

NULL,

(SQLCHAR*)&szDriverString[0] ,

SQL_NTS,

(SQLCHAR*)&szDriverStringOut[0],

sizeof(szDriverStringOut),

&cbDriverStringOut,

```

```

SQL_DRIVER_NOPROMPT );

// if the rc is SQL_ERROR, the the TPCC
database probably does not exist
if (rc == SQL_ERROR)
{
printf("The database TPCC does
not appear to exist!\n");
printf("\nCheck LOGS\ directory
for database creation errors.\n");

// cleanup database connections
and handles
SQLFreeHandle(SQL_HANDLE_STMT,
v_hstmt);
SQLDisconnect(v_hdbc);
SQLFreeHandle(SQL_HANDLE_DBC,
v_hdbc);

// since there is not a database,
exit back to SETUP.COMD
exit(1);
}

if ( SQLAllocHandle(SQL_HANDLE_STMT, v_hdbc
, &v_hstmt) != SQL_SUCCESS )
HandleErrorDBC(v_hdbc);

if ( SQLBindCol(v_hstmt, 1, SQL_C_ULONG,
&TabCount, 0, &TabNameInd) != SQL_SUCCESS )
HandleErrorSTMT(v_hstmt);

// count the number of user tables from
sysobjects
rc = SQLExecDirect(v_hstmt, "select
count(*) from sysobjects where xtype = '\U\',"
SQL_NTS);
if ((rc != SQL_SUCCESS) && (rc !=
SQL_SUCCESS_WITH_INFO))
HandleErrorSTMT(v_hstmt);

if ( SQLFetch(v_hstmt) != SQL_SUCCESS )
HandleErrorSTMT(v_hstmt);

// if the number of tables is less than 9,
select all the user tables in TPCC
if (TabCount != 9)
{
SQLFreeHandle(SQL_HANDLE_STMT,
v_hstmt);
SQLAllocHandle(SQL_HANDLE_STMT,
v_hdbc , &v_hstmt);

if ( SQLBindCol(v_hstmt, 1,
SQL_C_CHAR, &TabName, sizeof(TabName), &TabNameInd)
!= SQL_SUCCESS )
HandleErrorSTMT(v_hstmt);

// select the list of user tables
into a result set

```

```

rc = SQLExecDirect(v_hstmt,
"select * from sysobjects where xtype = '\U\',"
SQL_NTS);
if ((rc != SQL_SUCCESS) && (rc !=
SQL_SUCCESS_WITH_INFO))
HandleErrorSTMT(v_hstmt);

// go through the result set and
set the bitmap for each found table
// set the bitmap to '1' if the
table name is found
while ((rc = SQLFetch(v_hstmt))
!= SQL_NO_DATA)
{
switch( TabName[0] )
{
case 'w':
TablesBitMap[0] = '1';
break;
case 'd':
TablesBitMap[1] = '1';
break;
case 'c':
TablesBitMap[2] = '1';
break;
case 'h':
TablesBitMap[3] = '1';
break;
case 'n':
TablesBitMap[4] = '1';
break;
case 'o':
if
(TabName[5] = 's')
TablesBitMap[5] = '1';
if
(TabName[5] = '_')
TablesBitMap[6] = '1';
break;
case 'i':
TablesBitMap[7] = '1';
break;
case 's':
TablesBitMap[8] = '1';
break;
}
}

// a '0' ExitFlag means do NOT
exit the loader early, a '1' means exit the loader
early
ExitFlag = 0;

```

```

// iterate through the bitmap to
display which table(s) is actually missing
for (i = 0; i <= 8; i++)
{
    switch(i)
    {
        case 0:
            if
                (TablesBitMap[i] == '0')
            {
                printf("The Warehouse table is missing or
                damaged.\n");
                ExitFlag = 1;
            }
            break;
        case 1:
            if
                (TablesBitMap[i] == '0')
            {
                printf("The District table is missing or
                damaged.\n");
                ExitFlag = 1;
            }
            break;
        case 2:
            if
                (TablesBitMap[i] == '0')
            {
                printf("The Customer table is missing or
                damaged.\n");
                ExitFlag = 1;
            }
            break;
        case 3:
            if
                (TablesBitMap[i] == '0')
            {
                printf("The History table is missing or
                damaged.\n");
                ExitFlag = 1;
            }
            break;
        case 4:
            if
                (TablesBitMap[i] == '0')
            {
                printf("The New_Order table is missing or
                damaged.\n");
                ExitFlag = 1;
            }
            break;
        case 5:

```

```

if
    (TablesBitMap[i] == '0')
    {
        printf("The Orders table is missing or
        damaged.\n");
        ExitFlag = 1;
    }
    break;
    case 6:
        if
            (TablesBitMap[i] == '0')
        {
            printf("The Order_Line table is missing or
            damaged.\n");
            ExitFlag = 1;
        }
        break;
    case 7:
        if
            (TablesBitMap[i] == '0')
        {
            printf("The Item table is missing or
            damaged.\n");
            ExitFlag = 1;
        }
        break;
    case 8:
        if
            (TablesBitMap[i] == '0')
        {
            printf("The Stock table is missing or
            damaged.\n");
            ExitFlag = 1;
        }
        break;
    }
}
// if one or more tables are
missing, display message and exit the loader
if (ExitFlag = 1)
{
    printf("\nExiting TPC-C
    Loader!\n");
    printf("\nCheck LOGS\
    directory for database\n");
    printf("or table
    creation errors.\n");
}
// cleanup database
connections and handles
SQLFreeHandle(SQL_HANDLE_STMT, v_hstmt);
SQLDisconnect(v_hdbc);

```

```

SQLFreeHandle(SQL_HANDLE_DBC, v_hdbc);
        }
        exit(1);
    }
}
// cleanup database connections and handles
SQLFreeHandle(SQL_HANDLE_STMT, v_hstmt);
SQLDisconnect(v_hdbc);
SQLFreeHandle(SQL_HANDLE_DBC, v_hdbc);
return;
}

```

VerifyTpccLoad.sql

```

-- File:      VERIFYTPCCLOAD.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.41
--           Copyright Microsoft, 2001
-- Purpose:   Performs series of TPCC database checks
to verify
--           that database load completed
correctly

print      " "
select    convert(char(30), getdate(),9)
print      " "

use tpcc
go

-- *****
--           Check rows per table from SYSINDEXES
-- *****

print      'WAREHOUSE TABLE'

select    rows
from      sysindexes
where     id      = object_id("warehouse")
go

print      'DISTRICT TABLE = (10 * No of warehouses)'

select    rows
from      sysindexes
where     id      =object_id("district")
go

print      'ITEM TABLE = 100,000'

select    rows
from      sysindexes
where     id      =object_id("item")
go

```

```

print 'CUSTOMER TABLE = (30,000 * No of
warehouses) '

select rows
from sysindexes
where id =object_id("customer")
go

print 'ORDERS TABLE = (30,000 * No of warehouses) '

select rows
from sysindexes
where id =object_id("orders")
go

print 'HISTORY TABLE = (30,000 * No of
warehouses) '

select rows
from sysindexes
where id =object_id("history")
go

print 'STOCK TABLE = (100,000 * No of
warehouses) '

select rows
from sysindexes
where id =object_id("stock")
go

print 'ORDER_LINE TABLE = (300,000 * No of
warehouses + some change) '

select rows
from sysindexes
where id =object_id("order_line")
go

print 'NEW_ORDER TABLE = (9000 * No of
warehouses) '

select rows
from sysindexes
where id =object_id("new_order")
go

-- *****
--
-- Check indices
--
-- *****

print '*****Index Check*****'

use tpcc
go

sp_helpindex customer
go

sp_helpindex stock
go

```

```

sp_helpindex district
go

sp_helpindex item
go

sp_helpindex new_order
go

sp_helpindex orders
go

sp_helpindex order_line
go

sp_helpindex warehouse
go

```

version.sql

```

-- File: VERSION.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.41
-- Copyright Microsoft, 2001
-- Purpose: Extracts current version of SQL Server

```

```

use master
go

SELECT CONVERT(char(20),
SERVERPROPERTY('ProductVersion'))
go

SELECT CONVERT(char(20),
SERVERPROPERTY('ProductLevel'))
go

SELECT CONVERT(char(30), getdate(),9)
go

```

Appendix C: Tunable Parameters

Microsoft SQL Server 2000 Startup Parameters

```
start sqlservr.exe -c -x -t3502 -g84 -T3428
```

Where:

```
-c Start SQL Server independently of the
Windows NT Service Control Manager
-x Disables the keeping of CPU time and cache-
hit ratio statistics
-t3502 Prints a message to the SQL Server log at the
start and end of each checkpoint
-g84 Specify the amount of virtual address space
in MB, SQL Server will leave available for memory
allocations, excluding the buffer pool and threads
stack, such as dynamically- loaded DLLs, extended
procedure calls, etc. Incorrect use of this option
can lead to conditions under which SQL Server may not
start or may encounter runtime errors.
-T3428 enable fast recovery
```

File locations:

```
sqlserver.exe C:\Program
Files\Microsoft SQL Server\MSSQL\BINN
ERRORLOG C:\Program Files\Microsoft SQL
Server\MSSQL\LOG
```

Boot.ini Parameters

```
[boot loader]
timeout=3
default=multi(0) disk(0) rdisk(0) partition(2) \WINDOWS
[operating systems]
multi(0) disk(0) rdisk(0) partition(2) \WINDOWS="Windows
Server 2003, Enterprise PAE" /pae /fastdetect
multi(0) disk(0) rdisk(0) partition(2) \WINDOWS="Windows
Server 2003, Enterprise base" /fastdetect
```

Microsoft SQL Server 2000 Configuration Parameters

name	config_value	run_value	minimum
affinity mask			-2147483648
2147483647	15	15	
allow updates			0
1	0	0	
awe enabled			0
1	1	1	
c2 audit mode			0
1	0	0	
cost threshold for parallelism			0
32767	5	5	
Cross DB Ownership Chaining			0
1	0	0	
cursor threshold			-1
2147483647	-1	-1	
default full-text language			0
2147483647	1033	1033	
default language			0
9999	0	0	
fill factor (%)			0
100	0	0	
index create memory (KB)			704
2147483647	704	704	
lightweight pooling			0
1	1	1	
locks			5000
2147483647	0	0	
max degree of parallelism			0
32	1	1	
max server memory (MB)			4
2147483647	15600	15600	
max text repl size (B)			0
2147483647	65536	65536	
max worker threads			32
32767	400	400	
media retention			0
365	0	0	
min memory per query (KB)			512
2147483647	512	512	
min server memory (MB)			0
2147483647	0	0	
nested triggers			0
1	1	1	
network packet size (B)			512
65536	2048	2048	
open objects			0
2147483647	0	0	
priority boost			0
1	1	1	
query governor cost limit			0
2147483647	0	0	

query wait (s)			-1
2147483647	-1	-1	
recovery interval (min)			0
32767	116	116	
remote access			0
1	1	1	
remote login timeout (s)			0
2147483647	20	20	
remote proc trans			0
1	0	0	
remote query timeout (s)			0
2147483647	600	600	
scan for startup procs			0
1	0	0	
set working set size			0
1	0	0	
show advanced options			0
1	1	1	
two digit year cutoff			1753
9999	2049	2049	
user connections			0
32767	0	0	
user options			0
32767	0	0	

Microsoft SQL Server 2000 Torn Page Detection Status

```
1> 2> OptionName
CurrentSetting
-----
torn page detection off
1> 2> 3>
```

Benchcraft Profile

```
Profile: ML370G4_5930_4_clients
File Path: C:\Program
Files\Benchcraft\ML370G4_5930_4_clients.xml
Version: 5
Number of Engines: 8
Name: CL73a
Description:
Directory: c:\blog\cl73a.log
Machine: N37
Parameter Set: 1.005_best
Index: 700000000
Seed: 4678
Configured Users: 7410
Pipe Name: DRIVER44265281
```

Connect Rate: 10000
Start Rate: 10000
Max. Concurrency: 7350
Concurrency Rate: 10000
CLIENT_NURAND: 25
CPU: 0
Additional Options:

Name: CL74a
Description:
Directory: c:\blog\cl74a.log
Machine: N37
Parameter Set: 1.005_best
Index: 200000000
Seed: 4678
Configured Users: 7410
Pipe Name: DRIVER3439676359
Connect Rate: 10000
Start Rate: 10000
Max. Concurrency: 7350
Concurrency Rate: 10000
CLIENT_NURAND: 25
CPU: 2
Additional Options:

Name: CL74b
Description:
Directory: c:\blog\cl74b.log
Machine: N38
Parameter Set: 1.005_best
Index: 300000000
Seed: 4678
Configured Users: 7410
Pipe Name: DRIVER4439706187
Connect Rate: 10000
Start Rate: 10000
Max. Concurrency: 7350
Concurrency Rate: 10000
CLIENT_NURAND: 25
CPU: 0
Additional Options:

Name: CL73b
Description:
Directory: c:\blog\cl73b.log
Machine: N37
Parameter Set: 1.005_best
Index: 600000000
Seed: 4678
Configured Users: 7410
Pipe Name: DRIVER5346413218
Connect Rate: 10000
Start Rate: 10000
Max. Concurrency: 7350
Concurrency Rate: 10000
CLIENT_NURAND: 25
CPU: 1
Additional Options:

Name: CL75a
Description:
Directory: c:\blog\cl75a.log
Machine: N38

Parameter Set: 1.005_best
Index: 400000000
Seed: 4678
Configured Users: 7410
Pipe Name: DRIVER5-418577843
Connect Rate: 10000
Start Rate: 10000
Max. Concurrency: 7350
Concurrency Rate: 10000
CLIENT_NURAND: 25
CPU: 1
Additional Options:

Name: CL75b
Description:
Directory: c:\blog\cl75b.log
Machine: N38
Parameter Set: 1.005_best
Index: 500000000
Seed: 4678
Configured Users: 7410
Pipe Name: DRIVER6-418516765
Connect Rate: 10000
Start Rate: 10000
Max. Concurrency: 7350
Concurrency Rate: 10000
CLIENT_NURAND: 25
CPU: 2
Additional Options:

Name: CL76a
Description:
Directory: c:\blog\cl76a.log
Machine: N39
Parameter Set: 1.005_best
Index: 800000000
Seed: 4678
Configured Users: 7420
Pipe Name: DRIVER71818670921
Connect Rate: 10000
Start Rate: 10000
Max. Concurrency: 7350
Concurrency Rate: 10000
CLIENT_NURAND: 25
CPU: 0
Additional Options:

Name: CL76b
Description:
Directory: c:\blog\cl76b.log
Machine: N39
Parameter Set: 1.005_best
Index: 900000000
Seed: 4678
Configured Users: 7420
Pipe Name: DRIVER81818759218
Connect Rate: 10000
Start Rate: 10000
Max. Concurrency: 7350
Concurrency Rate: 10000
CLIENT_NURAND: 25
CPU: 1
Additional Options:

Number of User groups: 8

Driver Engine: CL73a
IIS Server: cr73
SQL Server: slam
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 1 - 741
w_id Min Warehouse: 1
w_id Max Warehouse: 5930
Scale: Normal
User Count: 7410
District id: 1
Scale Down: No

Driver Engine: CL73b
IIS Server: cr73
SQL Server: slam
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 742 - 1482
w_id Min Warehouse: 1
w_id Max Warehouse: 5930
Scale: Normal
User Count: 7410
District id: 1
Scale Down: No

Driver Engine: CL74a
IIS Server: cr74
SQL Server: slam
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 1483 - 2223
w_id Min Warehouse: 1
w_id Max Warehouse: 5930
Scale: Normal
User Count: 7410
District id: 1
Scale Down: No

Driver Engine: CL74b
IIS Server: cr74
SQL Server: slam
Database: tpcc
User: sa
Protocol: HTML
w_id Range: 2224 - 2964
w_id Min Warehouse: 1
w_id Max Warehouse: 5930
Scale: Normal
User Count: 7410
District id: 1
Scale Down: No

Driver Engine: CL75a
IIS Server: cr75
SQL Server: slam
Database: tpcc

User: sa
 Protocol: HTML
 w_id Range: 2965 - 3705
 w_id Min Warehouse: 1
 w_id Max Warehouse: 5930
 Scale: Normal
 User Count: 7410
 District id: 1
 Scale Down: No

Driver Engine: CL75b
 IIS Server: cr75
 SQL Server: slam
 Database: tpcc
 User: sa
 Protocol: HTML
 w_id Range: 3706 - 4446
 w_id Min Warehouse: 1
 w_id Max Warehouse: 5930
 Scale: Normal
 User Count: 7410
 District id: 1
 Scale Down: No

Driver Engine: CL76a
 IIS Server: cr76
 SQL Server: slam
 Database: tpcc
 User: sa
 Protocol: HTML
 w_id Range: 4447 - 5188
 w_id Min Warehouse: 1
 w_id Max Warehouse: 5930
 Scale: Normal
 User Count: 7420
 District id: 1
 Scale Down: No

Driver Engine: CL76b
 IIS Server: cr76
 SQL Server: slam
 Database: tpcc
 User: sa
 Protocol: HTML
 w_id Range: 5189 - 5930
 w_id Min Warehouse: 1
 w_id Max Warehouse: 5930
 Scale: Normal
 User Count: 7420
 District id: 1
 Scale Down: No

Number of Parameter Sets: 66

~Default
 Default Parameter Set

Key	RT	RT	Menu	Txn	Think
Time	Delay	Fence	Delay	Weight	Time
12.05	18.01	0.10	New Order	10.00	0.10

12.05	3.01	0.10	Payment	5.00	10.00	0.10
5.05	2.01	0.10	Delivery	5.00	1.00	0.10
5.05	2.01	0.10	Stock Level	20.00	1.00	0.10
10.05	2.01	0.10	Order Status	5.00	1.00	0.10

Tuned Distribution

Key	RT	RT	Menu	Txn	Think	
Time	Delay	Fence	Delay	Weight	Time	
12.05	18.01	0.10	New Order	5.00	44.75	0.10
12.05	3.01	0.10	Payment	5.00	43.10	0.10
5.05	2.01	0.10	Delivery	5.00	4.05	0.10
5.05	2.01	0.10	Stock Level	20.00	4.05	0.10
10.05	2.01	0.10	Order Status	5.00	4.05	0.10

No Think

Key	RT	RT	Menu	Txn	Think	
Time	Delay	Fence	Delay	Weight	Time	
0.00	0.00	0.00	New Order	5.00	10.00	0.00
0.00	0.00	0.00	Payment	5.00	10.00	0.00
0.00	0.00	0.00	Delivery	5.00	1.00	0.00
0.00	0.00	0.00	Stock Level	20.00	1.00	0.00
0.00	0.00	0.00	Order Status	5.00	1.00	0.00

95%

Key	RT	RT	Menu	Txn	Think	
Time	Delay	Fence	Delay	Weight	Time	
13.00	18.01	0.10	New Order	5.00	44.75	0.10
13.00	3.01	0.10	Payment	5.00	43.10	0.10
6.00	2.01	0.10	Delivery	5.00	4.05	0.10
6.00	2.01	0.10	Stock Level	20.00	4.05	0.10
11.00	2.01	0.10	Order Status	5.00	4.05	0.10

90%

Key	RT	RT	Menu	Txn	Think	
Time	Delay	Fence	Delay	Weight	Time	
16.00	18.01	0.10	New Order	5.00	44.83	0.10
16.00	3.01	0.10	Payment	5.00	43.05	0.10
9.00	2.01	0.10	Delivery	5.00	4.04	0.10
9.00	2.01	0.10	Stock Level	20.00	4.04	0.10
14.00	2.01	0.10	Order Status	5.00	4.04	0.10

3.0

Key	RT	RT	Menu	Txn	Think	
Time	Delay	Fence	Delay	Weight	Time	
36.15	0.00	0.10	New Order	5.00	44.75	0.10
36.15	0.00	0.10	Payment	5.00	43.10	0.10
15.15	0.00	0.10	Delivery	5.00	4.05	0.10
15.15	0.00	0.10	Stock Level	20.00	4.05	0.10
30.15	0.00	0.10	Order Status	5.00	4.05	0.10

4.0

4.0 tt

Key	RT	RT	Menu	Txn	Think	
Time	Delay	Fence	Delay	Weight	Time	
48.20	18.01	0.10	New Order	5.00	44.75	0.10
48.20	3.01	0.10	Payment	5.00	43.10	0.10
20.20	2.01	0.10	Delivery	5.00	4.05	0.10
20.20	2.01	0.10	Stock Level	20.00	4.05	0.10
40.20	2.01	0.10	Order Status	5.00	4.05	0.10

3.8

3.8 tt

Key	RT	RT	Menu	Txn	Think	
Time	Delay	Fence	Delay	Weight	Time	
45.70	18.01	0.10	New Order	5.00	44.75	0.10
45.70	3.01	0.10	Payment	5.00	43.10	0.10
19.10	2.01	0.10	Delivery	5.00	4.05	0.10
19.10	2.01	0.10	Stock Level	20.00	4.05	0.10

38.10	2.01		Order Status	4.05			
			0.10	5.00	0.10		
			3.6				
			3.6 tt				
Key	RT	RT	Menu	Txn	Think		
				Weight	Time		
Time	Delay	Fence	Delay				
43.30	18.01		New Order	44.75			
			0.10	5.00	0.10		
43.30	3.01		Payment	43.10			
			0.10	5.00	0.10		
18.10	2.01		Delivery	4.05			
			0.10	5.00	0.10		
18.10	2.01		Stock Level	4.05			
			0.10	20.00	0.10		
36.18	2.01		Order Status	4.05			
			0.10	5.00	0.10		
			3.4				
			3.4 tt				
Key	RT	RT	Menu	Txn	Think		
				Weight	Time		
Time	Delay	Fence	Delay				
40.90	18.01		New Order	44.75			
			0.10	5.00	0.10		
40.90	3.01		Payment	43.10			
			0.10	5.00	0.10		
17.10	2.01		Delivery	4.05			
			0.10	5.00	0.10		
17.10	2.01		Stock Level	4.05			
			0.10	20.00	0.10		
17.10	2.01		Order Status	4.05			
			0.10	5.00	0.10		
			3.2				
			3.2 tt				
Key	RT	RT	Menu	Txn	Think		
				Weight	Time		
Time	Delay	Fence	Delay				
38.50	18.01		New Order	44.75			
			0.10	5.00	0.10		
38.50	3.01		Payment	43.10			
			0.10	5.00	0.10		
16.10	2.01		Delivery	4.05			
			0.10	5.00	0.10		
16.10	2.01		Stock Level	4.05			
			0.10	20.00	0.10		
32.10	2.01		Order Status	4.05			
			0.10	5.00	0.10		
			2.8				
			2.8 tt				
Key	RT	RT	Menu	Txn	Think		
				Weight	Time		
Time	Delay	Fence	Delay				
33.74	18.01		New Order	44.75			
			0.10	5.00	0.10		

33.74	3.01		Payment	43.10			
			0.10	5.00	0.10		
14.14	2.01		Delivery	4.05			
			0.10	5.00	0.10		
14.14	2.01		Stock Level	4.05			
			0.10	20.00	0.10		
28.14	2.01		Order Status	4.05			
			0.10	5.00	0.10		
			2.6				
			2.6 tt				
Key	RT	RT	Menu	Txn	Think		
				Weight	Time		
Time	Delay	Fence	Delay				
31.30	18.01		New Order	44.75			
			0.10	5.00	0.10		
31.30	3.01		Payment	43.10			
			0.10	5.00	0.10		
13.10	2.01		Delivery	4.05			
			0.10	5.00	0.10		
13.10	2.01		Stock Level	4.05			
			0.10	20.00	0.10		
26.10	2.01		Order Status	4.05			
			0.10	5.00	0.10		
			2.4				
			2.4 tt				
Key	RT	RT	Menu	Txn	Think		
				Weight	Time		
Time	Delay	Fence	Delay				
28.90	18.01		New Order	44.75			
			0.10	5.00	0.10		
28.90	3.01		Payment	43.10			
			0.10	5.00	0.10		
12.10	2.01		Delivery	4.05			
			0.10	5.00	0.10		
12.10	2.01		Stock Level	4.05			
			0.10	20.00	0.10		
24.10	2.01		Order Status	4.05			
			0.10	5.00	0.10		
			2.2				
			2.2 tt				
Key	RT	RT	Menu	Txn	Think		
				Weight	Time		
Time	Delay	Fence	Delay				
28.90	18.01		New Order	44.75			
			0.10	5.00	0.10		
28.90	3.01		Payment	43.10			
			0.10	5.00	0.10		
12.10	2.01		Delivery	4.05			
			0.10	5.00	0.10		
12.10	2.01		Stock Level	4.05			
			0.10	20.00	0.10		
24.12	2.01		Order Status	4.05			
			0.10	5.00	0.10		
			2.0				
			2.0 tt				

Key	RT	RT	Menu	Txn	Think		
				Weight	Time		
Time	Delay	Fence	Delay				
24.10	18.01		New Order	44.75			
			0.10	5.00	0.10		
24.10	3.01		Payment	43.10			
			0.10	5.00	0.10		
10.10	2.01		Delivery	4.05			
			0.10	5.00	0.10		
10.10	2.01		Stock Level	4.05			
			0.10	20.00	0.10		
20.10	2.01		Order Status	4.05			
			0.10	5.00	0.10		
			5.0				
			5.0 tt				
Key	RT	RT	Menu	Txn	Think		
				Weight	Time		
Time	Delay	Fence	Delay				
60.25	18.01		New Order	44.75			
			0.10	5.00	0.10		
60.25	3.01		Payment	43.10			
			0.10	5.00	0.10		
25.25	2.01		Delivery	4.05			
			0.10	5.00	0.10		
25.25	2.01		Stock Level	4.05			
			0.10	20.00	0.10		
50.25	2.01		Order Status	4.05			
			0.10	5.00	0.10		
			4.5				
			4.5 tt				
Key	RT	RT	Menu	Txn	Think		
				Weight	Time		
Time	Delay	Fence	Delay				
54.20	18.01		New Order	44.75			
			0.10	5.00	0.10		
54.20	3.01		Payment	43.10			
			0.10	5.00	0.10		
22.70	2.01		Delivery	4.05			
			0.10	5.00	0.10		
22.70	2.01		Stock Level	4.05			
			0.10	20.00	0.10		
45.20	2.01		Order Status	4.05			
			0.10	5.00	0.10		
			3.5				
			3.5 tt				
Key	RT	RT	Menu	Txn	Think		
				Weight	Time		
Time	Delay	Fence	Delay				
42.10	18.01		New Order	44.75			
			0.10	5.00	0.10		
42.10	3.01		Payment	43.10			
			0.10	5.00	0.10		
17.60	2.01		Delivery	4.05			
			0.10	5.00	0.10		
17.60	2.01		Stock Level	4.05			
			0.10	20.00	0.10		

Key	RT	RT	Menu	Txn	Think
35.10	2.01	0.10	5.00	0.10	
		1.8			
		1.8 tt			
Time	Delay	Fence	Delay	Weight	Time
21.60	18.01	New Order	0.10	5.00	0.10
21.60	3.01	Payment	0.10	5.00	0.10
9.09	2.01	Delivery	0.10	5.00	0.10
9.09	2.01	Stock Level	0.10	20.00	0.10
18.09	2.01	Order Status	0.10	5.00	0.10
		4.2			
		4.2 tt			
Key	RT	RT	Menu	Txn	Think
54.20	18.01	New Order	0.10	5.00	0.10
54.20	3.01	Payment	0.10	5.00	0.10
22.70	2.01	Delivery	0.10	5.00	0.10
22.70	2.01	Stock Level	0.10	20.00	0.10
45.20	2.01	Order Status	0.10	5.00	0.10
		1.6			
		1.6 tt			
Key	RT	RT	Menu	Txn	Think
19.20	18.01	New Order	0.10	5.00	0.10
19.20	3.01	Payment	0.10	5.00	0.10
8.08	2.01	Delivery	0.10	5.00	0.10
8.08	2.01	Stock Level	0.10	20.00	0.10
16.08	2.01	Order Status	0.10	5.00	0.10
		1.4			
		1.4 tt			
Key	RT	RT	Menu	Txn	Think
16.87	18.01	New Order	0.10	5.00	0.10

Key	RT	RT	Menu	Txn	Think
16.87	3.01	Payment	0.10	5.00	0.10
7.07	2.01	Delivery	0.10	5.00	0.10
7.07	2.01	Stock Level	0.10	20.00	0.10
14.07	2.01	Order Status	0.10	5.00	0.10
		1.2			
		1.2 tt			
Key	RT	RT	Menu	Txn	Think
14.46	18.01	New Order	0.10	5.00	0.10
14.46	3.01	Payment	0.10	5.00	0.10
6.06	2.01	Delivery	0.10	5.00	0.10
6.06	2.01	Stock Level	0.10	20.00	0.10
12.06	2.01	Order Status	0.10	5.00	0.10
		3.5			
		3.5 tt			
Key	RT	RT	Menu	Txn	Think
42.10	18.01	New Order	0.10	5.00	0.10
42.10	3.01	Payment	0.10	5.00	0.10
17.60	2.01	Delivery	0.10	5.00	0.10
17.60	2.01	Stock Level	0.10	20.00	0.10
35.10	2.01	Order Status	0.10	5.00	0.10
		1.9			
		1.9 tt			
Key	RT	RT	Menu	Txn	Think
22.89	18.01	New Order	0.10	5.00	0.10
22.89	3.01	Payment	0.10	5.00	0.10
9.59	2.01	Delivery	0.10	5.00	0.10
9.59	2.01	Stock Level	0.10	20.00	0.10
19.09	2.01	Order Status	0.10	5.00	0.10
		1.1			
		1.1 tt			

Key	RT	RT	Menu	Txn	Think
13.25	18.01	New Order	0.10	5.00	0.10
13.25	3.01	Payment	0.10	5.00	0.10
5.55	2.01	Delivery	0.10	5.00	0.10
5.55	2.01	Stock Level	0.10	20.00	0.10
11.05	2.01	Order Status	0.10	5.00	0.10
		1.05 better			
		1.05 tt better			
Key	RT	RT	Menu	Txn	Think
12.65	18.01	New Order	0.10	5.00	0.10
12.65	3.01	Payment	0.10	5.00	0.10
5.30	2.01	Delivery	0.10	5.00	0.10
5.30	2.01	Stock Level	0.10	20.00	0.10
10.55	2.01	Order Status	0.10	5.00	0.10
		1.09			
		1.09 tt			
Key	RT	RT	Menu	Txn	Think
13.13	18.01	New Order	0.10	5.00	0.10
13.13	3.01	Payment	0.10	5.00	0.10
5.50	2.01	Delivery	0.10	5.00	0.10
5.50	2.01	Stock Level	0.10	20.00	0.10
10.95	2.01	Order Status	0.10	5.00	0.10
		1.08			
		1.08 tt			
Key	RT	RT	Menu	Txn	Think
13.01	18.01	New Order	0.10	5.00	0.10
13.01	3.01	Payment	0.10	5.00	0.10
5.45	2.01	Delivery	0.10	5.00	0.10
5.45	2.01	Stock Level	0.10	20.00	0.10

10.85	2.01	0.10	5.00	0.10	Order Status	4.04				
		1.07								
		1.07	tt							
Key	RT	RT	Menu	Txn	Think	Weight	Time			
Time	Delay	Fence	Delay							
12.89	18.01	New Order	0.10	5.00	0.10	44.83				
12.89	3.01	Payment	0.10	5.00	0.10	43.05				
5.40	2.01	Delivery	0.10	5.00	0.10	4.04				
5.40	2.01	Stock Level	0.10	20.00	0.10	4.04				
10.75	2.01	Order Status	0.10	5.00	0.10	4.04				
		1.06								
		1.06	tt							
Key	RT	RT	Menu	Txn	Think	Weight	Time			
Time	Delay	Fence	Delay							
12.77	18.01	New Order	0.10	5.00	0.10	44.83				
12.77	3.01	Payment	0.10	5.00	0.10	43.05				
5.35	2.01	Delivery	0.10	5.00	0.10	4.04				
5.35	2.01	Stock Level	0.10	20.00	0.10	4.04				
10.65	2.01	Order Status	0.10	5.00	0.10	4.04				
		1.15								
		1.15	tt							
Key	RT	RT	Menu	Txn	Think	Weight	Time			
Time	Delay	Fence	Delay							
13.85	18.01	New Order	0.10	5.00	0.10	44.75				
13.85	3.01	Payment	0.10	5.00	0.10	43.10				
5.80	2.01	Delivery	0.10	5.00	0.10	4.05				
5.80	2.01	Stock Level	0.10	20.00	0.10	4.05				
11.55	2.01	Order Status	0.10	5.00	0.10	4.05				
		1.25								
		1.25	tt							
Key	RT	RT	Menu	Txn	Think	Weight	Time			
Time	Delay	Fence	Delay							
15.06	18.01	New Order	0.10	5.00	0.10	44.83				

15.06	3.01	0.10	5.00	0.10	Payment	43.05				
6.31	2.01	Delivery	0.10	5.00	0.10	4.04				
6.31	2.01	Stock Level	0.10	20.00	0.10	4.04				
12.56	2.01	Order Status	0.10	5.00	0.10	4.04				
		1.3								
		1.3	tt							
Key	RT	RT	Menu	Txn	Think	Weight	Time			
Time	Delay	Fence	Delay							
15.66	18.01	New Order	0.10	5.00	0.10	44.83				
15.66	3.01	Payment	0.10	5.00	0.10	43.05				
6.56	2.01	Delivery	0.10	5.00	0.10	4.04				
6.56	2.01	Stock Level	0.10	20.00	0.10	4.04				
13.06	2.01	Order Status	0.10	5.00	0.10	4.04				
		1.12								
		1.12	tt							
Key	RT	RT	Menu	Txn	Think	Weight	Time			
Time	Delay	Fence	Delay							
13.49	18.01	New Order	0.10	5.00	0.10	44.75				
13.49	3.01	Payment	0.10	5.00	0.10	43.10				
5.65	2.01	Delivery	0.10	5.00	0.10	4.05				
5.65	2.01	Stock Level	0.10	20.00	0.10	4.05				
11.25	2.01	Order Status	0.10	5.00	0.10	4.05				
		1.18								
		1.18	tt							
Key	RT	RT	Menu	Txn	Think	Weight	Time			
Time	Delay	Fence	Delay							
14.21	18.01	New Order	0.10	5.00	0.10	44.75				
14.21	3.01	Payment	0.10	5.00	0.10	43.10				
5.95	2.01	Delivery	0.10	5.00	0.10	4.05				
5.95	2.01	Stock Level	0.10	20.00	0.10	4.05				
11.85	2.01	Order Status	0.10	5.00	0.10	4.05				
		1.22								
		1.22	tt							

Key	RT	RT	Menu	Txn	Think	Weight	Time			
Time	Delay	Fence	Delay							
14.70	18.01	New Order	0.10	5.00	0.10	44.75				
14.70	3.01	Payment	0.10	5.00	0.10	43.10				
6.16	2.01	Delivery	0.10	5.00	0.10	4.05				
6.16	2.01	Stock Level	0.10	20.00	0.10	4.05				
12.26	2.01	Order Status	0.10	5.00	0.10	4.05				
		1.28								
		1.28	tt							
Key	RT	RT	Menu	Txn	Think	Weight	Time			
Time	Delay	Fence	Delay							
15.42	18.01	New Order	0.10	5.00	0.10	44.75				
15.42	3.01	Payment	0.10	5.00	0.10	43.10				
6.46	2.01	Delivery	0.10	5.00	0.10	4.05				
6.46	2.01	Stock Level	0.10	20.00	0.10	4.05				
12.86	2.01	Order Status	0.10	5.00	0.10	4.05				
		1.04								
		1.04	tt							
Key	RT	RT	Menu	Txn	Think	Weight	Time			
Time	Delay	Fence	Delay							
12.53	18.01	New Order	0.10	5.00	0.10	44.83				
12.53	3.01	Payment	0.10	5.00	0.10	43.05				
5.25	2.01	Delivery	0.10	5.00	0.10	4.04				
5.25	2.01	Stock Level	0.10	20.00	0.10	4.04				
10.45	2.01	Order Status	0.10	5.00	0.10	4.04				
		1.03								
		1.03	tt							
Key	RT	RT	Menu	Txn	Think	Weight	Time			
Time	Delay	Fence	Delay							
12.41	18.01	New Order	0.10	5.00	0.10	44.83				
12.41	3.01	Payment	0.10	5.00	0.10	43.05				
5.20	2.01	Delivery	0.10	5.00	0.10	4.04				
5.20	2.01	Stock Level	0.10	20.00	0.10	4.04				

10.35	2.01		Order Status 0.10	5.00	4.04	0.10			
			1.02 1.02 tt						
Key	RT	RT	Menu		Txn	Think			
Time	Delay	Fence	Delay	Weight	Time				
12.29	18.01		New Order 0.10	5.00	44.83	0.10			
12.29	3.01		Payment 0.10	5.00	43.05	0.10			
5.15	2.01		Delivery 0.10	5.00	4.04	0.10			
5.15	2.01		Stock Level 0.10	20.00	4.04	0.10			
10.25	2.01		Order Status 0.10	5.00	4.04	0.10			
			1.01 1.01 tt						
Key	RT	RT	Menu		Txn	Think			
Time	Delay	Fence	Delay	Weight	Time				
12.17	18.01		New Order 0.10	5.00	44.83	0.10			
12.17	3.01		Payment 0.10	5.00	43.05	0.10			
5.10	2.01		Delivery 0.10	5.00	4.04	0.10			
5.10	2.01		Stock Level 0.10	20.00	4.04	0.10			
10.15	2.01		Order Status 0.10	5.00	4.04	0.10			
			1.005_best 1.005 tt best						
Key	RT	RT	Menu		Txn	Think			
Time	Delay	Fence	Delay	Weight	Time				
12.11	18.01		New Order 0.10	5.00	44.88	0.10			
12.11	3.01		Payment 0.10	5.00	43.02	0.10			
5.07	2.01		Delivery 0.10	5.00	4.03	0.10			
5.07	2.01		Stock Level 0.10	20.00	4.03	0.10			
10.10	2.01		Order Status 0.10	5.00	4.03	0.10			
			1.001_best 1.001 tt best						
Key	RT	RT	Menu		Txn	Think			
Time	Delay	Fence	Delay	Weight	Time				
12.06	18.01		New Order 0.10	5.00	44.90	0.10			

12.06	3.01		Payment 0.10	5.00	43.06	0.10			
5.06	2.01		Delivery 0.10	5.00	4.00	0.10			
5.06	2.01		Stock Level 0.10	20.00	4.03	0.10			
10.06	2.01		Order Status 0.10	5.00	4.01	0.10			
			1.03 better 1.03 tt more aggressive						
Key	RT	RT	Menu		Txn	Think			
Time	Delay	Fence	Delay	Weight	Time				
12.41	18.01		New Order 0.10	5.00	44.92	0.10			
12.41	3.01		Payment 0.10	5.00	43.01	0.10			
5.20	2.01		Delivery 0.10	5.00	4.02	0.10			
5.20	2.01		Stock Level 0.10	20.00	4.03	0.10			
10.35	2.01		Order Status 0.10	5.00	4.02	0.10			
			1.005 better 1.005 tt more aggressive						
Key	RT	RT	Menu		Txn	Think			
Time	Delay	Fence	Delay	Weight	Time				
12.11	18.01		New Order 0.10	5.00	44.90	0.10			
12.11	3.01		Payment 0.10	5.00	43.05	0.10			
5.07	2.01		Delivery 0.10	5.00	4.01	0.10			
5.07	2.01		Stock Level 0.10	20.00	4.03	0.10			
10.10	2.01		Order Status 0.10	5.00	4.01	0.10			
			1.02 better 1.02 tt more aggressive						
Key	RT	RT	Menu		Txn	Think			
Time	Delay	Fence	Delay	Weight	Time				
12.29	18.01		New Order 0.10	5.00	44.92	0.10			
12.29	3.01		Payment 0.10	5.00	43.01	0.10			
5.15	2.01		Delivery 0.10	5.00	4.02	0.10			
5.15	2.01		Stock Level 0.10	20.00	4.03	0.10			
10.25	2.01		Order Status 0.10	5.00	4.02	0.10			
			1.01 best 1.01 tt best						

Key	RT	RT	Menu		Txn	Think			
Time	Delay	Fence	Delay	Weight	Time				
12.17	18.01		New Order 0.10	5.00	44.90	0.10			
12.17	3.01		Payment 0.10	5.00	43.05	0.10			
5.10	2.01		Delivery 0.10	5.00	4.01	0.10			
5.10	2.01		Stock Level 0.10	20.00	4.03	0.10			
10.15	2.01		Order Status 0.10	5.00	4.01	0.10			
			1.02 best 1.02 tt best						
Key	RT	RT	Menu		Txn	Think			
Time	Delay	Fence	Delay	Weight	Time				
12.29	18.01		New Order 0.00	5.00	44.96	0.00			
12.29	3.01		Payment 0.00	5.00	43.00	0.00			
5.15	2.01		Delivery 0.00	5.00	4.00	0.00			
5.15	2.01		Stock Level 0.00	20.00	4.03	0.00			
10.25	2.01		Order Status 0.00	5.00	4.01	0.00			
			1.03 best 1.03 tt best						
Key	RT	RT	Menu		Txn	Think			
Time	Delay	Fence	Delay	Weight	Time				
12.41	18.01		New Order 0.10	5.00	44.96	0.10			
12.41	3.01		Payment 0.10	5.00	43.01	0.10			
5.20	2.01		Delivery 0.10	5.00	4.01	0.10			
5.20	2.01		Stock Level 0.10	20.00	4.01	0.10			
10.35	2.01		Order Status 0.10	5.00	4.01	0.10			
			5.5 5.5 tt						
Key	RT	RT	Menu		Txn	Think			
Time	Delay	Fence	Delay	Weight	Time				
66.28	18.01		New Order 0.10	5.00	44.83	0.10			
66.28	3.01		Payment 0.10	5.00	43.05	0.10			
27.77	2.01		Delivery 0.10	5.00	4.04	0.10			
27.77	2.01		Stock Level 0.10	20.00	4.04	0.10			

55.27	2.01		Order Status	4.04						
			0.10	5.00	0.10					
			6.0							
			6.0 tt							
Key	RT	RT	Menu	Txn	Think					
				Weight	Time					
Time	Delay	Fence	Delay							
72.30	18.01		New Order	44.83						
			0.10	5.00	0.10					
72.30	3.01		Payment	43.05						
			0.10	5.00	0.10					
30.30	2.01		Delivery	4.04						
			0.10	5.00	0.10					
30.30	2.01		Stock Level	4.04						
			0.10	20.00	0.10					
60.30	2.01		Order Status	4.04						
			0.10	5.00	0.10					
			6.5							
			6.5 tt							
Key	RT	RT	Menu	Txn	Think					
				Weight	Time					
Time	Delay	Fence	Delay							
79.53	18.01		New Order	44.83						
			0.10	5.00	0.10					
79.53	3.01		Payment	43.05						
			0.10	5.00	0.10					
33.33	2.01		Delivery	4.04						
			0.10	5.00	0.10					
33.33	2.01		Stock Level	4.04						
			0.10	20.00	0.10					
66.33	2.01		Order Status	4.04						
			0.10	5.00	0.10					
			7.0							
			7.0 tt							
Key	RT	RT	Menu	Txn	Think					
				Weight	Time					
Time	Delay	Fence	Delay							
84.35	18.01		New Order	44.83						
			0.10	5.00	0.10					
84.35	3.01		Payment	43.05						
			0.10	5.00	0.10					
35.35	2.01		Delivery	4.04						
			0.10	5.00	0.10					
35.35	2.01		Stock Level	4.04						
			0.10	20.00	0.10					
70.35	2.01		Order Status	4.04						
			0.10	5.00	0.10					
			7.5							
			7.5 tt							
Key	RT	RT	Menu	Txn	Think					
				Weight	Time					
Time	Delay	Fence	Delay							
90.38	18.01		New Order	44.83						
			0.10	5.00	0.10					

90.38	3.01		Payment	43.05						
			0.10	5.00	0.10					
37.88	2.01		Delivery	4.04						
			0.10	5.00	0.10					
37.88	2.01		Stock Level	4.04						
			0.10	20.00	0.10					
75.38	2.01		Order Status	4.04						
			0.10	5.00	0.10					
			8.0							
			8.0 tt							
Key	RT	RT	Menu	Txn	Think					
				Weight	Time					
Time	Delay	Fence	Delay							
96.40	18.01		New Order	44.83						
			0.10	5.00	0.10					
96.40	3.01		Payment	43.05						
			0.10	5.00	0.10					
40.40	2.01		Delivery	4.04						
			0.10	5.00	0.10					
40.40	2.01		Stock Level	4.04						
			0.10	20.00	0.10					
80.40	2.01		Order Status	4.04						
			0.10	5.00	0.10					
			8.5							
			8.5 tt							
Key	RT	RT	Menu	Txn	Think					
				Weight	Time					
Time	Delay	Fence	Delay							
102.43	18.01		New Order	44.83						
			0.10	5.00	0.10					
192.43	3.01		Payment	43.05						
			0.10	5.00	0.10					
42.92	2.01		Delivery	4.04						
			0.10	5.00	0.10					
42.92	2.01		Stock Level	4.04						
			0.10	20.00	0.10					
85.42	2.01		Order Status	4.04						
			0.10	5.00	0.10					
			9.0							
			9.0 tt							
Key	RT	RT	Menu	Txn	Think					
				Weight	Time					
Time	Delay	Fence	Delay							
108.45	18.01		New Order	44.83						
			0.10	5.00	0.10					
108.45	3.01		Payment	43.05						
			0.10	5.00	0.10					
45.45	2.01		Delivery	4.04						
			0.10	5.00	0.10					
45.45	2.01		Stock Level	4.04						
			0.10	20.00	0.10					
90.45	2.01		Order Status	4.04						
			0.10	5.00	0.10					
			9.5							
			9.5 tt							

Key	RT	RT	Menu	Txn	Think					
				Weight	Time					
Time	Delay	Fence	Delay							
114.47	18.01		New Order	44.83						
			0.10	5.00	0.10					
114.47	3.01		Payment	43.05						
			0.10	5.00	0.10					
47.98	2.01		Delivery	4.04						
			0.10	5.00	0.10					
47.98	2.01		Stock Level	4.04						
			0.10	20.00	0.10					
95.47	2.01		Order Status	4.04						
			0.10	5.00	0.10					
			10							
			10 tt							
Key	RT	RT	Menu	Txn	Think					
				Weight	Time					
Time	Delay	Fence	Delay							
120.50	18.01		New Order	44.83						
			0.10	5.00	0.10					
120.50	3.01		Payment	43.05						
			0.10	5.00	0.10					
50.50	2.01		Delivery	4.04						
			0.10	5.00	0.10					
50.50	2.01		Stock Level	4.04						
			0.10	20.00	0.10					
100.50	2.01		Order Status	4.04						
			0.10	5.00	0.10					
			1.02 better							
			1.02 more aggressive							
Key	RT	RT	Menu	Txn	Think					
				Weight	Time					
Time	Delay	Fence	Delay							
12.05	18.01		New Order	44.92						
			0.10	5.00	0.10					
12.05	3.01		Payment	43.01						
			0.10	5.00	0.10					
5.05	2.01		Delivery	4.02						
			0.10	5.00	0.10					
5.05	2.01		Stock Level	4.03						
			0.10	20.00	0.10					
10.05	2.01		Order Status	4.02						
			0.10	5.00	0.10					
			1.01 better							
			1.01 more aggressive							
Key	RT	RT	Menu	Txn	Think					
				Weight	Time					
Time	Delay	Fence	Delay							
12.17	18.01		New Order	44.92						
			0.10	5.00	0.10					
12.17	3.01		Payment	43.01						
			0.10	5.00	0.10					
5.10	2.01		Delivery	4.02						
			0.10	5.00	0.10					
5.10	2.01		Stock Level	4.03						
			0.10	20.00	0.10					


```

"Library"="w3ctrs.dll"
"Open"="OpenW3PerformanceData"
"Close"="CloseW3PerformanceData"
"Collect"="CollectW3PerformanceData"
"Last Counter"=dword:000008e6
"Last Help"=dword:000008e7
"First Counter"=dword:00000844
"First Help"=dword:00000845
"Library Validation
Code"=hex:de,61,7e,46,77,5b,c2,01,10,3d,00,00,00,00,0,0,0,0
"WbemAdapFileTime"=hex:00,73,79,5b,bc,d4,c0,01
"WbemAdapFileSize"=dword:00001d10
"WbemAdapStatus"=dword:00000000

```

```

[HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\w3svc\Security]
"Security"=hex:01,00,14,80,a0,00,00,00,ac,00,00,00,14,00,00,00,30,00,00,00,02,\
00,1c,00,01,00,00,00,02,80,14,00,ff,01,0f,00,01,01,00,00,00,00,01,00,00,\
00,00,02,00,70,00,04,00,00,00,00,00,18,00,fd,01,02,00,01,01,00,00,00,00,\
05,12,00,00,00,74,00,6f,00,00,00,1c,00,ff,01,0f,00,01,02,00,00,00,00,05,\
20,00,00,00,20,02,00,00,72,00,73,00,00,00,18,00,8d,01,02,00,01,01,00,00,00,\
00,00,05,0b,00,00,00,20,02,00,00,00,00,1c,00,fd,01,02,00,01,02,00,00,00,\
00,05,20,00,00,00,23,02,00,00,72,00,73,00,01,01,00,00,00,00,00,05,12,00,00,\
00,01,01,00,00,00,00,00,05,12,00,00,00

```

```

[HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\w3svc\Enum]
"0"="Root\LEGACY_W3SVC\0000"
"Count"=dword:00000001
"Next Instance"=dword:00000001

```

TPCC Application Registry Parameters

Windows Registry Editor Version 5.00

```

[HKEY_LOCAL_MACHINE\Software\Microsoft\TPCC]
"Path"="C:\\Inetpub\\wwwroot\\"
"NumberOfDeliveryThreads"=dword:00000007
"MaxConnections"=dword:00007530
"MaxPendingDeliveries"=dword:00000bb8
"DB_Protocol"="ODBC"
"TxnMonitor"="COM"
"DbServer"="slam"

```

```

"DbName"="tpcc"
"DbUser"="sa"
"DbPassword"=""
"COM_SinglePool"="YES"

```

Server Bus Performance Driver Registry Parameters

```

Key Name:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\hpqcissb
Class Name: <NO CLASS>
Last Write Time: 2/2/2005 - 9:47 AM
Value 0
Name: Type
Type: REG_DWORD
Data: 0x1
Value 1
Name: Start
Type: REG_DWORD
Data: 0
Value 2
Name: ErrorControl
Type: REG_DWORD
Data: 0x1
Value 3
Name: Tag
Type: REG_DWORD
Data: 0x102
Value 4
Name: ImagePath
Type: REG_EXPAND_SZ
Data: system32\DRIVERS\hpqcissb.sys
Value 5
Name: DisplayName
Type: REG_SZ
Data: Smart Array Controllers Non-Miniport Bus Driver
Value 6
Name: Group
Type: REG_SZ
Data: port
Key Name:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\hpqcissb\Parameters
Class Name: <NO CLASS>
Last Write Time: 2/2/2005 - 9:44 AM

```

```

Value 0
Name: CompletionMode
Type: REG_DWORD
Data: 0x2

```

```

Value 1
Name: CosTimerRate
Type: REG_DWORD
Data: 0x23

```

```

Key Name:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\hpqcissb\Parameters\Controller6
Class Name: <NO CLASS>
Last Write Time: 1/18/2005 - 12:12 PM
Value 0
Name: CompletionMode
Type: REG_DWORD
Data: 0x1

```

```

Key Name:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\hpqcissb\Security
Class Name: <NO CLASS>
Last Write Time: 5/7/2004 - 10:39 PM
Value 0
Name: Security
Type: REG_BINARY
Data:

```

```

00000000 01 00 14 80 90 00 00 00 - 9c 00 00 00 14
00 00 00 .....
00000010 30 00 00 00 02 00 1c 00 - 01 00 00 00 02
80 14 00 0.....
00000020 ff 01 0f 00 01 01 00 00 - 00 00 00 01 00
00 00 00 y.....
00000030 02 00 60 00 04 00 00 00 - 00 00 14 00 fd
01 02 00 ..`.....y...
00000040 01 01 00 00 00 00 05 - 12 00 00 00 00
00 18 00 .....
00000050 ff 01 0f 00 01 02 00 00 - 00 00 00 05 20
00 00 00 y.....
00000060 20 02 00 00 00 00 14 00 - 8d 01 02 00 01
01 00 00 .....
00000070 00 00 00 05 0b 00 00 00 - 00 00 18 00 fd
01 02 00 .....y...
00000080 01 02 00 00 00 00 05 - 20 00 00 00 23
02 00 00 .....#...
00000090 01 01 00 00 00 00 05 - 12 00 00 00 01
01 00 00 .....
00 00 00 05 12 00 00 00 -
.....

```

```

Key Name:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\hpqcissb\Enum
Class Name: <NO CLASS>
Last Write Time: 2/2/2005 - 9:47 AM
Value 0
Name: 0
Type: REG_SZ

```


Data:
PCI\VEN_0E11&DEV_0046&SUBSYS_409C0E11&REV_01\6&2265d2
09&0&20080010

Value 1
Name: Count
Type: REG_DWORD
Data: 0x8

Value 2
Name: NextInstance
Type: REG_DWORD
Data: 0x8

Value 3
Name: 1
Type: REG_SZ
Data:

PCI\VEN_0E11&DEV_0046&SUBSYS_409D0E11&REV_01\6&2265d2
09&0&28080010

Value 4
Name: 2
Type: REG_SZ
Data:

PCI\VEN_0E11&DEV_0046&SUBSYS_409C0E11&REV_01\6&a5a676
1&0&20100010

Value 5
Name: 3
Type: REG_SZ
Data:

PCI\VEN_0E11&DEV_0046&SUBSYS_409D0E11&REV_01\6&a5a676
1&0&28100010

Value 6
Name: 4
Type: REG_SZ
Data:

PCI\VEN_0E11&DEV_0046&SUBSYS_409C0E11&REV_01\6&f47e69
1&0&20080210

Value 7
Name: 5
Type: REG_SZ
Data:

PCI\VEN_0E11&DEV_0046&SUBSYS_409D0E11&REV_01\6&f47e69
1&0&28080210

Value 8
Name: 6
Type: REG_SZ
Data:

PCI\VEN_0E11&DEV_0046&SUBSYS_409C0E11&REV_01\6&275351
39&0&20100210

Value 9
Name: 7
Type: REG_SZ
Data:

PCI\VEN_0E11&DEV_0046&SUBSYS_409D0E11&REV_01\6&275351
39&0&28100210

Server Disk Device Performance Driver Registry Parameters

Key Name:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\
hpqcissd
Class Name: <NO CLASS>
Last Write Time: 2/2/2005 - 9:48 AM
Value 0
Name: Type
Type: REG_DWORD
Data: 0x1

Value 1
Name: Start
Type: REG_DWORD
Data: 0

Value 2
Name: ErrorControl
Type: REG_DWORD
Data: 0x1

Value 3
Name: Tag
Type: REG_DWORD
Data: 0x102

Value 4
Name: ImagePath
Type: REG_EXPAND_SZ
Data: system32\DRIVERS\hpqcissd.sys

Value 5
Name: DisplayName
Type: REG_SZ
Data: Smart Array Controllers Non-
Miniport Disk Driver

Value 6
Name: Group
Type: REG_SZ
Data: Primary Disk

Key Name:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\
hpqcissd\Security
Class Name: <NO CLASS>
Last Write Time: 5/7/2004 - 10:40 PM
Value 0
Name: Security
Type: REG_BINARY
Data:

00000000 01 00 14 80 90 00 00 00 - 9c 00 00 00 14
00 00 00
00000010 30 00 00 00 02 00 1c 00 - 01 00 00 00 02
80 14 00 0.....
00000020 ff 01 0f 00 01 01 00 00 - 00 00 00 01 00
00 00 00 y.....
00000030 02 00 60 00 04 00 00 00 - 00 00 14 00 fd
01 02 00 ..'.....y...
00000040 01 01 00 00 00 00 00 05 - 12 00 00 00 00
00 18 00
00000050 ff 01 0f 00 01 02 00 00 - 00 00 00 05 20
00 00 00 y.....
00000060 20 02 00 00 00 00 14 00 - 8d 01 02 00 01
01 00 00
00000070 00 00 00 05 0b 00 00 00 - 00 00 18 00 fd
01 02 00y...
00000080 01 02 00 00 00 00 00 05 - 20 00 00 00 23
02 00 00#...
00000090 01 01 00 00 00 00 00 05 - 12 00 00 00 01
01 00 00
00 00 00 05 12 00 00 00 -
.....

Key Name:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\
hpqcissd\Enum
Class Name: <NO CLASS>
Last Write Time: 2/2/2005 - 9:48 AM
Value 0
Name: 0
Type: REG_SZ
Data:
HPQCISS\Disk&VEN_HP&PROD_LOGICAL_VOLUME\7&8c39867&0&0
000004000000000

Value 1
Name: Count
Type: REG_DWORD
Data: 0xf

Value 2
Name: NextInstance
Type: REG_DWORD
Data: 0xf

Value 3
Name: 1
Type: REG_SZ
Data:

HPQCISS\Disk&VEN_HP&PROD_LOGICAL_VOLUME\7&8c39867&0&0
100004000000000

Value 4
Name: 2
Type: REG_SZ
Data:

HPQCISS\Disk&VEN_HP&PROD_LOGICAL_VOLUME\7&16ce31d1&0&
000004000000000

Value 5
Name: 3
Type: REG_SZ

```

Data:
HPQCISS\Disk&VEN_HP&PROD_LOGICAL_VOLUME\7&16ce31d1&0&
0100004000000000

Value 6
Name:          4
Type:         REG_SZ
Data:
HPQCISS\Disk&VEN_HP&PROD_LOGICAL_VOLUME\7&ee4c87c&0&0
0000040000000000

Value 7
Name:          5
Type:         REG_SZ
Data:
HPQCISS\Disk&VEN_HP&PROD_LOGICAL_VOLUME\7&ee4c87c&0&0
1000040000000000

Value 8
Name:          6
Type:         REG_SZ
Data:
HPQCISS\Disk&VEN_HP&PROD_LOGICAL_VOLUME\7&11e48ef0&0&0
0000040000000000

Value 9
Name:          7
Type:         REG_SZ
Data:
HPQCISS\Disk&VEN_HP&PROD_LOGICAL_VOLUME\7&11e48ef0&0&0
0100004000000000

Value 10
Name:          8
Type:         REG_SZ
Data:
HPQCISS\Disk&VEN_HP&PROD_LOGICAL_VOLUME\7&2db6dc7c&0&0
0000040000000000

Value 11
Name:          9
Type:         REG_SZ
Data:
HPQCISS\Disk&VEN_HP&PROD_LOGICAL_VOLUME\7&2db6dc7c&0&0
0100004000000000

Value 12
Name:         10
Type:         REG_SZ
Data:
HPQCISS\Disk&VEN_HP&PROD_LOGICAL_VOLUME\7&2ead44f7&0&0
0000040000000000

Value 13
Name:         11
Type:         REG_SZ
Data:
HPQCISS\Disk&VEN_HP&PROD_LOGICAL_VOLUME\7&2ead44f7&0&0
0100004000000000

Value 14
Name:         12
Type:         REG_SZ

```

```

Data:
HPQCISS\Disk&VEN_HP&PROD_LOGICAL_VOLUME\7&2b475e4&0&0
0000040000000000

Value 15
Name:          13
Type:         REG_SZ
Data:
HPQCISS\Disk&VEN_HP&PROD_LOGICAL_VOLUME\7&1ebd75b3&0&0
0000040000000000

Value 16
Name:          14
Type:         REG_SZ
Data:
HPQCISS\Disk&VEN_HP&PROD_LOGICAL_VOLUME\7&1ebd75b3&0&0
0100004000000000

```

System Summary

System Information report written at: 01/31/05
11:32:35
System Name: SLAM
[System Summary]

Item	Value
OS Name	Microsoft (R) Windows (R) Server 2003, Enterprise Edition
Version	5.2.3790 Build 3790
OS Manufacturer	Microsoft Corporation
System Name	SLAM
System Manufacturer	HP
System Model	ProLiant ML370 G4
System Type	X86-based PC
Processor	x86 Family 15 Model 4 Stepping 3
GenuineIntel	~3600 Mhz
Processor	x86 Family 15 Model 4 Stepping 3
GenuineIntel	~3600 Mhz
Processor	x86 Family 15 Model 4 Stepping 3
GenuineIntel	~3600 Mhz
Processor	x86 Family 15 Model 4 Stepping 3
GenuineIntel	~3600 Mhz
BIOS Version/Date	HP P50, 12/2/2004
SMBIOS Version	2.3
Windows Directory	C:\WINDOWS
System Directory	C:\WINDOWS\system32
Boot Device	\Device\HarddiskVolume17
Locale	United States
Hardware Abstraction Layer	Version = "5.2.3790.0 (srv03_rtm.030324-2048)"
User Name	Not Available
Time Zone	Central Standard Time
Total Physical Memory	16,384.00 MB
Available Physical Memory	15.57 GB
Total Virtual Memory	33.63 GB
Available Virtual Memory	33.17 GB
Page File Space	17.70 GB
Page File	C:\pagefile.sys

[Hardware Resources]

[Conflicts/Sharing]

Resource	Device	Device
I/O Port	0x00000000-0x00000CF7	PCI bus
I/O Port	0x00000000-0x00000CF7	Direct memory access controller
Memory Address	0xFDA00000-0xFDFFFFFF	PCI standard
Memory Address	0xFDA00000-0xFDFFFFFF	PCI standard
I/O Port	0x00006000-0x00006FFF	PCI standard
I/O Port	0x00006000-0x00006FFF	Smart Array 6400 Controller (Non-Miniport)
IRQ	16	PCI standard
IRQ	16	PCI standard
IRQ	16	PCI standard
IRQ	16	Standard Universal PCI to USB Host Controller
I/O Port	0x00005000-0x00005FFF	PCI standard
I/O Port	0x00005000-0x00005FFF	Smart Array 6400 Controller (Non-Miniport)
Memory Address	0xE0000000-0xFEBFFFFFF	PCI bus
Memory Address	0xE0000000-0xFEBFFFFFF	Motherboard resources
Memory Address	0xA0000-0xBFFFF	PCI bus
Memory Address	0xA0000-0xBFFFF	RAGE XL PCI Family (Microsoft Corporation)
I/O Port	0x00007000-0x00008FFF	PCI standard
I/O Port	0x00007000-0x00008FFF	PCI standard
I/O Port	0x00007000-0x00008FFF	Smart Array 6400 Controller (Non-Miniport)
I/O Port	0x00004000-0x00008FFF	PCI standard
I/O Port	0x00004000-0x00008FFF	PCI standard
I/O Port	0x00004000-0x00008FFF	LSI Adapter, Ultra320 SCSI 2000 series, (with 1020/1030)
I/O Port	0x00008000-0x00008FFF	PCI standard
I/O Port	0x00008000-0x00008FFF	Smart Array 6400 Controller (Non-Miniport)

[DMA]			Resource Device Status			[Forced Hardware]			[I/O]			[IRQs]		
Channel 7	Direct memory access controller	OK	0x00002040-0x0000205F	Standard Universal PCI to USB Host Controller	OK	0x0000002E-0x0000002F	Extended IO Bus	OK	Resource	Device	Status	IRQ 9	Microsoft ACPI-Compliant System	OK
Channel 0	Printer Port (LPT1)	OK	0x00002060-0x0000207F	Standard Universal PCI to USB Host Controller	OK	0x0000004E-0x0000004F	Extended IO Bus	OK	IRQ 16	PCI standard PCI-to-PCI bridge	OK	IRQ 16	PCI standard PCI-to-PCI bridge	OK
Channel 2	Standard floppy disk controller	OK	0x00003000-0x000030FF	RAGE XL PCI Family (Microsoft Corporation)	OK	0x00000220-0x0000025F	Extended IO Bus	OK	IRQ 16	PCI standard PCI-to-PCI bridge	OK	IRQ 16	Standard Universal PCI to USB Host Controller	OK
			0x000003B0-0x000003BB	RAGE XL PCI Family (Microsoft Corporation)	OK	0x00000280-0x0000029F	Extended IO Bus	OK	IRQ 16	Standard Universal PCI to USB Host Controller	OK	IRQ 26	Smart Array 6400 Controller (Non-Miniport)	OK
			0x000003C0-0x000003DF	RAGE XL PCI Family (Microsoft Corporation)	OK	0x00000378-0x0000037F	Printer Port (LPT1)	OK	IRQ 25	Smart Array 6400 Controller U320 Expansion Module (Non-Miniport)	OK	IRQ 29	Smart Array 6400 Controller (Non-Miniport)	OK
			0x00001800-0x000018FF	HP ProLiant iLO Advanced System Management Controller	OK	0x00000778-0x0000077D	Printer Port (LPT1)	OK	IRQ 30	Smart Array 6400 Controller U320 Expansion Module (Non-Miniport)	OK	IRQ 31	LSI Adapter, Ultra320 SCSI 2000 series, (with 1020/1030)	OK
			0x00003400-0x000034FF	HP iLO Management Interface Driver	OK	0x000003F8-0x000003FF	Communications Port (COM1)	OK	IRQ 27	LSI Adapter, Ultra320 SCSI 2000 series, (with 1020/1030)	OK	IRQ 50	Smart Array 6400 Controller (Non-Miniport)	OK
			0x00000A79-0x00000A79	ISAPNP Read Data Port	OK	0x000002F8-0x000002FF	Communications Port (COM2)	OK	IRQ 57	Smart Array 6400 Controller U320 Expansion Module (Non-Miniport)	OK			
			0x00000279-0x00000279	ISAPNP Read Data Port	OK	0x000003F2-0x000003F5	Standard floppy disk controller	OK						
			0x00000274-0x00000277	ISAPNP Read Data Port	OK	0x000003F7-0x000003F7	Standard floppy disk controller	OK						
			0x00000070-0x00000077	Motherboard resources	OK	0x00000500-0x0000050F	Intel(r) 82801EB Parallel Ultra ATA Storage Controller-24DB	OK						
			0x00000408-0x0000040F	Motherboard resources	OK	0x000001F0-0x000001F7	Primary IDE Channel	OK						
			0x000004D0-0x000004D1	Motherboard resources	OK	0x000003F6-0x000003F6	Primary IDE Channel	OK						
			0x00000020-0x0000003F	Motherboard resources	OK	0x00000170-0x00000177	Secondary IDE Channel	OK						
			0x000000A0-0x000000BF	Motherboard resources	OK	0x00000376-0x00000376	Secondary IDE Channel	OK						
			0x00000090-0x0000009F	Motherboard resources	OK									
			0x00000050-0x00000053	Motherboard resources	OK									
			0x00000700-0x0000071F	Motherboard resources	OK									
			0x00000800-0x0000083F	Motherboard resources	OK									
			0x00000900-0x0000097F	Motherboard resources	OK									
			0x00000010-0x0000001F	Motherboard resources	OK									
			0x00000C80-0x00000C83	Motherboard resources	OK									
			0x00000CD4-0x00000CD7	Motherboard resources	OK									
			0x00000F50-0x00000F58	Motherboard resources	OK									
			0x000003E8-0x000003EF	Motherboard resources	OK									
			0x00000040-0x00000043	System timer	OK									
			0x00000080-0x0000008F	Direct memory access controller	OK									
			0x000000C0-0x000000DF	Direct memory access controller	OK									
			0x00000061-0x00000061	System speaker	OK									
			0x00000060-0x00000060	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard	OK									
			0x00000064-0x00000064	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard	OK									

```

IRQ 53 Smart Array 6400 Controller (Non-Miniport)
      OK
IRQ 54 Smart Array 6400 Controller U320 Expansion
Module (Non-Miniport) OK
IRQ 49 HP NC7781 Gigabit Server Adapter #2 OK

IRQ 19 Standard Universal PCI to USB Host
Controller OK
IRQ 18 Standard Universal PCI to USB Host
Controller OK
IRQ 23 Standard Enhanced PCI to USB Host
Controller OK
IRQ 21 HP ProLiant iLO Advanced System Management
Controller OK
IRQ 22 HP iLO Management Interface Driver OK

IRQ 0 System timer OK
IRQ 1 Standard 101/102-Key or Microsoft Natural
PS/2 Keyboard OK
IRQ 12 PS/2 Compatible Mouse OK
IRQ 4 Communications Port (COM1) OK
IRQ 3 Communications Port (COM2) OK
IRQ 6 Standard floppy disk controller OK

IRQ 14 Primary IDE Channel OK
IRQ 15 Secondary IDE Channel OK

[Memory]

Resource Device Status
0xA0000-0xBFFFF PCI bus OK
0xA0000-0xBFFFF RAGE XL PCI Family (Microsoft
Corporation) OK
0xE0000000-0xFEBFFFF PCI bus OK
0xE0000000-0xFEBFFFF Motherboard resources
OK
0xFDA00000-0xFDFFFFFF PCI standard PCI-to-PCI
bridge OK
0xFDA00000-0xFDFFFFFF PCI standard PCI-to-PCI
bridge OK
0xFDB00000-0xFDBFFFF PCI standard PCI-to-PCI
bridge OK
0xFDBF0000-0xFDBF1FFF Smart Array 6400
Controller (Non-Miniport) OK
0xFDB70000-0xFDB71FFF Smart Array 6400
Controller U320 Expansion Module (Non-Miniport) OK

0xFDC00000-0xFDCFFFF PCI standard PCI-to-PCI
bridge OK
0xFDCF0000-0xFDCF1FFF Smart Array 6400
Controller (Non-Miniport) OK
0xFDC70000-0xFDC71FFF Smart Array 6400
Controller U320 Expansion Module (Non-Miniport) OK

0xFDAE0000-0xFDAFFFF LSI Adapter, Ultra320
SCSI 2000 series, (with 1020/1030) OK
0xFDAC0000-0xFDADFFFF LSI Adapter, Ultra320
SCSI 2000 series, (with 1020/1030) OK
0xFDAA0000-0xFDABFFFF LSI Adapter, Ultra320
SCSI 2000 series, (with 1020/1030) OK
0xFDA80000-0xFDA9FFFF LSI Adapter, Ultra320
SCSI 2000 series, (with 1020/1030) OK

```

```

0xFDD00000-0xFDDFFFF PCI standard PCI-to-PCI
bridge OK
0xFDE00000-0xFDEFFFF PCI standard PCI-to-PCI
bridge OK
0xFDEF0000-0xFDEF1FFF Smart Array 6400
Controller (Non-Miniport) OK
0xFDE70000-0xFDE71FFF Smart Array 6400
Controller U320 Expansion Module (Non-Miniport) OK

0xFDF00000-0xFDFFFFF PCI standard PCI-to-PCI
bridge OK
0xFDF00000-0xFDF1FFF Smart Array 6400
Controller (Non-Miniport) OK
0xFDF70000-0xFDF71FFF Smart Array 6400
Controller U320 Expansion Module (Non-Miniport) OK

0xFDDF0000-0xFDDFFFF HP NC7781 Gigabit
Server Adapter #2 OK
0xFBEB0000-0xFBEB03FF Standard Enhanced PCI
to USB Host Controller OK
0xFC000000-0xFCFFFFFF RAGE XL PCI Family
(Microsoft Corporation) OK
0xFBFF0000-0xFBFF0FFF RAGE XL PCI Family
(Microsoft Corporation) OK
0xFBFE0000-0xFBFE01FF HP ProLiant iLO
Advanced System Management Controller OK
0xFBFD0000-0xFBFD07FF HP iLO Management
Interface Driver OK
0xFBFC0000-0xFBFC1FFF HP iLO Management
Interface Driver OK
0xFBF00000-0xFBF7FFFF HP iLO Management
Interface Driver OK
0xFEBFFC00-0xFEBFFFF Intel(r) 82801EB
Parallel Ultra ATA Storage Controller-24DB OK

[Components]

[Multimedia]

[Audio Codecs]

CODEC Manufacturer Description
Status File Version Size
Creation Date
c:\windows\system32\sl_anet.acm Sipro Lab
Telecom Inc. Sipro Lab Telecom Audio Codec OK
C:\WINDOWS\system32\SL_ANET.ACM
3.02 84.00 KB (86,016 bytes)
3/25/2003 6:00 AM
c:\windows\system32\msaud32.acm Microsoft
Corporation Windows Media Audio Codec OK
C:\WINDOWS\system32\MSAUD32.ACM
8.00.00.4487 288.00 KB (294,912
bytes) 3/25/2003 6:00 AM
c:\windows\system32\msg723.acm Microsoft
Corporation OK
C:\WINDOWS\system32\MSG723.ACM

```

```

4.4.4000 116.00 KB (118,784 bytes)
4/20/2004 4:02 AM
c:\windows\system32\l3codeca.acm Fraunhofer
Institut Integrierte Schaltungen IIS Fraunhofer
IIS MPEG Layer-3 Codec OK
C:\WINDOWS\system32\L3CODECA.ACM 1,
9, 0, 0305 284.00 KB (290,816 bytes)
3/25/2003 6:00 AM
c:\windows\system32\tssoft32.acm DSP GROUP,
INC. OK
C:\WINDOWS\system32\TSSOFT32.ACM
1.01 9.50 KB (9,728 bytes)
3/25/2003 6:00 AM
c:\windows\system32\msadp32.acm Microsoft
Corporation OK
C:\WINDOWS\system32\MSADP32.ACM
5.2.3790.0 (srv03_rtm.030324-2048)
14.50 KB (14,848 bytes) 3/25/2003
6:00 AM
c:\windows\system32\msgsm32.acm Microsoft
Corporation OK
C:\WINDOWS\system32\MSGSM32.ACM
5.2.3790.0 (srv03_rtm.030324-2048)
20.50 KB (20,992 bytes) 3/25/2003
6:00 AM
c:\windows\system32\msg711.acm Microsoft
Corporation OK
C:\WINDOWS\system32\MSG711.ACM
5.2.3790.0 (srv03_rtm.030324-2048)
10.00 KB (10,240 bytes) 3/25/2003
6:00 AM
c:\windows\system32\imaadp32.acm Microsoft
Corporation OK
C:\WINDOWS\system32\IMAADP32.ACM
5.2.3790.0 (srv03_rtm.030324-2048)
15.50 KB (15,872 bytes) 3/25/2003
6:00 AM

[Video Codecs]

CODEC Manufacturer Description
Status File Version Size
Creation Date
c:\windows\system32\msh261.driv Microsoft
Corporation OK
C:\WINDOWS\system32\MSH261.DRV
4.4.4000 180.00 KB (184,320 bytes)
4/20/2004 4:02 AM
c:\windows\system32\tsbyuv.dll Microsoft
Corporation OK
C:\WINDOWS\system32\TSBYUV.DLL
5.2.3790.0 (srv03_rtm.030324-2048)
8.00 KB (8,192 bytes) 3/24/2003
7:50 PM
c:\windows\system32\msyuv.dll Microsoft Corporation
OK
C:\WINDOWS\system32\MSYUV.DLL 5.2.3790.0
(srv03_rtm.030324-2048) 16.50 KB (16,896 bytes)
3/24/2003 7:49 PM
c:\windows\system32\msvidc32.dll Microsoft
Corporation OK
C:\WINDOWS\system32\MSVIDC32.DLL
5.2.3790.0 (srv03_rtm.030324-2048)

```

26.50 KB (27,136 bytes) 3/25/2003
 6:00 AM
 c:\windows\system32\msrle32.dll Microsoft Corporation
 OK
 C:\WINDOWS\system32\MSRLE32.DLL
 5.2.3790.0 (srv03_rtm.030324-2048)
 10.50 KB (10,752 bytes) 3/25/2003

6:00 AM
 c:\windows\system32\iyuv_32.dll Microsoft Corporation
 OK
 C:\WINDOWS\system32\IYUV_32.DLL
 5.2.3790.0 (srv03_rtm.030324-2048)
 45.00 KB (46,080 bytes) 3/24/2003

7:49 PM
 c:\windows\system32\msh263.driv Microsoft Corporation
 OK
 C:\WINDOWS\system32\MSH263.DRV
 4.4.4000 284.00 KB (290,816 bytes)
 3/24/2003 7:46 PM

[CD-ROM]

Item	Value
Drive D:	
Description	CD-ROM Drive
Media Loaded	No
Media Type	CD-ROM
Name	HL-DT-ST CD-ROM GCR-8482B
Manufacturer	(Standard CD-ROM drives)
Status	OK
Transfer Rate	Not Available
SCSI Target ID	0
PNP Device ID	IDE\CDROMHL-DT-ST_CD-ROM_GCR-8482B_2.09_5&2E44396C&0&0.0.0
Driver	c:\windows\system32\drivers\cdrom.sys (5.2.3790.0 (srv03_rtm.030324-2048), 49.50 KB (50,688 bytes), 3/25/2003 6:00 AM)

[Sound Device]

Item	Value
------	-------

[Display]

Item	Value
Name	RAGE XL PCI Family (Microsoft Corporation)
PNP Device ID	PCI\VEN_1002&DEV_4752&SUBSYS_001E0E11&REV_27\4&3A321F38&0&18F0
Adapter Type	ATI RAGE XL PCI (B41), ATI Technologies Inc. compatible
Adapter Description	RAGE XL PCI Family (Microsoft Corporation)
Adapter RAM	8.00 MB (8,388,608 bytes)
Installed Drivers	ati2drad.dll
Driver Version	5.10.3663.6013
INF File	atiixpad.inf (ati2mpad section)
Color Planes	1
Color Table Entries	65536
Resolution	800 x 600 x 60 hertz
Bits/Pixel	16
Memory Address	0xFC000000-0xFCFFFFFF

I/O Port	0x00003000-0x000030FF
Memory Address	0xFBFF0000-0xFBFF0FFF
I/O Port	0x000003B0-0x000003BB
I/O Port	0x000003C0-0x000003DF
Memory Address	0xA0000-0xBFFFF
Driver	c:\windows\system32\drivers\ati2mpad.sys (5.10.3663.6013, 335.38 KB (343,424 bytes), 4/19/2004 9:23 PM)

[Infrared]

Item	Value
------	-------

[Input]

[Keyboard]

Item	Value
Description	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
Name	Enhanced (101- or 102-key)
Layout	00000409
PNP Device ID	ACPI\PNP0303\4&369939D9&0
Number of Function Keys	12
I/O Port	0x00000060-0x0000006F
I/O Port	0x00000064-0x00000064
IRQ Channel	IRQ 1
Driver	c:\windows\system32\drivers\i8042prt.sys (5.2.3790.0 (srv03_rtm.030324-2048), 68.50 KB (70,144 bytes), 3/25/2003 6:00 AM)

[Pointing Device]

Item	Value
Hardware Type	PS/2 Compatible Mouse
Number of Buttons	5
Status	OK
PNP Device ID	ACPI\PNP0F13\4&369939D9&0
Power Management Supported	No
Double Click Threshold	6
Handedness	Right Handed Operation
IRQ Channel	IRQ 12
Driver	c:\windows\system32\drivers\i8042prt.sys (5.2.3790.0 (srv03_rtm.030324-2048), 68.50 KB (70,144 bytes), 3/25/2003 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	1/31/2005 10:03 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	1/31/2005 10:03 AM
Index	2
Service Name	Rasl2tp
IP Address	Not Available
IP Subnet	Not Available
Default IP Gateway	Not Available
DHCP Enabled	No
DHCP Server	Not Available
DHCP Lease Expires	Not Available
DHCP Lease Obtained	Not Available
MAC Address	Not Available
Driver	c:\windows\system32\drivers\rasl2tp.sys (5.2.3790.0 (srv03_rtm.030324-2048), 77.00 KB (78,848 bytes), 3/25/2003 6:00 AM)

Name	[00000003] WAN Miniport (PPTP)
Adapter Type	Wide Area Network (WAN)
Product Type	WAN Miniport (PPTP)
Installed Yes	
PNP Device ID	ROOT\MS_PPTPMINIPORT\0000
Last Reset	1/31/2005 10:03 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 (5.2.3790.0 (srv03_rtm.030324-2048), 70.50 KB (72,192 bytes), 3/25/2003 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_PPPOEMINIPORT\0000
Last Reset	1/31/2005 10:03 AM
Index	4
Service Name	RasPppoe
IP Address	Not Available
IP Subnet	Not Available

Default IP Gateway Not Available
 DHCP Enabled No
 DHCP Server Not Available
 DHCP Lease Expires Not Available
 DHCP Lease Obtained Not Available
 MAC Address 33:50:6F:45:30:30
 Driver c:\windows\system32\drivers\raspppoe.sys
 (5.2.3790.0 (srv03_rtm.030324-2048), 38.00 KB (38,912 bytes), 3/25/2003 6:00 AM)

Name [00000005] Direct Parallel
 Adapter Type Not Available
 Product Type Direct Parallel
 Installed Yes
 PNP Device ID ROOT\MS_PTMINIPORT\0000
 Last Reset 1/31/2005 10:03 AM
 Index 5
 Service Name Raspti
 IP Address Not Available
 IP Subnet Not Available
 Default IP Gateway Not Available
 DHCP Enabled No
 DHCP Server Not Available
 DHCP Lease Expires Not Available
 DHCP Lease Obtained Not Available
 MAC Address Not Available
 Driver c:\windows\system32\drivers\raspti.sys
 (5.2.3790.0 (srv03_rtm.030324-2048), 18.50 KB (18,944 bytes), 3/25/2003 6:00 AM)

Name [00000006] WAN Miniport (IP)
 Adapter Type Not Available
 Product Type WAN Miniport (IP)
 Installed Yes
 PNP Device ID ROOT\MS_NDISWANIP\0000
 Last Reset 1/31/2005 10:03 AM
 Index 6
 Service Name NdisWan
 IP Address Not Available
 IP Subnet Not Available
 Default IP Gateway Not Available
 DHCP Enabled No
 DHCP Server Not Available
 DHCP Lease Expires Not Available
 DHCP Lease Obtained Not Available
 MAC Address Not Available
 Driver c:\windows\system32\drivers\ndiswan.sys
 (5.2.3790.0 (srv03_rtm.030324-2048), 96.50 KB (98,816 bytes), 3/25/2003 6:00 AM)

Name [00000007] HP NC7781 Gigabit Server Adapter
 Adapter Type Not Available
 Product Type HP NC7781 Gigabit Server Adapter
 Installed Yes
 PNP Device ID Not Available
 Last Reset 1/31/2005 10:03 AM
 Index 7
 Service Name q57w2k
 IP Address Not Available
 IP Subnet Not Available
 Default IP Gateway Not Available

DHCP Enabled No
 DHCP Server Not Available
 DHCP Lease Expires Not Available
 DHCP Lease Obtained Not Available
 MAC Address Not Available

Name [00000008] HP NC7781 Gigabit Server Adapter
 Adapter Type Ethernet 802.3
 Product Type HP NC7781 Gigabit Server Adapter
 Installed Yes
 PNP Device ID PCI\VEN_14E4&DEV_16C7&SUBSYS_00CB0E11&REV_10\5&199BB5B7&0&180210
 Last Reset 1/31/2005 10:03 AM
 Index 8
 Service Name q57w2k
 IP Address 130.168.211.39
 IP Subnet 255.255.0.0
 Default IP Gateway Not Available
 DHCP Enabled No
 DHCP Server Not Available
 DHCP Lease Expires Not Available
 DHCP Lease Obtained Not Available
 MAC Address 00:0E:7F:EF:F1:A8
 Memory Address 0xFDDF0000-0xFDDFFFFF
 IRQ Channel IRQ 49
 Driver c:\windows\system32\drivers\q57xp32.sys
 (7.80.0.0 built by: WinDDK, 185.88 KB (190,336 bytes), 4/20/2004 4:26 AM)

Name [00000009] HP ProLiant NC 320T PCI Express Gigabit Server Adapter
 Adapter Type Not Available
 Product Type HP ProLiant NC 320T PCI Express Gigabit Server Adapter
 Installed Yes
 PNP Device ID Not Available
 Last Reset 1/31/2005 10:03 AM
 Index 9
 Service Name q57w2k
 IP Address Not Available
 IP Subnet Not Available
 Default IP Gateway Not Available
 DHCP Enabled No
 DHCP Server Not Available
 DHCP Lease Expires Not Available
 DHCP Lease Obtained Not Available
 MAC Address Not Available

[Protocol]

Item	Value
Name	MSAFD Tcpip [TCP/IP]
Connectionless Service	No
Guarantees Delivery	Yes
Guarantees Sequencing	Yes
Maximum Address Size	16 bytes
Maximum Message Size	0 bytes
Message Oriented	No
Minimum Address Size	16 bytes
Pseudo Stream Oriented	No

Supports Broadcasting	No
Supports Connect Data	No
Supports Disconnect Data	No
Supports Encryption	No
Supports Expedited Data	Yes
Supports Graceful Closing	Yes
Supports Guaranteed Bandwidth	No
Supports Multicasting	No

Name	MSAFD Tcpip [UDP/IP]
Connectionless Service	Yes
Guarantees Delivery	No
Guarantees Sequencing	No
Maximum Address Size	16 bytes
Maximum Message Size	63.93 KB (65,467 bytes)

Message Oriented	Yes
Minimum Address Size	16 bytes
Pseudo Stream Oriented	No
Supports Broadcasting	Yes
Supports Connect Data	No
Supports Disconnect Data	No
Supports Encryption	No
Supports Expedited Data	No
Supports Graceful Closing	No
Supports Guaranteed Bandwidth	No
Supports Multicasting	Yes

Name	RSVP UDP Service Provider
Connectionless Service	Yes
Guarantees Delivery	No
Guarantees Sequencing	No
Maximum Address Size	16 bytes
Maximum Message Size	63.93 KB (65,467 bytes)

Message Oriented	Yes
Minimum Address Size	16 bytes
Pseudo Stream Oriented	No
Supports Broadcasting	Yes
Supports Connect Data	No
Supports Disconnect Data	No
Supports Encryption	Yes
Supports Expedited Data	No
Supports Graceful Closing	No
Supports Guaranteed Bandwidth	No
Supports Multicasting	Yes

Name	RSVP TCP Service Provider
Connectionless Service	No
Guarantees Delivery	Yes
Guarantees Sequencing	Yes
Maximum Address Size	16 bytes
Maximum Message Size	0 bytes
Message Oriented	No
Minimum Address Size	16 bytes
Pseudo Stream Oriented	No
Supports Broadcasting	No
Supports Connect Data	No
Supports Disconnect Data	No
Supports Encryption	Yes
Supports Expedited Data	Yes
Supports Graceful Closing	Yes
Supports Guaranteed Bandwidth	No

Supports Multicasting No

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{0BB44867-EF60-4237-94C3-8EBD2D951920}] SEQPACKET 4

Connectionless Service No
 Guarantees Delivery Yes
 Guarantees Sequencing Yes
 Maximum Address Size 20 bytes
 Maximum Message Size 62.50 KB (64,000 bytes)

Message Oriented Yes
 Minimum Address Size 20 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting No
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption No
 Supports Expedited Data No
 Supports Graceful Closing No
 Supports Guaranteed Bandwidth No
 Supports Multicasting No

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{0BB44867-EF60-4237-94C3-8EBD2D951920}] DATAGRAM 4

Connectionless Service Yes
 Guarantees Delivery No
 Guarantees Sequencing No
 Maximum Address Size 20 bytes
 Maximum Message Size 62.50 KB (64,000 bytes)

Message Oriented Yes
 Minimum Address Size 20 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting Yes
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption No
 Supports Expedited Data No
 Supports Graceful Closing No
 Supports Guaranteed Bandwidth No
 Supports Multicasting No

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{4C19A676-10B2-44BD-A63F-C183A519917A}] SEQPACKET 3

Connectionless Service No
 Guarantees Delivery Yes
 Guarantees Sequencing Yes
 Maximum Address Size 20 bytes
 Maximum Message Size 62.50 KB (64,000 bytes)

Message Oriented Yes
 Minimum Address Size 20 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting No
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption No
 Supports Expedited Data No
 Supports Graceful Closing No
 Supports Guaranteed Bandwidth No

Supports Multicasting No

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{4C19A676-10B2-44BD-A63F-C183A519917A}] DATAGRAM 3

Connectionless Service Yes
 Guarantees Delivery No
 Guarantees Sequencing No
 Maximum Address Size 20 bytes
 Maximum Message Size 62.50 KB (64,000 bytes)

Message Oriented Yes
 Minimum Address Size 20 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting Yes
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption No
 Supports Expedited Data No
 Supports Graceful Closing No
 Supports Guaranteed Bandwidth No
 Supports Multicasting No

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{2BB35EC4-06BF-43DD-B788-2D45B8F228CB}] SEQPACKET 0

Connectionless Service No
 Guarantees Delivery Yes
 Guarantees Sequencing Yes
 Maximum Address Size 20 bytes
 Maximum Message Size 62.50 KB (64,000 bytes)

Message Oriented Yes
 Minimum Address Size 20 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting No
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption No
 Supports Expedited Data No
 Supports Graceful Closing No
 Supports Guaranteed Bandwidth No
 Supports Multicasting No

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{2BB35EC4-06BF-43DD-B788-2D45B8F228CB}] DATAGRAM 0

Connectionless Service Yes
 Guarantees Delivery No
 Guarantees Sequencing No
 Maximum Address Size 20 bytes
 Maximum Message Size 62.50 KB (64,000 bytes)

Message Oriented Yes
 Minimum Address Size 20 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting Yes
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption No
 Supports Expedited Data No
 Supports Graceful Closing No
 Supports Guaranteed Bandwidth No

Supports Multicasting No

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{47822F18-C703-41B1-B0ED-2BD99AD3C028}] SEQPACKET 1

Connectionless Service No
 Guarantees Delivery Yes
 Guarantees Sequencing Yes
 Maximum Address Size 20 bytes
 Maximum Message Size 62.50 KB (64,000 bytes)

Message Oriented Yes
 Minimum Address Size 20 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting No
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption No
 Supports Expedited Data No
 Supports Graceful Closing No
 Supports Guaranteed Bandwidth No
 Supports Multicasting No

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{47822F18-C703-41B1-B0ED-2BD99AD3C028}] DATAGRAM 1

Connectionless Service Yes
 Guarantees Delivery No
 Guarantees Sequencing No
 Maximum Address Size 20 bytes
 Maximum Message Size 62.50 KB (64,000 bytes)

Message Oriented Yes
 Minimum Address Size 20 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting Yes
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption No
 Supports Expedited Data No
 Supports Graceful Closing No
 Supports Guaranteed Bandwidth No
 Supports Multicasting No

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{69ADA20E-3077-4F34-92D5-D8BC15463D76}] SEQPACKET 2

Connectionless Service No
 Guarantees Delivery Yes
 Guarantees Sequencing Yes
 Maximum Address Size 20 bytes
 Maximum Message Size 62.50 KB (64,000 bytes)

Message Oriented Yes
 Minimum Address Size 20 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting No
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption No
 Supports Expedited Data No
 Supports Graceful Closing No
 Supports Guaranteed Bandwidth No

Supports Multicasting No

Name MSAFD NetBIOS
 {\Device\NetBT_Tcpip_{69ADA20E-3077-4F34-92D5-D8BC15463D76}} DATAGRAM 2
 Connectionless Service Yes
 Guarantees Delivery No
 Guarantees Sequencing No
 Maximum Address Size 20 bytes
 Maximum Message Size 62.50 KB (64,000 bytes)

Message Oriented Yes
 Minimum Address Size 20 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting Yes
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption No
 Supports Expedited Data No
 Supports Graceful Closing No
 Supports Guaranteed Bandwidth No
 Supports Multicasting No

[WinSock]

Item Value
 File c:\windows\system32\winsock.dll
 Size 2.80 KB (2,864 bytes)
 Version 3.10

File c:\windows\system32\wsock32.dll
 Size 22.00 KB (22,528 bytes)
 Version 5.2.3790.0 (srv03_rtm.030324-2048)

[Ports]

[Serial]

Item Value
 Name Communications Port (COM1)
 Status OK
 PNP Device ID ACPI\PNP0501\0
 Maximum Input Buffer Size 0
 Maximum Output Buffer Size No
 Settable Baud Rate Yes
 Settable Data Bits Yes
 Settable Flow Control Yes
 Settable Parity Yes
 Settable Parity Check Yes
 Settable Stop Bits Yes
 Settable RLSD Yes
 Supports RLSD Yes
 Supports 16 Bit Mode No
 Supports Special Characters No
 Baud Rate 9600
 Bits/Byte 8
 Stop Bits 1
 Parity None
 Busy No
 Abort Read/Write on Error No
 Binary Mode Enabled Yes

Continue Xmit on XOff No
 CTS Outflow Control No
 Discard NULL Bytes No
 DSR Outflow Control 0
 DSR Sensitivity 0
 DTR Flow Control Type Enable
 EOF Character 0
 Error Replace Character 0
 Error Replacement Enabled No
 Event Character 0
 Parity Check Enabled No
 RTS Flow Control Type Enable
 XOff Character 19
 XOffXmit Threshold 512
 XOn Character 17
 XOnXmit Threshold 2048
 XOnXoff InFlow Control 0
 XOnXoff OutFlow Control 0
 IRQ Channel IRQ 4
 I/O Port 0x000003F8-0x000003FF
 Driver c:\windows\system32\drivers\serial.sys
 (5.2.3790.0 (srv03_rtm.030324-2048), 76.00 KB (77,824 bytes), 3/25/2003 6:00 AM)

Name Communications Port (COM2)
 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
 IRQ Channel IRQ 3
 I/O Port 0x000002F8-0x000002FF
 Driver c:\windows\system32\drivers\serial.sys
 (5.2.3790.0 (srv03_rtm.030324-2048), 76.00 KB (77,824 bytes), 3/25/2003 6:00 AM)

[Parallel]

Item Value
 Name LPT1
 PNP Device ID ACPI\PNP0400\5&A5A94E2&0
 DMA Channel Channel 0
 I/O Port 0x00000378-0x0000037F
 I/O Port 0x00000778-0x0000077D
 Driver c:\windows\system32\drivers\parport.sys
 (5.2.3790.0 (srv03_rtm.030324-2048), 76.50 KB (78,336 bytes), 3/24/2003 5:04 PM)

[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 16.94 GB (18,186,092,544 bytes)
 Free Space 12.35 GB (13,261,770,752 bytes)

Volume Name
 Volume Serial Number A466CDB7

Drive D:
 Description CD-ROM Disc

Drive E:
 Description Local Fixed Disk
 Compressed Not Available
 File System Not Available
 Size Not Available
 Free Space Not Available
 Volume Name Not Available
 Volume Serial Number Not Available

Drive F:
 Description Local Fixed Disk
 Compressed Not Available
 File System Not Available
 Size Not Available
 Free Space Not Available
 Volume Name Not Available
 Volume Serial Number Not Available

Drive G:
 Description Local Fixed Disk
 Compressed Not Available

File System Not Available
 Size Not Available
 Free Space Not Available
 Volume Name Not Available
 Volume Serial Number Not Available

Drive H:
 Description Local Fixed Disk
 Compressed Not Available
 File System Not Available
 Size Not Available
 Free Space Not Available
 Volume Name Not Available
 Volume Serial Number Not Available

Drive I:
 Description Local Fixed Disk
 Compressed Not Available
 File System Not Available
 Size Not Available
 Free Space Not Available
 Volume Name Not Available
 Volume Serial Number Not Available

Drive J:
 Description Local Fixed Disk
 Compressed Not Available
 File System Not Available
 Size Not Available
 Free Space Not Available
 Volume Name Not Available
 Volume Serial Number Not Available

Drive K:
 Description Local Fixed Disk
 Compressed Not Available
 File System Not Available
 Size Not Available
 Free Space Not Available
 Volume Name Not Available
 Volume Serial Number Not Available

Drive L:
 Description Local Fixed Disk
 Compressed Not Available
 File System Not Available
 Size Not Available
 Free Space Not Available
 Volume Name Not Available
 Volume Serial Number Not Available

Drive M:
 Description Local Fixed Disk
 Compressed No
 File System NTFS
 Size 445.66 GB (478,521,847,808 bytes)
 Free Space 319.75 GB (343,327,473,664 bytes)

Volume Name Backup1
 Volume Serial Number B49577E1

Drive N:
 Description Local Fixed Disk

Compressed No
 File System NTFS
 Size 445.66 GB (478,521,847,808 bytes)
 Free Space 319.75 GB (343,327,604,736 bytes)

Volume Name Backup2
 Volume Serial Number 6CAD0F04

Drive O:
 Description Local Fixed Disk
 Compressed No
 File System NTFS
 Size 445.66 GB (478,521,847,808 bytes)
 Free Space 319.75 GB (343,327,604,736 bytes)

Volume Name Backup3
 Volume Serial Number F4C04331

Drive P:
 Description Local Fixed Disk
 Compressed No
 File System NTFS
 Size 390.27 GB (419,044,519,936 bytes)
 Free Space 264.36 GB (283,852,091,392 bytes)

Volume Name Backup4
 Volume Serial Number 4CD3DDC1

Drive Q:
 Description Local Fixed Disk
 Compressed No
 File System NTFS
 Size 445.66 GB (478,521,847,808 bytes)
 Free Space 319.75 GB (343,327,604,736 bytes)

Volume Name Backup5
 Volume Serial Number C4E90439

Drive R:
 Description Local Fixed Disk
 Compressed No
 File System NTFS
 Size 445.66 GB (478,521,847,808 bytes)
 Free Space 319.75 GB (343,327,604,736 bytes)

Volume Name Backup6
 Volume Serial Number 2CF7E650

Drive S:
 Description Local Fixed Disk
 Compressed No
 File System NTFS
 Size 445.66 GB (478,521,847,808 bytes)
 Free Space 319.75 GB (343,327,604,736 bytes)

Volume Name Backup7
 Volume Serial Number 480AC6EE

Drive Z:
 Description Network Connection
 Provider Name Not Available

[Disks]

Item Value
 Description \\.\PHYSICALDRIVE6
 Manufacturer Not Available
 Model Not Available
 Bytes/Sector 512
 Media Loaded Yes
 Media Type Fixed hard disk
 Partitions 1
 SCSI Bus Not Available
 SCSI Logical Unit Not Available
 SCSI Port Not Available
 SCSI Target ID Not Available
 Sectors/Track 63
 Size 169.03 GB (181,499,028,480 bytes)
 Total Cylinders 22,066
 Total Sectors 354,490,290
 Total Tracks 5,626,830
 Tracks/Cylinder 255
 Partition Disk #6, Partition #0
 Partition Size 169.03 GB (181,498,019,840 bytes)

Partition Starting Offset 65,536 bytes

Description \\.\PHYSICALDRIVE7
 Manufacturer Not Available
 Model Not Available
 Bytes/Sector 512
 Media Loaded Yes
 Media Type Fixed hard disk
 Partitions 1
 SCSI Bus Not Available
 SCSI Logical Unit Not Available
 SCSI Port Not Available
 SCSI Target ID Not Available
 Sectors/Track 63
 Size 390.27 GB (419,045,114,880 bytes)
 Total Cylinders 50,946
 Total Sectors 818,447,490
 Total Tracks 12,991,230
 Tracks/Cylinder 255
 Partition Disk #7, Partition #0
 Partition Size 390.27 GB (419,044,524,032 bytes)

Partition Starting Offset 65,536 bytes

Description \\.\PHYSICALDRIVE2
 Manufacturer Not Available
 Model Not Available
 Bytes/Sector 512
 Media Loaded Yes
 Media Type Fixed hard disk
 Partitions 1
 SCSI Bus Not Available
 SCSI Logical Unit Not Available
 SCSI Port Not Available
 SCSI Target ID Not Available
 Sectors/Track 63
 Size 58.26 GB (62,561,479,680 bytes)
 Total Cylinders 7,606
 Total Sectors 122,190,390
 Total Tracks 1,939,530
 Tracks/Cylinder 255

Partition Disk #2, Partition #0
Partition Size 58.26 GB (62,561,189,888 bytes)

Partition Starting Offset 65,536 bytes

Description \\.\PHYSICALDRIVE3
Manufacturer Not Available
Model Not Available
Bytes/Sector 512
Media Loaded Yes
Media Type Fixed hard disk
Partitions 1
SCSI Bus Not Available
SCSI Logical Unit Not Available
SCSI Port Not Available
SCSI Target ID Not Available
Sectors/Track 63
Size 445.66 GB (478,522,114,560 bytes)
Total Cylinders 58,177
Total Sectors 934,613,505
Total Tracks 14,835,135
Tracks/Cylinder 255
Partition Disk #3, Partition #0
Partition Size 445.66 GB (478,521,851,904 bytes)

Partition Starting Offset 65,536 bytes

Description \\.\PHYSICALDRIVE13
Manufacturer Not Available
Model Not Available
Bytes/Sector 512
Media Loaded Yes
Media Type Fixed hard disk
Partitions 1
SCSI Bus Not Available
SCSI Logical Unit Not Available
SCSI Port Not Available
SCSI Target ID Not Available
Sectors/Track 63
Size 58.26 GB (62,561,479,680 bytes)
Total Cylinders 7,606
Total Sectors 122,190,390
Total Tracks 1,939,530
Tracks/Cylinder 255
Partition Disk #13, Partition #0
Partition Size 58.26 GB (62,561,189,888 bytes)

Partition Starting Offset 65,536 bytes

Description \\.\PHYSICALDRIVE14
Manufacturer Not Available
Model Not Available
Bytes/Sector 512
Media Loaded Yes
Media Type Fixed hard disk
Partitions 1
SCSI Bus Not Available
SCSI Logical Unit Not Available
SCSI Port Not Available
SCSI Target ID Not Available
Sectors/Track 63
Size 445.66 GB (478,522,114,560 bytes)
Total Cylinders 58,177

Total Sectors 934,613,505
Total Tracks 14,835,135
Tracks/Cylinder 255
Partition Disk #14, Partition #0
Partition Size 445.66 GB (478,521,851,904 bytes)

Partition Starting Offset 65,536 bytes

Description \\.\PHYSICALDRIVE12
Manufacturer Not Available
Model Not Available
Bytes/Sector 512
Media Loaded Yes
Media Type Fixed hard disk
Partitions 1
SCSI Bus Not Available
SCSI Logical Unit Not Available
SCSI Port Not Available
SCSI Target ID Not Available
Sectors/Track 63
Size 181.64 GB (195,029,614,080 bytes)
Total Cylinders 23,711
Total Sectors 380,917,215
Total Tracks 6,046,305
Tracks/Cylinder 255
Partition Disk #12, Partition #0
Partition Size 181.63 GB (195,028,844,544 bytes)

Partition Starting Offset 65,536 bytes

Description \\.\PHYSICALDRIVE8
Manufacturer Not Available
Model Not Available
Bytes/Sector 512
Media Loaded Yes
Media Type Fixed hard disk
Partitions 1
SCSI Bus Not Available
SCSI Logical Unit Not Available
SCSI Port Not Available
SCSI Target ID Not Available
Sectors/Track 63
Size 58.26 GB (62,561,479,680 bytes)
Total Cylinders 7,606
Total Sectors 122,190,390
Total Tracks 1,939,530
Tracks/Cylinder 255
Partition Disk #8, Partition #0
Partition Size 58.26 GB (62,561,189,888 bytes)

Partition Starting Offset 65,536 bytes

Description \\.\PHYSICALDRIVE9
Manufacturer Not Available
Model Not Available
Bytes/Sector 512
Media Loaded Yes
Media Type Fixed hard disk
Partitions 1
SCSI Bus Not Available
SCSI Logical Unit Not Available
SCSI Port Not Available
SCSI Target ID Not Available

Sectors/Track 63
Size 445.66 GB (478,522,114,560 bytes)
Total Cylinders 58,177
Total Sectors 934,613,505
Total Tracks 14,835,135
Tracks/Cylinder 255
Partition Disk #9, Partition #0
Partition Size 445.66 GB (478,521,851,904 bytes)

Partition Starting Offset 65,536 bytes

Description \\.\PHYSICALDRIVE10
Manufacturer Not Available
Model Not Available
Bytes/Sector 512
Media Loaded Yes
Media Type Fixed hard disk
Partitions 1
SCSI Bus Not Available
SCSI Logical Unit Not Available
SCSI Port Not Available
SCSI Target ID Not Available
Sectors/Track 63
Size 58.26 GB (62,561,479,680 bytes)
Total Cylinders 7,606
Total Sectors 122,190,390
Total Tracks 1,939,530
Tracks/Cylinder 255
Partition Disk #10, Partition #0
Partition Size 58.26 GB (62,561,189,888 bytes)

Partition Starting Offset 65,536 bytes

Description \\.\PHYSICALDRIVE11
Manufacturer Not Available
Model Not Available
Bytes/Sector 512
Media Loaded Yes
Media Type Fixed hard disk
Partitions 1
SCSI Bus Not Available
SCSI Logical Unit Not Available
SCSI Port Not Available
SCSI Target ID Not Available
Sectors/Track 63
Size 445.66 GB (478,522,114,560 bytes)
Total Cylinders 58,177
Total Sectors 934,613,505
Total Tracks 14,835,135
Tracks/Cylinder 255
Partition Disk #11, Partition #0
Partition Size 445.66 GB (478,521,851,904 bytes)

Partition Starting Offset 65,536 bytes

Description \\.\PHYSICALDRIVE0
Manufacturer Not Available
Model Not Available
Bytes/Sector 512
Media Loaded Yes
Media Type Fixed hard disk
Partitions 1
SCSI Bus Not Available

SCSI Logical Unit Not Available
 SCSI Port Not Available
 SCSI Target ID Not Available
 Sectors/Track 63
 Size 58.26 GB (62,561,479,680 bytes)
 Total Cylinders 7,606
 Total Sectors 122,190,390
 Total Tracks 1,939,530
 Tracks/Cylinder 255
 Partition Disk #0, Partition #0
 Partition Size 58.26 GB (62,561,189,888 bytes)

Partition Starting Offset 65,536 bytes

Description \\.\PHYSICALDRIVE1
 Manufacturer Not Available
 Model Not Available
 Bytes/Sector 512
 Media Loaded Yes
 Media Type Fixed hard disk
 Partitions 1
 SCSI Bus Not Available
 SCSI Logical Unit Not Available
 SCSI Port Not Available
 SCSI Target ID Not Available
 Sectors/Track 63
 Size 445.66 GB (478,522,114,560 bytes)
 Total Cylinders 58,177
 Total Sectors 934,613,505
 Total Tracks 14,835,135
 Tracks/Cylinder 255
 Partition Disk #1, Partition #0
 Partition Size 445.66 GB (478,521,851,904 bytes)

Partition Starting Offset 65,536 bytes

Description \\.\PHYSICALDRIVE4
 Manufacturer Not Available
 Model Not Available
 Bytes/Sector 512
 Media Loaded Yes
 Media Type Fixed hard disk
 Partitions 1
 SCSI Bus Not Available
 SCSI Logical Unit Not Available
 SCSI Port Not Available
 SCSI Target ID Not Available
 Sectors/Track 63
 Size 58.26 GB (62,561,479,680 bytes)
 Total Cylinders 7,606
 Total Sectors 122,190,390
 Total Tracks 1,939,530
 Tracks/Cylinder 255
 Partition Disk #4, Partition #0
 Partition Size 58.26 GB (62,561,189,888 bytes)

Partition Starting Offset 65,536 bytes

Description \\.\PHYSICALDRIVE5
 Manufacturer Not Available
 Model Not Available
 Bytes/Sector 512
 Media Loaded Yes

Media Type Fixed hard disk
 Partitions 1
 SCSI Bus Not Available
 SCSI Logical Unit Not Available
 SCSI Port Not Available
 SCSI Target ID Not Available
 Sectors/Track 63
 Size 445.66 GB (478,522,114,560 bytes)
 Total Cylinders 58,177
 Total Sectors 934,613,505
 Total Tracks 14,835,135
 Tracks/Cylinder 255
 Partition Disk #5, Partition #0
 Partition Size 445.66 GB (478,521,851,904 bytes)

Partition Starting Offset 65,536 bytes

Description Disk drive
 Manufacturer (Standard disk drives)
 Model COMPAQ BD03695A27 SCSI Disk Device
 Bytes/Sector 512
 Media Loaded Yes
 Media Type Fixed hard disk
 Partitions 2
 SCSI Bus 0
 SCSI Logical Unit 0
 SCSI Port 2
 SCSI Target ID 0
 Sectors/Track 63
 Size 33.91 GB (36,413,314,560 bytes)
 Total Cylinders 4,427
 Total Sectors 71,119,755
 Total Tracks 1,128,885
 Tracks/Cylinder 255
 Partition Disk #15, Partition #0
 Partition Size 0 bytes
 Partition Starting Offset 65,536 bytes
 Partition Disk #15, Partition #1
 Partition Size 16.94 GB (18,186,094,080 bytes)

Partition Starting Offset 8,225,280 bytes

[SCSI]
 Item Value
 Name Smart Array 6400 Controller (Non-Miniport)
 Manufacturer Hewlett-Packard
 Status OK
 PNP Device ID
 PCI\VEN_0E11&DEV_0046&SUBSYS_409C0E11&REV_0
 1\6&2265D209&0&20080010
 Memory Address 0xFDBF0000-0xFDBF1FFF
 I/O Port 0x00005000-0x00005FFF
 IRQ Channel IRQ 26
 Driver c:\windows\system32\drivers\hpqcissb.sys
 (5.12.2.32 built by: skav, 39.00 KB (39,936 bytes),
 11/16/2004 5:15 PM)

Name Smart Array 6400 Controller U320 Expansion
 Module (Non-Miniport)
 Manufacturer Hewlett-Packard
 Status OK

PNP Device ID
 PCI\VEN_0E11&DEV_0046&SUBSYS_409D0E11&REV_0
 1\6&2265D209&0&28080010
 Memory Address 0xFDB70000-0xFDB71FFF
 I/O Port 0x00005400-0x000054FF
 IRQ Channel IRQ 25
 Driver c:\windows\system32\drivers\hpqcissb.sys
 (5.12.2.32 built by: skav, 39.00 KB (39,936 bytes),
 11/16/2004 5:15 PM)

Name Smart Array 6400 Controller (Non-Miniport)

Manufacturer Hewlett-Packard
 Status OK
 PNP Device ID
 PCI\VEN_0E11&DEV_0046&SUBSYS_409C0E11&REV_0
 1\6&A5A6761&0&20100010
 Memory Address 0xFDCF0000-0xFDCF1FFF
 I/O Port 0x00006000-0x00006FFF
 IRQ Channel IRQ 29
 Driver c:\windows\system32\drivers\hpqcissb.sys
 (5.12.2.32 built by: skav, 39.00 KB (39,936 bytes),
 11/16/2004 5:15 PM)

Name Smart Array 6400 Controller U320 Expansion
 Module (Non-Miniport)

Manufacturer Hewlett-Packard
 Status OK
 PNP Device ID
 PCI\VEN_0E11&DEV_0046&SUBSYS_409D0E11&REV_0
 1\6&A5A6761&0&28100010
 Memory Address 0xFDC70000-0xFDC71FFF
 I/O Port 0x00006400-0x000064FF
 IRQ Channel IRQ 30
 Driver c:\windows\system32\drivers\hpqcissb.sys
 (5.12.2.32 built by: skav, 39.00 KB (39,936 bytes),
 11/16/2004 5:15 PM)

Name LSI Adapter, Ultra320 SCSI 2000 series,
 (with 1020/1030)

Manufacturer LSI Logic
 Status OK
 PNP Device ID
 PCI\VEN_1000&DEV_0030&SUBSYS_00DA0E11&REV_0
 7\5&1510AA32&0&180010
 I/O Port 0x00004000-0x00008FFF
 Memory Address 0xFDAB0000-0xFDABFFFF
 Memory Address 0xFDAC0000-0xFDADFFFF
 IRQ Channel IRQ 31
 Driver c:\windows\system32\drivers\symmpi.sys
 (1.10.01.00 built by: WinDDK, 42.50 KB (43,520
 bytes), 4/20/2004 4:24 AM)

Name LSI Adapter, Ultra320 SCSI 2000 series,
 (with 1020/1030)

Manufacturer LSI Logic
 Status OK
 PNP Device ID
 PCI\VEN_1000&DEV_0030&SUBSYS_00DA0E11&REV_0
 7\5&1510AA32&0&190010
 I/O Port 0x00004400-0x000044FF
 Memory Address 0xFDAA0000-0xFDABFFFF
 Memory Address 0xFDA80000-0xFDA9FFFF

```

IRQ Channel      IRQ 27
Driver c:\windows\system32\drivers\symmpi.sys
(1.10.01.00 built by: WinDDK, 42.50 KB (43,520
bytes), 4/20/2004 4:24 AM)

Name      Smart Array 6400 Controller (Non-Miniport)

Manufacturer      Hewlett-Packard
Status      OK
PNP Device ID      PCI\VEN_0E11&DEV_0046&SUBSYS_409C0E11&REV_0
1\6&F47E691&0&20080210
Memory Address      0xFDEF0000-0xFDEF1FFF
I/O Port      0x00007000-0x00008FFF
IRQ Channel      IRQ 50
Driver c:\windows\system32\drivers\hpcqissb.sys
(5.12.2.32 built by: skav, 39.00 KB (39,936 bytes),
11/16/2004 5:15 PM)

Name      Smart Array 6400 Controller U320 Expansion
Module (Non-Miniport)
Manufacturer      Hewlett-Packard
Status      OK
PNP Device ID      PCI\VEN_0E11&DEV_0046&SUBSYS_409D0E11&REV_0
1\6&F47E691&0&28080210
Memory Address      0xFDE70000-0xFDE71FFF
I/O Port      0x00007400-0x000074FF
IRQ Channel      IRQ 57
Driver c:\windows\system32\drivers\hpcqissb.sys
(5.12.2.32 built by: skav, 39.00 KB (39,936 bytes),
11/16/2004 5:15 PM)

Name      Smart Array 6400 Controller (Non-Miniport)

Manufacturer      Hewlett-Packard
Status      OK
PNP Device ID      PCI\VEN_0E11&DEV_0046&SUBSYS_409C0E11&REV_0
1\6&27535139&0&20100210
Memory Address      0xFDF00000-0xFDF1FFFF
I/O Port      0x00008000-0x00008FFF
IRQ Channel      IRQ 53
Driver c:\windows\system32\drivers\hpcqissb.sys
(5.12.2.32 built by: skav, 39.00 KB (39,936 bytes),
11/16/2004 5:15 PM)

Name      Smart Array 6400 Controller U320 Expansion
Module (Non-Miniport)
Manufacturer      Hewlett-Packard
Status      OK
PNP Device ID      PCI\VEN_0E11&DEV_0046&SUBSYS_409D0E11&REV_0
1\6&27535139&0&28100210
Memory Address      0xFDF70000-0xFDF71FFF
I/O Port      0x00008400-0x000084FF
IRQ Channel      IRQ 54
Driver c:\windows\system32\drivers\hpcqissb.sys
(5.12.2.32 built by: skav, 39.00 KB (39,936 bytes),
11/16/2004 5:15 PM)

[IDE]

```

```

Item      Value
Name      Intel(r) 82801EB Parallel Ultra ATA Storage
Controller-24DB
Manufacturer      Intel
Status      OK
PNP Device ID      PCI\VEN_8086&DEV_24DB&SUBSYS_32010E11&REV_0
2\3&61AAA01&0&F9
I/O Port      0x00000500-0x0000050F
Memory Address      0xFEBFFC00-0xFEBFFFFF
Driver c:\windows\system32\drivers\intelide.sys
(5.2.3790.0 (srv03_rtm.030324-2048), 7.00 KB (7,168
bytes), 4/19/2004 9:23 PM)

Name      Primary IDE Channel
Manufacturer      (Standard IDE ATA/ATAPI
controllers)
Status      OK
PNP Device ID      PCIIDE\IDECHANNEL\4&7744C21&0&0

I/O Port      0x000001F0-0x000001F7
I/O Port      0x000003F6-0x000003F6
IRQ Channel      IRQ 14
Driver c:\windows\system32\drivers\ataapi.sys
(5.2.3790.0 (srv03_rtm.030324-2048), 89.00 KB (91,136
bytes), 3/25/2003 6:00 AM)

Name      Secondary IDE Channel
Manufacturer      (Standard IDE ATA/ATAPI
controllers)
Status      OK
PNP Device ID      PCIIDE\IDECHANNEL\4&7744C21&0&1

I/O Port      0x00000170-0x00000177
I/O Port      0x00000376-0x00000376
IRQ Channel      IRQ 15
Driver c:\windows\system32\drivers\ataapi.sys
(5.2.3790.0 (srv03_rtm.030324-2048), 89.00 KB (91,136
bytes), 3/25/2003 6:00 AM)

[Printing]

Name      Driver      Port Name Server Name

[Problem Devices]

Device      PNP Device ID      Error Code

[USB]

Device      PNP Device ID
Standard Universal PCI to USB Host Controller
PCI\VEN_8086&DEV_24D2&SUBSYS_32010E11&REV_0
2\3&61AAA01&0&E8
USB Root Hub      USB\ROOT_HUB\4&11162D3&0
Standard Universal PCI to USB Host Controller
PCI\VEN_8086&DEV_24D4&SUBSYS_32010E11&REV_0
2\3&61AAA01&0&E9
USB Root Hub      USB\ROOT_HUB\4&9A99192&0
Standard Universal PCI to USB Host Controller
PCI\VEN_8086&DEV_24D7&SUBSYS_32010E11&REV_0
2\3&61AAA01&0&EA
USB Root Hub      USB\ROOT_HUB\4&33D87DE&0

```

```

Standard Universal PCI to USB Host Controller
PCI\VEN_8086&DEV_24DE&SUBSYS_32010E11&REV_0
2\3&61AAA01&0&EB
USB Root Hub      USB\ROOT_HUB\4&34DED4B&0
Standard Enhanced PCI to USB Host Controller
PCI\VEN_8086&DEV_24DD&SUBSYS_32010E11&REV_0
2\3&61AAA01&0&EF
USB Root Hub      USB\ROOT_HUB20\4&2BE57AC3&0

[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
afcnt      afcnt      Not Available      Kernel Driver
No      Disabled      Stopped      OK
Normal      No      No
afd      AFD Networking Support Environment
c:\windows\system32\drivers\afd.sys
Kernel Driver      Yes      Auto
Running      OK      Normal      No      Yes
ahal54x      Ahal54x      Not Available      Kernel Driver
No      Disabled      Stopped      OK
Normal      No      No
aic78u2      aic78u2      Not Available      Kernel Driver
No      Disabled      Stopped      OK
Normal      No      No
aic78xx      aic78xx      Not Available      Kernel Driver
No      Disabled      Stopped      OK
Normal      No      No
aliide      AliIde      Not Available      Kernel Driver
No      Disabled      Stopped      OK
Normal      No      No
asynccmac      RAS Asynchronous Media Driver
c:\windows\system32\drivers\asynccmac.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 Running OK Normal No Yes
atdisk	Atdisk Not Available Kernel Driver No Disabled Stopped OK Ignore No No
ati2mpad	ati2mpad c:\windows\system32\drivers\ati2mpad.sys Kernel Driver Yes Manual Running OK Ignore No Yes
atmarpc	ATM ARP Client Protocol c:\windows\system32\drivers\atmarpc.sys Kernel Driver No Manual Stopped OK Normal No No
audstub	Audio Stub Driver c:\windows\system32\drivers\audstub.sys Kernel Driver Yes Manual Running OK Normal No Yes
beep	Beep c:\windows\system32\drivers\beep.sys Kernel Driver Yes System Running OK Normal No Yes
cbidf2k	cbidf2k c:\windows\system32\drivers\cbidf2k.sys Kernel Driver No Disabled Stopped OK Normal No No
cd20xrnt	cd20xrnt Not Available Kernel Driver No Disabled Stopped OK Normal No No
cdfs	Cdfs c:\windows\system32\drivers\cdfs.sys File System Driver Yes Disabled Running OK Normal 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
cpqarray	Cpqarray Not Available Kernel Driver No Disabled Stopped OK Normal No No
cpqarray2	Cpqarray2 Not Available Kernel Driver No Disabled Stopped OK Normal No No

cpqasm2	HP ProLiant iLO Advanced System Management Controller c:\windows\system32\drivers\cpqasm2.sys Kernel Driver Yes Manual Running OK Normal No Yes
cpqcidrv	HP Integrated Lights-Out c:\windows\system32\drivers\cpqcidrv.sys Kernel Driver Yes Manual Running OK Normal No Yes
cpqcisse	CPQCISSE c:\windows\system32\drivers\cpqcisse.sys Kernel Driver No Manual Stopped OK Normal No No
cpqcissm	cpqcissm c:\windows\system32\drivers\cpqcissm.sys Kernel Driver Yes Boot Running OK Normal No Yes
cpqfcalm	cpqfcalm Not Available Kernel Driver No Disabled Stopped OK Normal No No
cpqteam	HP Network Configuration Utility 7 c:\windows\system32\drivers\cpqteam.sys Kernel Driver No Manual 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
dac960nt	dac960nt Not Available Kernel Driver No Disabled Stopped OK Normal No No
dellcerc	dellcerc Not Available Kernel Driver No Disabled Stopped OK Normal No No
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

dpti2o	dpti2o 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
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
hpn	hpn Not Available Kernel Driver No Disabled Stopped OK Normal No No
hpqcissb	Smart Array Controllers Non-Miniport Bus Driver c:\windows\system32\drivers\hpqcissb.sys Kernel Driver Yes Boot Running OK Normal No Yes
hpqcissd	Smart Array Controllers Non-Miniport Disk Driver c:\windows\system32\drivers\hpqcissd.sys Kernel Driver Yes Boot Running OK Normal No Yes
hpt3xx	hpt3xx Not Available Kernel Driver No Disabled Stopped OK Normal No No
hptool	HPtool Service c:\windows\system32\drivers\hptool.sys Kernel Driver Yes Manual Running OK Ignore No Yes
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	
i2omp	i2omp	Not Available	Kernel Driver
No	Disabled	Stopped	OK
Normal	No	No	
i8042prt	i8042 Keyboard and PS/2 Mouse Port Driver		
	c:\windows\system32\drivers\i8042prt.sys		
Kernel Driver	Yes	System	
Running	OK	Normal	No Yes
iirsp	iirsp	Not Available	Kernel Driver
No	Disabled	Stopped	OK
Normal	No	No	
imapi	CD-Burning Filter Driver		
	c:\windows\system32\drivers\imapi.sys		
Kernel Driver	No	System	
Stopped	OK	Normal	No No
intelide	IntelIde		
	c:\windows\system32\drivers\intelide.sys		
Kernel Driver	Yes	Boot	
Running	OK	Normal	No Yes
interruptaffinityfilter	Interrupt Affinity		
Filter	c:\windows\system32\drivers\intfiltr.sys		
Kernel Driver	Yes	Boot	
Running	OK	Normal	No Yes
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
ipsraidn	ipsraidn	Not Available	Kernel Driver
No	Disabled	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

ksecdd	KSecDD		
	c:\windows\system32\drivers\ksecdd.sys		
Kernel Driver	Yes	Boot	
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
mountmgr	Mount Point Manager		
	c:\windows\system32\drivers\mountmgr.sys		
Kernel Driver	Yes	Boot	
Running	OK	Normal	No Yes
mraid35x	mraid35x	Not Available	Kernel Driver
No	Disabled	Stopped	OK
Normal	No	No	
mrxdav	WebDav Client Redirector		
	c:\windows\system32\drivers\mrxdav.sys		
File System Driver	No	Manual	
Stopped	OK	Normal	No No
mrxsmb	MRXSMB		
	c:\windows\system32\drivers\mrxsmb.sys		
File System Driver	Yes	System	
Running	OK	Normal	No Yes
msfs	Msfs		
	c:\windows\system32\drivers\msfs.sys		
File System Driver	Yes	System	
Running	OK	Normal	No Yes
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	Parallel port driver		
	c:\windows\system32\drivers\parport.sys		
Kernel 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 Yes
parvdm	Parvdm		
	c:\windows\system32\drivers\parvdm.sys		
Kernel Driver	Yes	Auto	
Running	OK	Ignore	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	PDFFRAME	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				
perc2	perc2	Not Available	Kernel Driver		
	No Disabled Stopped OK				
	Normal No No				
perc2hib	perc2hib	Not Available	Kernel Driver		
	No Disabled Stopped OK				
	Normal No No				
pptpminiport	WAN Miniport (PPTP)				
	c:\windows\system32\drivers\rasppptp.sys				
	Kernel Driver	Yes	Manual		
	Running OK	Normal	No	Yes	
prlntss	PRLNTSS				
	c:\windows\system32\drivers\prlntss.sys				
	Kernel Driver	No	System		
	Stopped OK	Normal	No	No	
processor	Processor Driver				
	c:\windows\system32\drivers\processr.sys				
	Kernel Driver	Yes	Manual		
	Running OK	Normal	No	Yes	
ptilink	Direct Parallel Link Driver				
	c:\windows\system32\drivers\ptilink.sys				
	Kernel Driver	Yes	Manual		
	Running OK	Normal	No	Yes	
q57w2k	HP NC7781 Gigabit Server Adapter				
	c:\windows\system32\drivers\q57xp32.sys				
	Kernel Driver	Yes	Manual		
	Running OK	Normal	No	Yes	
ql1080	ql1080	Not Available	Kernel Driver		
	No Disabled Stopped OK				
	Normal No No				
ql10wnt	ql10wnt	Not Available	Kernel Driver		
	No Disabled Stopped OK				
	Normal No No				
ql12160	ql12160	Not Available	Kernel Driver		
	No Disabled Stopped OK				
	Normal No No				
ql1240	ql1240	Not Available	Kernel Driver		
	No Disabled Stopped OK				
	Normal No No				

ql1280	ql1280	Not Available	Kernel Driver		
	No Disabled Stopped OK				
	Normal No No				
ql2100	ql2100	Not Available	Kernel Driver		
	No Disabled Stopped OK				
	Normal No No				
ql2200	ql2200	Not Available	Kernel Driver		
	No Disabled Stopped OK				
	Normal No No				
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	Normal	No	Yes	
rasl2tp	WAN Miniport (L2TP)				
	c:\windows\system32\drivers\rasl2tp.sys				
	Kernel Driver	Yes	Manual		
	Running OK	Normal	No	Yes	
raspppoe	Remote Access PPPOE Driver				
	c:\windows\system32\drivers\raspppoe.sys				
	Kernel Driver	Yes	Manual		
	Running OK	Normal	No	Yes	
raspti	Direct Parallel				
	c:\windows\system32\drivers\raspti.sys				
	Kernel Driver	Yes	Manual		
	Running OK	Normal	No	Yes	
rdbss	Rdbss				
	c:\windows\system32\drivers\rdbss.sys				
	File System Driver	Yes	System		
	Running OK	Normal	No	Yes	
rdpcdd	RDPDCCD				
	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	Secdrv				
	c:\windows\system32\drivers\secdrv.sys				
	Kernel Driver	No	Manual		
	Stopped OK	Normal	No	No	

serenum	Serenum Filter Driver				
	c:\windows\system32\drivers\serenum.sys				
	Kernel Driver	Yes	Manual		
	Running OK	Normal	No	Yes	
serial	Serial port driver				
	c:\windows\system32\drivers\serial.sys				
	Kernel Driver	Yes	System		
	Running OK	Ignore	No	Yes	
sfloppy	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				
sparrow	Sparrow	Not Available	Kernel Driver		
	No Disabled Stopped OK				
	Normal No No				
srv	Srv				
	c:\windows\system32\drivers\srv.sys				
	File System Driver	Yes	Manual		
	Running OK	Normal	No	Yes	
swenum	Software Bus Driver				
	c:\windows\system32\drivers\swenum.sys				
	Kernel Driver	Yes	Manual		
	Running OK	Normal	No	Yes	
symc810	symc810	Not Available	Kernel Driver		
	No Disabled Stopped OK				
	Normal No No				
symc8xx	symc8xx	Not Available	Kernel Driver		
	No Disabled Stopped OK				
	Normal No No				
symmpi	symmpi				
	c:\windows\system32\drivers\symmpi.sys				
	Kernel Driver	Yes	Boot		
	Running OK	Normal	No	Yes	
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				
sysmgmt	HP ProLiant System Management Interface				
	Driver				
	c:\windows\system32\drivers\sysmgmt.sys				
	Kernel Driver	Yes	Manual		
	Running OK	Normal	No	Yes	
tcPIP	TCP/IP Protocol Driver				
	c:\windows\system32\drivers\tcpip.sys				
	Kernel Driver	Yes	System		
	Running OK	Normal	No	Yes	
tdpipe	TDPIPE				
	c:\windows\system32\drivers\tdpipe.sys				
	Kernel Driver	No	Manual		
	Stopped OK	Ignore	No	No	

```

tdtcp      TDTCP
           c:\windows\system32\drivers\tdtcp.sys
           Kernel Driver Yes Manual
           Running OK Ignore No Yes

termdd     Terminal Device Driver
           c:\windows\system32\drivers\termdd.sys
           Kernel Driver Yes System
           Running OK Normal No Yes

toside     TosIde Not Available Kernel Driver
           No Disabled Stopped OK
           Normal No No

udfs       Udfs
           c:\windows\system32\drivers\udfs.sys
           File System Driver No Disabled
           Stopped OK Normal No No

ultra      ultra Not Available Kernel Driver
           No Disabled Stopped OK
           Normal No No

update     Microcode Update Driver
           c:\windows\system32\drivers\update.sys
           Kernel Driver Yes Manual
           Running OK Normal No Yes

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

usbuhci    Microsoft USB Universal Host Controller
Miniport Driver
           c:\windows\system32\drivers\usbuhci.sys
           Kernel Driver Yes Manual
           Running OK Normal No Yes

vgasave   VGA Display Controller.
           c:\windows\system32\drivers\vga.sys
           Kernel Driver Yes System
           Running OK Ignore No Yes

viaide     ViaIde Not Available Kernel Driver
           No Disabled Stopped OK
           Normal No No

volsnap    Storage volumes
           c:\windows\system32\drivers\volsnap.sys
           Kernel Driver Yes Boot
           Running OK Normal No Yes

wanarp     Remote Access IP ARP Driver
           c:\windows\system32\drivers\wanarp.sys
           Kernel Driver Yes Manual
           Running OK Normal No Yes

```

```

wdica      WDICA Not Available Kernel Driver
           No Manual Stopped OK
           Ignore No No

wlbs       Network Load Balancing
           c:\windows\system32\drivers\wlbs.sys
           Kernel Driver No Manual
           Stopped OK Normal No No

[Signed Drivers]

Device Name Signed Device Class
           Driver Version Driver Date
           Manufacturer INF Name Driver Name
           Device ID

Not Available Not Available Not Available Not Available
           Not Available Not Available Not Available Not
Available Not Available Not Available
           HTREE\ROOT\0
ACPI Multiprocessor PC No COMPUTER
           5.2.3790.0 10/1/2002 (Standard
computers) hal.inf Not Available
           ROOT\ACPI_HAL\0000
Microsoft ACPI-Compliant System No
           SYSTEM 5.2.3790.0 10/1/2002
           Microsoft acpi.inf Not Available
           ACPI_HAL\PNP0C08\0
Processor No PROCESSOR 5.2.3790.0
           10/1/2002 (Standard processor types)
           cpu.inf Not Available
           ACPI\GENUINEINTEL_-
_X86_FAMILY_15_MODEL_4\0
Processor No PROCESSOR 5.2.3790.0
           10/1/2002 (Standard processor types)
           cpu.inf Not Available
           ACPI\GENUINEINTEL_-
_X86_FAMILY_15_MODEL_4\1
Processor No PROCESSOR 5.2.3790.0
           10/1/2002 (Standard processor types)
           cpu.inf Not Available
           ACPI\GENUINEINTEL_-
_X86_FAMILY_15_MODEL_4\2
Processor No PROCESSOR 5.2.3790.0
           10/1/2002 (Standard processor types)
           cpu.inf Not Available
           ACPI\GENUINEINTEL_-
_X86_FAMILY_15_MODEL_4\3
PCI bus No SYSTEM 5.2.3790.0
           10/1/2002 (Standard system devices)
           machine.inf Not Available
           ACPI\PNP0A03\2&DABA3FF&0
PCI standard host CPU bridge No SYSTEM
           5.2.3790.0 10/1/2002 (Standard
system devices) machine.inf Not Available
           PCI\VEN_8086&DEV_3590&SUBSYS_00000000&REV_0
9\3&61AAA01&0&0
PCI standard PCI-to-PCI bridge No
           SYSTEM 5.2.3790.0 10/1/2002
           (Standard system devices) machine.inf
           Not Available
           PCI\VEN_8086&DEV_3595&SUBSYS_00000000&REV_0
9\3&61AAA01&0&10

```

```

PCI standard PCI-to-PCI bridge No
           SYSTEM 5.2.3790.0 10/1/2002
           (Standard system devices) machine.inf
           Not Available
           PCI\VEN_8086&DEV_0329&SUBSYS_00000000&REV_0
9\4&1FC39AFF&0&0010
PCI standard PCI-to-PCI bridge No
           SYSTEM 5.2.3790.0 10/1/2002
           (Standard system devices) machine.inf
           Not Available
           PCI\VEN_1014&DEV_01A7&SUBSYS_00000000&REV_0
2\5&1510AA32&0&080010
Smart Array 6400 Controller (Non-Miniport) No
           SCSIADAPTER 5.12.2.32 8/11/2004
           Hewlett-Packard oem11.inf Not Available
           PCI\VEN_0E11&DEV_0046&SUBSYS_409C0E11&REV_0
1\6&2265D209&0&20080010
Smart Array Logical Volume No DISKDRIVE
           5.6.2.32 4/8/2003 Hewlett-Packard
           oem10.inf Not Available
           HPQCISS\DISK&VEN_HP&PROD_LOGICAL_VOLUME\7&8
C39867&0&0000000400000000
Smart Array Logical Volume No DISKDRIVE
           5.6.2.32 4/8/2003 Hewlett-Packard
           oem10.inf Not Available
           HPQCISS\DISK&VEN_HP&PROD_LOGICAL_VOLUME\7&8
C39867&0&0100000400000000
Smart Array 6400 Controller U320 Expansion Module
(Non-Miniport) No SCSIADAPTER
           5.12.2.32 8/11/2004 Hewlett-Packard
           oem11.inf Not Available
           PCI\VEN_0E11&DEV_0046&SUBSYS_409D0E11&REV_0
1\6&2265D209&0&28080010
Smart Array Logical Volume No DISKDRIVE
           5.6.2.32 4/8/2003 Hewlett-Packard
           oem10.inf Not Available
           HPQCISS\DISK&VEN_HP&PROD_LOGICAL_VOLUME\7&1
6CE31D1&0&0000000400000000
Smart Array Logical Volume No DISKDRIVE
           5.6.2.32 4/8/2003 Hewlett-Packard
           oem10.inf Not Available
           HPQCISS\DISK&VEN_HP&PROD_LOGICAL_VOLUME\7&1
6CE31D1&0&0100000400000000
PCI standard PCI-to-PCI bridge No
           SYSTEM 5.2.3790.0 10/1/2002
           (Standard system devices) machine.inf
           Not Available
           PCI\VEN_1014&DEV_01A7&SUBSYS_00000000&REV_0
2\5&1510AA32&0&100010
Smart Array 6400 Controller (Non-Miniport) No
           SCSIADAPTER 5.12.2.32 8/11/2004
           Hewlett-Packard oem11.inf Not Available
           PCI\VEN_0E11&DEV_0046&SUBSYS_409C0E11&REV_0
1\6&A5A6761&0&20100010
Smart Array Logical Volume No DISKDRIVE
           5.6.2.32 4/8/2003 Hewlett-Packard
           oem10.inf Not Available
           HPQCISS\DISK&VEN_HP&PROD_LOGICAL_VOLUME\7&E
E4C87C&0&0000000400000000
Smart Array Logical Volume No DISKDRIVE
           5.6.2.32 4/8/2003 Hewlett-Packard
           oem10.inf Not Available

```



```

HPQCISS\DISK&VEN_HP&PROD_LOGICAL_VOLUME\7&E
E4C87C&0&0100004000000000
Smart Array 6400 Controller U320 Expansion Module
(Non-Miniport) No SCSIADAPTER
5.12.2.32 8/11/2004 Hewlett-Packard
oem1.inf Not Available
PCI\VEN_0E11&DEV_0046&SUBSYS_409D0E11&REV_0
1\6&A5A6761&0&28100010
Smart Array Logical Volume No DISKDRIVE
5.6.2.32 4/8/2003 Hewlett-Packard
oem10.inf Not Available
HPQCISS\DISK&VEN_HP&PROD_LOGICAL_VOLUME\7&1
1E48EF0&0&0000004000000000
Smart Array Logical Volume No DISKDRIVE
5.6.2.32 4/8/2003 Hewlett-Packard
oem10.inf Not Available
HPQCISS\DISK&VEN_HP&PROD_LOGICAL_VOLUME\7&1
1E48EF0&0&0100004000000000
LSI Adapter, Ultra320 SCSI 2000 series, (with
1020/1030) No SCSIADAPTER
1.10.1.0 5/26/2004 LSI Logic oem1.inf Not
Available
PCI\VEN_1000&DEV_0030&SUBSYS_00DA0E11&REV_0
7\5&1510AA32&0&180010
Disk drive No DISKDRIVE 5.2.3790.0
10/1/2002 (Standard disk drives)
disk.inf Not Available
SCSI\DISK&VEN_COMPAQ&PROD_BD03695A27&REV_HP
B6\6&1ED3517&0&000
LSI Adapter, Ultra320 SCSI 2000 series, (with
1020/1030) No SCSIADAPTER
1.10.1.0 5/26/2004 LSI Logic oem1.inf Not
Available
PCI\VEN_1000&DEV_0030&SUBSYS_00DA0E11&REV_0
7\5&1510AA32&0&190010
PCI standard PCI-to-PCI bridge No
SYSTEM 5.2.3790.0 10/1/2002
(Standard system devices) machine.inf
Not Available
PCI\VEN_8086&DEV_032A&SUBSYS_00000000&REV_0
9\4&1FC39AFF&0&0210
PCI standard PCI-to-PCI bridge No
SYSTEM 5.2.3790.0 10/1/2002
(Standard system devices) machine.inf
Not Available
PCI\VEN_1014&DEV_01A7&SUBSYS_00000000&REV_0
2\5&199BB5B7&0&080210
Smart Array 6400 Controller (Non-Miniport) No
SCSIADAPTER 5.12.2.32 8/11/2004
Hewlett-Packard oem1.inf Not Available
PCI\VEN_0E11&DEV_0046&SUBSYS_409C0E11&REV_0
1\6&F47E691&0&20080210
Smart Array Logical Volume No DISKDRIVE
5.6.2.32 4/8/2003 Hewlett-Packard
oem10.inf Not Available
HPQCISS\DISK&VEN_HP&PROD_LOGICAL_VOLUME\7&2
DB6DC7C&0&0000004000000000
Smart Array Logical Volume No DISKDRIVE
5.6.2.32 4/8/2003 Hewlett-Packard
oem10.inf Not Available
HPQCISS\DISK&VEN_HP&PROD_LOGICAL_VOLUME\7&2
DB6DC7C&0&0100004000000000

```

```

Smart Array 6400 Controller U320 Expansion Module
(Non-Miniport) No SCSIADAPTER
5.12.2.32 8/11/2004 Hewlett-Packard
oem1.inf Not Available
PCI\VEN_0E11&DEV_0046&SUBSYS_409D0E11&REV_0
1\6&F47E691&0&28080210
Smart Array Logical Volume No DISKDRIVE
5.6.2.32 4/8/2003 Hewlett-Packard
oem10.inf Not Available
HPQCISS\DISK&VEN_HP&PROD_LOGICAL_VOLUME\7&2
EAD44F7&0&0000004000000000
Smart Array Logical Volume No DISKDRIVE
5.6.2.32 4/8/2003 Hewlett-Packard
oem10.inf Not Available
HPQCISS\DISK&VEN_HP&PROD_LOGICAL_VOLUME\7&2
EAD44F7&0&0100004000000000
PCI standard PCI-to-PCI bridge No
SYSTEM 5.2.3790.0 10/1/2002
(Standard system devices) machine.inf
Not Available
PCI\VEN_1014&DEV_01A7&SUBSYS_00000000&REV_0
2\5&199BB5B7&0&100210
Smart Array 6400 Controller (Non-Miniport) No
SCSIADAPTER 5.12.2.32 8/11/2004
Hewlett-Packard oem1.inf Not Available
PCI\VEN_0E11&DEV_0046&SUBSYS_409C0E11&REV_0
1\6&27535139&0&20100210
Smart Array Logical Volume No DISKDRIVE
5.6.2.32 4/8/2003 Hewlett-Packard
oem10.inf Not Available
HPQCISS\DISK&VEN_HP&PROD_LOGICAL_VOLUME\7&2
B475E4&0&0000004000000000
Smart Array 6400 Controller U320 Expansion Module
(Non-Miniport) No SCSIADAPTER
5.12.2.32 8/11/2004 Hewlett-Packard
oem1.inf Not Available
PCI\VEN_0E11&DEV_0046&SUBSYS_409D0E11&REV_0
1\6&27535139&0&28100210
Smart Array Logical Volume No DISKDRIVE
5.6.2.32 4/8/2003 Hewlett-Packard
oem10.inf Not Available
HPQCISS\DISK&VEN_HP&PROD_LOGICAL_VOLUME\7&1
EBD75B3&0&0000004000000000
Smart Array Logical Volume No DISKDRIVE
5.6.2.32 4/8/2003 Hewlett-Packard
oem10.inf Not Available
HPQCISS\DISK&VEN_HP&PROD_LOGICAL_VOLUME\7&1
EBD75B3&0&0100004000000000
HP NC7781 Gigabit Server Adapter No NET
7.40.0.0 2/2/2004 Hewlett-Packard Company
oem6.inf Not Available
PCI\VEN_14E4&DEV_16C7&SUBSYS_00CB0E11&REV_1
0\5&199BB5B7&0&180210
PCI standard PCI-to-PCI bridge No
SYSTEM 5.2.3790.0 10/1/2002
(Standard system devices) machine.inf
Not Available
PCI\VEN_8086&DEV_3597&SUBSYS_00000000&REV_0
9\3&61AAA01&0&20
PCI standard PCI-to-PCI bridge No
SYSTEM 5.2.3790.0 10/1/2002
(Standard system devices) machine.inf
Not Available

```

```

PCI\VEN_8086&DEV_3598&SUBSYS_00000000&REV_0
9\3&61AAA01&0&28
Standard Universal PCI to USB Host Controller No
USB 5.2.3790.0 10/1/2002
(Standard USB Host Controller)
usbport.inf Not Available
PCI\VEN_8086&DEV_24D2&SUBSYS_32010E11&REV_0
2\3&61AAA01&0&E8
USB Root Hub No USB 5.2.3790.0
10/1/2002 (Standard USB Host Controller)
usbport.inf Not Available
USB\ROOT_HUB\4&11622D3&0
Standard Universal PCI to USB Host Controller No
USB 5.2.3790.0 10/1/2002
(Standard USB Host Controller)
usbport.inf Not Available
PCI\VEN_8086&DEV_24D4&SUBSYS_32010E11&REV_0
2\3&61AAA01&0&E9
USB Root Hub No USB 5.2.3790.0
10/1/2002 (Standard USB Host Controller)
usbport.inf Not Available
USB\ROOT_HUB\4&9A99192&0
Standard Universal PCI to USB Host Controller No
USB 5.2.3790.0 10/1/2002
(Standard USB Host Controller)
usbport.inf Not Available
PCI\VEN_8086&DEV_24D7&SUBSYS_32010E11&REV_0
2\3&61AAA01&0&EA
USB Root Hub No USB 5.2.3790.0
10/1/2002 (Standard USB Host Controller)
usbport.inf Not Available
USB\ROOT_HUB\4&33D87DE8&0
Standard Universal PCI to USB Host Controller No
USB 5.2.3790.0 10/1/2002
(Standard USB Host Controller)
usbport.inf Not Available
PCI\VEN_8086&DEV_24DE&SUBSYS_32010E11&REV_0
2\3&61AAA01&0&EB
USB Root Hub No USB 5.2.3790.0
10/1/2002 (Standard USB Host Controller)
usbport.inf Not Available
USB\ROOT_HUB\4&34DED4B6&0
Standard Enhanced PCI to USB Host Controller No
USB 5.2.3790.0 10/1/2002
(Standard USB Host Controller)
usbport.inf Not Available
PCI\VEN_8086&DEV_24D6&SUBSYS_32010E11&REV_0
2\3&61AAA01&0&EF
USB Root Hub No USB 5.2.3790.0
10/1/2002 (Standard USB Host Controller)
usbport.inf Not Available
USB\ROOT_HUB20\4&2BE57AC3&0
Intel(R) 82801DB PCI Bridge - 244E No
SYSTEM 5.2.3790.0 10/1/2002
Intel machine.inf Not Available
PCI\VEN_8086&DEV_244E&SUBSYS_00000000&REV_C
2\3&61AAA01&0&F0
RAGE XL PCI Family (Microsoft Corporation) No
DISPLAY 5.10.2600.6014 8/8/2001 ATI
Technologies Inc. atixpad.inf Not Available
PCI\VEN_1002&DEV_4752&SUBSYS_001E0E11&REV_2
7\4&3A321F38&0&18F0

```

Plug and Play Monitor No MONITOR
5.1.2001.0 6/6/2001 (Standard
monitor types) monitor.inf Not Available
DISPLAY\AVO0402\5&3B8D3ECD&0&80000001&01&03

HP ProLiant iLO Advanced System Management Controller
No SYSTEM 5.33.3790.0
5/18/2004 Compaq oem0.inf Not Available
PCI\VEN_0E11&DEV_B203&SUBSYS_B2060E11&REV_0
1\4&3A321F38&0&20F0

HP iLO Management Interface Driver No
MULTIFUNCTION 1.4.4.0 6/11/2003
Hewlett-Packard Company oem5.inf Not
Available

PCI\VEN_0E11&DEV_B204&SUBSYS_B2060E11&REV_0
1\4&3A321F38&0&22F0

PCI standard ISA bridge No SYSTEM
5.2.3790.0 10/1/2002 (Standard
system devices) machine.inf Not Available
PCI\VEN_8086&DEV_24D0&SUBSYS_00000000&REV_0
2\3&61AAA01&0&F8

ISAPNP Read Data Port No SYSTEM
5.2.3790.0 10/1/2002 (Standard
system devices) machine.inf Not Available
ISAPNP\READDATA\PORT\0

Motherboard resources No SYSTEM
5.2.3790.0 10/1/2002 (Standard
system devices) machine.inf Not Available
ACPI\PNP0C02\0

System timer No SYSTEM 5.2.3790.0
10/1/2002 (Standard system devices)
machine.inf Not Available
ACPI\PNP0100\4&369939D9&0

Direct memory access controller No
SYSTEM 5.2.3790.0 10/1/2002
(Standard system devices) machine.inf
Not Available
ACPI\PNP0200\4&369939D9&0

System speaker No SYSTEM 5.2.3790.0
10/1/2002 (Standard system devices)
machine.inf Not Available
ACPI\PNP0800\4&369939D9&0

Standard 101/102-Key or Microsoft Natural PS/2
Keyboard No KEYBOARD 5.2.3790.0
10/1/2002 (Standard keyboards)
keyboard.inf Not Available
ACPI\PNP0303\4&369939D9&0

PS/2 Compatible Mouse No MOUSE
5.2.3790.0 10/1/2002 Microsoft
msmouse.inf Not Available
ACPI\PNP0F13\4&369939D9&0

Extended IO Bus No SYSTEM 5.2.3790.0
10/1/2002 (Standard system devices)
machine.inf Not Available
ACPI\PNP0A06\4&369939D9&0

Printer Port No PORTS 5.2.3790.0
10/1/2002 (Standard port types)
msports.inf Not Available
ACPI\PNP0400\5&A5A94E2&0

Printer Port Logical Interface No
SYSTEM 5.2.3790.0 10/1/2002
(Standard system devices) machine.inf
Not Available

LPTENUM\MICROSOFTRAWPORT\6&1863B140&0&LPT1

Communications Port No PORTS 5.2.3790.0
10/1/2002 (Standard port types)
msports.inf Not Available
ACPI\PNP0501\0

Communications Port No PORTS 5.2.3790.0
10/1/2002 (Standard port types)
msports.inf Not Available
ACPI\PNP0501\1

Standard floppy disk controller No FDC
5.2.3790.0 10/1/2002 (Standard
floppy disk controllers) fdc.inf Not Available
ACPI\PNP0700\5&A5A94E2&0

Floppy disk drive No FLOPPYDISK
5.2.3790.0 10/1/2002 (Standard
floppy disk drives) floppydisk.inf Not Available
FDC\GENERIC_FLOPPY_DRIVE\6&2A0CB5EB&0&0

Intel(r) 82801EB Parallel Ultra ATA Storage
Controller-24DB No HDC 5.2.3790.0
10/1/2002 Intel mshdc.inf Not Available
PCI\VEN_8086&DEV_24DB&SUBSYS_32010E11&REV_0
2\3&61AAA01&0&F9

Primary IDE Channel No HDC 5.2.3790.0
10/1/2002 (Standard IDE ATA/ATAPI
controllers) mshdc.inf Not Available
PCIIDE\IDECHANNEL\4&7744C21&0&0

CD-ROM Drive No CDROM 5.2.3790.0
10/1/2002 (Standard CD-ROM drives)
cdrom.inf Not Available IDE\CDROMHL-
DT-ST_CD-ROM_GCR-
8482B_____2.09____\5&2E44396C&0&0.0.0

Secondary IDE Channel No HDC
5.2.3790.0 10/1/2002 (Standard IDE
ATA/ATAPI controllers) mshdc.inf Not Available
PCIIDE\IDECHANNEL\4&7744C21&0&1

ACPI Thermal Zone No SYSTEM 5.2.3790.0
10/1/2002 (Standard system devices)
machine.inf Not Available
ACPI\THERMALZONE\THM0

ACPI Fixed Feature Button No SYSTEM
5.2.3790.0 10/1/2002 (Standard
system devices) machine.inf Not Available
ACPI\FIXEDBUTTON\2&DABA3FF&0

Logical Disk Manager No SYSTEM
5.2.3790.0 10/1/2002 (Standard
system devices) machine.inf Not Available
ROOT\DMIO\0000

Volume Manager No SYSTEM 5.2.3790.0
10/1/2002 (Standard system devices)
machine.inf Not Available
ROOT\FTDISK\0000

Generic volume No VOLUME 5.2.3790.0
10/1/2002 Microsoft volume.inf Not
Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE34D20D
5FOFFSET10000LENGTHE90F00000

Generic volume No VOLUME 5.2.3790.0
10/1/2002 Microsoft volume.inf Not
Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE34D20D
5EOFFSET10000LENGTH6F6A200000

Generic volume No VOLUME 5.2.3790.0
10/1/2002 Microsoft volume.inf Not
Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE34D20D
5DOFFSET10000LENGTHE90F00000

Generic volume No VOLUME 5.2.3790.0
10/1/2002 Microsoft volume.inf Not
Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE34D20D
5BOFFSET10000LENGTH6F6A200000

Generic volume No VOLUME 5.2.3790.0
10/1/2002 Microsoft volume.inf Not
Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE34D20D
5AOFFSET10000LENGTHE90F00000

Generic volume No VOLUME 5.2.3790.0
10/1/2002 Microsoft volume.inf Not
Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE34D20D
58OFFSET10000LENGTH6F6A200000

Generic volume No VOLUME 5.2.3790.0
10/1/2002 Microsoft volume.inf Not
Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE34D20D
57OFFSET10000LENGTH2A42200000

Generic volume No VOLUME 5.2.3790.0
10/1/2002 Microsoft volume.inf Not
Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE34D20D
55OFFSET10000LENGTH6191000000

Generic volume No VOLUME 5.2.3790.0
10/1/2002 Microsoft volume.inf Not
Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE34D20D
54OFFSET10000LENGTHE90F00000

Generic volume No VOLUME 5.2.3790.0
10/1/2002 Microsoft volume.inf Not
Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE34D20D
53OFFSET10000LENGTH6F6A200000

Generic volume No VOLUME 5.2.3790.0
10/1/2002 Microsoft volume.inf Not
Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE34D20D
51OFFSET10000LENGTH6F6A200000

Generic volume No VOLUME 5.2.3790.0
10/1/2002 Microsoft volume.inf Not
Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE180BB1
07OFFSET10000LENGTH2D68A00000

Generic volume No VOLUME 5.2.3790.0
10/1/2002 Microsoft volume.inf Not
Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE34D20D
50OFFSET10000LENGTHE90F00000

Generic volume No VOLUME 5.2.3790.0
10/1/2002 Microsoft volume.inf Not
Available

```

STORAGE\VOLUME\1&30A96598&0&SIGNATURE34D202
AFOFFSET10000LENGTH6FA200000
Generic volume No VOLUME 5.2.3790.0
10/1/2002 Microsoft volume.inf Not
Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE2A982A
98OFFSET10000LENGTH0
Generic volume No VOLUME 5.2.3790.0
10/1/2002 Microsoft volume.inf Not
Available
STORAGE\VOLUME\1&30A96598&0&SIGNATURE2A982A
98OFFSET7D8200LENGTH43BF9C600
AFD Networking Support Environment Not Available
LEGACYDRIVER Not Available Not
Available Not Available Not Available Not
Available ROOT\LEGACY_AFD\0000
Beep Not Available LEGACYDRIVER Not
Available Not Available Not Available Not
Available Not Available ROOT\LEGACY_BEEP\0000

cpqcissm Not Available LEGACYDRIVER Not
Available Not Available Not Available Not
Available Not Available
ROOT\LEGACY_CPQCISSM\0000
CRC Disk Filter Driver Not Available
LEGACYDRIVER Not Available Not
Available Not Available Not Available Not
Available ROOT\LEGACY_CRCDISK\0000
dmboot Not Available LEGACYDRIVER Not
Available Not Available Not Available Not
Available Not Available ROOT\LEGACY_DMBOOT\0000

dmload Not Available LEGACYDRIVER Not
Available Not Available Not Available Not
Available Not Available ROOT\LEGACY_DMLOAD\0000

Fips Not Available LEGACYDRIVER Not
Available Not Available Not Available Not
Available Not Available ROOT\LEGACY_FIPS\0000

Generic Packet Classifier Not Available
LEGACYDRIVER Not Available Not
Available Not Available Not Available Not
Available ROOT\LEGACY_GPC\0000
IPSEC driver Not Available LEGACYDRIVER
Not Available Not Available Not
Available Not Available Not Available Not
Available ROOT\LEGACY_IPSEC\0000
ksecdd Not Available LEGACYDRIVER Not
Available Not Available Not Available Not
Available Not Available ROOT\LEGACY_KSECDD\0000

mmdd Not Available LEGACYDRIVER Not
Available Not Available Not Available Not
Available Not Available ROOT\LEGACY_MMDD\0000

mountmgr Not Available LEGACYDRIVER Not
Available Not Available Not Available Not
Available Not Available
ROOT\LEGACY_MOUNTMGR\0000
NDIS System Driver Not Available LEGACYDRIVER
Not Available Not Available Not

```

```

Available Not Available Not Available
ROOT\LEGACY_NDIS\0000
Remote Access NDIS TAPI Driver Not Available
LEGACYDRIVER Not Available Not
Available Not Available Not Available Not
Available ROOT\LEGACY_NDIS\0000
Available ROOT\LEGACY_NDIS\0000
NDIS Usermode I/O Protocol Not Available
LEGACYDRIVER Not Available Not
Available Not Available Not Available Not
Available ROOT\LEGACY_NDISUIO\0000
NDProxy Not Available LEGACYDRIVER Not
Available Not Available Not Available Not
Available Not Available
ROOT\LEGACY_NDPROXY\0000
NetBios over Tcpip Not Available LEGACYDRIVER
Not Available Not Available Not
Available Not Available Not Available Not
Available Not Available Not Available Not
Null Not Available LEGACYDRIVER Not
Available Not Available Not Available Not
Available Not Available ROOT\LEGACY_NULL\0000

Partition Manager Not Available LEGACYDRIVER
Not Available Not Available Not
Available Not Available Not Available Not
Available Not Available Not Available Not
Parvdm Not Available LEGACYDRIVER Not
Available Not Available Not Available Not
Available Not Available ROOT\LEGACY_PARVDM\0000

PCIIde Not Available LEGACYDRIVER Not
Available Not Available Not Available Not
Available Not Available ROOT\LEGACY_PCIIDE\0000

Remote Access Auto Connection Driver Not Available
LEGACYDRIVER Not Available Not
Available Not Available Not Available Not
Available ROOT\LEGACY_RASACD\0000
RDPcdd Not Available LEGACYDRIVER Not
Available Not Available Not Available Not
Available Not Available ROOT\LEGACY_RDPcdd\0000

RDPWD Not Available LEGACYDRIVER Not
Available Not Available Not Available Not
Available Not Available ROOT\LEGACY_RDPWD\0000

HP ProLiant System Management Interface Driver Not
Available LEGACYDRIVER Not Available Not
Available Not Available Not Available Not
Available ROOT\LEGACY_SYSMGMT\0000
TCP/IP Protocol Driver Not Available
LEGACYDRIVER Not Available Not
Available Not Available Not Available Not
Available ROOT\LEGACY_TCPIP\0000
TDTCP Not Available LEGACYDRIVER Not
Available Not Available Not Available Not
Available Not Available ROOT\LEGACY_TDTCP\0000

VGA Display Controller. Not Available
LEGACYDRIVER Not Available Not
Available Not Available Not Available Not
Available ROOT\LEGACY_VGASAVE\0000

```

```

volsnap Not Available LEGACYDRIVER Not
Available Not Available Not Available Not
Available Not Available
ROOT\LEGACY_VOLSnap\0000
Remote Access IP ARP Driver Not Available
LEGACYDRIVER Not Available Not
Available Not Available Not Available Not
Available ROOT\LEGACY_WANARP\0000
Audio Codecs No MEDIA 5.2.3790.0
10/1/2002 (Standard system devices)
wave.inf Not Available
ROOT\MEDIA\MS_MMACH
Legacy Audio Drivers No MEDIA
5.2.3790.0 10/1/2002 (Standard
system devices) wave.inf Not Available
ROOT\MEDIA\MS_MMDRV
Media Control Devices No MEDIA
5.2.3790.0 10/1/2002 (Standard
system devices) wave.inf Not Available
ROOT\MEDIA\MS_MMCI
Legacy Video Capture Devices No MEDIA
5.2.3790.0 10/1/2002 (Standard
system devices) wave.inf Not Available
ROOT\MEDIA\MS_MMVCD
Video Codecs No MEDIA 5.2.3790.0
10/1/2002 (Standard system devices)
wave.inf Not Available
ROOT\MEDIA\MS_MMVID
WAN Miniport (L2TP) No NET 5.2.3790.0
10/1/2002 Microsoft netrasa.inf Not
Available ROOT\MS_L2TPMINIPORT\0000
WAN Miniport (IP) No NET 5.2.3790.0
10/1/2002 Microsoft netrasa.inf Not
Available ROOT\MS_NDISWANIP\0000
WAN Miniport (PPPOE) No NET
5.2.3790.0 10/1/2002 Microsoft
netrasa.inf Not Available
ROOT\MS_PPPOEMINIPORT\0000
WAN Miniport (PPTP) No NET 5.2.3790.0
10/1/2002 Microsoft netrasa.inf Not
Available ROOT\MS_PPTPMINIPORT\0000
Direct Parallel No NET 5.2.3790.0
10/1/2002 Microsoft netrasa.inf Not
Available ROOT\MS_PTMINIPORT\0000
Terminal Server Device Redirector No
SYSTEM 5.2.3790.0 10/1/2002
(Standard system devices) machine.inf
Not Available ROOT\RDPDR\0000
Terminal Server Keyboard Driver No
SYSTEM 5.2.3790.0 10/1/2002
(Standard system devices) machine.inf
Not Available ROOT\RDP_KBD\0000
Terminal Server Mouse Driver No SYSTEM
5.2.3790.0 10/1/2002 (Standard
system devices) machine.inf Not Available
ROOT\RDP_MOU\0000
Plug and Play Software Device Enumerator No
SYSTEM 5.2.3790.0 10/1/2002
(Standard system devices) machine.inf
Not Available ROOT\SYSTEM\0000
Microcode Update Device No SYSTEM
5.2.3790.0 10/1/2002 (Standard

```

```

system devices) machine.inf Not Available
ROOT\SYSTEM\0001
HPtool Driver No HPTOOLCLASS
1.0.0.3 9/15/2004 Hewlett-Packard Company
oeml4.inf Not Available
ROOT\UNKNOWN\0000

```

[Environment Variables]

```

Variable Value User Name
ClusterLog C:\WINDOWS\Cluster\cluster.log
ComSpec %SystemRoot%\system32\cmd.exe <SYSTEM>
NUMBER_OF_PROCESSORS 4 <SYSTEM>
OS Windows_NT <SYSTEM>
Path %SystemRoot%\system32;%SystemRoot%;%SystemR
oot%\System32\Wbem;C:\Program Files\Microsoft SQL
Server\80\Tools\BINN <SYSTEM>
PATHEXT .COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF
;.WSH <SYSTEM>
PROCESSOR_ARCHITECTURE x86 <SYSTEM>
PROCESSOR_IDENTIFIER x86 Family 15 Model 4
Stepping 3, GenuineIntel <SYSTEM>
PROCESSOR_LEVEL 15 <SYSTEM>
PROCESSOR_REVISION 0403 <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
SLAM\Administrator
TMP %USERPROFILE%\Local Settings\Temp
SLAM\Administrator

```

[Print Jobs]

Document	Size	Owner	Notify	Status
	Time Submitted		Start Time	
	Until Time		Elapsed Time	
	Pages Printed		Job ID	Priority
	Parameters		Driver	Print
Processor	Host	Print Queue	Data Type	Name

[Network Connections]

Local Name	Remote Name	Type
Status	User Name	

[Running Tasks]

Name	Path	Process ID	Priority	Min
Working Set	Max Working Set	Start Time		
Version	Size	File Date		
system idle process	Not Available	0	0	0
Available	Not Available	Not Available	Not Available	Not Available
Available	Not Available	Not Available	Not Available	Not Available
system	Not Available	4	8	0
	1413120	Not Available	Not Available	Not Available
	Not Available	Not Available	Not Available	Not Available
smss.exe	Not Available	452	11	
	204800	1413120	1/31/2005 10:03 AM	Not Available
Available	Not Available	Not Available	Not Available	Not Available
csrss.exe	Not Available	508	13	Not Available
Available	Not Available	1/31/2005 10:23 AM	Not Available	Not Available
winlogon.exe	c:\windows\system32\winlogon.exe	532	13	204800
	1/31/2005 10:23 AM	5.2.3790.0		
(srv03_rtm.030324-2048)		536.50 KB (549,376 bytes)	3/25/2003 6:00 AM	
services.exe	c:\windows\system32\services.exe	576	9	204800
	1/31/2005 10:23 AM	5.2.3790.0		
(srv03_rtm.030324-2048)		102.00 KB (104,448 bytes)	3/25/2003 6:00 AM	
lsass.exe	c:\windows\system32\lsass.exe	588	9	204800
	1413120	1/31/2005 10:23 AM	5.2.3790.0	(srv03_rtm.030324-2048)
		13.00 KB (13,312 bytes)	3/25/2003 6:00 AM	
svchost.exe	c:\windows\system32\svchost.exe	720	8	204800
	1/31/2005 10:23 AM	5.2.3790.0		
(srv03_rtm.030324-2048)		13.00 KB (13,312 bytes)	3/25/2003 6:00 AM	
svchost.exe	c:\windows\system32\svchost.exe	804	8	204800
	1/31/2005 10:23 AM	5.2.3790.0		
(srv03_rtm.030324-2048)		13.00 KB (13,312 bytes)	3/25/2003 6:00 AM	
svchost.exe	Not Available	Not Available	936	8
	1/31/2005 10:23 AM	Not Available	Not Available	Not Available
Available	Not Available	Not Available	Not Available	Not Available
svchost.exe	c:\windows\system32\svchost.exe	968	8	204800
	1/31/2005 10:23 AM	5.2.3790.0		
(srv03_rtm.030324-2048)		13.00 KB (13,312 bytes)	3/25/2003 6:00 AM	
msdtc.exe	Not Available	1048	8	Not Available
Available	Not Available	1/31/2005 10:23 AM	Not Available	Not Available
sysdown.exe	c:\windows\system32\sysdown.exe	1208	8	204800
	1/31/2005 10:23 AM	5.32.3790.0	built by:	
WINBUILD1	29.00 KB (29,696 bytes)	4/20/2004 4:23 AM		
wmiprvse.exe	Not Available	1420	8	Not Available
	Not Available	Not Available	Not Available	Not Available
Available	Not Available	1/31/2005 10:24 AM	Not Available	Not Available

logon.scr	Not Available	1524	4	Not Available
Available	Not Available	1/31/2005 10:33 AM	Not Available	Not Available
csrss.exe	Not Available	1552	13	Not Available
Available	Not Available	1/31/2005 10:51 AM	Not Available	Not Available
winlogon.exe	c:\windows\system32\winlogon.exe	1580	13	204800
	1/31/2005 10:51 AM	5.2.3790.0		
(srv03_rtm.030324-2048)		536.50 KB (549,376 bytes)	3/25/2003 6:00 AM	
rdpclip.exe	c:\windows\system32\rdpclip.exe	1768	8	204800
	1/31/2005 10:51 AM	5.2.3790.0		
(srv03_rtm.030324-2048)		53.00 KB (54,272 bytes)	4/20/2004 3:59 AM	
explorer.exe	c:\windows\explorer.exe	1836	8	204800
	1/31/2005 10:51 AM	6.00.3790.0		
(srv03_rtm.030324-2048)		1,008.50 KB (1,032,704 bytes)	3/25/2003 6:00 AM	
cpqteam.exe	c:\windows\system32\cpqteam.exe	1908	8	204800
	1/31/2005 10:51 AM	7.60.0.11	56.00 KB (57,344 bytes)	1/28/2004 6:59 AM
helpctr.exe	c:\windows\pchealth\helpctr\binaries\helpctr.exe	1272	8	204800
	1/31/2005 11:21 AM	5.2.3790.0		
(srv03_rtm.030324-2048)		764.00 KB (782,336 bytes)	4/20/2004 4:02 AM	
wmiprvse.exe	Not Available	1456	8	Not Available
	1/31/2005 11:21 AM	Not Available	Not Available	Not Available
Available	Not Available	Not Available	Not Available	Not Available
helpsvc.exe	c:\windows\pchealth\helpctr\binaries\helpsvc.exe	1512	8	204800
	1/31/2005 11:21 AM	5.2.3790.0		
(srv03_rtm.030324-2048)		720.00 KB (737,280 bytes)	4/20/2004 4:02 AM	

[Loaded Modules]

Name	Version	Size	File Date	Manufacturer
winlogon	5.2.3790.0 (srv03_rtm.030324-2048)	536.50 KB (549,376 bytes)	3/25/2003	Microsoft Corporation
6:00 AM				
ntdll	c:\windows\system32\winlogon.exe	5.2.3790.0 (srv03_rtm.030324-2048)	722.50 KB (739,840 bytes)	3/25/2003
6:00 AM				
kernel32	c:\windows\system32\kernel32.dll	5.2.3790.0 (srv03_rtm.030324-2048)	965.00 KB (988,160 bytes)	3/25/2003
6:00 AM				
msvcrt	c:\windows\system32\kernel32.dll	7.0.3790.0 (srv03_rtm.030324-2048)	319.50 KB (327,168 bytes)	3/25/2003
6:00 AM				
				Microsoft Corporation
				c:\windows\system32\msvcrt.dll

advapi32 5.2.3790.0 (srv03_rtm.030324-2048)
559.50 KB (572,928 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\advapi32.dll
rpcrt4 5.2.3790.0 (srv03_rtm.030324-2048)
643.50 KB (658,944 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\rpcrt4.dll
user32 5.2.3790.0 (srv03_rtm.030324-2048)
562.00 KB (575,488 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\user32.dll
gdi32 5.2.3790.0 (srv03_rtm.030324-2048)
263.00 KB (269,312 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\gdi32.dll
userenv 5.2.3790.0 (srv03_rtm.030324-2048)
732.50 KB (750,080 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\userenv.dll
nddeapi 5.2.3790.0 (srv03_rtm.030324-2048)
16.00 KB (16,384 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\nddeapi.dll
crypt32 5.131.3790.0 (srv03_rtm.030324-2048)
598.00 KB (612,352 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\crypt32.dll
msasn1 5.2.3790.0 (srv03_rtm.030324-2048)
58.00 KB (59,392 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\msasn1.dll
secur32 5.2.3790.0 (srv03_rtm.030324-2048)
63.00 KB (64,512 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\secur32.dll
winsta 5.2.3790.0 (srv03_rtm.030324-2048)
51.00 KB (52,224 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\winsta.dll
netapi32 5.2.3790.0 (srv03_rtm.030324-2048)
317.00 KB (324,608 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\netapi32.dll
profmap 5.2.3790.0 (srv03_rtm.030324-2048)
22.00 KB (22,528 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\profmap.dll
regapi 5.2.3790.0 (srv03_rtm.030324-2048)
48.50 KB (49,664 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\regapi.dll
ws2_32 5.2.3790.0 (srv03_rtm.030324-2048)
87.50 KB (89,600 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\ws2_32.dll
ws2help 5.2.3790.0 (srv03_rtm.030324-2048)
19.50 KB (19,968 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\ws2help.dll
psapi 5.2.3790.0 (srv03_rtm.030324-2048)
21.50 KB (22,016 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\psapi.dll
version 5.2.3790.0 (srv03_rtm.030324-2048)
17.00 KB (17,408 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\version.dll
setupapi 5.2.3790.0 (srv03_rtm.030324-2048)
1,014.50 KB (1,038,848 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\setupapi.dll
msgina 5.2.3790.0 (srv03_rtm.030324-2048)
1.14 MB (1,191,936 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\msgina.dll
shsvcs 6.00.3790.0 (srv03_rtm.030324-2048)
121.50 KB (124,416 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\shsvcs.dll
shlwapi 6.00.3790.0 (srv03_rtm.030324-2048)
281.00 KB (287,744 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\shlwapi.dll
sfc 5.2.3790.0 (srv03_rtm.030324-2048)
4.50 KB (4,608 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\sfc.dll
sfc_os 5.2.3790.0 (srv03_rtm.030324-2048)
133.00 KB (136,192 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\sfc_os.dll
wintrust 5.131.3790.0 (srv03_rtm.030324-2048)
161.50 KB (165,376 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\wintrust.dll
ole32 5.2.3790.0 (srv03_rtm.030324-2048)
1.13 MB (1,187,328 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\ole32.dll
imagehlp 5.2.3790.0 (srv03_rtm.030324-2048)
142.50 KB (145,920 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\imagehlp.dll
comctl32 6.0 (srv03_rtm.030324-2048) 907.00 KB
(928,768 bytes) 4/19/2004 9:16 PM Microsoft
Corporation
c:\windows\winsxs\x86_microsoft.windows.com
mon-controls_6595b64144ccf1df_6.0.100.0_x-
ww_8417450b\comctl32.dll
winscard 5.2.3790.0 (srv03_rtm.030324-2048)
98.50 KB (100,864 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\winscard.dll
wtsapi32 5.2.3790.0 (srv03_rtm.030324-2048)
17.50 KB (17,920 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\wtsapi32.dll
winmm 5.2.3790.0 (srv03_rtm.030324-2048)
166.00 KB (169,984 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\winmm.dll
sxs 5.2.3790.0 (srv03_rtm.030324-2048)
733.00 KB (750,592 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\sxs.dll
shell32 6.00.3790.0 (srv03_rtm.030324-2048)
7.79 MB (8,166,400 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\shell32.dll
wldap32 5.2.3790.0 (srv03_rtm.030324-2048)
158.00 KB (161,792 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\wldap32.dll
rsaenh 5.2.3790.0 (srv03_rtm.030324-2048)
176.83 KB (181,072 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\rsaenh.dll
csccdll 5.2.3790.0 (srv03_rtm.030324-2048)
99.00 KB (101,376 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\csccdll.dll
wlnotify 5.2.3790.0 (srv03_rtm.030324-2048)
87.50 KB (89,600 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\wlnotify.dll
winspool 5.2.3790.0 (srv03_rtm.030324-2048)
140.00 KB (143,360 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\winspool.drv
mpr 5.2.3790.0 (srv03_rtm.030324-2048)
56.00 KB (57,344 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\mpr.dll
comctl32 5.82 (srv03_rtm.030324-2048) 561.00 KB
(574,464 bytes) 4/19/2004 9:16 PM Microsoft
Corporation
c:\windows\winsxs\x86_microsoft.windows.com
mon-controls_6595b64144ccf1df_5.82.0.0_x-
ww_8a69ba05\comctl32.dll
uxtheme 6.00.3790.0 (srv03_rtm.030324-2048)
196.00 KB (200,704 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\uxtheme.dll
services 5.2.3790.0 (srv03_rtm.030324-2048)
102.00 KB (104,448 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\services.exe
sce_srv 5.2.3790.0 (srv03_rtm.030324-2048)
316.50 KB (324,096 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\sce_srv.dll
authz 5.2.3790.0 (srv03_rtm.030324-2048)
67.00 KB (68,608 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\authz.dll
umpnpgmr 5.2.3790.0 (srv03_rtm.030324-2048)
121.50 KB (124,416 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\umpnpgmr.dll
ncobjapi 5.2.3790.0 (srv03_rtm.030324-2048)
34.50 KB (35,328 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\ncobjapi.dll
msvc_p60 6.05.2144.0 388.00 KB (397,312
bytes) 3/25/2003 6:00 AM Microsoft Corporation
c:\windows\system32\msvc_p60.dll

eventlog 5.2.3790.0 (srv03_rtm.030324-2048)
60.50 KB (61,952 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\eventlog.dll
lsass 5.2.3790.0 (srv03_rtm.030324-2048)
13.00 KB (13,312 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\lsass.exe
lsasrv 5.2.3790.0 (srv03_rtm.030324-2048)
780.50 KB (799,232 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\lsasrv.dll
samsrv 5.2.3790.0 (srv03_rtm.030324-2048)
452.00 KB (462,848 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\samsrv.dll
cryptdll 5.2.3790.0 (srv03_rtm.030324-2048)
34.00 KB (34,816 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\cryptdll.dll
dnsapi 5.2.3790.0 (srv03_rtm.030324-2048)
147.50 KB (151,040 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\dnsapi.dll
samlib 5.2.3790.0 (srv03_rtm.030324-2048)
49.00 KB (50,176 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\samlib.dll
ntdsapi 5.2.3790.0 (srv03_rtm.030324-2048)
76.00 KB (77,824 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\ntdsapi.dll
msprvs 5.2.3790.0 (srv03_rtm.030324-2048)
46.50 KB (47,616 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\msprvs.dll
kerberos 5.2.3790.0 (srv03_rtm.030324-2048)
332.50 KB (340,480 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\kerberos.dll
msv1_0 5.2.3790.0 (srv03_rtm.030324-2048)
127.00 KB (130,048 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\msv1_0.dll
netlogon 5.2.3790.0 (srv03_rtm.030324-2048)
409.00 KB (418,816 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\netlogon.dll
w32time 5.2.3790.0 (srv03_rtm.030324-2048)
216.00 KB (221,184 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\w32time.dll
iphlpapi 5.2.3790.0 (srv03_rtm.030324-2048)
82.50 KB (84,480 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\iphlpapi.dll
schannel 5.2.3790.0 (srv03_rtm.030324-2048)
149.50 KB (153,088 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\schannel.dll
wdigest 5.2.3790.0 (srv03_rtm.030324-2048)
61.00 KB (62,464 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\wdigest.dll
rassfm 5.2.3790.0 (srv03_rtm.030324-2048)
20.50 KB (20,992 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\rassfm.dll
kdcsvc 5.2.3790.0 (srv03_rtm.030324-2048)
221.00 KB (226,304 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\kdcsvc.dll
ntdsa 5.2.3790.0 (srv03_rtm.030324-2048)
1.45 MB (1,520,640 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\ntdsa.dll
ntdsatq 5.2.3790.0 (srv03_rtm.030324-2048)
32.00 KB (32,768 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\ntdsatq.dll
mwssock 5.2.3790.0 (srv03_rtm.030324-2048)
254.00 KB (260,096 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\mwssock.dll
esent 5.2.3790.0 (srv03_rtm.030324-2048)
1.01 MB (1,056,256 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\esent.dll
scecli 5.2.3790.0 (srv03_rtm.030324-2048)
179.50 KB (183,808 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\scecli.dll
wshtcpip 5.2.3790.0 (srv03_rtm.030324-2048)
18.00 KB (18,432 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\wshtcpip.dll
ipsecsvc 5.2.3790.0 (srv03_rtm.030324-2048)
162.50 KB (166,400 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\ipsecsvc.dll
oakley 5.2.3790.0 (srv03_rtm.030324-2048)
325.50 KB (333,312 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\oakley.dll
winipsec 5.2.3790.0 (srv03_rtm.030324-2048)
34.50 KB (35,328 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\winipsec.dll
pstorsvc 5.2.3790.0 (srv03_rtm.030324-2048)
24.00 KB (24,576 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\pstorsvc.dll
psbase 5.2.3790.0 (srv03_rtm.030324-2048)
81.00 KB (82,944 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\psbase.dll
dssenh 5.2.3790.0 (srv03_rtm.030324-2048)
131.33 KB (134,480 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\dssenh.dll
wlbctrl 5.2.3790.0 (srv03_rtm.030324-2048)
78.00 KB (79,872 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\wlbctrl.dll

svchost 5.2.3790.0 (srv03_rtm.030324-2048)
13.00 KB (13,312 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\svchost.exe
rpcss 5.2.3790.0 (srv03_rtm.030324-2048)
276.50 KB (283,136 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\rpcss.dll
clbcatq 2001.12.4720.0 (srv03_rtm.030324-2048)
481.00 KB (492,544 bytes) 4/20/2004
3:59 AM Microsoft Corporation
c:\windows\system32\clbcatq.dll
oleaut32 5.2.3790.0 486.00 KB (497,664 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\oleaut32.dll
comres 2001.12.4720.0 (srv03_rtm.030324-2048)
778.00 KB (796,672 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\comres.dll
ntmarta 5.2.3790.0 (srv03_rtm.030324-2048)
114.00 KB (116,736 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\ntmarta.dll
termsrv 5.2.3790.0 (srv03_rtm.030324-2048)
216.50 KB (221,696 bytes) 4/20/2004
3:59 AM Microsoft Corporation
c:\windows\system32\termsrv.dll
icaapi 5.2.3790.0 (srv03_rtm.030324-2048)
10.50 KB (10,752 bytes) 4/20/2004
3:59 AM Microsoft Corporation
c:\windows\system32\icaapi.dll
mstlsapi 5.2.3790.0 (srv03_rtm.030324-2048)
104.50 KB (107,008 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\mstlsapi.dll
activeds 5.2.3790.0 (srv03_rtm.030324-2048)
189.00 KB (193,536 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\activeds.dll
adslsrc 5.2.3790.0 (srv03_rtm.030324-2048)
142.50 KB (145,920 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\adslsrc.dll
credui 5.2.3790.0 (srv03_rtm.030324-2048)
159.00 KB (162,816 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\credui.dll
atl 3.05.2283 83.00 KB (84,992 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\atl.dll
rdpwsx 5.2.3790.0 (srv03_rtm.030324-2048)
80.13 KB (82,056 bytes) 4/20/2004
3:59 AM Microsoft Corporation
c:\windows\system32\rdpwsx.dll
wkssvc 5.2.3790.0 (srv03_rtm.030324-2048)
125.00 KB (128,000 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\wkssvc.dll
wiarpc 5.2.3790.0 (srv03_rtm.030324-2048)
30.00 KB (30,720 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\wiarpc.dll

dmserver 5.2.3790.0 (srv03_rtm.030324-2048)
 24.00 KB (24,576 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\dmserver.dll
 es 2001.12.4720.0 (srv03_rtm.030324-2048)
 221.50 KB (226,816 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\es.dll
 srvsvc 5.2.3790.0 (srv03_rtm.030324-2048)
 89.00 KB (91,136 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\srvsvc.dll
 seclogon 5.2.3790.0 (srv03_rtm.030324-2048)
 16.50 KB (16,896 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\seclogon.dll
 trkwks 5.2.3790.0 (srv03_rtm.030324-2048)
 85.00 KB (87,040 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\trkwks.dll
 wmisvc 5.2.3790.0 (srv03_rtm.030324-2048)
 131.00 KB (134,144 bytes) 4/20/2004
 3:59 AM Microsoft Corporation
 c:\windows\system32\wbem\wmisvc.dll
 vssapi 5.2.3790.0 (srv03_rtm.030324-2048)
 528.00 KB (540,672 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\vssapi.dll
 sens 5.2.3790.0 (srv03_rtm.030324-2048)
 35.50 KB (36,352 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\sens.dll
 comsvcs 2001.12.4720.0 (srv03_rtm.030324-2048)
 1.14 MB (1,199,616 bytes) 4/20/2004
 3:59 AM Microsoft Corporation
 c:\windows\system32\comsvcs.dll
 browser 5.2.3790.0 (srv03_rtm.030324-2048)
 70.50 KB (72,192 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\browser.dll
 netrap 5.2.3790.0 (srv03_rtm.030324-2048)
 11.50 KB (11,776 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\netrap.dll
 wbemcore 5.2.3790.0 (srv03_rtm.030324-2048)
 457.00 KB (467,968 bytes) 4/20/2004
 3:59 AM Microsoft Corporation
 c:\windows\system32\wbem\wbemcore.dll
 esscli 5.2.3790.0 (srv03_rtm.030324-2048)
 235.50 KB (241,152 bytes) 4/20/2004
 3:59 AM Microsoft Corporation
 c:\windows\system32\wbem\esscli.dll
 wbemcomn 5.2.3790.0 (srv03_rtm.030324-2048)
 211.50 KB (216,576 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\wbem\wbemcomn.dll
 fastprox 5.2.3790.0 (srv03_rtm.030324-2048)
 443.00 KB (453,632 bytes) 4/20/2004
 3:59 AM Microsoft Corporation
 c:\windows\system32\wbem\fastprox.dll
 wmiutils 5.2.3790.0 (srv03_rtm.030324-2048)
 90.50 KB (92,672 bytes) 4/20/2004

3:59 AM Microsoft Corporation
 c:\windows\system32\wbem\wmiutils.dll
 repdrvfs 5.2.3790.0 (srv03_rtm.030324-2048)
 165.00 KB (168,960 bytes) 4/20/2004
 3:59 AM Microsoft Corporation
 c:\windows\system32\wbem\repdrvfs.dll
 wmiprvsd 5.2.3790.0 (srv03_rtm.030324-2048)
 405.50 KB (415,232 bytes) 4/20/2004
 3:59 AM Microsoft Corporation
 c:\windows\system32\wbem\wmiprvsd.dll
 wbemess 5.2.3790.0 (srv03_rtm.030324-2048)
 256.50 KB (262,656 bytes) 4/20/2004
 3:59 AM Microsoft Corporation
 c:\windows\system32\wbem\wbemess.dll
 ncprov 5.2.3790.0 (srv03_rtm.030324-2048)
 43.00 KB (44,032 bytes) 4/20/2004
 3:59 AM Microsoft Corporation
 c:\windows\system32\wbem\ncprov.dll
 wbemsvc 5.2.3790.0 (srv03_rtm.030324-2048)
 42.50 KB (43,520 bytes) 4/20/2004
 3:59 AM Microsoft Corporation
 c:\windows\system32\wbem\wbemsvc.dll
 netman 5.2.3790.0 (srv03_rtm.030324-2048)
 209.00 KB (214,016 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\netman.dll
 mprapi 5.2.3790.0 (srv03_rtm.030324-2048)
 81.00 KB (82,944 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\mprapi.dll
 rtutils 5.2.3790.0 (srv03_rtm.030324-2048)
 32.00 KB (32,768 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\rtutils.dll
 rasapi32 5.2.3790.0 (srv03_rtm.030324-2048)
 227.50 KB (232,960 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\rasapi32.dll
 rasman 5.2.3790.0 (srv03_rtm.030324-2048)
 56.50 KB (57,856 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\rasman.dll
 tapi32 5.2.3790.0 (srv03_rtm.030324-2048)
 175.00 KB (179,200 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\tapi32.dll
 wzcsvc 5.2.3790.0 (srv03_rtm.030324-2048)
 272.50 KB (279,040 bytes) 3/25/2003
 6:15 AM Microsoft Corporation
 c:\windows\system32\wzcsvc.dll
 wmi 5.2.3790.0 (srv03_rtm.030324-2048)
 6.50 KB (6,656 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\wmi.dll
 dhcpcsvc 5.2.3790.0 (srv03_rtm.030324-2048)
 101.50 KB (103,936 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\dhcpcsvc.dll
 wzcsapi 5.2.3790.0 (srv03_rtm.030324-2048)
 24.50 KB (25,088 bytes) 3/25/2003
 6:15 AM Microsoft Corporation
 c:\windows\system32\wzcsapi.dll

netshell 5.2.3790.0 (srv03_rtm.030324-2048)
 1.67 MB (1,747,456 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\netshell.dll
 clusapi 5.2.3790.0 (srv03_rtm.030324-2048)
 56.00 KB (57,344 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\clusapi.dll
 hnetcfg 5.2.3790.0 (srv03_rtm.030324-2048)
 243.50 KB (249,344 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\hnetcfg.dll
 wininet 6.00.3790.0 (srv03_rtm.030324-2048)
 609.00 KB (623,616 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\wininet.dll
 rasdlg 5.2.3790.0 (srv03_rtm.030324-2048)
 642.00 KB (657,408 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\rasdlg.dll
 rasadhlp 5.2.3790.0 (srv03_rtm.030324-2048)
 6.50 KB (6,656 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\rasadhlp.dll
 pchsvc 5.2.3790.0 (srv03_rtm.030324-2048)
 31.50 KB (32,256 bytes) 4/20/2004
 4:02 AM Microsoft Corporation
 c:\windows\pchealth\helpctr\binaries\pchsvc
 .dll
 wbemcons 5.2.3790.0 (srv03_rtm.030324-2048)
 69.00 KB (70,656 bytes) 4/20/2004
 3:59 AM Microsoft Corporation
 c:\windows\system32\wbem\wbemcons.dll
 sysdown 5.32.3790.0 built by: WINBUILD1
 29.00 KB (29,696 bytes) 4/20/2004
 4:23 AM Compaq Computer Corporation
 c:\windows\system32\sysdown.exe
 rdpsnd 5.2.3790.0 (srv03_rtm.030324-2048)
 18.00 KB (18,432 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\rdpsnd.dll
 scredir 5.2.3790.0 (srv03_rtm.030324-2048)
 27.00 KB (27,648 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\scredir.dll
 cscui 5.2.3790.0 (srv03_rtm.030324-2048)
 305.00 KB (312,320 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\cscui.dll
 msacm32 5.2.3790.0 (srv03_rtm.030324-2048)
 21.00 KB (21,504 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\msacm32.drv
 msacm32 5.2.3790.0 (srv03_rtm.030324-2048)
 67.50 KB (69,120 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\msacm32.dll
 imaadp32 5.2.3790.0 (srv03_rtm.030324-2048)
 15.50 KB (15,872 bytes) 3/25/2003
 6:00 AM Microsoft Corporation
 c:\windows\system32\imaadp32.acm
 msadp32 5.2.3790.0 (srv03_rtm.030324-2048)
 14.50 KB (14,848 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\msg711.acm
msg711 5.2.3790.0 (srv03_rtm.030324-2048)
10.00 KB (10,240 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\msgsm32.acm
msgsm32 5.2.3790.0 (srv03_rtm.030324-2048)
20.50 KB (20,992 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\tsoft32.acm
tssoft32 1.01 9.50 KB (9,728 bytes)
3/25/2003 6:00 AM DSP GROUP, INC.
c:\windows\system32\tsoft32.acm
tsd32 1.03 16.50 KB (16,896 bytes)
3/25/2003 6:00 AM DSP GROUP, INC.
c:\windows\system32\tsd32.dll
msg723 4.4.4000 116.00 KB (118,784 bytes)
4/20/2004 4:02 AM Microsoft Corporation
c:\windows\system32\msg723.acm
msaud32 8.00.00.4487 288.00 KB (294,912
bytes) 3/25/2003 6:00 AM Microsoft Corporation
c:\windows\system32\msaud32.acm
sl_anet 3.02 84.00 KB (86,016 bytes)
3/25/2003 6:00 AM Sipro Lab Telecom Inc.
c:\windows\system32\sl_anet.acm
l3codeca 1, 9, 0, 0305 284.00 KB (290,816
bytes) 3/25/2003 6:00 AM Fraunhofer Institut
Integrierte Schaltungen IIS
c:\windows\system32\l3codeca.acm
rdpclip 5.2.3790.0 (srv03_rtm.030324-2048)
53.00 KB (54,272 bytes) 4/20/2004

3:59 AM Microsoft Corporation
c:\windows\system32\rdpclip.exe
wsock32 5.2.3790.0 (srv03_rtm.030324-2048)
22.00 KB (22,528 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\wsock32.dll
explorer 6.00.3790.0 (srv03_rtm.030324-2048)
1,008.50 KB (1,032,704 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\explorer.exe
browseui 6.00.3790.0 (srv03_rtm.030324-2048)
1.01 MB (1,057,280 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\browseui.dll
shdocvw 6.00.3790.0 (srv03_rtm.030324-2048)
1.33 MB (1,393,664 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\shdocvw.dll
apphelp 5.2.3790.0 (srv03_rtm.030324-2048)
122.00 KB (124,928 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\apphelp.dll
themeui 6.00.3790.0 (srv03_rtm.030324-2048)
360.50 KB (369,152 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\themeui.dll
msimg32 5.2.3790.0 (srv03_rtm.030324-2048)
4.50 KB (4,608 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\msimg32.dll
linkinfo 5.2.3790.0 (srv03_rtm.030324-2048)
16.50 KB (16,896 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\linkinfo.dll
ntshrui 6.00.3790.0 (srv03_rtm.030324-2048)
136.00 KB (139,264 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\ntshrui.dll
urlmon 6.00.3790.0 (srv03_rtm.030324-2048)
501.50 KB (513,536 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\urlmon.dll
webcheck 6.00.3790.0 (srv03_rtm.030324-2048)
261.50 KB (267,776 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\webcheck.dll
stobject 5.2.3790.0 (srv03_rtm.030324-2048)
117.50 KB (120,320 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\stobject.dll
batmeter 6.00.3790.0 (srv03_rtm.030324-2048)
28.50 KB (29,184 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\batmeter.dll
powrprof 6.00.3790.0 (srv03_rtm.030324-2048)
14.50 KB (14,848 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\powrprof.dll
printui 5.2.3790.0 (srv03_rtm.030324-2048)
536.50 KB (549,376 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\printui.dll
cfgmgr32 5.2.3790.0 (srv03_rtm.030324-2048)
17.50 KB (17,920 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\cfgmgr32.dll
drprov 5.2.3790.0 (srv03_rtm.030324-2048)
12.50 KB (12,800 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\drprov.dll
ntlanman 5.2.3790.0 (srv03_rtm.030324-2048)
41.00 KB (41,984 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\ntlanman.dll
netui0 5.2.3790.0 (srv03_rtm.030324-2048)
75.50 KB (77,312 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\netui0.dll
netui1 5.2.3790.0 (srv03_rtm.030324-2048)
184.00 KB (188,416 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\netui1.dll
davelnt 5.2.3790.0 (srv03_rtm.030324-2048)
23.50 KB (24,064 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\davelnt.dll
shdoclc 6.00.3790.0 (srv03_rtm.030324-2048)
588.50 KB (602,624 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\shdoclc.dll
cpqteam 7.60.0.11 56.00 KB (57,344 bytes)
1/28/2004 6:59 AM Hewlett-Packard Company
c:\windows\system32\cpqteam.exe
helpctr 5.2.3790.0 (srv03_rtm.030324-2048)
764.00 KB (782,336 bytes) 4/20/2004

4:02 AM Microsoft Corporation
c:\windows\pchealth\helpctr\binaries\helpctr
.exe
hcappres 5.2.3790.0 (srv03_rtm.030324-2048)
6.50 KB (6,656 bytes) 4/20/2004

4:02 AM Microsoft Corporation
c:\windows\pchealth\helpctr\binaries\hcappres.dll
itss 5.2.3790.0 (srv03_rtm.030324-2048)
119.50 KB (122,368 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\itss.dll
msxml3 8.40.9419.0 1.28 MB (1,337,344
bytes) 3/25/2003 6:00 AM Microsoft Corporation
c:\windows\system32\msxml3.dll
pchshell 5.2.3790.0 (srv03_rtm.030324-2048)
100.50 KB (102,912 bytes) 4/20/2004

4:02 AM Microsoft Corporation
c:\windows\pchealth\helpctr\binaries\pchshell.dll
mlang 6.00.3790.0 (srv03_rtm.030324-2048)
570.00 KB (583,680 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\mlang.dll
mshtml 6.00.3790.0 (srv03_rtm.030324-2048)
2.78 MB (2,916,352 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\mshtml.dll
msimtf 5.2.3790.0 (srv03_rtm.030324-2048)
149.00 KB (152,576 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\msimtf.dll
msctf 5.2.3790.0 (srv03_rtm.030324-2048)
287.00 KB (293,888 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\msctf.dll
jscript 5.6.0.8515 436.00 KB (446,464
bytes) 3/25/2003 6:00 AM Microsoft Corporation
c:\windows\system32\jscript.dll
msls31 3.10.349.0 147.00 KB (150,528
bytes) 3/25/2003 6:00 AM Microsoft Corporation
c:\windows\system32\msls31.dll
imm32 5.2.3790.0 (srv03_rtm.030324-2048)
105.50 KB (108,032 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\imm32.dll
mshtmlled 6.00.3790.0 (srv03_rtm.030324-2048)
443.50 KB (454,144 bytes) 3/25/2003

6:00 AM Microsoft Corporation
c:\windows\system32\mshtmlled.dll
vbscript 5.6.0.8515 404.00 KB (413,696
bytes) 3/25/2003 6:00 AM Microsoft Corporation
c:\windows\system32\vbscript.dll
mfc42 6.05.3014.0 960.00 KB (983,040
bytes) 3/25/2003 6:00 AM Microsoft Corporation
c:\windows\system32\mfc42.dll
msinfo 5.2.3790.0 (srv03_rtm.030324-2048)
358.50 KB (367,104 bytes) 4/20/2004

4:02 AM Microsoft Corporation
c:\windows\pchealth\helpctr\binaries\msinfo
.dll


```

mfc42u 6.05.3014.0 960.00 KB (983,040
bytes) 3/25/2003 6:00 AM Microsoft Corporation
c:\windows\system32\mfc42u.dll
comdlg32 6.00.3790.0 (srv03_rtm.030324-2048)
261.00 KB (267,264 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\comdlg32.dll
riched32 5.2.3790.0 (srv03_rtm.030324-2048)
3.50 KB (3,584 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\riched32.dll
riched20 5.31.23.1218 406.00 KB (415,744
bytes) 3/25/2003 6:00 AM Microsoft Corporation
c:\windows\system32\riched20.dll
wbemprox 5.2.3790.0 (srv03_rtm.030324-2048)
17.50 KB (17,920 bytes) 4/20/2004
3:59 AM Microsoft Corporation
c:\windows\system32\wbem\wbemprox.dll
mydocs 6.00.3790.0 (srv03_rtm.030324-2048)
88.00 KB (90,112 bytes) 3/25/2003
6:00 AM Microsoft Corporation
c:\windows\system32\mydocs.dll
helpsvc 5.2.3790.0 (srv03_rtm.030324-2048)
720.00 KB (737,280 bytes) 4/20/2004
4:02 AM Microsoft Corporation
c:\windows\pchealth\helpctr\binaries\helpsv
c.exe

[Services]

Display Name Name State Start Mode
Service Type Path Error Control
Start Name Tag ID
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 Disabled
Share Process
c:\windows\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
Background Intelligent Transfer Service BITS
Stopped Manual Share Process
c:\windows\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
Computer Browser Browser Running Auto
Share Process
c:\windows\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
Indexing Service C1Svc 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 Stopped
Manual Share Process
c:\windows\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
Distributed File System Dfs Stopped
Manual Own Process
c:\windows\system32\dfssvc.exe
Normal LocalSystem 0
DHCP Client Dhcp Stopped Manual
Share Process
c:\windows\system32\svchost.exe -k
networkservice Normal NT
AUTHORITY\NetworkService 0
Logical Disk Manager Administrative Service
dmadmin Stopped Manual Share Process
c:\windows\system32\dmadmin.exe /com
Normal LocalSystem 0
Logical Disk Manager dmserver Running
Auto Share Process
c:\windows\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
DNS Client Dnscache Stopped Manual
Share Process
c:\windows\system32\svchost.exe -k
networkservice Normal NT
AUTHORITY\NetworkService 0
Error Reporting Service ERSvc Stopped
Manual 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
Manual Share Process
c:\windows\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
Help and Support helpsvc Running Manual
Share Process
c:\windows\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
Human Interface Device Access HidServ Stopped
Disabled Share Process
c:\windows\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
HTTP SSL HTTPFilter Stopped Manual
Share Process
c:\windows\system32\lsass.exe Normal
LocalSystem 0
IMAPI CD-Burning COM Service ImapiService
Stopped Disabled Own Process
c:\windows\system32\imapi.exe Normal
LocalSystem 0

```

```

Intersite Messaging IsmSrv Stopped Disabled Own
Process c:\windows\system32\ismssrv.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
MSSQLSERVER MSSQLSERVER Stopped
Manual Own Process
c:\progra~1\microso~1\mssql~1\bin\sqlservr.ex
e Normal LocalSystem 0
MSSQLServerADHelper MSSQLServerADHelper Stopped
Manual Own Process c:\program
files\microsoft sql server\80\tools\bin\sqladhlp.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
Plug and Play PlugPlay Running Auto
Share Process
c:\windows\system32\services.exe
Normal LocalSystem 0
IPSEC Services PolicyAgent 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 Stopped
Manual Share Process
c:\windows\system32\svchost.exe -k regsvc
Normal NT AUTHORITY\LocalService 0
Remote Procedure Call (RPC) Locator RpcLocator
Stopped Manual Own Process
c:\windows\system32\locator.exe
Normal NT AUTHORITY\NetworkService 0
Remote Procedure Call (RPC) RpcSs Running
Auto Share Process
c:\windows\system32\svchost -k rpcss
Normal LocalSystem 0
Resultant Set of Policy Provider RSoPProv
Stopped Manual Share Process
c:\windows\system32\rsopprov.exe
Normal LocalSystem 0
Special Administration Console Helper sacsvr
Stopped Manual Share Process

```

```

c:\windows\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
Security Accounts Manager SamSs Running
Auto Share Process
c:\windows\system32\lsass.exe Normal
LocalSystem 0
Smart Card SCardSvr Stopped Manual
Share Process
c:\windows\system32\scardsvr.exe
Ignore NT AUTHORITY\LocalService 0
Task Scheduler Schedule Stopped Manual
Share Process
c:\windows\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
Secondary Logon seclogon Running Auto
Share Process
c:\windows\system32\svchost.exe -k netsvcs
Ignore LocalSystem 0
System Event Notification SENS Running
Auto Share Process
c:\windows\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
Internet Connection Firewall (ICF) / Internet
Connection Sharing (ICS) SharedAccess
Stopped Disabled Share Process
c:\windows\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
Shell Hardware Detection ShellHWDetection
Running Auto Share Process
c:\windows\system32\svchost.exe -k netsvcs
Ignore LocalSystem 0
Print Spooler Spooler Stopped Manual Own
Process c:\windows\system32\spoolsv.exe
Normal LocalSystem 0
SQLSERVERAGENT SQLSERVERAGENT Stopped
Manual Own Process
c:\progra-1\microso-1\mssql\bin\sqlagent.exe
Normal LocalSystem 0
Windows Image Acquisition (WIA) stisvc
Stopped Disabled Share Process
c:\windows\system32\svchost.exe -k imgsvc
Normal NT AUTHORITY\LocalService 0
Microsoft Software Shadow Copy Provider swprv
Stopped Manual Own Process
c:\windows\system32\svchost.exe -k swprv
Normal LocalSystem 0
HP ProLiant System Shutdown Service sysdown
Running Auto Own Process
c:\windows\system32\sysdown.exe
Normal LocalSystem 0
Performance Logs and Alerts SysmonLog Stopped
Manual Own Process
c:\windows\system32\smlogsvc.exe
Normal NT Authority\NetworkService 0
Telephony Tapisrv Stopped Manual Share Process
c:\windows\system32\svchost.exe -k tapisrv
Normal LocalSystem 0
Terminal Services TermService Running
Manual Share Process

```

```

c:\windows\system32\svchost.exe -k termsvcs
Normal LocalSystem 0
Themes Themes Stopped Disabled Share Process
c:\windows\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
Telnet TlntSvr Stopped Disabled Own Process
c:\windows\system32\tlntsvr.exe
Normal NT AUTHORITY\LocalService 0
Distributed Link Tracking Server TrkSvr
Stopped Disabled Share Process
c:\windows\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
Distributed Link Tracking Client TrkWks
Running Auto Share Process
c:\windows\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
Terminal Services Session Directory Tssdis
Stopped Disabled Own Process
c:\windows\system32\tssdis.exe
Normal LocalSystem 0
Upload Manager uploadmgr Stopped Manual
Share Process
c:\windows\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
Uninterruptible Power Supply UPS Stopped
Manual Own Process
c:\windows\system32\ups.exe Normal 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 netsvcs
Normal LocalSystem 0
WebClient WebClient Stopped Disabled Share Process
c:\windows\system32\svchost.exe -k
localservice Normal NT
AUTHORITY\LocalService 0
WinHTTP Web Proxy Auto-Discovery Service
WinHttpAutoProxySvc Stopped Manual
Share Process
c:\windows\system32\svchost.exe -k
localservice Normal NT
AUTHORITY\LocalService 0
Windows Management Instrumentation winmgmt
Running Auto Share Process
c:\windows\system32\svchost.exe -k netsvcs
Ignore LocalSystem 0
Portable Media Serial Number Service WmdmPmSN
Stopped Manual Share Process
c:\windows\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
Windows Management Instrumentation Driver Extensions
Wmi Stopped Manual Share Process
c:\windows\system32\svchost.exe -k netsvcs
Normal LocalSystem 0

```

```

WMI Performance Adapter      WmiApSrv  Stopped
Manual Own Process
c:\windows\system32\wbem\wmiapsrv.exe
Normal LocalSystem 0
Automatic Updates          wuauerv  Stopped Manual
Share Process
c:\windows\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
Wireless Configuration     WZCSVC   Stopped
Manual Share Process
c:\windows\system32\svchost.exe -k netsvcs
Normal LocalSystem 0

[Program Groups]

Group Name      Name      User Name
Accessories    Default User:Accessories
                Default User
Accessories\Accessibility  Default
User:Accessories\Accessibility  Default User

Accessories\Entertainment  Default
User:Accessories\Entertainment  Default User

Startup  Default User:Startup  Default User

Accessories    All Users:Accessories    All
Users
Accessories\Accessibility  All
Users:Accessories\Accessibility  All Users
Accessories\Communications  All
Users:Accessories\Communications  All Users
Accessories\Entertainment  All
Users:Accessories\Entertainment  All Users
Accessories\System Tools    All
Users:Accessories\System Tools    All Users
Administrative Tools        All
Users:Administrative Tools    All Users
HP System Tools            All Users:HP System Tools    All
Users
HP System Tools\HP Array Configuration Utility  All
Users:HP System Tools\HP Array Configuration Utility
All Users
Microsoft SQL Server      All Users:Microsoft SQL
Server 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                SLAM\Administrator:Accessories
SLAM\Administrator
Accessories\Accessibility  SLAM\Administrator:Accessories\Accessibilit
y SLAM\Administrator

```

```

Accessories\Entertainment
                SLAM\Administrator:Accessories\Entertainmen
t SLAM\Administrator
Administrative Tools
                SLAM\Administrator:Administrative Tools
SLAM\Administrator
Startup          SLAM\Administrator:Startup
SLAM\Administrator

[Startup Programs]

Program Command User Name Location
desktop desktop.ini NT AUTHORITY\SYSTEM
Startup
desktop desktop.ini SLAM\Administrator
Startup
desktop desktop.ini .DEFAULT Startup
desktop desktop.ini All Users Common
Startup
CPQTEAM cpqteam.exe All Users
HKLM\SOFTWARE\Microsoft\Windows\CurrentVers
ion\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
Media Clip Not Available
WordPad Document "%programfiles%\windows
nt\accessories\wordpad.exe"
Windows Media Services DRM Storage object Not
Available
Bitmap Image mspaint.exe

[Windows Error Reporting]

Time Type Details

[Internet Settings]

[Internet Explorer]

[ Following are sub-categories of this main category
]
[Summary]

Item Value
Version 6.0.3790.0
Build 63790
Application Path C:\Program Files\Internet
Explorer
Language English (United States)
Active Printer Not Available

Cipher Strength 128-bit
Content Advisor Disabled
IEAK Install No

```

[File Versions]

File	Version	Size	Date	Path
actxprxy.dll	6.0.3790.0		3/25/2003 6:00:00 AM	95 KB C:\WINDOWS\system32 Microsoft Corporation
advpack.dll	6.0.3790.0		3/25/2003 6:00:00 AM	94 KB C:\WINDOWS\system32 Microsoft Corporation
asctrls.ocx	6.0.3790.0		3/25/2003 6:00:00 AM	90 KB C:\WINDOWS\system32 Microsoft Corporation
browsecl.dll	6.0.3790.0		3/25/2003 6:00:00 AM	62 KB C:\WINDOWS\system32 Microsoft Corporation
browseui.dll	6.0.3790.0		3/25/2003 6:00:00 AM	1,033 KB C:\WINDOWS\system32 Microsoft Corporation
cdfview.dll	6.0.3790.0		3/25/2003 6:00:00 AM	144 KB C:\WINDOWS\system32 Microsoft Corporation
comctl32.dll	5.82.3790.0		3/25/2003 6:00:00 AM	561 KB C:\WINDOWS\system32 Microsoft Corporation
dxtrans.dll	6.3.3790.0		3/25/2003 6:00:00 AM	198 KB C:\WINDOWS\system32 Microsoft Corporation
dxtmsft.dll	6.3.3790.0		3/25/2003 6:00:00 AM	344 KB C:\WINDOWS\system32 Microsoft Corporation
iecont.dll	<File Missing>		Not Available	Not Available
iecontlc.dll	<File Missing>		Not Available	Not Available
iedkcs32.dll	16.0.3790.0		3/25/2003 6:00:00 AM	300 KB C:\WINDOWS\system32 Microsoft Corporation
iepeers.dll	6.0.3790.0		3/25/2003 6:00:00 AM	230 KB C:\WINDOWS\system32 Microsoft Corporation
iesetup.dll	6.0.3790.0		3/25/2003 6:00:00 AM	59 KB C:\WINDOWS\system32 Microsoft Corporation
ieuinit.inf	Not Available		3/25/2003 6:00:00 AM	20 KB C:\WINDOWS\system32 Not Available

```

iexplore.exe      6.0.3790.0      90 KB
                  3/25/2003 6:00:00 AM      C:\Program
Files\Internet Explorer      Microsoft Corporation
imgutil.dll       5.2.3790.0      35 KB
                  3/25/2003 6:00:00 AM      C:\WINDOWS\system32 Microsoft Corporation
inetcppl.cpl      6.0.3790.0      303 KB
                  3/25/2003 6:00:00 AM      C:\WINDOWS\system32 Microsoft Corporation
inetcpplc.dll     6.0.3790.0      109 KB
                  3/25/2003 6:00:00 AM      C:\WINDOWS\system32 Microsoft Corporation
inseng.dll        6.0.3790.0      72 KB
                  3/25/2003 6:00:00 AM      C:\WINDOWS\system32 Microsoft Corporation
mlang.dll 6.0.3790.0      570 KB 3/25/2003
6:00:00 AM      C:\WINDOWS\system32 Microsoft
Corporation
msencode.dll      2002.10.4.0     112 KB
                  3/25/2003 6:00:00 AM      C:\WINDOWS\system32 Not Available
mshta.exe 6.0.3790.0      26 KB 3/25/2003
6:00:00 AM      C:\WINDOWS\system32 Microsoft
Corporation
mshtml.dll        6.0.3790.0      2,848 KB
                  3/25/2003 6:00:00 AM      C:\WINDOWS\system32 Microsoft Corporation
mshtml.tlb       6.0.3790.0      1,319 KB
                  3/25/2003 6:00:00 AM      C:\WINDOWS\system32 Microsoft Corporation
mshtmlmed.dll    6.0.3790.0      444 KB
                  3/25/2003 6:00:00 AM      C:\WINDOWS\system32 Microsoft Corporation
mshtmlmer.dll    6.0.3790.0      55 KB
                  3/25/2003 6:00:00 AM      C:\WINDOWS\system32 Microsoft Corporation
msident.dll      6.0.3790.0      47 KB
                  3/25/2003 6:00:00 AM      C:\WINDOWS\system32 Microsoft Corporation
msidntld.dll     6.0.3790.0      15 KB
                  3/25/2003 6:00:00 AM      C:\WINDOWS\system32 Microsoft Corporation
msieftp.dll      6.0.3790.0      230 KB
                  3/25/2003 6:00:00 AM      C:\WINDOWS\system32 Microsoft Corporation
msrating.dll     6.0.3790.0      132 KB
                  3/25/2003 6:00:00 AM      C:\WINDOWS\system32 Microsoft Corporation
mstime.dll       6.0.3790.0      491 KB
                  3/25/2003 6:00:00 AM

```

```

C:\WINDOWS\system32 Microsoft Corporation
occache.dll      6.0.3790.0      89 KB
                  3/25/2003 6:00:00 AM      C:\WINDOWS\system32 Microsoft Corporation
proctexe.ocx     6.3.3790.0      78 KB
                  3/25/2003 6:00:00 AM      C:\WINDOWS\system32 Intel Corporation
sendmail.dll     6.0.3790.0      52 KB
                  3/25/2003 6:00:00 AM      C:\WINDOWS\system32 Microsoft Corporation
shdoclc.dll      6.0.3790.0      589 KB
                  3/25/2003 6:00:00 AM      C:\WINDOWS\system32 Microsoft Corporation
shdocvw.dll      6.0.3790.0      1,361 KB
                  3/25/2003 6:00:00 AM      C:\WINDOWS\system32 Microsoft Corporation
shfolder.dll     6.0.3790.0      23 KB
                  3/25/2003 6:00:00 AM      C:\WINDOWS\system32 Microsoft Corporation
shlwapi.dll      6.0.3790.0      281 KB
                  3/25/2003 6:00:00 AM      C:\WINDOWS\system32 Microsoft Corporation
tdc.ocx 1.3.0.3130     58 KB 3/25/2003
6:00:00 AM      C:\WINDOWS\system32 Microsoft
Corporation
url.dll 6.0.3790.0      36 KB 3/25/2003
6:00:00 AM      C:\WINDOWS\system32 Microsoft
Corporation
urlmon.dll       6.0.3790.0      502 KB
                  3/25/2003 6:00:00 AM      C:\WINDOWS\system32 Microsoft Corporation
webcheck.dll     6.0.3790.0      262 KB
                  3/25/2003 6:00:00 AM      C:\WINDOWS\system32 Microsoft Corporation
wininet.dll      6.0.3790.0      609 KB
                  3/25/2003 6:00:00 AM      C:\WINDOWS\system32 Microsoft Corporation

[Connectivity]
Item      Value
Connection Preference      Never dial

LAN Settings

AutoConfigProxy      Not Available
AutoProxyDetectMode Disabled
AutoConfigURL
Proxy      Disabled
ProxyServer
ProxyOverride

[Cache]

```

```

[ Following are sub-categories of this main category ]
[Summary]

```

Item	Value
Page Refresh Type	Automatic
Temporary Internet Files Folder	C:\Documents and Settings\NetworkService\Local Settings\Temporary Internet Files
Total Disk Space	Not Available
Available Disk Space	Not Available
Maximum Cache Size	Not Available
Available Cache Size	Not Available

```
[List of Objects]
```

Program File	Status	CodeBase
No cached object information available		

```
[Content]
```

```

[ Following are sub-categories of this main category ]
[Summary]

```

Item	Value
Content Advisor	Disabled

```
[Personal Certificates]
```

Issued To	Issued By	Validity	Signature Algorithm
No personal certificate information available			

```
[Other People Certificates]
```

Issued To	Issued By	Validity	Signature Algorithm
No other people certificate information available			

```
[Publishers]
```

Name
No publisher information available

```
[Security]
```

Zone	Security Level
My Computer	Custom
Local intranet	Medium-low
Trusted sites	Medium
Internet High	High
Restricted sites	High

Client Summary

System Information report written at: 01/31/05
16:40:34

System Name: CL73
[System Summary]

Item Value
OS Name Microsoft Windows 2000 Server
Version 5.0.2195 Service Pack 2 Build 2195
OS Manufacturer Microsoft Corporation
System Name CL73
System Manufacturer HP
System Model ProLiant DL360 G3
System Type X86-based PC
Processor x86 Family 15 Model 2 Stepping 5
GenuineIntel ~38092 Mhz
Processor x86 Family 15 Model 2 Stepping 5
GenuineIntel ~38092 Mhz
BIOS Version/Date HP P31, 5/1/1904
SMBIOS Version 2.3
Windows Directory C:\WINNT
System Directory C:\WINNT\System32
Boot Device \Device\Harddisk0\Partition1
Locale United States
Hardware Abstraction Layer Version =
"5.00.2195.2787"
User Name Not Available
Time Zone Central Standard Time
Total Physical Memory 1,024.00 MB
Available Physical Memory 879.14 MB
Total Virtual Memory 2.65 GB
Available Virtual Memory 2.46 GB
Page File Space 1.65 GB
Page File C:\pagefile.sys

[Hardware Resources]

[Conflicts/Sharing]

Resource Device
I/O Port 0x00000000-0x00000CFF PCI bus
I/O Port 0x00000000-0x00000CFF PCI bus
I/O Port 0x00000000-0x00000CFF Direct memory
access controller
I/O Port 0x000003C0-0x000003DF PCI bus
I/O Port 0x000003C0-0x000003DF ATI
Technologies Inc. RAGE XL PCI
IRQ 7 Base System Device
IRQ 7 Standard OpenHCD USB Host Controller
Memory Address 0xA0000-0xBFFFF PCI bus
Memory Address 0xA0000-0xBFFFF ATI
Technologies Inc. RAGE XL PCI
I/O Port 0x000003B0-0x000003BB PCI bus
I/O Port 0x000003B0-0x000003BB ATI
Technologies Inc. RAGE XL PCI

[DMA]

Resource Device Status

DMA 7 Direct memory access controller OK
DMA 2 Standard floppy disk controller OK

[Forced Hardware]

Device PNP Device ID

[I/O]

Resource Device Status
0x00000000-0x00000CFF PCI bus OK
0x00000000-0x00000CFF PCI bus OK
0x00000000-0x00000CFF Direct memory access
controller OK
0x000003B0-0x000003BB PCI bus OK
0x000003B0-0x000003BB ATI Technologies Inc.
RAGE XL PCI OK
0x000003C0-0x000003DF PCI bus OK
0x000003C0-0x000003DF ATI Technologies Inc.
RAGE XL PCI OK
0x00002400-0x000024FF ATI Technologies Inc.
RAGE XL PCI OK
0x00002800-0x000028FF Compaq Smart Array 5i
OK
0x00001800-0x000018FF Base System Device OK
0x00002C00-0x00002CFF Base System Device OK
0x00000A79-0x00000A79 ISAPNP Read Data Port
OK
0x0000279-0x00000279 ISAPNP Read Data Port
OK
0x000002F4-0x000002F7 ISAPNP Read Data Port
OK
0x00000F50-0x00000F58 Motherboard resources
OK
0x00000408-0x0000040F Motherboard resources
OK
0x0000092-0x00000092 Motherboard resources
OK
0x00000900-0x00000903 Motherboard resources
OK
0x00000910-0x00000911 Motherboard resources
OK
0x00000920-0x00000923 Motherboard resources
OK
0x00000930-0x00000937 Motherboard resources
OK
0x00000940-0x00000947 Motherboard resources
OK
0x00000950-0x00000957 Motherboard resources
OK
0x00000C06-0x00000C08 Motherboard resources
OK
0x00000C14-0x00000C14 Motherboard resources
OK
0x00000C49-0x00000C4A Motherboard resources
OK
0x00000C50-0x00000C52 Motherboard resources
OK

0x00000C6C-0x00000C6F Motherboard resources
OK
0x00000010-0x0000001F Motherboard resources
OK
0x00000230-0x00000233 Motherboard resources
OK
0x00000260-0x00000267 Motherboard resources
OK
0x000004D0-0x000004D1 Motherboard resources
OK
0x00000700-0x0000070F Motherboard resources
OK
0x00000800-0x0000081F Motherboard resources
OK
0x00000C80-0x00000C83 Motherboard resources
OK
0x00000CD4-0x00000CD7 Motherboard resources
OK
0x00000CF9-0x00000CF9 Motherboard resources
OK
0x00000020-0x00000021 Programmable interrupt
controller OK
0x000000A0-0x000000A1 Programmable interrupt
controller OK
0x00000C00-0x00000C01 Programmable interrupt
controller OK
0x00000040-0x00000043 System timer OK
0x00000080-0x0000008F Direct memory access
controller OK
0x000000C0-0x000000DF Direct memory access
controller OK
0x0000040B-0x0000040B Direct memory access
controller OK
0x000004D6-0x000004D6 Direct memory access
controller OK
0x00000061-0x00000061 System speaker OK
0x00000060-0x00000060 Standard 101/102-Key or
Keyboard OK
0x00000064-0x00000064 Standard 101/102-Key or
Keyboard OK
0x0000002E-0x0000002F Extended IO Bus OK
0x00000220-0x00000223 Extended IO Bus OK
0x00000240-0x0000025F Extended IO Bus OK
0x00000070-0x00000073 Extended IO Bus OK
0x000003F8-0x000003FF Communications Port
(COM1) OK
0x000003F2-0x000003F5 Standard floppy disk
controller OK
0x000003F7-0x000003F7 Standard floppy disk
controller OK
0x00002000-0x0000200F 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

[IRQs]

Resource  Device      Status
IRQ 9     Microsoft ACPI-Compliant System      OK

IRQ 31    Compaq Smart Array 5i                OK
IRQ 5     Base System Device                  OK
IRQ 7     Base System Device                  OK
IRQ 7     Standard OpenHCD USB Host Controller OK

IRQ 0     System timer                        OK
IRQ 1     Standard 101/102-Key or Microsoft Natural PS/2 Keyboard OK
IRQ 12    PS/2 Compatible Mouse                OK
IRQ 4     Communications Port (COM1)          OK
IRQ 6     Standard floppy disk controller      OK

IRQ 14    Primary IDE Channel                 OK
IRQ 30    Compaq NC7781 Gigabit Server Adapter #2 OK

IRQ 29    Compaq NC7781 Gigabit Server Adapter OK

[Memory]

Resource  Device      Status
0xA0000-0xBFFFF      PCI bus      OK
0xA0000-0xBFFFF      ATI Technologies Inc. RAGE XL PCI
                           OK
0xF5D00000-0xF6FFFFFF      PCI bus      OK
0xF6000000-0xF6FFFFFF      ATI Technologies Inc.
RAGE XL PCI              OK
0xF5FF0000-0xF5FF0FFF      ATI Technologies Inc.
RAGE XL PCI              OK
0xF5F80000-0xF5FBFFFF      Compaq Smart Array 5i
                           OK
0xF5DF0000-0xF5DF3FFF      Compaq Smart Array 5i
                           OK
0xF5F70000-0xF5F701FF      Base System Device      OK
0xF5F60000-0xF5F607FF      Base System Device      OK
0xF5F50000-0xF5F51FFF      Base System Device      OK
0xF5E80000-0xF5EFFFFF      Base System Device      OK

0xF5E70000-0xF5E70FFF      Standard OpenHCD USB
Host Controller          OK
0xF7E00000-0xF7EFFFFF      PCI bus      OK
0xF7EF0000-0xF7EFFFFF      Compaq NC7781 Gigabit
Server Adapter #2       OK
0xF7F00000-0xF7FFFFFF      PCI bus      OK
0xF7FF0000-0xF7FFFFFF      Compaq NC7781 Gigabit
Server Adapter          OK

[Components]

```

```

[Multimedia]

[Audio Codecs]

CODEC      Manufacturer      Description
           Status File      Version Size
           Creation Date

c:\winnt\system32\iac25_32.ax Intel Corporation
Indeo® audio software      OK
C:\WINNT\System32\IAC25_32.AX 2.05.53
195.00 KB (199,680 bytes)    12/7/1999

7:00 AM
c:\winnt\system32\msg723.acm Microsoft Corporation
OK
C:\WINNT\System32\MSG723.ACM 4.4.3385
106.77 KB (109,328 bytes)    9/13/2002

5:46 PM
c:\winnt\system32\lhacm.acm Microsoft Corporation
OK
C:\WINNT\System32\LHACM.ACM 4.4.3385
33.27 KB (34,064 bytes)      9/13/2002

5:46 PM
c:\winnt\system32\tssoft32.acm DSP GROUP,
INC.
OK
C:\WINNT\System32\TSSOFT32.ACM
1.01 9.27 KB (9,488 bytes)
12/7/1999 7:00 AM

c:\winnt\system32\msgsm32.acm Microsoft Corporation
OK
C:\WINNT\System32\MSGSM32.ACM 5.00.2134.1
22.27 KB (22,800 bytes)      12/7/1999

7:00 AM
c:\winnt\system32\msg711.acm Microsoft Corporation
OK
C:\WINNT\System32\MSG711.ACM 5.00.2134.1
10.27 KB (10,512 bytes)      12/7/1999

7:00 AM
c:\winnt\system32\msadp32.acm Microsoft Corporation
OK
C:\WINNT\System32\MSADP32.ACM 5.00.2134.1
14.77 KB (15,120 bytes)      12/7/1999

7:00 AM
c:\winnt\system32\imaadp32.acm Microsoft
Corporation
OK
C:\WINNT\System32\IMAADP32.ACM
5.00.2134.1 16.27 KB (16,656 bytes)
12/7/1999 7:00 AM

[Video Codecs]

CODEC      Manufacturer      Description
           Status File      Version Size
           Creation Date

c:\winnt\system32\ir50_32.dll Intel Corporation
Indeo® video 5.10          OK
C:\WINNT\System32\IR50_32.DLL
R.5.10.15.2.55 737.50 KB (755,200
bytes) 12/7/1999 7:00 AM

c:\winnt\system32\msh261.driv Microsoft Corporation
OK

```

```

C:\WINNT\System32\MSH261.DRV 4.4.3385
163.77 KB (167,696 bytes)    9/13/2002

5:46 PM
c:\winnt\system32\msh263.driv Microsoft Corporation
OK
C:\WINNT\System32\MSH263.DRV 4.4.3385
252.27 KB (258,320 bytes)    9/13/2002

5:45 PM
c:\winnt\system32\msvidc32.dll Microsoft
Corporation
OK
C:\WINNT\System32\MSVIDC32.DLL
5.00.2134.1 27.27 KB (27,920 bytes)
12/7/1999 7:00 AM

c:\winnt\system32\ir32_32.dll Intel(R) Corporation
OK
C:\WINNT\System32\IR32_32.DLL Not Available
194.50 KB (199,168 bytes)    12/7/1999

7:00 AM
c:\winnt\system32\msrle32.dll Microsoft Corporation
OK
C:\WINNT\System32\MSRLE32.DLL 5.00.2134.1
10.77 KB (11,024 bytes)      12/7/1999

7:00 AM
c:\winnt\system32\iccvid.dll Radius Inc.
OK
C:\WINNT\System32\ICCVID.DLL
1.10.0.6 108.00 KB (110,592 bytes)
12/7/1999 7:00 AM

[CD-ROM]

Item      Value
Drive D:
Description CD-ROM Drive
Media Loaded No
Media Type CD-ROM
Name COMPAQ CRN-8245B
Manufacturer (Standard CD-ROM drives)
Status OK
Transfer Rate Not Available
SCSI Target ID 0
PNP Device ID IDE\CDROMCOMPAQ_CRN-
8245B_2.19_5\FB0C83D&0&0.0
.0
Driver c:\winnt\system32\drivers\cdrom.sys
(5.00.2165.1, 26.73 KB (27,376 bytes), 12/7/1999 7:00
AM)

[Sound Device]

Item      Value

[Display]

Item      Value
Name ATI Technologies Inc. RAGE XL PCI
PNP Device ID PCI\VEN_1002&DEV_4752&SUBSYS_001E0E11&REV_2
7\3&267A616A&0&18
Adapter Type ATI RAGE XL PCI, ATI Technologies
Inc. compatible
Adapter Description ATI Technologies Inc. RAGE XL PCI

Adapter RAM 8.00 MB (8,388,608 bytes)

```

```

Installed Drivers  atidrab.dll
Driver Version    5.00.2179.1
INF File display.inf (atirage3 section)
Color Planes     1
Color Table Entries 65536
Resolution       640 x 480 x 60 hertz
Bits/Pixel       16
Memory Address   0xF6000000-0xF6FFFFFF
I/O Port         0x00002400-0x000024FF
Memory Address   0xF5FF0000-0xF5FF0FFF
I/O Port         0x000003B0-0x000003BB
I/O Port         0x000003C0-0x000003DF
Memory Address   0xA0000-0xBFFFF
Driver c:\winnt\system32\drivers\atimpab.sys
(5.00.2179.1, 69.95 KB (71,632 bytes), 9/13/2002 5:40
PM)

```

[Infrared]

```
Item Value
```

[Input]

[Keyboard]

```

Item Value
Description Standard 101/102-Key or Microsoft
Natural PS/2 Keyboard
Name Enhanced (101- or 102-key)
Layout 00000409
PNP Device ID ACPI\PNP0303\4&35118DFF&0
Number of Function Keys 12
I/O Port 0x00000060-0x0000006F
I/O Port 0x00000064-0x00000064
IRQ Channel IRQ 1
Driver c:\winnt\system32\drivers\i8042prt.sys
(5.00.2195.2936, 45.64 KB (46,736 bytes), 12/7/1999
7:00 AM)

```

[Pointing Device]

```

Item Value
Hardware Type PS/2 Compatible Mouse
Number of Buttons 2
Status OK
PNP Device ID ACPI\PNP0F13\4&35118DFF&0
Power Management Supported No
Double Click Threshold 6
Handedness Right Handed Operation
IRQ Channel IRQ 12
Driver c:\winnt\system32\drivers\i8042prt.sys
(5.00.2195.2936, 45.64 KB (46,736 bytes), 12/7/1999
7:00 AM)

```

[Modem]

```
Item Value
```

[Network]

[Adapter]

```

Item Value
Name [00000000] RAS Async Adapter
Adapter Type Not Available
Product Type RAS Async Adapter
Installed Yes
PNP Device ID Not Available
Last Reset 1/31/2005 10:06 AM
Index 0
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 [00000001] WAN Miniport (L2TP)
Adapter Type Not Available
Product Type WAN Miniport (L2TP)
Installed Yes
PNP Device ID ROOT\MS_L2TPMINIPORT\0000
Last Reset 1/31/2005 10:06 AM
Index 1
Service Name Rasl2tp
IP Address Not Available
IP Subnet Not Available
Default IP Gateway Not Available
DHCP Enabled No
DHCP Server Not Available
DHCP Lease Expires Not Available
DHCP Lease Obtained Not Available
MAC Address Not Available
Driver c:\winnt\system32\drivers\rasl2tp.sys
(5.00.2179.1, 49.61 KB (50,800 bytes), 12/7/1999 7:00
AM)

```

```

Name [00000002] WAN Miniport (PPTP)
Adapter Type Wide Area Network (WAN)
Product Type WAN Miniport (PPTP)
Installed Yes
PNP Device ID ROOT\MS_PPTPMINIPORT\0000
Last Reset 1/31/2005 10:06 AM
Index 2
Service Name PptpMiniport
IP Address Not Available
IP Subnet Not Available
Default IP Gateway Not Available
DHCP Enabled No
DHCP Server Not Available
DHCP Lease Expires Not Available
DHCP Lease Obtained Not Available
MAC Address 50:50:54:50:30:30
Driver c:\winnt\system32\drivers\raspptp.sys
(5.00.2160.1, 46.73 KB (47,856 bytes), 12/7/1999 7:00
AM)

```

```

Name [00000003] Direct Parallel
Adapter Type Not Available

```

```

Product Type Direct Parallel
Installed Yes
PNP Device ID ROOT\MS_PTMINIPORT\0000
Last Reset 1/31/2005 10:06 AM
Index 3
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:\winnt\system32\drivers\raspti.sys
(5.00.2146.1, 16.48 KB (16,880 bytes), 12/7/1999 7:00
AM)

```

```

Name [00000004] WAN Miniport (IP)
Adapter Type Not Available
Product Type WAN Miniport (IP)
Installed Yes
PNP Device ID ROOT\MS_NDISWANIP\0000
Last Reset 1/31/2005 10:06 AM
Index 4
Service Name NdisWan
IP Address Not Available
IP Subnet Not Available
Default IP Gateway Not Available
DHCP Enabled No
DHCP Server Not Available
DHCP Lease Expires Not Available
DHCP Lease Obtained Not Available
MAC Address Not Available
Driver c:\winnt\system32\drivers\ndiswan.sys
(5.00.2195.2779, 87.98 KB (90,096 bytes), 12/7/1999
7:00 AM)

```

```

Name [00000005] Compaq NC7780 Gigabit Server
Adapter
Adapter Type Not Available
Product Type Compaq NC7780 Gigabit Server
Adapter
Installed Yes
PNP Device ID Not Available
Last Reset 1/31/2005 10:06 AM
Index 5
Service Name q57w2k
IP Address 130.168.40.73
IP Subnet 255.255.0.0
Default IP Gateway Not Available
DHCP Enabled Yes
DHCP Server 130.168.253.2
DHCP Lease Expires 9/16/2002 7:03 PM
DHCP Lease Obtained 9/15/2002 7:03 PM
MAC Address 00:0B:CD:37:00:C0

```

```

Name [00000006] Compaq NC7780 Gigabit Server
Adapter
Adapter Type Not Available
Product Type Compaq NC7780 Gigabit Server
Adapter
Installed Yes

```

```

PNP Device ID      Not Available
Last Reset        1/31/2005 10:06 AM
Index             6
Service Name      q57w2k
IP Address        130.172.11.73
IP Subnet 255.255.0.0
Default IP Gateway Not Available
DHCP Enabled      No
DHCP Server       Not Available
DHCP Lease Expires Not Available
DHCP Lease Obtained Not Available
MAC Address       00:0B:CD:37:00:FD

Name [00000007] Compaq NC3123 Fast Ethernet NIC

Adapter Type      Not Available
Product Type      Compaq NC3123 Fast Ethernet NIC

Installed Yes
PNP Device ID      Not Available
Last Reset        1/31/2005 10:06 AM
Index             7
Service Name      N100
IP Address        130.172.11.73
IP Subnet 255.255.0.0
Default IP Gateway Not Available
DHCP Enabled      Yes
DHCP Server       130.168.253.2
DHCP Lease Expires 9/16/2002 3:58 PM
DHCP Lease Obtained 9/15/2002 3:58 PM
MAC Address       00:0B:CD:37:00:FD

Name [00000008] Compaq NC7781 Gigabit Server
Adapter
Adapter Type      Ethernet 802.3
Product Type      Compaq NC7781 Gigabit Server
Adapter
Installed Yes
PNP Device ID      PCI\VEN_14E4&DEV_16A7&SUBSYS_00CB0E11&REV_0
2\3&1070020&0&10
Last Reset        1/31/2005 10:06 AM
Index             8
Service Name      q57w2k
IP Address        130.172.11.73
IP Subnet 255.255.0.0
Default IP Gateway Not Available
DHCP Enabled      No
DHCP Server       Not Available
DHCP Lease Expires Not Available
DHCP Lease Obtained Not Available
MAC Address       00:0B:CD:37:00:FD
Memory Address    0xF7FF0000-0xF7FFFFFF
IRQ Channel       IRQ 29
Driver c:\winnt\system32\drivers\q57w2k.sys
(2.75.0.0, 75.95 KB (77,776 bytes), 9/13/2002 6:02 PM)

Name [00000009] Compaq NC7781 Gigabit Server
Adapter
Adapter Type      Ethernet 802.3
Product Type      Compaq NC7781 Gigabit Server
Adapter

```

```

Installed Yes
PNP Device ID      PCI\VEN_14E4&DEV_16A7&SUBSYS_00CB0E11&REV_0
2\3&13C0B0C5&0&10
Last Reset        1/31/2005 10:06 AM
Index             9
Service Name      q57w2k
IP Address        130.168.40.73
IP Subnet 255.255.0.0
Default IP Gateway Not Available
DHCP Enabled      No
DHCP Server       Not Available
DHCP Lease Expires Not Available
DHCP Lease Obtained Not Available
MAC Address       00:0B:CD:37:00:C0
Memory Address    0xF7EF0000-0xF7EFFFFF
IRQ Channel       IRQ 30
Driver c:\winnt\system32\drivers\q57w2k.sys
(2.75.0.0, 75.95 KB (77,776 bytes), 9/13/2002 6:02 PM)

[Protocol]

Item Value
Name MSAFD Tcpiip [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 Tcpiip [UDP/IP]
Connectionless Service Yes
Guarantees Delivery No
Guarantees Sequencing No
Maximum Address Size 16 bytes
Maximum Message Size 63.93 KB (65,467 bytes)

Message Oriented Yes
Minimum Address Size 16 bytes
Pseudo Stream Oriented No
Supports Broadcasting Yes
Supports Connect Data No
Supports Disconnect Data No
Supports Encryption No
Supports Expedited Data No
Supports Graceful Closing No
Supports Guaranteed Bandwidth No
Supports Multicasting Yes

Name RSVP UDP Service Provider
Connectionless Service Yes

```

```

Guarantees Delivery No
Guarantees Sequencing No
Maximum Address Size 16 bytes
Maximum Message Size 63.93 KB (65,467 bytes)

Message Oriented Yes
Minimum Address Size 16 bytes
Pseudo Stream Oriented No
Supports Broadcasting Yes
Supports Connect Data No
Supports Disconnect Data No
Supports Encryption Yes
Supports Expedited Data No
Supports Graceful Closing No
Supports Guaranteed Bandwidth No
Supports Multicasting Yes

Name RSVP TCP Service Provider
Connectionless Service No
Guarantees Delivery Yes
Guarantees Sequencing Yes
Maximum Address Size 16 bytes
Maximum Message Size 0 bytes
Message Oriented No
Minimum Address Size 16 bytes
Pseudo Stream Oriented No
Supports Broadcasting No
Supports Connect Data No
Supports Disconnect Data No
Supports Encryption Yes
Supports Expedited Data Yes
Supports Graceful Closing Yes
Supports Guaranteed Bandwidth No
Supports Multicasting No

Name MSAFD NetBIOS
[\Device\NetBT_Tcpiip_{2D8AA674-9F13-43EE-9055-F9ECADD87F7F}] SEQPACKET 6
Connectionless Service No
Guarantees Delivery Yes
Guarantees Sequencing Yes
Maximum Address Size 20 bytes
Maximum Message Size 62.50 KB (64,000 bytes)

Message Oriented Yes
Minimum Address Size 20 bytes
Pseudo Stream Oriented No
Supports Broadcasting No
Supports Connect Data No
Supports Disconnect Data No
Supports Encryption No
Supports Expedited Data No
Supports Graceful Closing No
Supports Guaranteed Bandwidth No
Supports Multicasting No

Name MSAFD NetBIOS
[\Device\NetBT_Tcpiip_{2D8AA674-9F13-43EE-9055-F9ECADD87F7F}] DATAGRAM 6
Connectionless Service Yes
Guarantees Delivery No
Guarantees Sequencing No
Maximum Address Size 20 bytes

```


Maximum Message Size 62.50 KB (64,000 bytes)

Message Oriented Yes
 Minimum Address Size 20 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting Yes
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption No
 Supports Expedited Data No
 Supports Graceful Closing No
 Supports Guaranteed Bandwidth No
 Supports Multicasting No

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{EFD5741D-3A14-456C-98EB-17ABC580A075}] SEQPACKET 5
 Connectionless Service No
 Guarantees Delivery Yes
 Guarantees Sequencing Yes
 Maximum Address Size 20 bytes
 Maximum Message Size 62.50 KB (64,000 bytes)

Message Oriented Yes
 Minimum Address Size 20 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting No
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption No
 Supports Expedited Data No
 Supports Graceful Closing No
 Supports Guaranteed Bandwidth No
 Supports Multicasting No

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{EFD5741D-3A14-456C-98EB-17ABC580A075}] DATAGRAM 5
 Connectionless Service Yes
 Guarantees Delivery No
 Guarantees Sequencing No
 Maximum Address Size 20 bytes
 Maximum Message Size 62.50 KB (64,000 bytes)

Message Oriented Yes
 Minimum Address Size 20 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting Yes
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption No
 Supports Expedited Data No
 Supports Graceful Closing No
 Supports Guaranteed Bandwidth No
 Supports Multicasting No

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{4249431A-469E-4735-A292-01AA526741FC}] SEQPACKET 4
 Connectionless Service No
 Guarantees Delivery Yes
 Guarantees Sequencing Yes
 Maximum Address Size 20 bytes

Maximum Message Size 62.50 KB (64,000 bytes)

Message Oriented Yes
 Minimum Address Size 20 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting No
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption No
 Supports Expedited Data No
 Supports Graceful Closing No
 Supports Guaranteed Bandwidth No
 Supports Multicasting No

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{4249431A-469E-4735-A292-01AA526741FC}] DATAGRAM 4
 Connectionless Service Yes
 Guarantees Delivery No
 Guarantees Sequencing No
 Maximum Address Size 20 bytes
 Maximum Message Size 62.50 KB (64,000 bytes)

Message Oriented Yes
 Minimum Address Size 20 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting Yes
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption No
 Supports Expedited Data No
 Supports Graceful Closing No
 Supports Guaranteed Bandwidth No
 Supports Multicasting No

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{3B09DDB7-7EB8-4941-8121-52DC6359F5A6}] SEQPACKET 3
 Connectionless Service No
 Guarantees Delivery Yes
 Guarantees Sequencing Yes
 Maximum Address Size 20 bytes
 Maximum Message Size 62.50 KB (64,000 bytes)

Message Oriented Yes
 Minimum Address Size 20 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting No
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption No
 Supports Expedited Data No
 Supports Graceful Closing No
 Supports Guaranteed Bandwidth No
 Supports Multicasting No

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{3B09DDB7-7EB8-4941-8121-52DC6359F5A6}] DATAGRAM 3
 Connectionless Service Yes
 Guarantees Delivery No
 Guarantees Sequencing No
 Maximum Address Size 20 bytes

Maximum Message Size 62.50 KB (64,000 bytes)

Message Oriented Yes
 Minimum Address Size 20 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting Yes
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption No
 Supports Expedited Data No
 Supports Graceful Closing No
 Supports Guaranteed Bandwidth No
 Supports Multicasting No

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{684FA660-D082-4A8C-AC8C-C9D449B21686}] SEQPACKET 0
 Connectionless Service No
 Guarantees Delivery Yes
 Guarantees Sequencing Yes
 Maximum Address Size 20 bytes
 Maximum Message Size 62.50 KB (64,000 bytes)

Message Oriented Yes
 Minimum Address Size 20 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting No
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption No
 Supports Expedited Data No
 Supports Graceful Closing No
 Supports Guaranteed Bandwidth No
 Supports Multicasting No

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{684FA660-D082-4A8C-AC8C-C9D449B21686}] DATAGRAM 0
 Connectionless Service Yes
 Guarantees Delivery No
 Guarantees Sequencing No
 Maximum Address Size 20 bytes
 Maximum Message Size 62.50 KB (64,000 bytes)

Message Oriented Yes
 Minimum Address Size 20 bytes
 Pseudo Stream Oriented No
 Supports Broadcasting Yes
 Supports Connect Data No
 Supports Disconnect Data No
 Supports Encryption No
 Supports Expedited Data No
 Supports Graceful Closing No
 Supports Guaranteed Bandwidth No
 Supports Multicasting No

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{D90E04F2-3AD9-4F98-9464-751E106D7E6A}] SEQPACKET 1
 Connectionless Service No
 Guarantees Delivery Yes
 Guarantees Sequencing Yes
 Maximum Address Size 20 bytes

Maximum Message Size 62.50 KB (64,000 bytes)

Message Oriented Yes

Minimum Address Size 20 bytes

Pseudo Stream Oriented No

Supports Broadcasting No

Supports Connect Data No

Supports Disconnect Data No

Supports Encryption No

Supports Expedited Data No

Supports Graceful Closing No

Supports Guaranteed Bandwidth No

Supports Multicasting No

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{D90E04F2-3AD9-4F98-9464-751E106D7E6A}] DATAGRAM 1

Connectionless Service Yes

Guarantees Delivery No

Guarantees Sequencing No

Maximum Address Size 20 bytes

Maximum Message Size 62.50 KB (64,000 bytes)

Message Oriented Yes

Minimum Address Size 20 bytes

Pseudo Stream Oriented No

Supports Broadcasting Yes

Supports Connect Data No

Supports Disconnect Data No

Supports Encryption No

Supports Expedited Data No

Supports Graceful Closing No

Supports Guaranteed Bandwidth No

Supports Multicasting No

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{3F1BA297-E685-416B-82D7-70E771CC8745}] SEQPACKET 2

Connectionless Service No

Guarantees Delivery Yes

Guarantees Sequencing Yes

Maximum Address Size 20 bytes

Maximum Message Size 62.50 KB (64,000 bytes)

Message Oriented Yes

Minimum Address Size 20 bytes

Pseudo Stream Oriented No

Supports Broadcasting No

Supports Connect Data No

Supports Disconnect Data No

Supports Encryption No

Supports Expedited Data No

Supports Graceful Closing No

Supports Guaranteed Bandwidth No

Supports Multicasting No

Name MSAFD NetBIOS
 [\Device\NetBT_Tcpip_{3F1BA297-E685-416B-82D7-70E771CC8745}] DATAGRAM 2

Connectionless Service Yes

Guarantees Delivery No

Guarantees Sequencing No

Maximum Address Size 20 bytes

Maximum Message Size 62.50 KB (64,000 bytes)

Message Oriented Yes

Minimum Address Size 20 bytes

Pseudo Stream Oriented No

Supports Broadcasting Yes

Supports Connect Data No

Supports Disconnect Data No

Supports Encryption No

Supports Expedited Data No

Supports Graceful Closing No

Supports Guaranteed Bandwidth No

Supports Multicasting No

[WinSock]

Item Value

File c:\winnt\system32\winsock.dll

Size 2.80 KB (2,864 bytes)

Version 3.10

File c:\winnt\system32\wsock32.dll

Size 21.27 KB (21,776 bytes)

Version 5.00.2195.2871

[Ports]

[Serial]

Item Value

Name Communications Port (COM1)

Status OK

PNP Device ID ACPI\PNP0501\0

Maximum Input Buffer Size 0

Maximum Output Buffer Size No

Settable Baud Rate Yes

Settable Data Bits Yes

Settable Flow Control Yes

Settable Parity Yes

Settable Parity Check Yes

Settable Stop Bits Yes

Settable RLSD Yes

Supports RLSD Yes

Supports 16 Bit Mode No

Supports Special Characters No

Baud Rate 9600

Bits/Byte 8

Stop Bits 1

Parity None

Busy No

Abort Read/Write on Error No

Binary Mode Enabled Yes

Continue XMit on Xoff No

CTS Outflow Control No

Discard NULL Bytes No

DSR Outflow Control 0

DSR Sensitivity 0

DTR Flow Control Type Enable

EOF Character 0

Error Replace Character 0

Error Replacement Enabled No

Event Character 0

Parity Check Enabled No

RTS Flow Control Type Enable

XOff Character 19

XOffXmit Threshold 512

XOn Character 17

XOnXmit Threshold 2048

XOnXoff InFlow Control 0

XOnXoff OutFlow Control 0

IRQ Channel IRQ 4

I/O Port 0x000003F8-0x000003FF

Driver c:\winnt\system32\drivers\serial.sys
 (5.00.2195.2780, 60.95 KB (62,416 bytes), 12/7/1999 7:00 AM)

[Parallel]

Item Value

[Storage]

[Drives]

Item Value

Drive A:

Description 3 1/2 Inch Floppy Drive

Drive C:

Description Local Fixed Disk

Compressed No

File System NTFS

Size 33.91 GB (36,413,280,256 bytes)

Free Space 29.83 GB (32,035,086,336 bytes)

Volume Name

Volume Serial Number C8B488FA

Drive D:

Description CD-ROM Disc

[Disks]

Item Value

Description Disk drive

Manufacturer (Standard disk drives)

Model COMPAQ LOGICAL VOLUME SCSI Disk Device

Bytes/Sector 512

Media Loaded Yes

Media Type Fixed hard disk media

Partitions 1

SCSI Bus 0

SCSI Logical Unit 0

SCSI Port 2

SCSI Target ID 4

Sectors/Track 63

Size 33.91 GB (36,413,314,560 bytes)

Total Cylinders 4,427

Total Sectors 71,119,755

Total Tracks 1,128,885

Tracks/Cylinder 255

Partition Disk #0, Partition #0

Partition Size 33.91 GB (36,413,282,304 bytes)

Partition Starting Offset 32,256 bytes

[SCSI]

Item Value
Name Compaq Smart Array 5i
Manufacturer Compaq
Status OK
PNP Device ID PCI\VEN_0E11&DEV_B178&SUBSYS_40800E11&REV_01\3&267A616A&0&20
Memory Address 0xF5F80000-0xF5FBFFFF
I/O Port 0x00002800-0x000028FF
Memory Address 0xF5DF0000-0xF5DF3FFF
IRQ Channel IRQ 31
Driver c:\winnt\system32\drivers\cpqcissm.sys (5.40.2.0, 14.64 KB (14,992 bytes), 9/13/2002 12:15 PM)

[IDE]

Item Value
Name Standard Dual Channel PCI IDE Controller
Manufacturer (Standard IDE ATA/ATAPI controllers)
Status OK
PNP Device ID PCI\VEN_1166&DEV_0212&SUBSYS_02121166&REV_93\3&267A616A&0&79
I/O Port 0x00002000-0x0000200F
Driver c:\winnt\system32\drivers\pciide.sys (5.00.2195.2104, 3.02 KB (3,088 bytes), 12/7/1999 7:00 AM)
Name Primary IDE Channel
Manufacturer (Standard IDE ATA/ATAPI controllers)
Status OK
PNP Device ID PCIIDE\IDECHANNEL\4&1024D5C6&0&0
I/O Port 0x000001F0-0x000001F7
I/O Port 0x000003F6-0x000003F6
IRQ Channel IRQ 14
Driver c:\winnt\system32\drivers\atapi.sys (5.00.2195.2247, 83.27 KB (85,264 bytes), 12/7/1999 7:00 AM)
Name Secondary IDE Channel
Manufacturer (Standard IDE ATA/ATAPI controllers)
Status OK
PNP Device ID PCIIDE\IDECHANNEL\4&1024D5C6&0&1
I/O Port 0x00000170-0x00000177
I/O Port 0x00000376-0x00000376
Driver c:\winnt\system32\drivers\atapi.sys (5.00.2195.2247, 83.27 KB (85,264 bytes), 12/7/1999 7:00 AM)

[Printing]

Name Driver Port Name Server Name

[Problem Devices]

Device PNP Device ID Error Code
Base System Device
PCI\VEN_0E11&DEV_B203&SUBSYS_B2060E11&REV_01\3&267A616A&0&28 This device is disabled because the firmware of the device did not give it the required resources.
Base System Device
PCI\VEN_0E11&DEV_B204&SUBSYS_B2060E11&REV_01\3&267A616A&0&2A This device is disabled because the firmware of the device did not give it the required resources.

[USB]

Device PNP Device ID
Standard OpenHCD USB Host Controller
PCI\VEN_1166&DEV_0220&SUBSYS_02201166&REV_05\3&267A616A&0&7A
USB Root Hub USB\ROOT_HUB\4&AF5358C&0

[Software Environment]

[System Drivers]

Name	Description	File	Type	Started	Start Mode	Status	Error Control	Accept Pause
abiosdsk	Abiosdsk	Not Available	Kernel Driver	No	Disabled	Stopped	OK	
abp480n5	abp480n5	Not Available	Kernel Driver	No	Disabled	Stopped	OK	
acpi	Microsoft ACPI Driver	c:\winnt\system32\drivers\acpi.sys	Kernel Driver	Yes	Boot	Running	OK	Normal No Yes
acpiec	ACPIEC	c:\winnt\system32\drivers\acpiec.sys	Kernel Driver	No	Disabled	Stopped	OK	Normal No No
adpu160m	adpu160m	Not Available	Kernel Driver	No	Disabled	Stopped	OK	
afd	AFD Networking Support Environment	c:\winnt\system32\drivers\afd.sys	Kernel Driver	Yes	Auto	Running	OK	Normal No Yes
ahal54x	Ahal54x	Not Available	Kernel Driver	No	Disabled	Stopped	OK	

aicl16x	aicl16x	Not Available	Kernel Driver	No	Disabled	Stopped	OK	
aic78u2	aic78u2	Not Available	Kernel Driver	No	Disabled	Stopped	OK	
aic78xx	aic78xx	Not Available	Kernel Driver	No	Disabled	Stopped	OK	
alkernel	Altiris Kernel Driver	c:\winnt\system32\drivers\alkernel.sys	Kernel Driver	Yes	Manual	Running	OK	Normal No Yes
ami0nt	ami0nt	Not Available	Kernel Driver	No	Disabled	Stopped	OK	
amsint	amsint	Not Available	Kernel Driver	No	Disabled	Stopped	OK	
asc	asc	Not Available	Kernel Driver	No	Disabled	Stopped	OK	
asc3350p	asc3350p	Not Available	Kernel Driver	No	Disabled	Stopped	OK	
asc3550	asc3550	Not Available	Kernel Driver	No	Disabled	Stopped	OK	
asynctac	RAS Asynchronous Media Driver	c:\winnt\system32\drivers\asynctac.sys	Kernel Driver	No	Manual	Stopped	OK	Normal No No
atapi	Standard IDE/ESDI Hard Disk Controller	c:\winnt\system32\drivers\atapi.sys	Kernel Driver	Yes	Boot	Running	OK	Normal No Yes
atdisk	Atdisk	Not Available	Kernel Driver	No	Disabled	Stopped	OK	
atirage3	atirage3	c:\winnt\system32\drivers\atimpab.sys	Kernel Driver	Yes	Manual	Running	OK	Ignore No Yes
atmarpc	ATM ARP Client Protocol	c:\winnt\system32\drivers\atmarpc.sys	Kernel Driver	No	Manual	Stopped	OK	Normal No No
audstub	Audio Stub Driver	c:\winnt\system32\drivers\audstub.sys	Kernel Driver	Yes	Manual	Running	OK	Normal No Yes
beep	Beep	c:\winnt\system32\drivers\beep.sys	Kernel Driver	Yes	System	Running	OK	Normal No Yes

buslogic	BusLogic	Not Available	Kernel Driver		
	No	Disabled	Stopped	OK	
	Normal	No	No		
cd20xrnt	cd20xrnt	Not Available	Kernel Driver		
	No	Disabled	Stopped	OK	
	Normal	No	No		
cdaudio	Cdaudio				
	c:\winnt\system32\drivers\cdaudio.sys				
	Kernel Driver	No	System		
	Stopped	OK	Ignore	No	No
cdfs	Cdfs				
	c:\winnt\system32\drivers\cdfs.sys				
	File System Driver	Yes	Disabled		
	Running	OK	Normal	No	Yes
cdrom	CD-ROM Driver				
	c:\winnt\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		
cpqarray	Cpqarray	Not Available	Kernel Driver		
	Normal	Disabled	Stopped	OK	
	Normal	No	No		
cpqarray2	cpqarray2	Not Available	Kernel Driver		
	No	Disabled	Stopped	OK	
	Normal	No	No		
cpqcissm	cpqcissm				
	c:\winnt\system32\drivers\cpqcissm.sys				
	Kernel Driver	Yes	Boot		
	Running	OK	Normal	No	Yes
cpqfcalm	cpqfcalm	Not Available	Kernel Driver		
	No	Disabled	Stopped	OK	
	Normal	No	No		
cpqfws2e	cpqfws2e	Not Available	Kernel Driver		
	No	Disabled	Stopped	OK	
	Normal	No	No		
dac960nt	dac960nt	Not Available	Kernel Driver		
	No	Disabled	Stopped	OK	
	Normal	No	No		
deckzpsx	deckzpsx	Not Available	Kernel Driver		
	No	Disabled	Stopped	OK	
	Normal	No	No		
dfsdriver	DfsDriver				
	c:\winnt\system32\drivers\dfs.sys				
	File System Driver	Yes	Boot		
	Running	OK	Normal	No	Yes
disk	Disk Driver				
	c:\winnt\system32\drivers\disk.sys				
	Kernel Driver	Yes	Boot		
	Running	OK	Normal	No	Yes
diskperf	Diskperf				
	c:\winnt\system32\drivers\diskperf.sys				
	Kernel Driver	Yes	Boot		
	Running	OK	Normal	No	Yes
dmboot	dmboot				
	c:\winnt\system32\drivers\dmboot.sys				

	Kernel Driver	No	Disabled		
	Stopped	OK	Normal	No	No
dmio	Logical Disk Manager Driver				
	c:\winnt\system32\drivers\dmio.sys				
	Kernel Driver	Yes	Boot		
	Running	OK	Normal	No	Yes
dmload	dmload				
	c:\winnt\system32\drivers\dmload.sys				
	Kernel Driver	Yes	Boot		
	Running	OK	Normal	No	Yes
efs	EFS				
	c:\winnt\system32\drivers\efs.sys				
	File System Driver	Yes	Disabled		
	Running	OK	Normal	No	Yes
fastfat	Fastfat				
	c:\winnt\system32\drivers\fastfat.sys				
	File System Driver	Yes	Disabled		
	Running	OK	Normal	No	Yes
fd16_700	Fd16_700	Not Available	Kernel Driver		
	No	Disabled	Stopped	OK	
	Normal	No	No		
fdc	Floppy Disk Controller Driver				
	c:\winnt\system32\drivers\fdc.sys				
	Kernel Driver	Yes	Manual		
	Running	OK	Normal	No	Yes
fips	Fips				
	c:\winnt\system32\drivers\fips.sys				
	Kernel Driver	Yes	Auto		
	Running	OK	Normal	No	Yes
fireport	fireport	Not Available	Kernel Driver		
	No	Disabled	Stopped	OK	
	Normal	No	No		
flashpnt	flashpnt	Not Available	Kernel Driver		
	No	Disabled	Stopped	OK	
	Normal	No	No		
flpydisk	Floppy Disk Driver				
	c:\winnt\system32\drivers\flpydisk.sys				
	Kernel Driver	Yes	Manual		
	Running	OK	Normal	No	Yes
ftdisk	Volume Manager Driver				
	c:\winnt\system32\drivers\ftdisk.sys				
	Kernel Driver	Yes	Boot		
	Running	OK	Normal	No	Yes
gpc	Generic Packet Classifier				
	c:\winnt\system32\drivers\msgpc.sys				
	Kernel Driver	Yes	Manual		
	Running	OK	Normal	No	Yes
i8042prt	i8042 Keyboard and PS/2 Mouse Port Driver				
	c:\winnt\system32\drivers\i8042prt.sys				
	Kernel Driver	Yes	System		
	Running	OK	Normal	No	Yes

ini910u	ini910u	Not Available	Kernel Driver		
	No	Disabled	Stopped	OK	
	Normal	No	No		
intelide	IntelIde	Not Available	Kernel Driver		
	No	Disabled	Stopped	OK	
	Normal	No	No		
ipfilterdriver	IP Traffic Filter Driver				
	c:\winnt\system32\drivers\ipfltdrv.sys				
	Kernel Driver	No	Manual		
	Stopped	OK	Normal	No	No
ipinip	IP in IP Tunnel Driver				
	c:\winnt\system32\drivers\ipinip.sys				
	Kernel Driver	No	Manual		
	Stopped	OK	Normal	No	No
ipnat	IP Network Address Translator				
	c:\winnt\system32\drivers\ipnat.sys				
	Kernel Driver	No	Manual		
	Stopped	OK	Normal	No	No
ipsec	IPSEC driver				
	c:\winnt\system32\drivers\ipsec.sys				
	Kernel Driver	Yes	Manual		
	Running	OK	Normal	No	Yes
ipsraidn	ipsraidn	Not Available	Kernel Driver		
	No	Disabled	Stopped	OK	
	Normal	No	No		
isapnp	PnP ISA/EISA Bus Driver				
	c:\winnt\system32\drivers\isapnp.sys				
	Kernel Driver	Yes	Boot		
	Running	OK	Critical	No	Yes
kbdclass	Keyboard Class Driver				
	c:\winnt\system32\drivers\kbdclass.sys				
	Kernel Driver	Yes	System		
	Running	OK	Normal	No	Yes
ksecdd	KSecDD				
	c:\winnt\system32\drivers\ksecdd.sys				
	Kernel Driver	Yes	Boot		
	Running	OK	Normal	No	Yes
lbrtfdc	lbrtfdc	Not Available	Kernel Driver		
	No	System	Stopped	OK	
	Ignore	No	No		
lp6nds35	lp6nds35	Not Available	Kernel Driver		
	No	Disabled	Stopped	OK	
	Normal	No	No		
mmdd	mmdd				
	c:\winnt\system32\drivers\mmdd.sys				
	Kernel Driver	Yes	System		
	Running	OK	Ignore	No	Yes
modem	Modem				
	c:\winnt\system32\drivers\modem.sys				
	Kernel Driver	No	Manual		
	Stopped	OK	Ignore	No	No
mouclass	Mouse Class Driver				
	c:\winnt\system32\drivers\mouclass.sys				
	Kernel Driver	Yes	System		

	Running	OK	Normal	No	Yes		ndproxy	NDIS Proxy c:\winnt\system32\drivers\ndproxy.sys Kernel Driver Yes Manual Running OK Normal No Yes		Running	OK	Normal	No	Yes
mountmgr	MountMgr c:\winnt\system32\drivers\mountmgr.sys Kernel Driver Yes Boot Running OK Normal No Yes						netbios	NetBIOS Interface c:\winnt\system32\drivers\netbios.sys File System Driver Yes System Running OK Normal No Yes		parvdm	ParVdm c:\winnt\system32\drivers\parvdm.sys Kernel Driver No Auto Stopped OK Ignore No No			
mraid35x	mraid35x Not Available Kernel Driver No Disabled Stopped OK Normal No No						netbt	NetBios over Tcpip c:\winnt\system32\drivers\netbt.sys Kernel Driver Yes System Running OK Normal No Yes		pci	PCI Bus Driver c:\winnt\system32\drivers\pci.sys Kernel Driver Yes Boot Running OK Critical No Yes			
mrxsmb	MRXSMB c:\winnt\system32\drivers\mrxsmb.sys File System Driver Yes System Running OK Normal No Yes						netdetect	NetDetect c:\winnt\system32\drivers\netdetect.sys Kernel Driver No Manual Stopped OK Normal No No		pcidump	PCIDump Not Available Kernel Driver No System Stopped OK Ignore No No			
msfs	Msfs c:\winnt\system32\drivers\msfs.sys File System Driver Yes System Running OK Normal No Yes						npfs	Npfs c:\winnt\system32\drivers\npfs.sys File System Driver Yes System Running OK Normal No Yes		pciide	PCIIde c:\winnt\system32\drivers\pciide.sys Kernel Driver Yes Boot Running OK Normal No Yes			
mkserv	Microsoft Streaming Service Proxy c:\winnt\system32\drivers\mkserv.sys Kernel Driver No Manual Stopped OK Normal No No						ntfs	Ntfs c:\winnt\system32\drivers\ntfs.sys File System Driver Yes Disabled Running OK Normal No Yes		pcmcia	Pcmcia c:\winnt\system32\drivers\pcmcia.sys Kernel Driver No Disabled Stopped OK Normal No No			
mshpclock	Microsoft Streaming Clock Proxy c:\winnt\system32\drivers\mshpclock.sys Kernel Driver No Manual Stopped OK Normal No No						null	Null c:\winnt\system32\drivers\null.sys Kernel Driver Yes System Running OK Normal No Yes		pdcomp	PDCOMP Not Available Kernel Driver No Manual Stopped OK Ignore No No			
mshpqm	Microsoft Streaming Quality Manager Proxy c:\winnt\system32\drivers\mshpqm.sys Kernel Driver No Manual Stopped OK Normal No No						nwlkflt	IPX Traffic Filter Driver c:\winnt\system32\drivers\nwlkflt.sys Kernel Driver No Manual Stopped OK Normal No No		pdframe	PDFRAME Not Available Kernel Driver No Manual Stopped OK Ignore No No			
mup	Mup c:\winnt\system32\drivers\mup.sys File System Driver Yes Boot Running OK Normal No Yes						nwlkfwd	IPX Traffic Forwarder Driver c:\winnt\system32\drivers\nwlkfwd.sys Kernel Driver No Manual Stopped OK Normal No No		pdreli	PDRELI Not Available Kernel Driver No Manual Stopped OK Ignore No No			
n100	Compaq Ethernet or Fast Ethernet NIC NT Driver c:\winnt\system32\drivers\n100nt5.sys Kernel Driver No Manual Stopped OK Normal No No						openhci	Microsoft USB Open Host Controller Driver c:\winnt\system32\drivers\openhci.sys Kernel Driver Yes Manual Running OK Normal No Yes		pdrframe	PDRFRAME Not Available Kernel Driver No Manual Stopped OK Ignore No No			
ncrc710	Ncrc710 Not Available Kernel Driver No Disabled Stopped OK Normal No No						parallel	Parallel c:\winnt\system32\drivers\parallel.sys Kernel Driver No Auto Stopped OK Ignore No No		pptpminiport	WAN Miniport (PPTP) c:\winnt\system32\drivers\rasppptp.sys Kernel Driver Yes Manual Running OK Normal No Yes			
ndis	NDIS System Driver c:\winnt\system32\drivers\ndis.sys Kernel Driver Yes Boot Running OK Normal No Yes						parport	Parport c:\winnt\system32\drivers\parport.sys Kernel Driver No Auto Stopped OK Ignore No No		ptilink	Direct Parallel Link Driver c:\winnt\system32\drivers\ptilink.sys Kernel Driver Yes Manual Running OK Normal No Yes			
ndistapi	Remote Access NDIS TAPI Driver c:\winnt\system32\drivers\ndistapi.sys Kernel Driver Yes Manual Running OK Normal No Yes						partmgr	PartMgr c:\winnt\system32\drivers\partmgr.sys Kernel Driver Yes Boot		q57w2k	Compaq NC7781 Gigabit Server Adapter c:\winnt\system32\drivers\q57w2k.sys Kernel Driver Yes Manual Running OK Normal No Yes			
ndiswan	Remote Access NDIS WAN Driver c:\winnt\system32\drivers\ndiswan.sys Kernel Driver Yes Manual Running OK Normal No Yes									q11080	q11080 Not Available Kernel Driver No Disabled Stopped OK Normal No No			
										q110wnt	Q110wnt Not Available Kernel Driver No Disabled Stopped OK Normal No No			
										q11240	q11240 Not Available Kernel Driver No Disabled Stopped OK Normal No No			

ql2100	ql2100	Not Available	Kernel Driver			
	No	Disabled	Stopped	OK		
	Normal	No	No			
rasacd	Remote Access Auto Connection Driver					
	c:\winnt\system32\drivers\rasacd.sys					
	Kernel Driver	Yes	System			
	Running	OK	Normal	No	Yes	
rasl2tp	WAN Miniport (L2TP)					
	c:\winnt\system32\drivers\rasl2tp.sys					
	Kernel Driver	Yes	Manual			
	Running	OK	Normal	No	Yes	
raspti	Direct Parallel					
	c:\winnt\system32\drivers\raspti.sys					
	Kernel Driver	Yes	Manual			
	Running	OK	Normal	No	Yes	
rca	Microsoft Streaming Network Raw Channel					
Access	c:\winnt\system32\drivers\rca.sys					
	Kernel Driver	No	Manual			
	Stopped	OK	Normal	No	No	
rdbss	Rdbss					
	c:\winnt\system32\drivers\rdbss.sys					
	File System Driver	Yes	System			
	Running	OK	Normal	No	Yes	
rdpdr	Terminal Server Device Redirector Driver					
	c:\winnt\system32\drivers\rdpdr.sys					
	Kernel Driver	Yes	Manual			
	Running	OK	Normal	No	Yes	
rdpwd	RDPWD					
	c:\winnt\system32\drivers\rdpwd.sys					
	Kernel Driver	Yes	Manual			
	Running	OK	Ignore	No	Yes	
redbook	Digital CD Audio Playback Filter Driver					
	c:\winnt\system32\drivers\redbook.sys					
	Kernel Driver	No	System			
	Stopped	OK	Normal	No	No	
serenum	Serenum Filter Driver					
	c:\winnt\system32\drivers\serenum.sys					
	Kernel Driver	Yes	Manual			
	Running	OK	Normal	No	Yes	
serial	Serial port driver					
	c:\winnt\system32\drivers\serial.sys					
	Kernel Driver	Yes	System			
	Running	OK	Ignore	No	Yes	
sfloppy	Sfloppy					
	c:\winnt\system32\drivers\sfloppy.sys					
	Kernel Driver	No	System			
	Stopped	OK	Ignore	No	No	
sglfb	sglfb					
	No	System	Stopped	OK		
	Normal	No	No			

simbad	Simbad	Not Available	Kernel Driver			
	No	Disabled	Stopped	OK		
	Normal	No	No			
sparrow	Sparrow					
	Not Available					
	No	Disabled	Stopped	OK		
	Normal	No	No			
spud	Special Purpose Utility Driver					
	c:\winnt\system32\drivers\spud.sys					
	Kernel Driver	Yes	Manual			
	Running	OK	Normal	No	Yes	
srv	Srv					
	c:\winnt\system32\drivers\srv.sys					
	File System Driver	Yes	Manual			
	Running	OK	Normal	No	Yes	
swenum	Software Bus Driver					
	c:\winnt\system32\drivers\swenum.sys					
	Kernel Driver	Yes	Manual			
	Running	OK	Normal	No	Yes	
symc810	symc810					
	No	Disabled	Stopped	OK		
	Normal	No	No			
symc8xx	symc8xx					
	No	Disabled	Stopped	OK		
	Normal	No	No			
sym_hi	sym_hi					
	No	Disabled	Stopped	OK		
	Normal	No	No			
tcpip	TCP/IP Protocol Driver					
	c:\winnt\system32\drivers\tcpip.sys					
	Kernel Driver	Yes	System			
	Running	OK	Normal	No	Yes	
tdasync	TDASYNC					
	c:\winnt\system32\drivers\tdasync.sys					
	Kernel Driver	No	Manual			
	Stopped	OK	Ignore	No	No	
tdipx	TDIPX					
	c:\winnt\system32\drivers\tdipx.sys					
	Kernel Driver	No	Manual			
	Stopped	OK	Ignore	No	No	
tdnetb	TDNETB					
	c:\winnt\system32\drivers\tdnetb.sys					
	Kernel Driver	No	Manual			
	Stopped	OK	Ignore	No	No	
tdpipe	TDPIPE					
	c:\winnt\system32\drivers\tdpipe.sys					
	Kernel Driver	No	Manual			
	Stopped	OK	Ignore	No	No	
tdspix	TDSPX					
	c:\winnt\system32\drivers\tdspix.sys					
	Kernel Driver	No	Manual			
	Stopped	OK	Ignore	No	No	
tdtcp	TDTCP					
	c:\winnt\system32\drivers\tdtcp.sys					
	Kernel Driver	Yes	Manual			

	Running	OK	Ignore	No	Yes	
termdd	Terminal Device Driver					
	c:\winnt\system32\drivers\termdd.sys					
	Kernel Driver	Yes	Auto			
	Running	OK	Normal	No	Yes	
tga	tga					
	No	System	Stopped	OK		
	Ignore	No	No			
udfs	Udfs					
	c:\winnt\system32\drivers\udfs.sys					
	File System Driver	No	Disabled			
	Stopped	OK	Normal	No	No	
ultra66	ultra66					
	No	Disabled	Stopped	OK		
	Normal	No	No			
update	Microcode Update Driver					
	c:\winnt\system32\drivers\update.sys					
	Kernel Driver	Yes	Manual			
	Running	OK	Normal	No	Yes	
usbhub	Microsoft USB Standard Hub Driver					
	c:\winnt\system32\drivers\usbhub.sys					
	Kernel Driver	Yes	Manual			
	Running	OK	Normal	No	Yes	
vgasave	VgaSave					
	c:\winnt\system32\drivers\vga.sys					
	Kernel Driver	Yes	System			
	Running	OK	Ignore	No	Yes	
wanarp	Remote Access IP ARP Driver					
	c:\winnt\system32\drivers\wanarp.sys					
	Kernel Driver	Yes	Manual			
	Running	OK	Normal	No	Yes	
wdica	WDICA					
	No	Manual	Stopped	OK		
	Ignore	No	No			
[Signed Drivers]						
	Device Name	Signed	Device Class			
	Driver Version		Driver Date			
	Manufacturer		INF Name	Driver Name		
	Device ID					
[Environment Variables]						
	Variable	Value	User Name			
	ComSpec	%SystemRoot%\system32\cmd.exe	<SYSTEM>			
	Os2LibPath	%SystemRoot%\system32\os2\dll;				
		<SYSTEM>				
	Path	%SystemRoot%\system32;%SystemRoot%\SystemR				
	oot%\System32\Wbem;C:\Program Files\Microsoft SQL					
	Server\80\Tools\BINN	<SYSTEM>				
	windir	%SystemRoot%	<SYSTEM>			
	OS	Windows_NT	<SYSTEM>			
	PROCESSOR_ARCHITECTURE	x86	<SYSTEM>			
	PROCESSOR_LEVEL	15	<SYSTEM>			

```

PROCESSOR_IDENTIFIER      x86 Family 15 Model 2
Stepping 5, GenuineIntel  <SYSTEM>
PROCESSOR_REVISION 0205  <SYSTEM>
NUMBER_OF_PROCESSORS     2          <SYSTEM>
PATHEXT                   .COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF
                          .WSH
                          <SYSTEM>
TEMP                      %SystemRoot%\TEMP <SYSTEM>
TMP                       %SystemRoot%\TEMP <SYSTEM>
TEMP                      %USERPROFILE%\Local Settings\Temp
                          CL73\Administrator
TMP                       %USERPROFILE%\Local Settings\Temp
                          CL73\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	Hosts	Print Queue	Data	Type Name

[Network Connections]

Local Name	Remote Name	Type
Status	User Name	

[Running Tasks]

Name	Path	Process ID	Priority	Min
Working Set	Max Working Set	Start Time		
	Version	Size	File Date	
system idle process	Not Available	Not Available	0	0
Available	Not Available	Not Available	Not Available	Not Available
Available	Not Available	Not Available	Not Available	Not Available
system	Not Available	8	8	0
	1413120	Not Available	Not Available	Not Available
	Not Available	Not Available	Not Available	Not Available
smss.exe	c:\winnt\system32\smss.exe	184	11	
	204800	1413120	1/31/2005 4:06 PM	
	5.00.2195.2901	44.27 KB (45,328 bytes)		
	12/7/1999 7:00 AM			
csrss.exe	c:\winnt\system32\csrss.exe	212	13	
	204800	1413120	1/31/2005 4:06 PM	
	5.00.2195.2581	5.27 KB (5,392 bytes)		
	9/13/2002 6:09 PM			
winlogon.exe	c:\winnt\system32\winlogon.exe			
	208	13	204800	1413120
	1/31/2005 4:06 PM	5.00.2195.2953		
	173.77 KB (177,936 bytes)		12/7/1999	
7:00 AM				
services.exe	c:\winnt\system32\services.exe			
	264	9	204800	1413120
	1/31/2005 4:06 PM	5.00.2195.2780		
	86.77 KB (88,848 bytes)		12/7/1999	
7:00 AM				
lsass.exe	c:\winnt\system32\lsass.exe	276	9	
	204800	1413120	1/31/2005 4:06 PM	
	5.00.2195.2964	32.77 KB (33,552 bytes)		
	12/7/1999 7:00 AM			

```

termsrv.exe              c:\winnt\system32\termsrv.exe 372
                          10
                          204800 1413120 1/31/2005
4:07 PM 5.00.2195.2342 137.27 KB (140,560
bytes) 9/13/2002 6:09 PM
aclient.exe              c:\program
files\altiris\aclient\aclient.exe 468 8
204800 1413120 1/31/2005 4:07 PM
5.6.124 3.83 MB (4,018,252 bytes)
6/5/2003 1:55 PM
regsvcs.exe             c:\winnt\system32\regsvcs.exe 504
8
204800 1413120 1/31/2005
4:07 PM 5.00.2195.2104 65.27 KB (66,832 bytes)
9/13/2002 6:09 PM
rsys.exe                c:\benchmark\rsys.exe 532 8
204800 1413120 1/31/2005 4:07 PM
Available 32.00 KB (32,768 bytes) 9/13/2002
6:30 PM
svchost.exe             c:\winnt\system32\svchost.exe 544
8
204800 1413120 1/31/2005
4:07 PM 5.00.2134.1 7.77 KB (7,952 bytes)
12/7/1999 7:00 AM
svchost.exe             c:\winnt\system32\svchost.exe 160
8
204800 1413120 1/31/2005
4:07 PM 5.00.2134.1 7.77 KB (7,952 bytes)
12/7/1999 7:00 AM
mstask.exe              c:\winnt\system32\mstask.exe 684
8
204800 1413120 1/31/2005
4:07 PM 4.71.2195.1 115.27 KB (118,032
bytes) 9/13/2002 6:09 PM
winmgmt.exe            c:\winnt\system32\wbem\winmgmt.exe 716
8
204800 1413120 1/31/2005
4:07 PM 1.50.1085.0029 192.08 KB (196,685
bytes) 9/13/2002 6:09 PM
inetinfo.exe           c:\winnt\system32\inetrv\inetinfo.exe 740
8
204800 1413120 1/31/2005
4:07 PM 5.00.0984 14.27 KB (14,608 bytes)
9/13/2002 6:10 PM
dfssvc.exe             c:\winnt\system32\dfssvc.exe 836
8
204800 1413120 1/31/2005
4:07 PM 5.00.2195.2841 88.27 KB (90,384 bytes)
9/13/2002 6:09 PM
svchost.exe            c:\winnt\system32\svchost.exe
1008 8
204800 1413120
1/31/2005 4:07 PM 5.00.2134.1
7.77 KB (7,952 bytes) 12/7/1999
7:00 AM
logon.scr               c:\winnt\system32\logon.scr 700 4
204800 1413120 1/31/2005 4:22 PM
5.00.2195.2104 127.77 KB (130,832
bytes) 9/13/2002 6:09 PM

```

[Loaded Modules]

Name	Version	Size	File Date	Manufacturer
Path				
smss	5.00.2195.2901	44.27 KB (45,328 bytes)		
	12/7/1999 7:00 AM	Microsoft Corporation		
	c:\winnt\system32\smss.exe			
ntdll	5.00.2195.2779	478.77 KB (490,256 bytes)		
	5/4/2001 12:05 PM	Microsoft Corporation		
	c:\winnt\system32\ntdll.dll			

```

sfcfiles 5.00.2195.2967 948.27 KB (971,024
bytes) 9/13/2002 6:09 PM Microsoft Corporation
c:\winnt\system32\sfcfiles.dll
csrss 5.00.2195.2581 5.27 KB (5,392 bytes)
9/13/2002 6:09 PM Microsoft Corporation
c:\winnt\system32\csrss.exe
csrssrv 5.00.2195.2581 33.77 KB (34,576 bytes)
12/7/1999 7:00 AM Microsoft Corporation
c:\winnt\system32\csrssrv.dll
basesrv 5.00.2195.2581 40.77 KB (41,744 bytes)
12/7/1999 7:00 AM Microsoft Corporation
c:\winnt\system32\basesrv.dll
winsrv 5.00.2195.2797 246.27 KB (252,176
bytes) 11/30/1999 5:39 PM Microsoft Corporation
c:\winnt\system32\winsrv.dll
user32 5.00.2195.2821 392.77 KB (402,192
bytes) 12/7/1999 7:00 AM Microsoft Corporation
c:\winnt\system32\user32.dll
kernel32 5.00.2195.2778 714.77 KB (731,920
bytes) 12/7/1999 7:00 AM Microsoft Corporation
c:\winnt\system32\kernel32.dll
gdi32 5.00.2195.2778 228.77 KB (234,256
bytes) 12/7/1999 7:00 AM Microsoft Corporation
c:\winnt\system32\gdi32.dll
winlogon 5.00.2195.2953 173.77 KB (177,936
bytes) 12/7/1999 7:00 AM Microsoft Corporation
c:\winnt\system32\winlogon.exe
msvcrt 6.10.8924.0 284.05 KB (290,869
bytes) 5/4/2001 12:05 PM Microsoft Corporation
c:\winnt\system32\msvcrt.dll
advapi32 5.00.2195.2867 351.77 KB (360,208
bytes) 12/7/1999 7:00 AM Microsoft Corporation
c:\winnt\system32\advapi32.dll
rpcrt4 5.00.2195.2832 437.27 KB (447,760
bytes) 9/13/2002 6:09 PM Microsoft Corporation
c:\winnt\system32\rpcrt4.dll
userenv 5.00.2195.2780 361.77 KB (370,448
bytes) 12/7/1999 7:00 AM Microsoft Corporation
c:\winnt\system32\userenv.dll
nddeapi 5.00.2137.1 15.27 KB (15,632 bytes)
12/7/1999 7:00 AM Microsoft Corporation
c:\winnt\system32\nddeapi.dll
sfc 5.00.2195.2896 92.11 KB (94,320 bytes)
9/13/2002 6:09 PM Microsoft Corporation
c:\winnt\system32\sfc.dll
secur32 5.00.2195.2862 46.77 KB (47,888 bytes)
9/13/2002 6:09 PM Microsoft Corporation
c:\winnt\system32\secur32.dll
profmap 5.00.2181.1 29.27 KB (29,968 bytes)
12/7/1999 7:00 AM Microsoft Corporation
c:\winnt\system32\profmap.dll
netapi32 5.00.2195.2808 303.77 KB (311,056
bytes) 9/13/2002 6:09 PM Microsoft Corporation
c:\winnt\system32\netapi32.dll
netrap 5.00.2134.1 11.27 KB (11,536 bytes)
12/7/1999 7:00 AM Microsoft Corporation
c:\winnt\system32\netrap.dll
samlib 5.00.2195.2780 49.77 KB (50,960 bytes)
12/7/1999 7:00 AM Microsoft Corporation
c:\winnt\system32\samlib.dll
ws2_32 5.00.2195.2780 67.77 KB (69,392 bytes)
9/13/2002 6:09 PM Microsoft Corporation
c:\winnt\system32\ws2_32.dll

```

ws2help	5.00.2134.1	17.77 KB (18,192 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\ws2help.dll	
wldap32	5.00.2195.2797	125.27 KB (128,272 bytes)
	9/13/2002 6:09 PM	Microsoft Corporation
	c:\winnt\system32\wldap32.dll	
dnsapi	5.00.2195.2785	130.77 KB (133,904 bytes)
	9/13/2002 6:09 PM	Microsoft Corporation
	c:\winnt\system32\dnsapi.dll	
wsock32	5.00.2195.2871	21.27 KB (21,776 bytes)
	9/13/2002 6:09 PM	Microsoft Corporation
	c:\winnt\system32\wsock32.dll	
winsta	5.00.2195.2386	36.77 KB (37,648 bytes)
	9/13/2002 6:09 PM	Microsoft Corporation
	c:\winnt\system32\winsta.dll	
winmm	5.00.2161.1	184.77 KB (189,200 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\winmm.dll	
setupapi	5.00.2195.2663	555.77 KB (569,104 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\setupapi.dll	
comctl32	5.81	537.77 KB (550,672 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\comctl32.dll	
msgina	5.00.2195.2779	324.27 KB (332,048 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\msgina.dll	
shell32	5.00.3315.2902	2.25 MB (2,359,056 bytes)
	9/13/2002 6:09 PM	Microsoft Corporation
	c:\winnt\system32\shell32.dll	
shlwapi	5.00.3315.1000	282.77 KB (289,552 bytes)
	9/13/2002 6:09 PM	Microsoft Corporation
	c:\winnt\system32\shlwapi.dll	
wintrust	5.131.2195.2779	162.27 KB (166,160 bytes)
	9/13/2002 6:09 PM	Microsoft Corporation
	c:\winnt\system32\wintrust.dll	
crypt32	5.131.2195.2833	451.27 KB (462,096 bytes)
	9/13/2002 6:09 PM	Microsoft Corporation
	c:\winnt\system32\crypt32.dll	
msasn1	5.00.2134.1	51.27 KB (52,496 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\msasn1.dll	
imagehlp	5.00.2195.2778	125.77 KB (128,784 bytes)
	5/4/2001 12:05 PM	Microsoft Corporation
	c:\winnt\system32\imagehlp.dll	
ole32	5.00.2195.2887	969.77 KB (993,040 bytes)
	9/13/2002 6:09 PM	Microsoft Corporation
	c:\winnt\system32\ole32.dll	
mscat32	5.131.2134.1	7.77 KB (7,952 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\mscat32.dll	
rsaenh	5.00.2195.2228	130.77 KB (133,904 bytes)
	9/13/2002 6:10 PM	Microsoft Corporation
	c:\winnt\system32\rsaenh.dll	
version	5.00.2134.1	15.77 KB (16,144 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\version.dll	
lz32	5.00.2134.1	9.77 KB (10,000 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\lz32.dll	
cscdll	5.00.2195.2401	98.27 KB (100,624 bytes)
	9/13/2002 6:09 PM	Microsoft Corporation
	c:\winnt\system32\cscdll.dll	

wlnotify	5.00.2195.2780	53.77 KB (55,056 bytes)
	9/13/2002 6:09 PM	Microsoft Corporation
	c:\winnt\system32\wlnotify.dll	
winscard	5.00.2134.1	77.27 KB (79,120 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\winscard.dll	
winspool	5.00.2195.2780	109.77 KB (112,400 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\winspool.drv	
msafd	5.00.2195.2779	106.77 KB (109,328 bytes)
	9/13/2002 6:09 PM	Microsoft Corporation
	c:\winnt\system32\msafd.dll	
wshtcpip	5.00.2195.2104	17.27 KB (17,680 bytes)
	9/13/2002 6:09 PM	Microsoft Corporation
	c:\winnt\system32\wshtcpip.dll	
iphlpapi	5.00.2173.2	67.77 KB (69,392 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\iphlpapi.dll	
icmp	5.00.2134.1	7.27 KB (7,440 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\icmp.dll	
mprapi	5.00.2181.1	79.27 KB (81,168 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\mprapi.dll	
oleaut32	2.40.4517.612.27	KB (626,960 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\oleaut32.dll	
activeds	5.00.2195.2778	174.77 KB (178,960 bytes)
	9/13/2002 6:09 PM	Microsoft Corporation
	c:\winnt\system32\activeds.dll	
adslrpc	5.00.2195.2842	127.27 KB (130,320 bytes)
	9/13/2002 6:09 PM	Microsoft Corporation
	c:\winnt\system32\adslrpc.dll	
rtutils	5.00.2168.1	43.77 KB (44,816 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\rtutils.dll	
rasapi32	5.00.2195.2671	189.77 KB (194,320 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\rasapi32.dll	
rasman	5.00.2195.2780	54.77 KB (56,080 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\rasman.dll	
tapi32	5.00.2182.1	123.27 KB (126,224 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\tapi32.dll	
dhcpcsvc	5.00.2195.2778	88.77 KB (90,896 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\dhcpcsvc.dll	
clbcatq	2000.2.3471.1	496.77 KB (508,688 bytes)
	9/13/2002 6:09 PM	Microsoft Corporation
	c:\winnt\system32\clbcatq.dll	
rnr20	5.00.2195.2871	35.77 KB (36,624 bytes)
	9/13/2002 6:09 PM	Microsoft Corporation
	c:\winnt\system32\rnr20.dll	
winrnr	5.00.2160.1	18.77 KB (19,216 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\winrnr.dll	
rasadhlp	5.00.2168.1	7.27 KB (7,440 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\rasadhlp.dll	
ntdsapi	5.00.2195.2661	55.77 KB (57,104 bytes)
	9/13/2002 6:09 PM	Microsoft Corporation
	c:\winnt\system32\ntdsapi.dll	

msvl_0	5.00.2195.2900	111.77 KB (114,448 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\msvl_0.dll	
cryptnet	5.131.2157.1	41.77 KB (42,768 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\cryptnet.dll	
wininet	5.00.3315.1000	456.77 KB (467,728 bytes)
	9/13/2002 6:09 PM	Microsoft Corporation
	c:\winnt\system32\wininet.dll	
services	5.00.2195.2780	86.77 KB (88,848 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\services.exe	
umpnpgmr	5.00.2182.1	86.27 KB (88,336 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\umpnpgmr.dll	
scesrv	5.00.2195.2780	226.27 KB (231,696 bytes)
	9/13/2002 6:09 PM	Microsoft Corporation
	c:\winnt\system32\scesrv.dll	
eventlog	5.00.2178.1	43.77 KB (44,816 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\eventlog.dll	
lmhsvc	5.00.2195.2778	9.77 KB (10,000 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\lmhsvc.dll	
dmserver	2195.2778.297.3	11.77 KB (12,048 bytes)
	9/13/2002 6:09 PM	VERITAS Software Corp.
	c:\winnt\system32\dmserver.dll	
cfgmgr32	5.00.2134.1	16.77 KB (17,168 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\cfgmgr32.dll	
srvsvc	5.00.2195.2904	79.27 KB (81,168 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\srvsvc.dll	
wkssvc	5.00.2195.2780	95.27 KB (97,552 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\wkssvc.dll	
cryptdll	5.00.2135.1	41.27 KB (42,256 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\cryptdll.dll	
seclogon	5.00.2135.1	15.77 KB (16,144 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\seclogon.dll	
cryptsvc	5.00.2181.1	61.77 KB (63,248 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\cryptsvc.dll	
psbase	5.00.2195.2779	111.77 KB (114,448 bytes)
	9/13/2002 6:09 PM	Microsoft Corporation
	c:\winnt\system32\psbase.dll	
trkwks	5.00.2166.1	88.77 KB (90,896 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\trkwks.dll	
browser	5.00.2195.2778	48.27 KB (49,424 bytes)
	9/13/2002 6:09 PM	Microsoft Corporation
	c:\winnt\system32\browser.dll	
wmicore	5.00.2195.2842	72.27 KB (74,000 bytes)
	9/13/2002 6:09 PM	Microsoft Corporation
	c:\winnt\system32\wmicore.dll	
lsass	5.00.2195.2964	32.77 KB (33,552 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\lsass.exe	
lsasrv	5.00.2195.2964	492.77 KB (504,592 bytes)
	12/7/1999 7:00 AM	Microsoft Corporation
	c:\winnt\system32\lsasrv.dll	

samsrv 5.00.2195.2918 369.77 KB (378,640 bytes) 12/7/1999 7:00 AM Microsoft Corporation c:\winnt\system32\samsrv.dll

msprivs 5.00.2154.1 41.50 KB (42,496 bytes) 12/7/1999 7:00 AM Microsoft Corporation c:\winnt\system32\msprivs.dll

kerberos 5.00.2195.2913 198.77 KB (203,536 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\kerberos.dll

netlogon 5.00.2195.2865 357.77 KB (366,352 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\netlogon.dll

schannel 5.00.2195.2922 138.27 KB (141,584 bytes) 5/4/2001 12:05 PM Microsoft Corporation c:\winnt\system32\schannel.dll

rsabase 5.00.2195.2228 128.27 KB (131,344 bytes) 5/4/2001 12:05 PM Microsoft Corporation c:\winnt\system32\rsabase.dll

mpr 5.00.2195.2779 53.27 KB (54,544 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\mpr.dll

rassfm 5.00.2195.2671 21.27 KB (21,776 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\rassfm.dll

sfmapi 5.00.2134.1 38.77 KB (39,696 bytes) 12/7/1999 7:00 AM Microsoft Corporation c:\winnt\system32\sfmapi.dll

kdcsvc 5.00.2195.2878 137.77 KB (141,072 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\kdcsvc.dll

ntdsa 5.00.2195.2899 990.77 KB (1,014,544 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\ntdsa.dll

ntdsatq 5.00.2195.2878 31.27 KB (32,016 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\ntdsatq.dll

mwssock 5.00.2195.2871 62.77 KB (64,272 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\mwssock.dll

esent 6.0.3940.13 1.08 MB (1,135,376 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\esent.dll

certcli 5.00.2195.2778 130.77 KB (133,904 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\certcli.dll

atl 3.00.8449 57.56 KB (58,938 bytes) 12/7/1999 7:00 AM Microsoft Corporation c:\winnt\system32\atl.dll

scecli 5.00.2195.2780 105.27 KB (107,792 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\scecli.dll

polagent 5.00.2183.1 108.27 KB (110,864 bytes) 12/7/1999 7:00 AM Microsoft Corporation c:\winnt\system32\polagent.dll

mfc42u 6.00.8665.0 972.05 KB (995,384 bytes) 12/7/1999 7:00 AM Microsoft Corporation c:\winnt\system32\mfc42u.dll

oakley 5.00.2195.2785 378.77 KB (387,856 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\oakley.dll

dssenh 5.00.2195.2228 142.77 KB (146,192 bytes) 9/13/2002 6:10 PM Microsoft Corporation c:\winnt\system32\dssenh.dll

termsrv 5.00.2195.2342 137.27 KB (140,560 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\termsrv.exe

regapi 5.00.2155.1 35.27 KB (36,112 bytes) 12/7/1999 7:00 AM Microsoft Corporation c:\winnt\system32\regapi.dll

icaapi 5.00.2134.1 118.77 KB (121,616 bytes) 9/13/2002 5:45 PM Microsoft Corporation c:\winnt\system32\icaapi.dll

mstlsapi 5.00.2181.1 24.77 KB (25,360 bytes) 12/7/1999 7:00 AM Microsoft Corporation c:\winnt\system32\mstlsapi.dll

ntlsapi 5.00.2134.1 6.77 KB (6,928 bytes) 12/7/1999 7:00 AM Microsoft Corporation c:\winnt\system32\ntlsapi.dll

rdpwsx 5.00.2180.1 94.40 KB (96,664 bytes) 9/13/2002 5:45 PM Microsoft Corporation c:\winnt\system32\rdpwsx.dll

aclient 5.6.124 3.83 MB (4,018,252 bytes) 6/5/2003 1:55 PM Altiris, Inc. c:\program files\altiris\aclient\aclient.exe

comdlg32 5.00.3103.1000 236.77 KB (242,448 bytes) 12/7/1999 7:00 AM Microsoft Corporation c:\winnt\system32\comdlg32.dll

riched32 5.00.2134.1 3.77 KB (3,856 bytes) 12/7/1999 7:00 AM Microsoft Corporation c:\winnt\system32\riched32.dll

riched20 5.30.23.1205 421.27 KB (431,376 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\riched20.dll

psapi 5.00.2134.1 28.27 KB (28,944 bytes) 12/7/1999 7:00 AM Microsoft Corporation c:\winnt\system32\psapi.dll

ntmarta 5.00.2195.2862 98.77 KB (101,136 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\ntmarta.dll

regsvc 5.00.2195.2104 65.27 KB (66,832 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\regsvc.exe

rsys Not Available 32.00 KB (32,768 bytes) 9/13/2002 6:30 PM Not Available c:\bencher\raft\rsys.exe

svchost 5.00.2134.1 7.77 KB (7,952 bytes) 12/7/1999 7:00 AM Microsoft Corporation c:\winnt\system32\svchost.exe

rpcss 5.00.2195.2815 231.27 KB (236,816 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\rpcss.dll

es 2000.2.3471.1 222.27 KB (227,600 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\es.dll

txfaux 2000.2.3471.1 374.27 KB (383,248 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\txfaux.dll

ntmssvc 5.00.2195.2779 391.27 KB (400,656 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\ntmssvc.dll

sens 5.00.2163.1 36.77 KB (37,648 bytes) 12/7/1999 7:00 AM Microsoft Corporation c:\winnt\system32\sens.dll

rasmans 5.00.2195.2728 147.27 KB (150,800 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\rasmans.dll

netcfgx 5.00.2195.2228 534.77 KB (547,600 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\netcfgx.dll

rasdlg 5.00.2195.2671 514.27 KB (526,608 bytes) 12/7/1999 7:00 AM Microsoft Corporation c:\winnt\system32\rasdlg.dll

ntmsdba 5.00.2195.2779 167.27 KB (171,280 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\ntmsdba.dll

mstask 4.71.2195.1 115.27 KB (118,032 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\mstask.exe

msidle 5.00.2920.0000 6.27 KB (6,416 bytes) 12/7/1999 7:00 AM Microsoft Corporation c:\winnt\system32\msidle.dll

winmgmt 1.50.1085.0029 192.08 KB (196,685 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\wbem\winmgmt.exe

wbemcomn 1.50.1085.0021 692.07 KB (708,675 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\wbem\wbemcomn.dll

wbemcore 1.50.1085.0036 628.07 KB (643,140 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\wbem\wbemcore.dll

fastprox 1.50.1085.0037 144.08 KB (147,536 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\wbem\fastprox.dll

wbemess 1.50.1085.0039 364.07 KB (372,804 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\wbem\wbemess.dll

wbemsvc 1.50.1085.0007 40.07 KB (41,036 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\wbem\wbemsvc.dll

cimwin32 1.50.1085.0038 1.02 MB (1,073,232 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\wbem\cimwin32.dll

framedyn 1.50.1085.0000 164.05 KB (167,992 bytes) 12/7/1999 7:00 AM Microsoft Corporation c:\winnt\system32\wbem\framedyn.dll

perfos 5.00.2155.1 21.27 KB (21,776 bytes) 12/7/1999 7:00 AM Microsoft Corporation c:\winnt\system32\perfos.dll

wmi 5.00.2191.1 6.27 KB (6,416 bytes) 12/7/1999 7:00 AM Microsoft Corporation c:\winnt\system32\wmi.dll

ntevt 1.50.1085.0000 192.06 KB (196,669 bytes) 12/7/1999 7:00 AM Microsoft Corporation c:\winnt\system32\wbem\ntevt.dll

provthrd 1.50.1085.0000 68.07 KB (69,708 bytes) 9/13/2002 5:45 PM Microsoft Corporation c:\winnt\system32\wbem\provthrd.dll

inetinfo 5.00.0984 14.27 KB (14,608 bytes) 9/13/2002 6:10 PM Microsoft Corporation c:\winnt\system32\inetinfo.exe

iisrtl 5.00.0984 119.77 KB (122,640 bytes) 9/13/2002 6:09 PM Microsoft Corporation c:\winnt\system32\iisrtl.dll

rpcref 5.00.0984 4.27 KB (4,368 bytes) 9/13/2002 6:10 PM Microsoft Corporation c:\winnt\system32\inetinfo\rpcref.dll

```

iisadmin 5.00.0984 15.27 KB (15,632 bytes)
9/13/2002 6:10 PM Microsoft Corporation
c:\winnt\system32\inetrv\iisadmin.dll
coadmin 5.00.0984 39.27 KB (40,208 bytes)
9/13/2002 6:10 PM Microsoft Corporation
c:\winnt\system32\inetrv\coadmin.dll
admwprox 5.00.0984 31.77 KB (32,528 bytes)
9/13/2002 5:45 PM Microsoft Corporation
c:\winnt\system32\admwprox.dll
nsepm 5.00.0984 43.27 KB (44,304 bytes)
9/13/2002 6:10 PM Microsoft Corporation
c:\winnt\system32\inetrv\nsepm.dll
iismap 5.00.0984 55.77 KB (57,104 bytes)
9/13/2002 6:09 PM Microsoft Corporation
c:\winnt\system32\iismap.dll
metadata 5.00.0984 68.77 KB (70,416 bytes)
9/13/2002 6:10 PM Microsoft Corporation
c:\winnt\system32\inetrv\metadata.dll
wamreg 5.00.0984 45.77 KB (46,864 bytes)
9/13/2002 6:10 PM Microsoft Corporation
c:\winnt\system32\inetrv\wamreg.dll
admexs 5.00.0984 27.77 KB (28,432 bytes)
9/13/2002 6:10 PM Microsoft Corporation
c:\winnt\system32\inetrv\admexs.dll
svcext 5.00.0984 39.77 KB (40,720 bytes)
9/13/2002 6:10 PM Microsoft Corporation
c:\winnt\system32\inetrv\svcext.dll
security 5.00.2154.1 5.77 KB (5,904 bytes)
12/7/1999 7:00 AM Microsoft Corporation
c:\winnt\system32\security.dll
w3svc 5.00.0984 343.27 KB (351,504 bytes)
9/13/2002 6:10 PM Microsoft Corporation
c:\winnt\system32\inetrv\w3svc.dll
infocomm 5.00.0984 238.27 KB (243,984 bytes)
9/13/2002 6:10 PM Microsoft Corporation
c:\winnt\system32\inetrv\infocomm.dll
isatq 5.00.0984 60.27 KB (61,712 bytes)
9/13/2002 6:10 PM Microsoft Corporation
c:\winnt\system32\inetrv\isatq.dll
iisfecnv 5.00.0984 7.27 KB (7,440 bytes)
9/13/2002 5:45 PM Microsoft Corporation
c:\winnt\system32\inetrv\iisfecnv.dll
inetsloc 5.00.0984 20.27 KB (20,752 bytes)
9/13/2002 6:09 PM Microsoft Corporation
c:\winnt\system32\inetsloc.dll
lonsint 5.00.0984 11.77 KB (12,048 bytes)
9/13/2002 6:10 PM Microsoft Corporation
c:\winnt\system32\inetrv\lonsint.dll
iscomlog 5.00.0984 24.77 KB (25,360 bytes)
9/13/2002 6:10 PM Microsoft Corporation
c:\winnt\system32\inetrv\iscomlog.dll
sspifilt 5.00.0984 43.27 KB (44,304 bytes)
9/13/2002 6:10 PM Microsoft Corporation
c:\winnt\system32\inetrv\sspifilt.dll
compfilt 5.00.0984 22.77 KB (23,312 bytes)
9/13/2002 6:10 PM Microsoft Corporation
c:\winnt\system32\inetrv\compfilt.dll
gzip 5.00.0984 30.27 KB (30,992 bytes)
9/13/2002 6:10 PM Microsoft Corporation
c:\winnt\system32\inetrv\gzip.dll
md5filt 5.00.0984 32.77 KB (33,552 bytes)
9/13/2002 6:10 PM Microsoft Corporation
c:\winnt\system32\inetrv\md5filt.dll

```

```

fpexedll 4.0.2.4324 20.06 KB (20,541 bytes)
9/13/2002 6:10 PM Microsoft Corporation
c:\program files\common files\microsoft
shared\web server extensions\40\bin\fpexedll.dll
httpext 0.9.3940.21 435.27 KB (445,712
bytes)
9/13/2002 6:10 PM Microsoft Corporation
c:\winnt\system32\inetrv\httpext.dll
wshnetbs 5.00.2134.1 7.77 KB (7,952 bytes)
12/7/1999 7:00 AM Microsoft Corporation
c:\winnt\system32\wshnetbs.dll
iislog 5.00.0984 75.27 KB (77,072 bytes)
9/13/2002 6:10 PM Microsoft Corporation
c:\winnt\system32\inetrv\iislog.dll
dfssvc 5.00.2195.2841 88.27 KB (90,384 bytes)
9/13/2002 6:09 PM Microsoft Corporation
c:\winnt\system32\dfssvc.exe
clusapi 5.00.2195.2104 54.27 KB (55,568 bytes)
9/13/2002 6:09 PM Microsoft Corporation
c:\winnt\system32\clusapi.dll
resutils 5.00.2195.2787 39.77 KB (40,720 bytes)
9/13/2002 6:09 PM Microsoft Corporation
c:\winnt\system32\resutils.dll
tapisrv 5.00.2195.2955 169.27 KB (173,328
bytes)
9/13/2002 6:09 PM Microsoft Corporation
c:\winnt\system32\tapisrv.dll
logon 5.00.2195.2104 127.77 KB (130,832
bytes)
9/13/2002 6:09 PM Microsoft Corporation
c:\winnt\system32\logon.scr

```

[Services]

Display Name	Name	State	Start Mode
Service Type	Path	Error Control	
Start Name	Tag ID		
Altiris Client Service	Altient	Running	
Auto	Own Process	c:\program	
files\altiris\aclient\aclient.exe -service		0	
Normal	LocalSystem		
Alerter	Alerter	Stopped	Manual
Normal	LocalSystem	0	Share Process
c:\winnt\system32\services.exe			
Application Management	AppMgmt	Stopped	
Manual	Share Process		
c:\winnt\system32\services.exe		0	
Normal	LocalSystem		
Computer Browser	Browser	Running	Auto
Share Process			
c:\winnt\system32\services.exe		0	
Normal	LocalSystem		
Indexing Service	cisvc	Stopped	Manual
Share Process			
c:\winnt\system32\cisvc.exe		Normal	
LocalSystem		0	
ClipBook	ClipSrv	Stopped	Manual
Own Process			
c:\winnt\system32\clipsrv.exe		Normal	
LocalSystem		0	
Distributed File System	Dfs	Running	
Auto	Own Process		
c:\winnt\system32\dfssvc.exe		Normal	
LocalSystem		0	
DHCP Client	Dhcp	Running	Auto
Share Process			

```

c:\winnt\system32\services.exe
Normal LocalSystem 0
Logical Disk Manager Administrative Service
dmadmin Stopped Manual Share Process
c:\winnt\system32\dmadmin.exe /com
Normal LocalSystem 0
Logical Disk Manager dmserver Running
Auto Share Process
c:\winnt\system32\services.exe
Normal LocalSystem 0
DNS Client Dnscache Stopped Manual
Share Process
c:\winnt\system32\services.exe
Normal LocalSystem 0
Event Log Eventlog Running Auto Share Process
c:\winnt\system32\services.exe
Normal LocalSystem 0
COM+ Event System EventSystem Running
Manual Share Process
c:\winnt\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
Fax Service Fax Stopped Manual Own
Process c:\winnt\system32\faxsvc.exe Normal
LocalSystem 0
IIS Admin Service IISADMIN Running Auto
Share Process
c:\winnt\system32\inetrv\inetinfo.exe
Normal LocalSystem 0
Intersite Messaging IsmServ Stopped Disabled Own
Process c:\winnt\system32\ismserv.exe Normal
LocalSystem 0
Kerberos Key Distribution Center kdc
Stopped Disabled Share Process
c:\winnt\system32\lsass.exe Normal
LocalSystem 0
Server lanmanserver Running Auto
Share Process
c:\winnt\system32\services.exe
Normal LocalSystem 0
Workstation lanmanworkstation Running
Auto Share Process
c:\winnt\system32\services.exe
Normal LocalSystem 0
License Logging Service LicenseService
Stopped Manual Own Process
c:\winnt\system32\llssrv.exe Normal
LocalSystem 0
TCP/IP NetBIOS Helper Service LmHosts Running
Auto Share Process
c:\winnt\system32\services.exe
Normal LocalSystem 0
Messenger Messenger Stopped Manual Share Process
c:\winnt\system32\services.exe
Normal LocalSystem 0
NetMeeting Remote Desktop Sharing mnmsrv
Stopped Manual Own Process
c:\winnt\system32\mnmsrv.exe Normal
LocalSystem 0
Distributed Transaction Coordinator MSDTC
Stopped Manual Own Process
c:\winnt\system32\msdctc.exe Normal
LocalSystem 0

```

```

Windows Installer MSI Server Stopped Manual
Share Process
c:\winnt\system32\msiexec.exe /v
Normal LocalSystem 0
Network DDE NetDDE Stopped Manual
Share Process
c:\winnt\system32\netdde.exe Normal
LocalSystem 0
Network DDE DSDM NetDDEdsdm Stopped
Manual Share Process
c:\winnt\system32\netdde.exe Normal
LocalSystem 0
Net Logon Netlogon Stopped Manual Share Process
c:\winnt\system32\lsass.exe Normal
LocalSystem 0
Network Connections Netman Stopped Manual
Share Process
c:\winnt\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
File Replication NtFrs Stopped Manual Own
Process c:\winnt\system32\ntfrs.exe Ignore
LocalSystem 0
NT LM Security Support Provider NtLmSsp
Stopped Manual Share Process
c:\winnt\system32\lsass.exe Normal
LocalSystem 0
Removable Storage NtmsSvc Running Auto
Share Process
c:\winnt\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
Plug and Play PlugPlay Running Auto
Share Process
c:\winnt\system32\services.exe
Normal LocalSystem 0
IPSEC Policy Agent PolicyAgent Running
Auto Share Process
c:\winnt\system32\lsass.exe Normal
LocalSystem 0
Protected Storage ProtectedStorage Running
Auto Share Process
c:\winnt\system32\services.exe
Normal LocalSystem 0
Remote Access Auto Connection Manager RasAuto
Stopped Manual Share Process
c:\winnt\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
Remote Access Connection Manager RasMan
Stopped Manual Share Process
c:\winnt\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
Routing and Remote Access RemoteAccess
Stopped Disabled Share Process
c:\winnt\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
Remote Registry Service RemoteRegistry
Running Auto Own Process
c:\winnt\system32\regsvcs.exe Normal
LocalSystem 0
Remote Command Service RMSYS Running
Auto Own Process
c:\benchcraft\rsys.exe Normal
LocalSystem 0

```

```

Remote Procedure Call (RPC) Locator RpcLocator
Stopped Manual Own Process
c:\winnt\system32\locator.exe Normal
LocalSystem 0
Remote Procedure Call (RPC) RpcSs Running
Auto Share Process
c:\winnt\system32\svchost -k rpcss
Normal LocalSystem 0
QoS RSVP RSVP Stopped Manual Own Process
c:\winnt\system32\rsvp.exe -s Normal
LocalSystem 0
Security Accounts Manager SamSs Running
Auto Share Process
c:\winnt\system32\lsass.exe Normal
LocalSystem 0
Smart Card Helper SCardDrv Stopped Manual
Share Process
c:\winnt\system32\scardsvr.exe
Ignore LocalSystem 0
Smart Card SCardSvr Stopped Manual
Share Process
c:\winnt\system32\scardsvr.exe
Ignore LocalSystem 0
Task Scheduler Schedule Running Auto
Share Process
c:\winnt\system32\mstask.exe Normal
LocalSystem 0
RunAs Service seclogon Running Auto
Share Process
c:\winnt\system32\services.exe
Ignore LocalSystem 0
System Event Notification SENS Running
Auto Share Process
c:\winnt\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
Internet Connection Sharing SharedAccess
Stopped Manual Share Process
c:\winnt\system32\svchost.exe -k netsvcs
Normal LocalSystem 0
Print Spooler Spooler Stopped Manual Own
Process c:\winnt\system32\spoolsv.exe Normal
LocalSystem 0
Performance Logs and Alerts SysmonLog Stopped
Manual Own Process
c:\winnt\system32\smlogsvc.exe
Normal LocalSystem 0
Telephony Tapisrv Running Manual Share Process
c:\winnt\system32\svchost.exe -k tapisrv
Normal LocalSystem 0
Terminal Services TermService Running
Auto Own Process
c:\winnt\system32\termsrv.exe Normal
LocalSystem 0
Telnet TlntSvr Stopped Manual Own Process
c:\winnt\system32\tlntsvr.exe Normal
LocalSystem 0
Distributed Link Tracking Server TrkSvr
Stopped Manual Share Process
c:\winnt\system32\services.exe
Normal LocalSystem 0
Distributed Link Tracking Client TrkWks
Running Auto Share Process

```

```

c:\winnt\system32\services.exe
Normal LocalSystem 0
Uninterruptible Power Supply UPS Stopped
Manual Own Process
c:\winnt\system32\ups.exe Normal
LocalSystem 0
Utility Manager UtilMan Stopped Manual Own
Process c:\winnt\system32\utilman.exe Normal
LocalSystem 0
Windows Time W32Time Stopped Manual
Share Process
c:\winnt\system32\services.exe
Normal LocalSystem 0
World Wide Web Publishing Service W3SVC
Running Auto Share Process
c:\winnt\system32\inetsrv\inetinfo.exe
Normal LocalSystem 0
Windows Management Instrumentation WinMgmt
Running Auto Own Process
c:\winnt\system32\wbem\winmgmt.exe
Ignore LocalSystem 0
Windows Management Instrumentation Driver Extensions
Wmi Running Manual Share Process
c:\winnt\system32\services.exe
Normal LocalSystem 0

[Program Groups]

Group Name Name User Name
Accessories Default User:Accessories
Default User
Accessories\Accessibility Default
User:Accessories\Accessibility Default User
Accessories\Entertainment Default
User:Accessories\Entertainment Default User
Accessories\System Tools Default
User:Accessories\System Tools Default User
Startup Default User:Startup Default User
Accessories All Users:Accessories All
Users
Accessories\Communications All
Users:Accessories\Communications All Users
Accessories\Entertainment All
Users:Accessories\Entertainment All Users
Accessories\Microsoft Script Debugger All
Users:Accessories\Microsoft Script Debugger All
Users
Accessories\System Tools All
Users:Accessories\System Tools All Users
Administrative Tools All
Users:Administrative Tools All Users
Microsoft SQL Server All Users:Microsoft SQL
Server All Users
Startup All Users:Startup All Users
Tardis All Users:Tardis All Users
Accessories CL73\Administrator:Accessories
CL73\Administrator
Accessories\Accessibility
CL73\Administrator:Accessories\Accessibilit
y CL73\Administrator

```

```

Accessories\Entertainment
  CL73\Administrator\Accessories\Entertainmen
  t
  CL73\Administrator
Accessories\System Tools
  CL73\Administrator\Accessories\System Tools
  CL73\Administrator
Administrative Tools
  CL73\Administrator\Administrative Tools
  CL73\Administrator
Startup
  CL73\Administrator\Startup
  CL73\Administrator

```

[Startup Programs]

Program	Command	User Name	Location
Tardis 2000	c:\progra~1\tardis~1.4\tardis.exe	All Users	Common Startup
ACLntUsr	c:\program files\altiris\aclient\aclntusr.exe	All Users	
ion\Run	HKLM\SOFTWARE\Microsoft\Windows\CurrentVers		

[OLE Registration]

Object	Local Server
Sound (OLE2)	sndrec32.exe
Media Clip	mplay32.exe
Video Clip	mplay32.exe /avi
MIDI Sequence	mplay32.exe /mid
Sound	Not Available
Media Clip	Not Available
Image Document	"c:\program files\windows nt\accessories\imagevew\kodakimg.exe"
WordPad Document	"%programfiles%\windows nt\accessories\wordpad.exe"
Windows Media Services DRM Storage object	Not Available
Bitmap Image	mspaint.exe

[Windows Error Reporting]

Time	Type	Details

[Internet Settings]

[Internet Explorer]

[Following are sub-categories of this main category]

[Summary]

Item	Value
No summary information available	

[File Versions]

File	Version	Size	Date	Path
advapi32.dll	5.0.2195.2867	352 KB	5/4/2001 11:05:02 AM	

File	Version	Size	Date	Path
advpack.dll	5.0.3103.1000	87 KB	5/4/2001 11:05:02 AM	C:\WINNT\system32 Microsoft Corporation
browsecl.dll	5.0.3315.2846	35 KB	5/4/2001 11:05:02 AM	C:\WINNT\system32 Microsoft Corporation
browseui.dll	5.0.3315.2846	789 KB	5/4/2001 11:05:02 AM	C:\WINNT\system32 Microsoft Corporation
ckcnv.exe	5.0.2189.1	9 KB	12/7/1999 7:00:00 AM	C:\WINNT\system32 Microsoft Corporation
comctl32.dll	5.81.3103.1000	538 KB	5/4/2001 11:05:02 AM	C:\WINNT\system32 Microsoft Corporation
crypt32.dll	5.131.2195.2833	451 KB	5/4/2001 11:05:02 AM	C:\WINNT\system32 Microsoft Corporation
ehnsig.dll	<File Missing>	Not Available	Not Available	Not Available
iemigrat.dll	<File Missing>	Not Available	Not Available	Not Available
iesetup.dll	5.0.3103.1000	57 KB	5/4/2001 11:05:02 AM	C:\WINNT\system32 Microsoft Corporation
ieexplore.exe	5.0.2920.0	59 KB	12/7/1999 7:00:00 AM	C:\Program Files\Internet Explorer Microsoft Corporation
imagehlp.dll	5.0.2195.2778	126 KB	5/4/2001 11:05:02 AM	C:\WINNT\system32 Microsoft Corporation
imghelp.dll	<File Missing>	Not Available	Not Available	Not Available
inseng.dll	5.0.3103.1000	72 KB	5/4/2001 11:05:02 AM	C:\WINNT\system32 Microsoft Corporation
jobexec.dll	5.0.0.1	47 KB	12/7/1999 7:00:00 AM	C:\WINNT\system32 Microsoft Corporation
jscript.dll	5.1.0.5907	476 KB	5/4/2001 11:05:02 AM	C:\WINNT\system32 Microsoft Corporation
jsproxy.dll	5.0.2920.0	13 KB	12/7/1999 7:00:00 AM	C:\WINNT\system32 Microsoft Corporation

File	Version	Size	Date	Path
msahtml.dll	<File Missing>	Not Available	Not Available	Not Available
mshtml.dll	5.0.3315.2870	2,290 KB	5/4/2001 11:05:02 AM	C:\WINNT\system32 Microsoft Corporation
msjava.dll	5.0.3802.0	923 KB	5/4/2001 11:05:02 AM	C:\WINNT\system32 Microsoft Corporation
msoss.dll	<File Missing>	Not Available	Not Available	Not Available
msxml.dll	8.0.5718.1	493 KB	5/4/2001 11:05:02 AM	C:\WINNT\system32 Microsoft Corporation
occache.dll	5.0.3103.1000	86 KB	5/4/2001 11:05:02 AM	C:\WINNT\system32 Microsoft Corporation
ole32.dll	5.0.2195.2887	970 KB	5/4/2001 11:05:02 AM	C:\WINNT\system32 Microsoft Corporation
oleaut32.dll	2.40.4517.0	612 KB	5/4/2001 11:05:02 AM	C:\WINNT\system32 Microsoft Corporation
olepro32.dll	5.0.4517.0	160 KB	5/4/2001 11:05:02 AM	C:\WINNT\system32 Microsoft Corporation
rsabase.dll	5.0.2195.2228	128 KB	5/4/2001 11:05:02 AM	C:\WINNT\system32 Microsoft Corporation
rsaenh.dll	5.0.2195.2228	131 KB	5/4/2001 11:05:02 AM	C:\WINNT\system32 Microsoft Corporation
rsapi32.dll	<File Missing>	Not Available	Not Available	Not Available
rsasig.dll	<File Missing>	Not Available	Not Available	Not Available
schannel.dll	5.1.2195.0	138 KB	5/4/2001 11:05:02 AM	C:\WINNT\system32 Microsoft Corporation
shdoc401.dll	<File Missing>	Not Available	Not Available	Not Available
shdocvw.dll	5.0.3315.2879	1,078 KB	5/4/2001 11:05:02 AM	C:\WINNT\system32 Microsoft Corporation
shell32.dll	5.0.3315.2902	2,304 KB	5/4/2001 11:05:02 AM	C:\WINNT\system32 Microsoft Corporation
shlwapi.dll	5.0.3315.1000	283 KB	5/4/2001 11:05:02 AM	

```

C:\WINNT\system32 Microsoft Corporation
url.dll 5.0.2920.0 82 KB 12/7/1999
7:00:00 AM C:\WINNT\system32 Microsoft
Corporation
urlmon.dll 5.0.3315.1000 441 KB
5/4/2001 11:05:02 AM
C:\WINNT\system32 Microsoft Corporation
vbscript.dll 5.1.0.5907 428 KB
5/4/2001 11:05:02 AM
C:\WINNT\system32 Microsoft Corporation
webcheck.dll 5.0.3315.1000 252 KB
5/4/2001 11:05:02 AM
C:\WINNT\system32 Microsoft Corporation
win.com 5.0.2134.1 24 KB 12/7/1999
7:00:00 AM C:\WINNT\system32 Microsoft
Corporation
wininet.dll 5.0.3315.1000 457 KB
5/4/2001 11:05:02 AM
C:\WINNT\system32 Microsoft Corporation
winsock.dll 3.10.0.103 3 KB
12/7/1999 7:00:00 AM
C:\WINNT\system32 Microsoft Corporation
wintrust.dll 5.131.2195.2779 162 KB
5/4/2001 11:05:02 AM
C:\WINNT\system32 Microsoft Corporation
wsock.vxd <File Missing> Not Available Not
Available Not Available Not Available Not
wsock32.dll 5.0.2195.2871 21 KB
5/4/2001 11:05:02 AM
C:\WINNT\system32 Microsoft Corporation
wsock32n.dll <File Missing> Not Available
Not Available Not Available Not
Available
[Connectivity]
Item Value
Connection Preference Never dial
LAN Settings
AutoConfigProxy Not Available
AutoProxyDetectMode Enabled
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\Default User\Local Settings\Temporary
Internet Files
Total Disk Space Not Available
Available Disk Space Not Available
Maximum Cache Size Not Available
Available Cache Size Not Available

```

[List of Objects]

```

Program File Status CodeBase
No cached object information available

```

[Content]

[Following are sub-categories of this main category]

[Summary]

```

Item Value
Content Advisor Disabled

```

[Personal Certificates]

```

Issued To Issued By Validity Signature Algorithm
No personal certificate information available

```

[Other People Certificates]

```

Issued To Issued By Validity Signature Algorithm
No other people certificate information available

```

[Publishers]

```

Name
No publisher information available

```

[Security]

```

Zone Security Level

```

Microsoft SQL Server 2000 Installation Procedures

Microsoft SQL Server 2000 Installation Procedures
Type of installation: custom
During the custom installation, use the default settings for all except the following two areas:
Services accounts:
SQL Server - local system account
SQL Server Agent - local system account
Set the sort order/collation as Latin1_General_Bin

Microsoft COM Component Configuration Parameters

The component services tool in Windows 2000 was used to change the queue settings for the TPCC COM+ single queue component. The single queue component was set to enable object pooling, object construction, just in time activation, and component supports events and statistics. The min and max pool size for the single queue component on the client was 80. Delivery threads were set under the TPCC key in the registry. The construction string was Dummy String

Appendix D: 60-Day Space

tpmC	74,296.00									
	Data Before KB	Index Before KB	Data After KB	Index After KB	Data Grow KB	Index Grow KB	Total Grow KB	KB/New-Order	8-Hr Growth KB	8-Hr Growth MB
History	9,883,344	24	10,884,632	104	1,001,288	80	1,001,368	0.0561	2,001,387.64	1,954.48
Order	5,452,880	3,011,656	6,871,856	6,034,896	1,418,976	3,023,240	4,442,216	0.2490	8,878,450.47	8,670.36
Order-Line	111,187,256	276,840	123,163,752	554,160	11,976,496	277,320	12,253,816	0.6868	24,491,132.01	23,917.12
	sum(*) Before		sum(*) After		Num New-					
d_next_o_id	177,959,300		195,802,353		17,843,053					
	Before MB		After MB		Grow MB				8-Hr Growth MB	8-Hr Growth GB
Log	2295.76		85579.88		83284.12			4.7796	166,456.10	162.55
185950	1.2346113		46.02306					4,894.3266	bytes	
Database tpcc log used (%)										

Appendix E:

Third Party Letters

Microsoft Corporation
One Microsoft Way
Redmond, WA 98052-6399

Tel 425 882 8080
Fax 425 936 7329
<http://www.microsoft.com/>

Microsoft

January 26, 2005

Hewlett-Packard Company
John Ellyson
20555 SH 249
Mailstop 150402
Houston, TX 77070

Mr. Ellyson:

Here is the information you requested regarding pricing for several Microsoft products to be used in conjunction with your TPC-C benchmark testing.

All pricing shown is in US Dollars (\$).

Part Number	Description	Unit Price	Quantity	Price
810-00845	SQL Server 2000 Enterprise Edition <i>Per Processor Licensing Discount Schedule: Open Program - Level B Unit Price reflects a 14% discount from the retail unit price of \$19,999.</i>	\$17,279	2	\$34,558
C11-00821	Windows 2000 Server <i>Server License Only - No CALs Discount Schedule: No Level Unit Price reflects a 8% discount from the retail unit price of \$799.</i>	\$738	4	\$2,952
P72-00264	Windows Server 2003, Enterprise Edition <i>Server License Only - No CALs Discount Schedule: No Level Unit Price reflects a 40% discount from the retail unit price of \$3,999.</i>	\$2,399	1	\$2,399
254-00170	Visual C++ Standard Edition <i>Discount Schedule: No Discounts Applied</i>	\$109	1	\$109
	Microsoft Problem Resolution Services <i>Professional Support (1 incident)</i>	\$245	1	\$245

All products are currently orderable through Microsoft's normal distribution channels.

This quote is valid for the next 90 days.

If we can be of any further assistance, please contact Jamie Reding at (425) 703-0510 or jamiere@microsoft.com.

Reference ID: PCjoel0526013249.

Please include this Reference ID in any correspondence regarding this price quote.



Home My Products Account Help

New Search



NETGEAR GS516T - Switch - 16 ports - EN, Fast EN, Gigabit EN - 10Base-T, 100Base by Netgear

Shopping Aids

- HP Supplies Guide **NEW!**
- Cable Finder **NEW!**
- Kingston Memory **NEW!**
- SimpleTech Memory
- Corporate Accounts

NEED SOFTWARE?
Over 20,000 software titles available for immediate download!!!



[Email a friend](#)

[Add item to your list](#)

Our Price : \$361.34

List Price : ~~\$400.00~~

You save : \$128.66 a **26% savings!**



Earn **361 TechDollars™** with purchase. What are TechDollars™?

FREE SHIPPING

Quantity:

Availability: 145
(As of 2/2/2005 3:54:04 AM)

Make sure it's in stock?
[Check Real Time Availability](#)

Product Categories

- Do It Yourself
- Gaming
- Rebate Center
- Systems
- Memory
- Storage Devices
- Input Devices
- Output Devices
- NetWorking
- Software
- Downloadable Software
- Learning Resources
- Video
- Audio
- Cameras and Optical Systems
- CE Options
- Office Machines
- Communication System Guard

Protect Your Investment [3 Year D.O.P Warranty Repair/Carry-In/Depot](#) only: \$99.99 [Add](#)

Protect Your Investment [5 Year D.O.P Warranty Repair/Carry-in/Depot](#) only: \$109.95 [Add](#)

Mail-In Offers

- FREE Palm 125 Handheld by mail! Offer Expires 3/31/2005 [Click here for Details.](#)
- FREE Palm 125 Handheld by mail! Offer Expires 3/31/2005 [Click here for Details.](#)

PCU Part # : S0892262 Mfg. Part #: GS516TNA

Product Overview

NETGEAR GS516T - Switch - 16 ports - EN, Fast EN, Gigabit EN - 10Base-T, 100Base-1000Base-T - 1 U

Your office network gets gigabit speed to burn with NETGEAR's GS516T Gigabit Switch! Its port send data at scorching speeds - up to 2000 Mbps per port in full-duplex mode, and every port features full/half-duplex sensing plus Auto Uplink, making this unmanaged, rack-mountable switch ideal for combining 10, 100, and 1000 Mbps devices. Users can take advantage of the GS516T's ability to deliver large amounts of multimedia, image, and video information in no time at all. Invaluable as a robust and reliable network backbone for your 50- to 250-employee company.

Technical Specifications

[Click Here for Extended Specification](#)

Communication Mode	Half-duplex, full-duplex
Compliant Standards	IEEE 802.3U, IEEE 802.3i, IEEE 802.3ab, IEEE 802.3x
Data Link Protocol	Ethernet, Fast Ethernet, Gigabit Ethernet
Data Transfer Rate	1 Gbps
Device Type	Switch
Dimensions (WxDxH)	13 in x 8.1 in x 1.7 in
Features	Flow control, full duplex capability, auto-sensing per device, auto negotiation, store and forward
Form Factor	External - 1 U
Localization	North America
Manufacturer Warranty	5 years warranty

http://www.pcuniverse.com/product.asp?pid=45920&m_id=8

2/2/2005

Ports Qty	16 x Ethernet 10Base-T, Ethernet 100Base-TX, Ethernet 1000E
Power	AC 110/230 V (50/60 Hz)
Product Description	NETGEAR GS516T - switch - 16 ports
Weight	5.3 lbs

[Contact Us](#) | [Policies](#) | [Order Tracking](#) | [Terms of Use](#) | [Privacy and Security](#)



Copyright © 2005 PC Universe, Inc. All rights reserved. Other product and company names mentioned here in may be the trademarks of their respective site is best experienced at 1024 x 768 with Internet Explorer 4.0+. Interested in PCU Employment Opportunities? [Send](#) us an email requesting more inf

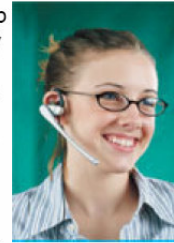


Protect Your New Equipment Beyond the Manufacturer's Base Coverage with PCU's Protection Plan!



PC Universe knows that even the most reputable computer equipment is susceptible to failure or less than perfect performance due to normal wear and tear. PC Universe features over 100,000 products from 200 of the top brands on today's market - most are backed by a manufacturer warranty. But, we want to offer you more!

The PCU Protection Plan will pick up where the manufacturer's warranty falls short; ensuring that you are covered for 100% of parts and labor for product repair throughout the duration of the plan you choose. We also provide you with a 24 hour Toll Free Technical Support phone number where a representative will be ready to confirm coverage, troubleshoot, and/or refer for service. And don't worry about hidden costs! With an extensive network of over 50,000 service centers, chances are we're right around the corner.



It pays to purchase the PCU Protection Plan. One out of warranty repair is likely to cost more than the plan itself! With the PCU Protection Plan, our only concern is to ensure you are handled with prompt and courteous customer care.

Features & Benefits of PC Universe SystemGuard Product Protection Plans

- ✔ **NATIONAL** - PC Universe Service plans are available in all 50 states, Canada, and Puerto Rico for the convenience of consumers everywhere. Consumers also benefit from PC Universe's vast network of more than 50,000 authorized service centers.
- ✔ **UNDERWRITTEN** - PC Universe Service is fully insured, protecting the consumer from any financial loss on service plans.
- ✔ **NON-CANCELLABLE** - PC Universe cannot cancel a service agreement or plan at any time, protecting consumers who purchase plans in good faith for the specified term of coverage.
- ✔ **GUARANTEED RENEWABLE** - Consumers are guaranteed the right to re-new their service plans for 12-month coverage periods for as long as they wish to re-new them, allowing the customer to decide when they wish to stop covering a product and perhaps purchase a new one.
- ✔ **TRANSFERABLE** - Consumers can transfer ownership of their product and service plan for that product at any time during the period of coverage, thus adding re-sale value to their product purchase.
- ✔ **COVERS ALL MAKES, ALL MODELS** - Once PC Universe covers a product category we cover all makes and models offered by a brand. Consumers can choose the exact product they want, knowing a service plan covering that product will always be available.
- ✔ **NO EXCLUSIONS** - There are no exceptions or exclusions when it comes to parts. All parts are covered, making a PC Universe plan better than the manufacturer's warranty. Your service plan even pays for "nuisance" calls. Customers save money while obtaining more comprehensive coverage.
- ✔ **NO DEDUCTIBLES** - Your PC Universe plan covers the full cost of repairing your covered product-100% parts and labor coverage, giving consumers the peace of mind and comfort of knowing that should their product require repair there is no cost to them at all, ever, for as long as coverage exists.

- ✔ **NO CEILING** - There is no ceiling on trip charges for in-home service, again saving customers money if they happen to live a longer-than-usual distance from a repair center.
- ✔ **NO HIDDEN FEES** - PC Universe service plans ensure that you will not incur out of pocket expenses to have a covered item repaired or replaced.
- ✔ **ON-SITE COVERAGE** - PC Universe On-Site service plans add the convenience of in home repair or replacement. While most products can be repaired on-site some products require the the controlled environment of a factory authorized service center, therefore on-site may not be possible. If this is the case, this contract will provide you with overnight pickup/delivery service of the product to the service center.
- ✔ **GRACE PERIOD** - Consumers who neglect to purchase a service plan when they purchase their products, can do so as long as 30 days remain of the original manufacturer's warranty. This provides customers with the convenience of being able to respond to a dealer's calls after the sale and even protects products sold by another dealer if that is convenient for the customer.

For a complete copy of the PC Universe SystemGuard Contract, feel free to email us at customerservice@pcuniverse.com